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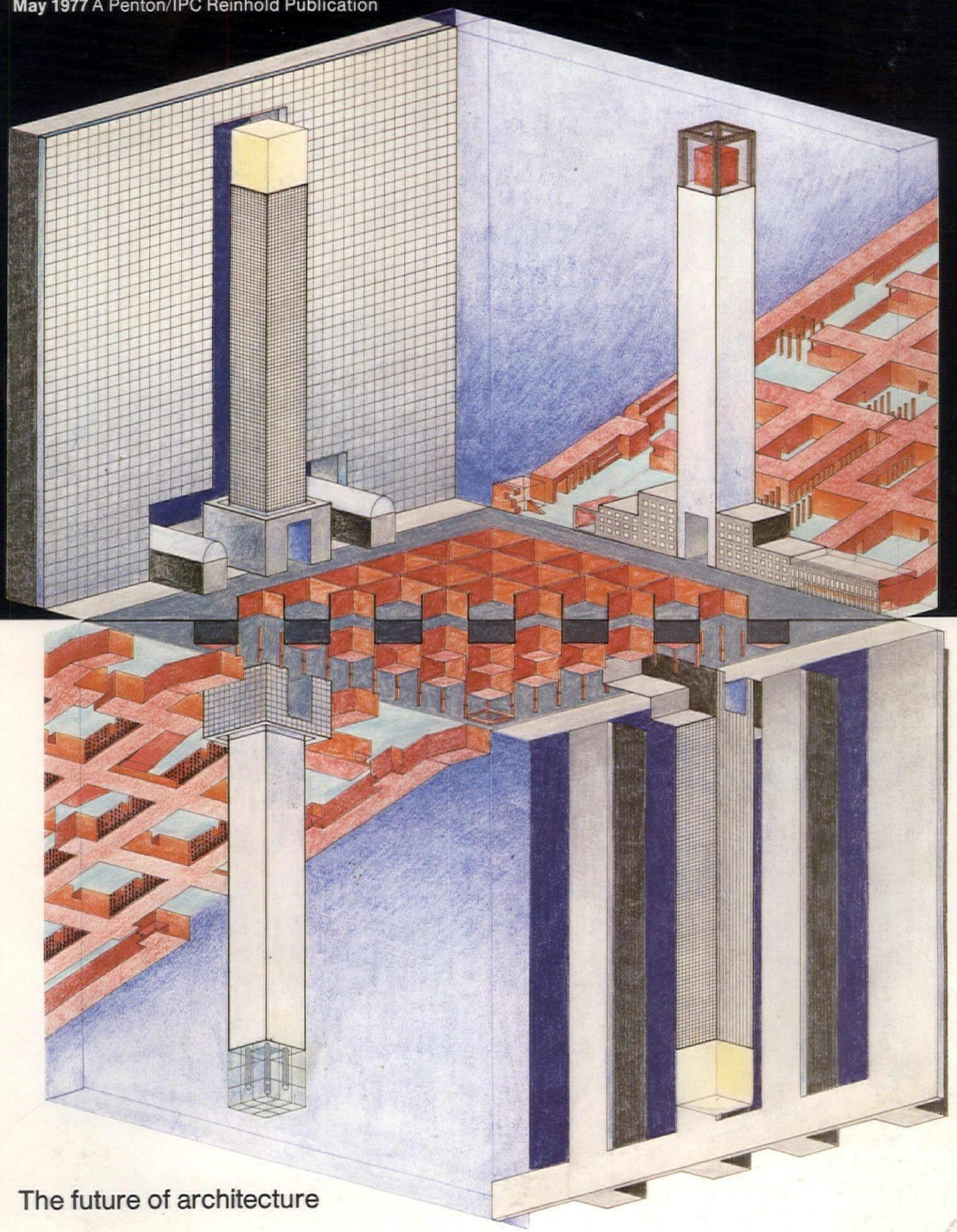

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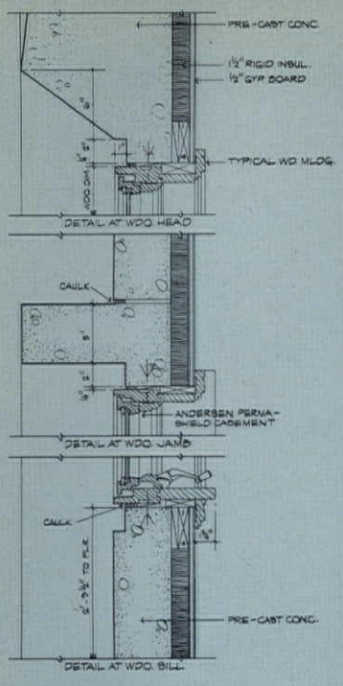

Cheesman Garden Apartments,
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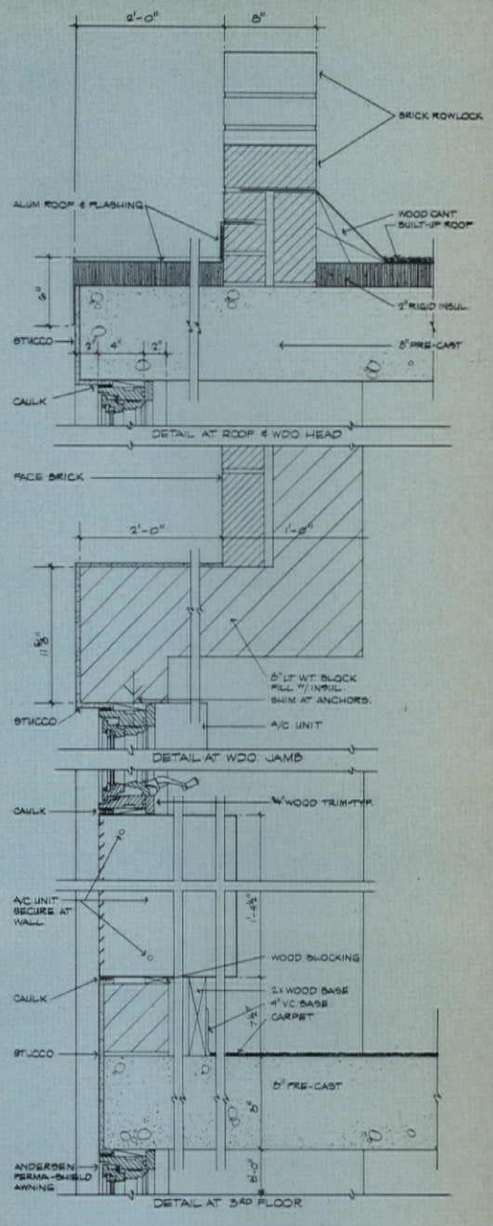
Architect: Slater, Small & Spenst; Denver

Installation: Perma-Shield Casement operating and fixed units in precast frames



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Winchester, Virginia

Architect: Keith Williams & Associates; Winchester

Installation: Perma-Shield Awning Windows in masonry frame, with stucco facing.

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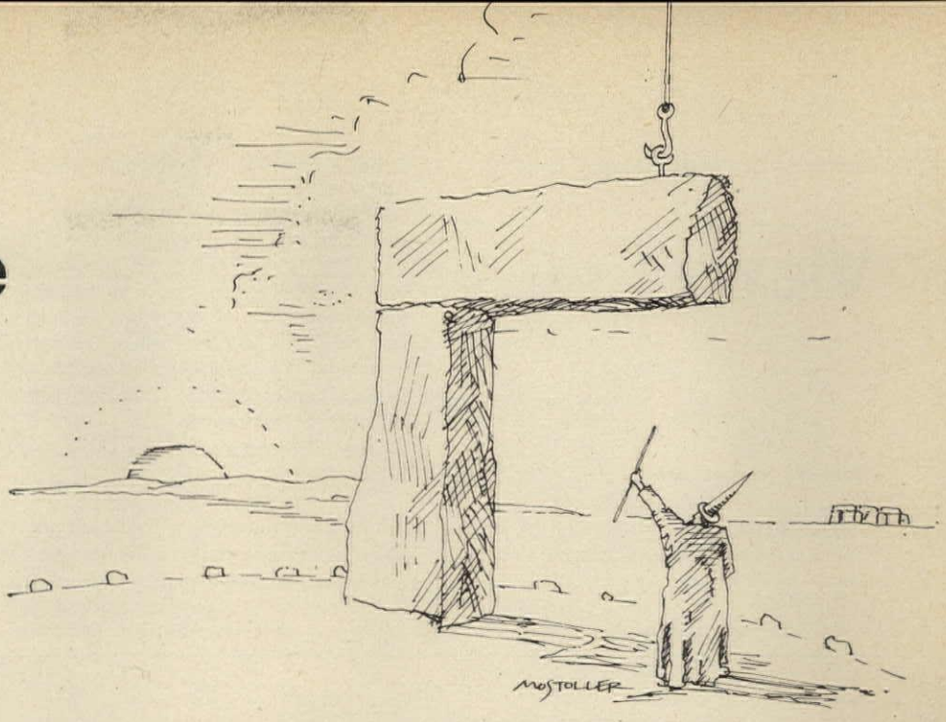
As it was in the beginning . . .

May 1977



As long as man has had shelter for his activities, someone has had to take responsibility for designing it. Only in recent centuries have we systematically divided the building effort into architecture, engineering, and construction; this subdivision is still progressing, and will go on as long as further distinctions serve any purpose. The demand for building will fluctuate widely, as it always has, but the need for architecture will last as long as humankind.

Today, architecture is at a point of particular anxiety, uncertainty, and challenge. Demand for architectural services is just pulling out of a vertiginous dive from the heights of the 1960s and heading toward what appears to be modest prosperity in the near future. Students, recently attracted to the field by its paradoxical combination of self-expression and social mission, are receiving architectural degrees in record numbers. The organized professionals—the AIA—will meet next month (p. 21) to ponder the theme "Tomorrow" and to vote on proposed changes to its strained and battered code of practice, known rather presumptuously as "ethics." Meanwhile, the disorganized and conflicting forces that influence architectural design are moving toward a consensus: that the public's failure to appreciate Modern Architecture may not, after all, be unjustified.

Where will all this uncertainty lead? To introspection, we hope; to re-examination of the architect's role in society; to reconsideration of the power of architectural design in human life—and its potential glory.

The major portion of this issue (pages 49-96) is meant to inform and encourage each of you in your contemplation of the Future of Architecture.

John Morris Dixon

There are no longer any shamans, no keepers of mystery: no physicians, priests, sociologists, or architects will be able to conceal from the people the secrets of their trade. Therefore, along with knowing and giving away the best of our cumulated knowledge, we will need to: account for our acts (and transgressions); understand and use each other's skills and methods.
(Sandra C. Howell, environmental psychologist, Associate Professor, Dept. of Architecture, MIT, from *The Practicing Architect and Societal Needs,"* report of a June 1976 environmental design conference at Harvard University, sponsored by the National Science Foundation)

Uncertainty is not a negative thing: it does not make us helpless. It is the only atmosphere in which things can develop and grow. . . . The challenge we have to face is . . . how to learn to deal with complex decision-making processes.
(John Habraken, Dean, MIT School of Architecture and Planning, quoted in *Technology Review,* March/April 1977)

Only some orderly resolution of the three modes of designing that exist today—designing at a distance in indifference or contempt, designing by the outsider who respects and knows the people for whom he or she is designing, and designing by one of those for whom the thing designed is to be used—can possibly restore a world of 4 billion people, in which mass production in many cases is cheaper and wiser, to some semblance of meaningful relationship between themselves and the tools and houses and clothes and utensils that they use. And this resolution must be achieved soon, for the building begins each day.
(Margaret Mead, from *World Enough: Rethinking the Future,* Little, Brown & Co., 1975.)

Letters from readers

Views

Women's perspectives

After ten years of following your magazine, it was inspiring to me to see coverage of "the last profession to be liberated by women" (Ada Louise Huxtable, *The New York Times*, 3/13/77).

P/A could be a valuable asset to women's growth in Architecture through recognition.
Ann Chaintreuil, AIA
Robert Macon & Associates, Architects
Rochester, NY.

I want to thank you very much for the copy of the March number of your magazine which you sent me. I think your coverage of "Women in architecture" is exceedingly good and comprehensive. I am very glad to be included in it.
P.S. I retired from practice Jan. 1, 1977.
Eleanor Raymond, FAIA
Cambridge, MA.

It is incredibly rewarding to finally see women getting some recognition for the hard work and talent that they have contributed to architecture. But the sweetness of belated appreciation cannot be enjoyed without the bitterness of regret for the lost years of working behind the scenes and being manipulated by those more practiced in aggressively serving themselves. This was often at the expense of the women who naively felt that they could rely on the good faith of those who profited from their work and energy.

Unfortunately, it has often been our own reticence to claim what we deserve which has led to such unfair treatment. My failure to put my own name in the credits as the Designer of the RCA Conference Center, in the article I wrote for P/A, "People Under Glass" (June 1976) has had unending repercussions. My attempt to avoid being bullied, and avoid seeming pushy, has meant that the company in which I was an Associate (which mostly watched from afar), and an architectural consultant (that I brought into the project mid-way), has copped the credit for something I spent over two-and-one-half years developing. This has subsequently led to another article about the Conference Center in Design Quarterly 103, in which I was not consulted or credited.

Perhaps a few years ago I didn't fully realize the importance of fair recognition, but now, just starting my own practice, I do. It is we women who must determine that we will not be hurt, or hurt ourselves, anymore. And anything—like the Brooklyn Museum show *Women in American Architecture*, organizations like the AWA and Women's Archives, and the increasing number of women architecture students and graduates—is a welcome benefit to our strength and self-confidence.
Marlys Hann, Architectural designer
New York, NY.

Thank you for the copy of P/A which reached me recently. The article "The woman behind the T square" is very interesting. I know that a great deal of time and work went into the research.

It is a little disconcerting, after a lifetime spent as an architect, to find that we women in this field are still regarded as curiosities. I, and I am sure other women of my generation in architecture, became accustomed to being accepted as competent professional colleagues in the schools we attended and the offices in which we worked.
Olive Chadeayne, AIA Emeritus
Walnut Creek, CA.

What a beautiful issue of P/A is March's! The San Simeon photos are sensational, and the treatment of the exhibition and the book both ideal.

Every aspect seems grounds for special congratulations. It will be a landmark piece, with no excuse for ignorance on the subject again. We are all very much in your debt.
Sara Boutelle, Architect
Santa Cruz, CA.

Re: "Women in Architecture" (P/A, March 1977) Is this the *crème de la crème?* The light that has been hidden under the bushel? The new and different vision that has been repressed?

The work proves that women are just as capable as men of plugging into the traditional view of history and into the established architectural myths, machinery, and styles while the ultimate concerns of the planet go begging.
Cory Kutsenkow (female)
Walnut Creek, CA.

[continued on page 10]

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Views continued from page 8

May I commend you for your articles on "Women in architecture," which are long overdue. It is understandable that they could not be all-inclusive because of the limited space. But it is not understandable how you managed to ignore Eleanore K. Pettersen of East Saddle River, N.J.

From her apprenticeship at Taliesin under Frank Lloyd Wright (where we first met) through today, she has been responsible for a large and varied body of exciting and stimulating work. Ms. Pettersen has long been dedicated to the advancement of the professional woman, the woman architect and Architecture itself. Among her more recent activities, she has found time to serve as President of the New Jersey State Board of Architects.

It is to be hoped that the day will soon arrive when creative work is *not* judged according to the creator's sex, or other biological or anthropological attribute.

David T. Henken
Henken Builds, Inc.
Pleasantville, NY.

Streets for all the people

One of the photos on Washington's "Streets for People" (Dec. 1976 P/A, p. 75) project shows a formal presentation meeting with several men in business suits standing around a model. Other men, white and apparently middle-class, sit in rows of chairs in the background.

This was not, as the caption suggests, a typical participatory design session during the project but was instead part of a special series arranged for downtown businessmen. "User-consultant" meetings may have had their stiff moments, but for the most part they were small (5 or 6 people) informal working sessions, held around a table. The participants met in groups of similar people, but the full complement of participants reflected the diversity—in age, gender, race, life style, etc.—of the people who use downtown Washington (as some of your other photos imply).

Stephen Tilly, Architect
(formerly with Arrowstreet, Inc.)
Design Coalition, New York, N.Y.

Two hotels on boardwalk

May we take the liberty of answering the editorial of Thomas Hine, printed in your March issue?

We have quite recently purchased the Marlborough-Blenheim Hotel in Atlantic City, after lengthy and thoughtful negotiations with its previous owners. One of the important factors in the decision to purchase and in the owners' decision to sell this unique property to us was the hope that the original character of this colorful example of Americana circa 1905 could be retained, while extending its useful life, and in that interest we have sought out an architect who is knowledgeable in the ways of our contemporaries, yet respectful of the imagination of designers of years past.

After considerable study, and with aforeknowledge of the intelligent care with which the law-makers of our state are concluding the proposed legislation regarding controls and restrictions, it appears that the glories of such early examples of coast resort architecture as the Blenheim property can be preserved, restored, and retained for use and enjoyment for years to come. We personally feel a certain pride in our local heritage and look forward with pleasurable anticipation to the rehabilitation of this "grande dame" of the ocean front. Please bear with us, and hopefully in the area's future, Mr. Hine may have the opportunity to reflect upon our efforts to return this bit of grandeur, flamboyance, and fantasy.

Martin L. Blatt and Reese Palley
Marlborough-Blenheim Hotel, Ltd.
Atlantic City, NJ.

(According to *The New York Times*, 4/14/77, the architects selected are David Jacobson Associates of Los Angeles and Venturi & Rauch of Philadelphia.—Editors)

It has been called to our attention that the hotel shown at the upper right in "Report from Atlantic City" (P/A, Mar. 1977, p. 25) is the Chalfonte-Haddon Hall, not the Dennis.[—Editors]

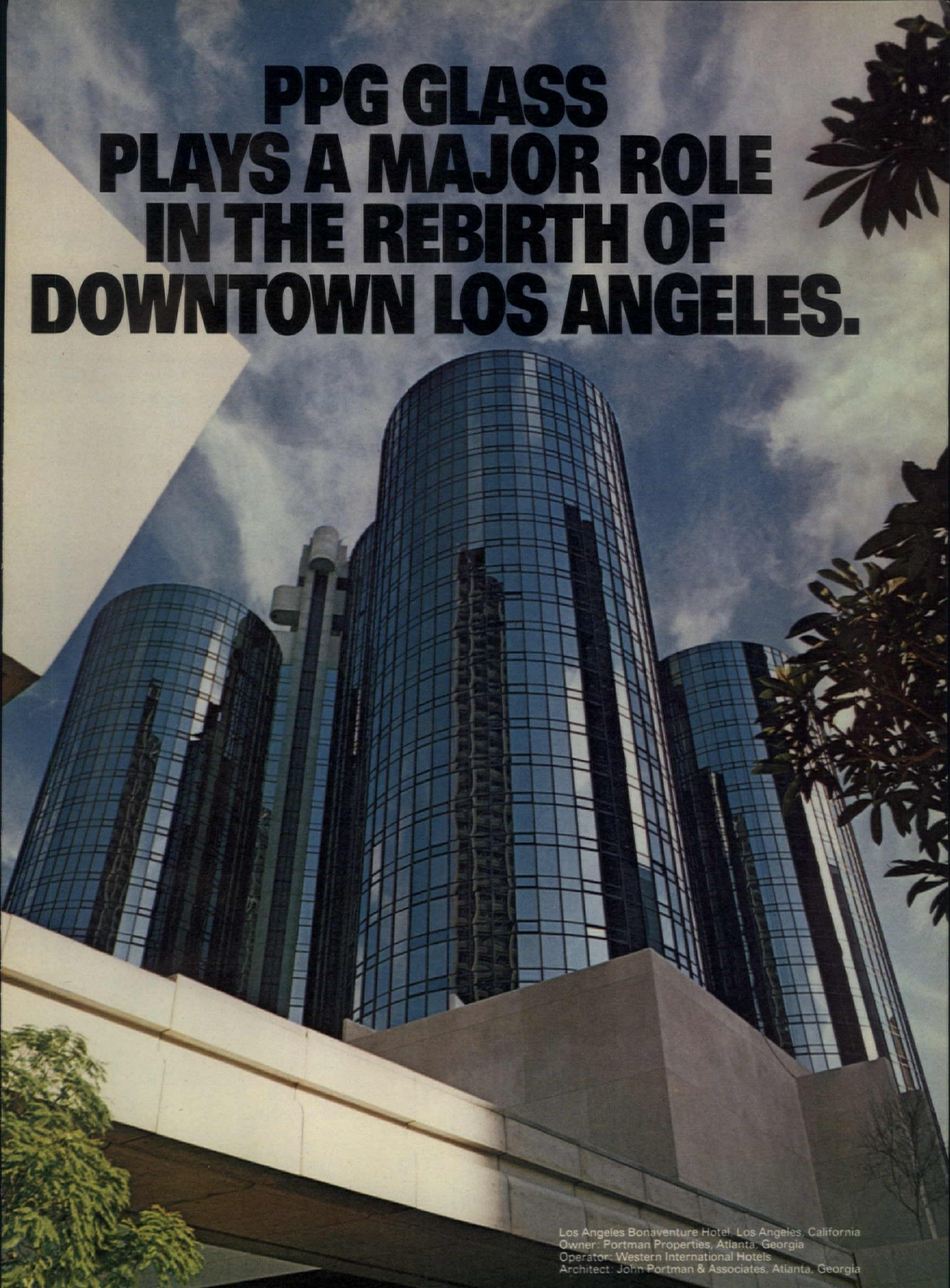
Credit due

Architects for the Filene Center, Wolf Trap Farm, Vienna, VA, (Feb. 1977 P/A, p. 89) were John MacFadyen and Edward F. Knowles. Architects for the Robin Hood Dell West, Philadelphia, (p. 89) were MacFadyen & De Vido. Architects for the State Capitol, Phoenix, AZ, (p. 88) were Gerald A. Doyle & Associates.

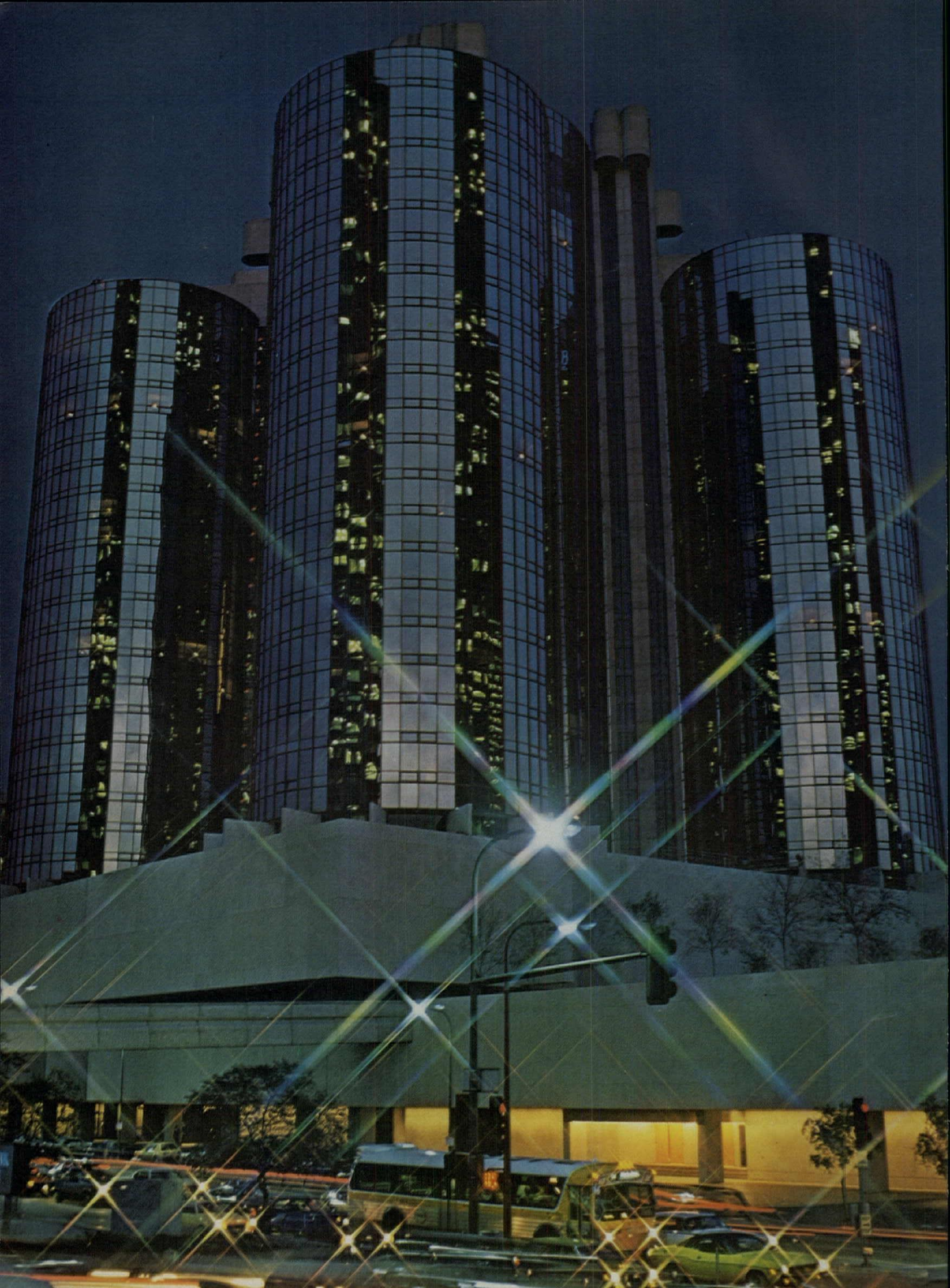
Photo credit due

Photos of St. John's Presbyterian Church, the James Lombard house (P/A, Mar. 1977, p. 44) and the Berkeley City Club (p. 45) were by Richard W. Longstreth of Manhattan, KS.

PPG GLASS PLAYS A MAJOR ROLE IN THE REBIRTH OF DOWNTOWN LOS ANGELES.



Los Angeles Bonaventure Hotel, Los Angeles, California
Owner: Portman Properties, Atlanta, Georgia
Operator: Western International Hotels
Architect: John Portman & Associates, Atlanta, Georgia



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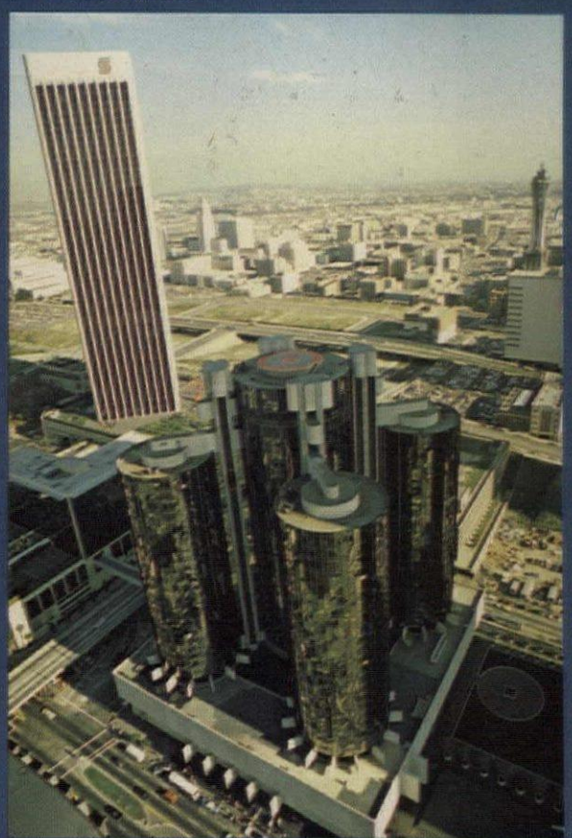

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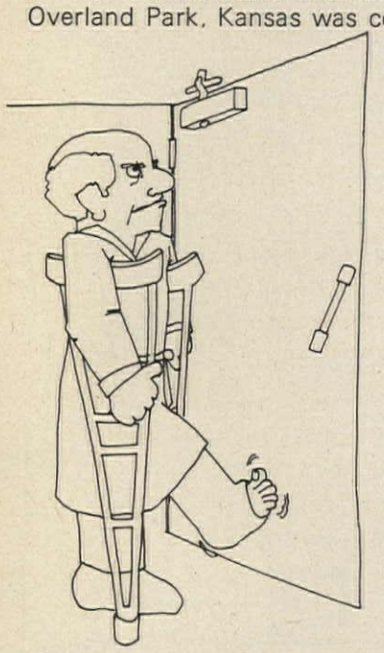

The staff found it impossible to observe their patients properly with the doors closed—a big problem, since close attention to nursing home patients is essential. The patients themselves found the doors hard to open and didn't like the restrictive, isolated feeling they created. To remedy the situation, several patients wedged their doors open . . . which in turn violated fire ordinances and upset the city fire marshal.

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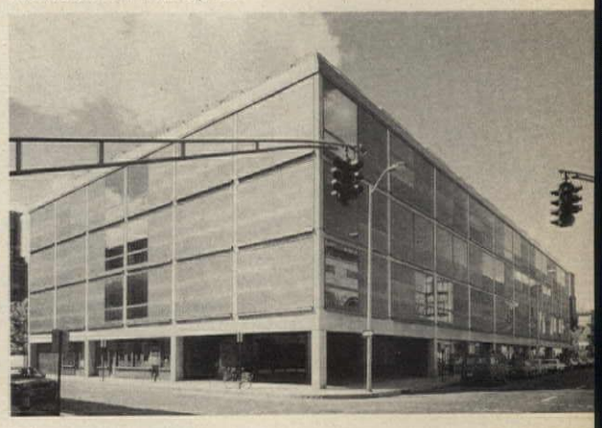
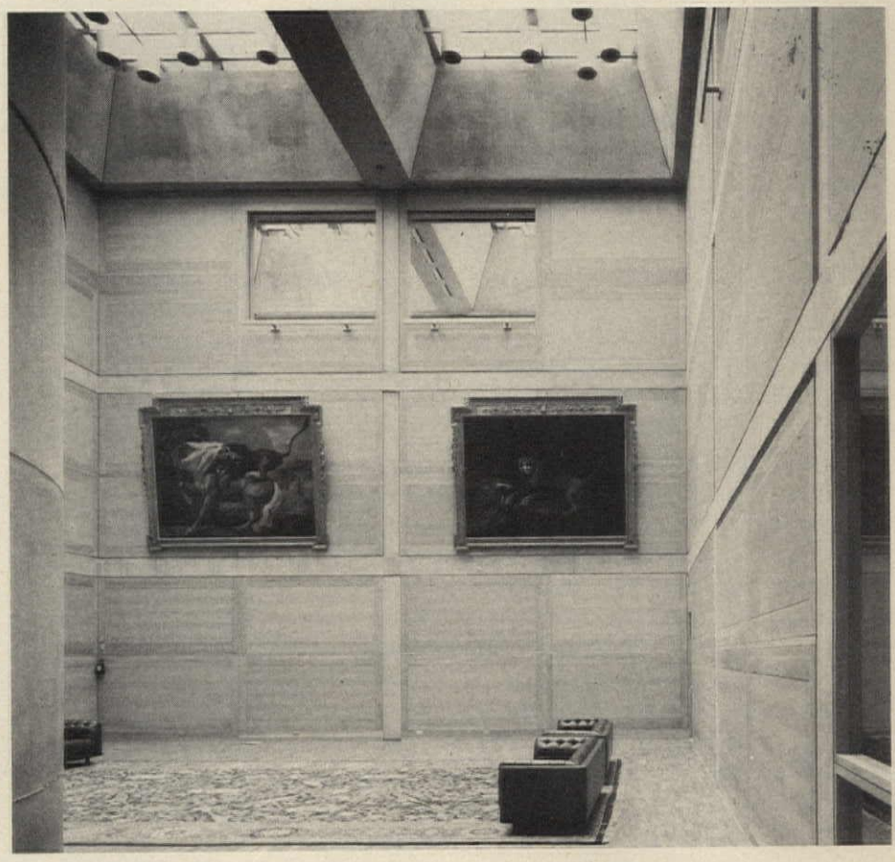
News report

William Carter

Kahn's Yale Center for British Art, New Haven. Skylit upper galleries (left); main entry and shops on Chapel Street (below) and Library Court (bottom). Completion supervised by Pellecchia & Meyers Architects of Philadelphia.





Tom Brown

Kahn's last work opens at Yale

The Yale Center for British Art, a museum and study center one-third completed at the time of architect Louis I. Kahn's death in 1974, has opened in New Haven, CT., a faithful completion in most respects of the master's design by Pellecchia & Meyers Architects of Philadelphia. The four-story building sits squarely on Chapel Street across from the traditional college-Gothic Yale art gallery with Kahn's 1951 addition. Shops were provided at street level to maintain the commercial activity and interest of the street. The factorylike exterior of the $9.6 million structure is glass and pewter-finish stainless steel; inside, Kahn chose natural, wheat-colored materials to set off the largest collection of British art and rare books outside England: a gift to Yale University by Paul Mellon (Class of 1929).

The interior is organized around two skylit courts: exhibition galleries encircle the Entrance Court at the east, and library/research facilities surround another court at the west. A steeply sloped lecture hall seating 204 is located near the Library Court. Separating the two major court areas is a free-standing, circular concrete stairwell with a patterned glass block skylight.

Kahn believed natural light was essential for the display of paintings—to provide variety and changing intensity with the shifting light. The top gallery floor therefore has skylights in all 41 of the 20-ft-square coffers eliminating the need for artificial light most of the day. Irregularly placed windows frame views of surrounding campus buildings. The actual skylight "cassettes" of baffles, filters, and diffusers which screen the light were designed by Pellecchia & Meyers. Both Marshall Meyers and Anthony Pellecchia had worked for Kahn: Meyers was project architect for Kahn's Kimbell Art Museum, Fort Worth, TX., and Pellecchia was project architect for Kahn's Performing Arts Center, Fort Wayne, IN.

'Tomorrow' next month at AIA convention

San Diego opens 500 sq mi of Southern California territory with mini tours and family tours when it hosts the American Institute of Architects convention June 5–8. The center of activity will be the Golden Hall of the San Diego Convention Center. There, multimedia presentations will explore the theme, "Tomorrow," and in case you miss a session, videotaped replays will be shown at a later time.

Historic collection of Title Insurance & Trust Co.

Boat house, 1887, of San Diego's Hotel del Coronado by Reid & Reid.

Registration begins Sunday, June 5, and both the awards presentation (17 this year) and investiture of Fellows will take place that afternoon. Business sessions, during which delegates will consider proposed changes to the code of ethics, to the dues structure, and to membership categories, will be held the mornings of June 6, 7, and 8; workshops will be in the afternoons.

Evening events will include a performance by the Ballet de Azatlan Folkloriko at the Civic Theater on Monday, June 6; the convocation dinner, June 6; and the President's reception Wednesday, June 8. Not one, but four parties are planned for Tuesday, June 7, ranging from a San Diego Bay cruise/dinner-dance to the opening of the International Chair Competition in the San Diego Fine Arts Gallery.

The best way to see the unusual configuration of San Diego is on the harbor cruise which affords a panorama of the beaches and downtown skyline (P/A July 1973 p. 52) including the rambling Hotel del Coronado (1888) with its enchanting boat house. There, the second generation Olmsteds and Irving Gill waltzed with clients wintering by the sea. On the all-day inland tour will be equally spectacular views of the desert from the Laguna Mountains.

One of the mini tours is a visit to Balboa Park, rich in churrigueresque architecture (first introduced by Bertram Goodhue in the California Building for the 1915 Pan-Pacific Expo). The edge of this park is where California landscape architecture got its first big boost when Kate Sessions, a high school Latin teacher, opened a nursery and forever raised the botanical consciousness of San Diegans.

The city is a preserver of styles which established a continuity from the adobe period to the present. Included is wooden Gothic, built with pre-cut materials from New England and bought in the harbor right off sailing ships that came around the Horn.

Other tours will cover such areas as historic preservation, San Diego's Old Town, the revitalized downtown, and Cabrillo's path of 1542 to the harbor.

There will be a 17-mile coastal tour and a visit to La Jolla, rival of Oak Park, IL, with its cluster of early Modern examples: Gill's reinforced concrete Scripps Group (1906–1915) and R.M. Schindler's Pueblo Ribera Court (1923) handsomely site-planned and constructed in slip form concrete. Nearby is Louis Kahn's bold Salk Institute (1963) in which the master's talent and concrete form work reach a high.

A full day family excursion to Disneyland is planned, but there also will be shorter jaunts to the famous, almost cageless San Diego Zoo and to Sea World and Wild Animal Park. Sports attractions will be a tennis tournament June 3–5 at the Sheraton Harbor Island Hotel, sponsored jointly by the San Diego Chapter of the AIA and Olympic Stain, and the Torrey Pines golf tournament on June 9.

Safety Expo/77 in Philadelphia

Safety Expo/77, *Occupational Hazard Magazine's* 4th annual Safety and Health Conference & Exposition, will be held June 14–16 at the Philadelphia Civic Center. Congressman William Steiger (R-Wi.) will be the keynote speaker, June 14, on the topic of industry's role in meeting on-the-job safety and health goals. Rep. Steiger is co-author of the Occupational Safety and Health Act of 1970. Between 4000 and 5000 individuals from all levels of industrial management are expected to attend. The yearly meeting formerly was known as OSHA/USA; the name change reflects a broader character of the conference.

P/A Editor Dixon, others, made FAIA

John Morris Dixon, editor of *Progressive Architecture* since 1972, has been elected to the College of Fellows of the American Institute of Architects. The honor is conferred on those Institute members who have contributed significantly to the architectural profession. Along with Dixon, 55 other men and women were chosen by a committee of colleagues for the lifetime honor, and investiture will take place Sunday, June 5, in San Diego during the national convention of the AIA.

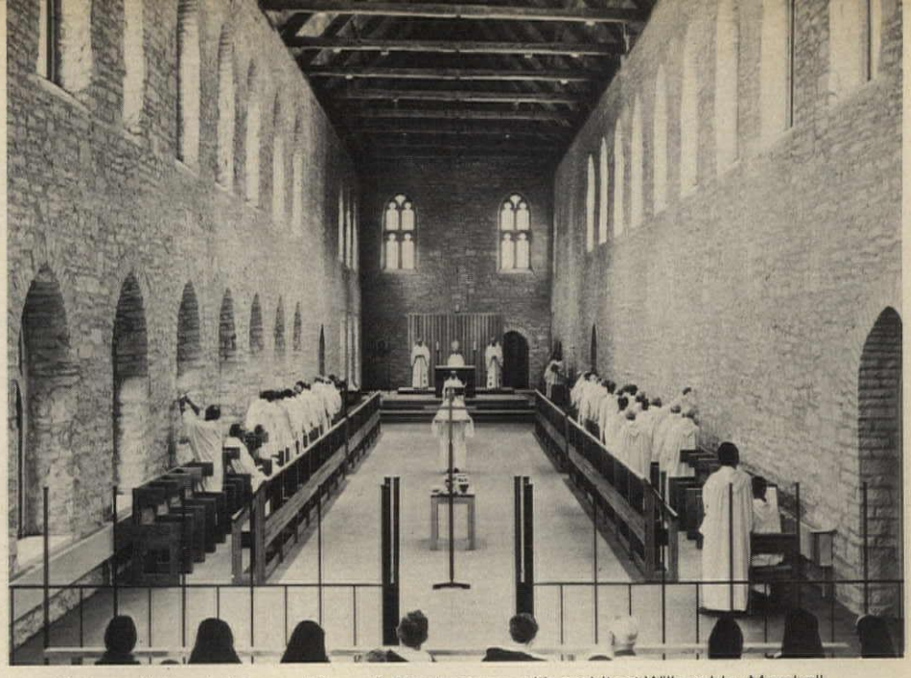
Dixon received his bachelor of architecture degree in 1955 from the Massachusetts Institute of Technology after which he worked two years in the New York architectural offices of Daniel Schwartzman and George Nemeny. He first joined P/A in 1960, leaving in 1965 to become a senior editor of *Architectural Forum,* a position held until 1972 when he returned to P/A as chief editor. Dixon has been active in the New York Chapter, AIA, lecturing, and contributing to community architectural awareness through volunteer work. He contributed major portions to the *AIA Guide to New York City.*

Among the other new Fellows are Ronald Straka of Boulder, Colo., chairman of the AIA's Urban Planning and Design Committee, who simultaneously receives fellowship as this year's recipient of the Kemper Award for significant contribution to the Institute and to the profession.

The selection jury was composed of Preston Bolton, Houston, chairman; Lewis Davis, New York; Herbert Duncan, Kansas City; Robert Fehlberg, Billings, Mt.; William Muchow, Denver; Bernhard Rothschild, Atlanta; and Carl

Bradley, Fort Wayne, attending alternate.

New members included in the College of Fellows are Mildred F. Schmertz, senior editor of *Arcitectural Record,* from the New York chapter; John P. Eberhard, president of the AIA Research Corporation, and Warren H. Cox, both from the Washington-Metropolitan chapter; John Burgee, and Jordan Gruzen, both of the New York chapter; Robert J. Lynch and Thomas M. Payette, both of the Boston Society of Architects; Charles E. Schwing, treasurer of the AIA; and Thomas W. Ventulett of the Atlanta chapter.



New Melleray Abbey, by Hammel Green & Abrahamson, with architect Willoughby Marshall (spatial concept) and Frank Kacmarcik (liturgical design).

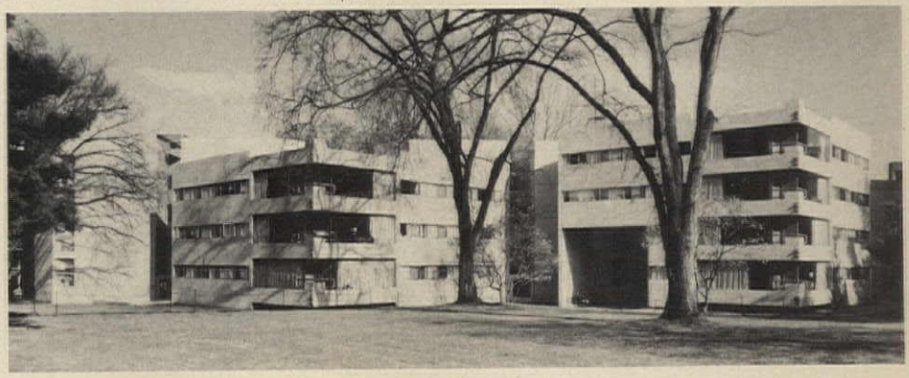
AIA names 17 Honor Awards

The American Institute of Architects has selected 17 buildings to receive Honor Awards for design excellence. Of the 17, six were chosen on the basis of extended use—retrofitting existing structures. Each category was judged separately by a different jury.

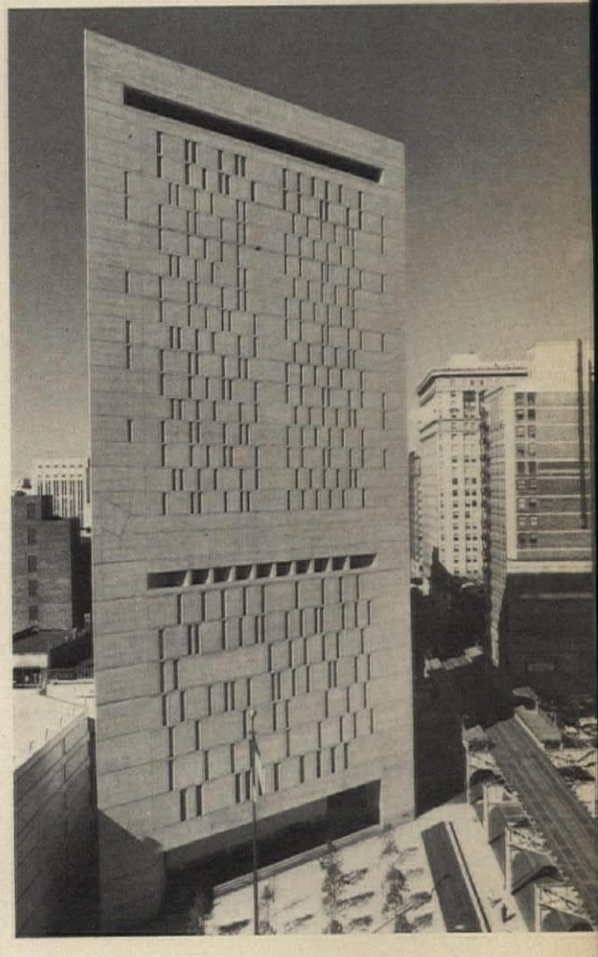
In the category of new design, the 11 winners are: a vacation house in Mt. Desert, Me., by Edward Larrabee Barnes of New York; housing for the elderly in Cidra Municipality, Puerto Rico, by Jorge Del Rio (P/A June 1973, p. 120); the humanities and social science building, Southern Illinois University, Carbondale, by Geddes Brecher Qualls Cunningham, Princeton, N.J., (P/A Dec. 1976, p. 45); Concord Pavilion arts and music building, Concord, Ca., by Frank O. Gehry & Associates, Santa Monica (P/A Nov. 1975 p. 60); the 1199 Plaza cooperative housing, New York City, by Hodne/Stageberg Partners, Minneapolis (P/A March 1976, p. 64); Pennzoil Place, Houston, by Johnson/Burgee Architects, New York; Bronx Developmental Center, New York, by Richard Meier & Associates, New York; Penn Mutual Tower, Philadelphia, by Mitchell/Giurgola Architects, Philadelphia (P/A April 1976, p. 72); John Hancock Tower, Boston, by I.M. Pei & Partners, New York; Spelman Hall student housing, Princeton University, Princeton, N.J., by I.M. Pei & Partners; and William J. Campbell Courthouse Annex, a detention facility, Chicago, by Harry Weese & Associates, Chicago.

Winners in the extended use category are Canal Square, a project in Georgetown, Washington, D.C., by Arthur Cotton Moore/Associates, Washington, D.C. (P/A April 1971, p. 66); the Navy Pier restoration, Chicago, by City Architect Jerome Butler (P/A Nov. 1976, p. 23); New Melleray Abbey, a monastery chapel, Dubueque, Ia., by Hammel Green & Abrahamson of St. Paul; Mercantile Wharf Building, Boston, by John Sharratt Associates of Boston; College Center, a student activities building, Vassar College, Poughkeepsie, N.Y., by Shepley Bulfinch Richardson Abbott, Boston; and Franklin Court, Philadelphia, by Venturi & Rauch of Philadelphia (P/A April 1976, p. 69).

Jury members were, for new build-

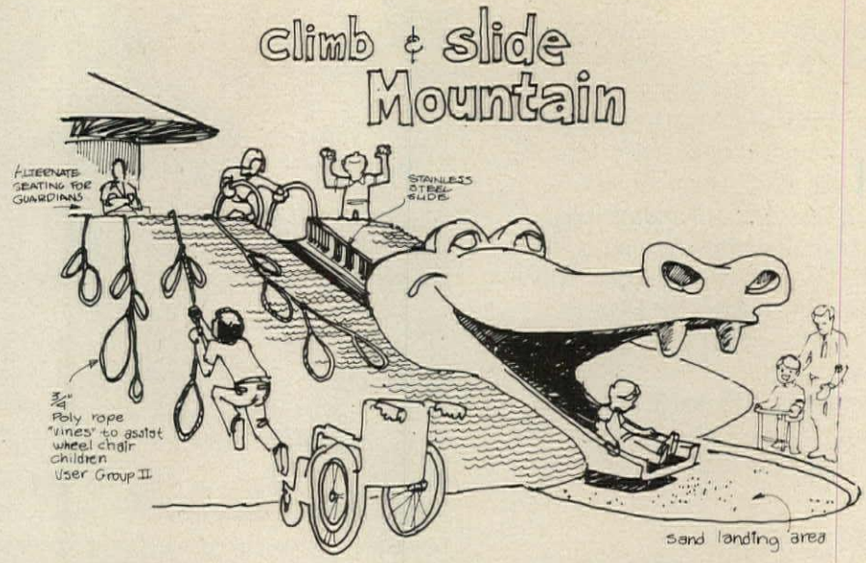


Spelman Hall, Princeton University, by I.M. Pei & Partners.



Mercantile building (above), Boston, by John Sharratt Associates. Courthouse annex (right) in Chicago by Harry Weese & Associates.

ings, William Turnbull of San Francisco, chairman; Lewis Davis of New York; Henri Jova of Atlanta; Charles McAfee of Wichita; and Jann Wolfe, University of Pennsylvania, student member. The jury for extended use was Ralph Rapson of Minneapolis, chairman; O'Neil Ford of San Antonio; Huson Jackson of Cambridge, Ma.; A. Quincy Jones of Los Angeles; and Kyle Hallsteen, Washington University, St. Louis, student member.



Exercise for arms and upper torso on this climb and slide by George Kanelba.

Playground for the young handicapped

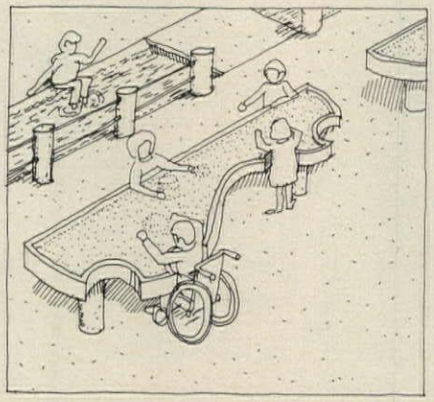
"A Playground for All Children" means a park where handicapped as well as able-bodied children may play together. A recent competition sponsored by the City of New York produced four winning schemes whose concepts will be increasingly seen in public parks as "barrier-free architecture" becomes more widespread.

The park concept by Richard Dattner, Thomas Bittner, and Joseph Smith—one of the winning teams—has several water play areas: a play "stream" at grade into which children may safely enter by wheelchair; and an elevated table of water where children may sit in wheelchairs and sail boats.

In another winning proposal, a slide was designed so crippled children could pull themselves up by their arms and then slide down. This play piece was one of several derived from modifications of standard playground equipment and used throughout the plan by Hisham Ashkouri and James Charnisky of Cambridge, Mass. The project was one of the few that attempted to work with existing equipment, said one juror.

Winner R.M. Toole of Saratoga Springs, N.Y., surrounded his park with a wall of crushed automobiles; and the fourth winning project—by Paul Benowitz and Secundino Fernadez of Rye, N.Y.—included a pond with inflated vinyl fish for children to catch.

Of the 60 entries, many had innovative ideas drawn from the world of fantasy—such as a giant dragon park—but they ultimately were passed over for practical reasons such as cost.



Raised sandbox in the Dattner team's project.

Barrier-free design: ACCESS '77 at Pratt

Costs and legalities were the main topics of ACCESS '77, a public service conference on barrier-free design sponsored this spring by Pratt Institute, New York, in cooperation with the President's Committee on Employment of the Handicapped and the New York State Council on the Handicapped. The meetings were held in Pratt's multi-purpose athletic facility (by Daniel Tully Associates, Boston, and Ezra Ehrenkrantz, New York), designed to be accessible to the disabled. Most wheelchair participants at the conference, however, had to be assisted up and down the steep ramp at the entry, and the building received only mild approval from them for its accessibility. ACCESS '77 was conceived and coordinated by Sandra Levine of Pratt's external affairs office.

A frequent issue was cost; many participants represented colleges facing requirements to make campus buildings accessible—often with no budget other than the usual maintenance. Architect Edward Noakes of Washington, D.C., immediate past president of the National Center for a Barrier Free Environment, said much can be done within existing institutional budgets, such as much-needed curb cuts, and even major retrofittings, may be accomplished at a relatively low cost.

Architects were accused of often scaring clients by quoting expensive products and solutions for making buildings barrier-free. Repeatedly, speakers stressed the cost-saving factor of including barrier-free design in original plans rather than having to put it in change orders or worse, to re-do construction. The new Washington Metro gained notoriety on this point when court action brought on behalf of the handicapped has kept a completed station closed pending installation of an elevator. Making the Metro system accessible to the disabled cost about $80 million, said Edward Lynch of the Office of Civil Rights for the Handicapped, Department of Health, Education and Welfare.

A spokesman queried from Harry Weese & Associates, which designed Metro, said initial planning begun in 1965 included escalators for all Metro users, including the handicapped. In fact, he said, young people in wheelchairs used the escalators and that only two wheelchair users have been reported regularly taking the elevators on the line.

In late summer the American National Standards Institute (ANSI) ex-

[News report continued on page 29]

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Steel permits redesign to meet seismic code change

Boston State College was bursting at the seams after enrollment leaped from 800 students in the 1950s to nearly 10,000 in the 1970s. The college found itself on the verge of losing its accreditation because its library threatened to fall below American Library Association standards.

The theater/auditorium complex.

Building detail shows steel's versatility in framing unusual shapes for both striking architectural effect and a difficult site solution.

Though Boston State was locked into a high-density urban area, the trustees decided to stay put. They asked the architects to develop a structure which would meet existing A.L.A. standards for space and number of volumes. They also wanted additional classrooms, a theater/auditorium complex, and other facilities in a building that would present a new image for the college. Quite a challenge: all this plus an oddly shaped site.

The architect's solution was to provide each separate function with its own level, resulting in a building of unusual configuration. It was originally designed in concrete.

Late design change

When the design was about one-third complete, the site was declared applicable to Zone Two seismic code requirements. The structure had to be virtually redesigned to meet possible earthquake conditions.

Because of its irregular shape, a concrete frame and flat slab approach wouldn't work as a total moment-resisting structure. The architects decided on individual steel frames for each of the five main units of the building. They had to have the ductility that they knew steel would provide for earthquake design.

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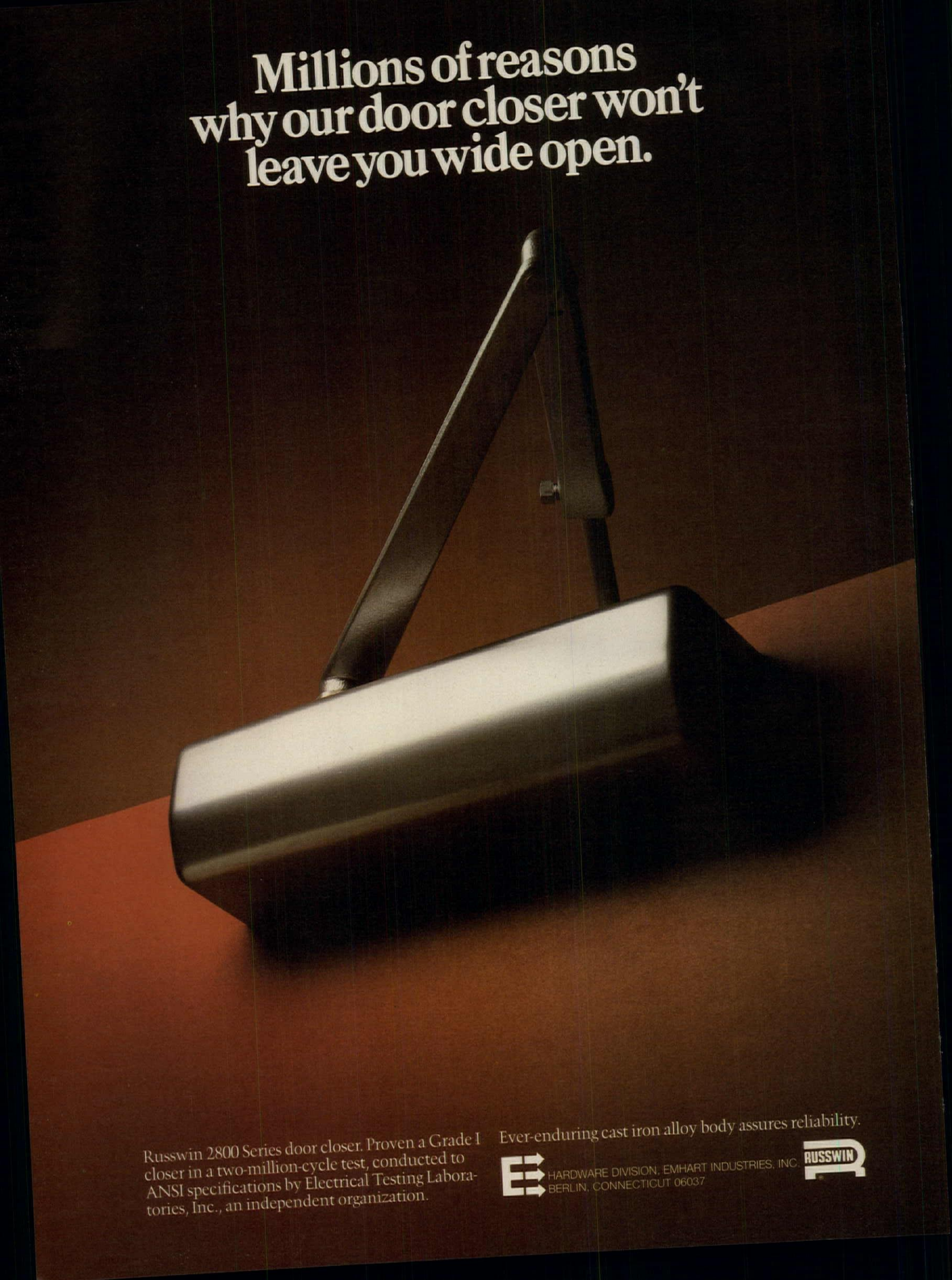

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News report continued from page 24

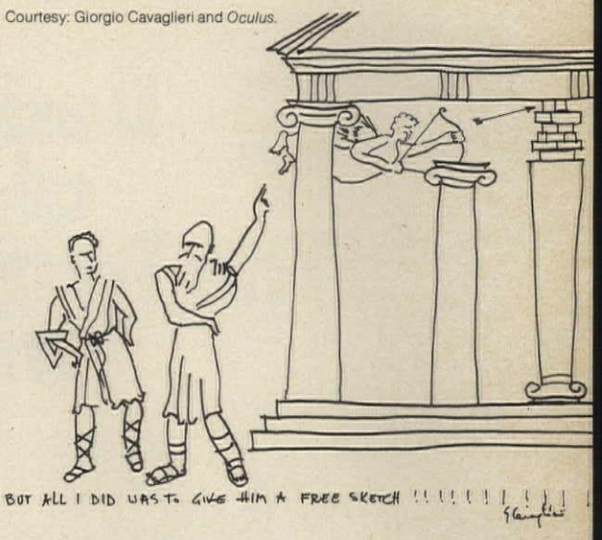
pects to publish completely revised standards for barrier-free buildings and facilities. Professional opinion was divided at the conference over whether or not standards of accessibility should be performance-based or proscriptive. Noakes, a member of the ANSI committee, said the proposed standards may be rejected because they attempt to be performance-based. The North Carolina code for barrier-free facilities is proscriptive and is cited as one of the best. The man who helped draft the North Carolina code, Ronald Mace of Fayetteville, is an architect who has named his firm Barrier Free Environments. Mace uses a wheelchair and is currently helping manufacturers develop new products, such as shower stalls, for the disabled.

Little support for AIA ethics changes

A straw poll conducted by P/A and reports of other unofficial polls taken at grassroots meetings of the American Institute of Architects indicate that architects do not want a more liberal ethical code that would include hiring agents to represent them and other practices heretofore excluded from the profession. Even advertising, which must now be permitted in some states, was rejected in surveys other than P/A's own, in which respondents gave it clear approval (154:11). Among the ethics issues, only the proposal to allow the architect to act as builder had substantial support. In all polls reviewed except one, where there was an even split, the vote was overwhelmingly in favor of this change.

The P/A straw poll, with some 265 votes tabulated, showed the following: "no" on the question of whether to allow paid agents; "no" on allowing free sketches to be submitted to a prospective client; "yes" to advertising; and "yes" to design/build. The strongest approval and widest margin in the P/A poll was given to the design/build issue (217:43). The vote on paid agents was decidedly on the "no" side in our poll and others reviewed except the one taken by the Chicago AIA chapter, which showed only a majority in favor (84:83).

Courtesy: Giorgio Cavaglieri and *Oculus*.



Straw Poll

1 Agents Agents, with proper regulation, should be allowed.	111 Yes	152 No
2 Free sketches Architectural services at no charge, including sketches, should be permitted without restrictions.	79 Yes	180 No
3 Advertising/listings Architects should be able to advertise and to list their qualifications in directories.	154 Yes	111 No
4 Design/build Architects should be allowed to offer to their clients other services, including contracting.	217 Yes	43 No
5 Professional standards: Should remain basically the same without substantial changes.	126	
Need to be revised and more liberal.	112	

Results of P/A's poll on proposed ethics changes.

At the grassroots meetings held in three regions during January, the paid agent issue was hotly debated. At the heart is whether or not the AIA should recognize a practice, admittedly going on, of hiring agents to obtain work in the Middle East. The agent's fee, it's said, often includes money which finds its way to high officials. Without the Middle East connection, a U.S. firm may as well forget doing business there, argue those who favor the practice.

Members of the Westchester (N.Y.) chapter of the AIA polled at a meeting voted unanimously not to attempt to "export ethics" abroad. At the AIA grassroots meeting in Washington, D.C., one heard about "environmental Americanization of the Middle East" and whether or not to practice with a double standard on the paid agent issue: OK for there, but not at home. Said one architect: "If you don't like the way the Arabs do business, why do you insist on doing business with them?" Another responded, "Haven't we seen that other corporations have gotten in trouble because of payoffs

[News report continued on page 32]

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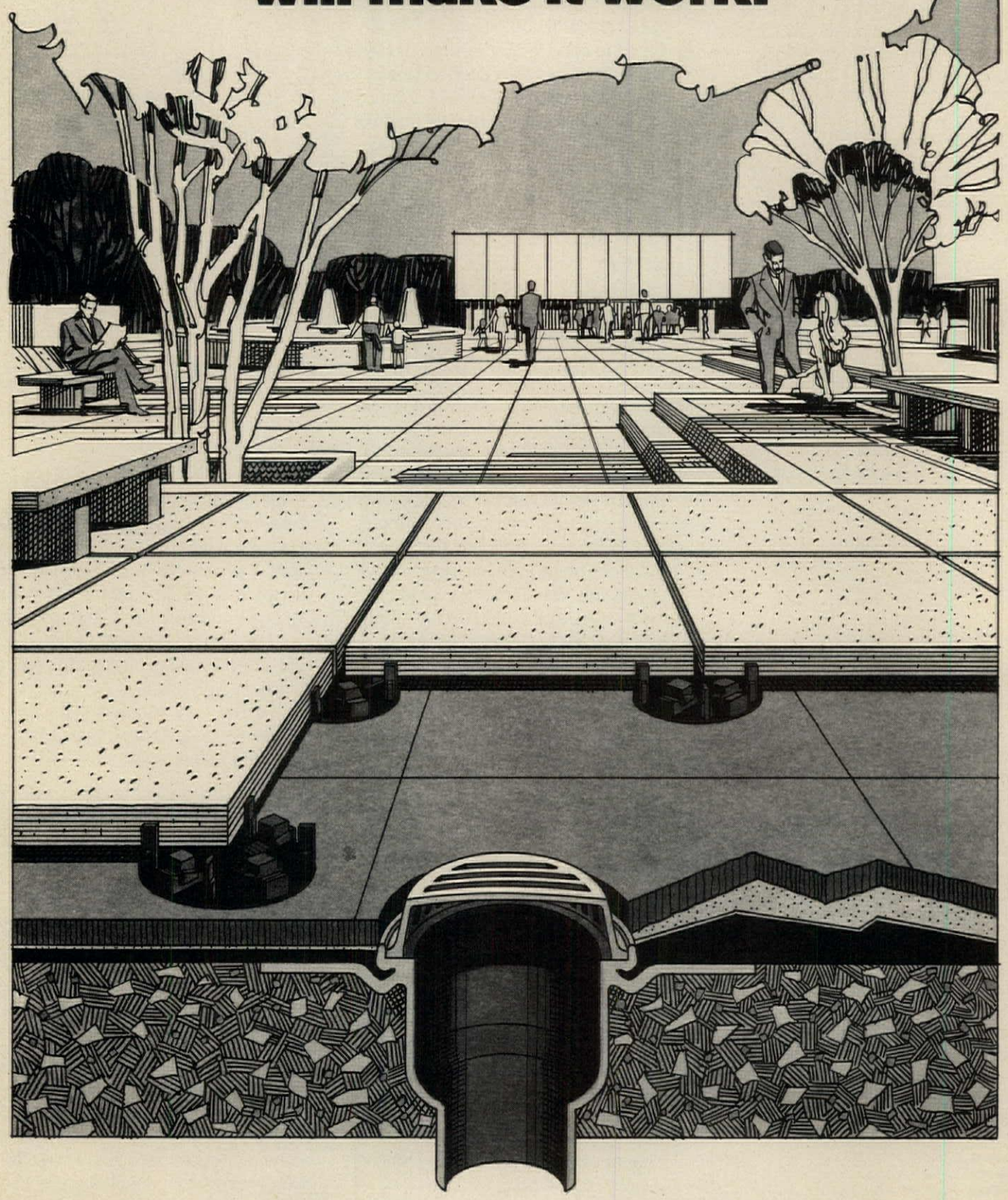


Now you don't have to worry about mechanical restrictions getting in the way of achieving the aesthetics you want for your plaza, deck or terrace design.

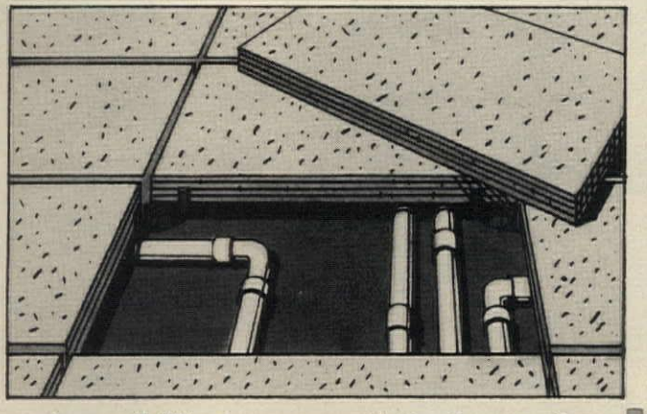
The Tremco Plaza Deck System opens the door to new design freedom, and you can count on the System to keep your project waterproof.

For starters, you can choose any square or rectangular pavers you like, with any finish you like. Then you can arrange them in any design you like.

A beautiful finished job.
Because our Plaza Deck System is based on pedestals, it eliminates unsightly surface drains, excessive slopes and joint sealants. Joints are automatically spaced. Joint size is controlled for beauty.

What's more, joints stay open so water runs off each paver quickly, preventing ugly ponding. These open joints also eliminate freeze-thaw, heaving, concrete spalling and other expansion-contraction problems. The water runs off to drains in the slab.

The open joints also provide easy accessibility in case maintenance is needed below the surface. No tearing up concrete. Just lift the pavers off the pedestals, make the repair and your plaza looks as good as new, with no patching to mar the original beauty.



Accessibility is so easy that where codes permit, it's possible to run service cables in the space between the pavers and the slab.

How the system works.
The Tremco Plaza Deck System is based on two fine products—ingenious KingPin® pedestals and proven TREMproof liquid polymer.

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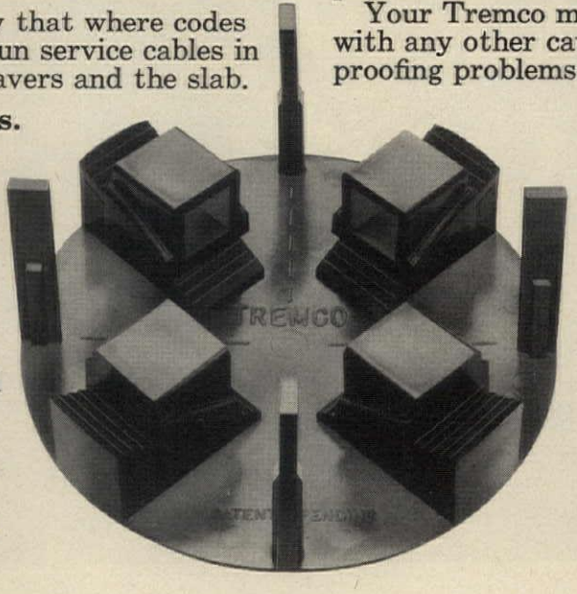
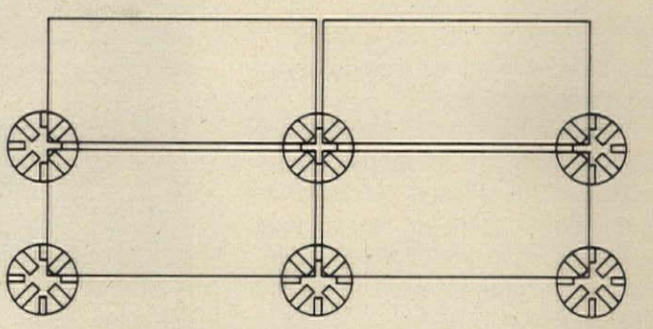
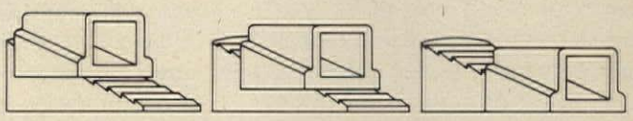




water immersion and, because of its adhesion, it prohibits water migration.

After the waterproofing has been covered with a protection board—followed by rigid, closed cell insulation, if required—the KingPin pedestals are placed on the board. After setting them to the approximate height you need, you can make fingertip



adjustments in 1/16 inch increments to allow for deck or paver irregularities. KingPins can take a tremendous weight load—10,000 pounds on concrete; up to 2,500 pounds on insulation board. They won't rot, crack, melt or absorb water in normal use.

Your added assurance.
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Your Tremco man is also available to help with any other caulking, glazing or waterproofing problems. For more than 45 years, our business has been providing top-quality leakproof systems and products such as our job-proven sealants MONO® and DYmeric® and our roof-edging system, Tremline™ For details, contact: Tremco, 10701 Shaker Blvd., Cleveland, Ohio 44104. Or Tremco (Canada) Ltd., Toronto, Ontario M4H 1G7.

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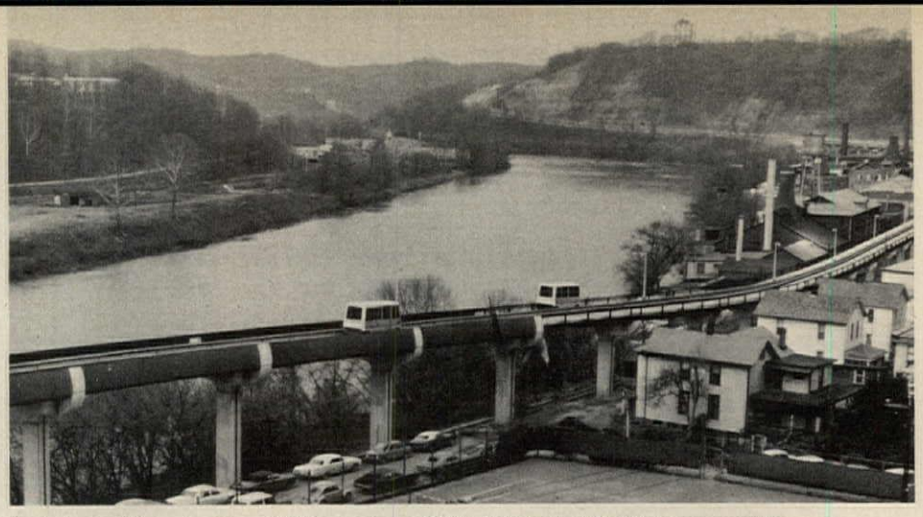
News report continued from page 29

overseas? Why do we want to get into it if it's so nefarious?''

Voters in the P/A poll offered such comments on the question of paid agents as: ''A principal soliciting work is no less an 'agent' (or less vulnerable to bribery) than one hired to do the job'' vs. ''Professionalism should not be delegated.''

On the issue of architects' providing contracting services for their clients, several P/A voters acknowledged that it's ''already being done along with other 'forbidden' practices'' therefore it should be recognized. One added: ''This is how the practice started.'' Another simply wrote ''Yes, yes, yes!'' A Californian noted, next to his ''yes'' vote, ''The architect should be able to participate freely as part of a development *team.*'' As a group, the P/A respondents voted over 5:1 in favor of allowing the architect to enter a contract as builder for his client. P/A voters who identified themselves as AIA members favored this change by over 2:1.



First phase of 'people mover' in Morgantown, W.Va. links town with suburban campus.

Morgantown 'people mover'—phase II

The Los Angeles-based architectural firm of Daniel, Mann, Johnson & Mendenhall has been selected for technical consulting and project coordination of Phase II of the controversial Morgantown People Mover System. DMJM will work for the West Virginia Board of Regents. Designer of the system, both phases, is the Frederic R. Harris engineering firm's Stamford, Ct., office. Boeing Aerospace Co. of Seattle, Wash., has designed and manufactured the vehicles and the automatic computer control system.

The project began in 1970 as a federal demonstration of moving large numbers of people in the mode of ''personal rapid transit'' (PRT), which was to have the economy of the mass transit with some of the individual convenience of cars. Soon the Morgantown experiment was criticized for cost overruns, political maneuverings, and technical errors. A copyrighted *New York Times* article charged that the system, originally estimated at $13.4 million, would cost $115 million.

Phase I, completed in October

1975, cost $62 million, and Phase II, to be completed in 1980, will cost $63.6 million. Frank LoPresti, a vice president of the Harris firm, said much of the budget—about 40 percent—went for research and development. Reasons given for selecting the relatively obscure Morgantown, W.Va., site are its steep terrain and snowy winters which would give a broad range of conditions for the prototype.

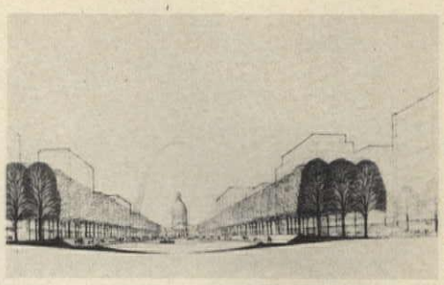
The system has an elevated steel guideway on concrete piers; driverless vehicles running on rubber wheels hold 8 sitting, 13 standing passengers. The vehicles may be programmed from a central control to stop anywhere on the system. After a certain hour in the evening a passenger may select his destination and go there directly without stops in between. Phase I has 5.4 lane miles, three stations, and 45 cars. Phase II will add 3.4 lane miles, two stations, and 30 cars. The system links West Virginia University's downtown campus with the campus on the outskirts of town.

Recently the Department of Transportation (DOT) announced grants totaling $300 million to four other cities for use in creating people mover systems. The cities are Cleveland, Houston, Los Angeles, and St. Paul; the federal funds would pay 80 percent of the costs. Detroit is receiving $600 million in federal funds to improve its transportation system, which may include a people mover. The funds are given through the Urban Mass Transportation Administration, a division of DOT.

St. Louis Mall reconsidered

Time has changed the view of St. Louis officials and much of the public toward the Gateway Mall design for which Sasaki Associates of Watertown, Mass., (then Sasaki, Dawson, DeMay Associates) received the $15,000 first prize in 1967 in a national competition. The one block already developed according to design has rows of trees along elevated berms and has been criticized as a barrier to free movement, too passive, and uninviting to pedestrian use.

A spokesman of the Sasaki firm says that since submitting the winning design the firm has had no involvement in its development and that the city of St. Louis has assumed responsibility for the implementation.



Hutchins Photography

Mall, old courthouse, and Saarinen arch.

At question is how to handle the remaining blocks in the total 18-block mall which extends west from the Gateway Arch through the Civic Center.

Now the city proposes to revise the new block, completed only last summer, by removing the berms and trees and adding a random arrangement of trees around a proposed steel sculpture by Richard Serra. The commissioned art work, however, has met resistance of its own. Letters to the *St.*

Louis Post-Dispatch quickly objected that the weathering steel panels would be "reminiscent of fencing around construction sites."

The need to determine what sort of urban identity is to be conferred on the mall is intensified as new construction along its borders calls attention to the delayed development. This includes announcement of a $40 million complex by Neuhaus & Taylor of Houston/Dallas and the new General American Life Insurance Co. home office, nearing completion, by Johnson-Burgee of New York. [George McCue]

A Trojan Horse for the French people

An exhibit called "City Archaeology" designed for the new Georges Pompidou National Center of Art and Culture, Paris, is housed in a steel, symbolic horse recalling the Greek gift horse to Troy, which brought the city's downfall. "City Archaeology" is by the New York firm, Haus-Rucker. In the exhibit, which was scheduled to be on view only a month, through March 8, were showcases along the horse's "ribs" (walkways) containing man-made objects—relics of the city—such as pairs of shoes and a purse with unpaid bills. Haus-Rucker calls its construction, 120′ x 75′ x 15′, the largest indoor steel sculpture realized in modern times. It can hold 1000 people.

'City Archaeology,' Pompidou Center, Paris.

Energy analysis: by Edison Institute

Locations of companies cooperating in a program giving computer usage and engineering expertise to energy studies is available by writing the Edison Electric Institute, sponsor of the program, 90 Park Ave., New York, N.Y. 10016. Known as AXCESS, the program makes available energy analysis services to those interested in energy usage studies for both new and existing buildings. Edwin Douglass at the Edison Electric Institute is in charge of releasing information on AXCESS; participating firms include S & H Information Services of New York; TRW of Redondo Beach, CA; and the Electrical Council of Florida, Tampa.

NCARB intern pilot completes this year

A pilot Intern-Architect Development Program (IDP) in New Jersey, Texas, and Colorado initiated by the National Council of Architectural Registration Boards has completed its first year with 100 of the original 130 interns still active. This month the program will be evaluated with expectations that it will be continued.

The goal of IDP is to prevent the newly graduated architect from being inundated by a tedium of drafting and instead give him a wide exposure to the activities of an architectural practice. To this end a 28-point schedule

has been devised for the intern and his employer/advisor to follow.

While initial assessments of the program have not been 100 percent positive—a main criticism still being the inability to give sufficient breadth to the intern's work—sponsors are hopeful the program will result in a nationwide program.

In conjunction with IDP, the American Institute of Architects has developed "supplementary education resources" to help the interns.

Personalities

The Connecticut Society of Architects has named the following officers: **Richard Foster** of Greenwich, president; **Michael Buckley** of West Hartford, vice president; **Raymond L. Drouin** of Madison, secretary; **Allan J. Dehar** of North Haven, treasurer; **Nancy M. Jackson** of Farmington and **Gerald M. Kagan** of Woodbridge, directors for three-year terms.

Calendar

Through May 22. "The Royal Pavilion at Brighton," Cooper-Hewitt Museum, New York City.

Through June 18. "Women in American Architecture: An Historic and Contemporary Perspective," Hayden Gallery, Massachusetts Institute of Technology, Cambridge.

May 23–25. Annual apartment builder/developer conference and exposition, Las Vegas Convention Center, Las Vegas, NV.

May 31. Deadline for submissions to Architectural Awards of Excellence Program sponsored by the American Institute of Steel Construction, New York City.

June 5–9. American Institute of Architects convention, San Diego, CA.

June 5–Aug. 14. "Calder's Universe," Walker Art Center, Minneapolis, MN.

June 6–8. "Challenges and Opportunities in the Mature Metropolis," a symposium organized (under a grant from Mercantile Bancorporation Inc.) by The Institute for Urban and Regional Studies, Washington University, St. Louis.

June 7–8. Engineers' Public Affairs Forum, Capital Hilton Hotel, Washington, D.C.

June 10. Deadline for entry forms in the Red Cedar Shingle & Handsplit Shake Bureau Architectural Awards Program, Bellevue, WA. Entries are due July 15.

June 12–17. International Design Conference in Aspen.

June 14–16. Safety Expo/77, safety and health conference/exhibit sponsored by Occupational Hazards magazine, Civic Center, Philadelphia.

June 20–22. Construction Specifications Institute convention and exhibit, Denver, CO.

June 22–24. NEOCON, National Exposition of Contract Interior Furnishings, Merchandise Mart, Chicago.

July 22–25. American Society of Interior Designers national conference, Houston, TX.

Sept. 5–10. International Federation for Housing, Urbanism, and Territorial Planning congress, Geneva, Switzerland.

Sept. 14–18. First international conference on the history of urban and regional planning, Bedford College, London, England.

Sept. 19–24. ICSID 10, Congress of the International Council of Societies of Industrial Design, Dublin, Ireland. Send registration by July 16 (fee slightly higher after that date) to ICSID 10 Congress Secretariat, 44 Northumberland Rd., Dublin 4, Ireland.

[News report continued on page 40]

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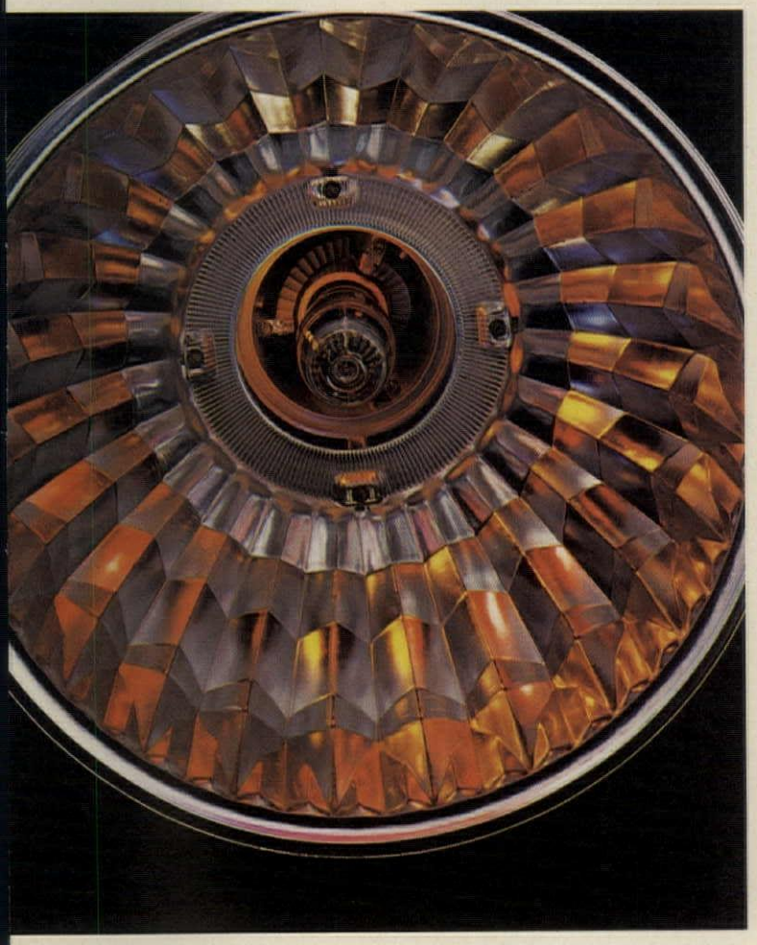

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GENERAL ELECTRIC

THE FACTS ABOUT STAGGERED TRUSS – THE LOW-COST, HIGH-RISE, STEEL FRAMING SYSTEM.

Many high-rise residential buildings have been built with the Staggered Truss steel framing system. In fact, in recent years over fifty apartment and hotel type structures have taken advantage of the Staggered Truss.

This system for high-rise structures affords an efficient and economical use of structural steel, with far greater flexibility than is possible with other portal framing systems.

HOW THE STAGGERED TRUSS WORKS

The innovative Staggered Truss Steel Framing System consists of story-high trusses that span the full building width at alternate floors of each column line. The trusses are supported only on the two rows of exterior columns and are arranged in a staggered pattern on adjacent column lines.

ARCHITECTURAL FLEXIBILITY

Since columns are needed only at the exterior of the building, the full width of the building is column-free, providing the maximum useable floor space. And with trusses starting at the second floor level, large clear span areas are available at ground level. As a result, the ground level can be more efficiently utilized—for parking, promenades and playgrounds. Also, construction within air-rights over existing facilities is made more simple.

Complete architectural units can be placed between trusses, and by varying truss spacing the number of unit sizes within the spacing can be varied.

For example, in apartment house construction, one, two or three bedroom units can be arranged on a single floor by varying truss and column spacings. And the Staggered Truss system is not only applicable to the basic rectangular configuration: it can also be applied to curvilinear or circular building, or to combinations of offset rectangles.

Trusses can be constructed with any practical distance between chords, so any floor-to-floor height can be met—which might present difficulties with conventional framing methods.

WHY IS STAGGERED TRUSS ECONOMICAL?

To start with, foundations are only needed for the exterior column lines. This means savings in excavation, concrete costs, and the time spent for foundation construction.

High-strength steel can be used economically, because strength rather than deflection controls the truss design.

With minimum types of truss members, important savings can be made in shop fabrication—which in itself accommodates the maximum use of mass-production. And with fewer pieces to handle in the field, erection time and costs can be cut.

All this helps make Staggered Truss more economical than other systems. For example, in a typical twenty story apartment building, we might expect that the steel requirement for a staggered truss frame is only about 60% of that required in a conventional framed structure. A possible saving of up to 40%!

Naturally, shorter erection time results in faster occupancy—and this means lower-cost construction loans and earlier rental income for owners.

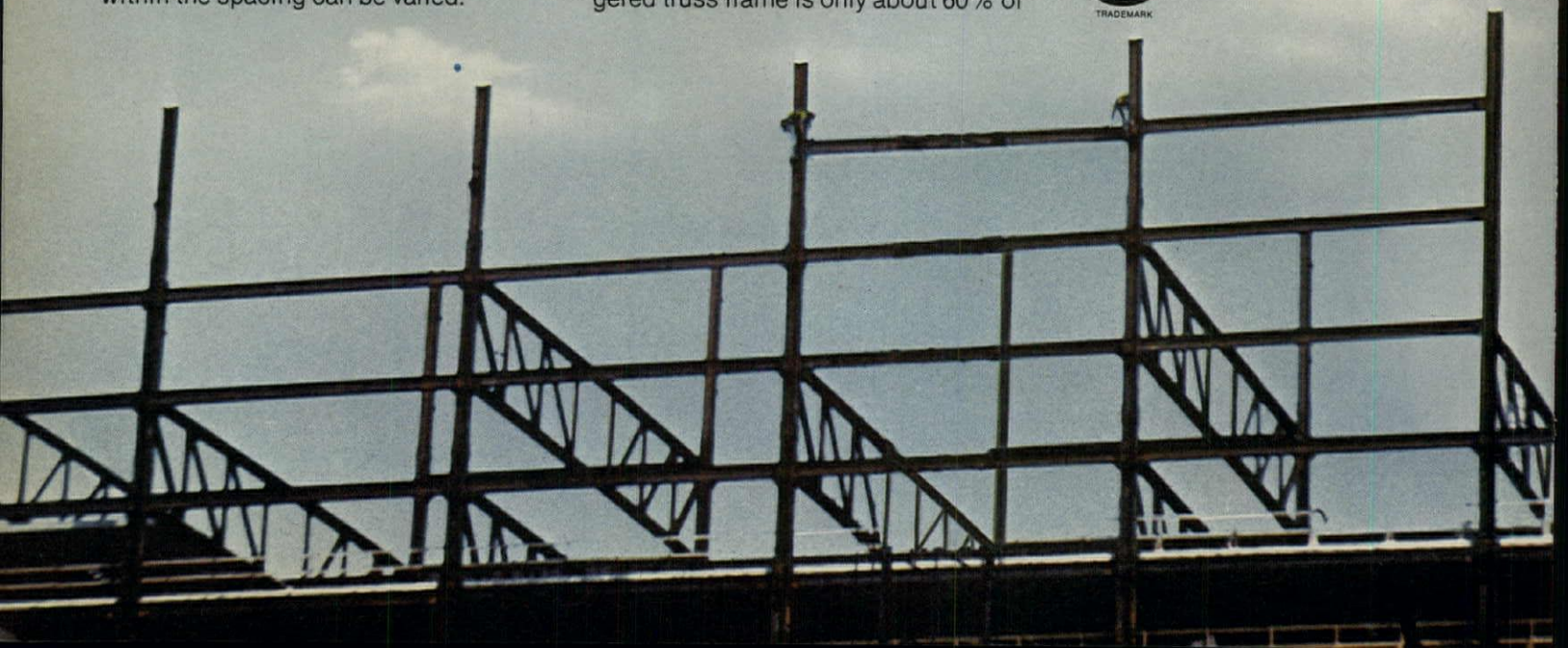
THINK ABOUT IT

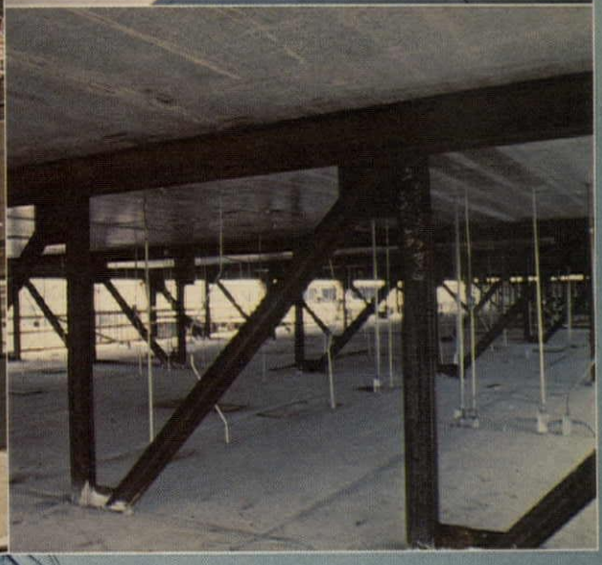
The benefits of the Staggered Truss system are many, but its biggest advantage is the ability to resist lateral loads. So the value of the system increases as the building becomes higher, and this is why it has been so successful for high-rise residential buildings such as apartments, condominiums and hotels.

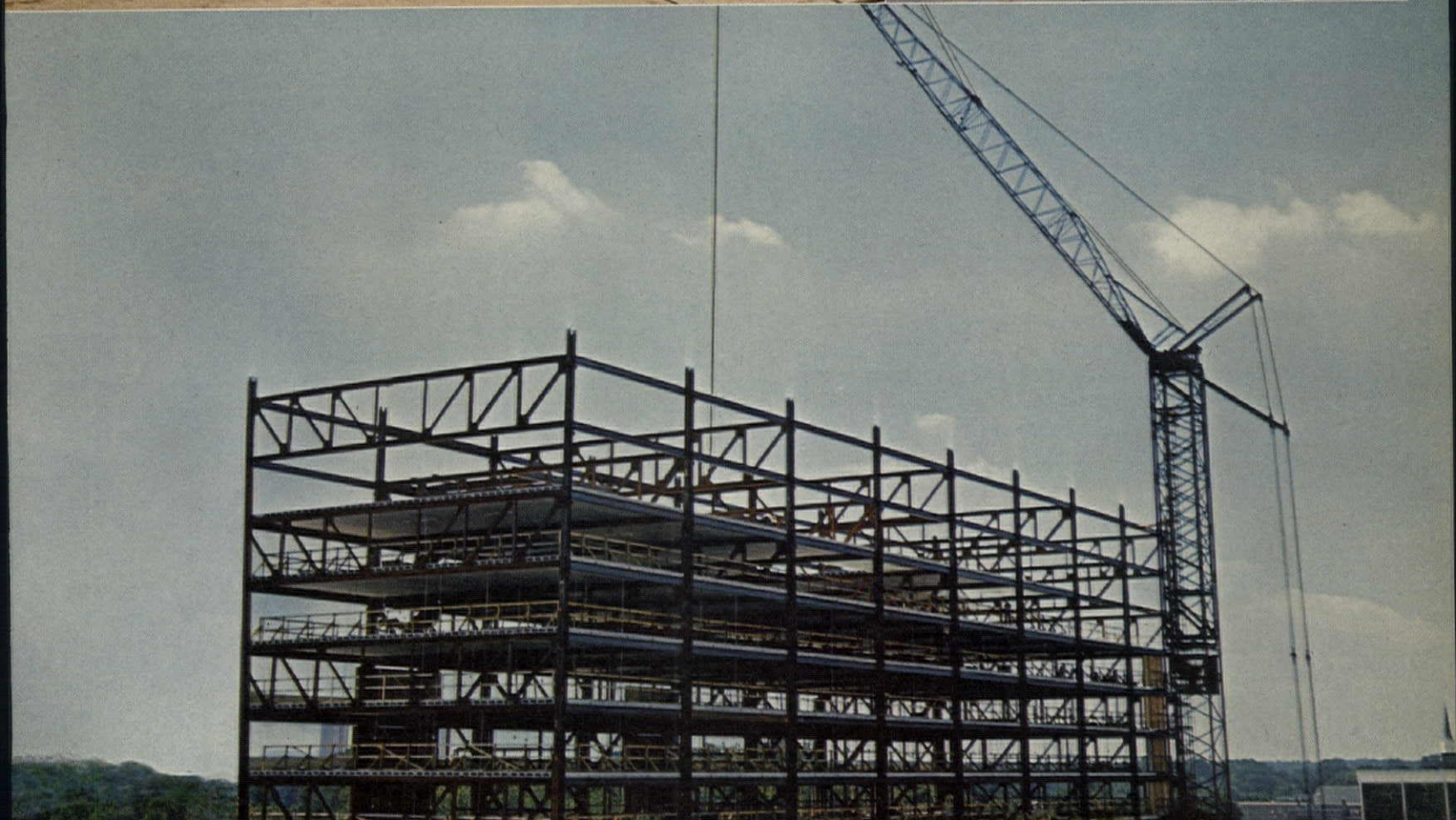
Staggered Truss is worth thinking about. In many recent projects, when evaluated against other systems, it has proved to be the fastest, the most practical and the most economical. You'll be surprised how easy it is to work with.

For more information on the design of Staggered Truss structures, contact a USS Construction Representative through your nearest U.S. Steel Sales Office. Or write for our booklets, "Staggered Truss for High Rise Building" (ADUSS 27-5227-02), and "Staggered Truss Framing System-Design Considerations and Commentaries" (ADUSS 27-7165-01), to U.S. Steel, Box 86, (C775), Pittsburgh, Pa. 15230.

USS TRADEMARK United States Steel



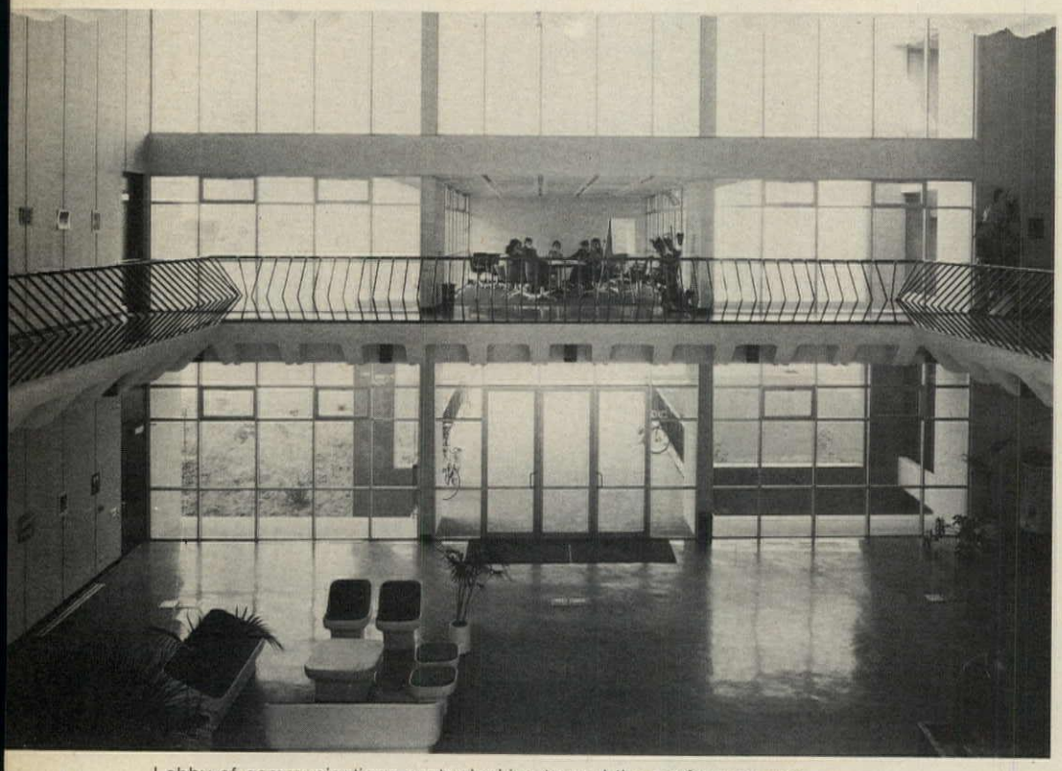




In perspective

Photos: Wayne Thom

Annenberg School of Communications, Los Angeles: main entrance between two vertical panels (left); east elevation at night (above). A. Quincy Jones & Associates.



Lobby of communications center looking toward the conference area.

'Network' takes over design

Architects have long memories. When they do an original piece of research on a building that isn't executed they store it up and reinvent as needed. The Los Angeles firm of A. Quincy Jones & Associates designed the new Annenberg School of Communications, University of Southern California, Los Angeles, based on research for a hospital that would respond to change. The kernel of both building types is the massive mechanical load and the ever-present need to tap in at will.

What Jones did was to develop and refine an air floor and waffle slab ceiling with trenches for conduits between the 7-in.-deep pans. Out of the system comes the toothed cornice effect of his buildings. But in the Communications Building the interstitial spaces are vertical—two 20′ x 20′ towers, spaced for the shortest mechanical runs—and house all the mechanical equipment and plumbing. Multi-media and other conduits can surface at any point through the air floor.

A communications center for instruction is a fairly new type, one which is space and money hungry. The 50,000-sq-ft building was designed to accommodate a maximum 100 students at a cost of $3 million. The first class of 50 students (all candidates for master's or PhD's) works with $200,000 worth of equipment, much of it concentrated at the garden level. There are no classrooms because there are no classes, per se, and few seminars; the only classroom is the city itself. Learning is self paced, and instruction is by tapes. Contact between students and instructors is on a one-to-one basis. The plan reflects this ratio.

The students' work stations on the second floor adjoin the glass-walled faculty offices. Movable walls surround the monitors, video, and other equipment that students use, but faculty advisors are visible. The day the building was dedicated the work stations hummed like a campaign headquarters a week before election.

The poured-in-place concrete building is entered by a bridge at the second level, with the garden level partially below grade. Rooms open onto wide terraces and look out upon the landscaped upslopes.

The largest single space in the building is the 34-ft-high lobby, the surrounding balcony of which is a corridor to the dean's suite and offices for representatives of NBC and Pacific Telephone. Threaded steel inserts were installed in the waffle slab for suspending platforms when more work areas are needed.

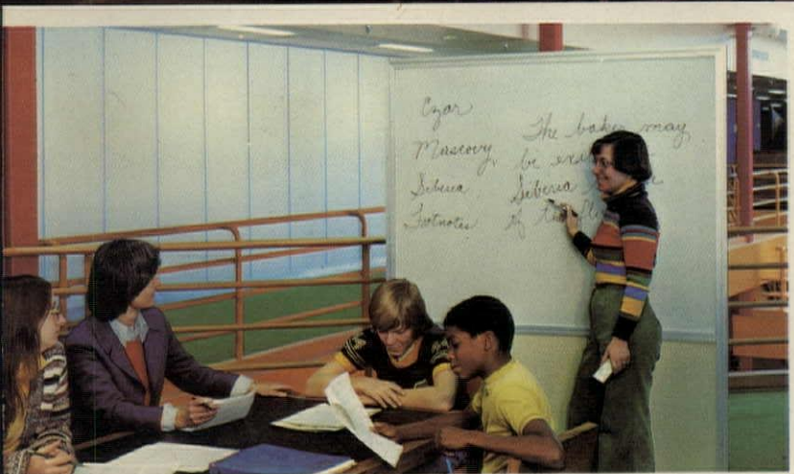
The only other large spaces are a 50-seat stepped assembly room and a 200-seat auditorium. The costliest piece of equipment is located here: the audience response system which allows 100 persons to choose among 900 possible reactions to what they are viewing. These choices are signalled to a central computer, and a read-out is instantaneous.

According to a master's candidate who expects to go into radio programming, her team will use the equipment in testing TV commercials for the State Drug and Narcotics Dept., a project subcontracted to the school. The Galvanic Response System will be used by the team in designing the campaign.

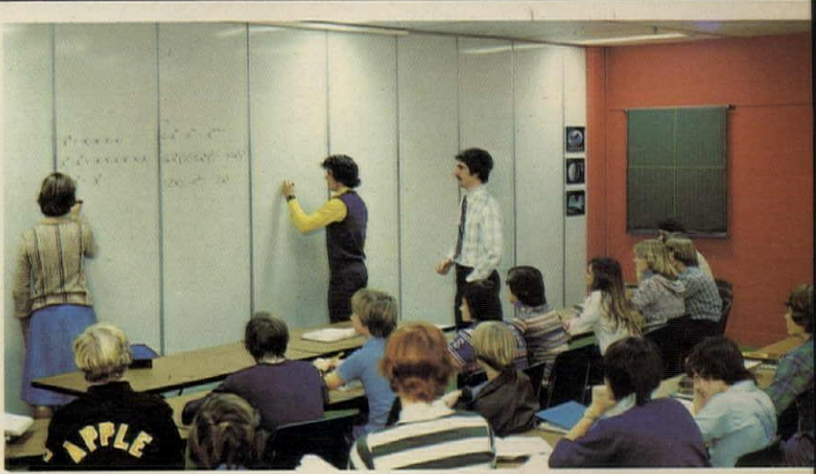
A second building is being planned by the Jones office for the school: the Center for Study of the American Experience. It will be a research center to which five internationally known scholars are invited each year; with their staffs and working fellows they will explore communications and disseminate new information in the field. [Esther McCoy]

AllianceWall WhyteBoard insures lasting beauty for corridor walls and writingboards in this new Apple Valley, Minnesota high school.

Architects: Hammel, Green and Abrahamson



WhyteBoard can be used to make full, functional walls and is also available in pre-framed and other forms.



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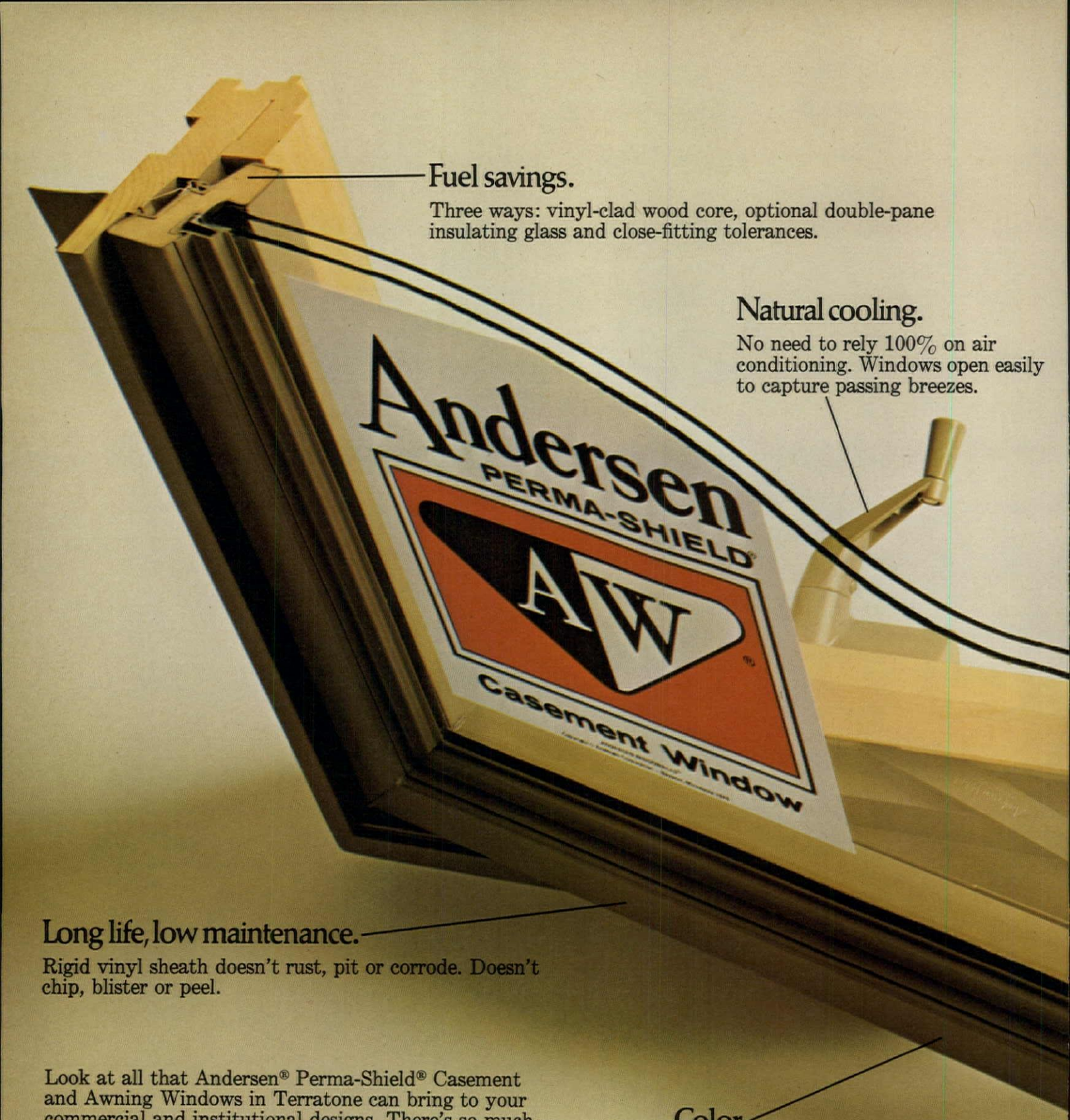

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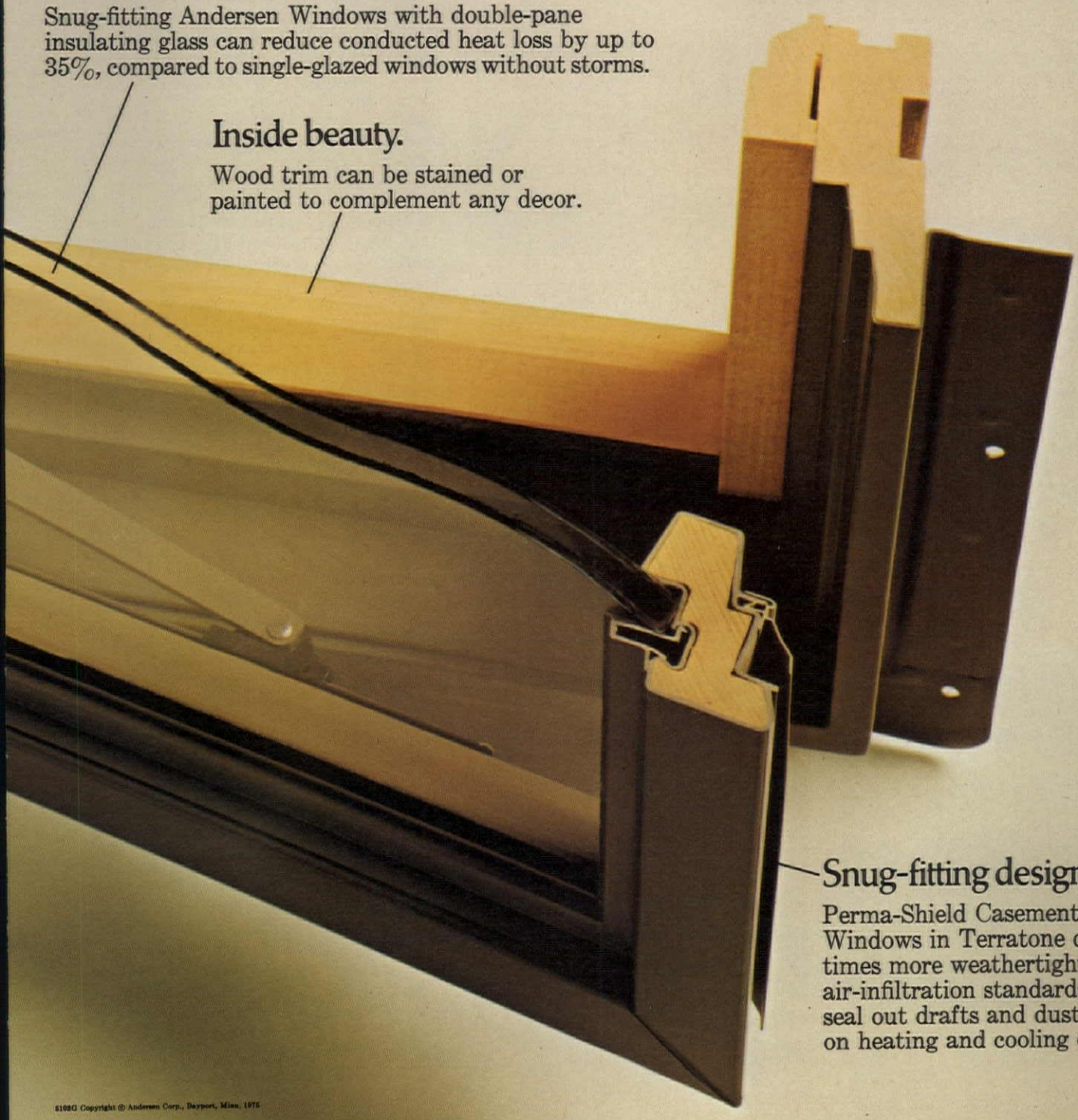

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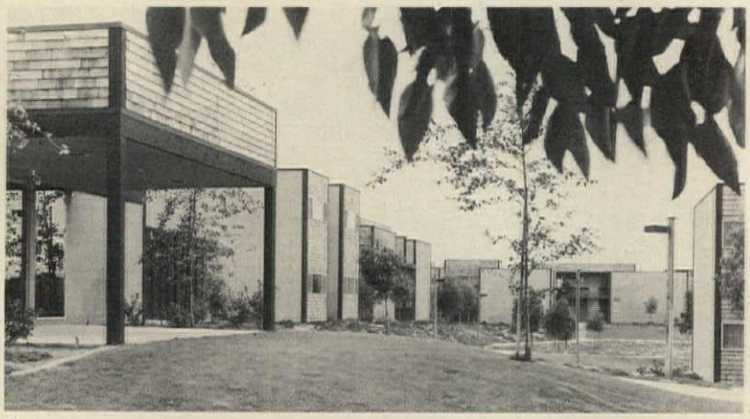
In progress: San Diego



Robert Ward & Associates

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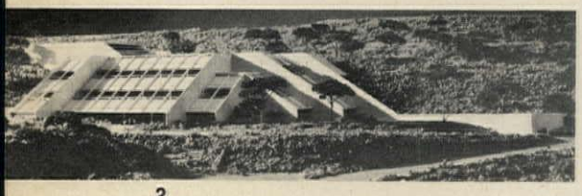

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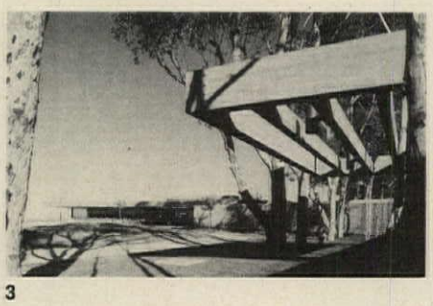

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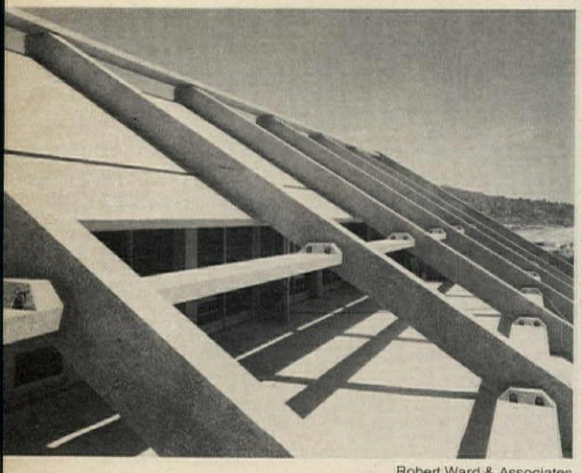
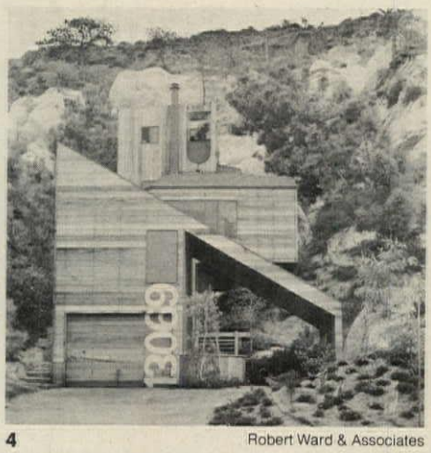


Robert Ward & Associates



4 Robert Ward & Associates

5A Michael Campos

B Robt. Ward Sandra Williams Associates

1 University student housing—a turnkey project for the University of California, San Diego campus, required 200 apartment units with a fixed budget, $4 million, and specific design criteria. The design and construction contract was awarded to architect Leonard Veitzer and developer Mabie & Mintz, both of San Diego on a design and cost basis. Total time from issuance of the competition to student occupancy was ten months. The two basic units are different enough to give both interior variety and asymmetrical exterior form. Upper units have operable clerestory windows; each building has diagonal orientation so all units receive sunlight during part of the day. Two community buildings also were included. The project was completed two years ago.

2 Marine research library—With an enviable view, the Scripps Institution of Oceanography's $2.5 million, 45,000 sq ft marine research library hugs a site 200 yards from the surf along the La Jolla coastline. Liebhardt, Weston & Goldman, of La Jolla used a building module of 22′ x 6″ to create the three-story structure, which is inserted into a hillside to blend more with the environment and reduce heat gain. Each floor has an outdoor balcony. Concrete beams, sun screen panels, and other structural elements were used for their resistance to salt and moisture; the recently occupied library has won a Prestressed Concrete Institute design award.

3 Torrey Pines High School—The San Diego firm Deems/Lewis & Partners designed a high school for 2000 students in Del Mar, CA., that required both compactness and flexibility. The 61-acre site of Torrey Pines High School is a plateau surrounded by hills and canyons; security walls around the school are extensions of the buildings and not obvious protective devices. Both immediate and long-range rearrangements of the interior spaces may be achieved with the school janitorial staff. Materials were selected for low maintenance characteristics; solar control lighting systems also were used.

4 Solar energy house—The home for a research scientist and artist was designed by Gluth & Quigley of San Diego around a linear gallery for both the display of ceramic art and a "theater for living." Rooms are defined by level changes. The site is a canyon near the seacoast, but the house exploits the canyon view and treats the sea as secondary. Although solar energy provides 70 to 80 percent of the heating and hot water needs, the house itself is free from rigid solar orientation. Solar collector panels are located on the garage, which is detached from the house. Little glass was used on the north and west (windward) sides.

5 Courthouse/office building and hospital—Completed last year, the Federal Courthouse and Office Building (A) with plaza areas occupy a three-block downtown site in San Diego. The $36.4 million complex has separate vertical and horizontal circulation systems for judicial officials, prisoners, and the public. The architect was Wheeler and Hope, a joint venture: Richard George Wheeler & Associates and Frank L. Hope & Associates. Hope & Associates also designed the Donald Sharp Memorial Community Hospital (B), a 180-bed expansion completed in 1975 at a cost of $8 million.

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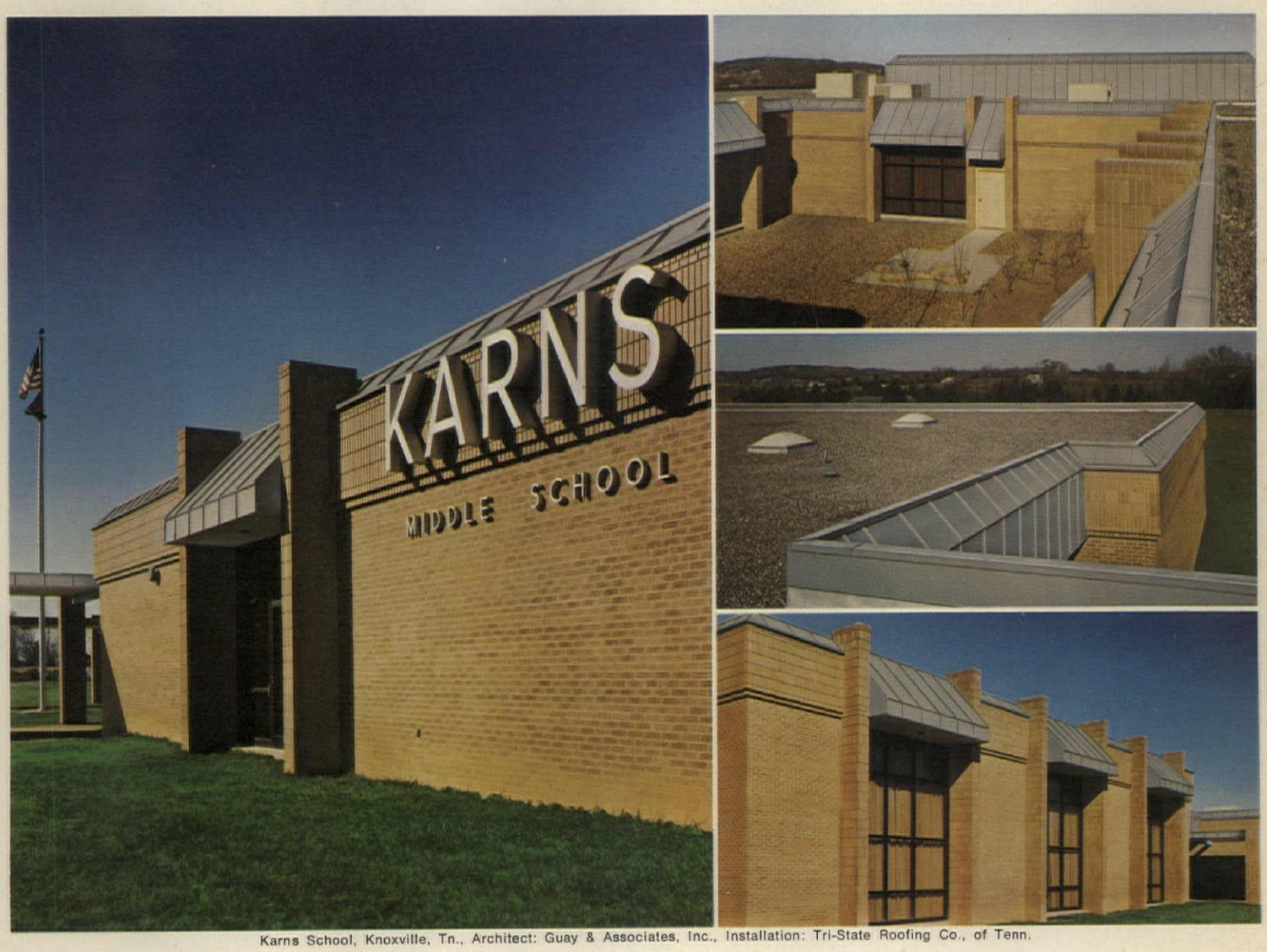

Karns School, Knoxville, Tn., Architect: Guay & Associates, Inc., Installation: Tri-State Roofing Co., of Tenn.

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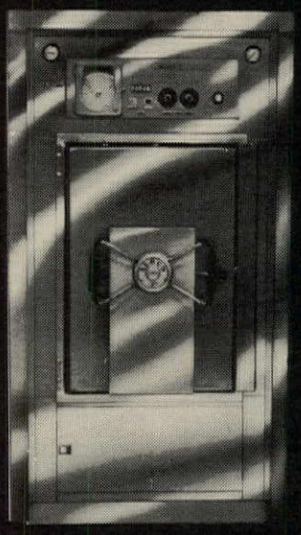

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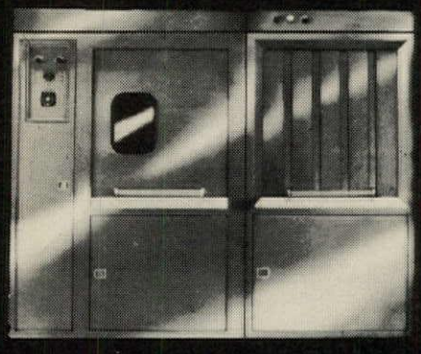

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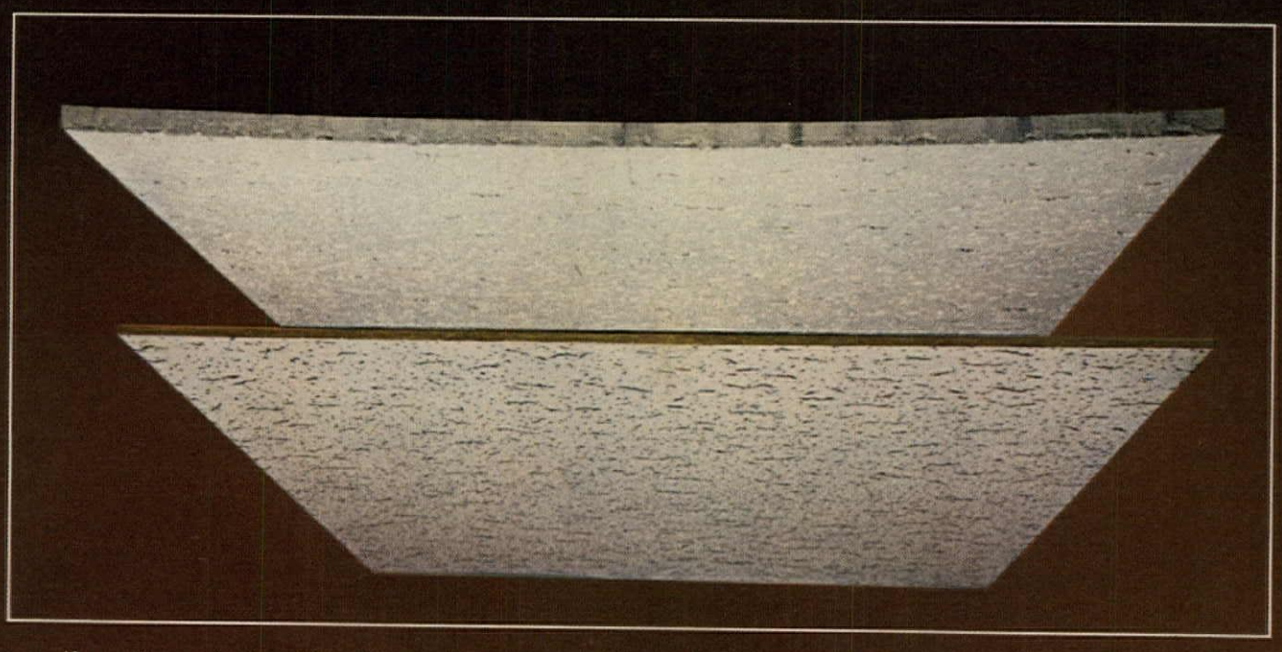

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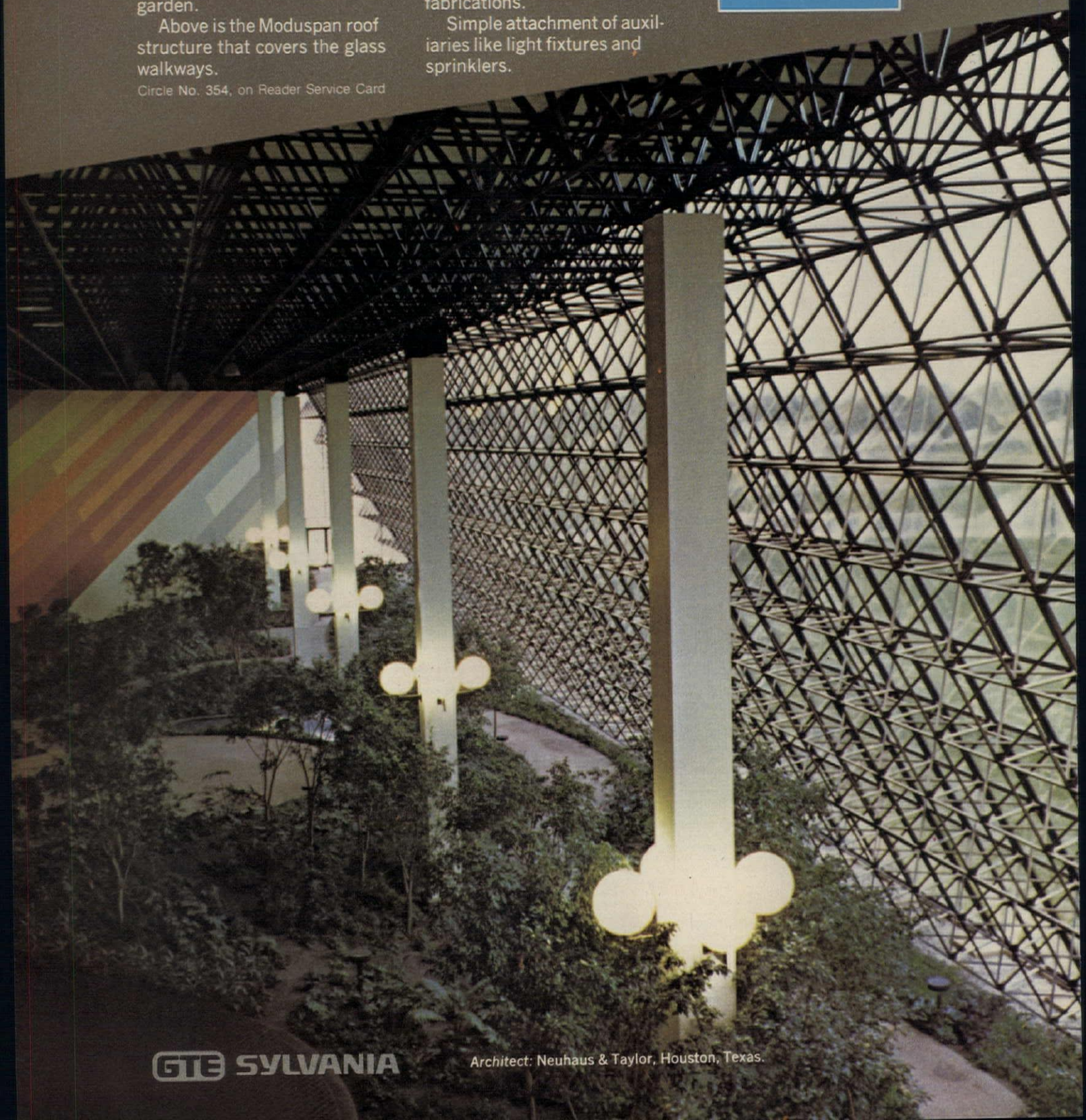
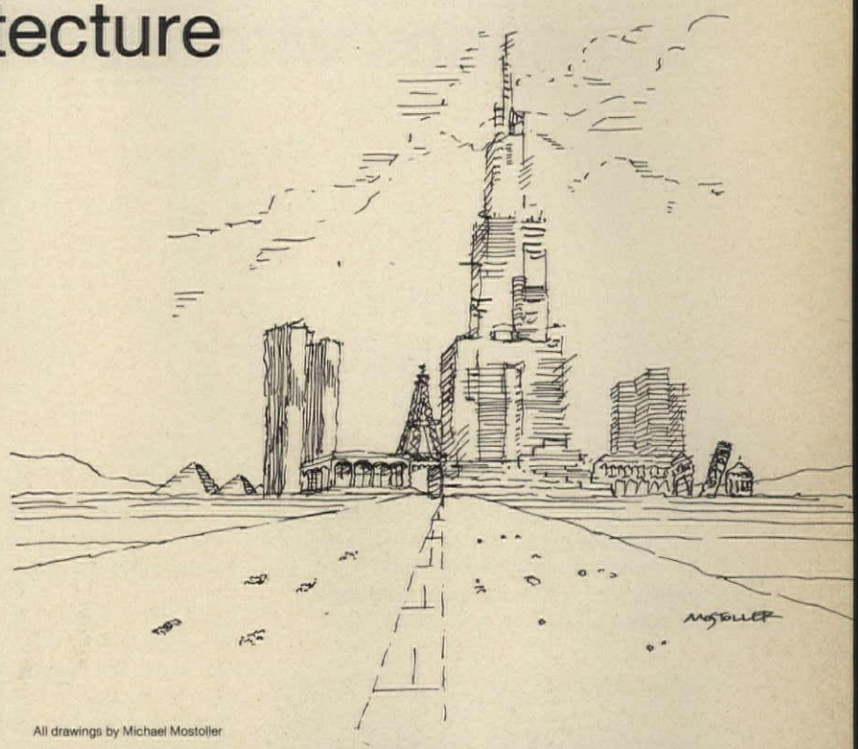


GTE SYLVANIA

Architect: Neuhaus & Taylor, Houston, Texas.

The Future of Architecture



All drawings by Michael Mostoller

Presented in the following pages is the special preview of a new production, which it is hoped will play to a packed house continuously for a minimum of 25 to 50 years. Will it make it? Will it be standing room only? That is the question that haunts the players.

Having decided to tackle this theme as explained in this issue's editorial, it seemed that the best way to confront the inherent ambiguities, the open-ended and diffuse quality of the subject was to treat it as an *art* form. More specifically an avant-garde theatrical production. Therefore the format takes the approach of a production of the play "The Future of Architecture" which will cover a span of 25 to 50 years—during the run of its continuous performances. In true avant-garde fashion, art will merge with life. Since reality will be incorporated into the production, the course of events will not be made clear until they in fact happen.

Because this production is very costly to stage, an out-of-town preview (in the form of this special issue) synopsizes its crucial points to obtain more backers for the production itself. Therefore the production is divided into the following sections:

The scenario: The most difficult things to resolve in this production is a plot line. "The Future of Architecture" capitalizes on this inherent weakness by presenting several plot lines or trends that will determine the context against which architecture is expressed. Basically one can discern four themes of concern about the future as it relates to architecture: political, economic, social, and technological.

The cast of characters: This section deals not only with architectural professionals and the choices or dilemmas they must face, but also clients—developers, patrons, government officials, likely to be around during the course of the play's presentation.

Protagonists: Certain leading characters have functioned as role-models for the rest of the profession. Several were created centuries ago. Others are newly emerging. All who occupy the stage show good possibilities of doing so in the future. But while the cast of characters involves thousands, only certain "real-life" performers have been selected to appear, more or less chosen for the closeness to which they approximate these role-methods. With the discussion of possible roles evolving, a portfolio of the work of some young architects is shown—not to suggest this is the architecture of the future, but simply to illustrate the current efforts by actors who could be heavily engaged in future performances.

Mise en-scène: Divided into two parts, the mise-en-scène is approached both as the *mental* landscape of ideas, concepts, and attitudes that will affect architectural design, and the *physical* landscape of images that are thought by some to signal the future. For the physical mise-en-scène Centre Pompidou in Paris was selected, since it has been often regarded as an icon of the future, one design direction architecture could take.

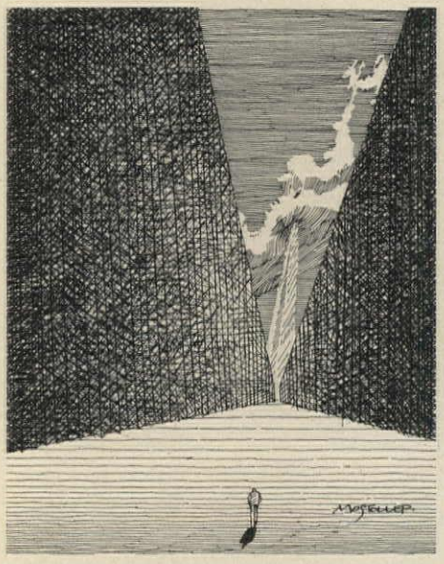
Denouement: Since the denouement will occur in the future there is no real denouement in this preview. Presented in its place is a small selection of comments from a special (mostly architectural) audience.

Critique: Naturally no production should be opened without being reviewed. In this case, a review of the preview discusses strengths of the faults and strengths apparent in the entire production.

This particular trial run focuses on the actors. In an attempt to deal with the unpredictability of the future, it seemed best to analyze the persona and gestures they have evolved to deal with reality, plus the architectural milieu within which they operate. Also investigated is the theater of action—the political, economic, social, and technological framework—that will have direct and indirect bearing on their performances and the public they will reach. So far architecture has been accepted as a passive accomplice of external forces; by taking it apart, perhaps we can begin to discern attitudes and approaches necessary to relieve it of its victimization. To do so we must begin with the act.
[Suzanne Stephens]

Scenarios without end

Ambiguity, fragmentation, lack of recognizable coherence characterize the most gripping avant-garde productions. But can you, audience or actor, stand it in real life?



Plot lines or scenarios may appear indispensable to any self-respecting dramatic production. But obviously when The "Future of Architecture" is being played, plot lines are problematic: social, political, and economic strains all intertwine, affecting the future events within which and against which the dramatic architectural action will unfold. For this long-term production of at least 25 to 50 years, in which reality will be brought right up onto the stage, ambiguity and fragmentation prevail (at least for now). The best way of dealing with the desire for some scenario is two-fold. First, one can describe certain trends, second, one can call upon economists, sociologists, philosophers, and the like to provide a Greek chorus of varying reactions to what *may* seem about to happen.

La vie sociale

The American population is an important ingredient in this plot line. One current trend indicates that the constitution of this group will shift in its age balance from young to old. For example, the median age right now is 28.9; by the year 2000 it will be 34.8; by 2040 37.0. According to figures published in *The New York Times*, not only are more people living longer, but the birth rate is down. For the last several years the average number of children born into a family has dropped to 1.8, below the 2.1 replacement level.

With a stable population composed of an older crowd of people, certain aspects of American life will probably be affected: Some sociologists suggest that the society may be less accepting of change, temporary gratification, disposable material goods, and less eager to move around for the sake of a job. More retirement homes, communities, medical care, recreational and entertainment facilities catering to an older population should be in greater demand. While the need for schools for young may drop, adult education programs may increase as multiple careers in one's lifetime become more common. However pressures on the social security system will mount. Right now 100 workers support 31 Social Security beneficiaries. By 2050, an expected 50 Social Security beneficiaries for every 100 workers could cause a severe strain on salaries.

Housing demand is expected to vary over the next 10-50 years. Economists Thomas C. Marcin and John Kokus maintain that the need for housing in the later 1970s and 1980s will continue to be high because of the number of people entering the 30 to 40 age range and forming households. While the demand will still be strong for moderate-priced single-family homes, the familiar problems of high costs of construction, credit, and land will continue to hamper supply. In fact it should become more severe: The Joint Center for Urban Studies of MIT and Harvard University finds that the percentage of the population which can afford their own homes declined from 45 percent in 1970 to 26 percent in 1976. While the median price for a home is $44,200 now, the price could soar to $78,000 by the early 1980s. The $20,000 house has all but disappeared except for mobile homes, and the plight of housing the poor is worsening, the Joint Center concludes not too surprisingly. The interesting irony however is that the *quality* of houses built and sold is going up. The top quarter of wage earners in the U.S. are currently supplying the greater demand: others are tending to withdraw from the new home buying market rather than purchase a stripped-down house.

In another decade, the shift in population age could reinforce this tendency for the moderate-priced home to be squeezed out of the picture. In the 1980s and 1990s with more middle-aged households and fewer young households forming, patterns will change, though it is difficult to say exactly how. For example, middle-aged people save more money, and also buy more substantial homes to live in than young marrieds. At the same time a trend for household formation of single adults, including those divorced and widowed, will add to the demand for smaller units of housing. According to *The New York Times*, a recent Census Bureau survey shows that the percentage of young adults (under 34) living alone has increased 134 percent since 1970.

Meanwhile another trend is emerging according to both the Joint Center for Urban Studies and RAND Corporation. Not only is population migration to the Sunbelt continuing, but migration to *rural* communities in general is becoming pronounced. In both the North and the South, people are leaving metropolitan areas—suburbs as well as cities—to move to the country. Dr. Peter Morrison of the RAND Corporation calls this movement "one of the most significant turnabouts in migration in the nation's history." Each year between 1970 and 1975, he has noted, 131 people have moved away from a metropolitan area for every 100 people moving in. The Joint Center for Urban Studies corroborates this finding with the statistics that metropolitan areas lost 1.2 million people between 1970 and 1974, while nonmetropolitan areas, in the North and South, gained 1.5 million.

The migration pattern dramatically affects the areas receiving this influx, especially since many rural areas do not have streets, utilities, schools, or even housing to handle the extra burden. Small cities like Petaluma and Livermore (near San Francisco) plus other cities like Boulder, Colorado, and Boca Raton, Florida, have challenged the "right to migrate" by imposing restrictions on incoming population. Two "asymmetries" in this movement have fostered the no-growth attitude, according to Morrison. First, the people who are migrating tend to be urban and affluent ("For them, the dirty road that was so picturesque in autumn must be paved the minute winter snows and spring rains turn it into rutted mud.") The influx to a small town, moreover, will destroy the very qualities sought by people migrating there.

Morrison's conclusion regarding this kind of asymmetry can be seen as integral to the "positional goods" argument that

Fred Hirsch develops in *Social Limits to Growth* (Harvard University Press, 1976). "Affluence" usually signifies the possession of material goods like a TV, which has nothing to do with the numbers of other people who can also enjoy it. Heretofore ignored is another category, that of "positional goods," the enjoyment of which depends on the numbers of people who can have those goods also. If everybody can afford the house by the beach, soon the pleasure of the house by the beach has been destroyed. The reaction of towns like Petaluma is based on this kind of assessment of the paradox of affluence—an issue the American society has not begun to confront.

La vie commerciale

Hirsch also comments on the increasing "privatization" of benefits that were once considered part of the public realm. Tennis clubs, country clubs, total living environments have been appropriated as market commodities, increasing the exclusiveness and commercialization that are so much a part of the American lifestyle.

Robert Heilbroner's observations in *Business Civilization in Decline* (W.W. Norton & Co., 1976) amplify the expansion of economic life arguments. Heilbroner foresees not only the growth of impersonal economic institutions and multinational corporations, but an increase in the amount of government intervention.

While affluence, Heilbroner observes, has not guaranteed happiness, it does require growth and productivity so that the profit margin in business won't be endangered as labor commands higher wages, as people get more goods. In the near future, this pressure on profits can be lightened by the expansion into service industries (the post-industrial economy) and by transnational expansion. In the longer run however, scarcities, hostilities, and other complexities of world economics will increase the need for planning.

The principal problem with so much planning, according to Heilbroner, is the destruction of the spirit of capitalism.

"The ideas of political equality and dissent, of intellectual adventure, of social nonconformity, however much hedged about or breeched in practice, owe much of their development to bourgeois thought. . . . "The selfconscious intellectual, half within, half without his bourgeois home, is perhaps its most important cultural figure," he contends.

Heilbroner is not alone in his proclamation of a sense of loss. Hirsch also discusses the decaying moral foundation of a growth-centered capitalism. Despite capitalism's encouragement of self-interest, individualism, and acquisitiveness, a code of moral behavior has operated to keep everything fair in the individualistic economy.

The sense of old-time religious obligation provided the moral fiber through an internalized sense of social obligation. "Provided everyone behaves *as if* he were really altruistic, no one really need be; everyone's interest will be better served than if everyone behaved unaltruistically," Hirsch argues.

Hirsch's account of the weakened moral fiber of society dovetails in an interesting way with Richard Sennett's thesis presented in *The Fall of Public Man* (Alfred A. Knopf, 1976). In Sennett's view, the rise of private man, of the narcissistic person, accounts for the weakening of norms of social behavior and public conscience. Because of the blurring of distinctions between public behavior and private, every situation is made intimate and self-referential.

This encouragement of narcissism, which on the surface might appear healthy self-interest, translates more readily into self-absorption. One is no longer able to achieve the proper distance and perspective or "impersonality" that is required in certain actions. Thus Sennett contends the "terrorism of intimacy" affects the way man acts in reference to the ever-expanding business state—in spite of the rise of local community groups. "The belief in direct human relations on an intimate scale has seduced us from converting our understanding of the realities of power into guides for our own political behavior."

These scenarios are thus imbued with both hard and soft trends. How will an older population of smaller households living in rural areas, buying privatized lifestyles through commercial means (assuming all this comes to pass) affect the action in "The Future of Architecture"? Similarly how will the growth of the planned-economy business state, transnational capitalism, the decaying moral foundations of capitalism, and the rise of narcissism affect "The Future of Architecture"? Will architecture be the tool of the capitalist state or the palliative of the private worlds of its withdrawn self-absorbed citizens? Probably both (for both can be found today). Architecture lives, but its true operating role needs further definition for its ongoing performance.
[continued next page]

Margaret Mead:
Once upon a time to have the necessary courage to go on with life after some appalling disaster, . . . the ability to forget may have been extraordinarily, biologically useful. Today it is not. When we have far more choice this propensity to forget is actively dangerous. When we invented writing we invented a way of keeping a record of the past but we did not invent a method that will stand up against the human propensity to forget. We will have to invent something of this sort."

(from a lecture delivered at the American Museum of Natural History, New York, February 13, 1977.)

Chris Welles:
Because they express themselves in numbers assertedly accurate to many decimal places, because they always seem so smugly sure of themselves, the self-proclaimed Experts in control of the nation's economic and financial affairs command considerable credibility. We tend to believe them. We think they know what is going on. But just as too many of us keep on reading astrology because we forget to check how often yesterday's predictions really came true today, we neglect to examine the Experts' record. It is very, very bad. According to political economist Robert Heilbroner, "The great body of economists failed to predict the major trends of economic affairs over the past two decades." Economists, adds economics professor Robert Lekachman, "promulgate undue quantities of faulty prophecy and policy prescription." On predicting and dealing with such problems as inflation, recession, and unemployment, the Experts have been woefully awry time after time after time. The American economy is incredibly complex and dynamic, and the Experts just don't understand it yet.

On Wall Street, the Experts are no better. Despairing of the unfulfilled promises of the most respected investment managers that they knew how to beat the stock market averages, trustees of big corporate pension funds have invested $2 billion in new computer-managed "index funds" that merely aim to stay even with the averages.

The Experts' failures have brought forth a growing band of dissidents, many of them of Marxist or radical pursuasion, who vigorously challenge the Experts' assumptions. The dissidents claim *their* assumptions are better, more insightful, more valid. While the experts—reigning and aspiring—fight it out, the best thing for the rest of us is to remain wary, don't believe anything we hear, and maintain a safe distance.

(Chris Welles is a writer specializing in business and finance, and a contributing editor to *New York Magazine* and *Institutional Investor.*)

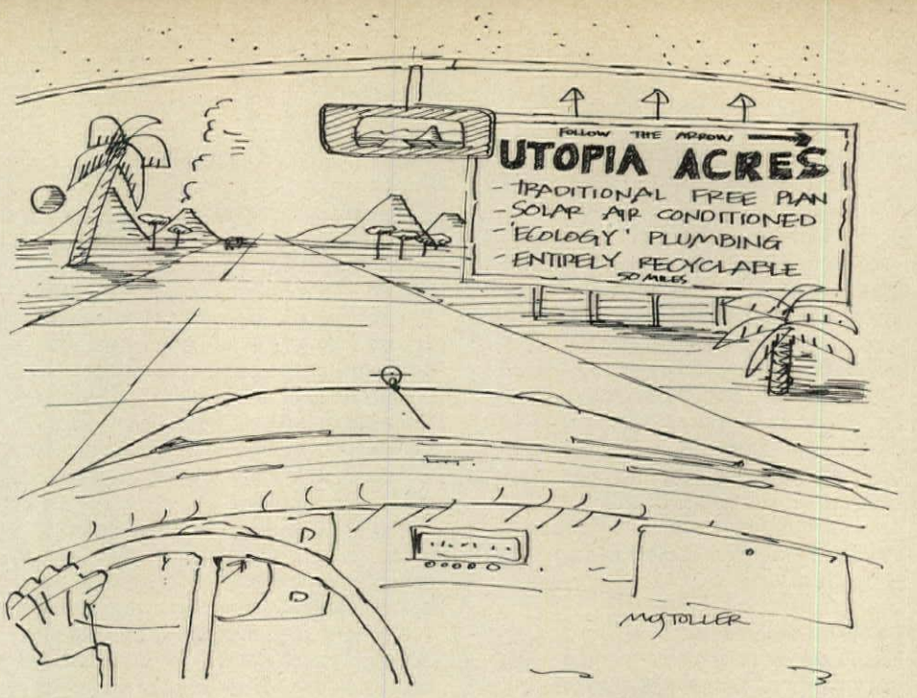
Plot lines

Jason Epstein:
"There is something in the American character," said Jefferson to his daughter as she struggled with her studies, "that regards nothing as desperate." Thus he observed, whether with irony or admiration is unclear, the essence of a religion that would later be called Americanism; a religion that finds nothing tragic in human endeavor, for which evil is always external, for which thoughts are the same as things, and which regards despair as the ultimate sin. So Jefferson anticipated our glory and our folly to the present day as President Carter promises a politics of love and justice, together with a balanced budget, full employment, and a chastened bureaucracy, while Americans by the millions trample the accelerators of their jumbo cars as if the fossilized forests had been as vast as their own zealous optimism.
(from "Capitalism & Socialism: Declining Returns," *New York Review of Books*, February 17, 1977.)

Robert Heilbroner:
Given the present pace of industrial growth—which will take prodigies of science to maintain in the face of dwindling resources—the edge of the heat emission danger zone may be reached in as little as three or four generations. Failing the achievement of the needed scientific breakthroughs, we will be spared the heat barrier simply because we will be unable to produce the energy or to process the resources to maintain our present growth rates.

The problem is that the challenge to survival still lies sufficiently far in the future, and the inertial momentum of the present industrial order is still so great, that no substantial voluntary diminution of growth, much less a planned reorganization of society, is today even remotely imaginable. What leader of an under-developed nation, particularly one caught up in the exhilaration of a revolutionary restructuring of society, would call a halt to industrial activity in his impoverished land? What capitalist or socialist nation would put a ceiling on material output, limiting its citizens to the well-being obtainable from its present volume of production?

The fact that the collective destiny of man portends unavoidable travail is no reason, and cannot be tolerated as an excuse, for doing nothing. This general admonition applies in particular to the intellectual elements of Western nations whose privileged role as sentries for society takes on a special importance in the face of things as we now see them.
(from An inquiry into the Human Prospect, W. W. Norton & Co., 1974.)



The action

The architect/protagonist in our production will take on, in the aggregate, a commission of extraordinary complexity to be executed in many overlapping stages, with innumerable alternates yet to be thoroughly costed out.

Program: Shelter for all life activities—dwelling learning, working, recreation—for a U.S. population expected to grow to 330 million by the year 2000. Commission to include additional space for expanded needs, plus replacement or renovation of obsolete facilities. Due consideration to be given to existing structures on site for adaptation to new uses. Characteristics of population (see text above) indicate strong demand for working places to accommodate the wave of young adults entering labor force over the next decade, which will subside sharply thereafter. The small numbers of arriving infants, increasing somewhat 5-15 years hence before dwindling again, should generate little demand for additional educational facilities.

Budget: Individuals will continue to see shelter as a good investment, but they will get less and less space for their dollar and their after-tax, after-social-security income will grow little, if any, in the next two decades; the poorer ones will be getting shelter subsidies from Uncle Sam. Private enterprise will spend prudently for construction, with sophisticated objectives regarding productivity, adaptability to other tenants, and maintenance costs—disdaining the affluent image so prized in past years. Nongovernmental institutions will be strapped for years to come, with little inclination to spend on building except for necessary replacement and upgrading. Government seems bent on holding down expenditures—especially *visible* ones—for the next several years, with a likelihood of more liberal spending in such areas as health, cultural, and recreational facilities later, if the burdens of deficit budgets—which undermine borrowing power—can be overcome.

In the specifics of this program, we can find many contradictions, with resolution still uncertain. Consider the rapidly expanding labor pool of the next decade against the anticipated slow-growth economy and the inroads of automation and foreign competition, plus President Carter's popular campaign to halt the growth of bureaucracy. Assuming that unemployment levels of more than 6-7 percent cannot long be tolerated, jobs must somehow be found for all of these people—including women who will rarely pause for maternity and elderly people eager to moonlight after retirement. Shorter work weeks—once an accepted prediction—make terrible uneconomic use of plant and equipment, so one solution may be the two-platoon office, following the pattern of shift work in factories and retail outlets.

According to economic sage Daniel Bell (*The Coming of Post-Industrial Society*, Basic Books, 1973), work will become less rigidly organized in coming decades, with more reliance on ad hoc task forces. A corollary would be greater dependence on free-lancers—or even regular employees—working at home with portable equipment and telephone connections.

Out of these unreconciled trends, a few implications emerge for construction of work places: Demand for additional space is likely to lag behind expanding budgets, in both the private and public sector. But replacement and remodeling of existing spaces—required in part by stiffer safety, health, and pollution rules, in part by worker expectations—should tend to fill the resulting gap.

Demand follows funding

In any case, user demand never determines what gets built; if it did, we would have been building housing at record rates. Availability of funds is the overriding factor. (Consider the Pyramids, or any expressway of your choice.) Construction cycles have always been shaped by interest rates and tax advantages, both subject to manipulation by the federal government to serve broader economic objectives.

More positive forms of federal intervention in the building field—urban renewal grants, housing subsidies, and public works programs, for instance—seem un-

likely ever to recover their former political appeal. Instead, block grants to states and localities, rent supplements to individuals, and public *service* programs (designed to get more of the money into workers hands) may generate construction only indirectly.

The funding outlook: favorably moderate interest rates over the coming decades, assuming governments carry out their mandate to trim deficit borrowing. With little direct support of construction by government, the choice will be left largely to private enterprise, which may—or may not—be persuaded that building is a good investment.

Site survey

Aside from funding, new construction depends on the availability of land at favorable cost. (Urban renewal, you may recall, was simply a land acquisition, clearance, and cost write-down program.) Land costs have recently proved to be recession-proof, and they promise to rise indefinitely into the future. As the public becomes more aware of land value, more "don't build" zones will be set aside in the name of pollution control, wildlife preservation, and public recreation. Localities will look skeptically at new potential taxables, as they tote up the costs of additional roads, utilities, and waste disposal burdens. Restrictive zoning ordinances are being tested and clarified in court.

The inroads of sprawl on such fertile agricultural areas as the Atlantic Coastal Plain, the Great Lakes states, and the irrigated valleys of the Far West are bound to produce programs (such as New Jersey's "Green Acres") to protect farmland from economic extinction. (Food production without land and conventional water supplies is likely in the distant future, but will not be economically realistic in this century.)

The land outlook: present trends notwithstanding, stringent land economics and regulations will ultimately combine with changing lifestyles and energy imperatives (see below) to rope in sprawl for good.

Energy rundown

Having misjudged the supply of fossil fuels, and the shrewdness of those who hold the major reserves, we fell at least two decades behind in the development of means to apply such "inexhaustible" resources as solar, geothermal, and nuclear energy. For the next two decades, therefore, energy is going to be scarce and expensive. By about 2010 A.D., say Herman Kahn and his moderately optimistic colleagues at the Hudson Institute (*The Next 200 Years,* Morrow, 1976), photovoltaic conversion of solar energy should become an economically competitive source, capable of supplying the world's needs; meanwhile wind power, direct solar heat systems, and conversion of wastes will be effective in many situations; they see little long-term advantage in nuclear *fission* power, through nuclear *fusion* holds out great promise—whenever the technical bugs in that process are eliminated.

For the near-term future, of course, buildings will be constructed with better insulation, with bulk, orientation, and openings adjusted to climatic conditions; lighting and comfort systems will be more carefully controlled; and solar energy devices—both passive (skylights, etc.) and active (collectors) will be proliferate. It will no longer be economical to build cheap.

The impact of energy conservation on development patterns—though not so widely recognized—will be just as inevitable. It has to do with the 25 percent of our energy budget that goes into transportation—in particular those daily automobile trips to work, school, and supermarket that go with suburban sprawl. In just a few years the cost of operating cars, of heating and cooling the split ranch, the land-price crunch, and the shift away from child-oriented lifestyles will bring about a *reconcentration* of dwellings, offices, shops, etc. A finer-grained mixing of functions—often in the form of mixed-use structures (Dec. 1975 and May 1976 P/A)—will be recognized ever more widely as proper zoning objectives.

Will this eventual reconcentration of U.S. population mean a "return to the city"? (Granted, the rural self-sufficiency mode will remain quite workable—for a relative few.) Reconcentration will mean a return to areas of existing utilities and public transportation, including older suburbs and small cities that stand ready for manageable redevelopment.

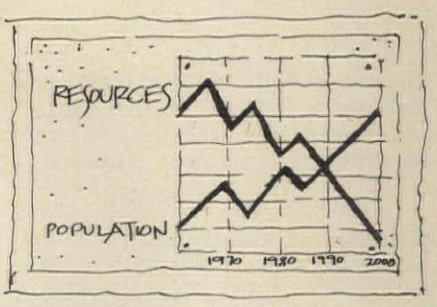
The ability of the major cities to attract new life depends on many unpredictable factors that will have to be resolved in concert: control of crime, sharing of welfare and education costs, national policies on public transportation, housing, preservation, and pollution control, and—in most cases—a radical overhaul of local political and bureaucratic systems.

One resource that our inner cities can offer is recyclable land cleared or abandoned by landlords or industry—in particular railroad yards and waterfronts (June 1975 P/A)—well-served by utilities and transportation. If ways can be found to revive the new-town-in-town concept—a movement stifled in its infancy by federal policy shifts, interest escalation, and the recession—such tracts offer great promise for urban life (and those who plan and design for it).

Structuring the scene

Given, two paramount considerations in building construction for the next quarter century will be energy conservation and life-cycle costs. A third issue with important implications for design: Will construction continue to become more industrialized—more of the labor accomplished in factories—or will there be a reversion toward on-site-labor techniques? The first approach yields more efficient use of labor and less waste of raw materials; the second saves on fabricators' overhead, inventory, shipping, but relies on a troubled field labor force (next page).

Factory production of large-scaled building components—a long-held vision—was dealt a mortal blow in the U.S. by the failure of the federally sponsored Operation Breakthrough—the losses suffered by virtually all of its participants. Industrialization survives—and thrives—in the form of pre-engineered buildings (Aug. 1975 P/A) and in "modular homes" (evolving out of "mobile homes") that now meet most building codes. Both these types are now meeting urgent demands in such hostile settings as the Alaska North Slope and the Arabian Desert, and these industries seem poised for greater sophistication. Though their traditional markets have little overlap with architects' key sources of commissions, they are likely to tie part of



their expansion to component lines applicable by architects to such problems as medium-density housing, office, and retail developments.

One material resource that is bound to appreciate in value over the next decades—as it already has—is existing construction. "Recycling" may be dismissed as an all too fashionable term for remodeling and rehabilitation, but it does recognize one of the strongest reasons we will have for reworking old structures (hence, not-so-incidentally, reinforcing existing communities) is simply to retrieve the value of building materials already set in place—lovingly, in some cases.

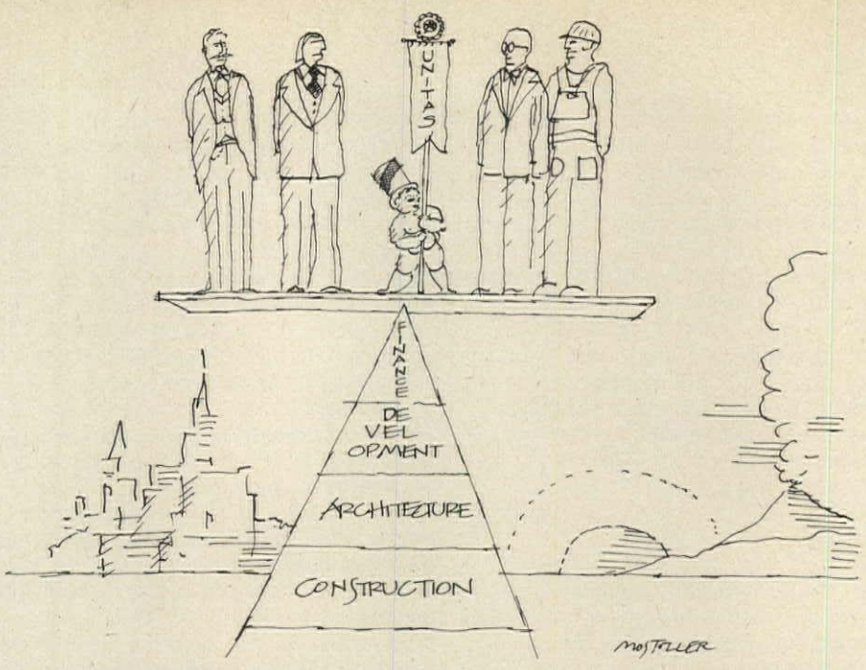
Wizard's wands

One crucial area of technological advance, certain to have increased impact on the future, is computer technology applied to design. More sophisticated equipment and relatively cheaper computer time—combined with a new professional generation that understands the process—can make the outcome of the design process—the real outcome in terms of life-cycle cost, environmental impact, adaptability, user satisfaction—any factors one cares to explore—far more predictable than it has ever been. The big question here is how to quantify noneconomic benefits so that they are really counted in the calculations (not brushed off as in the familiar "cost/benefit" analyses that have justified redundant highways). This problem of making genuine amenities measurable is one of the major tasks of architectural research, one that can make the architect ever more essential to the society he serves.

[Suzanne Stephens and John Morris Dixon]

Cast of characters

A company of pros



The players in the building production have overlapping and shifting roles, but however organized, the effort will always demand the same of talents.

Of all the performers in the construction process, architects have had remarkable success at being both directors and stars (a combination that rarely works in the theater itself). While these old "leader of the building team" claims may have become tiresome, the architect *is* the only one responsible for coordinating the process from programming to occupancy. As for stardom, even outside the architectural press, buildings may be referred to as "Kahn's" or "Johnson's"—rarely as "Fuller's" or MBM's."

Behind the entire team, of course, stand the backers—the clients. It is they who choose the date and place of performance, and choose, or at least accept, the key performers. But there is an even higher power that controls the whole theater—big government. As mentioned on the previous page, government has long controlled the economic cycles to which the building industry is so vulnerable—and done it off-handedly, making construction the inadvertent victim of money market strategies and on-again-off-again public programs that presumably serve higher economic (and political) goals. One result is that no portion of the industry—contractors, labor, or professional firms—enjoys the stability required for adequate capitalization and sound long-term management. Labor traditionally compensates for the unpredictability of work by seeking extreme increases in prosperous times, which contractors merely pass on to clients; but then the industry as a whole threatens to become overpriced.

Another area of government involvement that has been ballooning recently is agency *control* over development and building—as federal and state officials monitor everything from safety of stair rails to the runoff of rain water. The latest arena of monitoring is, of course, energy consumption. As presently administered, all of these protective processes demand vast hours of professional time—seen as boons or burdens depending on who is paying. Daniel Bell, in *The Coming of Post-Industrial Society,* foresees the dominance of a "professional class"—a class "based on knowledge rather than property." He distinguishes the professions (from business) as certified by and accountable to their peers (rather than their customers) and embodying "a norm of social responsiveness." Ironically, all of the peer-group controls among architects are being questioned—at the AIA convention next month, in the law courts, and on the following pages here. The courts and the federal Justice Department have been overturning the fee-setting and other mutually supporting restrictions among lawyers, physicians, engineers, and architects as unlawful "restraint of trade." Whether these organization rules are really "ethics" or mere vestiges of a guild mentality, the professions will have to do without them in the future. Ironically again, this may actually free them to play the roles Bell has in mind.

Among the numerous professional specialists that have been proliferating in the building design field—cost consultants, graphics consultants, zoning analysts, etc.—none has been more controversial than the construction manager. Construction has always had to be managed—traditionally by the general contractor, under the architect's overview. But the urgencies, material scarcities, and cost escalations of the 1960s caused the emergence of construction management as a separate activity—not a certified profession (Feb. 1976 P/A).

Whether CM is answerable to the architect, or reverses the position by acting as the client's agent, his position is ambiguous: he can and does make authoritative recommendations, but legal liability for all decisions remains with the architects, engineers, and contractors. For all its recent growth, construction management may already have passed its peak: in an economy of more predictable costs, interest rates, and material supplies, the virtues of the old competitive bidding system—no CM fee, for one—may reemerge. Architect John Portman sees valuable fallout from the emergence of the CM; his own office has a construction management department that monitors everything the general contractor does, and he recommends one for all firms large enough to sustain it. But he does not believe in administering construction by CM; only the competitively bid contract, he reminds us, gives the client an assured total cost.

One procedure that gives the client assured cost is design/build. The hitch, of course, is that nobody is necessarily defending quality, as against expediency. By working in or with design/build firms—or forming such firms themselves, as they increasingly will—architects may be able in some situations to give a performance that is both professional and businesslike—admittedly a very tough act to carry off.

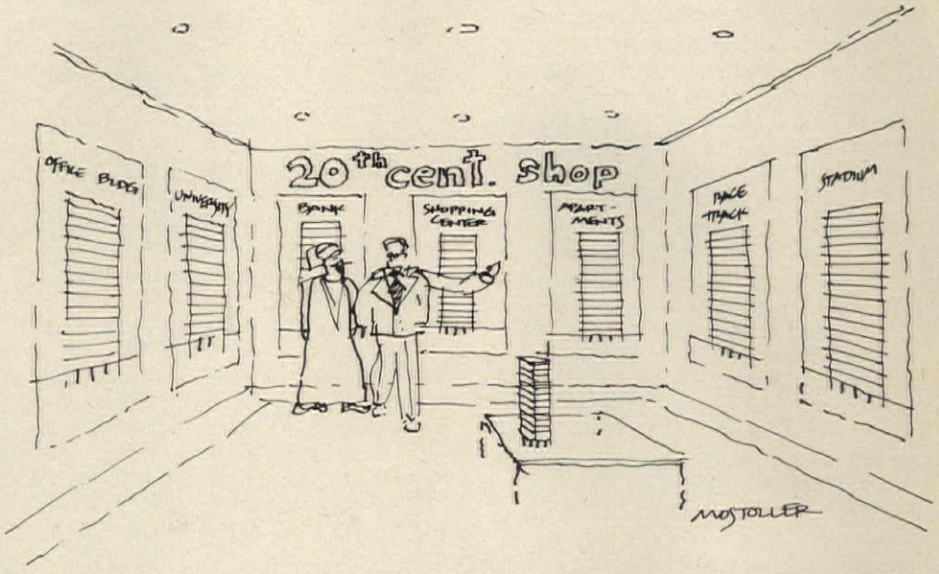
The architecture troupe

As Robert Gutman points out on the following pages, architecture firms seem to be undergoing bifurcation—into large, comprehensive firms on one side and small, specialized firms on the other. And within the large firms, there will be more and more division of labor. This raises questions about the education and certification of architects: What knowledge is required for a professional degree? How will licensing standards cope with specialization? These issues must be resolved if the profession is to remain effective.

As Gutman also points out, we are going to have more trained professionals than traditional practice can absorb. One happy result may be that we will find many more architecturally educated people in business and government. And other opportunities may emerge in the area of *information.* As Alvin Toffler has reminded us (*Future Shock,* Random House, 1970) we are already encountering an advance wave of 'information overload,' 'overchoice,' and 'decision stress.' The research and interpretation needed to make this information glut manageable may add some new roles and many valuable members to the cast. [John Morris Dixon]

Architecture: The entrepreneurial profession

Robert Gutman



Research on the role of the architectural profession in society yields revealing comparisons with other professions and shows why architects must take initiative for their services to remain essential.

Even a brief conversation with architects these days soon reveals their concern about the future of the profession. Two conditions seem to have generated the air of crisis. The first is the rise in the number of professionals who now are unemployed, compared with three or four years ago. The situation is exacerbated because many of the larger, well established, and prestigious firms have had to cut their staffs by 30 to 50 percent. Architects are going about wondering whether the market for their services will ever approach the levels of the late 1960s. Some have even begun to ask how well the profession can withstand the changes that are going on in the construction industry.

The other disturbing condition is that the theoretical underpinnings which have held the field together no longer appear valid. Architecture made its claim for a place in industrial society by arguing that the way in which buildings were designed could improve the quality of life. Clients and users responded to this argument and sought out architects to help them provide housing, communities, schools, hospitals, parks, and other public amenities. Many of the designs which the architect proposed did not fulfill either the architect's promises or the user's expectations. This was a typical outcome in the field of housing and has led many public authorities in both the U.S. and Europe to become disenchanted with concepts put forth by the profession.

At the same time the profession itself has lost its conviction that principles of form and style could be derived by synthesizing the aesthetic element in professional work with the functional requirements of buildings. Architects themselves now don't know what general ideas should regulate their approach to their task.

The despair among the architects is understandable, but it is hard to believe that the profession will not recover. It should be realized, for example, that architecture often has been an underutilized profession. Recent unemployment rates are below those that prevailed earlier in the century (**table A**). In periods such as the present, when the industrial state is in a fragile condition, the concern of architects for building form and social benefit tends to be passed over in favor of an emphasis on the contribution of building to the increase in economic productivity. When the government fiscal situation is more relaxed and when corporations regain confidence in their survival, the skills which are unique to architecture among the design professions generally receive more attention.

However, in order to make some guesses about what the profession may look like when the situation improves, it is important to identify the underlying forces that are shaping architecture today. It is important also to clear the terrain of a number of misconceptions about the field.

Architecture and the other professions

Architects like to think of themselves as similar to doctors or lawyers. Law and medicine are the two most powerful and prestigious professions in America, so it is natural that any other profession would choose to compare itself to them. Given

	Architects	Draftsmen	Designers	Civil engineers	Lawyers & judges	Physicians & surgeons
1890	[4.5		]	—	1.8	1.4
1900	[6.8		]	—	2.6	1.9
1940	4.63	[5.25	]	5.03	1.03	0.39
1950	3.29	2.61	2.66	2.23	2.81	3.06
1960	0.84	7.67	0.92	0.51	0.42	0.45
1970	1.37	3.46	2.37	1.10	0.33	0.22

Table A: Unemployment of the male experienced labor force 1890-1970 (percentages)
Source: Forthcoming study "Architecture among the Professions," by Robert Gutman and Barbara Westergaard.

Author: Robert Gutman is professor of sociology at Rutgers and visiting professor of architecture and planning at Princeton. He has written widely over the last decade on social aspects of building design and architectural practice. The present article rose out of a study which he and his research group concluded last year on major trends in architectural practice for the Consortium of Eastern Schools of Architecture, results of which will be published at greater length in forthcoming papers and books. The views expressed in this article are those of the author alone and do not necessarily represent the opinions of other members of the Consortium.

Cast of characters

this standard, architects are puzzled when they discover that their incomes are lower than physicians and lawyers, that they are less admired, and most of all, that they have difficulty keeping employed when doctors and attorneys still are doing so well. The discrepancy surely is one of the major factors which leads architects to be anxious about their prospects.

It would be helpful in thinking about their profession if architects were more realistic about the special features of their work which distinguishes it from the work of physicians and lawyers. Several factors are important to consider in this context.

First, what gives lawyers and physicians their eminence in this country is that they fill needs which are recurrent and to which American culture assigns top priority. This is true especially of the medical profession: ever since medical science became successful in preventing and curing illness, and the populace was alerted to the need for health care, the physician has become indispensable. Although in many countries the services of a lawyer may not be regarded as so necessary for enabling an individual to function in society, the normative system under which we conduct public and private transactions makes the services of an attorney a condition for the resolution of disputes. There generally is nothing in the field of architecture or building which can match the critical needs for legal and medical services. Only a small proportion of the public has direct contact with architects. And once their demand has been satisfied it usually is not repeated for many years.

Second, the right to dispense legal and medical services is restricted to members of the legal and medical professions. However, the architect's right to practice design and the supervision of building construction must be shared. In most states, civil engineers are permitted by statute to perform most of the same services as architects. For some kinds of building types, such as single-family houses, the owner can do the design work himself. In a study we completed recently, we found that architects do more of the design work for multi-family housing and for nonresidential buildings, a category including commercial structures, schools, hospitals and other community facilities (**table B**). Engineers dominate the market for factory building—an area which tends to recover from recessions more rapidly—and also do more of the preparatory work involved in single-family house developments. We also examined the results compiled annually over a period of 11 years by the *Engineering News Record* of the billings of the top 450 or so design firms. These data indicate that among large firms the share of the market held by purely architectural firms has been diminishing, while firms that combine both architectural and engineering are increasingly prominent (**figure 1**).

Third, much of the work of the architect, like that of most other professionals, consists in giving advice and making proposals for the benefit of his client. But architects generally are more circumscribed than physicians or lawyers in their capacity to make certain that what they propose is what actually will take place. In part, the reason is that the patient for a building is a client whose needs are acknowledged to be subjective. They can be met equally well by several different prescriptions and the client or user is allowed to have a voice in choosing which one might be best for him. The situation is very different in law or medicine in which the practitioner usually assumes the right to say what is best for the patient or client on the grounds of scientific or objective knowledge. Another reason why the authority of architects is restrained is that they have less control over the institutions that execute buildings than physicians, say, have over the system which dispenses medical care. By tradition and by statute pharmacists, nurses, and hospital employees take their orders from the doctor; contractors, plumbers, and carpenters are independent tradesmen whose collaboration in the building process results from a lengthy process of negotiation and bargaining. Although architects are protected by a written contract in their relations to the building trades, they must often compromise with the builder's interpretation of what is an appropriate detail for a specific circumstance.

Fourth, the demand for architectural services is a function of the market demand for buildings, and at least up to now the architect has not been resourceful enough in freeing himself from dependence upon the construction industry. The link between architectural practice and this industry is especially unfortunate because, as is well known, this sector of the economy takes much longer to recover from recessions than do other sectors, such as automobile production. The sluggish demand for architectural services now, more than a year after the economy has turned upward, is an illustration of this problem. The situation is even somewhat more adverse than this statement indicates because architectural practice is tied not simply to the level of construction in general but to the demand for nonresidential buildings and multi-family housing, which recover even more slowly than total construction demand.

	Receipts in dollars (percent)		
	Architecture firms	Engineering firms	Total
Single-family dwellings	21,529 (36.1)	38,035 (63.9)	59,564
Multifamily dwellings	53,840 (61.3)	34,003 (38.7)	87,843
Nonresidential building	586,394 (69.8)	253,615 (30.2)	840,009
Water supply	9,245 (5.2)	167,427 (94.8)	176,672
Industrial plants	46,926 (15.0)	266,205 (85.0)	313,131
Road, bridges, railroads	9,743 (4.6)	204,099 (95.4)	213,842
Civil airports	9,471 (25.6)	27,543 (74.4)	37,014
Power generation	7,976 (7.2)	102,298 (92.8)	110,274
Flood control, navigation	6,843 (13.6)	43,540 (86.4)	50,383
Mining and metallurgy	6,833 (16.5)	34,543 (83.5)	41,376
Other	30,127 (9.6)	284,389 (90.4)	314,516

Table B: Receipts for professional services by type of construction, 1967.
Source: Robert Gutman, Barbara Westergaard and David Hicks, "The Structure of Design Firms in the Construction Industry," *Environment and Planning B: International Journal of Architectural and Building Research*, April 1977.

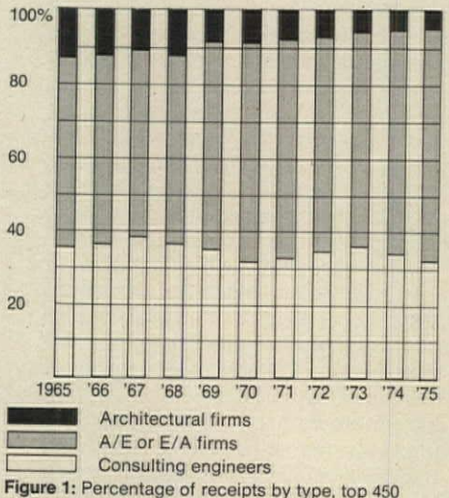


Figure 1: Percentage of receipts by type, top 450 design firms in terms of billings
Source: *Engineering News-Record*, Annual Design Buildings Survey, 1965-1975.

Note: Increase in billings of A/E and E/A firms relative to single-profession firms—from 51% to 62% over a ten-year period—reflects some real tendency toward combining these two services in single organizations. It also reflects, however, the inherently greater probability that a two-profession office will have receipts ranking among the top 450, hence has no definite implications for smaller firms.

Creating demand

This comparison of architecture with law and medicine indicates that architecture is really more of an entrepreneurial profession than a liberal profession. The architect must go out into the community and seek work; he cannot expect to rely on people coming to him, as lawyers and physicians generally can. The challenge to the architect is to find a way of creating a desire on the part of the public to use his services in preference to the services of another type of building designer. The strategy of the American Institute of Architects in urging architects to become developers (still to be confirmed by a change in their code of ethics) will help in part to reduce their vulnerability to the vagaries of the market and the whim of clients. Since, under the new arrangements which the relaxed code of professional ethics would permit, the architect could be his own client, obviously the chances improve immeasurably that the architect, will have tighter control over certain work. However,

becoming a developer does not eliminate his continued dependence on construction demand. Somehow, the architect must also make an effort to detach himself from the construction industry and begin to provide services which are useful to other, less cyclical sectors of the economy. Some firms now sense this requirement and present themselves as audiovisual specialists, media experts, exhibition designers, and experts in graphics and visual communication. This seems an astute move on the part of an entrepreneurial profession.

The romantic loner

There still is a powerful image in the profession which encourages the architect to think of himself as a free, independent practitioner, operating more or less on his own, and cultivating personal relationships with an understanding and appreciative client. The source of the image is a romanticized view of the architect-patron relationship that is supposed to have prevailed before the 19th Century.

A good deal of architecture continues to be practiced in this way. Some 60 percent of the firms which file business tax returns in this country are of this type. However, the average annual billings of these firms is only $10,000, which would suggest that most of them are run by architects whose major income comes from some other work, probably as a staff architect in a public office or larger private firm.

In a study we did of the settings in which architects work, a more important fact about the profession turned up. More than half of the architects in the U.S. are wage-earning and salaried workers employed in private architectural and engineering firms. Another 10 percent are employed in government agencies. Both groups have been increasing over the last few decades at a faster rate than self-employed architects (**figure 2**). These trends probably will continue so that some time soon as many as three-quarters of the profession will be holding staff or technical positions in design organizations.

The same tendency is visible among doctors and lawyers but it probably is more pronounced among members of the entrepreneurial professions, which in addition to architecture, include engineering and accountancy. The trend reflects an underlying social process which accompanies the advance of industrialization and which is called the "dequalification of labor." The process can be defined as the historical tendency of work to be broken down into smaller and more limited tasks requiring less sophisticated training and expertise, at the same time elevating the responsibility of a tiny segment of the professional labor force that has the task of coordinating and managing.

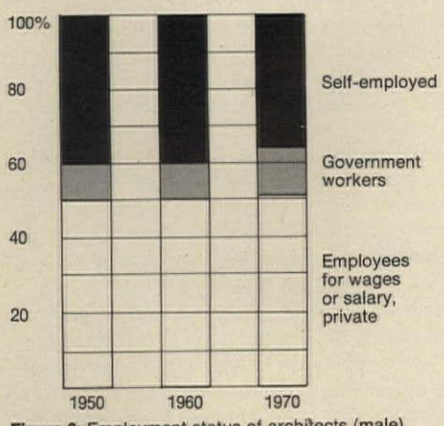


Figure 2: Employment status of architects (male), 1950-1970
Source: U.S. Bureau of Census

	Number (percentage of full-time employees			
	Architects and engineers	Technicians	Other	Total
$1,000,000 or more	3,280 (29.8)	5,428 (49.4)	2,288 (20.7)	10,996
$500,000-$999,999	2,450 (33.2)	3,445 (46.7)	1,489 (19.9)	7,384
$250,000-$499,999	2,776 (35.5)	3,439 (44.0)	1,602 (20.3)	7,817
$100,000-$249,999	4,113 (41.2)	3,901 (39.0)	1,976 (19.4)	9,990
less than $100,000	1,621 (43.7)	1,314 (35.4)	774 (20.7)	3,709
Total	14,240 (35.7)	17,527 (43.9)	8,129 (20.2)	39,896

Table C: Type of employee by size of firm
Source: Robert Gutman, Barbara Westergaard, and David Hicks, "Structure of Design Firms in the Construction Industry." Based on U.S. Bureau of Census data, 1967.

Note: part-time employees listed in the same census data included 279 professionals, 1064 technicians, and 1529 others, totals for all firms.

The effect on the architectural labor force of the dequalification process is revealed not only by the reduced proportion of professionals to technicians in the design industry but also by the incorporation into the larger firms of many nontechnical personnel who have proven enormously useful in turning out program documents, working drawings, and specifications and filling other technical and supervisory roles. Among the firms in this country with four or more employees, only 40 percent of the payroll goes to the higher salaried professional staff, with the remainder paid to less expensive technical and support personnel (**table C**). To the extent that architectural work becomes more mechanized and standardized, the use of the latter type of labor will prove relatively more advantageous.

These shifts in the composition of the staffs of the leading architectural firms obviously present a great threat to the speedy revival of employment opportunities for architects. There is a good chance that for the first time since the decade of the Great Depression we will witness a major exodus from the profession. Between 1960 and 1970, the profession increased at the unprecedented rate of about 8 percent annually, resulting almost in a doubling of the number of architects in that ten-year period. For the years 1970 to 1975, the annual rate of increase was about 6 percent, but this rate of increase will become a negative value by 1980 (**table D and figure 3**).

These prospects offer a real challenge to the schools of architecture, to put it mildly. There are now about 25,000 students in the schools, about 3000 of whom are scheduled to receive first professional degrees this June. Twenty-five thousand students equal 40 percent of the registered architects in the country. If these enrollments were to keep up, and if the usual ratio of graduates to total enrollment remained what it has been in the years since World War II (by no means all those enrolled graduating), this would result in the addition of approximately 15,000 new architects to the ranks of the profession over the next five years. Obviously this number exceeds the absorptive capacity of the design industry, unless there is a radical and quick redefinition of the role and function of architects.

The organization person

Given the fact that architecture is an entrepreneurial profession, also recognizing the impact on the architect of the process through which work is becoming routinized and dequalified, it is not at all surprising that practice should exhibit still another feature of modern industrial organization. The distribution of architectural

Year	Number of architects	Architect per 10,000 urban population
1900	10,581	3.50
1910	16,613	3.94
1920	17,185	3.17
1930	22,850	3.30
1940	21,867	2.93
1950	25,359	2.62
1960	30,028	2.40
1970	56,284	3.77
1975	74,000	4.48

Table D: Number of architects and ratio of architects to urban population, 1900-1975.
Source: All years except 1975, forthcoming study, "Architecture among the Professions," by Robert Gutman and Barbara Westergaard. For 1975, National Endowment for the Arts Research Division, Report No. 1.

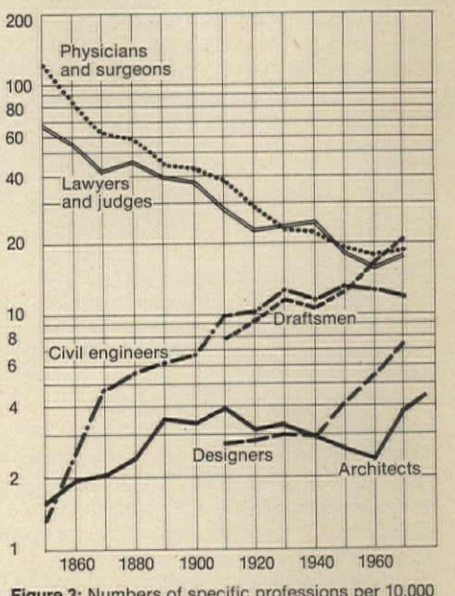
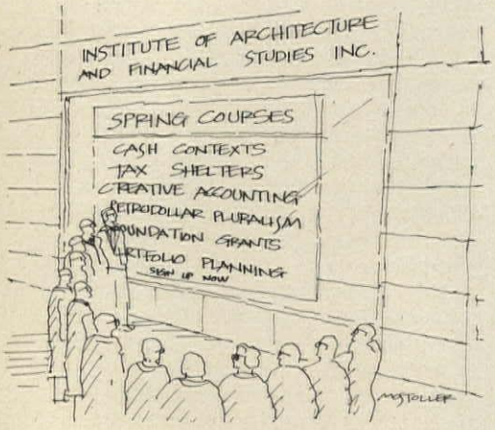


Figure 3: Numbers of specific professions per 10,000 urban population, 1850-1970
Source: Forthcoming report, "Architecture among the Professions," by Robert Gutman and Barbara Westergaard.

Cast of characters



work is now heavily weighted toward the top of a pyramidal structure. A large number of small firms do a small share of the work, and a small number of large firms do a large share of the work.

This is evident from an analysis of the relation of the size of architectural firms to their share of the annual receipts of the industry in 1967 and in 1972 (**table E**). In 1967, firms with three or fewer employees comprised 70.6 percent of all firms with a payroll, but they received only 21.5 percent of the total receipts of all firms. The firms with 50 or more employees commanded 20.4 percent of the total billings for design services even though they comprised only 1 percent of the firms in the field. By 1972, the firms with three or fewer employees made up a smaller proportion of the industry, and the larger firms had increased slightly, to 1.5 percent of the industry. The few large firms had increased their market share of the total billings.

The increasing dominance of the large firms accelerates the transformation of professional practice into an industrial type of organization. The more successful firms expand in order to offer potential clients a broad mix of services, and this mix in turn enables these firms to stabilize their position in a declining market. A firm which can provide not only the usual design capability but also includes a department or subsidiary which is expert at construction management, another which can do graphics, and still others that can handle interiors or do urban planning can use the profits from a strong unit to maintain the other departments until their balance sheets improve. The endurance and market power of the large firms is also enhanced because their work load can make better use of the less skilled and cheaper nonprofessional labor force. At the same time, because a large firm usually possesses more capital, and therefore can better withstand the shocks of a depressed market, it also is more adept in implementing the entrepreneurial definition of the role of the architect. For example, it is no secret that the larger firms are the ones pushing the AIA to relax its ban on advertising. The smaller firms generally oppose it because they realize that the use of advertising and agents as marketing techniques will further undermine their competitive position in the industry.

The issue that inevitably arises in any revelation of the dominance of architectural practice by the large firms is how far it will go, and will it swallow the offices made up of two or three partners and a professional staff of a couple of other architects working full or part-time. There is considerable sentimental attachment to these smaller firms. They are seen as the backbone of the profession, many architects much prefer to work in this kind of setting, and it is widely believed that they are the source of innovation in design (whether the belief is valid or not depends to a large extent on what one regards as architectural innovation). Certainly it is true that a stage will be reached eventually at which the economies of scale exhaust themselves. However, it is not evident that architectural practice has yet reached the point at which diseconomic effects set in; and there is continuing pressure from the dominant clientele of architects, which itself is industrial in character, to achieve greater economies and efficiencies in design through the expansion of the staff available to service it. On the other hand, it is also true that there are clients who are intimidated by the bureaucracy of the large

Number of employees	Percentage of all firms with payroll		Percentage of annual receipts	
	1967	1972	1967	1972
0-3	70.6	54.1	21.5	17.6
4-7	14.8	23.5	15.4	16.6
8-19	10.4	15.7	24.1	24.3
20-49	3.2	5.2	18.6	19.4
50+	1.0	1.5	20.4	22.1
Total	100.0	100.0	100.0	100.0

Table E: Distribution of U.S. architectural firms and annual receipts by number of employees, 1967 and 1972.
Source: Robert Gutman, Barbara Westergaard and David Hicks, "The Structure of Design Firms in the Construction Industry," *Environment and Planning B: International Journal of Architectural and Building Research*, April 1977.

office and who expect to have regular contact with principals and partners. If they cannot get the response they seek from the large office, they will turn to a smaller one. Clients often have surprisingly strong feelings on aesthetic issues; there may be no good way of communicating these feelings, or conducting negotiations about them, except through a personal relationship with the architect.

The introspective professional

At the outset I mentioned the profession's anxiety about its future and identified two conditions which were symptomatic of this concern: the worry about the cutback in work and the architect's publicly acknowledged doubts about the ideas that guided design during the first century of industrial society. Our analysis of the development of architecture into an entrepreneurial profession has treated this process in the context of the first of these concerns, but we have said little about how the distressing loss of intellectual conviction has been reflected in strategies formulated by the profession to deal with its future. There is no space here to discuss the latter aspect of the current crisis in the depth it deserves. However, it should be noted that the theoretical problems of the field perhaps pose an even greater threat to the profession than does its industrialization. We see this instantly if we ask the question: what makes the architectural profession architectural? Certainly it is not the fact that it gets buildings up on schedule, or that it designs buildings which are economical to construct and maintain, or that its products may be durable and pre sent a salubrious and convenient environment. Such tasks could be handled as well by good contractors and engineers. The architectural profession merits this title because it alone is expected to coordinate the achievement of these ends with an aesthetic element, producing a design which responds to the canons of order, form, function, and convenience all in a single solution.

The difficulty at the moment is that neither the profession nor its clients are certain about how well it can fulfill this objective. A major battle has erupted again over style. It is much more dangerous this time than the last battle (c. 1940) because the mass media spread news of it to the potential clients of architects, and also because other design professions are poised ready to wrench away the architects' market. The profession advertises its confusion, too, when some of its members treat seriously the view that architecture is primarily an art form which has little to do with satisfying user requirements. This doctrine, autonomous architecture, borrows its rationale from 20th-Century trends in avant-garde painting and sculpture, and it also gets a lot of attention because of mass society's fascination with new ideologies of self-expression.

Confronted with this chaotic situation in the architectural culture, it is not surprising that the entrepreneurial side of the profession should compensate for the absence of a coherent philosophy of design by emphasizing with a vengeance the practical skills of the architect. Still, one must wonder whether either the definition of architecture as an art form or the determined pursuit of the entrepreneurial role can offer much hope to the profession over the long run. If architecture accommodates itself to a position as a business enterprise, doesn't it run the risk that it will be indistinguishable from other occupations involved in construction? And if architects adopt the identity of artists, do they really believe that the galleries already are overstocked with objects, will be able to market their drawings and models, too? The only effective course open to architects if they want their profession to endure is to resume authority in the area which is their unique province, as makers of buildings who are also makers of form. □

Multiple protagonists

In this long-term large-scale production many leading actors will be occupying center stage at one time or another. But who will finally gain the spotlight?

For this trial run, certain actors (in the metaphorical sense of course) have been designated to represent some of the *types* of protagonists occupying the stage on which "The Future of Architecture" is to be played. This group, unknowingly slotted for the roles in this extravaganza, has been selected because of the closeness with which their real lives coincide with parts in the production. Because these parts or roles could conceivably serve as examples to the rest of the profession, we have identified them as role-models.

Not all role-models are investigated; among those not covered here are the architect-developer, architect-researcher or architect-who-has-chosen-to-leave-the-field. Those involved in this trial run are limited to the more traditional or commonly shared definitions of the architect roles that continue to have a vital appeal to both performers and audience. (For a richly detailed account of the history of these roles, see *The Architect*, edited by Spiro Kostof, Oxford University Press, 1977).

One traditional role-model that was eclipsed during modern architecture's advent is the "gentleman architect." The species still survived of course, but in various guises and updated versions tailored for the new zeitgeist. The authentic gentleman architect, of true Beaux-Arts pursuasion disappeared into obscurity.

Now that the premises of modern architecture are being severely scrutinized, now that history has been retrieved through the efforts of theoreticians and preservationists, the type perfected in the late 19th Century has begun to have renewed interest. The closest correlative to be found is John Barrington Bayley, an architect who, with Harry van Dyke, recently completed an addition to the Frick Collection in New York City. In designing this addition the architects chose to loosely *replicate* the original Carrère and Hastings style, rather than *refer* to it.

Bayley becomes all the more intriguing when one learns he received his B. Arch from Harvard Graduate School of Design in the early 1940s under Gropius. He was a classmate of such modern luminaries as John Johansen and Philip Johnson. Shortly after, however, Bayley, who spent several years at the American Academy in Rome in the late 1940s became a dyed-in-the-wool classicist. His thinking, as expressed in *Unbuilt America* (McGraw-Hill Books, 1976): "Roman architectural surfaces improve with age. . . . They gain patina, high places are polished and low ones are darkened. The modern building does not improve with age. Unbroken surfaces of glass and steel are at their best when brand new."

In this period of intense questioning, perhaps this figure, heretofore anachronistic, will once again be summoned up on the stage.

[Suzanne Stephens]

The individual: Richard Meier

With the gradual takeover of architecture by the Modern Movement in the 20th Century, a new role for the architect emerged. The battle of the styles required a crusading spirit—a defender of Modernism's purity and idealism in the face of public resistance and lack of comprehension. "If there is any ideal preserved in the image of the modern architect," writes Bernard Boyle in *The Architect* (Oxford University Press, 1977) "it is the somewhat anachronistic one of the romantic hero struggling against the unheeding force of philistine society to fulfill his unique and prophetic destiny." Frank Lloyd Wright of course achieved that recognition most spectacularly in this country, le Corbusier in Europe. Ayn Rand helped immortalize (in melodramatic fashion) the role in *The Fountainhead;* Gary Cooper turned it into a legend in the 1949 film.

As a type of role-model, however, the "individual" has had a rough time of it ever since. Once modern architecture's battles were won, the Post-War building boom, the proliferation of materials and technologies plus the growth of "big business" gave the form-giver enough rope to hang himself. There was always the danger that pressures of work and proliferating technologies meant that too little attention was paid to the continuous working out of the design. Too large a project and too many compromises entrapped even the most careful architects trying to wed formal ideals with the realities of building. It was desperately hoped that the architect-as-individual could be played out successfully within the framework of the large office. The newly emerging role-model, the corporate architect, however, tended to keep the individual in the closet. Offering a full range of architectural services to the client, he anonymously captured commissions and left the high-design architects sitting targets for a disappointed public's accusations of being elitist, anti-social, monumental, and formalistic.

With his loss of face the individual architect as a romantic hero wasn't so romantic. Types have a way of enduring, however, especially if the need or desire

Photo: Michael Tighe

persists. And the individual architect, with his invincible faith in pure lofty ideals, his adherence to standards of quality as he rises above the morass of mediocrity in the built environment, still arouses professional and public longing. If the *morality* of Modernism's functionalist credos is no longer the crucial issue, a new kind of morality has sprouted up around architecture's formal and aesthetic obligations.

Re-enter the individual architect

Now, when it is especially clear that large offices have seized control of the greatest proportion of architectural work, the individual architect seems even more anachronistic. Nevertheless, the hardy stubborn breed, found principally on the East and West coasts, more rarely in between, thrives (or survives) in reasonably numerous quantities, teaching, talking, theorizing—and designing.

Of this breed Richard Meier might be the purest and most prolific representative in terms of translating ideas into built form. The haunting evocative quality of his kind of formalism—not too cerebral, not too polemical—appeals to a public that has often seen the modernist aesthetic, but not in a refined, rarified state. Faced with the limitless erosion of quality in daily life, the desire for a setting that transcends all by the sheer force of its incorruptible belief system can secretly possess the most realistic of souls. The astringency and purity of form, the rigor of a superb composition of unswerving discipline can be painfully seductive to the most pragmatic psyche. Not to be ignored of course is the status-conferring powers of pure form. Sign of enlightened, noncommercial values, architecture-as-art-object attests to the client's own powers of sensitivity, understanding, and cultivation.

After getting his architecture degree from Cornell University in 1958, Meier worked for Davis, Brody & Wisniewski (1959), Skidmore Owings & Merrill (1960), and Marcel Breuer & Associates before opening his own office in 1963. He was warned: One of the most successful design partners of a large corporate architecture office told Meier he was a fool, for the individual practice was no longer a viable way of making architecture in America.

Yet in the last ten years, since the completion of the Smith House in Connecticut in 1966, his success has been enviable: published, awarded, and copied, Meier's work has placed him in the forefront of architectural effort. Not that he isn't accused of being elitist, exclusivist, purist to the point of creating uncomfortable living environments. Or that any of the above isn't true to some degree. But he has proved that it is still possible to create Architecture—the kind of environment that is more than "nicely designed," the kind of environment that lets you know that Architecture as a special category lives.

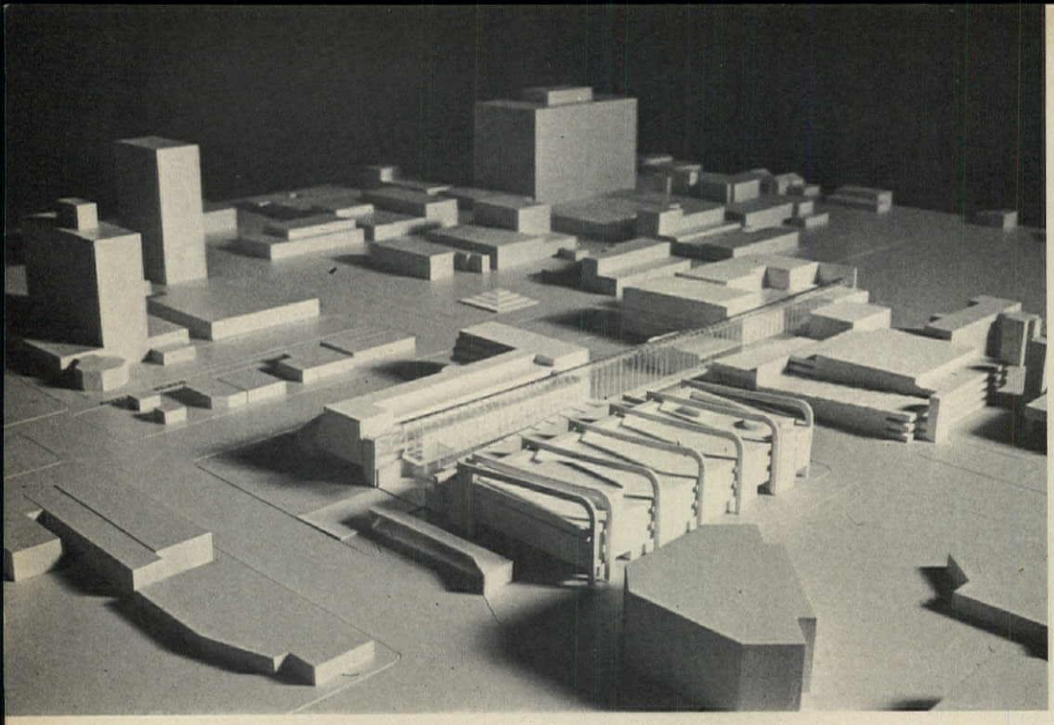
Meier has also demonstrated to a certain substantial degree that it is possible for the individual architect to move out of the small-house category and capture

Photo: Ezra Stoller © Esto.

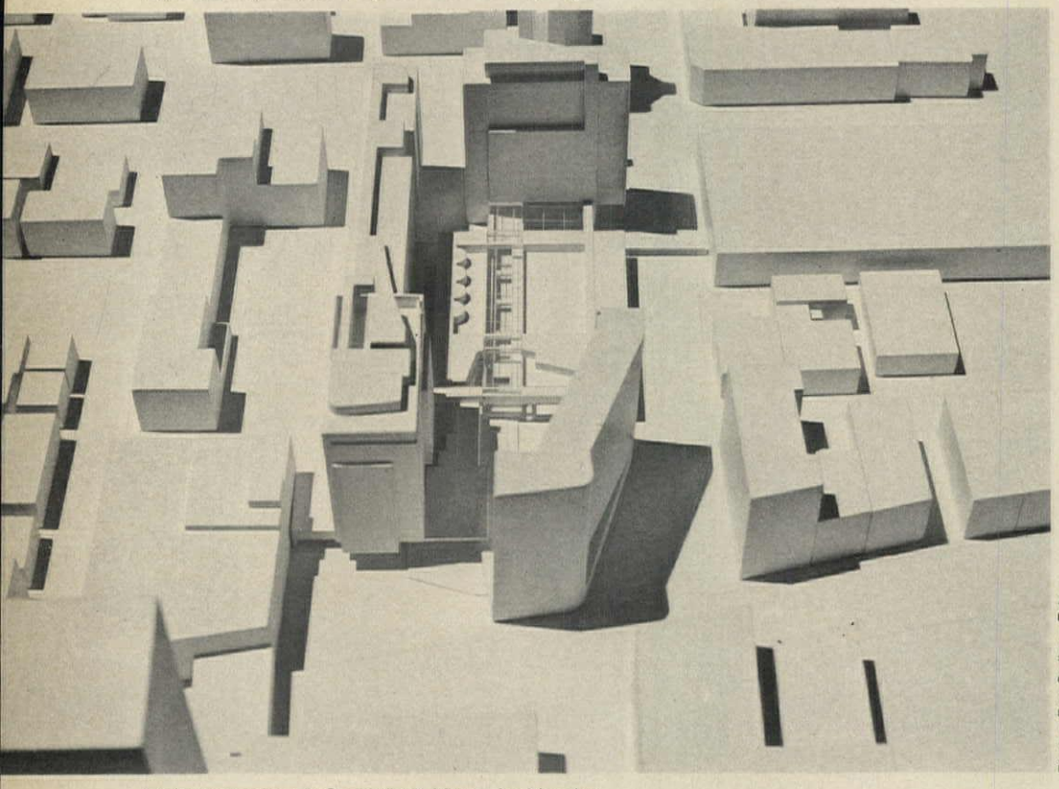
Meier's installation of the exhibit of his work at Cooper Union, New York City, October, 1976.

Photo: Ezra Stoller © Esto.

Shamberg House, Mt. Kisco, N.Y., 1976 (above), Bronx Developmental Center, 1977 (below).



Multi-use civic center project in Colorado Springs, for Mondev International.



Multi-use project in Springfield, Mass., for Mondev.

Photos: Ezra Stoller © Esto.

large-scale major commissions. With his moderate- and middle-income housing for the New York State Urban Development Corporation in the Bronx, his Bronx Developmental Center for retarded children for the State Department of Mental Hygiene, his training center projects (unbuilt) for Olivetti, and his multi-use urban centers for Mondev (in project form) Meier has been able to gradually attract large-scale work with a small office—never over 35. Of course many projects don't get built; he loses commissions to larger architectural firms, and suffers more acutely than other firms in periods of economic slump and sluggish building. This isn't the movies.

Meier knows his high ideals won't bring in a lot of work, but is reconciled to the disadvantages of an office not organized as a business, even to bringing in partners. "Architecture is a lousy business," Meier answers succinctly. "Anyone who has made it a good business is not usually making good architecture." Meier also believes in working on one project at a time, fearing that too much work or too large an office would diminish the design quality. (For the lags between projects, he turns to teaching).

Obviously this kind of principled attitude would seem almost self-destructive from a hard-core pragmatic view. Then how, one wonders, does this kind of architect attract a big-time developer like Mondev International of Montreal? Mondev's in-house architect Marco Ottieri, who was instrumental in Mondev's commissioning Richard Meier for multi-use projects in Colorado Springs and Springfield, Mass. (plus Mitchell/Giurgola in Seattle), explains that Mondev likes the one-to-one working relationship they have in working with these architects. "You know you're getting the person who did the work that made the firm worth going to in the first place—and you don't have all that bureaucracy to contend with," he explains. Also he adds, "Mondev knows Richard Meier will produce a beautifully detailed building with every part perfectly worked out. You don't have to worry about things falling apart 15 years down the line. He designs the hell out of every detail."

Since Mondev generally obtains private financing for 80 percent of its projects, hiring Meier initially created a problem with the banks. Bankers' predilection for big corporate firms who are well known has increasingly been a major obstacle for small individual practices. Ultimately Mondev convinced the banks that the gamble wasn't that great, since Mondev's very strong construction department plus its architectural department would guarantee money is being well spent.

Of course that old question of "compromise" looms up in these situations. Mondev and Meier vouch for the necessity of both sides respecting each other's position, whether pragmatic or formal. Ottieri comments that Meier is not rigid, surprisingly, about changes, even though one might think it to look at his architecture. However, Ottieri notes that Meier does not compromise his design principles: For example, if Mondev finds fault with one part of the solution, Meier will take the design home and rethink the entire concept. He will even go to the point of reworking the parti to keep the design integrity while solving the client's own problems.

In both projects Meier has executed for Mondev, a multi-use hotel/office/retail and mall complex in Springfield, Mass. and a hotel/retail/office/civic center in Colorado Springs, the company found this resilience. As Meier reasons, there is no one way of doing things. It is possible for the pragmatic considerations and the formal concerns to both be successfully meshed, as long as both parties are willing to acknowledge that a small change from one side may require more changes on the other side.

For all of its intentions, Mondev seems to be a different kind of developer. (Whether Meier succeeds in convincing them to allow him control over the interiors—usually the case with his houses—remains to be seen.) Since both Mondev projects are bogged down in the slow, arduous approval process, it may be a while before the outcome is apparent.

With a light workload in the office, Meier spends more time lecturing and teaching (at Harvard's Graduate School of Design) these days. Nevertheless, he remains optimistic about the future for the individual architect. Clients are more sophisticated, he argues, bureaucracy better educated, and the public demanding more. Discerning clients may still be few and far between but he remains convinced that too will change. [Suzanne Stephens]

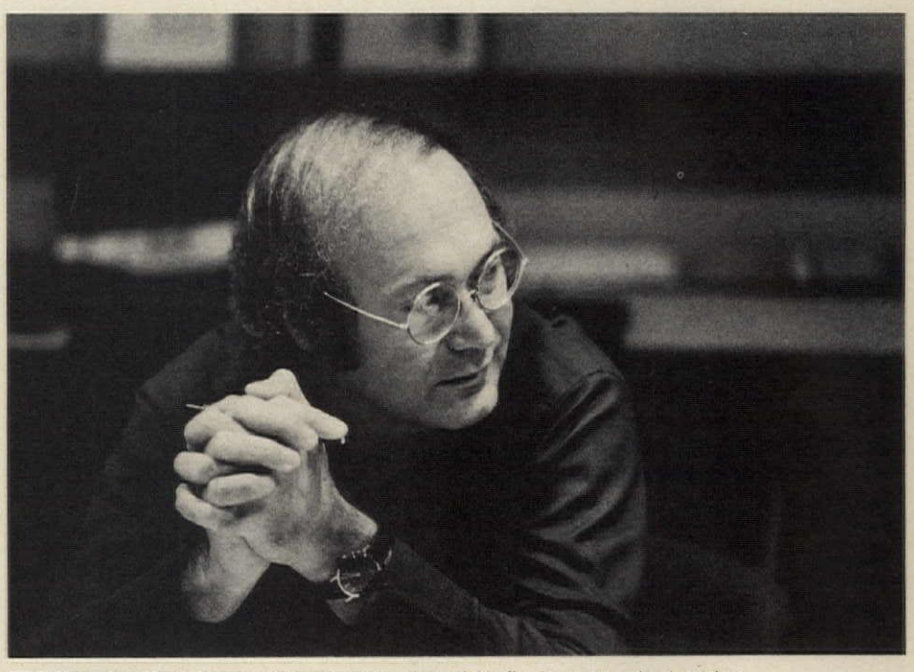
The corporate architect: Paul Kennon, CRS

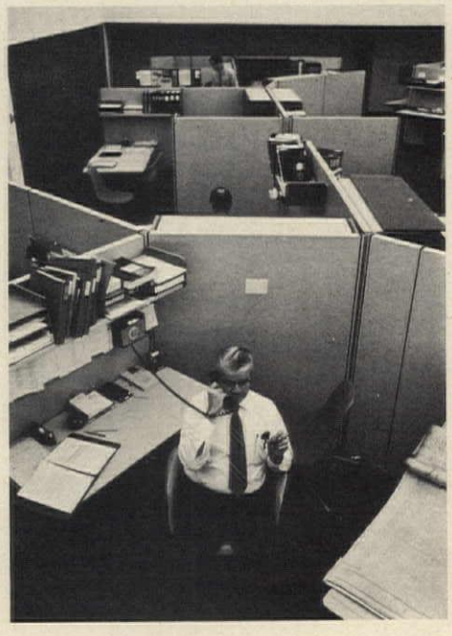
Possibly no firm in the U.S. has been a more influential role model for medium-to-large practices than Houston-based CRS and its affiliate companies. The firm's 30-year history has embraced change in management process, in project delivery practices, and in technological advances. CRS procedures are copied, with varying degrees of success, by firms all over the country. And well they might be, because architectural practice—and all that that entails—is becoming more complex, clients more sophisticated and demanding, and the time element more crucial. CRS has demonstrated repeatedly that to live and grow a company has to stay loose, to adapt, to be willing to take risks.

As of about 18 months ago, CRS was reorganized, and Paul Kennon became the first elected president of the firm. What this portends for the present and future of CRS will be taken up as this article goes on. First, however, it is essential to briefly recall some previous accomplishments.

Architecture is truly practiced by team at CRS, more clearly than anywhere else. This has been true throughout the firm's history, whatever the other organizational aspects adopted. While there were always prominent names within the firm, there has been a continual commitment to sharing the responsibilities and the glory. Says CRS Board Chairman, Bill Caudill, "To run a firm like ours, you have to be a little bit permissive. When you delegate responsibility, you increase the life of the firm. And when you delegate responsibility, you have to be a little permissive, because you know damn good and well that you can do a better job than the guy you're delegating to; but he'll never grow if you don't, and in two or three years, he's going to be a lot better than you in that responsibility." Kennon adds, "I guess what we're saying is that there is a hell of a lot of ego to go around, and we're trying to spread it around. If we can continue to do that, we're going to survive."

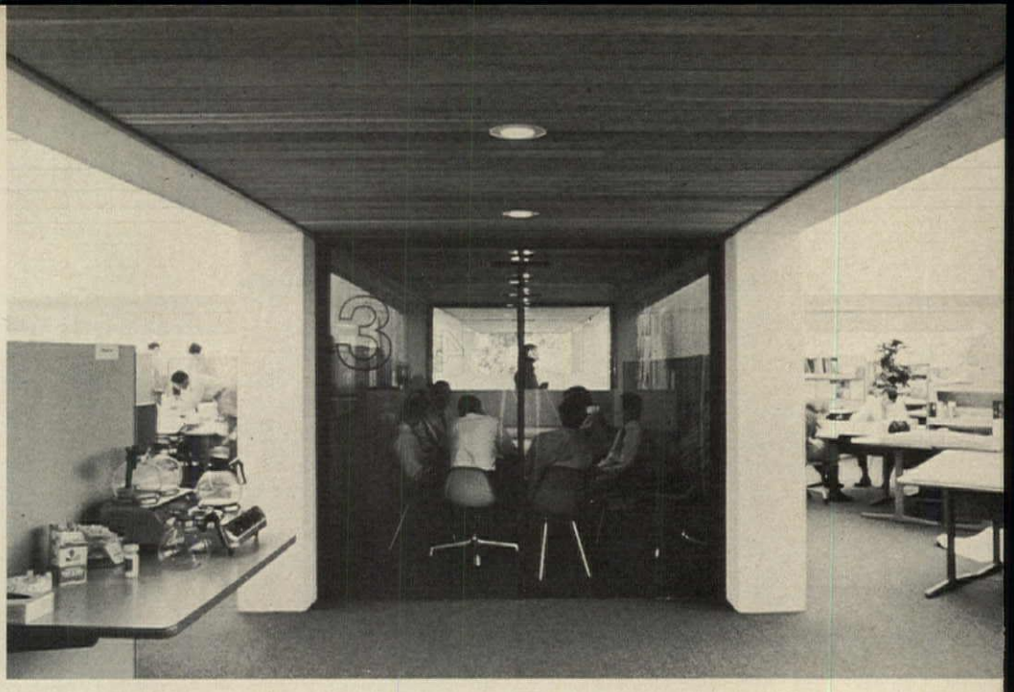
Another CRS trademark is the intensively focused process they call 'Squatters'. Originating with groups of architects meeting clients, usually on site, to settle design objectives, quickly and objectively, the squatter concept has evolved. Over the years, the same process has been expanded, and continues to change in timing and intent. The evolution has taken the idea back in the project timetable to programming, and may occur several times during design, construction documents, or owner move-in phases. Post-occupancy squatters sessions to gather user feedback have been held, and CRS hopes to refine information from these continued efforts.





CRS President Paul Kennon (above), and a view of the firm's constantly changing open office in Houston.

As the first architectural firm to go public, CRS spun off a holding company, CRS Design Associates (CRSDA), currently headed by Tom Bullock, Chairman, and Herb Paseur, President. The company, with separate offices, also holds CM Associates, the CRS-spawned construction management firm, and two companies with heavy engineering and environmental capabilities, A.A. Matthews, Inc., and Stevens, Thompson & Runyan, Inc. All CRSDA companies may undertake con-



tracts with outside firms, or with each other, as best fits project needs. Management sophistication has obviously not been an accident in the CRSDA group, which employs over 700 people in all. Of that number, CRS accounts for some 240 in Houston, the only CRS office now.

Current directions

Spirit at CRS runs high this spring. It is so infectious that it would almost be suspect, if it weren't for the fact that it is shared by everyone P/A interviewed. It's change time again. As Chairman Caudill puts it, "We're quite aware that a 30-year-old firm can get hardening of the arteries. We want to build a new CRS in the *Design* image; it has to be a little bit of a shocker this time. This is a new beginning. We want a new symbol; but at the same time, we'd be damned fools if we threw away everything we've got going for us." And, in a characteristic act, the CRS board elected Paul Kennon to make it happen. The more-than-conscious emphasis is on design quality, on making CRS the leader in design innovation that it has been in management.

Kennon, who came to CRS in 1967, was educated at Cranbrook Academy and served as a senior designer on major projects for Eero Saarinen & Associates. As he sees his challenge," what it takes is a commitment of an entire firm to the design focus. It's tough enough to do if everybody's pulling together; if that commitment is divided, then it's completely watered down. So our focus is on the design issues that will be facing society in the next 5-10 years. I think that never before in the history of Modern Architecture has that been so critical; never before have the times demanded as much creativity and as much innovation as is demanded today."

As currently organized, CRS comprises three architectural groups: international, commercial, and health and education. These are, of course, supported by other functions such as an engineering service group—centrally led, but working directly with project teams. The International Group, which will have over 100 people, is headed by Charles Lawrence (Director), Truitt Garrison (Manager), and Joe Griffin (Technologist). The Commercial Group heads are Norman Hoover (Director), Jay Nayland (Manager), and Jim Gatton (Sr. Vice President). Leading the Health and Education Group are Frank Lawyer (Design Leader), Jim Hughes (Director and Manager), and Nat Firestone (Technologist).

Emphasis is thus placed on design by virtue of the strongly design-oriented leadership, an active participation by these group leaders under an active design president. Kennon feels that CRS's design strength lies in its diversity—of talents, of projects, of working as a national firm within the U.S., and of working internationally to serve the third world. Quality control on design will be stepped up through a series of design reviews. Dates for these reviews are established in advance, and occur at project initiation phase (to establish design and corporate goals), possibly at the programming phase or before or after a design squatters. Other reviews accompany the schematic design, design development, and construction documents phases.

The process is one Kennon describes as a synergistic jury. "I'm convinced that we can design better buildings," he says, "if we communicate the problem and if we bring in fresh points of view. We're responsive. We try to find people to come into the firm who have flexibility. There's a difference between being responsive and being wishy-washy. I can be a flexible S.O.B.! It takes great courage to be responsive; as a designer you've got to get out of the mindset that you've got it all under control going in. Most architects try to play the game without all the cards on the table; they start playing too soon, without all the issues involved. If you just let those issues bubble up, you get all the cards, and the game becomes almost possible. But it's impossible the other way."

Other concerns

Along lines other than design, CRS's business development efforts center, as they always have, on both the international and the domestic markets. During the slowdown on domestic work, the overseas work has been going along nicely for CRS. According to Business Development head E.C. Kobs, "These projects are generally of a larger scope than we're used to in the U.S.—virtually to build infrastructure, to build cities. It's an exciting world, and we perceive the world to be our marketplace. It's not too hard to identify international markets these days, because generally speaking, they're where the oil is, the OPEC countries." Kobs' first criterion of successful Business Development is *to produce the quality of architecture that you sold the client in the first place.* Continuity of personnel and the commitment of the top team to the client's project is extremely important, he stresses. "You can't afford many mistakes, especially internationally. You're looked on in developing countries as the expert, and they lean heavily on your expertise."

For CRS, heavier involvement in the Middle East began with a 1963 project for Saudi Arabia's University of Petroleum and Minerals. International Group leader Charles Lawrence feels that having to organize and lead the decision-making process on a project the scale of the UPM has built in a better understanding of that process as applied to smaller projects, UPM is still growing, but the firm's commitment in the built work is paying off. Because CRS quality control was so stringent, top people and a careful building crew were brought to Saudi Arabia, and the result has become a showplace for the country.

Kobs also stresses a sincere commitment to the country in which the job is being done. "Our commitment is for more presence, for longevity," he says. This normally leads CRS to form professional companies within the country, in association with local firms. Before teaming up with another architect, CRS does its homework to find out who could best fit the requirements of each commission. Kobs feels that the emerging nations have work for which outside expertise will be needed for at least 20 years. "I wish the United States would regain its interest in world leadership," he says. "I feel we've lost that a little bit, partly because of energy, Watergate, and the rest of it, which have turned us somewhat inward. I wish we'd look outward again, because the world really does crave our expertise, our leadership."

On client services

To assure proper communication with clients, CRS has launched increased efforts to control client service quality. As Kobs puts it, "We see the marketplace as asking something different from architects than it has asked in the past. It's asking for *responsibility,* and responsiveness, and a commitment of key people. It's no longer possible to market architectural services through a professional "salesman," if you will; it's got to be through the people who

are going to do the work. The client today is much more sophisticated than he's ever been in the past." CRS co-founder Wally Scott agrees: "It's going to become a more and more specialized profession, where you're really going to have to deliver. The architect is going to become more and more accountable; there will be a need for higher and higher quality personnel. Your organization will have to be structured to allow the architect to be involved with the client, to communicate.

Frank Lawyer comments that clients will want buildings faster and for less money. Paul Kennon asks, "Can a client wait five years to design and build a project?" We think not; those days are *gone*. We're looking at all available technologies (such as computer-aided drafting) so we can gain more time to design with higher quality in a compressing time-frame of design/build."

Client services are now being reviewed with a quality control process not unlike the design reviews, relying heavily on the project manager's experience to identify problem areas. As Kennon puts it, "Are we serving the client better than any other architectural firm in the country? That's the mission." Careful attention is paid to areas the client isn't clear on, or has anxieties about. The individual project has been set up as the profit center at CRS. Because of the firm's size and the competitive market, CRS finds the client contact much needed.

Coming attractions

As Paul Kennon and CRS see it, design innovations, backed by sound technical and managerial policies, *are* the future. "As long as we focus on design innovations as the thrust of our firm, CRS will not only survive, but prosper," he projects. Kennon believes that his firm has the diversity to do both small and large projects. But size of firm need not diminish the opportunity to delivery quality, he feels. "I would hate to see the small firm go out of business," he says. "Our bigness can allow us to gather the expertise to specialize in various building types, to deliver quality design. But the small firm plays a very strong role in architecture. The Graves, The Meierses, The Gwathmey/Siegels, and The Venturis are leaders of design theory. The attitude of the firm is more important than size."

One thing that emerged in conversations with several CRS leaders is that specialization and flexibility will be key ingredients in future success. Norman Hoover feels that "architectural education is going to have to pay more attention to two aspects, the management and technical delivery functions." But what also comes out is the need for the balanced talent, what Kennon describes as "A designer who can also do production documentation, who's also a good technologist, and perhaps has management skills as well."

Another Kennon projection: CRS will continue its current practice of associating with other architectural firms. Having done so with over 200 firms around the U.S., CRS finds it an ideal form of practice, teaming with local professionals to add the clout it takes to get local work.

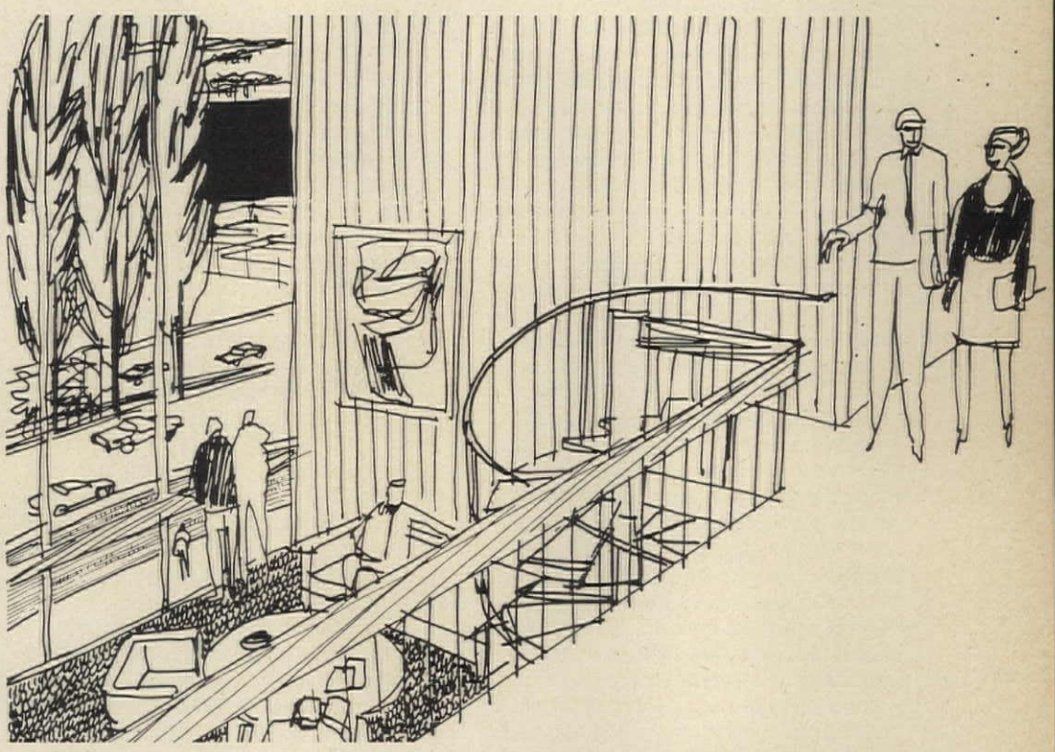
Another essential, E.C. Kobs adds, is the firm's contribution to the profession. "We do this all the time," Kobs says. "We train foreign nationals in Houston. We give to students, we give to the profession, we share everything we know. That's part of it; you have to give in order to grow. That's paid off handsomely for CRS. We *contribute*, damn it, and I think it's been a key factor in our success."

Kennon sees the important areas of concern as retrofitting, energy, consumerism, lifestyle values, life-cycle planning, project delivery, government involvement, and building management. Yes, management and operation by architects. Included in that is a software package on how to operate a facility, once you've moved in, from an energy standpoint and from a management point of view.

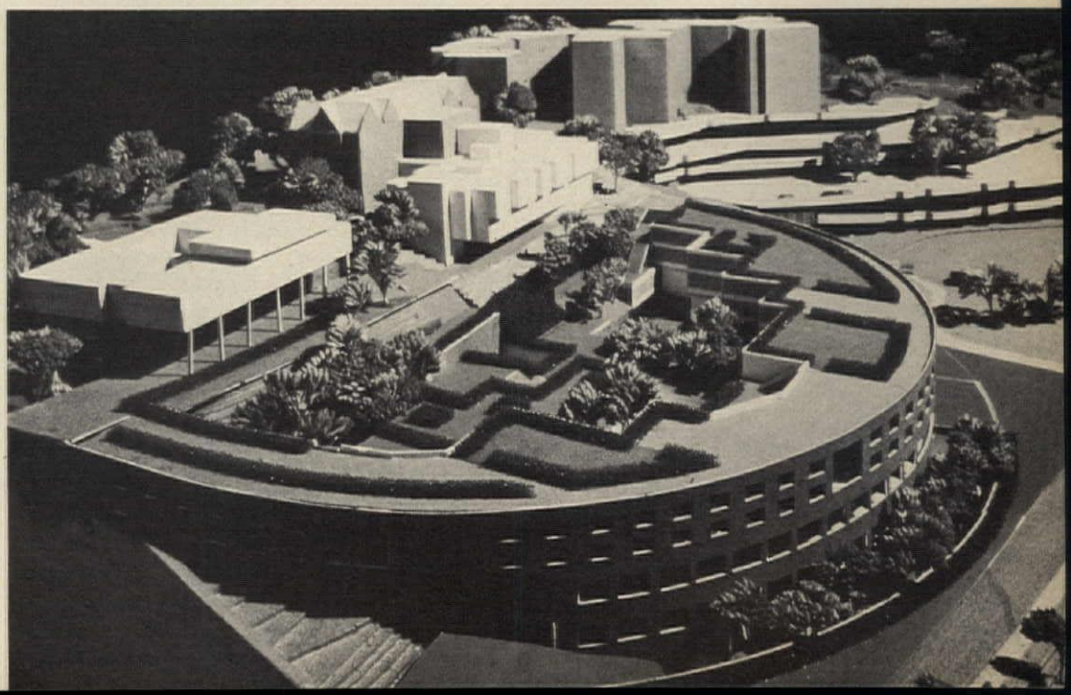
Up front, Kennon estimates that nine out of ten projects CRS undertakes get built. As part of the design process, the firm builds in implementation. "The one constant about us," Kennon notes, "is our willingness to change. If you want to look toward the future, we'll still be changing, taking risks. We make a lot of mistakes that way, but the greater the risk, the better the opportunity to improve."

Norman Hoover sees the trend toward moving out of the cities as producing fewer major projects, more renovating and remodeling. He feels that more efficient and sophisticated analysis of the building operation costs will probably change the form of what we build—that instead of an aesthetic expression of what *looks* like it uses less energy.

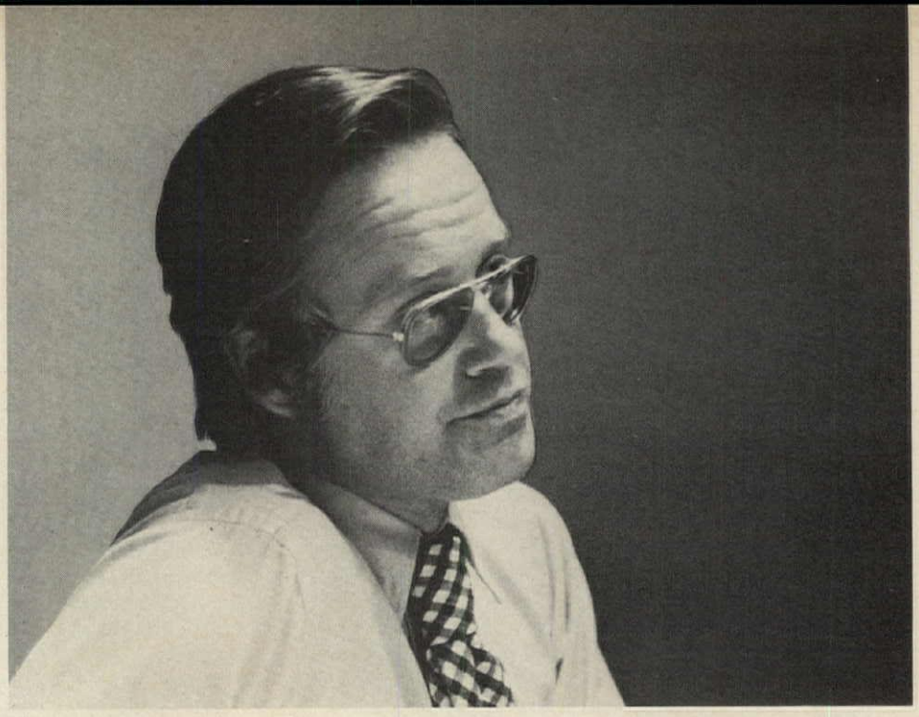
But Paul Kennon sets it out most dramatically: "The future of our profession lies in design excellence." [JM]



CRS has not slighted design in the past, but new projects undergo even more thorough quality review. One current design, a demonstration center for continuing education, U. of Washington in Seattle turns a sweeping arc façade to views, with stepped roof plazas for pedestrian use.



The gamesman: Jaquelin Robertson



As seen in the preceding pages, one way architects in modern practice have attempted to cope with their uncertainties of modern economic society has been to model their practice on the business world. "The architect must be a businessman first and an artist afterwards," is the sentiment expressed as early as 1902 in *The Brickbuilder* magazine, according to Bernard Boyle in *The Architect.*

With architectural offices fashioning themselves more and more like businesses, it is not surprising then to discover that role models developing in the business world would soon enough affect architects too. Thus a type that sociologist Michael Maccoby has detected evolving in the business world (which he describes in his book *The Gamesman,* Simon and Schuster 1977) becomes pertinent. The new corporate executive, Maccoby points out, differs from his predecessors the, "jungle-fighter" or the "security conscious organization man," by certain important characteristics of style and technique. The "gamesman" thinks in terms of the sport. He is a "team player who nevertheless is a would-be superstar, a team leader but often a rebel against bureaucratic hierarchy." This figure who specializes in strategic plays, naturally wants to win, but can handle the frustration of losing (for a while) as long as the game is good. Flexible and informal, the gamesman, according to Maccoby, talks game-like metaphors, values team spirit and loves puzzles and problem-solving. He is fascinated by technique, new methods, and taking calculated risks.

If one were to seek the correlative in architectural practice, one of the choice examples of this role would have to be Jaquelin Robertson. Early in his career Robertson decided that in order to have any kind of major impact on the shape of the environment, architects would have to identify the clients who were emerging as decision-makers over the physical milieu. In the early 1960s he saw those clients as belonging to government, real estate, or community organizations.

Robertson and a team of colleagues, including Richard Weinstein and Jonathan Barnett chose to enter government. They wrote position papers and performed planning studies for New York's Mayor John Lindsay. They even organized the planning offices for the city over which they were soon to assume control. The formation of the Urban Design Group, which devised dramatic zoning and urban design schemes (Theater District, West Side Highway Project) plus the creation of the special Mayor's Offices of Midtown Planning and Development and the Lower Manhattan Development resulted from their efforts (June 1975 P/A, p. 48; Dec. 1975 P/A p. 37). With Barnett Director of the Urban Design Group, Weinstein Director of OLMD, and Robertson Director of OMPD, the three were at the heart of planning decisions for New York City in the 1960s.

The team spirit that was reflected in the earlier alliances held true for the offices they established. At OMPD Robertson was able to attract a dedicated horde of bright young architects to a domain that "talented" designers had assiduously avoided. Robertson made sure there was a lot to design. A trademark of these offices was lavishly detailed conceptual drawings and models, which would be matter-of-factly produced to explain, sell, and—it was hoped—profoundly influence the developments proposed. Nevertheless many of the projects the 48th Street Corridor and Madison Avenue Mall, for example, never happened.

In specific programs Robertson's and Weinstein's contributions to incentive zoning and special district zoning were real. Working with developers, Robertson began devising strategies to provide more urban design amenities on the street, as part of the given condition of speculative development. Covered pedestrian pass-throughs, through-block arcades, mixed-use buildings, special districts that zoned in the intrinsic features of an area (theaters in Times Square, retail facilities on Fifth Avenue) all were the stakes. The prize to developers came in the form of extra floor area and other zoning allowances. These incentive zoning measures were a form of New York game-playing at its most sophisticated. And even though the urban designers could modify the zoning rules in order to win the amenities, in the end the developers held the deck of cards—and that deck was stacked. Olympic Tower is the most appropriate testament to the way developers could play the game according to the new (incentive zoning) rules and still come out ahead. (Dec. 1975 P/A p. 44).

The irony of course is that Robertson had switched from one team (the city) to another (the developer) by the time this project was underway. He had left OMPD in 1972 but soon enough turned up as President of Planning and Design Group at Arlen Realty and Development Corporation, part owners and developers of Olympic Tower. When Robertson was with the city, he had helped formulate the zoning legislation that allowed this tower extra floor area and bulk in return for inclusion of retail and residential uses and a pedestrian mall. Even the height and setback limitations were waived, permitting the tower to continue straight up to a 677-ft height on 51st St.

The black slab designed for Olympic by Skidmore Owings & Merrill hardly indicates the mix of activities within. The streetscape, an important part of the urban design concept, was not acknowledged by the handling of scale, articulation, or the massing of the tower's design. True enough the incentive zoning made sure that retail space would be included instead of banks or airline offices. But the enclosed 35-ft-high covered pedestrian mall for which the developer received a hefty bonus was hardly treated as the public room Robertson seemed to have in mind. Obviously zoning regulations can only do so much: requirements based on physical dimensions do not guarantee amenity.

As Robertson commented recently he found the work on Olympic Tower satisfying. In representing Arlen, Robertson worked with SOM on the design of the interiors and solved problems regarding the marketability and commercial viability of the entire project.

The affiliation with Arlen reflects Robertson's belief that architects must be involved in the "sweaty brawl of the marketplace" if they are to have any kind of serious influence on the environment. For this reason, Robertson has enthusiastically supported Portman's efforts in operating as an architect-developer for large-scale enterprises. And by the same token he has criticized the high-design architects of private houses for indulging in an "elitist sport" of "special and highly mannered mental gymnastics," in which someone like Robertson who has "wrestled clumsily

and fretfully with the chunkier stuff of public architecture" would "feel out of shape." By these sporting metaphors it is clear that Robertson is intrigued with the elegant exercises of an Eisenman or Graves, but clearly places greater value on the tougher game he plays.

Espirit de jeu

If his orientation is toward the more brutal kind of contact sport, however, Robertson remains easy enough to distinguish from the other wrestlers in the throng. His patrician Virginian background and his childhood as a son of a diplomat in Peking lends him the right amount of cultivated urbanity. The Yale University and Oxford education (where he was a Rhodes scholar in economics and philosophy) adds intellectual polish. No ordinary marketplace brawler there . . . no ordinary architect. The philosophical education, particularly Wittgenstein's theories, Robertson found good training for the mind—like a crossword puzzle. But he was not convinced that issues and values could be broken down into logical constructs.

Thus Robertson's admiration tends more towards Thomas Jefferson, to his application of a system of ideas to real life. While he considers Jefferson's design for the University of Virginia as "the most brilliant complex of buildings on this continent," it is Jefferson's humanistic emphasis on being a man first, architect (among other things) next, that appeals.

Robertson argues that the rift between the needs of society and the interests of talented architects still exists to a large degree, encouraged by a split between personal morality and public morality. If this analysis would not place Robertson into a bona fide (amoral) gamesman slot, his nonideological flexibility in accepting the commission to design Shahestan Pahlavi, a new town in Tehran, most assuredly would, according to a good many architects. Since early 1975 Robertson has been directing Llewelyn-Davies International's planning efforts in Tehran on this $5 billion development, which includes a large civic square, a main boulevard, plus government offices, housing, commercial development, and cultural facilities. In that time, the reports of political repression with regard to Iranian dissidents have attained dramatic proportions—to such an extent that intense discussion has ensued about the "morality" of accepting work from this regime.

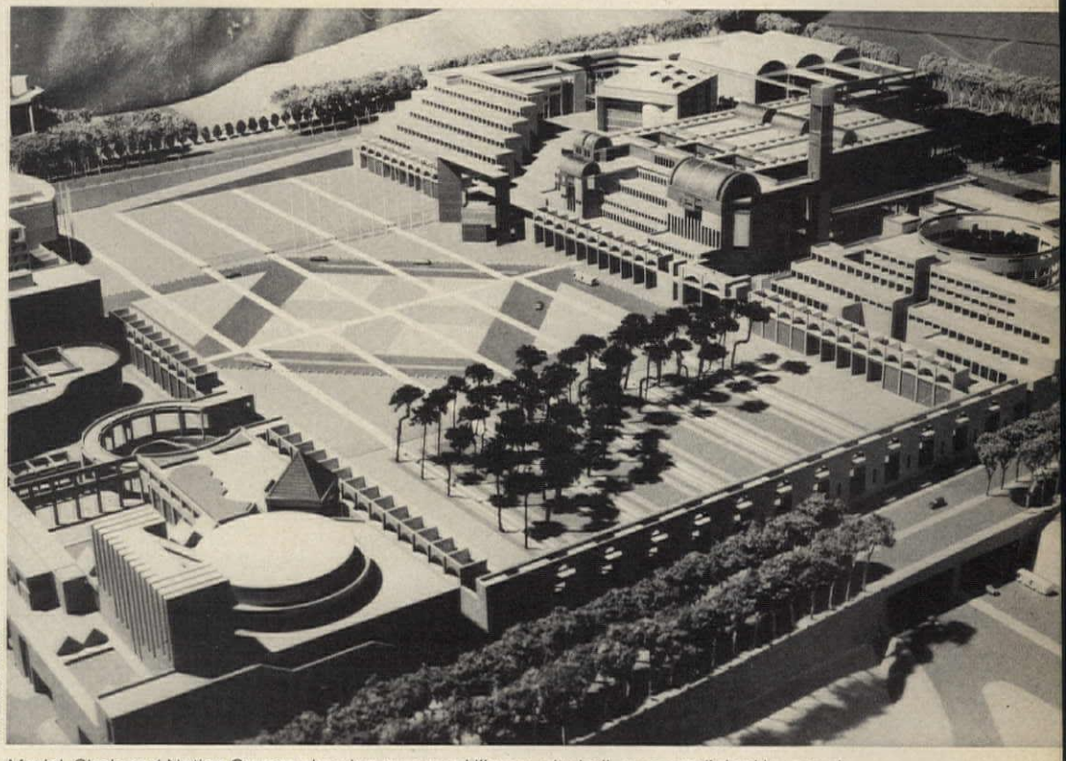
Meanwhile Llewelyn-Davies' Shahestan Pahlavi report, including a thoroughly developed planning and urban design scheme (the Robertson trademark) has been submitted to the client, the development corporation in charge of the new town. Next it will soon go to the Shah-en-Shah and the Shahbanou. Already Llewelyn-Davies has two contracts before the development corporation for the design of the main square, including the arcade, and for the boulevard.

With a true strategist's sense of timing, however, Robertson has taken on an assignment that will keep him less in Tehran and more in New York. In the past couple of months, Robertson (with Llewelyn-Davies) has been hired by Arlen (them again) to be the design architect for the Museum of Modern Art condominium tower. If this sounds a little confusing, it is—since the Museum of Modern Art has announced its selection of Cesar Pelli as architect in charge of the design of its gallery expansion and the Museum of Modern Art condominium tower. Presumably they will be working *very* closely together. Detailed renderings are to be presented to MOMA's Trust for Cultural Resources and Community Planning Board 5 in June.

As Robertson moves from one arena of action to another, he continues to exude a sincere sense of boyish optimism. Faced with the frustration of still not seeing much of his large-scale work actually realized in physical form, Robertson contends he will not forsake this particular game. "You can only learn slowly, and achieve things incrementally" Robertson contends. "All one can do is try to work out the problem at hand, without becoming too cynical." What the personal future might hold for him he doesn't try to envision: that depends, he contends, on luck and what conditions prevail. "As long as you have a good time and only work with people you like and trust," Robertson argues you will be content. Coincident with this mellow sentiment is his tough-minded advice that one has to build to the strengths of a system, and not to its weaknesses: "What carries a system forward—build around that." Robertson may be an unusual gamesman in the subtleties as they are defined by Maccoby, but he is a gamesman nonetheless. [Suzanne Stephens]

John Donat

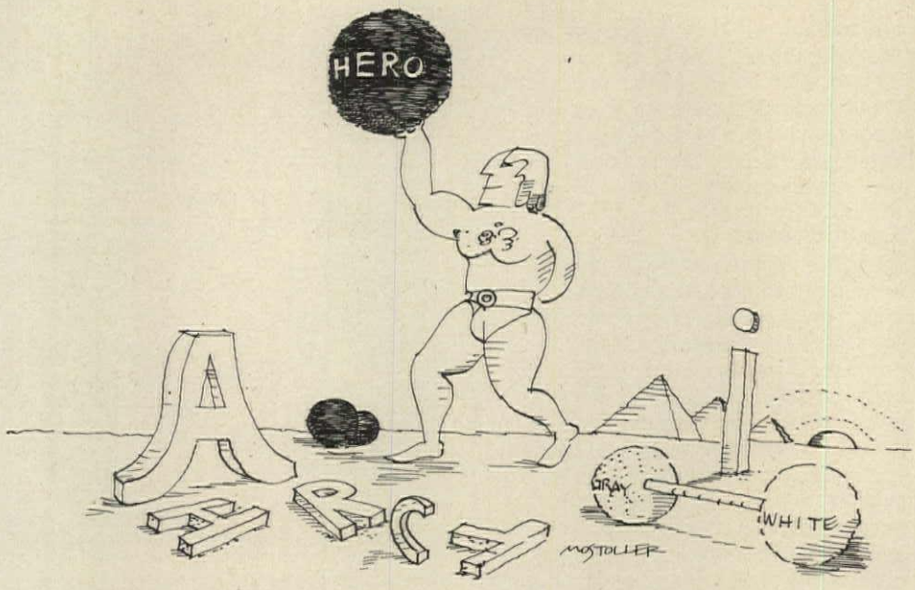
Model, master plan, Shahestan Pahlavi



Tim Street-Porter

Model, Shah and Nation Square showing proposed library, city hall, museum linked by arcade.

Polemicist-theorist



The problem with selecting a representative of this role-model lies not in the dearth of choices, but in their increasing proliferation. In the last ten years this personage, in all sorts of manifestations, has emerged an appealing archetype to students, magazines, foreign architects, and even (to some degree) mass media. The American mainstream professional, neither fan nor convert, tends to view this emergence with suspicion or hostility. When the polemicists speak, the language is often abstract; when they design, they emphasize form. The built work itself acts as a criticism of what has been built before, as well as the expression of a "theory." In addition art—drawings, models, collages constructions—has become a vital part of their communication program.

The practitioner as polemicist-theorist arguably goes back at least as far as Vitruvius. After Alberti, the integral nature of theory and practice could be assumed.

Despite the importance the European Early Modern architects gave to theory, that part of the equation did not stay intact as Modern Architecture was absorbed by post-war U.S. The reasons of course could be any of a number. In those boom years architects were too busy designing and building to be talking or reading. Further, enough polemics and theories had been generated by modern architects in the preceding 30 years to last a lifetime. The objective, scientific basis for modern architecture further weakened an affinity with abstraction, as did the "you gotta feel it, bite it, chew it to believe it" American kind of pragmatism.

Then along came Robert Venturi and *Complexity and Contradictions in Architecture* (Museum of Modern Art), in 1966. The argument that he developed against Modern Architecture in this book and later in other writings with partner-wife Denise Scott Brown, is now well known. At the time, however, during the peak of the building boom, his critical theoretical stance (replete with work to illustrate his ideas) was not going to win standing ovations from the general throng. No, this was a difficult role to assume. In this case, it meant being accused of demeaning architecture's standards, having one's work rejected by design review boards and losing other major commissions. Even as late as 1976 Robert Venturi's candidacy for a fellowship in the AIA was to be voted down. Despite the awards, commissions and honors the Venturis *have* obtained, they've had to pay for public life.

Segments of *Contradictions* first appeared in the periodical, *Perspecta*, published by Yale University's school of architecture where articles by critic-historian Vicent Scully and others were to lay the groundwork for future debate.

At the same time this Yale-Penn axis (as it became known) was being drawn, similar allegiances were being formed between Cornell and Princeton on the basis of their own critical interests. The CASE (Conference of Architects for the Study of the Environment) meetings, organized by Peter Eisenman and Michael Graves in 1964, eventually led to the publication of *Five Architects* in 1973—in which the work of Eisenman, Graves, Charles Gwathmey, John Hejduk, and Richard Meier was presented with an introduction by critic-historian Colin Rowe.

The intellectual fomentation was just beginning. In 1967 Eisenman founded the Institute for Architecture and Urban Studies in New York. The IAUS-sponsored magazine, *Oppositions*, introduced in 1973, was to significantly encourage a kind of dialogue and debate. More abstruse than *Perspecta*, it is regularly denounced by professionals for being too jargonistic, murky, pretentious, even self-serving. (Reading *Oppositions* reminds one, however, of first encountering Anthony Burgess' futuristic half-Russian slang in *Clockwork Orange*. At first it seems as if a bunch of *nadmenny droogs*, wearing wire-rimmed *otchkies*, are just sitting around *creeching* a lot of *chepooka*. After a while however, the words begin to make sense . . . even seem *appropriate*.)

A small but important coup de théâtre was staged by the pairing of Eisenman and Robert A.M. Stern in one particular stint. Stern (practicing architect, part of Yale-Penn axis, former editor of *Perspecta*), and Eisenman organized "Five on Five" where one team (the Greys), Stern, Charles Moore, Jaq Robertson, Romaldo Giurgola, Alan Greenberg, took on the job of criticizing the work of "The Five" (nicknamed "the Whites"), published in the book *Five Architects*. The now defunct *Architectural Forum* published the piece, the first time architects had publicly criticized other architects in print in years. Feelings were hurt, but both sides were soon much in demand on the university lecture circuit.

Stern and Eisenman have been accused of being impresarios of exotica (albeit both had very different orientations as well as design attitudes: Stern the more art-historical pragmatist; Eisenman the more cerebral European-style philosopher). Yet something had clicked. Each with his separate apparatuses—Stern through his presidency of The Architectural League; Eisenman through the IAUS—was stirring up controversy, debate, excitement. And while each together or apart was considered elitist, exclusivist, and clubby, what they had done was turn the theorist-polemicist image around: They had taken it out of its anti-hero, outsider role and put it in center stage, made it a star. All of a sudden the "outsiders" were the mainstream modern practitioners. Now being a theoriticist-polemicist is almost all right.

The coterie-ism will disappear to a large extent as more join their ranks. (Already the infiltration of the Argentines, Emilio Ambasz, Diana Agrest, Mario Gondelsonas, Rodolfo Machado, Jorge Silvetti, and Susana Torre, or an Englishman here and there such as Kenneth Frampton, an Austrian like Raimund Abraham, is broadening the timbre.) Even the appearance of the Silvers or the Chicago Seven might seem like so many baseball clubs sprouting up, but it does signify some sort of interaction. Through interaction the content level of architecture is happily examined.

On the other hand, of all the role models, the polemicist-theorist has to worry most about superficial mimicry which can debase the integrity of his or her act. While the language is not all that easy to bandy about, key words and label are still susceptible to distortion and misappropriation. Since this protagonist has emerged without strong economic support, he or she will occupy center stage on the basis of a glittering performance and the ability to captivate (and influence) the audience. It's a risky part: more than the others it is subject to the vagaries of audience temperament, to being entrapped by a sense of histrionics and seduced by one's ability to tap. But worse yet is the danger of not projecting to the back of the room—to those making the crucial decisions about the physical environment.

[Suzanne Stephens]

Neotypes: Susana Torre

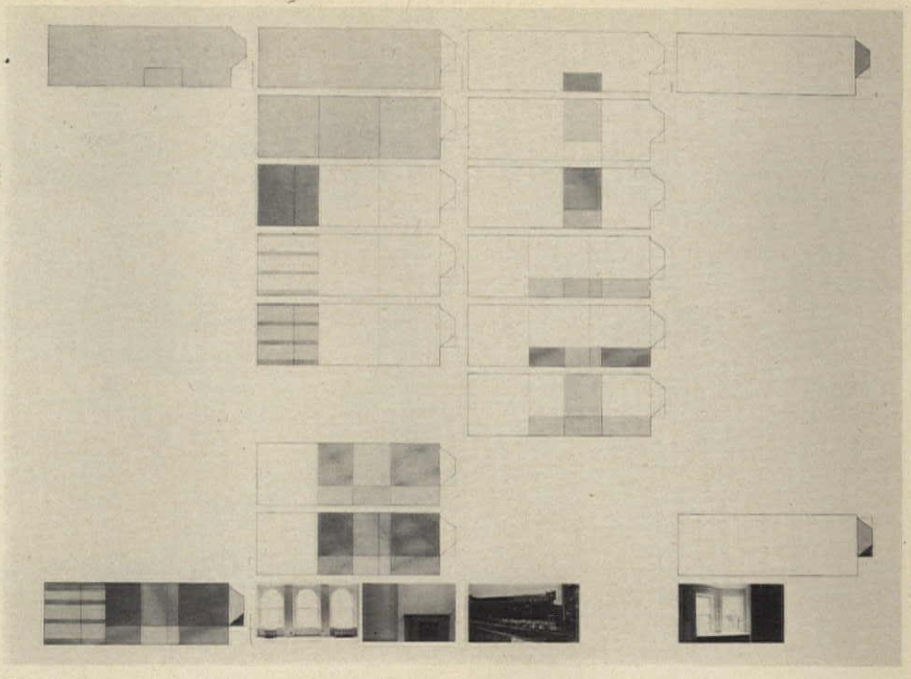
When Susana Torre finished architecture school in the 1960s her goal, unlike most others of her generation, was not to enter professional practice in the customary way by joining a firm to work for someone else. Like others representative of the small but continuing tradition of combining theoretical concerns with the actual practice of building, Torre also recognized that the possibility of combining these two interests could only be achieved independently. As a consequence, she has never had to confront the compromises—and, as a woman, the discrimination—possible when working for others.

Like other theorists/polemicists she has continued to teach, write, organize exhibitions, and exhibit her own work. She was once associated with the Department of Architecture and Design at the Museum of Modern Art, and she was the guiding force behind the current "Women in Architecture" exhibition at the Brooklyn Museum (P/A, Apr. 1977, p. 32). In addition, she edited and wrote essays for the book that complements the exhibition, *Women in American Architecture: A Historic and Contemporary Perspective* (Whitney Library of Design, 1977). Her drawings have been exhibited at MOMA, and those for the law offices shown in this issue (p. 76) were recently exhibited in the "Goodby Five" show at the Institute for Architecture and Urban Studies in New York.

If Susana Torre is typical of those in the practitioner/theorist role, there is one area where she differs markedly from most of the others, and that is in her recognition of the potential of architecture to be expressive of political concerns. Unlike the Modernists, however, she does not believe that architecture can change the world. Nor, insofar as politics is concerned, does her activity in this realm take place in the so-called "real world," as is typical with the advocacy architects.

There are two ways of being political, Torre notes. One is by trying to change reality, and the other is by trying to change consciousness, by transforming people's attitudes. Without change at this level, she contends, there can be no cultural evolution. This can explain the somewhat apparent anomoly of why someone like Susana Torre, who does not see herself as one who has been victimized by being a woman, could devote two years of her time to organize the exhibition at Brooklyn. It is through this show and the book that accompanies it that her political position can be most clearly seen.

"It is commonly known that women have always been building," she says, "and that is one of the ideas the exhibition wants to reiterate. But," she continues, "the notion of women as architects has not been completely accepted, and on that level this show concerns itself with pulling forth information that has been suppressed by society." The effect of such suppression, she adds, has traditionally limited women's role in the profession. With only a rare exception, it has maintained women in the small practice that has been primarily concerned with domestic architecture; it has never allowed women the possibility of projecting values through architecture that might anticipate change in other realms.



The diagrams (above) represent Torre's offices in New York—how the space is organized and the existing elements that condition new intervention. Torre is seen (below) in the finished space.

Robert Perron

Torre's attitude is not only expressed by the fact of the show's existence, however, but it is also clearly revealed in the organization of the exhibition itself. In the show no individual or small, select group of "great achievers" clearly stands out above the others. "If we had only shown or emphasized a few 'star' individuals without regard to the conditions that contributed to the achievement, that would have been okay with society, that could have been accepted," she notes, "but the exhibition would have lost impact, the larger horizon would still have remained obscure." If on the other hand, she explains, you show a broad context of achievement, the effect of that is a transformation of consciousness.

The same attitude is reflected through the design problems for undergraduate students that Torre organized with artist Louis Camnitzer at the State University of New York in Old Westbury. In one problem, students were given detailed written descriptions of a physical space. They were then asked to construct a model of the space. After that they were taken to the actual place to analyze the differences between it and the subjective content they had given to it in their models. Through this method, students were able to learn about their own preferences through objectifying them. They could better understand form-making as a process of expression, rather than as an activity based upon predetermined rules; they could become more conscious of the decisions made, and why they were made.

It is this transformation, then, that becomes a primary concern for Torre. In terms of architectural theory, her position in this regard can be most clearly seen in the presentation of the law offices included in this issue. With respect to political and social concerns her attitude is most clearly revealed through the exhibition at Brooklyn. In each case, however, it is the mode of the expression of this attitude that sets her work apart. [David Morton]

Role models

Neotypes: Friday

Thomas S. Hines

Photo: Elliott Kaufman

Friday: (l. to r. standing) David Slovic, Frank Mallas, Donald Matzkin, Lynn Bensel, Arlene Matzkin; (l. to r. seated), Muriel Newman, William Hovland, David Rogers, Terry Garfield.

When David Slovic and Donald and Arlene Matzkin decided, in 1970, to set up an office (with Peter Arffa who has since left the firm) they were careful to avoid such predictable titles as "Arffa, Matzkin, Slovic, and Associates." In the first place, their names were hard to pronounce, and, more importantly, they wanted to discourage the star system and to suggest and engender the sense of a truly collective team effort. But, as children of the 1960s, they wanted something less sober-serious than an updated version of "The Architects Collaborative," and they hit upon Friday "because it is short, memorable, and has good connotations."

Slovic is a Penn architecture graduate ('66), Don and Arlene Matzkin, both products of Cornell ('63). In addition to the founding partners and to occasional, part-time, student assistants, the closely knit design team numbers only half a dozen other "regulars": Frank Mallas (Cooper Union, '66); William Hovland (Washington University, St. Louis, '70); Lynn Bensel (Yale, '72); David Rogers (Penn, '76) and Terry Garfield, who is currently completing his architectural degree work at Drexel after graduating from Penn in 1969.

"Since almost all major and many minor design decisions are made *en groupe,* there is no office design czar," Don Matzkin emphasizes. "There are, however, various collateral functions: Slovic is Commissar of Style and Drum Major. Mallas is Minister of Construction and Chief Mechanic. Bensel is Philosopher Queen, Chief Model Maker, and Maid of Minutia. Hovland is Minister of Propaganda and Centerfielding Curmudgeon. Garfield is Poor Struggling Student, Doer of Mean Tasks, and Most Likely To Succeed. Rogers is Chippendale Expert and Rookie of the Year. Muriel Newman (office secretary) is Clerk of the Works, Keeper of the Books, and Mother of Us All. Arlene Matzkin is Founder on Sabbatical and Minister of Education. I am Chancellor of the Exchequer and Captain of the Calculators."

For architects who share so closely the agonies and frustrations (and painfully wrought satisfactions) of designing small bits of the built environment, the Friday people exude unabashed affection, respect, and support for each other. Each seems instinctively to recognize the complementary potential of other members of the group. While Don Matzkin credits Slovic with stylistic leadership, Slovic insists, on the other hand, that Don's "sensibilities keep us on the right track. He never lets us get away with a solution that is "designey" or forgets that the building is for human beings, not slick photos. This is extremely important because, as architects, it is easy to fall in love with lines on the paper and to forget the potential of the built reality."

Friday's generally successful attempts at participatory democracy seem to Lynn Bensel the "solution to one of the classic problems of architectural firms. Young architects normally become partners or associates after a few years—or they go out on their own. You start out as an indian and generally become a chief or you get stuck as some sub-category of the two. In the end, there's no getting around the fact that chiefs make decisions and do what they want to do and indians don't—they get overridden. Ultimately the situation chafes enough for many talented and ambitious people to go elsewhere, making room for new, inexperienced recruits. That's the traditional training system, which works pretty well—except that it leaves a lot of dissatisfied people in its wake. As the promising people get competent, the odds are good that they are going to leave to put their own ideas into practice rather than someone else's."

"Friday doesn't work that way," Bensel believes, "at least it doesn't force that issue of asserting one's individuality. Because everybody here listens to everybody else, it's not at all clear cut who makes the decisions and who doesn't. It's a largely informal process of contributing to and arriving at a consensus, so you never quite know who designed a building because everybody did some of it. I don't want to be either an indian or a chief and opportunities for something else are very rare. The much disputed philosophy behind this approach," Bensel acknowledges, "revolves around the controversial hypothesis that camels designed by multiple designers may well be better than horses designed by singular egos—certainly camels are more interesting if not quite so graceful. And they may serve people's needs better, since they've already been accommodated to various perceptions."

Friday's "camels" include urban design projects and new and remodeled buildings of wit, common sense, and occasional elegance. Their Neighborhood Center for Lancaster, Pennsylvania (1971–75), is shown on the following pages 72-75. The Hamilton Neighborhood Center, Harrisburg, Pennsylvania (1972), integrates new spaces with old, existing buildings. Two neighborhood parks for Harrisburg (1973–75) funded by the Federal Neighborhood Development Program, accommodate a wide variety of recreational facilities. The Old Pine Community Center, Philadelphia, 1974–77, (April 1976 P/A, p. 60), serves a unique cluster of adjacent institutions, including Old Pine Street Presbyterian Church, St. Peter's School, Presbyterian Historical Society, and The Friends of Old Pine Street, with a new building, on-site park, and open-air amphitheater. Another community center in Philadelphia in the Grays Ferry Neighborhood (April 1976 P/A, p. 61) wraps a glass block and glazed tinted block addition around a church.

The Wilde Lake Swim Center, Columbia, Maryland (1972–73), for a private developer involved the renovation of existing facilities and the addition of a new pool, lounge, pro-shop, and offices. A sizable addition to the Echelon Shopping Mall, Voorhees, New Jersey (1973–76), also for a developer, achieves an updated "Crystal Palace" feeling with decorative tile "streets" and a sophisticated superstructure of skylights framed by white joists and trusses.

Despite such forays with developers, the firm specializes in neighborhood recrea-

Author: Thomas S. Hines teaches and writes on urban and architectural history in the history department and school of architecture at UCLA.

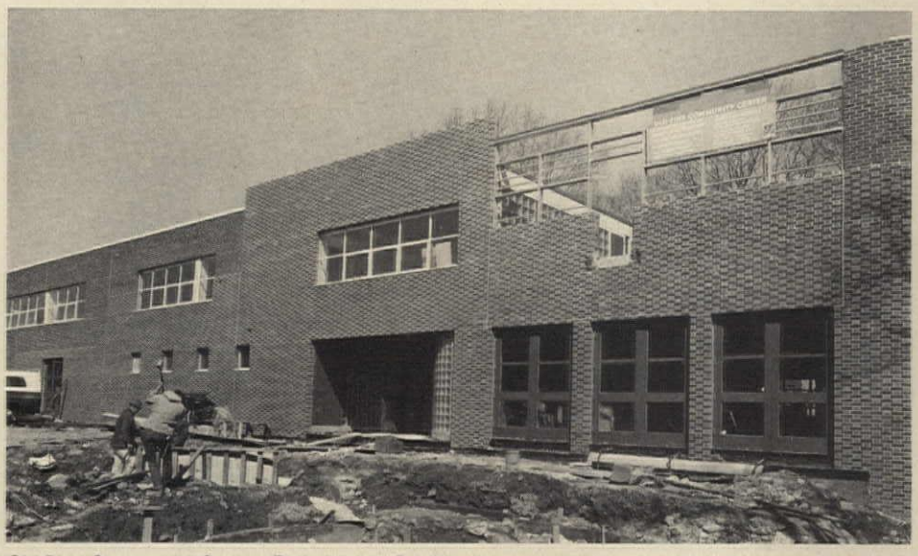
Echelon Mall expansion, Voorhees, N.J., 1976; entrance (left), interior, mall (right).

Friday's "Building of the Month" Award for February 1977 was awarded to the Immanuel Temple in Phila., since "this modest church structure demonstrates an effective use of architectural symbolism to enhance its purpose."

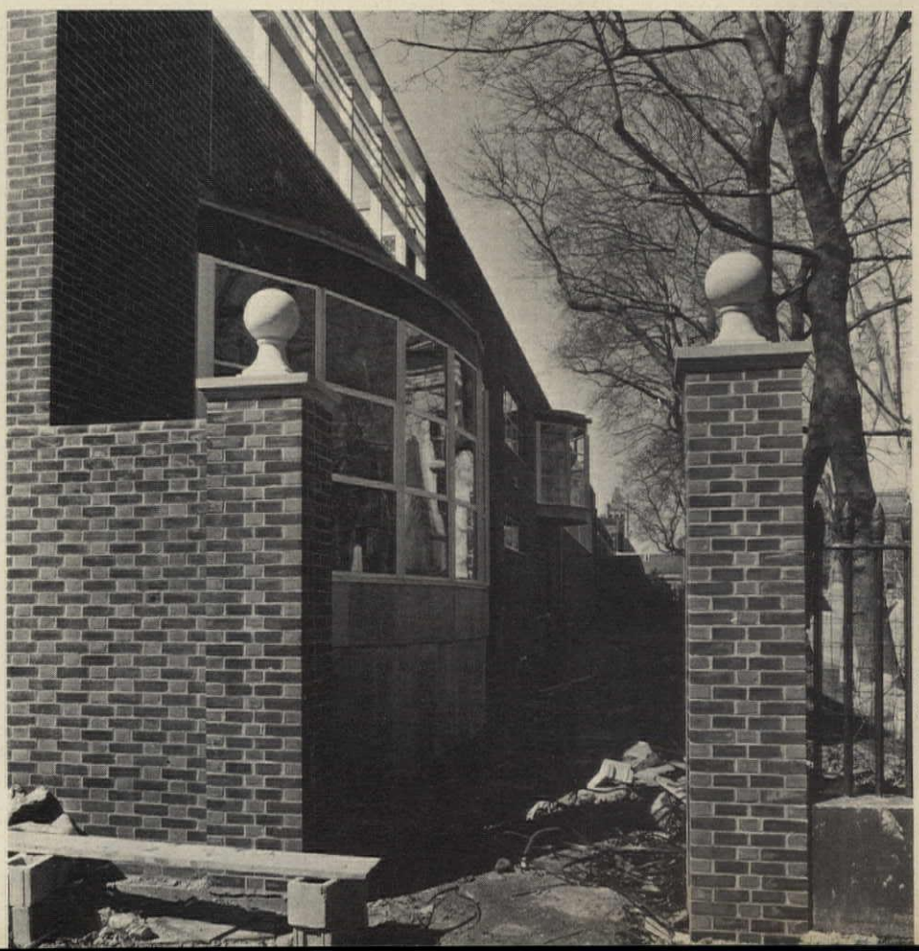
tional and cultural centers. Therefore Friday's commissions, to date, have relied heavily on public funding. The office appreciates and cultivates this socially oriented genre, but, like most small firms in the 1970s, it desperately needs more work of all types. Bill Hovland asserts that Friday is "barely scraping by in an economy that ignores people's real needs. In our country," he notes, "where a majority of our urban populations live in incredible squalor, urgently needing housing, hospitals, day care centers, safe factories, schools, parks, etc., a majority of our architects, engineers, and construction workers have little or nothing to do."

While admitting and lamenting such social and economic realities, most members of Friday remain optimistic, even buoyant, about themselves, their work, and the potential of Architecture to serve and delight. While riding out the depression, they also have fun and make every effort "to wring some joy out of this crazy business." Slovic is co-authoring a history of diners. The whole office shares a passion for urban and architectural history. Friday's special attachment to vernacular building is epitomized in its serious, ironic, and frequently touching ceremony: the "Building of the Month Award," which recognizes significant and generally unnoticed elements of the built environment. Selection is made regardless of style, use, age, or size. The recipient building must be a good example of its era, of what it tries to achieve, and must be well maintained. The purpose of the award is to attract attention to "the overlooked, homegrown, varieties," to praise successfully employed decoration, and to encourage people to look around for themselves. Recent recipients have included schoolhouses, churches, restaurants, stores, and row houses. The award itself is an impressively engraved certificate bearing a gold seal and embossed with a Latin motto which translates roughly as "Everyone is to be trusted in one's own special art."

Whatever directions it may take in the future, Friday's "own special art" will warrant attention. □



Old Pine Community Center, Philadelphia, Pa. (above and below), currently under construction.



Photos: Elliott Kaufman

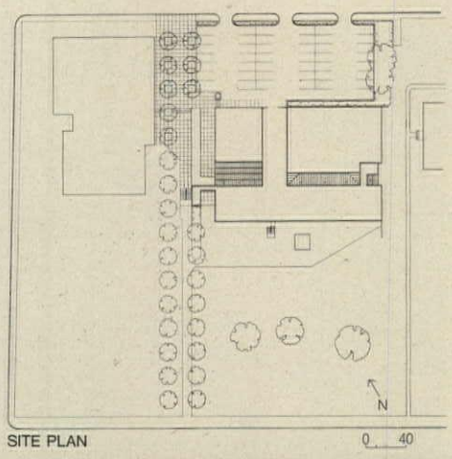
Modernist recall

Friday, a group of young architects revivifies the idiom of early modernism with a recent design for a general use community center.

"The future of architecture lies in the past" architects can often be heard to say these days. As if to make the point Friday Architects has turned to the American vernacular roadside architecture and *its* precursors, examples of the early European Modern Movement, in their first major building, a neighborhood community center in Lancaster, PA. The porcelain-enameled panels of 1930s gas stations in combination with the fenestration, massing, and glass block stair tower of, say, the 1920s Volharding Cooperative Society by Jan W.E. Buijs in the Hague combine well to make the building lively, distinctive, but familiar. Conceived as vehicles of social utopian goals, early Modern buildings seem more than appropriate images for this gym, swimming pool, community meeting center, day care center, and medical and dental clinic.

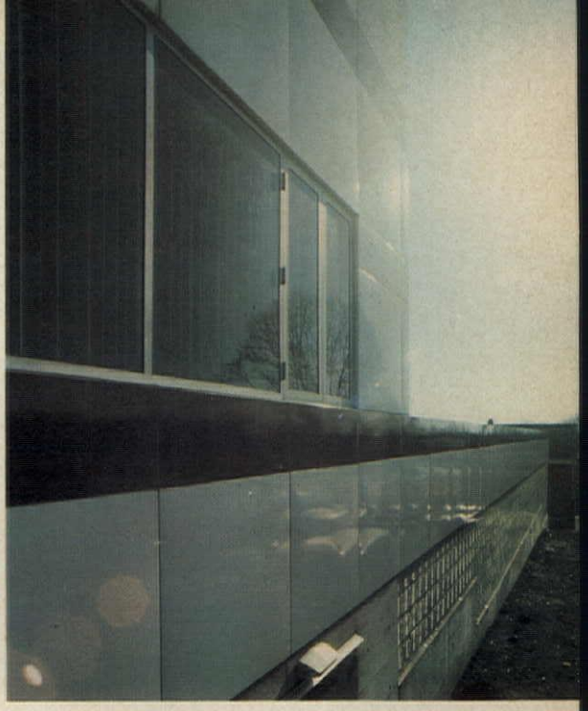
If the building appears monumental with its 168-ft length and four-story height and its prominent perch atop a 1.6-acre knoll, that too was the point. The low-income Spanish-speaking black and white population of the urban renewal area wanted a "monument," an identifiable building that would signal its active role in the southeast Lancaster neighborhood.

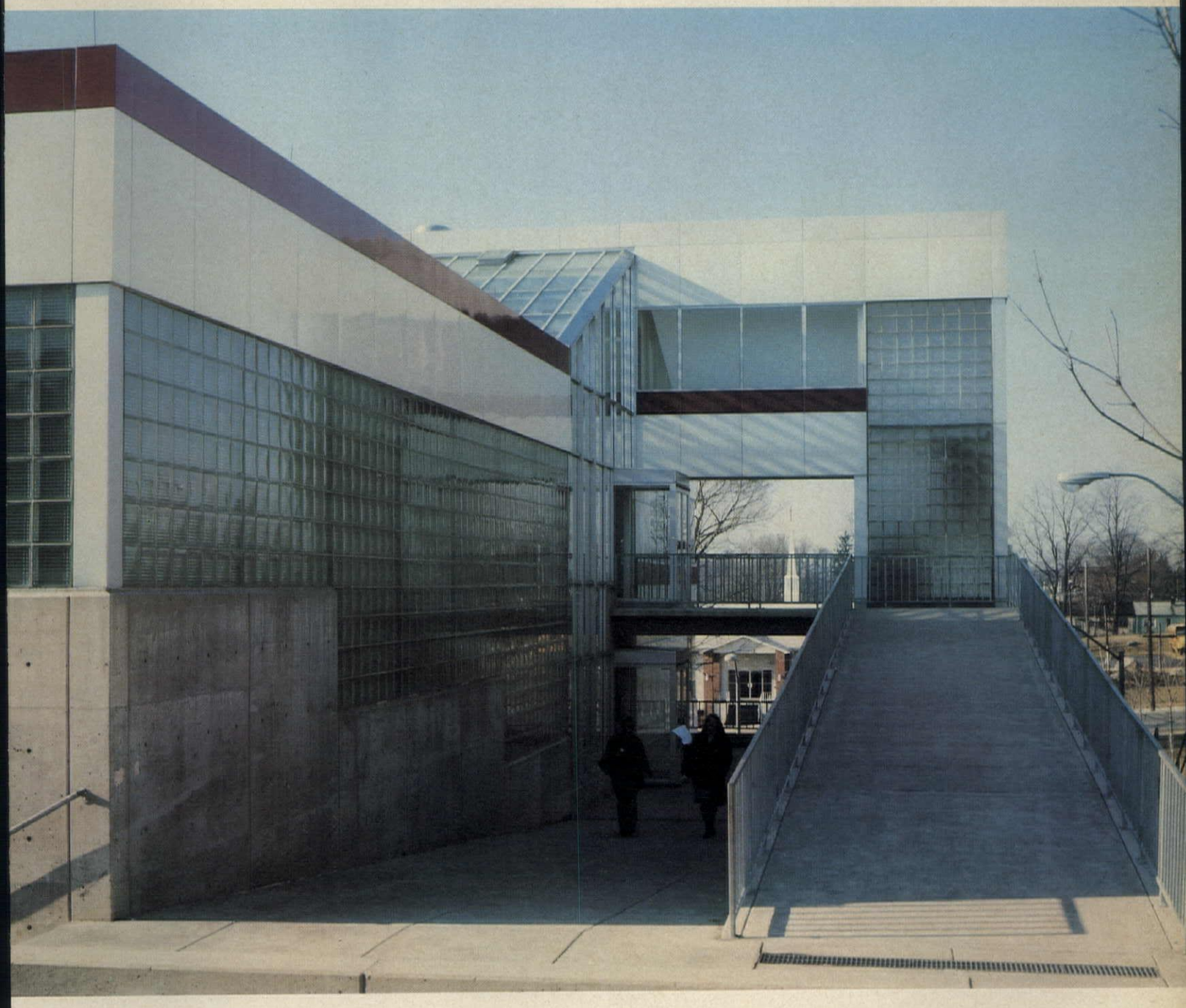
While the architects adopted the "clean machine" aesthetic, they did so without getting too coldly clinical, too pure. Thus inside floors are colorfully patterned, and a three-story-high interior spine is dramatically illuminated by a glass skylight. Outside, the building doesn't stay geometrically tight: each elevation shifts its pattern of architectural elements to reflect the disposition of functions within. Four varying elevations break down the first impression of the "pristine" object. There is a messy vitality that operates as one goes around the building (sometimes too much so—as in the parking lot in back), though all is held together by the red dadolike band and

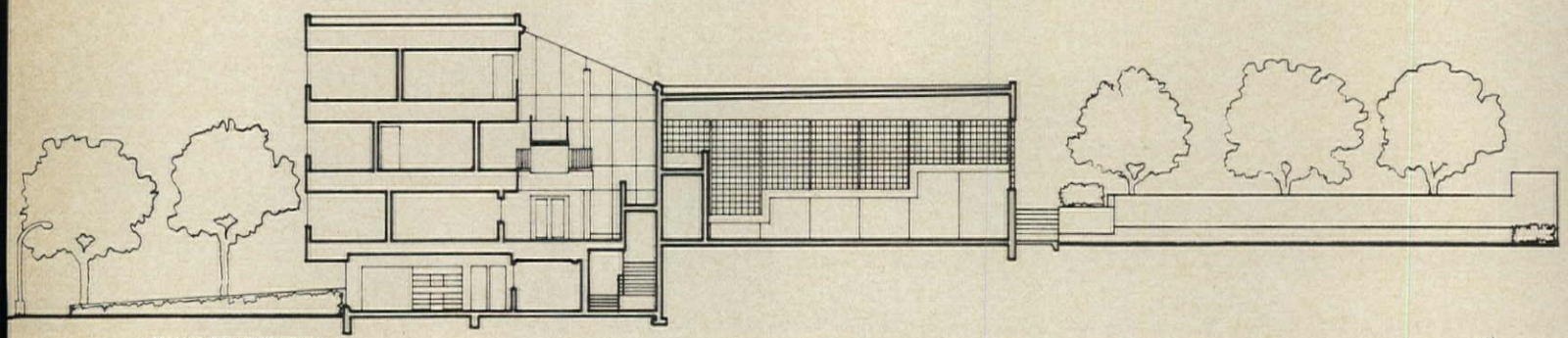


SITE PLAN

The community center sits on a grassy slope next door to a boys' club (far left in site plan). Architects persuaded club to upgrade its secondary entrance on side facing Center (opposite, bottom) to form common entry plaza with path to busy road on lower edge of site. The building's porcelain panels (opposite), may recall 1930s gas stations, but the glass block, corner entrance, massing, and the horizontal bands of glazing and spandrel panels one could argue more pointedly explores modernist elements seen for example in the 1920s Volharding Cooperative Society (below) designed by Jan W.E. Buijs in the Hague.







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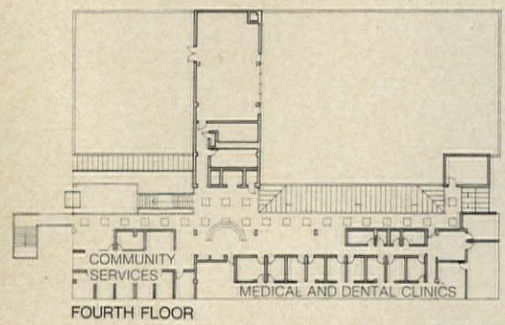

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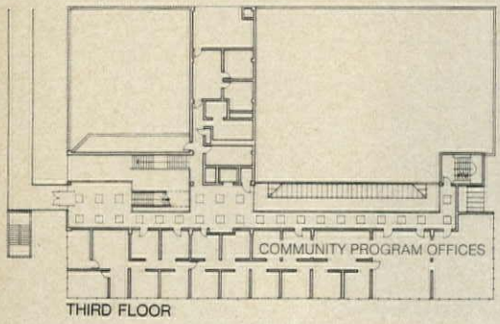

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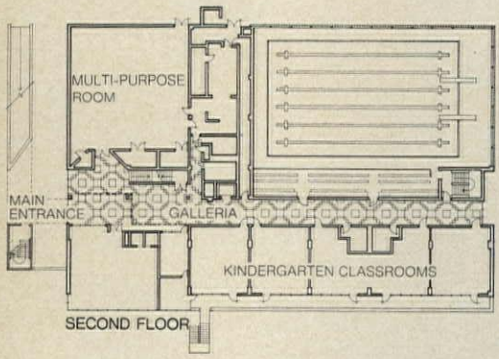

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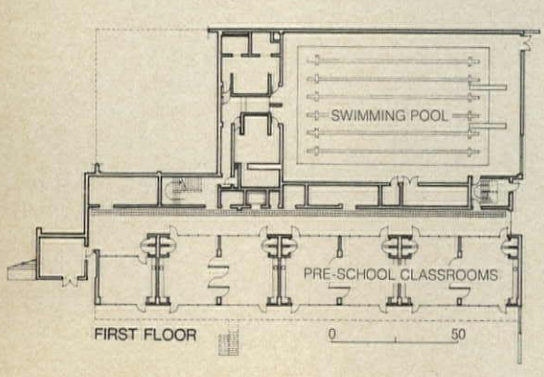

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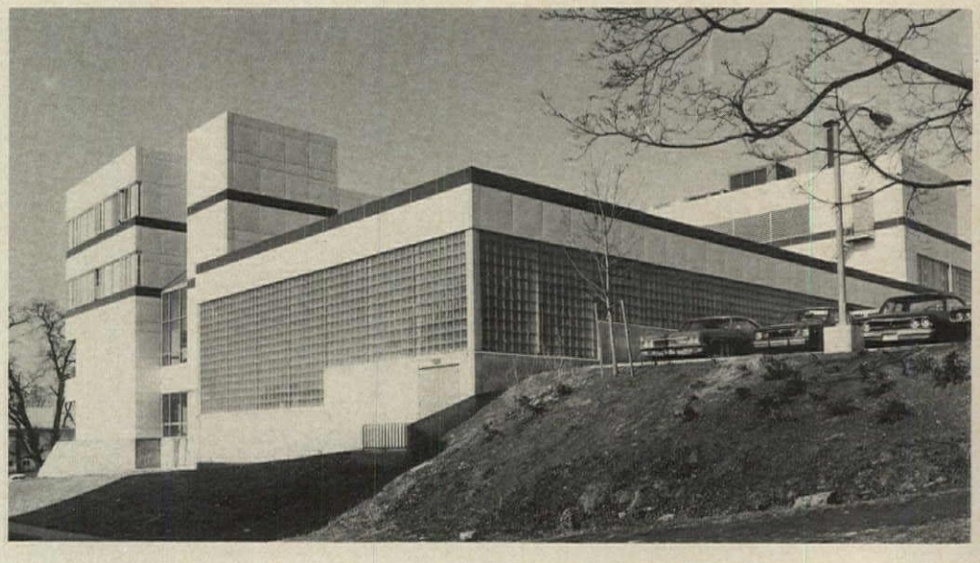
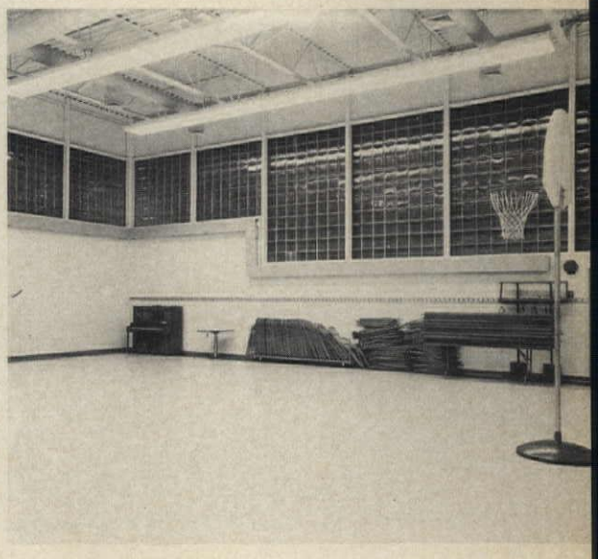


The Center can be entered on three levels, with the large community spaces placed on the upper slope (top photo and section), smaller rental spaces overlooking downward part of slope to south. Natural light comes in through north facing skylight (above) and south facing glass block stairwell (right), glass block in pool and gym (opposite) with conventional glazing used for classrooms and community offices.



Three-story skylit interior street (above), pool (upper right), and multi-purpose room (lower right).

the fenestration pattern. Needless to say, the white with red stripe exterior can hardly be read as the sort of building that blends in with its context. However the link to the context is still made, albeit on a graphic level, for the building reverses the red brick with white molding format of the nearby residential construction.

For a firm that has done most of its work with community groups and social service clients, the building does come as a surprise. It's so *slick*. Friday is a little uncomfortable with its polish—after all their gritty pragmatic belief system (architecture must be functional, constructable, affordable) doesn't place an *overriding* emphasis on intense formalism. Their attempts, they claim, are made in the interest of giving a "symbolic reality to the physical reality." For this reason the building's interior is often plain. Other than the spatial dynamic of the interior street, and some nice juxtapositions of materials and sylistic elements in the multi-purpose room and auditorium, there isn't much else of formal interest. Spaces for classrooms and offices are matter-of-fact; interior finishes, lighting fixtures, downright conventional; detailing so straightforward it's almost nonexistent. Even the structure is sensible: steel frame with poured concrete base, exposed metal deck roofing above the pool and multi-purpose room.

Nevertheless, there was some suspicion on the part of the government representatives that the architects were wasting space with the skylit gallery. (Lancaster received a neighborhood facilities grant of $1 million, the first time HUD had given a grant in full, shortly before the Nixon administration had adopted its revenue sharing program.)

While the actual community group liked the porcelain panel and glass block solution, Friday was often warned by the local officials that they were inviting vandalism. A boys' club had already been built on the site, next door to the center—all in brick. But so far the building has not only survived normal wear and tear, it has remained unvandalized, a striking testimony to a beneficial conjunction of current design considerations with social concerns. As the first major building by this young Philadelphia firm (see profile, p. 00), the straightforwardness and finesse with which it is pulled off portends well for their future. [Suzanne Stephens]

Data

Project: Lancaster Neighborhood Center, Lancaster, Pennsylvania.
Architects: Friday Architects/Planners.
Site: 1.6 acres, in low-rise semi-urban neighborhood shared with existing Boys' Club.
Program: 50,000-sq-ft building used for public services on small-scale personalized level, to accommodate all age groups from the pre-school to the elderly. Includes multi-purpose room, swimming pool, plus leased space to agencies for medical, dental clinics, pre-school classrooms, girls' club and offices.
Structural system: steel frame, concrete foundations, porcelain enamel cladding.
Major materials: porcelain enameled steel panels, glass block, vinyl asbestos tile.
Mechanical system: perimeter radiation, individual fan-coil units for various spaces, central air conditioning.
Consultants: Paragon Engineering Corp., mechanical, electrical; Bernard N. Webb, structural.
General contractor: E.E. Murray Construction.
Client: city of Lancaster. Owned by city, managed by the Boys Club.
Costs: $1 million with sitework; $42.25 per sq ft.
Photography: Elliott Kaufman, b/w int., plus p. 75 left top; and Harris & Davis, rest.

For more complexity

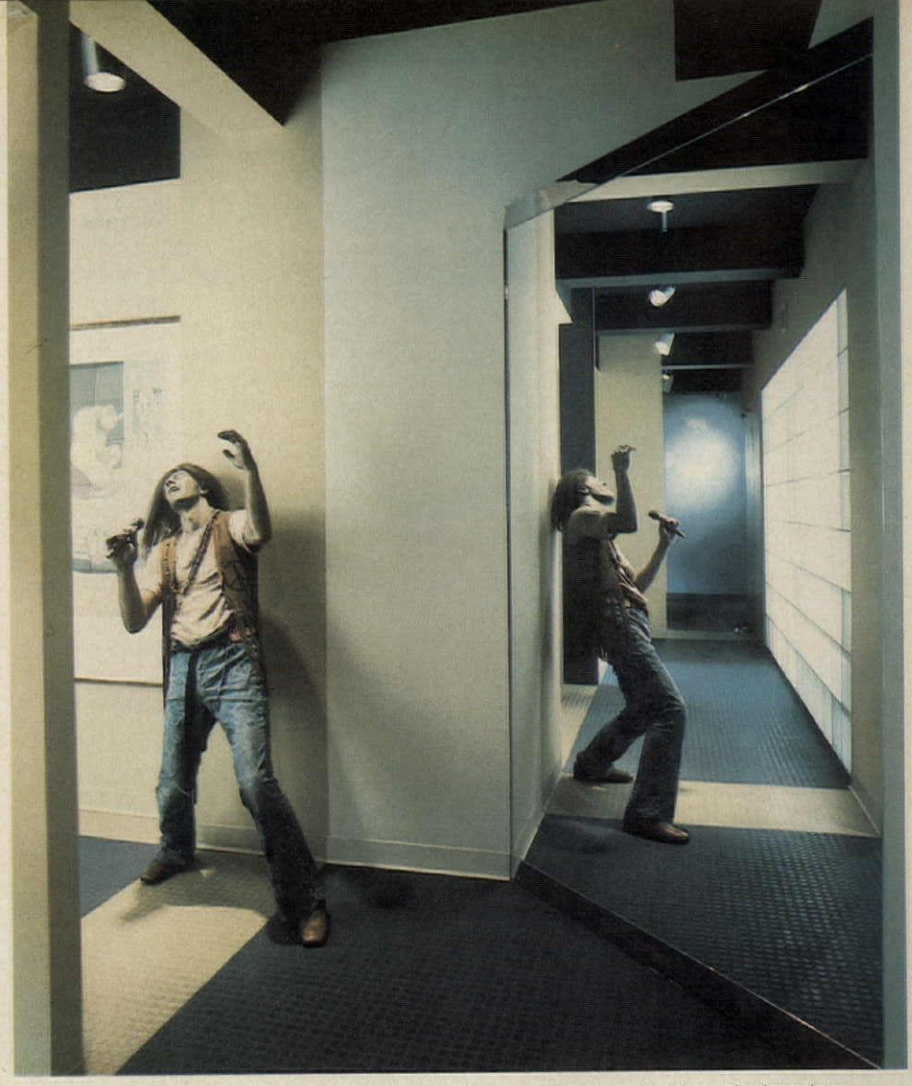
In renovating law offices in New York, Susana Torre equally intensifies all the aspects basic to architecture.

The law offices Susana Torre has recently renovated in midtown Manhattan are far from what one might expect clients in the legal profession to commission. They are not the traditional, staid offices that are usually contrived to reassure one of the seriousness of their purpose. In startling contrast, these offices both challenge and disorient the viewer. The space has been transformed through the use of devices that are both ambiguous and clarifying, which are used with the intention of exposing the viewer to the nature of architecture as an aesthetic experience of space. One could question whether law offices are the appropriate setting for dealing with such ideas, yet the concern for their expression in these spaces is not unrelated to certain interests of the client. Because the senior partner in the firm of Torczyner and Wiseman is a serious patron of the arts, it seems natural that his concern in such matters should extend to the working environment.

The offices are located in a conventional, older office tower. The space as found was ordinary and provided little to encourage the imagination. While most architects would probably have tried to obscure the space as much as possible, Torre saw the existing conditions as a point of departure and has directed her attention toward intensifying them rather than obscuring them. She believes that whatever the architectural problem, all architecture exists within a matrix of conditions that must be acknowledged, and that these "spatial matrices" should "provide a reference for designating new architectural elements and their relative location with respect to the existing system of variables."

Form

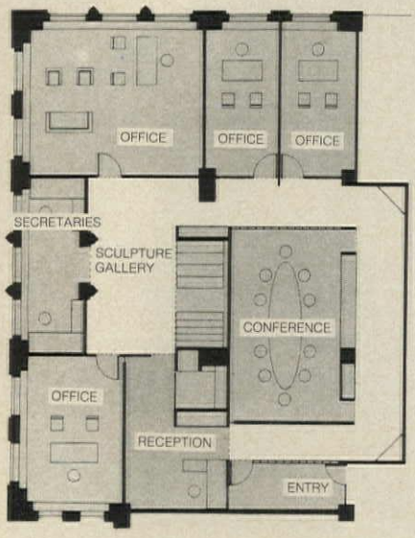
Structurally, the offices are composed of six column bays. The structural cage and everything that coincides with it, including partitions, furnishings, and even unseen beams in the floor, are indicated by cream color. All other partitions are "dematerialized" through the use of glass block or by being painted other colors. The embossed rubber flooring is charcoal gray throughout, except for the cream indications and for the sienna used in the conference room. Ceilings are of hung perforated aluminum panels except for those of the full-height circulation corridor, which are painted black. The off-white glazed brick that clads the exterior of the building is brought inside as the surface of the perimeter walls. Through these means of expressing structural elements that are normally obscured, and through recalling formal elements related to the exterior of the building, the viewer becomes more aware not only of how the building is put together, but of the building as part of its matrix—the urban environment.



Robert Perron

Entry to offices (below) is not through black panel that suggests door, but through glass door to right of it. Throughout, structural cage is expressed in cream color, as seen in circulation corridor (above) where Duane Hanson's "Rock Star" is reflected in angled corner mirror. George Segal's "Sleeping Figure" and Domenico Gnoli painting dominate sculpture gallery/library (left).

Photos: Norman McGrath



Function

In terms of function, these offices probably could not have been planned in a way more suitable to the clients' needs. Everyone, including the partners, associates, and secretaries is near a window, except for the receptionist. But the receptionist is seated at a key point where, with the aid of two mirrors placed at 45 degree angles in the U-shaped circulation corridor, all movement within the corridor and reception area can be easily monitored. The secretaries' central location puts them in equally close proximity to the partners and associates, and to the library and files. The location of the conference room in the center of the space makes it convenient to all, and in addition it can be entered directly from the reception area without going through other parts of the office. The plan is so logical, so clearly spelled out through the treatment of the circulation corridor, it is hard to imagine that one's first impression of the offices might be quite disorienting.

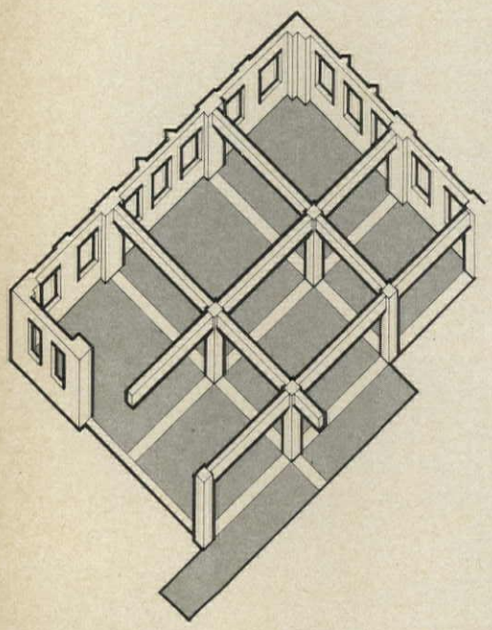
Reverberating metaphors

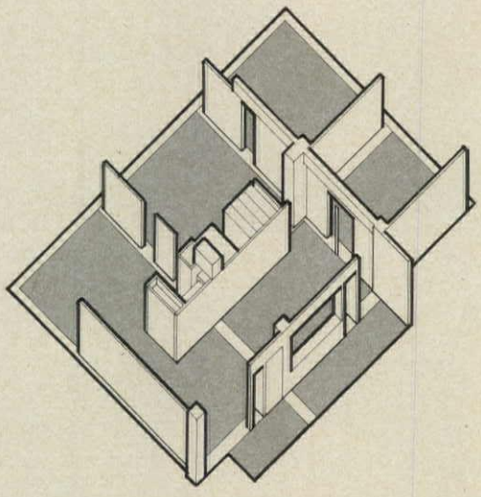
The effect of some of the elements Torre has used in the space is purposefully disquieting. To enter the offices from the reception area one does not open the black panel that appears to be a door, but goes through a glass door in a glass block wall at a right angle to it. Once in the office proper one is confronted, in one direction, with a black metal bed standing silent in the middle of a dark room. A white plaster figure is disarrayed upon it, and on the wall behind the bed one sees a larger-than-life-size painting of the back of a woman's head. To one side of the bed a glazed brick portal that leads to the secretaries' area is flanked by panels painted with images of blue sky. Looking in the other direction one sees a corridor that has been "straightened" and "lengthened" by the use of the two mirrors. Part way down the hall stands the dissolute figure of a rock singer, and beyond it the space seems to extend into a mysterious unknown, reflecting the image of a panel of sky. You wonder where you are, what the bed is doing here, where the hall leads. Is this a law office or some bizarre surrealist fantasy?

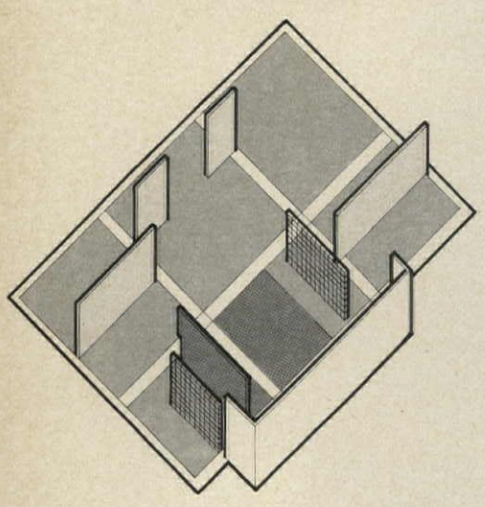
In designing the offices, Torre explains that she has given very thoughtful consideration to the expressive needs of the client. In this case the client is one who has very particular tastes in art—his proclivity being for surrealist, super-realist, and primitive works. These are his "elected affinities," Torre says, and they are an important part of what she wants to express in the architecture. To this end, the devices she has used allude to painting, sculpture, and certain works of literature. The entry from the reception area, for instance, refers to Marcel Duchamp's door that opens simultaneously into two different spaces; the brick portal refers to Magritte's "Le Mois de Vendanges"; and the mirrors recall the surrealist designation of the boundary between reality and mystery.

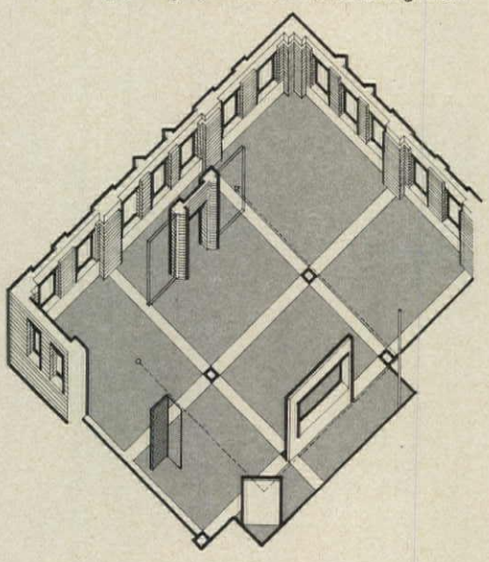
Because none of these references or allusions operates in the realm of conventional experience (as, alas, does apple pie), Torre refers to them as "reverberating metaphors." Although they may refer to other works of art, they carry no precise definitions and their use by the architect is purely arbitrary. But this does not mean that they lack purpose. Their purpose, she says, is for discovering realms of expression that challenge and exceed those of the conventional realm.

For Susana Torre the issue of complexity is the most important concern in architecture today. When she talks of complexity, however, she does not mean the emphasis, often over other concerns, of spatial and structural form, of decoration and historical allusion, which recent years have witnessed as reactions against the now commonly acknowledged deficiencies in the architecture of the Modern Movement. None of these attitudes, Torre insists, gives equal consideration to all of









Diagrams represent structural cage (left), new partitions and furnishings that coincide with it (above), new partitions related only to function (below left), and metaphorical elements (below right). Mirrors are in back corners of U-shaped corridor (floor plan, above). Axonometric drawing (far right) shows all elements together.

the basic aspects of architecture—form, function, and symbolic content—that organize actual space. For her, if the expression of any one of these aspects—or "systems that comprise the matrix of architecture"—is suppressed, then the architectural product itself does not deal with the true nature of architecture.

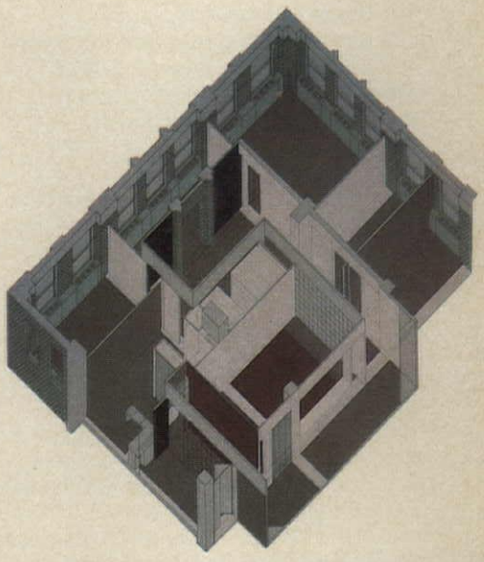
"When designing a project," Torre explains, "I attempt to express the dialectic between the system of actual and structural spatial elements, the system of activities that appropriate architectural space, and the system of personal/collective meanings embodied in the project." None of these aspects of architecture exists in a nonconflicting manner with any of the others, she says, and adds that to think so is sheer delusion. But the very fact that they do not and cannot coexist easily is to her of prime importance, for this implies the recognition of a tension between the formal demands of each system. Her intention is to intensify the expression of each system, and by doing so to intensify the tensions that exist between the systems. This in turn should make the viewer or user more aware of the form, function, and symbolic content of built space.

"One of the objectives of my work," Torre says, "is to render legible the hidden complexity of architectural space, to invoke in the viewer an ambiguous collision between his or her perceptual experience and conceptual understanding of space." This, she says, constitutes the basic experience of an aesthetic consciousness of space.

In this respect, the reverberating metaphors are used toward the same end as is the intensification of the expression of form and function. Through exposing and intensifying these three systems inherent in all architecture, Torre hopes to reveal the true nature of architecture itself. It is only then, she says, that architecture becomes art. But like all other art, it too must use artifice to reveal truth. [David Morton]

Data

Project: law office renovation, New York City.
Architect: Susana Torre; collaborator in development and supervision, Clinton Sheerr.
Program: renovation of existing law offices.
Major materials: gypsum board, glass block, glazed brick, studded rubber flooring, perforated metal ceiling panels.
Client: Torczyner and Wiseman.
Contractor: StructureTone, Inc.

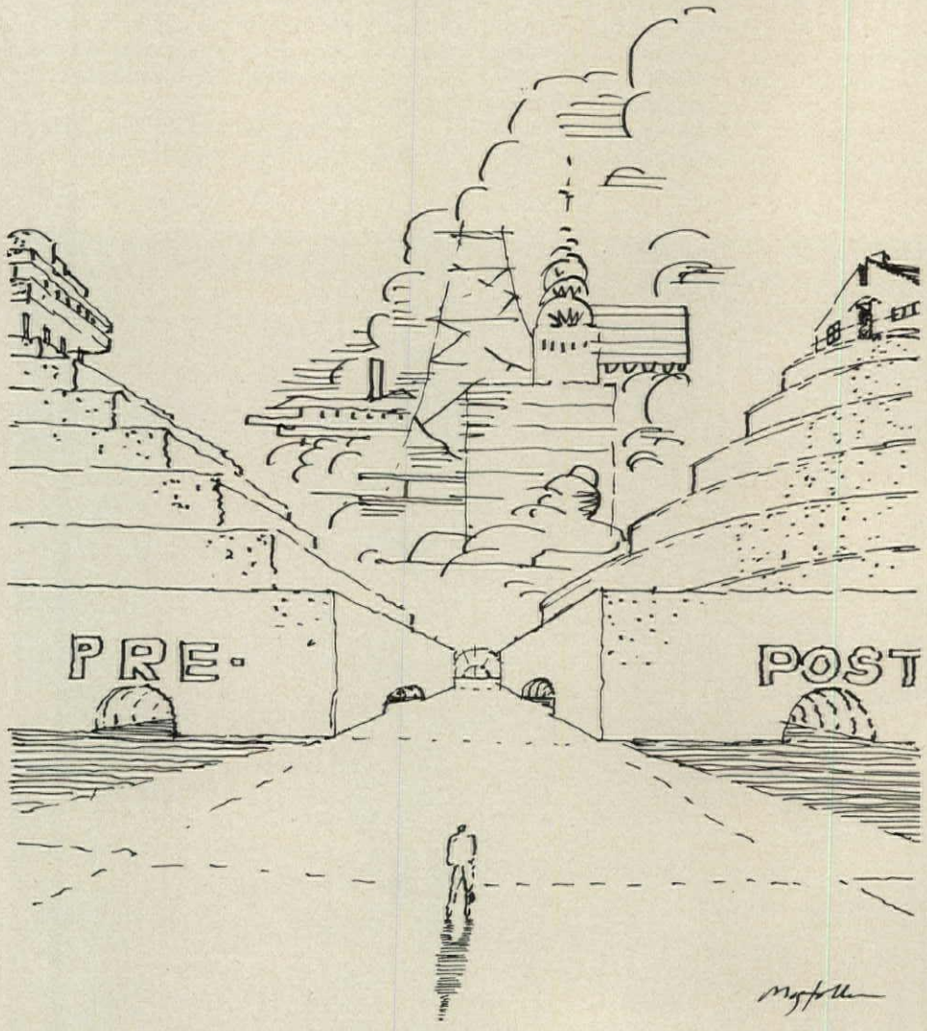


Installation of client's art collection was important part of program. Senior partner's office (above) includes African art and Magritte paintings. In conference room (left) Alechinsky painting is on partition "dematerialized" by red color. Both ends of corridor (left, right) are "straightened" and "lengthened" through use of two angled mirrors.

A comeback for architectural theory

David Dunster

The future will have plot-lines, characters playing assorted roles with some protagonists emerging. But what about the dialogue? Current theories may form that speech.



While "architectural theory" almost defies definition, it is being pursued on both sides of the Atlantic by practicing architects who have rescued it from architectural historians. The polarities of approaches make categorization difficult, but the extremes seem to be a reductive "rationalism," concentrating on architectural typologies of one sort or another, and an inclusive "historicism," focusing on formulating symbologies that refer to both the history of architecture and the imagery of popular taste.

Contrary to the anti-historical point of view of the Modern Movement, *both* sides re-interpret history and take it seriously. This profound shift indicates that architectural theory could become increasingly important to the entire profession: An architectural education and curriculum might now be conceived which is entirely based on histories of various kinds. In this way architecture may be able to regenerate itself, and discard the vulgar pragmatism which has produced the disfigurement of the environment.

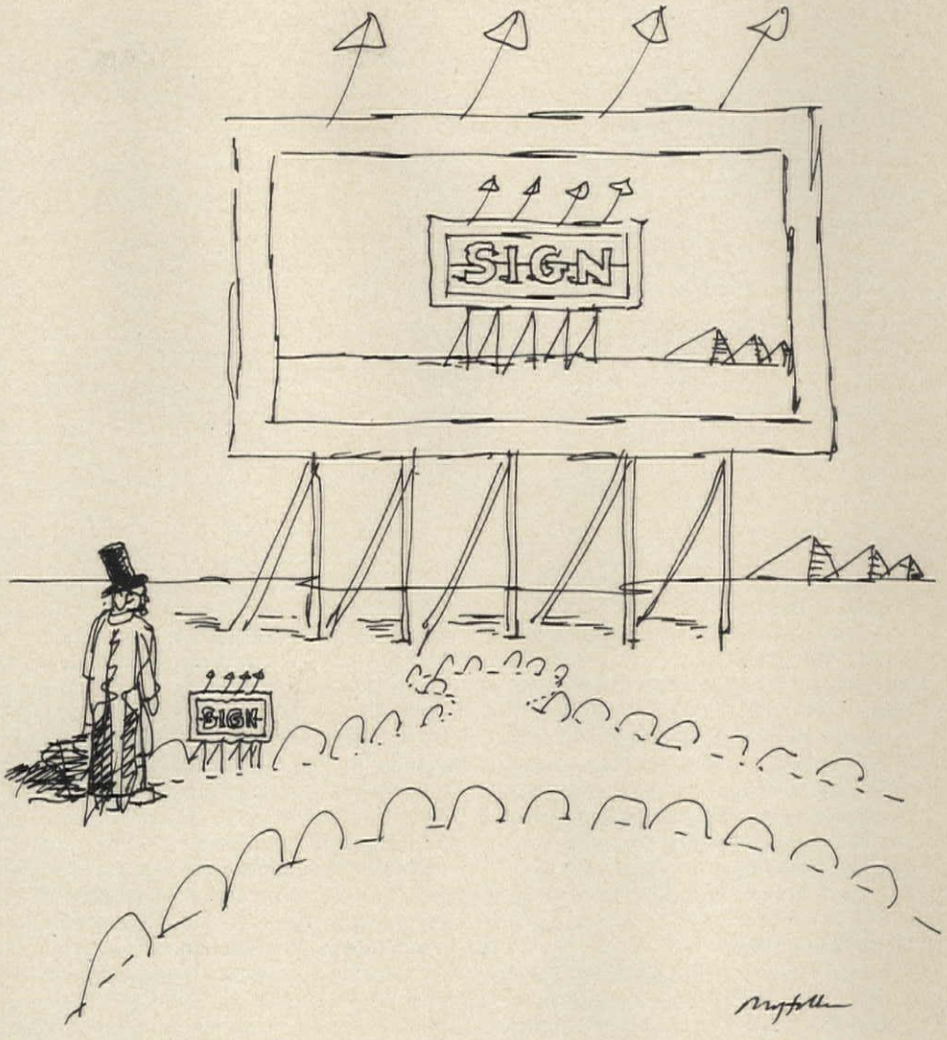
A tradition has grown up within Modern architecture for designing in an ad hoc way. This process begins with a clean slate, starting only with the demands of the site, program, economics, and materials—the facts of the situation. To take the empirical reality and produce the pragmatic image—this is the goal of the tradition. The means is governed by objectivity: Subjectivity must intervene, of course, but only at specific points on the trajectory from program to building. The world is transparently oblivious to the would-be objective, pragmatic, empiricist architect. His buildings satisfy the needs of this world, and their quality is guaranteed by the "correspondence theory" of truth—if everything is accounted for, it must be okay.

Thus this practitioner succeeded in placing himself in an unassailable position: his objectivity was the carapace for his well-controlled subjectivity, and he had need of neither theory—which suggests that objectivity is a transient myth—nor history which shows how crudely subjective the past is compared to the modern age's masterful and omniscient objectivity.

Ethics of expression, of materials, functions, or circulation are no longer sufficient pegs on which to hang the whole building. Their more recent substitutes—high-technology architecture or self-build, low-technology architecture—have equally failed to engage attention of many architects for more than a fleeting moment. Each of the three relate not to any substantial discussion of architecture itself, but ultimately more to architecture's operative function in society for the provision of shelter. Architecture is therefore a dumb handmaiden of technology whether technology is approved of (as in the high-tech approach), or technology is seen as a destructive force (as in the "eco-tech" attitude). In either case architecture is a transient consumable product dominated by external factors.

In this line of thinking extending from the 1950s on, theory, such as it was, confronted the technicalities of planning, the zoning of services, the means of construction, all in total abstraction. Each succeeding project became yet one more attempt at an ideal universal solution, inevitably doomed to failure by the terms of its own

Author: David Dunster is an English architect who teaches history and theory at Kingston Polytechnic near London.

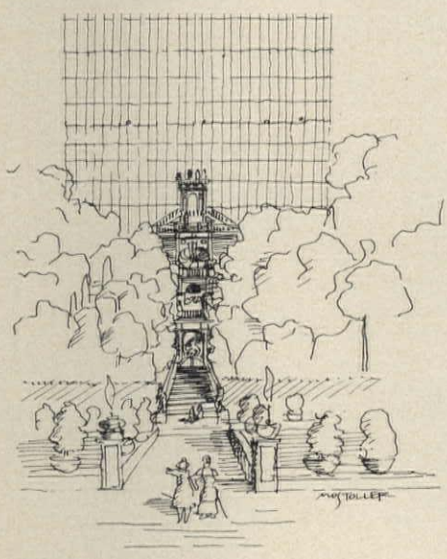


argument. The intellectual bankruptcy of the orthodox approach led to talk of a "crisis in architecture." The crisis was, of course, emotional and brought about by the loss of ideals. It could be ascribed to economics or bureaucracy or the loss of individualism. It was never suggested that the problem was even more profound.

Setting the stage

It must be admitted that architectural theory seems like the Bermuda Triangle: both have effects and limits, but do they really exist? Taking a definition of theory as a systematic, rigorous, and internally coherent body of ideas, we could look for days in the architectural libraries, searching for a text clearly and unambiguously describing any architectural theory. Manifestoes, descriptions, and criticisms form the literary backdrop, all apologias after the event. Is theory then the preserve of little magazines documenting the derring-do of metropolitan coteries? Or is it to be found in the prefaces, footnotes, and postscripts of history books?

These questions presuppose that theory is only to be found in words, and thus the product of a mind disengaged from the practical business of making buildings. However if buildings are initially the product of thought, then they are exemplars or demonstrations of how ideas become concrete. In the light of this argument, "theory," as defined above, is present in all buildings, not as some essence but as a shadowy presence. Any conversation about buildings becomes an excursion into the realm of ideas, the realm of theory.



Recognizing that theory exists does not mean that all architects have to be intellectuals, but it does open up architecture to public discussion. Instead of posing some mystic union of genius and materials, architecture becomes accessible by being considered as an analytical pursuit. It could still be consided a goal-directed problem-solving activity—as long as architecture doesn't become equivalent to crossword puzzles.

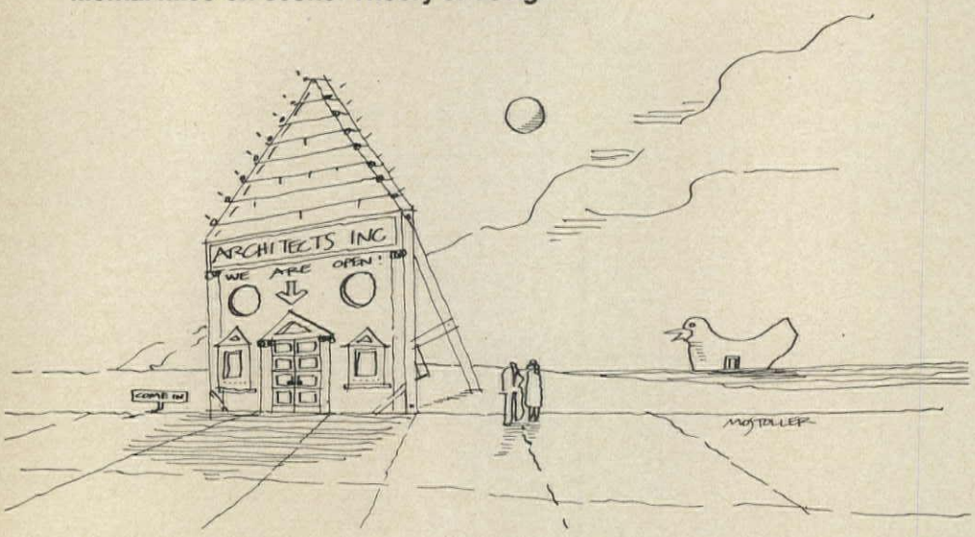
Anything has been used to discuss architecture—from the environmentalism of James Marston Fitch to the apocalyptic teleology of Manfredo Tafuri—rather than treat architecture as a discipline with some internal coherence, albeit subject to external nonarchitectural forces. Architectural theory and the resurgence of interest in it is a sign that architecture is at last talking about itself, taking itself seriously.

The first logical step in the reassessment that has begun was to go back to the masters of the Modern Movement, and then equally logically to return to the more distant past. In May 1950 Colin Rowe wrote "Mannerism and Modern Architecture" which, with his earlier "The Mathematics of the Ideal Villa" (both in *The Architectural Review*) took seriously the relation between the architecture of the past and the present. His elucidation of the metaphorical and logical relationships between Palladio and Le Corbusier gave a new dimension to the interpretation of one of the pioneers of Modern Architecture.

In 1966 *Complexity and Contradiction in Architecture* by Robert Venturi pursued the relation to the point of shattering the glass house surrounding the orthodoxy of Modern Architecture. Venturi's critique of the conventional wisdom of functionalism showed how the history of architecture could be read profitably by modern architects. While Venturi's endeavor aroused wide acclaim for his historical analysis, the presentation of the work of his office was held to detract from the validity of his arguments. Venturi had dared both to state his theoretical position and to demonstrate how that position influenced his practice. Such unprecedented Renaissance behaviour traversed the iron curtain between theory and practice, and offered a profound threat to the architectural establishment.

All three pieces have, like time bombs, exploded the preconceptions and prej-

Mental mise-en-scène: Theory of design



udices of the profession, especially in the last five to ten years.

To turn to the description of the state of theory, the first characteristic is that the discussion of theory is international; its protagonists are as likely to be found in upstate New York as downtown Lucerne. Yet the debate within theory has a polarity. There are two major directions—the rationalist and historicist—that theory can follow, although in isolating these two one ignores many interesting subtleties and nuances of position evidenced in the field.

Enter rationalism

To encompass Aldo Rossi, James Stirling, the Krier Brothers, Arata Isozaki, the Argentinians (Diana Agrest, Mario Gandelsonas, Rodolfo Machado, Jorge Silvetti) under the rubric rationalists elevates the little that they have in common against the immense differences. Nevertheless for the purposes of this discussion such generalisation should serve. Their common interests seem to be in geometrically pure forms, either repeated endlessly or forming the boundary condition of a grid; in a dialectic between geometric order as additive (many perfect parts make a perfect whole?) and random, or natural or ad hoc, or already given elements. The field of reference is often the city, and in the Kriers' case this is driven to the point at which a typology of urban forms is proposed. The city is seen as one vast solid mass of building out of which public space is hollowed. The buildings become an arcaded margin between empty but geometric voids. Meaning derives from the play of tried and tested classical types against surreal, dadaesque juxtapositions.

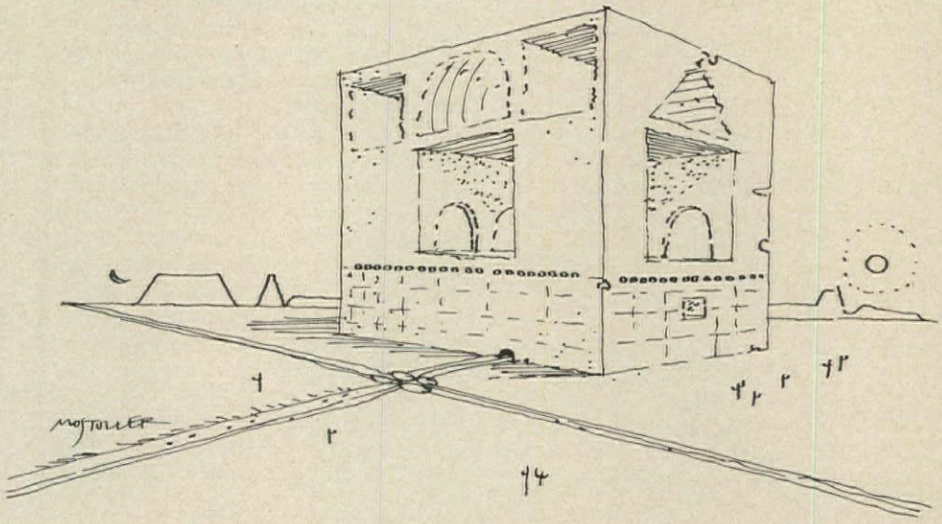
The theory of rationalism is a reductionist one. It searches for essences—of building types, or urban spaces, even of the alienation produced by the city which both horrifies and fascinates. The Italian critic Manfredo Tafuri has written of the rationalists in glowing terms because for him they epitomize the immanent failure of architecture's sublime uselessness—the only message in his view that architecture can communicate. It excludes advertising, suburbia, kitsch, possibility of expansion. Crudely stated, rationalism searches for an architectural language by returning to the Corbusier of the 1920s, and pursues the goal of his modern city, even if it is no longer "radiant." Rationalists, however, do not posit entire cities, as Corb's Obus plan for Algiers did. For that would be to idealize the total environment, and it is necessary to the coherence of rationalism that a collagist approach to the design of parts—or perhaps quarters—of the city must be adopted. It is the shock tactic of recognition/misrecognition, that something is new yet monumental, (monumental meaning archetypal). The archetype is not a mode of living, as with Corb, but a purified system of architectural references, hints, and allusions to that primary geometry underlying all architecture.

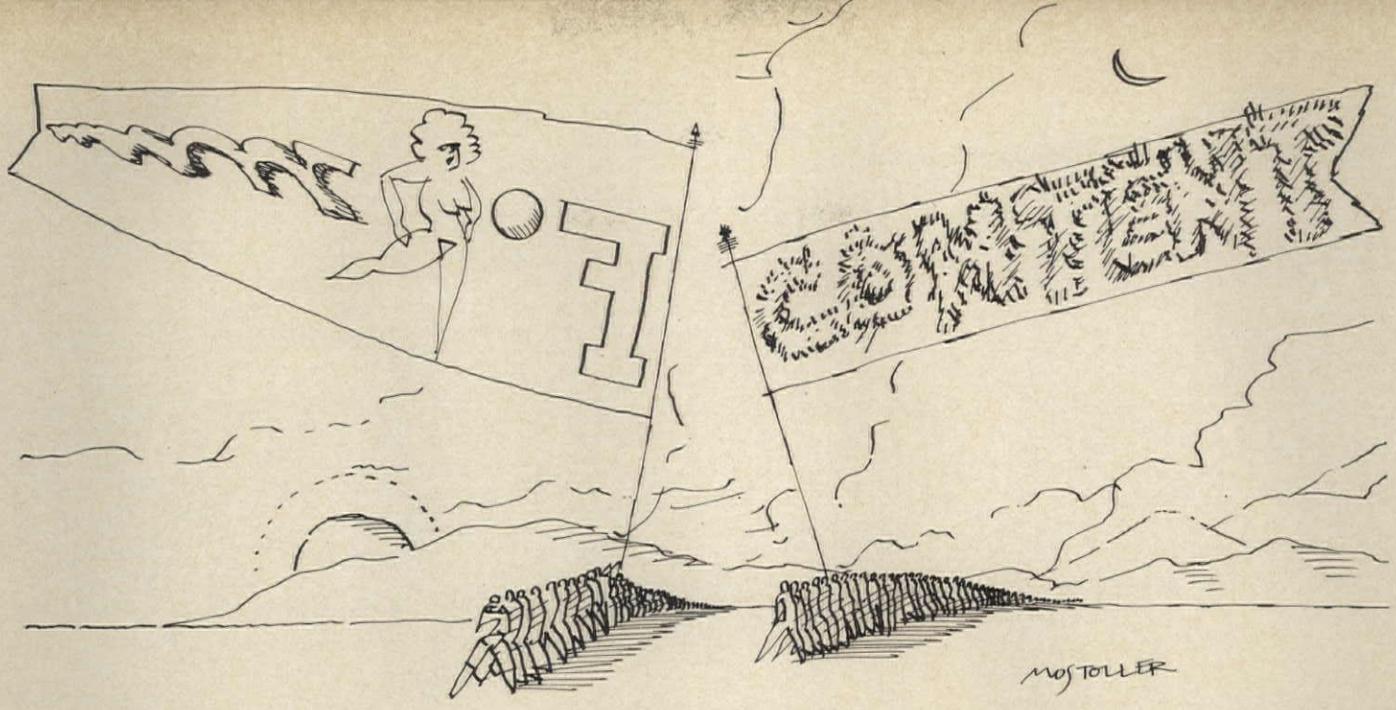
The rationalist stream is hampered by one serious problem—the scale of the proposals precludes the possibility of building in the present political situation, for the public ownership of land would seem to be a *sine qua non* of their more ambitious proposals. A benevolent dictatorship rather than the piecemeal social engineering is still the political solution. Nonetheless the power of their theoretical position can only be denied if architecture is conceived strictly as a pragmatic craft.

Enter historicism

Under this again rather crude heading first place must be given to Robert Venturi, who together with Charles Moore, represents a theoretical position of great power based on a refined and cultivated appreciation of specifically mannerist and Baroque architecture. The field of their work, concerned with the question of architectural language, seeks to establish a system of symbolic or significant references adaptable to the peculiarities of site, client, function, and the culture past and present. Venturi, in *Contradictions* and later with Denise Scott Brown and Steve Izenour in *Learning from Las Vegas (1971)*, has done most to rehabilitate history as a valuable source for handling problems, while formulating the most penetrating critique of orthodox Modernism. One could argue ironically that he has even provided the theoretical field and historical underpinnings of much, though not all, of the work of the "New York Five." To expand this assertion, exclusions must be made. Hejduk, whose work has the crystalline purity reminiscent of the constructivists, stands apart from the Five. Nevertheless due to Venturi's daring historical analysis, and his conceptual categorization, these architects found an audience already open to the idea that architecture could be an intellectual art. For in the last analysis, and despite any argument that the topic of architectural language was definitely at that time in the air, it must be said that *Complexity and Contradiction* raised architectural discussion to the new level. The audience of that discussion provides to an extent the patrons of the Five.

The debate, in the editorial columns of *Oppositions* between "neo-functionalism" (Mario Gandelsonas) and "post-functionalism" (Peter Eisenman), however recondite or erroneous it may seem, takes as given the arguments of Venturi for architecture as a practice akin to literature. The development, by these two, raises the issue of the morality of architectural theory. Gandelsonas wishes to expunge idealism and ideology from architecture, but since he finds suburbia and the strip unacceptable manifestations of capitalism he is left with a dilemma as to what architecture can refer to. His response is rationalist—back





to primary forms and the contradictions between form and content.

Eisenman attacks functionalism in toto as an offshoot of humanism. To support his attack he quotes Levi-Strauss directly and Chomsky implicitly, both of whom are avowed humanists. The category of the knowing subject, the Cartesian man who is because he thinks, has been displaced in much theoretical work in France—by Derrida, Kristeva, Lacan, and Foucault. The correctness of this debate does not depend, however, as Eisenman would wish, on a return to archetypes, whether of syntactic structures, primary forms, or the Oedipus complex, but on the question of how the actions of men are determined by structures—class structure, linguistic structures, discursive structures etc., which exist not prior to, but alongside, the human being.

By returning to primeval forms, Eisenman also wishes to erect a moralistic and hence exclusive set of categories that distinguish architecture from hack building. While we might take issue with Venturi's nonjudgmental position, nonetheless his and Scott Brown's effort does not exclude other sources from the discussion of architecture. On the contrary it maintains an openness to various arguments that neither Gandelsonas nor Eisenman seem able to accept.

If the Five are representative of the historicist camp—and it must be said that some of their work, Eisenman's especially, shows as much a rationalist tendency as Stirling's work shows a historicist one—they have yet to really offer a position *vis à vis* two major architectural problems. Firstly, what would their proposals for an urban context be like? Secondly, how can they handle a repetitious program? So far only Richard Meier has adequately demonstrated his solutions in built form.

Which exit?

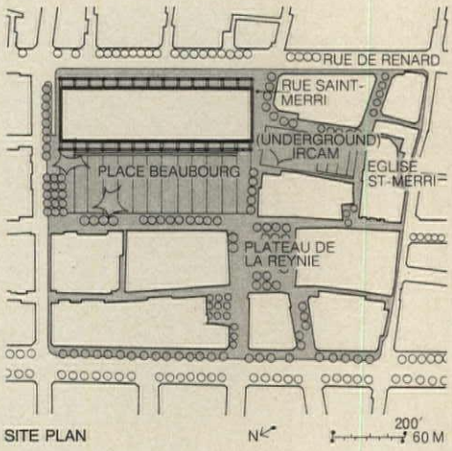
While the rationalists wish to give back to the city some of its authenticity, its only possibility for meaning is as an alternative to the surrounding chaos. As Rafael Moneo has shown, the autonomous architecture of Aldo Rossi gains value by comparison. Such a classicizing approach will always produce exciting work: in some ways rationalism can be viewed as a laboratory of formal experimentation.

The almost irresistible temptation of rationalism in conceiving itself as quasi-logical (though the logic may be entirely internal to architecture) is to exclude and to moralize. In addition the rationalist could pose as a tragic misunderstood figure, who sees clearly the impending apocalyptic downfall of bourgeois capitalism. All this in buildings composed of axes, primary solids, and plain surfaces. The problem with that level of abstraction is that once the basics are stated all that is left is some game with their destruction. Such a game would verge on the Baroque, and would open up the possibility of wit, or irony. Venturi with Scott Brown has faced this problem, has overcome the danger of idealism and in so doing has shown that social politics and the heart on the sleeve are subsidiary elements in the constitution of an architectural theory.

Of the two directions, historicism seems best suited to the problems of creating architecture in a society: the relationship of architecture to the city, the relationship between one-offs and mass-produced, even the relationship between the history and tradition of the practice of architecture and its clientele. Venturi essayed such an analysis in *Complexity and Contradiction* which had validity for the 1960s and 1970s. Coming up to the 1980s perhaps a further critique is called for. The difference of 20 years is likely to be that history has become acceptable as a useful field of exploration. The question that remains is an epistemological one. With which philosophies, or world views, should architectural theory confront its task? Now that architects have discovered writing and reading we can hope for greater literacy.

Architectural theory may remain chimerical and elusive, a matter for debate rather than certainty. What we shall know in the future may not be how to recognize truth, but cogency and coherence. For the question still remains: what is architectural theory to account for—if not those specifically architectural problems which beset the designer of buildings in the course of designing? □

Future past



SITE PLAN

In an effort to recapture its bygone position in the world of culture, France has acquired an architectural icon meant to prefigure the future.

Centre Pompidou (alias Beaubourg, now formally the Centre National d'Art et de Culture Georges Pompidou) opened in Paris at the end of January amidst much clamor, controversy, and a few minor catastrophes. It was the first major museum built in Europe since Mies's Berlin National Gallery in 1968. The museum managed not only to open on time but stayed within a $100 million budget (or so contends Richard Rogers despite the publicized $200 million figure).

Regardless of last-minute finishing touches, escalator and heating breakdowns, American artists' boycotts (over France's release of Abu Daoud), lawsuits from angered environmentalists, the "thing" was really there, alive and breathing. Or so it sounded with all the construction machinery going.

The 1,000,000-sq-ft building was designed to house a museum of modern art, a public library, an industrial design center, a cinematheque, a center for music and acoustic research plus cafes and restaurants, with flower markets, circuses, and Brancusi's studio outside. Parking and the Institut de Recherche et Coordination Acoustique Musique (IRCAM) are located underground. (For more information on the yet unfinished IRCAM, see P/A Nov. 75, p 62).

From the time (1971) the jury that included Philip Johnson, Jean Prouvé and Oscar Niemeyer selected this winning scheme from 491 entries in an international competition for the centre, the building was heralded as the definitive avant-garde statement in architecture and museum programming. Its cagelike tinkertoy structure, its multi-media aspect with huge TV screens clamped on the façade (since dropped) seemed the perfect result of 1960s Archigram, megastructural high-tech thinking. The open-ended framework allowing for "process" and "change" seemed perfect for the museum-as-information-center.

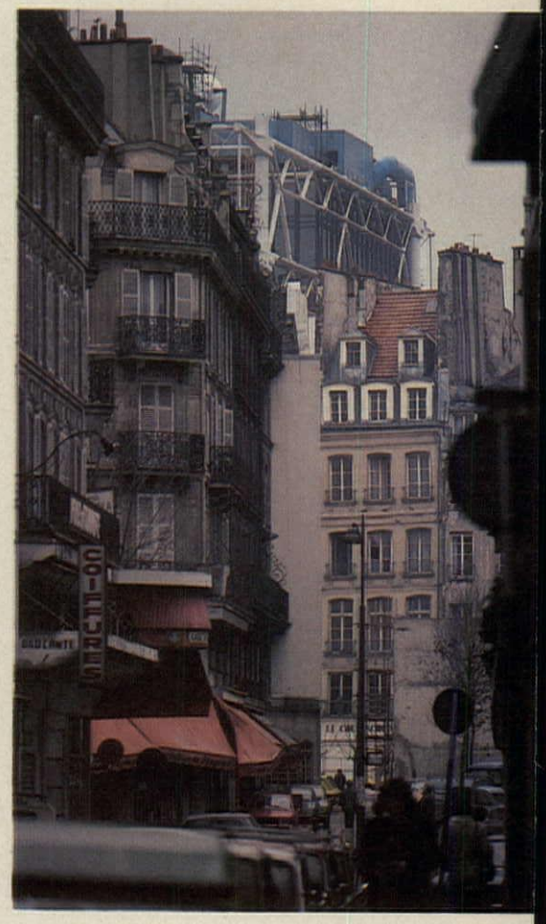
As strange, futuristic, and *épatant* as the architecture may strike the crowds pressing to see it now, much of Centre Pompidou has been seen before. Instead of proposing a "toast to the future" as the French press might have it, Centre Pompidou would be better described as a salute to the architectural and technical achievements of the past. For rather than heralding the 21st Century in its technology, the museum more appropriately bows to the 19th. And rather than posing the prototypical solution for the evolving museum building type, Pompidou provides the latter-day example of a French counterpart developed to its height in the 19th Century—the exhibition hall.

Ironically enough, in the effort to rebuild its reputation as a cultural magnet, the Centre better reinforces Paris' supreme position in the world of tourism. With its unconsciously desirous backward glance, Centre Pompidou reaffirms Paris's own hegemony in history—as the capital of the 19th Century. In doing do so, however, it raises crucial questions regarding the museum's role, its relationship to culture, society, and architecture.

Geneological strains

In a *genetic* sense, it hardly matters that the building was designed by an Englishman and Italian (Richard Rogers and Renzo Piano) with an English firm (Ove Arup & Associates) doing the engineering, or that it would use a German cast steel system. For, despite what anybody says about the significance of this outside intervention, Centre Pompidou's lineage could be argued to be as much French as it is English or German.

The debt for the 550′ x 197′ x 138′ high steel cage of unimpeded loft spaces owes much to 19th-Century French iron and glass construction. An obvious precursor to Centre Pompidou was English—Joseph Paxton's Crystal Palace of 1851. Yet the Crystal Palace's own precursor, among others, would have been Bélanger's glass and iron dome at the Halle au Blé in Paris



of 1809, the glazed tunnel-vaulted arcades at Fontaine's Galerie d'Orleans at the Palais Royale in 1829–1831, or the Jardin des Plantes in Paris of 1833 by C.F. Brisseau de Mirabel and C. Rhoualt.

Retail and exposition structures of iron and glass—Victor Baltard's Les Halles (1853) and L.C. Boileau and Eiffel's Bon Marché (1876) were to give Paris of the modern age visible remembrances of achievements past. Less visible were Henri Labrouste's library stacks at the Bibliotheque Nationale (1858–68) with its glass ceiling and gridiron floor plates.

Hector Horeau, called by Nikolaus Pevs-

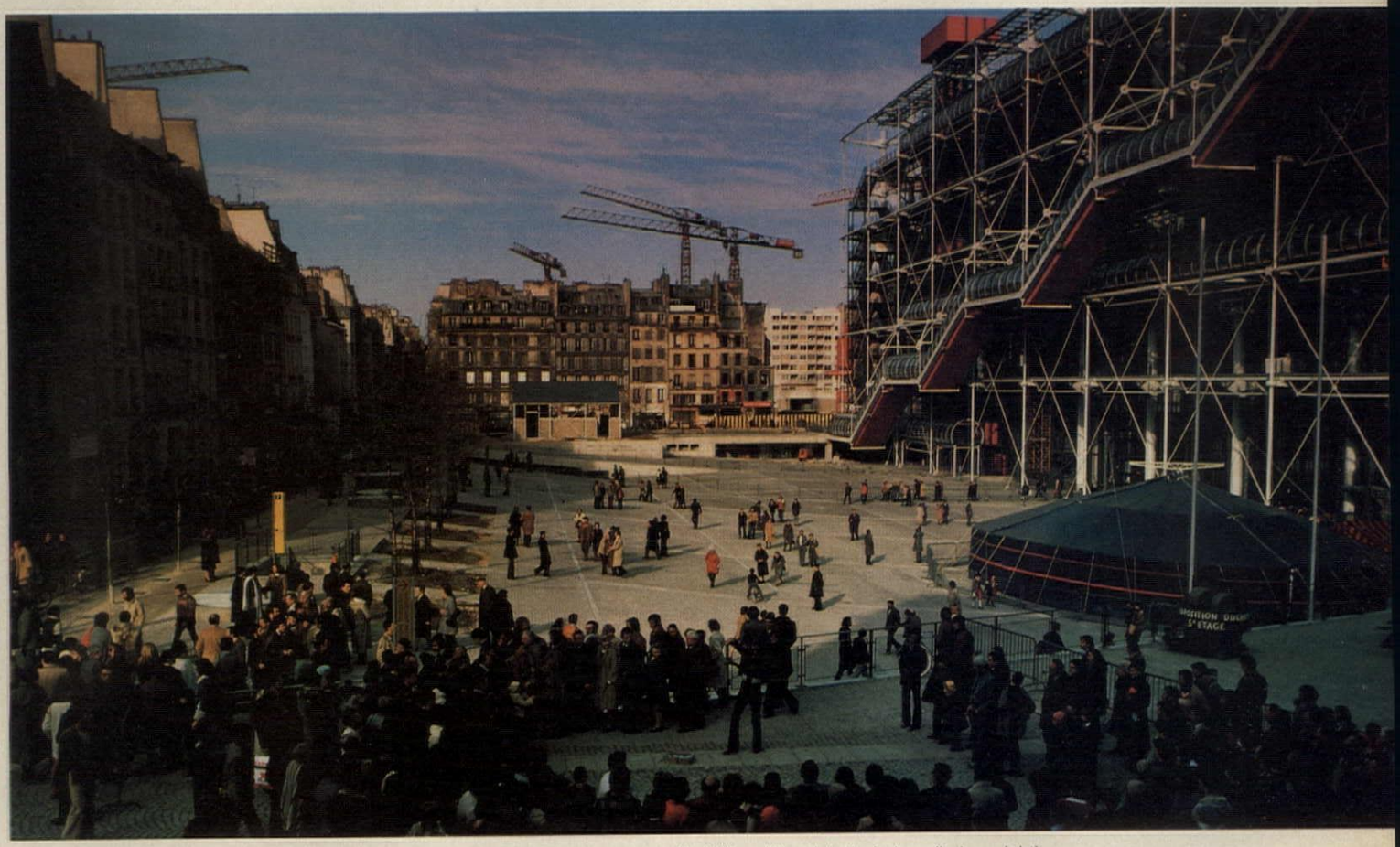
ner (*A History of Building Types*, Princeton University Press, 1976) the Nervi of the age, projected 1840s forerunners of the long span exhibition hall. The Palais de l'Industrie at the 1855 exhibition spanned 156 ft, breaking the Crystal Palace's record. The Galerie des Machines at the 1878 exhibition spanned 121 ft without tie bars, through the introduction of long-span girders. Dutert and Contamin's 1889 Galerie des Machines for the Paris Exhibition carried technology to its most dramatic with its 364-ft span. By the same token the Eiffel Tower of the same year was to institutionalize the unification of technological advancement and tourism.

Even as a *building type* the exhibition hall was of particularly French derivation. France had mounted the first national industrial exhibition in 1798, then proceeded to stage nine more from 1801 to 1844.

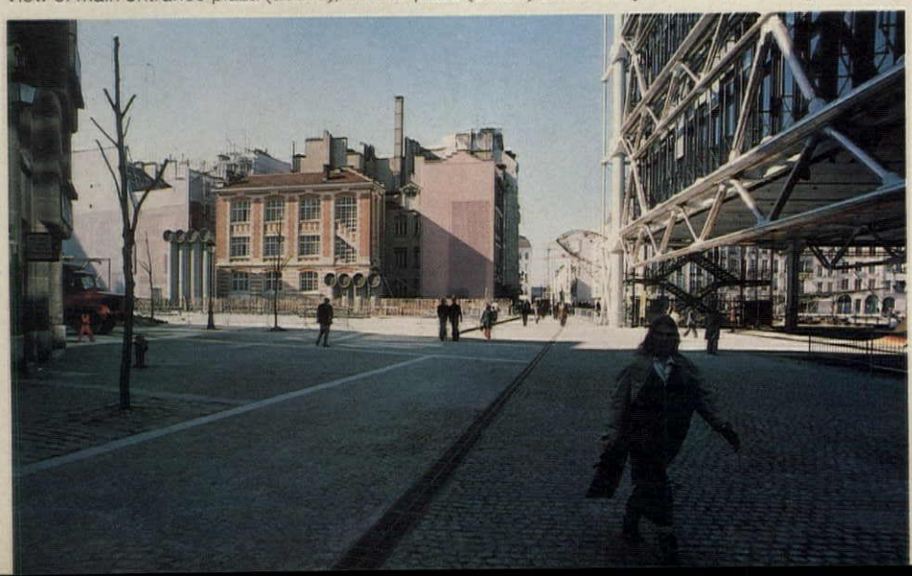
The pedestrian as protagonist

The exhibition hall, with its sibling building types, the market and the shopping arcade, were made for pedestrians wending their way through a lavish display of commodities. Beginning with the arcades where luxury goods were sold ("art in service of the salesman" as Walter Benjamin later observed), then exhibition halls ("places of pilgrimage to the fetish commodity.") Paris became a movable feast through which the *flaneur*, Baudelaire's browsing aesthetic, sauntered.

Benjamin and Sigfried Giedion have both insightfully observed that the exhibitions, from the time of their inception in 1798, served a psychological and social purpose: the creation of a public festival to mollify the alienated working classes with the glitter of distraction and entertainment. The festival form, Giedion argues, had to



View of main entrance plaza (above), IRCAM plaza (below) and nearby renovated building with painted window, (below, right).



Physical mise-en-scène

be institutionalized through exhibitions, since leisure vanished from daily life in the industrial age. The *flaneur,* with his connoisseurlike aesthetic and object-oriented fixations may have been the more intellectual variant of this 19th-Century type; but the act of consuming commodities and art pertained to all of these participants in this urban setting. Even Haussman's boulevards added to the mise-en-scène, providing, in Benjamin's words, that "phantasmagoria of space to which the *flaneur* was addicted."

With Centre Pompidou the arcade has disappeared in its strictest sense. But the escalator rising in a tube upward across the main (west) façade now accommodates the *flaneur* in the vertical dimension. Instead of the boulevard, a large sloping plaza surrounds the museum, with small pedestrian streets leading away from it and ancillary plazas opening off to the side. Although the approximately ten-acre site on which the center sits in the old Plateau Beaubourg section of Paris has been a parking lot since the 1930s, the surrounding existing fabric is very much 17th- to 19th-Century construction. Until recently a decaying section of small shops and bordellos, the area has been subsequently taken over by boutiques, art galleries, bookstores, and restaurants, as land values have shot upward. Buildings surrounding Centre Pompidou have been restored and renovated. A large restoration of the nearby medieval Marais section (including Place des Vosges) is currently underway; while in the opposite direction, the site of the old Les Halles is also being developed into gardens, shops, and other appurtenances of the leisurely life. The whole is aimed very much at the *flaneur:* Even the Parisians who hate the new "monster" go there to "faire la promenade" around the plaza.

Since the height of the museum—138 ft—is not *too* much higher than the surrounding buildings (generally up to 112 ft in height), the building is more *frappant* when one comes upon it. For its scale is huge, in terms of the size of parts and its length in relation to the spectator, even if its height is not. As one treads down narrow rues of mansard-roofed houses with french windows, one is all the more stunned by the sudden opening up of space, carved out of century-old fabric for this icon of the mechanical age. The effect is pure theatrics: as if the spaceship from "Einstein on the Beach" had settled down on the stage at the Met during a performance of "La Boheme." The piazza and the principal elevation of Centre Pompidou form the stage, with the spectators the supporting cast of characters. The *coup de théâtre* is all the more pronounced by the joyously colorful exposure of the viscera, the mechanical system, on the back side facing Rue de Renard. Here the scale of the ducts and pipes sustains a dramatic tension with small shops nearby.

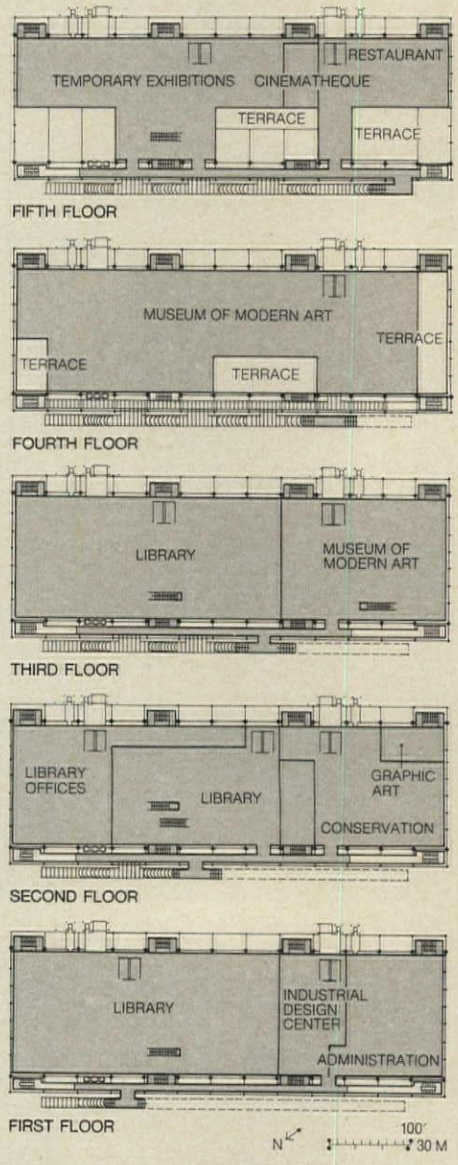
Behind the Iron Curtain

The interior of Centre Pompidou thus becomes anticlimactic. In fact its notion of universal space, the large warehouselike exhibition floors and library that may be flexibly subdivided according to need, present problems. Exhibits with no connection may find themselves cheek by jowl. (At the opening exhibition one went from the history of Centre Pompidou to an exhibit on women in mass media to classroom furniture almost without warning.)

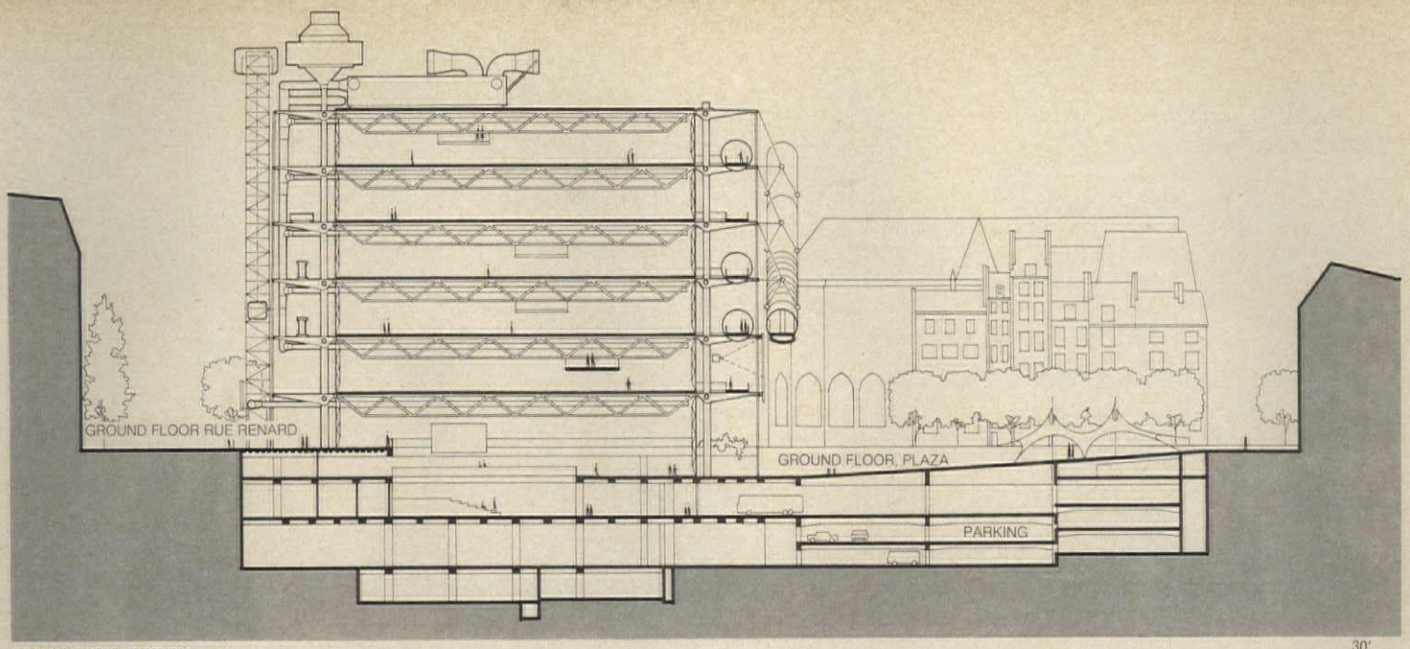
Painting and sculpture have a more difficult time of it than industrial design. The sculptural, colorful aggressiveness of the exposed mechanical system and trusses along the ceiling vie for attention with the paintings. At the opening exhibit, awnings were suspended over partitioned spaces where small paintings were installed, like so many tabernacles. Still the sheer fluidity and anonymity of the clear span space constantly asserted themselves.

Whereas the 19th-Century exhibition halls molded space through their dramatic vaulting of iron and glass on one main floor, here the stacking of five clear-span spaces results in a series of well-designed trays. Richard Rogers has spoken of Centre Pompidou as being a container or utensil: and in the clear sense of the word that is exactly what it is—product design. True enough, the architects had planned on more double-height areas (46 ft high) but had to forego some when exhibit space became tight. At any rate double-height spaces would probably not have enhanced the spatial dynamics that much.

While the notion of flexible universal space shows its Miesian lineage, there is a difference. Mies's designs for his court houses and "Museum for a Small City" (1942) as Mies expert Ludwig Glaeser has written, carefully and sparingly employ sculpture as objects and paintings as free-standing walls within an abstracted space. As well constructed and detailed as these interiors are, they remind us more of office building lobbies, open-plan systems-built schools, airports, and convention hall exhibit spaces—the commercial derivations

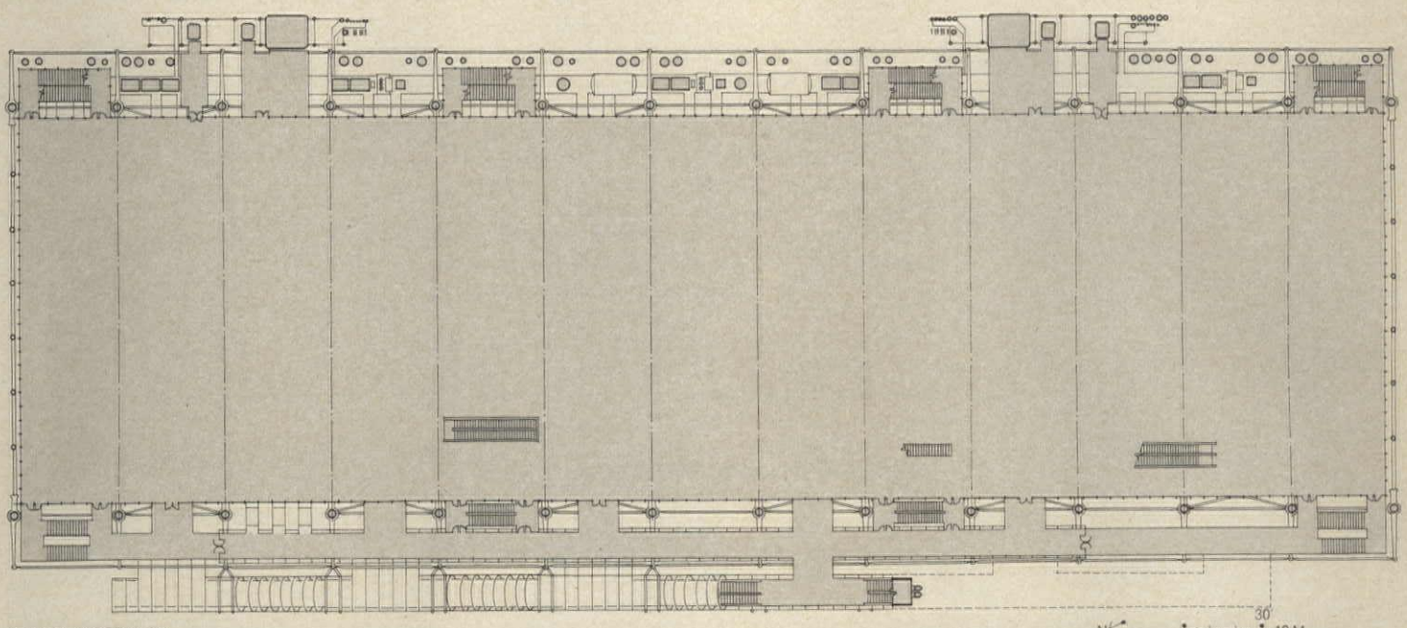


The five main floors are 550′ x 157′ x 23′ high. Museum goers enter from outside escalators on third floor; library visitors enter on the second one. Library and museum do not connect by interior escalators due to the museum's paid admissions policy. Inside and outside circulation becomes complicated.



TRANSVERSE SECTION

30'
10 M

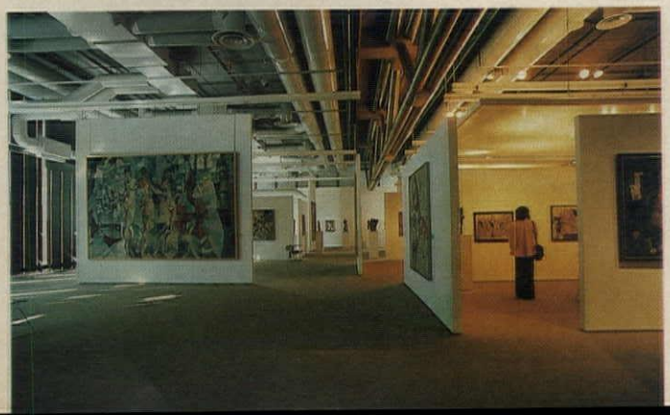


TYPICAL FLOOR PLAN

N
30'
10 M

Museum of modern art (above and below).

Library (above); main plaza floor overlooking Forum (below).



Physical mise-en-scène

Escalators are clamped onto west façade.

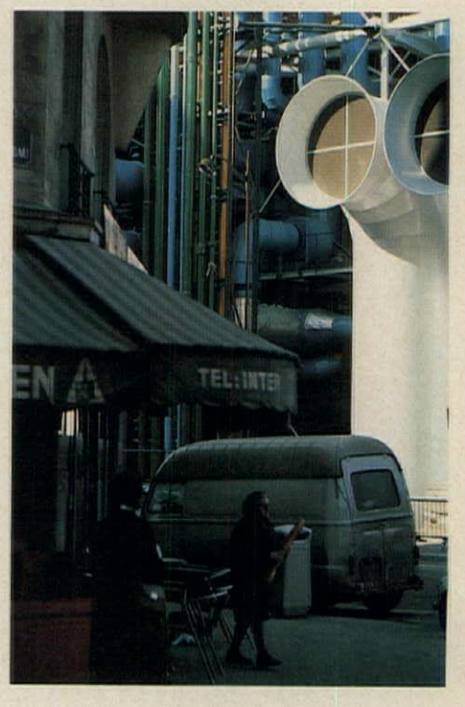
of Mies' many experiments.

It is difficult to say what it is that one expects or wants from a museum architecturally. The museum as a particular building type became fully developed in the 19th Century, about the same time as exhibit halls. But unlike the exhibit hall, it retained a very formal mien. Perhaps one could point to the Grand Palais and the Petit Palais built for the Paris Exhibition of 1900 as a cross-over of some sort. The exposure of iron inside the buildings indicated not only an architecturally "sincere" gesture but seemed to symbolize the convergence of two programmatic types.

If the museum was gradually taken over by the exhibition hall, should anybody mind? Who wants lifeless repositories with a limited appeal? And now New York's Museum of Modern Art, (icon for that city's ascendancy in the art world hierarchy) has set the tone. Since the 1930s and 1940s, MOMA, with its barrage of art exhibitions, film showings, photography, architecture, and industrial design exhibits, as well as cafes, has helped considerably to change the museum image. But let's face it: That museum also benefitted from its prototypical nature, its uniqueness, its elitism. Its small, intimate neutral galleries would allow the *flaneur* to contemplate the art work in a direct, personal one-to-one relationship. The Modern could forge the prototype of the museum as exhibition hall with all the arts on display because it did not forsake that primary relationship. Beyond solving with some success the usual problems of logical circulation, combination of artificial and natural lighting, flexible partitioning, noncompetitive architectural background, MOMA still had a sense of place.

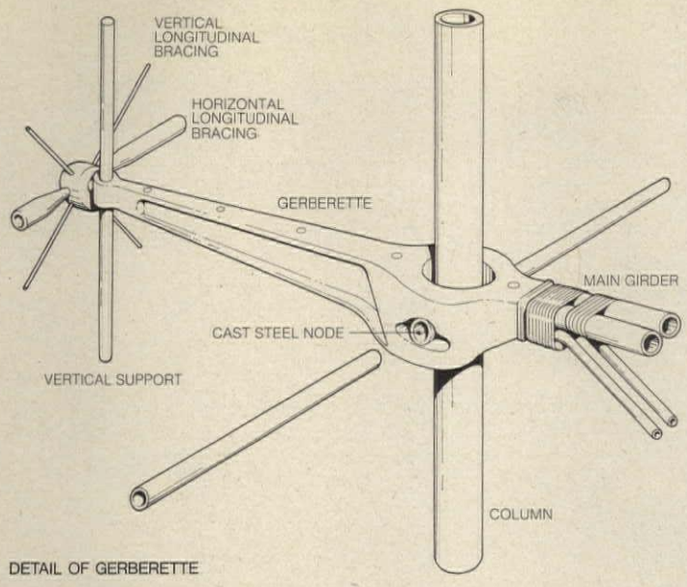
Centre Pompidou has become the Modern extrapolated into the present with full self-consciousness: It is bigger, more loft-like, contains more of a mix of functions, and is even more modernist in its architectural pretensions.

At Centre Pompidou the sense of place has been kept outside the museum—in the plaza around it. The exhibition hall/museum has been carried to an ultimate denouement: structure is turned inside out, with the action on the outside, and the building as backdrop. But the action is not about art—it is about event, spectacle, sightseeing, and consumerism. While no one can deny the urbanity and wit of its gesture (a gesture which will require a lot of upkeep to retain the impact) it should be appreciated most on its historic level. Centre Pompidou is the quintessential manifestation of a whole slew of 19th-Century compulsions—architectural, technical, urbanistic as well as sociocultural. It will reinforce tourism, but as far as its cultural aspirations, who can say? It leaves those questions about the integration of art and culture in every day life yet unresolved. Nor does Centre Pompidou address the issue about the kind of place a museum should be. If anything it represents the final outcome for earlier obsessions. It's a dramatic exit line, but doesn't tell us what should follow. [Suzanne Stephens]

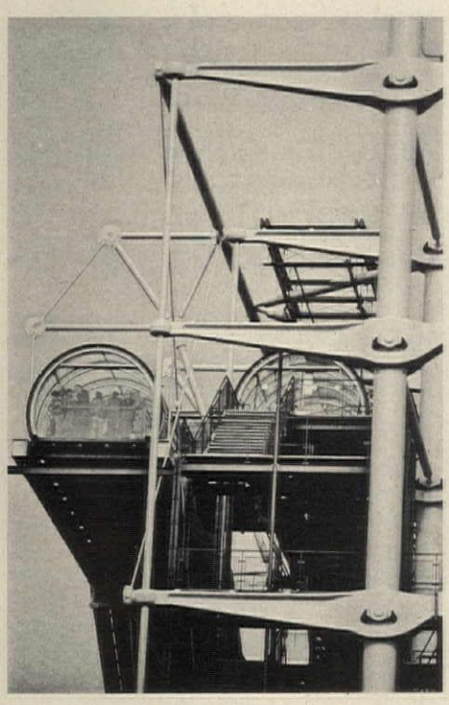


Data

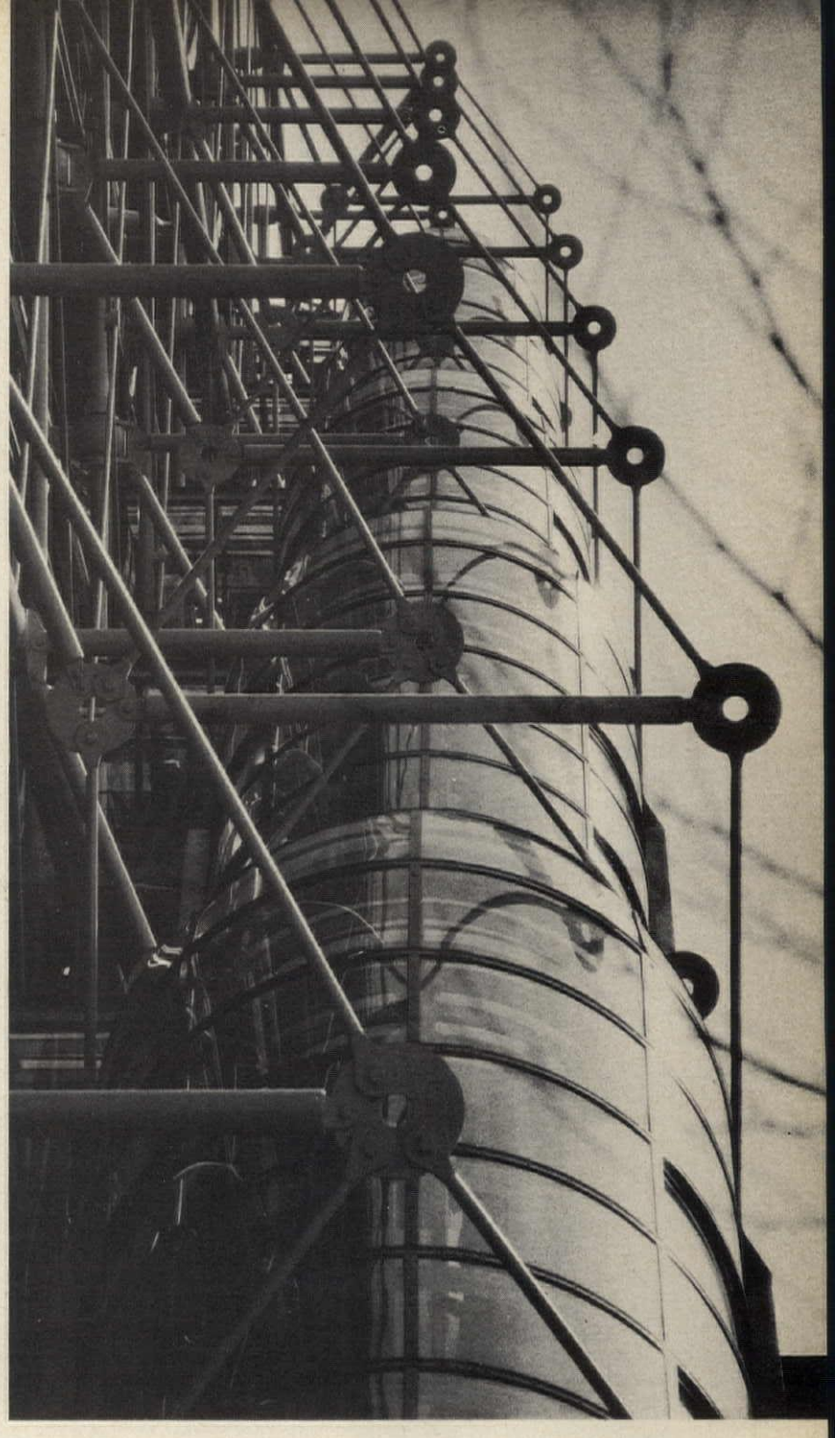
Project: Center National d'Art de Culture Georges Pompidou, Paris, France.
Architects: Renzo Piano and Richard Rogers.
Program: provide 1,234,800 sq ft of flexible loft space (see text and plans).
Site: approximately ten acres near Les Halles.
Structural system: steel frame of cast and welded parts (see text). Decks of standard rolled steel beam sections and concrete slabs; no expansion joints.
Mechanical system: water chilled in basement, pumped outside building, heated on roof; exhaust air taken up façade, ejected at roof.
Consultants: Ove Arup, structural, mechanical, and electrical engineers; Peter Rice, chief engineer.
Krupp Industrie und-Stahlbau, structural steel.
Client: Estab. Public du Centre Beaubourg.
Cost: reported to be $100-180 million.
Photography: Tim Street-Porter.
Travel: compliments of Air France.



DETAIL OF GERBERETTE



Fire precautions include 28 water-filled columns and a sprinkler system inside and out hooked up with a security control center in the building's basement. Each gerberette (left) carries a weight of 14,000 tons. Vertical bracing systems include solid bars for tension, tubular sections in compression, and nodes of cast steel.



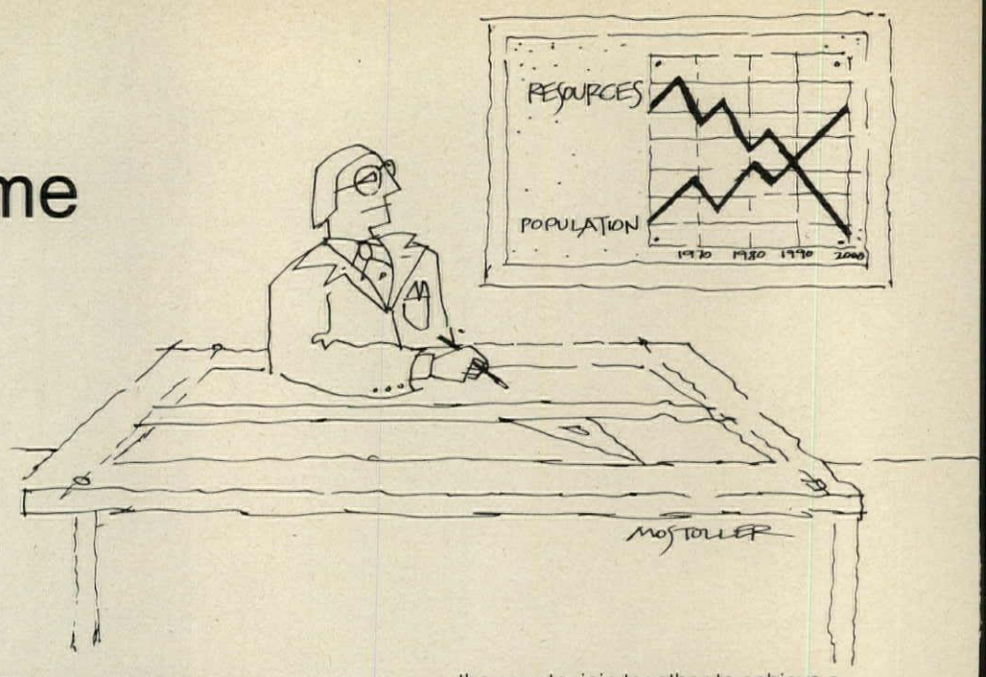
Monstruo Desnuda

The formidable task of engineering the 550′ x 197′ x 138′ museum owes its success to the involvement of engineers Ove Arup & Associates. The architects' desire to diagrammatically communicate its structural, mechanical, and programmatic functions called for precision engineering and detailing of the most rigorous sort. Peter Rice, in charge of the project for Ove Arup, explains that they decided on cast steel rather than standard steel sections because the size of the steel cage would otherwise have called for extremely clumsy exposed frame. (Both architects and engineers had wanted a steel structure as the appropriate expression for the center's programmatic demands.)

The basic structure is made up of large truss beams formed of steel tube and rods and spanning 147 ft. The beams, placed 42 ft on center, form 13 bays totaling 550 ft in length. Instead of resting directly on columns, the beams are attached to gerberettes—10-ton precast steel beams developed in the 19th Century by a German bridge engineer named Gerber. The gerberettes extend 5.2 ft between the main beam and the columns they clamp onto, then another 20 ft on the other side to attach to vertical braces. Because of this construction the interior span is 157 ft from column to column. The exterior scaffolding, 26 ft deep, allows space for the mechanical system and freight elevators to be run up the east façade, while the vertical circulation for museum goers—escalators, fire stairs, and elevators are supported on the west façade. The vertical braces at the periphery of the building in turn are stabilized by a network of vertical and horizontal struts, diagonal cross bars, with cast steel joints.

The exposure of the duct work and circulation on the Centre Pompidou's façade has been the subject of much debate among a public which considers the refinery imagery inappropriate for a monument, or among architects accusing the building of pandering to a Brutalist aesthetic of the 1950s. Apart from the questions of image raised by these criticisms, it must be said that the building does a very good job of working *within* this aesthetic. The colors of the mechanicals, red for circulation (elevators and escalators), blue for air conditioning and heating, green for water and yellow for electricity, create a lyrical if gargantuan construct. While it has been a favorite pastime among architects to guess just how much of the mechanical system that is expressed is really necessary (the estimate most heard is 30 percent), both Rogers and Rice claim nothing is exaggerated for the sake of ornament. Rice explains that the slow speed air system necessary for sound insulation requires fatter ventilation ducts than one expects; thus the suspiciously ever-present mechanical system. [SS]

Elusive outcome



So there is the production: plot lines described, cast of characters picked, protagonists (the principal role-models) tried-out, a mental mise-en-scène outlined, and a physical mise-en-scène viewed. But where's the denouement?

A denouement may be *de rigeur* with most forms of dramaturgy, but not in this particular offering. Even if the audience is unsettled by the elusiveness of the action, the play after all is trying to represent (if not imitate) *reality.* Therefore, the real denouement will become incorporated into the production in course of its time frame.

In place of any kind of conclusive action in this trial run, reaction from certain members of the audience (itself made up of the participants in the formulation of the entire production) is being presented. While it would be assumed that the members of the audience might all be responding to the same thing, as can be seen from the following responses, this is not so. Their reactions are quite diverse and diffuse: so much so that unless one keeps in mind the peculiarities of this "avant-garde" mode of theater, one would swear they had not seen the same play.

One thing that does become apparent is that the spectator/participant, in trying to understand the inchoate, often incoherent, miasma of events or nonevents, usually settles on particular fragments that he/she can relate to and from that generalize the whole. The other difficulty, to be sure, is that these particular responses, treated as snatches of overheard conversation, are themselves fragments of a larger whole. On top of that they are arranged according to sequences in the play for which they seem most appropriate—stage whispers, in effect—and then juxtaposed occasionally for dramatic effect. Such artistic license it is hoped will further heighten the suspense in this production.

If it doesn't perhaps the surface discontinuity of this dramatic form will at least allow hidden revelations to emerge. The audience reaction is expected to enhance that possibility.

The scenario

John Eberhard: We are now at a point in history that is beginning to produce a new kind of power base—community of societal power. This is perhaps most in evidence in socialist countries, but no Western country is without its educational, health care or local government institutions. Powerful persons often dominate such institutions, but most of the time no one person has sufficient power to force his will or personal taste on the buildings designed as enclosures for education, medical treatment, or governance.

With the rise of community participation, government regulations, and mortgage banking, we have entered an era of collective control of the design prerogatives.

Emilio Ambasz: The Future is the opiate of the people. On the other hand, the Future conceived as an Ideal serves as a model for approximation, or in some cases, to steer away from. But in either case the image of possible futures functions as a critical set of dialectical guidelines to give form and meaning to our present alternatives.

Cast of characters

Philip Meathe: The firm of the future will be a large multiple-discipline practice with the widest possible range of professional services securely managed by professional managers with a strong fiscal base. If it is done properly, the firms will then be truly listened to by the business and political decision-makers of society. The professional must either be truly immersed in construction or he will be out of the game. How he is immersed in construction is to be the key issue. He is far better off providing construction management services than he is supplying labor and material.

God help the architectural-engineering-planning firm that becomes part of a conglomerate whose principal activity is not connected with the construction industry. It will lose its identity and management ability to be a meaningful force in society. However, should the architectural firms in the country join together to achieve a broader geographical base and broader professional services, they in themselves can become conglomerates that will be much more effective in answering the demands of the market place. The future skills the professional must acquire will be legal, political, economic, managerial, and construction oriented.

John Portman: I don't want to say that every architect should be a developer; every architect should understand the building process, from the time that an idea occurs in somebody's mind to the finish, when a building is operating. The process crosses several fields: real estate, the financial world. It crosses all kinds of government regulations, which are getting more severe all the time. And it has to include not only cost implications, but maintenance after the building is done.

I would hope that the small office always has a place in the scheme of things. I would hope that we don't lose the capability to start modestly and survive. I do feel, however, that it is probably more difficult now than it has been, and it may be more difficult as time goes on.

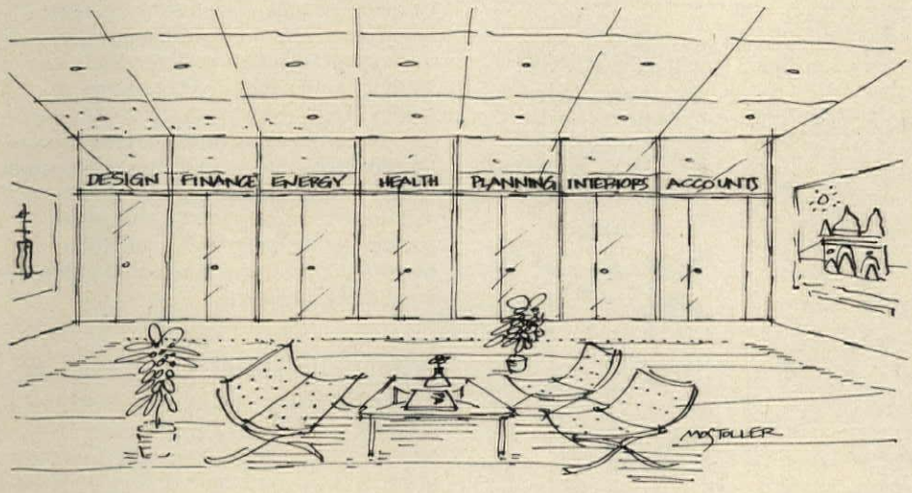
I'm very optimistic about the future—architects have a great role to play.

Vincent Scully: Architects are probably going to be pushed to the wall except for the few who are able to manipulate the corporate state developing around them. As far as the architect-as-developer goes, I'm not impressed by their architectural contributions so far. Yet as an American pragmatist I cannot agree with Manfredo Tafuri that one shouldn't build anything, although I can understand that impulse. Architects may have more influence in the future with projects than with built form . . . but the big abstracted Ville Radieuse projects have also done harm. That's why the empirical application of the Venturis and their employment of symbols in use in our culture today is a realistic assessment of one thing one can do without embarrassment—it is not pretentious.

Bernard Weissbourd: The design of a large-scale real estate development, whether a single building (e.g., 1000-room

hotel) or a new community, requires the coordination of many disciplines. Very early in the design, possibly even before the architect has first set pencil to paper, the comptroller has "built" an economic model of the proposed building. This model will function as a guide to the steps subsequently taken in the course of design, construction and leasing, and although the model will be subject to regular revision, its essential dimension cannot be changed without serious implications for the economic viability of the project.

It is not surprising that the comptroller will view conformance to the economic model as the appropriate measure of the building's success. The comptroller does not regard architecture as central to the nature or purpose of the venture. The comptroller only illustrates the egocentric orientation of each discipline.



The question is, who is to coordinate the development process? Who is to be the leader of the design team?

The architect, if he is to lead the team, must know everything. Since that is impossible, at least he should be educated so that he can learn from other members of the team and from the errors that are inevitable when optimal results are sought.

Forrest Wilson: We have become painfully aware of the failure of professionalism in all areas. This should not mean the elimination of professionals in the future, but suggests that professional energies are wrongly directed.

Solutions that spend very little on delivery, are commonly available, and can be used without paying—such things as the town center instead of the shopping center, the sidewalk instead of the highway, tools and information instead of finished products, sharing of professional skills instead of hoarding esoteric knowledge—seem to be the future direction. This means of unleashing the energy of people to aid themselves in the painful task of making themselves comfortable in the world emerges as a design goal in a thousand different ways.

The direction seems not toward the development of new technologies, but in other uses of those we have. *Industrializing the process of choice for the user* as N.J. Habraken has proposed, *the use of building materials that are manufactured in great profusion* as Martin Pawley points out, *a systems repertoire of choice* as Yona Friedman suggests, *a pattern language to pool our knowledge* as Christopher Alexander has devised, other scenarios for the building industry, as Richard Bender suggests, and the kind of pleasure that developer Melvyn Kaufman puts in the streets of New York City, are where I see us headed.

Ron Shattil: I would like to suggest a topic for consideration: "the inevitability of socialized architecture," i.e., direct governmental funding of architectural services for individuals. To be at all effective in making any impact on the world's undeniably vast building needs, architecture must be made accessible to the masses. The survival of the profession as a relevant and potent instrument for effectively dealing with the quality of life rests mainly with its transition to accommodate a massive "archi-care" program.

Michael Brill: The primary determinants of the future roles for architects/urban designers/planners are the changes in clients and their problems.

Clients, both public and private, are getting poorer and smarter. They're more careful. The ones that build often (the program builders, like IBM and GSA, et al) are engaged in formal evaluation programs. They're interested in finding out more about how buildings "work" for them (or against them).

They realize that the capital investment in a building is small compared to its cost impact on their operations, and that design can really help or hurt them. They know that excessive building maintenance and energy can kill them. The more sophisticated now know that "people costs" are nine times building costs over the life of the building. They see buildings as tools of larger systems goals, and that buildings are expendable.

The impact on the design professions will be along Darwinian lines. There has been and will continue to be a "shaking-out." Some have moved to other fields, some now treat design as a hobby or a second job. High art still flourishes, but many of these people are "just hanging in." Big firms are establishing a broader, more stable base . . . a world clientele. And bearing the pain of cross-cultural shock in their efforts. We're seeing the emergence of specialized firms. Recycling Architects, Earthquake Architects, Energy Architects, and architects for the disabled or other special groups. Ones who are systematically responsive to carefully articulated client demands.

We see—at client insistence and worry about future costs and environmental impact—broader services and/or links to special consultants . . . economists, operations researchers, post-construction evaluators-applied behavioral scientists, etc. A kind of loose constellation of skills coming together on certain projects.

Protagonists (role-models)

Bernard Michael Boyle: The dominance of professional activity by corporate architecture on the one hand, and the concomitant insignificance of the individual practitioner on the other, have contrived to split the profession in two.

Before the modern age, professional services were provided almost exclusively at the expense and for the desires of the elite. Over the last 200 years, most other professional groups have established their independence. Architects, by contrast, have remained tied to their traditional sources of patronage. It is not difficult to conclude that, sooner or later, the elitist character of the architectural profession will ensure its downfall in a society in which economic and cultural elitism is declining likewise. The question is not, will there be buildings in the future, but rather, will they be designed by architects? For the corporate architect, the answer may be yes. For the individual practitioner, the future is not so hopeful.

William Porter: What roles will architects be playing in the next couple of decades? Most of the answers to this question are already around us in the persons of those, educated in or to architecture, who are pursuing a wide diversity of careers. There are those who are applying relatively new areas of knowledge to the built environment, for example, in the evaluation of buildings as they are built and in use. There are those developing new forms of architectural services in professional as well as in clients' organizations. There are those in the public sector balancing the issues of health, safety, and access of the handicapped with traditional concerns for design excellence and economic feasibility. And there are those who have carved out careers in the construction management, programming, and other areas at the edges of traditional architecture. Add to these the many individuals, regardless of where they may be found, who are attempting to make these developments un-

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derstandable and to reconcile them with the changing social order, and we can see a large and growing group introducing architecture more into society.

The issue seems to me whether we will be willing to think of architecture inclusively rather than as the province of a few, and whether we will be willing to translate these thoughts into buildings, regulations, essays, educational programs, and other forms that will enable a truly progressive architecture to become visible.

Vincent Scully: On one hand it is clear that architects never were the great social engineers the theorists hoped they would be. On the other hand the role of the architect as *citizen* ought to be emphasized: the architect should be more socially active at least in an extracurricular way; involved with political life enough to influence his choices about the kind of architectural work he does. For example I wonder about architectural work for the Shah of Iran. I am in no position to preach, but one does have to ask where the responsibility lies with architects.

Denise Scott Brown: In "the future" "the architect," trained in one agreed-upon way and following one agreed-upon (Modern) trend, will make room for a different architect who must know different things. The generalist who knows a smattering of everything will persist but specialists in, *inter alia,* energy conservation, group tastes, and computer graphics will operate, probably from the universities. Their main function will be to translate the work of nonarchitect specialists into concepts comprehensible and usable by architects.

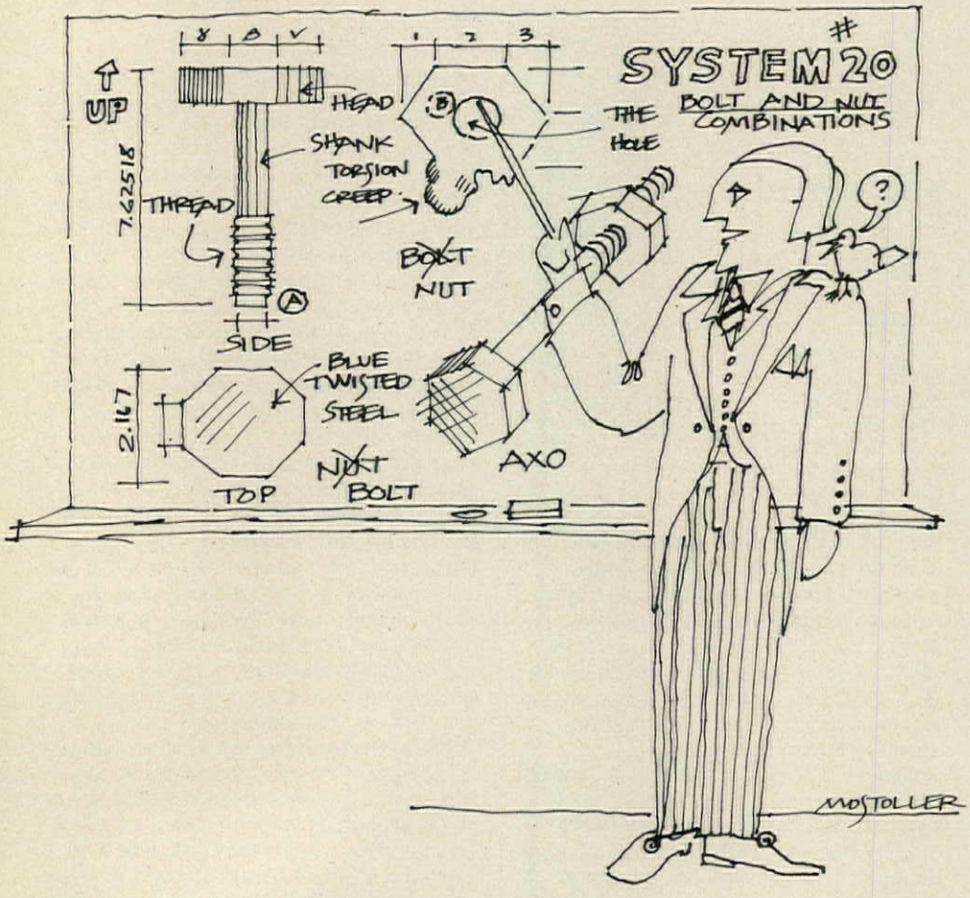
Architectural design, I believe, will cease to be (has ceased to be) a monolith of Modernity moving slowly through the generations from Puritanism to decadence. When Pluralist aesthetic values are admitted by architects to exist, architects' own values will also be validated, so long as they are made explicit. Ironically, respect will again be paid to the Art of Architecture *because* architects will have become more sophisticated than they are now in both their attachment to functionalism and their understanding of the social role of architecture.

By the same token, there is no one role that the architect ("he or she") should play. This depends on the individual, although there will be many needed, socially useful roles, old and new. Here too, I hope, architects will learn a new sophistication and understand what roles are available or unavailable to them in different political, social, economic, and decision-making contexts. For example, you can't be a "community advocate" if you are hired by the Chamber of Commerce.

James Polshek: I am convinced that the critic/historian plays an important role in all of the debates and discussion on architecture. Using the analogy of a gold rush, it is as if the critic/historians own the land, occasionally planting a nugget "ism." This sets the architect-prospectors scurrying from site to site searching for this nugget "ism" that will justify their private formal experiments. This exercise is mutually beneficial and legitimizes the historian/critics, giving value to their ideas and at the same time bestowing legitimacy on the private fantasies of the architect.

Although all of this architectural exhibitionism gives the appearance of great vitality, of the exchange of ideas, of new collaborations of shared goals and values, I suspect the opposite is true—that what we are seeing here is yet another symptom of cultural decline perhaps best described by yet another "ism"—narcissism.

The increasing concern for personal satisfaction leaves little time or inclination to pursue the more generous aspects of architecture. And so we are witnessing a waning of public confidence (and even worse, of our own self-confidence) in our ability to investigate, mediate, and solve the physical problems posed by this post-industrial society. Like a sensitive child ignored by his or her parents, the precocious architect turns increasingly inward to pursue those activities that instantly gratify (i.e., those things they can do "alone"). In some circles, these new developments are seen as the "intellectual vitality" of the profession. But I see them as the direct analog to other negative sociocultural phenomena such as the growth in the popularity of pornography and "kinky" fashions.



Mental mise-en-scène

Cesar Pelli: When I read or hear about the ill health of architecture today, I can only smile, as I believe the diagnosis is off the mark. This disarray, questioning, and lack of certitude are signs of good health, as they represent the vigor of the present generation of architects and their self-confidence. This generation prefers to trust more its own judgment than that of our predecessors and prefers to reach its own conclusions upon analysis of the facts, rather than to base decisions on any hallowed doctrines.

Now, this attitude represents the spirit of the modern movement at its best, so I find little need to write its obituary. But the name "Post Modernism" can be very useful to accentuate differences in doctrine or to separate groups of architects, therefore, forcing dialogue, confrontation, and reinterpretation. Architecture, like any art form, has to be continually battered so that it can be continually reborn.

Stanley Tigerman: The dogma that suggests one way is better than another no longer seems to exist, and perhaps this is as it should be. Architecture is not the solution to problems, it simply articulates them. The hors d'oeuvres tray now carries canapés from which society continues to pluck. Regardless of the wishful thinking of those who see themselves as the next Le Corbusier, it is a gray, murky, cloudy, unsure time for us all which, in its ambiguity, is the healthiest of all conditions.

And so, architects will continue to support the continuously evolving society in

the various political, social, economic, structural, constructional, historical, eclectic ways as they develop, *or* they will support the notion of revolution should society opt for it, *or* they always have the option of boring themselves to death.

Richard Bender: In many ways we are like the fishermen who haul in their boats for the winter. We will not catch many fish in this season, but we can patch and caulk the boat, replace some obsolete equipment, and make the many changes and improvements for which there is no time while we are at sea. As designers this is a familiar challenge. It is one I am happy to accept.

Robert Geddes: Knowledge is needed that can improve the competent performance of architects, and that can prepare the imagination. Let me suggest some possibilities: First, more knowledge of the *natural history* of buildings, how they came into being, how they are performing. Second, more knowledge of the *social history* of buildings, their societal and cultural setting, their social meanings. Third, more knowledge of the *intellectual history* of buildings, the ideas and images of architecture related to the arts and sciences of their times. Fourth, more knowledge of the costs and benefits of architecture, especially the *social behavioral factors* in "design," as part of seeing architecture as a "production" function in our society.

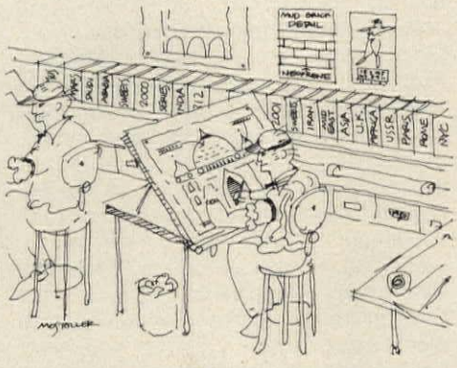
The public realm of buildings and landscapes is the primary source of architectural stimulation, response, responsibility and meaning. There can be no architecture that does not seek to serve, for example, the sense of community that a neighborhood club wants in a clubhouse, or the sense of privacy that a young couple may need in a restaurant, or the sense of the remembered life that citizens can read in their streets. Architecture cannot be private, abstract, autonomous; it must be connected to the public life.

Rodolfo Machado and **Jorge Silvetti:** Architects need to acquire both the specific knowledge of the discipline—that is the conceptual mechanisms that constitute our specific way of doing architecture—as well as history. The study of history should be undertaken on two levels: the internal level from which the architect will understand both the continuity and transformations of the practice; and the level from which he will comprehend architecture as a culturally significant ideological practice. From this will emerge a critical consciousness that will help the architect to discern the correct from the incorrect performances and will allow him to transform the practice itself from within. It will also enable him to establish the nature, limits, and role of architecture today, especially with relation to science, politics, and art. Therefore, instead of the dangers of a "blind" architect rushing to the latest of fashionable issues—be it advocacy, computer-aided design, solar energy, etc.—we could conceive of an "enlightened" one dealing critically with these peripheral issues.

Emilio Ambasz: Architecture is not the answer to the pragmatic needs of man (that is the task of building), but the reply of his passion and imagination. It is not hunger, but love and fear, or wonder, which makes us create. The poetic principle is the fundament of our making universes. The architect's milieu may have changed, but the task remains the same: giving poetic form to the pragmatic.

German Sonntag: Blood of the heart, imagination, feeling, deep feeling, and the dreams that are the underlying force for the creation emerging from the brain of the designer and then projected on vellum: that is going to be necessary for the architects in the next years if architecture will continue as an art form in the future of our society.

Michael Graves: There appear to be two major positions in current architectural thought. Although they are not mutually exclusive, these two attitudes can be seen



as opposing or at least polar orientations.

The first can be characterized as constituting a part of the symbolic and mythic representations of the culture. This position holds that there is an architectural thought process in the transferral of cultural values to physical artifacts and a corresponding interpretation of symbolic themes which requires one's perception to make the connection between cultural value and architectural symbol. This architectural position must by its nature rely on somewhat literal characteristics of form often thought of as representational.

The second architectural position is primarily abstract in nature, based on the assumption that there is a correspondence between Euclidian geometry and human action; there is a parallel drawn between the cardinal axes of geometry and human movement patterns. This architecture, which relies heavily on the counter-distinctions of passage and rest, is able to capitalize on the natural tension established by these two phenomena. The abstract geometric devices used to articulate these spatial correspondences are generally unadorned and read as minimal in order to clarify an assumed order of programmatic arrangement.

The overwhelming majority of buildings designed today are conceived using the abstract formal assumptions of the latter mode. However, if we are to increase the participation in and identification with architecture by the culture, we must begin to reestablish the former, somewhat more classic, mode of thinking which is capable of physically representing the symbolic and mythic aspirations of that culture.

Physical mise-en-scène

John Johansen: Architecture will see the traditional rationality of structure, mechanical, functional, and aesthetic aspects broken apart and fused with scenic, symbolic, associative, and literary reference material. However, architecture will continue with its strongest derivations, i.e., function and structure; in fact the poetic interpretation of technology will be its richest expression. The profession may split into one group of rationalist-planners who provide the generalized structure and services for buildings and cities, and another which decorates interior and exterior with scenery appliqué, impulse settings, personal whim, illusionistic effects, etc.

Paul Rudolph: After Mies comes the megastructure. Peace must be declared between circulation systems and the geometry of buildings, allowing a new urbanism to emerge. Freely placed buildings at intervals in space determined by the owner's lot size and building ordinances will give way to the new (old) notion that individual buildings must be placed to form comprehensible spatial entities, which unite the separate buildings into a greater whole. The city as a montage exists throughout history, but it has always been unified by unique conceptions of space, which bring together divergent ideas and elements. Getting there and the "there" are the challenge.

Michael Mostoller: We will be guided by an aesthetic theory based upon accumulation and multiplication, repetition and removal, renewal and reclamation, growth and fragmentation, collision and change, all occurring within a continuous public time. The independent building concept will be replaced by an architecture based upon the existing continuous communal street/building that is and always was the city—an architecture of clear exterior volumes and spaces.

The sense of participation in space denied by an abstract spatial vocabulary will be replaced by an experience defined by discrete, bounded rooms poetically conceived in their representation of activity—rooms that remain stable while the objects change; rooms that acquire through their clear delineation of discrete place, the history we demand of space.

Ulrich Franzen: The most important aspect of a serious architect's approach in the future will be a philosophical frame of reference, a sensitive understanding of the relationship of idea systems and a particular cultural situation. While we are now decrying the anti-historical and anti-intellectual stance of the so-called "Modern Movement," we fail to recognize that the Modern Movement was the idea system of Marxism, Futurism, and even Fascism. The resulting formal solutions were emblems of the "brave new world," and its alienation from any context, physical and historical,

Denouement: Audience response

was, in fact, perceived as witness to their ideological correctness.

Now that the folly of "brave new world" attitudes is recognized by broad numbers of not only architects but, more importantly, society, a cultural situation is arising as a precondition for an architecture which is generous where modern architecture was didactic. What follows are design notions not based on holistic systems, but on combinations of idea systems, often unresolved within a single scheme, but related nonetheless as symbols of our delight in the often perverse but always intriguing multiplicity of ideas that sustain man.

One hopes we have overcome the time when conformity to either a stylistic uniform or social mystique is the ticket of admission. Perhaps we will reach the moment when the social reformer and the meditative recluse can both share the sun on the same day.

Robert A. M. Stern: While I believe that the Modern Movement has run its course, at the same time, I do not wish to suggest that Modern Architecture, viewed in the broad—and I would submit correct—way is no longer a viable proposition. I would simply caution that, as Charles Moore has suggested, Modern Architecture's Puritan Revolution (the Modern Movement) is over. As a Modern (architect) I cannot but remain a child of the Enlightenment; I recognize the demands placed in culture by new programs, and new techniques. As I see it, to be a Modern Architect is to be eclectic; that is, self-consciously selective about the relationship between the production of shapes and the context of history and culture. And this leads us to Post-Modernism.

Post-Modernism recognizes that buildings are designed to mean something, that they are not hermetically sealed objects. Post-Modernism accepts diversity; it prefers hybrids to pure forms; it encourages multiple and simultaneous readings in its effort to heighten expressive content. Borrowing from forms and strategies of both the Modern Movement and the architecture that preceded it, Post-Modernism declares the past-ness of both. The layering of space characteristic of much Post-Modernist architecture finds its complement in the overlay of cultural and art-historical references in the elevations. For the Post-Modernist, "More is More."

Three principles, or at least attitudes that characterize Post-Modernism are *contextualism,* or viewing the individual building as a fragment of a larger whole, with the belief that buildings which refer and defer to the buildings around them gain strength over those that do not; *allusionism,* or seeing architecture as an act of historical and cultural response, not however, as a pat, predigested imagery; and *ornamentalism,* or regarding the wall as the medium of architecture meaning, for the decorated wall responds to (what seems to me) to be an innate human need for elaboration and an instinct to measure building-size in relation to human-size.

Carl Stein: The present debate among architectural critics, citing the work of the new eclecticists as challenging the fundamentals of Modernism, ignores the role of architecture as a socially useful art.

The changes espoused by the new eclecticists are changes in style only. The idols which they topple are straw men which they have themselves erected. They do not confront the issues of Modernism of the 1920s but simply attack modern style of the 1950s with the notion of substituting an eclectic style of the 1970s.

The choice which architecture now faces is not one of eclecticism versus purism, one style versus another, it is rather a question of what is to determine architectural decisions, style, or the specifics of the time, place, and function from which building evolves.

John Portman: I think that a phase of Modern Architecture is dead, but Modern Architecture is very much alive. I think that what we have done—when we got involved in adapting the building process to industrialized society—was a thing-oriented approach. What I see in the future is that we don't throw any of that away—it's very valuable—but that we have to put it in its proper place. You can have a great structural system—it can be unique as hell—but if the environment doesn't work for people then it's misplaced.

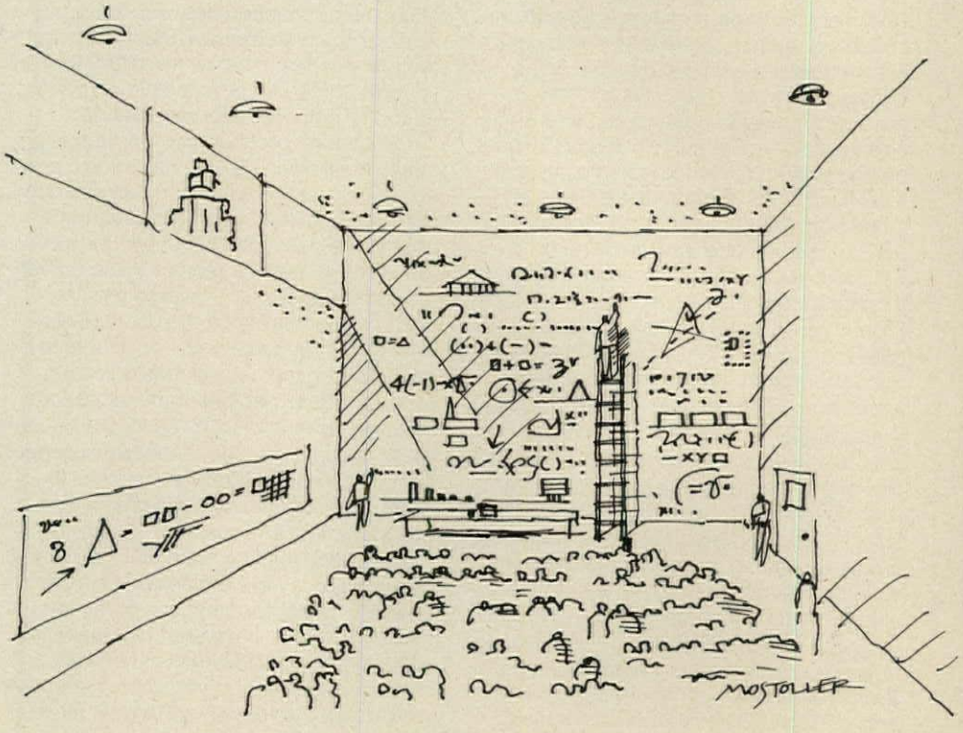
Craig Hodgetts: Architects must concentrate on communicating again—not in abstract terms, like space and program—but in terms of surfaces, textures, and places for people and things. To do this they must involve themselves with common activities and common materials at a human scale, executed for human perception.

The unfulfilled denouement

John Eberhard: An aesthetic which is appropriate to our society "by the people" and "for the people" says that artistic ability must properly serve everyone, not just those who are rich or powerful enough to obtain access to it. It clearly cannot countenance artistic activity that improperly ignores the needs and satisfactions of the many to serve the few by an intervention of the powerful. The artistic activity of architecture in our society, therefore, is properly related to our scheme of ethics when it brings the scientific and technological potential of our society into the best possible resolution of the manmade environment for everyone.

Rodolfo Machado and **Jorge Silvetti:** The notion of pragmatics is generally used in relation to technical, economical, and programmatic issues and as a counter-position to "theory," "art," "intellectual work," etc. Such oppositions are meaningless. Such a confusion is at the root of the poor quality of most of the architectural products today. The issues pertaining to the domain of pragmatics of architecture should address the cultural efficacy of architecture, that is the relationship between architectural signs and their users, and the architectural mechanisms that assure that relationship.

If we see the architect as a professional equipped with a specific expertise, it seems imperative to us that the initial moral responsibility is to frankly accept it. Let's leave aside the ethics of social guilt that we have inherited from a too simplistic and tendentious critique of the failures of Modern Architecture. These have tended to make the architect responsible for a dis-



Hopeful reviews for 'The Future of Architecture'

proportionate number of social ills, and culminated in the self-deprivation of his sole and unique capabilities. The *future architect will have to gain confidence again in his ability to help to produce a significantly rich man-made world, by using what he should know best—architectural means—and for that he should be accountable.*

All this reappropriation of what belongs to architecture should be understood not as a longing for times past, but rather as an enriched optimistic act. Enriched, because for all its wrongness, the past decades' search for social and technical relevance has made us see more clearly the power of architecture. We should be optimistic because history has shown us that it is only what is specifically architecture (after function and *zeitgeist* are gone) that remains as a testimony to culture.

Commentators

John Eberhard, President, AIA Research Corp.; Emilio Ambasz, architect/designer, Bologna and New York; Philip Meathe, president, Smith Hinchman & Grylls, Associates, Inc., Detroit; John Portman, architect, Atlanta; Vincent Scully, professor, History of Art, Yale Univ.; Bernard Weissbourd, President, Metropolitan Structures, Chicago; Forrest Wilson, Associate Dean/Chairman, Dept. of Architecture and Planning, The Catholic University of America; Ron Shattil, Arts International, San Francisco; Michael Brill, president, BOSTI, Buffalo, NY; Bernard Boyle, Associate Professor, Architecture, Arizona State Univ.; William Porter, Dean, School of Architecture and Planning, MIT; Denise Scott Brown, partner, Venturi & Rauch, Philadelphia; James Polshek, architect, Dean, School of Architecture, Columbia Univ.; Cesar Pelli, Dean, School of Architecture, Yale Univ. and Vice President, Gruen Associates. Stanley Tigerman, architect, Chicago; Richard Bender, Dean, College of Environmental Design, Univ. of California, Berkeley; Robert Geddes, Dean, School of Architecture and Urban Planning, Princeton Univ. and principal, Geddes Brecher Qualls & Cunningham; Rodolfo Machado, Adjunct Professor, Department of Architecture, Rhode Island School of Design; Jorge Silvetti, Assistant Professor, Department of Architecture, Harvard Graduate School of Design; German Sonntag, ASID, Santa Monica, CA; Michael Graves, architect, Professor, School of Architecture and Urban Planning, Princeton Univ.; John Johansen, Johansen & Bhavnani, Architects, New York; Paul Rudolph, architect, New York; Michael Mostoller, Professor, Graduate School of Architecture and Planning, Columbia Univ., Ulrich Franzen, architect, New York; Robert A.M. Stern, architect, New York; Carl Stein, architect, Richard G. Stein & Associates, New York; Craig Hodgetts, Studio Works, Los Angeles.

Will this very peculiar production be the success that the advance word says it will? For all the problems encountered in mounting the show it may yet retrieve its reputation and play to a full house.

An extremely provocative play previewed out of town last night. The action within the play is intended to extend over a period of 25 to 50 years—with events unfolding through the play as they would (or will) in reality. To find out what actually happens in the play, one must keep going back to see it.

From its initial half-suggested plot line, to the assembling of the cast of characters and the introduction of the protagonists, to the discussion of possible mise-en-scènes, mental and physical, and on to the missing denouement, the play reeks of ambiguity. Granted the open-ended plotline will allow reality to function as an important controlling device in the dramatic action; nevertheless, a lot is left to the imagination. One could still conjecture, we suppose, that according to the socio-political-economic trends briefly touched upon, change may not operate in the next few years with the same radical conviction that was expected of it in the 1960s. Discontinuity and fragmentation still mark the surface with underlying patterns emerging from time to time. The ambiguity results from trying to read them at this early moment for their significance regarding the future of architecture.

With the production's treatment of the cast of characters, one is again unsettled. The polarization of large multiple service firms versus small special-purpose firms, of the entrepreneur-architect versus artist-architect we suppose could mesh with social drift toward the individual "privatized" lifestyles in counterpoint to the expansion of the "business state." Small firms will continue to receive work from small special-sector clients; large firms from large political-economic entities. As long as the American society exhibits an internal split in its outer and inner lifestyles, both types will survive.

In the next portion of this production, the soliloquies by the role models, we find a complex array of possible protagonists. The actors chosen to act out these roles in last night's performance gave each part a certain dynamic scope. We are less sure, however, whether the acting in some cases can resolve dilemmas in the construction of the roles themselves. And we should note that different actors projected differing degrees of sincerity about coming to terms with their roles. The "neotypes" seemed the most "natural" performers: one neotype architectural firm makes an attempt to join a design aesthetic with a community advocacy commitment, and does so with a sense of joy that comes off very well on stage. The other also tries to synthesize certain old and new belief systems—in this case theory of design with practice with political values—in a way that indicates the development of a strong *dramatis persona.* Of the others (the Individual, The Corporate Architect, the Gamesman), the Individual seems the most integrated in terms of work, image, and coherent belief system. This role has been successful so far, despite the economy's vicissitudes. But how will it resist impact in the future? The character seems strong, but its strength lies *not* in being able to absorb or swallow the obstacles that come in its way. Its strength depends on its ability to stay intact and "convert" by its example.

The other two, the Corporate Architect and the Gamesman, demonstrate that instinct to engulf their adversaries. In fact there did seem to be a lot of fancy footwork on stage during these performances, which very visibly impressed half the audience. But both characters take on major burdens in terms of their method-acting: one assumed a range of roles in the course of his moment on stage in order to resolve the split between art and commerce, creativity and capitalism. The other actor used a range of subtle nuances in acting technique to deal with his purposefully shifting mise-en-scène.

The "sleeper" that captured the spotlight in last night's performance was

Après le dénouement

the Polemicist-theorist. The lights were too dim and there were too many people trying out all at once for any one to take over center stage, but one thing was clear. Half the house was confounded, the other electrified. We ourselves were invigorated by the adamant conviction upheld in the portrayal that Architecture is indeed a cultural undertaking before it is a commercial enterprise. In spite of the fact that the play as a whole must be a financial success and therefore appeal to a wide public, it is always admirable to see a performance enacted primarily for the sake of artistic and philosophical inquiry.

Following this role-model segment, various mise-en-scènes were outlined. Both the mental mise-en-scène, which could provide the dialogue for the characters involved in future productions, and physical mise-en-scène shared one similarity. Each in its own particular way suggested that the future of architecture is in the *past*. We are reminded of architect Diana Agrest's words, "A critical attitude in relation to architectural production implies learning a lesson from the past," as she warns against falling into "futureology—future spaces in an empty and homogeneous a historical time."

With regard to the next portion, we admit to being disturbed by the tendency for many members of the audience to see truth only their particular interpretation of the play. From hardcore pragmatists to flaming formalists very few of those present showed the ability to project themselves into other points of view. Admittedly we may also fall into that trap, but in so doing we all make the mistake of denying the effusive vitality that makes a play like this so important. We would hate to see this production endangered because the actors won't interact.

The variety of these viewpoints however also demonstrates that architecture thrives in many manifestations. If the proliferation of roles strikes one as disconcerting (many more exist than were presented there last night) there is at least the chance that all members of the actual paying public will be reached.

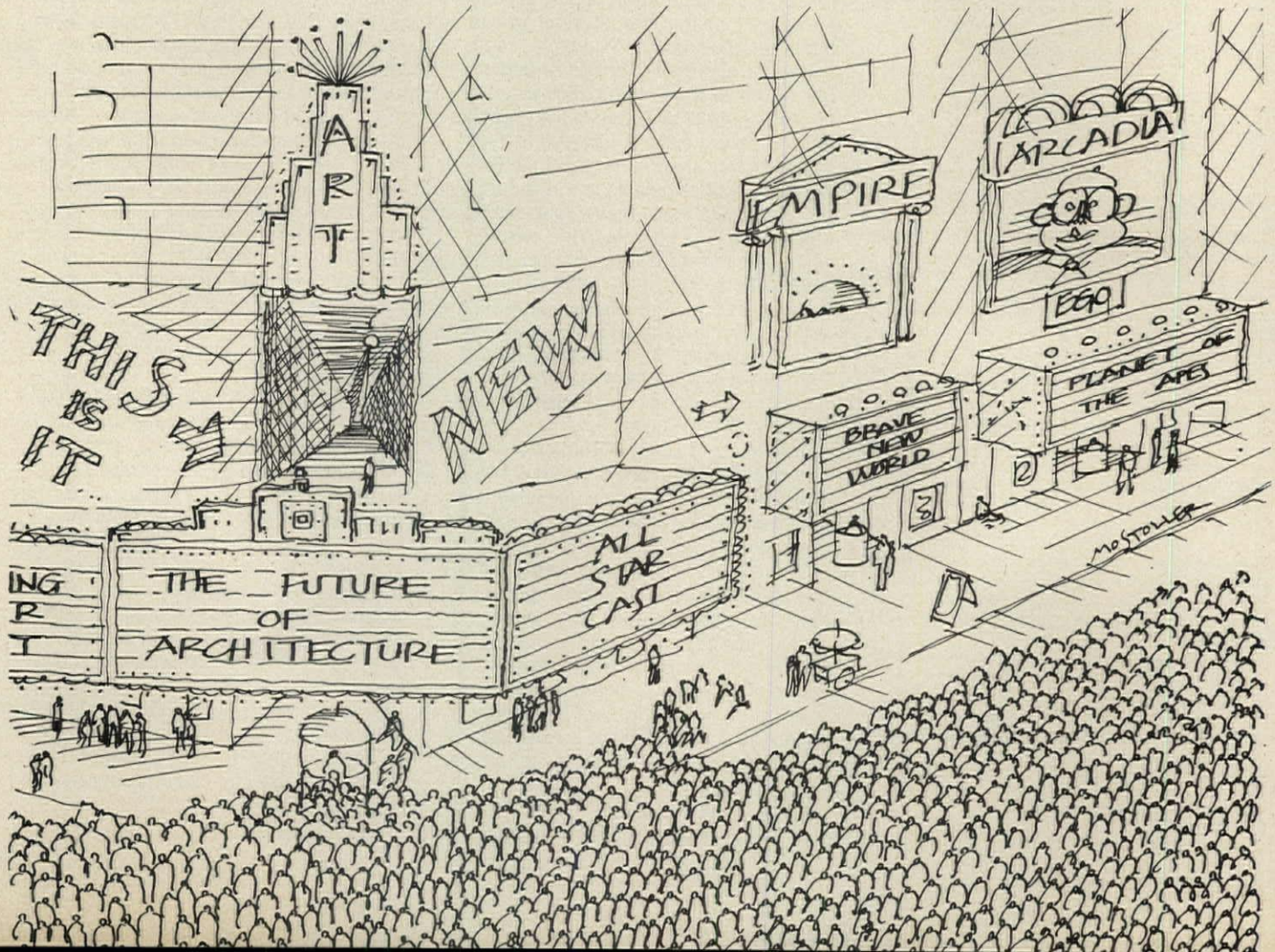
Questions remain of course about the lack of resolution in the implied "message" and the absence of a clear-cut course of action to take. Since this affliction is also reflected in the larger "theater" of political, social, and economic events, the question becomes more compelling—and more difficult to answer. Having all architects study only one role would be self-defeating. However in trying to fuse several roles together they might spread themselves too thin. Their portrayals may lack dimension, and ultimately, impact. Still the protagonists who do emerge will have to deal with highly charged plot lines and a demanding but often uncomprehending audience. Perhaps the best answer is for the aspirant to strive for an open mind, a self-awareness, and embrace architecture's ethical implications.

This matter of general ethics, not often discussed in relation to architecture, is another theme that kept reappearing as an underlying motif in last night's performance. One is reminded of Bernard Boyle's observation in *The Architect,* "Architects in modern America indeed came to terms with the fact of industry and commerce, but typically at the cost of their ethical responsibilities as independent professionals. The ethics of the individual architect were replaced by the ethics of the architectural office, and the more the architectural office resembled business in general, the more did its ethic resemble those of the business world."

And we are drawn back to Robert Heilbroner's and Fred Hirsch's comments invoked in the presentation of the scenario, regarding the decline of the moral, individualistic basis of capitalism in modern life. Here again architecture reflects the loss of innocence of the society as a whole.

Perhaps the point then is not for the architect to work on strategy, to try to figure out the audience in order to sell himself as all things to all people. Perhaps the true resolution to the plight of architect as actor lies in his formulating an assessment of where he stands in relation to the rest of the production—and embracing that. If the audience doubts its own destiny and suffers from an eroded ethical imperative, why should the protagonist simply reflect its confusion? Why should the public go to the production of "The Future of Architecture" except for some insights into its own condition? Why should they attend these performances except to glean some values amidst intellectual and moral disarray?

[Suzanne Stephens and John Morris Dixon]



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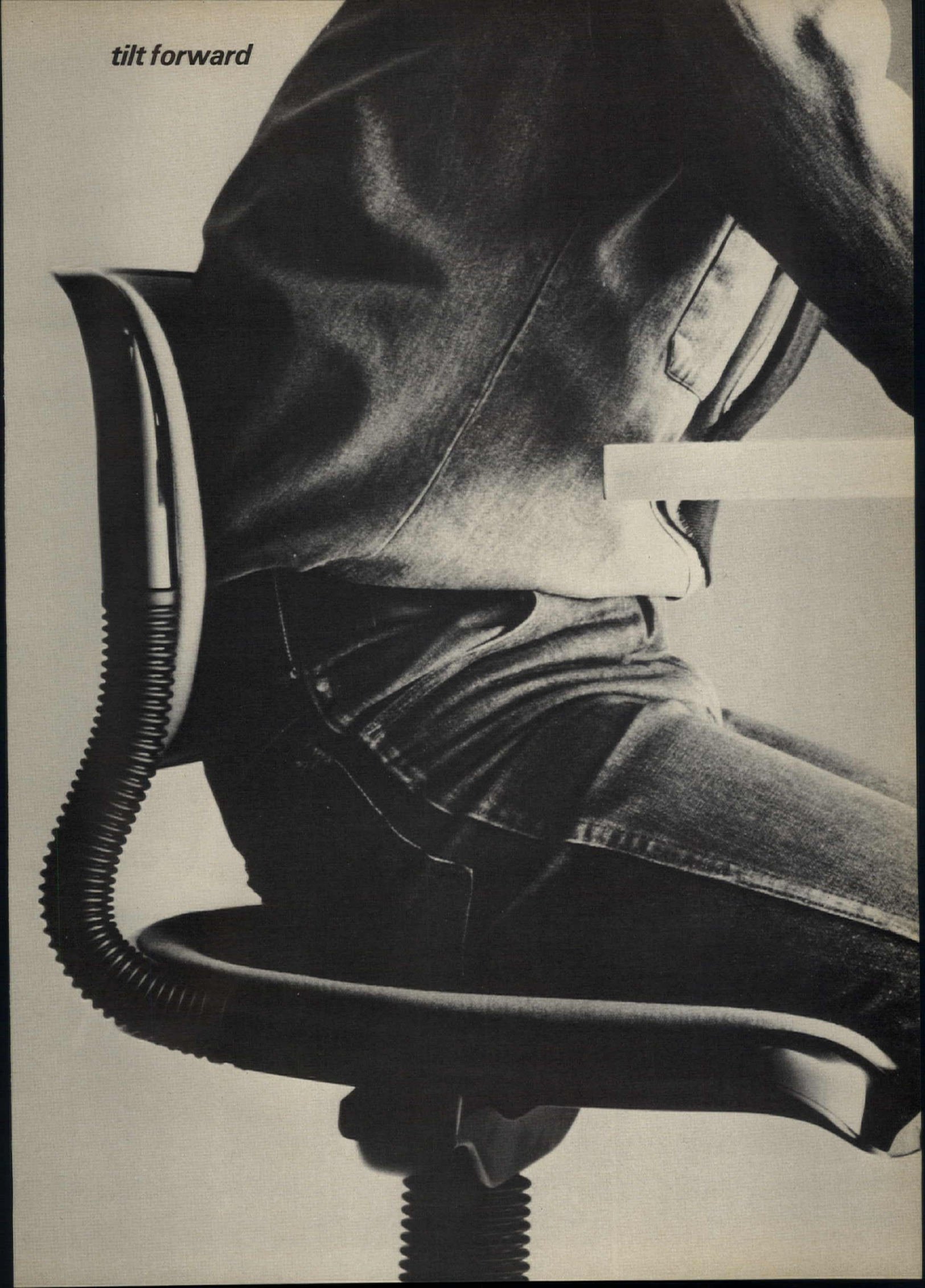
OPENArK®

Patents Pending Worldwide


relax


tilt forward

More than half of our active lives is spent in a work environment...seated in offices, classrooms, meeting rooms, reception areas, etc....working, studying, waiting. Until now, few chair designs have attempted to deal scientifically and aesthetically with the special requirements of the working person. OPEN AfK B.V. is professionally and socially committed to the design and production of advanced furniture concepts which make a contribution toward fulfilling the working person's psychological, behavioral, functional, and aesthetic needs. And Vertebra, a new OPEN AfK concept, is the first total seating system designed specifically to fill that need.

Designed by Emilio Ambasz and Giancarlo Piretti, Vertebra is an exceptional design achievement. Ergonomically conceived to react with your spinal column, Vertebra is the only seating system which changes configurations automatically to support you in any posture your body may adopt. Unlike other seating concepts, Vertebra requires no manipulation of levers or adjustment of manual controls to attain the "ideal" posture. With Vertebra all postures are ideal.

Whether you read, use the phone, or close your eyes to meditate... **relax** ...and the seat will automatically slide forward while the backrest tilts backward. In a more formal situation ...**sit up**...and the chair will automatically adopt a comfortable upright position. At the desk... ***lean forward***... and Vertebra will automatically tilt 4½° downward to continue supporting you.

The anatomic configurations of seats and backrests on all models result from careful design application of extensive orthopedic and vascular research. Optimal body weight distribution and unexcelled sacro-lumbar support are assured without inhibiting blood circulation. Vertebra's support and response to activity are so natural and automatic, that the user loses the awareness of being seated. It insures the user's comfort, efficiency, and sense of well being.

Brilliantly simple, Vertebra's mechanisms have been subjected to strenuous testing for durability and performance...are failproof, require no maintenance, and are completely warranted. Unique bellows design covers mechanisms and also serve as armrests.

The Vertebra Seating System encompasses side and arm chairs that stack and gang, plus advanced versions of operational, managerial, executive, and tandem seating. This wide variety of models offers fabric, finish, and mechanical options; but in all cases, the reliability of its mechanisms, the quality of its sturdy construction, and the scientific and aesthetic principles which have guided its creation, remain the same. Although Vertebra is the most advanced seating system available, its prices compare favorably with those of traditional seating.

Krueger's more than 30 years' experience as a manufacturer and distributor of institutional and contract furniture products qualifies it uniquely to produce and distribute the Vertebra Seating System and other OPEN AfK design concepts in the United States and Canada. Contact Krueger for more information.

krueger

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(Sweet's Architectural and Interior Design Files #9.13/F1., Spec/Data File, Section 9/Wall Coverings. Means Building Construction Cost Data/Wall Covering Gypsum.)

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Toxicity: A hazard produced in fires

Alvin D. Skolnik, FCSI

The author points out the immediate need to agree on a meaningful definition of the term 'toxic' and to establish controls which recognize toxicity as a main element in the fire hazard situation as it is today.

In the past, fire hazard classifications have generally been defined in terms of three principal characteristics: flame spread, fuel contribution, and smoke development. While industry is now scrupulously reappraising the validity of certain of the test methods heretofore associated with measuring and defining these characteristics in meaningful end-use terms, there has emerged an awareness that another factor is equally important in the total fire hazard equation. That factor is toxicity. Toxic gases and vapors can cause death when a person is exposed to them in sufficient quantities in relation to a time element.

Carbon monoxide, produced through incomplete combustion of materials containing carbon, presents a hazard in most building fires because organic materials contain carbon in their chemical structure. In wood the main constituent is cellulose, which is made up of carbon, hydrogen and oxygen atoms. Burning produces hydrocarbons and oxygen-containing vapors (particularly very toxic aldehydes) in addition to large quantities of carbon monoxide. Burning of synthetic polymers produces carbon monoxide in addition to other toxic combustion products as follows: polystyrene produces small amounts of styrene; PVC (polyvinyl chloride) produces hydrogen chloride and negligible amounts of phosgene; synthetic fibers with high acrylonitrile content can produce hydrogen cyanide; ABS (acrylonitrile butadiene styrene) produces hydrogen cyanide; polymethyl-methacrylate will break down and form methyl methacrylate. Compounds that contain nitrogen in their structure (such as urea formaldehyde, nylon, and polyurethane) will yield hydrogen cyanide as a product of combustion.

What effect do these toxic products have on human beings? We know, for example, that carbon monoxide when inhaled will cause fatigue, dizziness, headaches and, when ingested in large quantities as could be produced in a fire, can cause asphyxiation. Carbon dioxide stimulates the respiration, thereby increasing the inhalation of both the oxygen and the toxic gases and vapors present. Hydrogen cyanide arrests the activity of living matter, inhibiting the use of oxygen by the living cells of the body tissue. Hydrogen chloride will damage the upper respiratory tract, leading to asphyxiation.

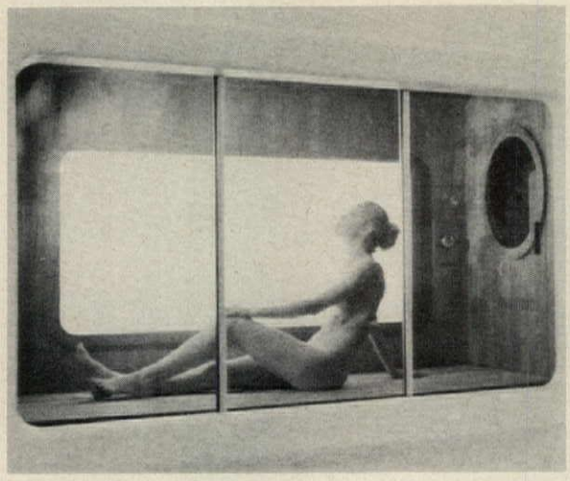
The National Research Council of Canada has published some excellent papers on this subject, authored by Messrs. K. Sumi and Y. Tsuchiya. These papers are recommended for those interested in further research.

What can be done to control these hazards? The first step would be to establish a uniform and meaningful definition for the term 'toxic'. The BOCA Building Code prohibits the use of interior finish materials which give off smoke or gases more dense or more toxic than that given off by untreated paper under comparable exposure to heat or flame. The New York City Building Code has a similar prohibition. Few other major codes take cognizance of the measure of produced toxicity as being an element to be evaluated and controlled. Threshold limits for the physiological response to concentrations of toxic gases and vapors in the average human being must be established and then correlated to the toxicity production potential of burning materials and their burning rates. Then, regulations can be established which will restrict the use of a material (or a combination of materials) which produce unsafe amounts of smoke or toxic gases *within a time frame related to the burning rates.* Thus, meaningful criteria will be established which limit toxicity development in a fire situation with respect to human response. This approach is somewhat analogous to the methods now used to ascertain the fire resistance of structures where we likewise express the *relative degree of fire resistance in terms of the time that a material (or combination of materials) can withstand a fire of a particular controlled extent and severity before a certain critical point is reached.*

There is an immediate need to agree on definitions, to develop test methods which reasonably simulate end-use (considering total systems rather than isolated elements) and to establish, within this environment, meaningful controls which recognize toxicity as a principal element in the fire hazard situation. □

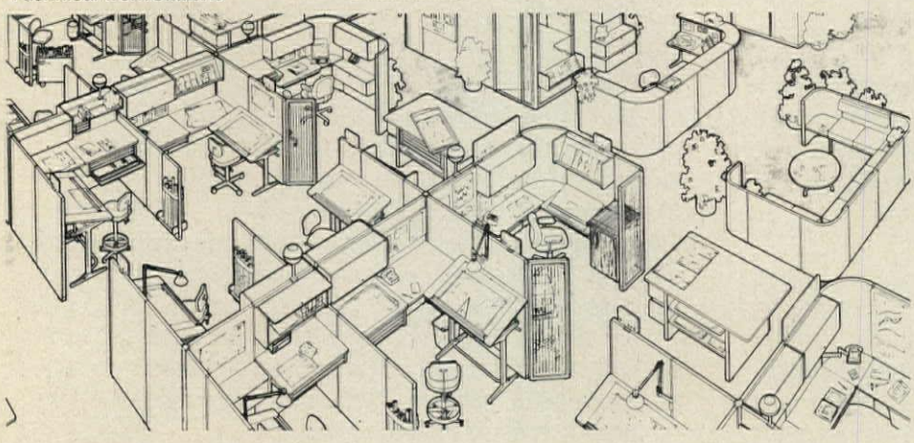
Author: Alvin D. Skolnik, FSCI, is Director of Research and Specifications for Skidmore, Owings & Merrill, New York.

Products and literature



Technical work stations

Environment



Technical work stations. New components ranging from devices that hold rolled drawings to storage units for outsize materials have been integrated into the overall Action Office system. Components include a free-standing 51" x 84" Service Table; Work surfaces 36-in. deep that come either 48-in. or 72-in. long; wide project drawers to store flat D-size or smaller drawings; a rolled drawing storage unit; a drawer caddie which can be moved or placed under an individual's work surface; a Panel-Hung Drafting Board for light to medium drafting work or as an alternative to free-standing drafting tables; a panel drawing clip which attaches drawings to panels without tacks, pins, or tape. Herman Miller, Inc.
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Environment. A personal secluded enclosure where one can control his surroundings from sunbathing, to gentle showers, to a steam bath, to tropic rains, to warm and drying winds. The elements desired can be selected on the exterior control—one or all—or any combination and up to 29 minutes for each. Heat lamps pre-warm the enclosure which is handcrafted teak and cypress. Inside, press button to start. The unit measures 109-in. long, 44-in. front to back, 91-in. high on the outside and only slightly less on the inside. There is a sliding acrylic door for entry, a 30" x 60" translucent panel on the rear wall, and a 30 in.-dia. porthole window. Options include a stereo AM/FM radio and tape cassette, Art Nouveau painting on backlighted panel. Kohler Co.
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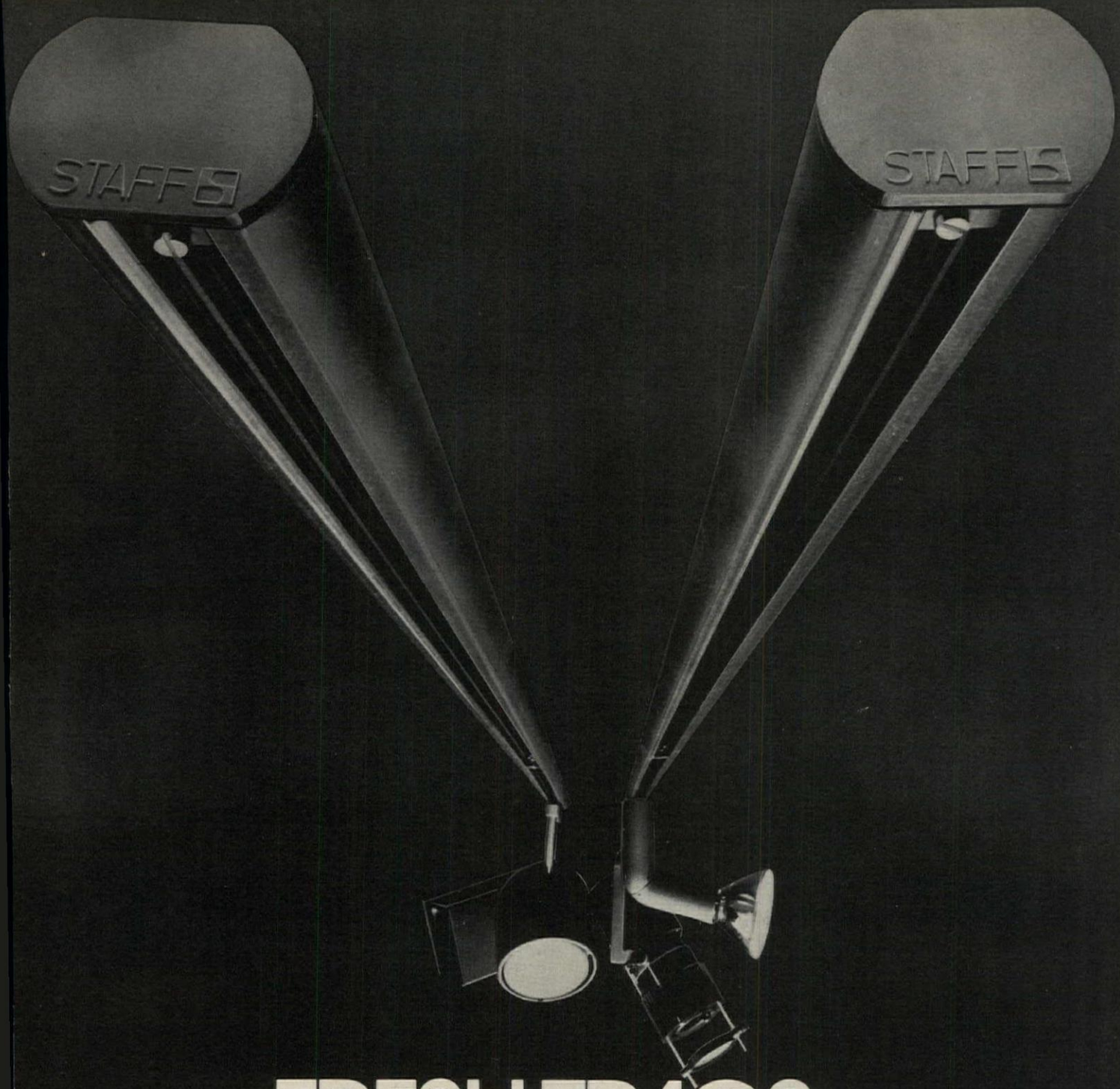
[continued on page 110]



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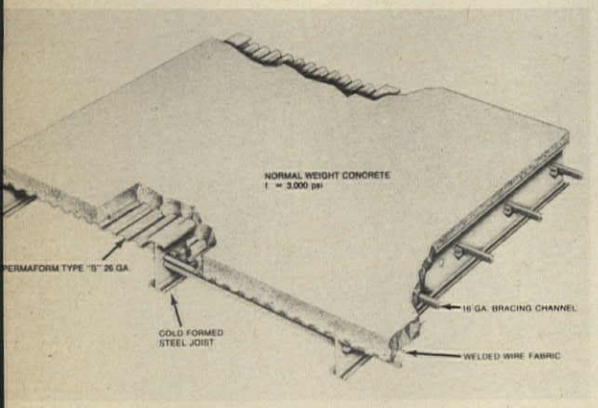
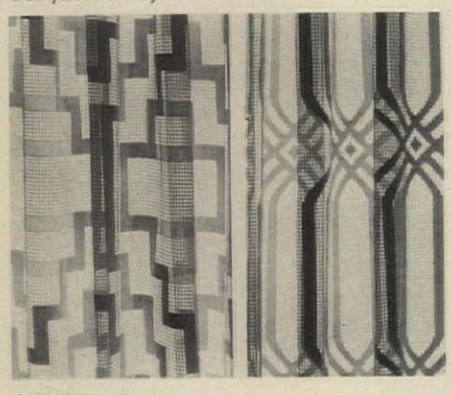
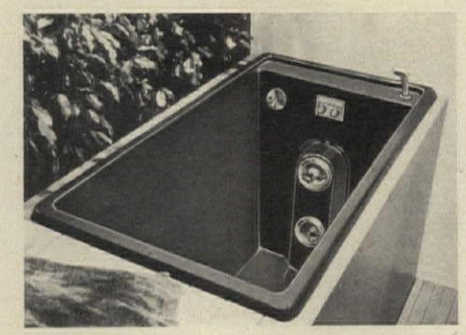
Products continued from page 104



Comjoist floor system



Casement group



Jacuzzi executive whirlpool bath

Comjoist Floor System. Each system component is made of light-gauge cold-formed steel. Factory fabricated members are cut-to-length and prepunched. Components are designed for minimal fastening, and minimal welding is required to fasten the joist to the supporting structural member. The system is said to have a positive action provided by the poured concrete completely enveloping the upper flange and web of the joist. Roll Form Products, Inc.
Circle 102 on reader service card

Casement group features Art Deco designs in architectural net for contract and residential use. Shown are "Angles" and "Decolinks" which are large repeats on 100 percent polyester with flame retardant finishes, white only, and woven 118 in. wide. English imports. "The Thirties" is an Austrian import available in white or eggshell, 100 percent polyester with a flame retardant finish and woven 118 in. wide. Henry Cassen Inc., Div. of Decorators Walk.
Circle 103 on reader service card

Jacuzzi Executive Whirlpool bath features 34-in. depth and is equipped with two recessed whirlpool inlets located one above the other. The inlets are powered by a ½ hp pump and motor located beneath the sculptured, contoured seat. A silent air-induction manifold system draws in air to be mixed with water for hydro-massage performance. The executive is self-contained and fully plumbed for either sunken or skirted installation. It is constructed of high-strength, high-luster fiberglass and is available in 12 colors. Jacuzzi Whirlpool Bath, Inc.
Circle 104 on reader service card

Graphics and signage. Product line includes dedication plaques, memorial tables, architectural sculpture, door hardware, corporate identification, and logos in cast bronze or aluminum. A modular frame system (all signs measure 6" x 6" or 9" x 9" and copy is arranged in one, two, or three lines) uses four basic modular parts. Architectural Arts Foundry.
Circle 105 on reader service card

Multiple pen 12 in. plotters. Two-pen plotter permits plotting of two color graphs, requiring no operator attention to stop the plotter and change pens. Control of each pen is maintained by software means. Zeta Research.
Circle 106 on reader service card
[continued on page 114]

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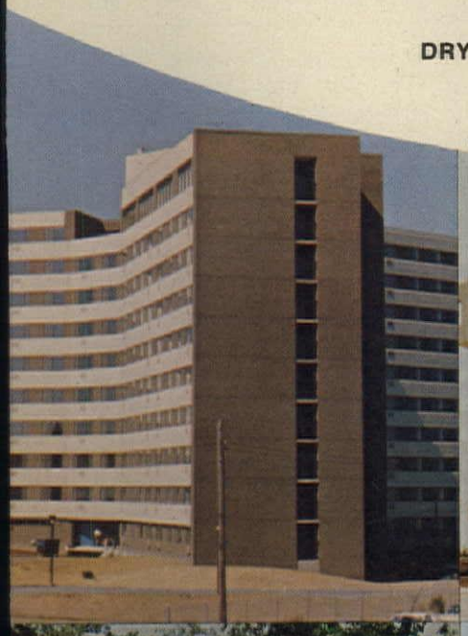
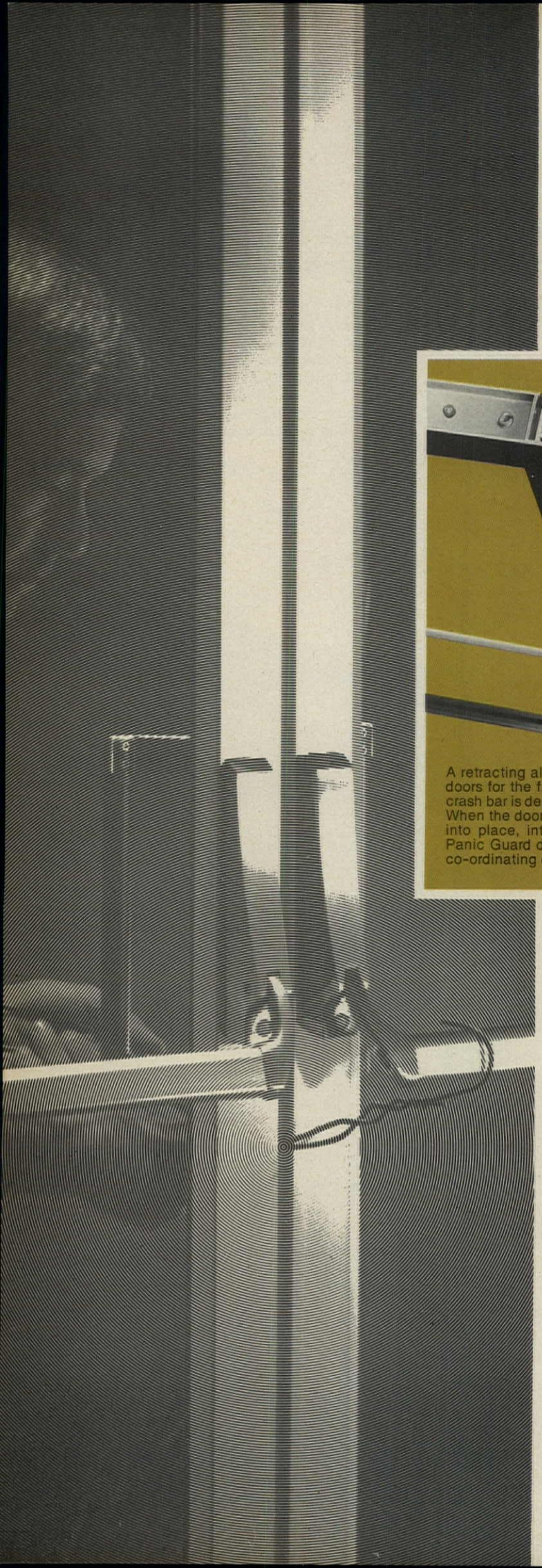
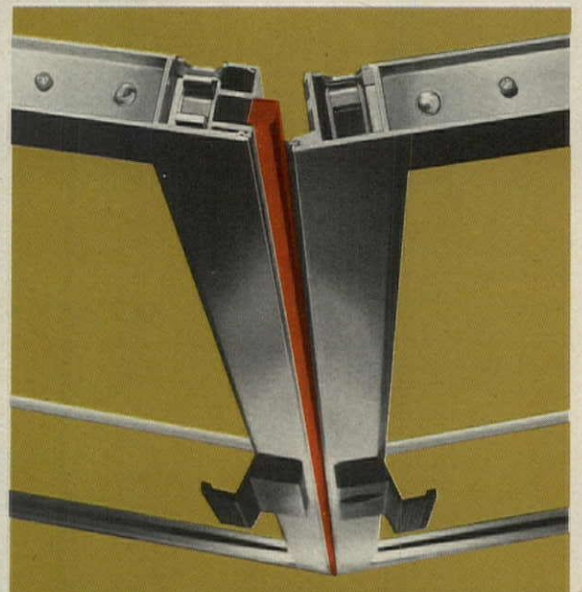




Kawneer's Exclusive Panic Guard™ Entrances

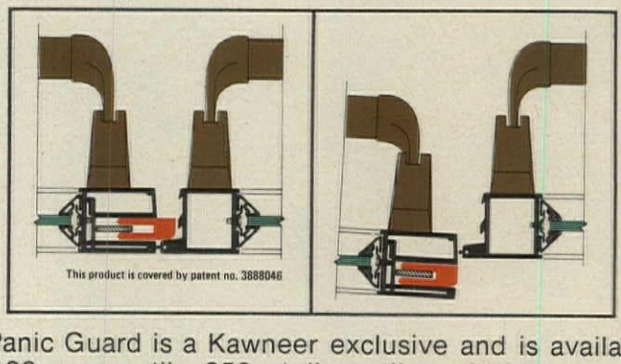
CLOSE THE GAP



A retracting aluminum bar closes the gap between doors for the full height of the entrance. When the crash bar is depressed, the bar moves into one door. When the door closes, the astragal bar moves back into place, interlocking the two panic entrances. Panic Guard doesn't require additional mullions or co-ordinating devices for proper operation.

Panic entrances mean better life safety. Paired doors mean smoother traffic flow. But, put the two together and they spell "Security Gap." Through the Gap between the doors burglars or vandals can gain entry by merely inserting a coat hanger or other device and easily tripping the panic bar. Chains solve the security leak, but they are a violation of life safety codes. Removable mullions may make the building secure, but they impair smooth traffic flow and are inconvenient when large objects must be moved through the door.

Panic Guard Entrances close the "Security Gap." Kawneer's Patented Panic Guard entrance design features a full-length, movable astragal bar that locks into place to provide security. And, when the panic bar is depressed (from the inside only), the astragal bar retracts back into the meeting stile to provide a quick, safe exit. Smoother traffic flow. Life safety. And security. They all add up to Panic Guard entrances.



Panic Guard is a Kawneer exclusive and is available in 190 narrow stile, 350 medium stile and 500 wide stile entrances. Choose from black and bronze hard-color or clear anodized finishes.

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And for further information, see your Kawneer representative or contact Kawneer Architectural Products Information, 1105 N. Front Street, Dept. C, Niles, MI 49120.

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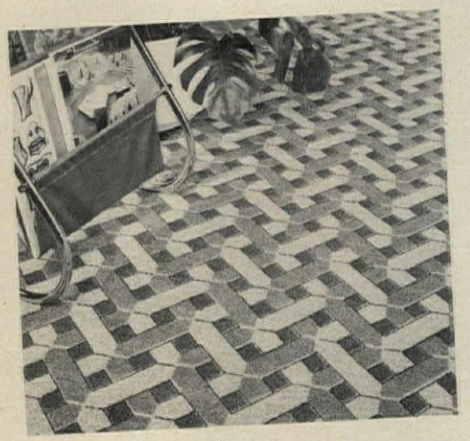
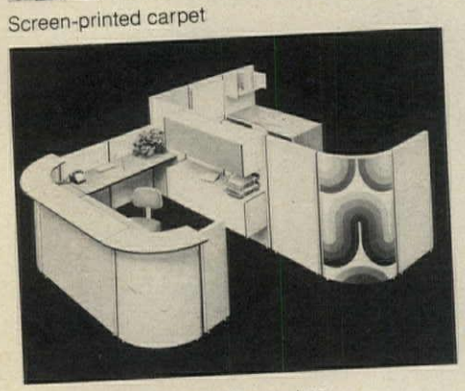
LIBRARY

Products continued from page 110



Screen-printed carpet



serieSeven modular office system

Fiberglass kiosks

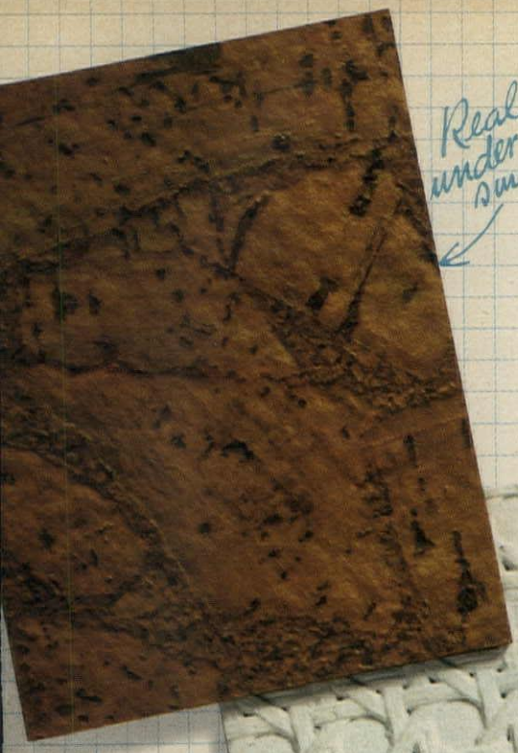
Screen-printed carpet. "Pentangle" is one of four designs available in 16 colorways. A ⅛-in. gauge commercial carpet combines continuous filament nylon fiber with built-in static control. It is available in 12-ft widths and meets the physical property requirements of HUD-FHA UM44C for Type I, III–Class I installations. Armstrong Cork Company.
Circle 107 on reader service card

serieSeven™ modular office system has added curved corner panels, counter tops, and work surfaces as components. The 24-in. radius, curved corner panels are available in heights of 40-, 56-, and 72-in. and come in a wide choice of vinyls and fabrics. There are also curved work surfaces to fit the corner panels. Counter tops are 14-in. deep and are available to fit the 24-in. radius corner panels or any other panel configurations. The Haws Corporation.
Circle 108 on reader service card

Fiberglass kiosks. Single-wall or double-wall booths are available in round, oblong, and clover leaf configurations. Sizes range from 5′ x 7′2″ to 10′ x 8′2″. The fire retardant kiosks are designed for indoor or outdoor use and are available in 12 standard colors and custom colors. Gel-coat finish. Each kiosk-booth comes with a door plus window openings. Accessories are available. Visual Products Company.
Circle 109 on reader service card

Striped synthetic turf is made in alternating 2- and 3-in.-wide stripes of different weight olefin face yarns that give a muted stripe appearance. Both yarns are the same green, but the difference in denier makes the apparent difference in appearance. The green pigment is part of the yarn. Instant Turf Industries.
Circle 110 on reader service card

Speedi-Pak paper bags for architectural plans and mechanical drawings can be used for mail or messenger delivery as well as for storage. Available in a number of sizes, they can be imprinted with firm name or other identification. Bemis Company, Inc.
Circle 111 on reader service card
[continued on page 118]



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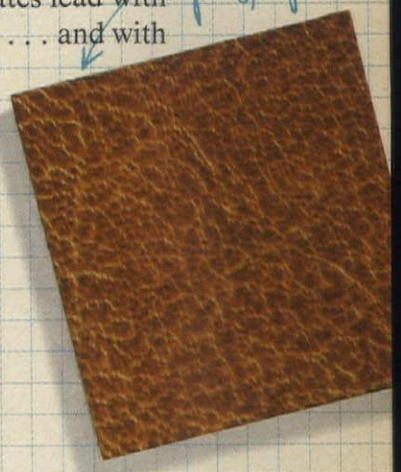
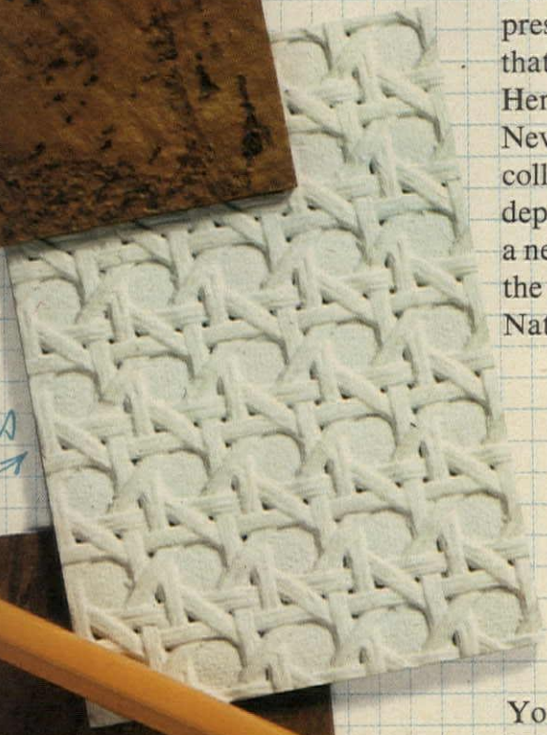


Registered dimensional came in 3 colors



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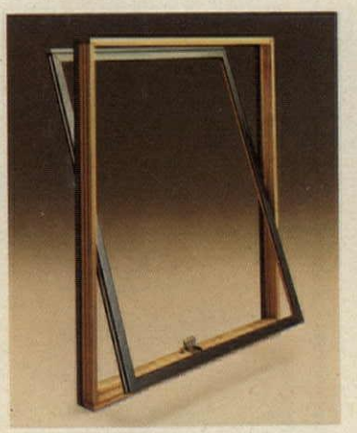
Gannett West is an outstanding example of the state-of-the-art as it relates to energy conservation. Incorporated into its design is virtually every energy saving device available, from an automatic nighttime temperature set-back system to a heating plant that reclaims heated air through a plenum in the ceiling light fixtures.

Windows, of course, were an extremely important energy saving consideration. Pella Clad Pivot Windows were selected because of the natural insulating qualities of their wood construction. In addition, Pella Slimshades and Pella's Double Glass Insulation System were specified to further reduce heat loss in winter and unwanted solar heat gain in summer.

The final result is a building so efficient in its use of energy that it has received the coveted Pennsylvania Power and Light energy conservation award. We're proud that Pella windows are part of it.

Pella offers a tough aluminum cladding in attractive colors outside — the warmth and beauty of wood inside. Aluminum exterior is cleaned, etched and coated with high-temperature baked acrylic polymer. It won't chip, crack or peel.



Pella's Clad Pivot Window makes washing of outside glass from inside the building easy. Two models available — Pivot, with a single sash, and Pivot Contemporary with two sash within a single frame, one fixed, one pivoting. Opens to allow natural ventilation in case of an air conditioner malfunction.

Pella's Energy-Tight Double Glass Insulation System has a full 13/16" air space between panes—provides maximum insulation at lowest costs. Tight-fitting wood construction and snug weatherstripping make it truly Energy-Tight. Insulating glass also available.

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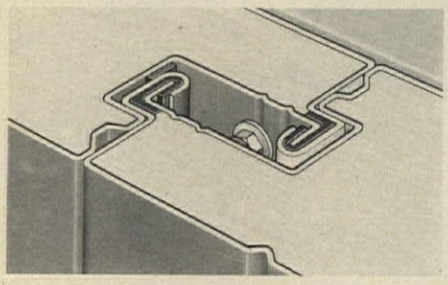
Pella®

Products continued from p. 114

Woodgrain laminates



Insulated wall panels

Insulated wall panels that are pre-assembled are available in a wide range of exterior color finishes. Wall panels are 3-in. thick, incombustible, with concealed fastener application which penetrates both exterior and interior panels. Exterior color finish is available in silicone polyester or Corrstan protected metal textured finish. Steelite, Inc.
Circle 112 on reader service card

Woodgrain laminates. Part of the Design Group I collection is Light Elm Burl (shown)—a composition of dark brown swirls. Other woodgrain patterns are Planked Wormy Pine, Beech, and Planked Hickory. Some applications include furniture and built-ins, bar and counter tops, store fixtures and commercial interiors. Wilson Art.
Circle 113 on reader service card

Soft-surface recreational flooring, called PROGYM, is a dense loop pile of continuous nylon fused to a cellular vinyl backing. It can be installed directly over cement or old maple floors. Game lines for basketball, volleyball, handball, and lacrosse can be cut into the surface. Others for tennis, badminton, etc. can be added temporarily with strips which mesh with the texture surface. Collins & Aikman.
Circle 114 on reader service card

Carpet as wallcovering. A tufted level-loop carpet of Zefran® Blend CR-4 acrylic and nylon yarn is made especially for wallcovering. It comes in 5-ft. widths in a wide selection of colors and patterns, and carries a Class A flame spread rating. It comes with a latex fire retardant backing, is sound absorbent and allergy-free. Dow Badische Co.
Circle 115 on reader service card

Transcar, a hospital cart handling system that is self-propelled, may be routed to and from any point in the hospital and is guided by passive steel guide tapes bonded to the floor, either under or on top of the floor covering. It is automatic, battery operated, and programmed at a centralized point for transporting meals, laundry, refuse, central supplies, etc. Transcar may be installed in new or existing hospital buildings using existing elevators. ECI Air-Flyte Corp.
Circle 116 on reader service card

Literature

Contract furniture. Lounge, occasional, and upholstered chairs, conference tables, stacking and dining chairs, single pedestal tables, shell chairs, folding tables and chairs are all illustrated in four-color brochure. Descriptive data, dimensions, and upholstery options are included. Virco Mfg. Corporation.
Circle 200 on reader service card

Roof tiles. Color brochure illustrates muted wood-tone colors of Spanish Mission and Shake roof tile. Technical data are given. Monier Company.
Circle 201 on reader service card

Indoor lighting. Fountains of Light™ are indirect lighting which uses HID lamps in unique optical chambers. One feature is their portability—they can be moved without changing wiring or ceiling arrangements. The units stand alone or can be incorporated into other furniture and store fixtures. All models are available with symmetric or asymmetric light distribution. SPI Lighting.
Circle 202 on reader service card
[continued on page 122]

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J-M Integrated Ceilings are total systems including acoustical, air handling, suspension and Holophane® lighting components. Each component is designed and manufactured to unite with every other. All backed by the Johns-Manville headquarters team and a nationwide network of 125 sales representatives.

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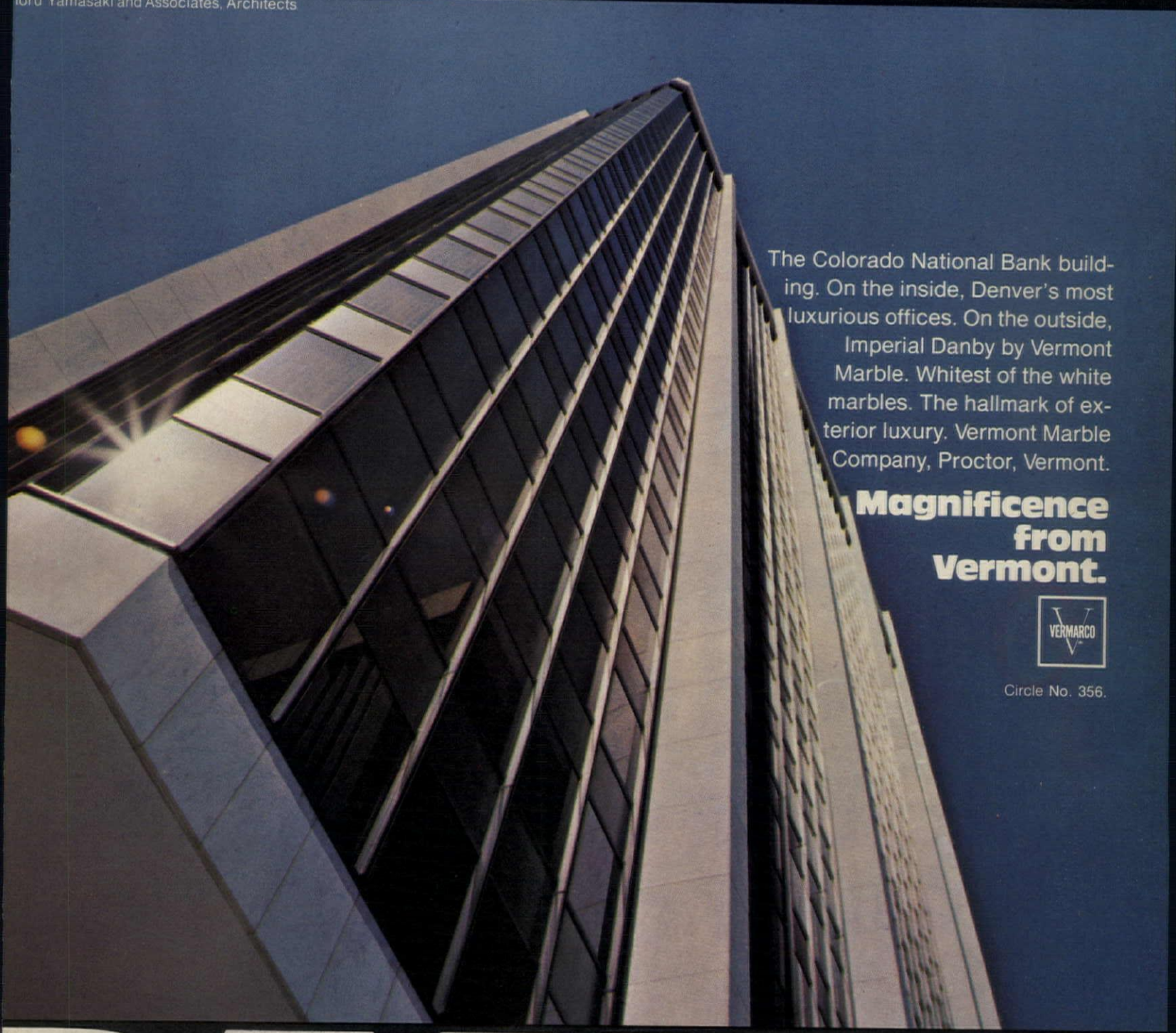

The Colorado National Bank building. On the inside, Denver's most luxurious offices. On the outside, Imperial Danby by Vermont Marble. Whitest of the white marbles. The hallmark of exterior luxury. Vermont Marble Company, Proctor, Vermont.

Magnificence from Vermont.

VERMARCO

Circle No. 356.

DANBY

Literature continued from page 118

Porcelain-on-steel panels. Catalog illustrates new uses for insulated panels, uninsulated panels for interior and exteriors, and Vitriform 90 which can be formed with the porcelain already on it. Installation instructions, specifications are included. Alliancewall Corporation.
Circle 203 on reader service card

Silicone roofing. A spray-applied roofing system consisting of a seamless blanket of lightweight rigid urethane foam coated with silicone rubber, typical installations, cross section of typical remedial roof, and properties, are shown in brochure. General Electric Company.
Circle 204 on reader service card

Window/door catalog gives installation details, unit sizes, and many possible combinations for residential, commercial, and institutional buildings. Dimensions and installation details are given. Andersen Corporation.
Circle 205 on reader service card

Sound control ceilings. Full-color catalog features each of company's architectural ceilings, gives sound absorption and attenuation ratings, light reflectance, flame spread, and other physical properties. Close-up photos show various surface patterns, and sizes and finishes are also detailed. All pertinent technical data, code compliance information, and specifications are also included. Holophane Division, Johns-Manville Sales Corp.
Circle 206 on reader service card

Painting systems catalog for specifiers and applicators contains complete product information, detailed specifications, and selection guides. A second brochure, "Safety Color Code for Marking Physical Hazards and Pipe Identification" which conforms to OSHA standards is also available. The Sherwin-Williams Company.
Circle 207 on reader service card

Community Postal Centers for centralized mail distribution are described and illustrated in brochure. Drawings show how centers can be planned to complement architectural style of virtually any neighborhood or apartment complex. American Device Mfg. Co.
Circle 208 on reader service card

Metal wall and roof systems. Cutaway illustrations of exterior profiles, panel systems, dimensions, features, load span tables, and complete architectural specifications are contained in 40-page catalog. A color chart and architectural specifications on available coatings, color photos of typical installations, and special details are also included. Edwin G. Smith Division, Cyclops Corporation.
Circle 209 on reader service card

Plan and graphics files. A full-color catalog covers the complete product line for filing and storage of sheet graphics. Included are vertical graphic files; Masterfile, a system for filing, retrieving, and protecting vellum, film, and linen original drawings; rolled graphic files, drafting tables, and accessories. The Plan Hold Corporation.
Circle 210 on reader service card

RigiRail. Brochure contains photos of each component of safety railing, handrail, and balcony railing. Details and engineering data are given. Construction Specialties, Inc.
Circle 211 on reader service card

'Renaissance for Stained Glass Windows' explains procedures for restoration of this type of window. DeVac, Inc.
Circle 212 on reader service card

Sheet rubber flooring. Brochure points out the advantages of special-purpose sheet rubber flooring for hospitals and nursing homes and includes sample product. Flame Spread Ratings and chart giving resistance to chemicals and spillage are included. The R.C.A. Rubber Company.
Circle 213 on reader service card

Tubular frame chairs. Four-page brochure illustrates the 421 International series of chairs which include both sled-base and swivel models. Steelcase Inc.
Circle 214 on reader service card

'Guide to Contract Carpets' is designed to give architects and interior designers involved in selecting carpets information on how Creslan acrylic fiber meets various contract specifications. It includes a chart which lists procedures for the removal of more than 60 different types of spots and stains common in contract installations such as hospitals, schools, and restaurants. American Cyanamid Company.
Circle 215 on reader service card
[continued on page 126]

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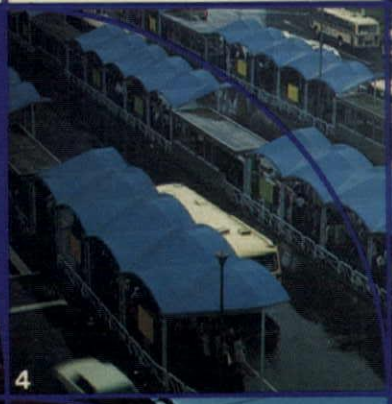
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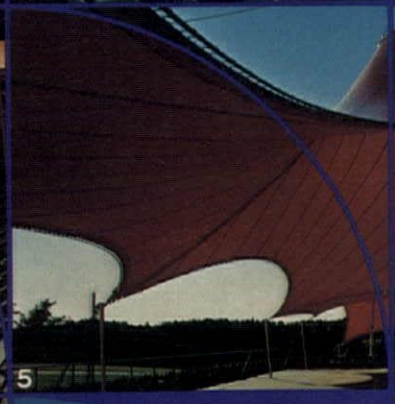
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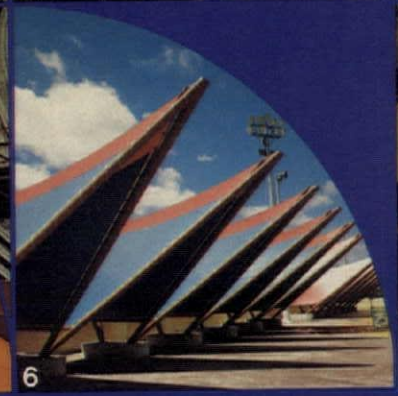
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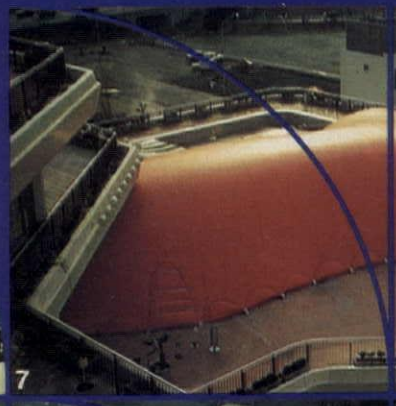
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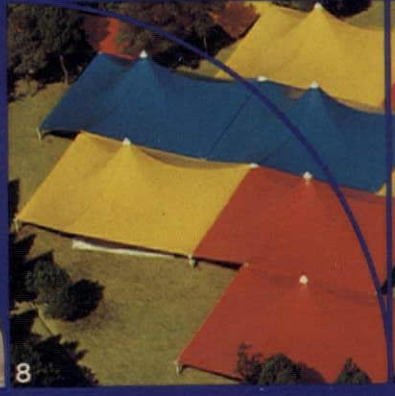
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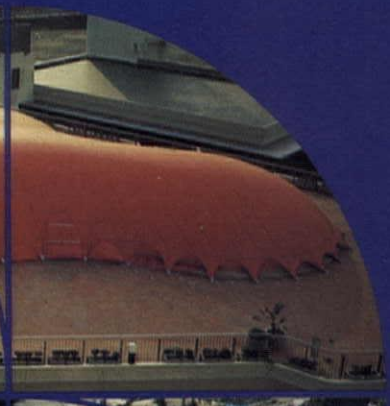

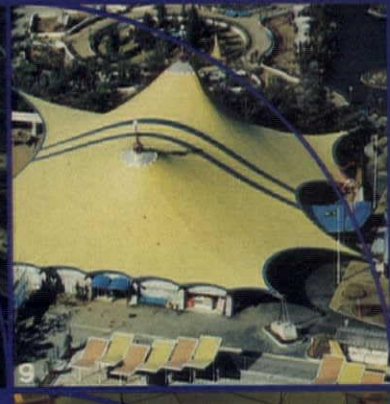
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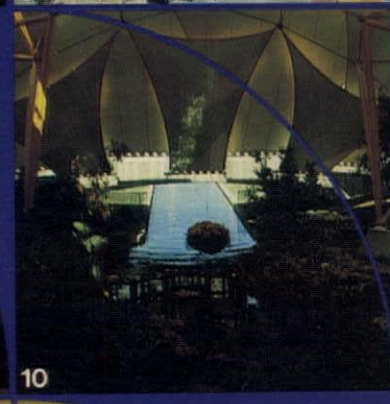
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Literature continued from page 122

Sauna. Pre-fabricated, pre-engineered, insulated, and, states maker, easily installed in home or office, this unit can deliver 190 F humidity-free air, quick 14-30 minute heatup, and the roof, wall, and floor insulation is equal to 11 in. of solid wood. The interior is traditional redwood. A single bench with raised end is provided. The exterior is ¼-in-thick, V-grooved mahogany planks. In the middle is poured-in-place polyurethane which forms a vapor barrier against heat and moisture transmission. AM-Finn Sauna.
Circle 216 on reader service card

Fountains. Multichannel nozzles expand solid water streams into fountains of prismatic crystals many times larger than the original streams. Maker states that because of the light reflecting properties of these thousands of magnifying prismatic crystals, more brillant illumination is produced with less electrical energy. A 16-page full-color catalog illustrates over 40 actual and unretouched photographs and is available together with a specification brochure and a catalog of smaller bowl fountains up to 8 ft in dia. Rain Jet Corporation.
Circle 217 on reader service card

'Fire Resistive Nursing Centers' brochure covers six different nursing home projects, from one to four stories, shows how precast concrete decks combine with precast and masonry bearing walls to provide fire-resistive nursing home structures. Brochure includes interior and exterior photographs, floor plans, isometric drawing. The Flexicore Co., Inc.
Circle 218 on reader service card

Plumbing fixtures. Condensed 1977 catalog describes and illustrates line of washfountains, drinking fountains, showers, and safety fixtures for commercial, institutional, and industrial applications, as well as products to accommodate the handicapped. Dimensional data are given, model configurations, materials, and colors are shown. Bradley Corporation.
Circle 219 on reader service card

Dycon Concrete is a lightweight insulation material made from expanded polystyrene aggregate and cement. It is mixed, pumped, and applied at the job site by special applicators. Brochure gives properties, "U" factor tables, load tables, and sample specifications. Koppers Company, Inc.
Circle 220 on reader service card

'Color Guide for Architectural Porcelain Enamel' is available as an aid to architects and designers in the selection and specification of the product. The standard file-size brochure depicts 16 matte and 19 semi-gloss porcelain enamel colors. Porcelain Enamel Institute.
Circle 221 on reader service card

Computer simulation of pneumatic distribution. Analyzed performance capabilities of systems proposed for a health care facility are covered in special report. Thousands of hours of system operation are analyzed and reviewed. The result is said to be an accurate forecast of the system which will best handle specific traffic requirements of an individual hospital. AMSCO/American Sterilizer Company.
Circle 222 on reader service card

'Mass, Masonry, Energy.' Research has been compiled into a 12-page document to help HVAC and architectural and engineering personnel design walls and plan for proper-size equipment to meet new energy-conservation requirements. International Masonry Institute.
Circle 223 on reader service card

Sheet steel architectural products. Illustrated 20-page brochure covers such building elements as walls, floors, and roofs, lightweight framing, pre-engineered systems, finishes, and more. Full-color brochure is available from Sheet Committees, American Iron and Steel Institute.
Circle 224 on reader service card

Curtain wall design manual. Brochure includes details on individual components, suggested architectural details, methods of installation, and physical test data. A number of variations of systems including stucco, masonry, and panel exteriors and drywall, veneer plaster, and standard plaster interiors are illustrated. Charts give physical and structural properties of studs and limiting heights of various assemblies. Request brochure # CS-25. United States Gypsum Co.
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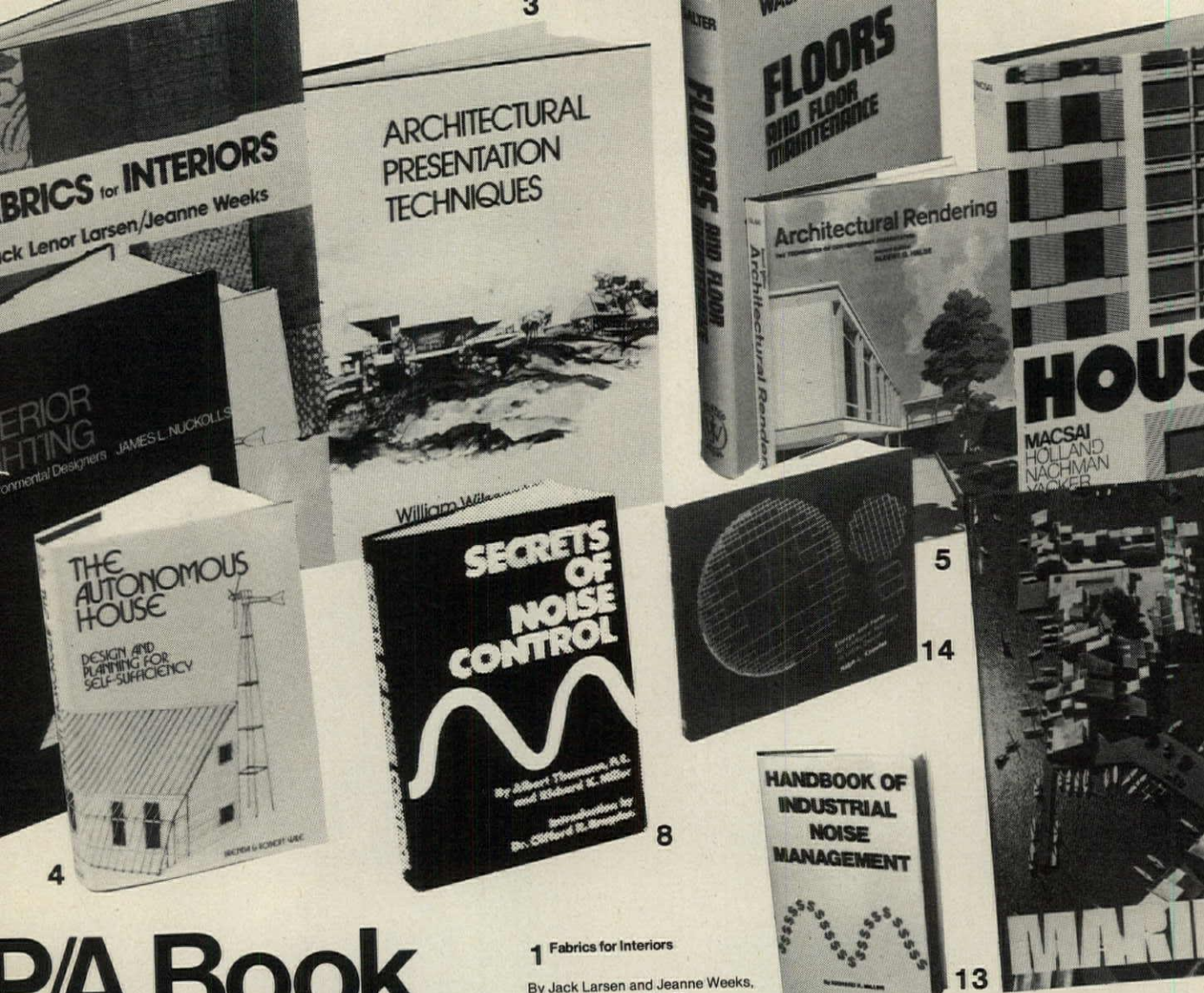

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By Albert O. Halse, 326 pp.,
illus., 2nd edition, 1972 . . . $29.00

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.

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By Peter S. Hopf, A.I.A.,
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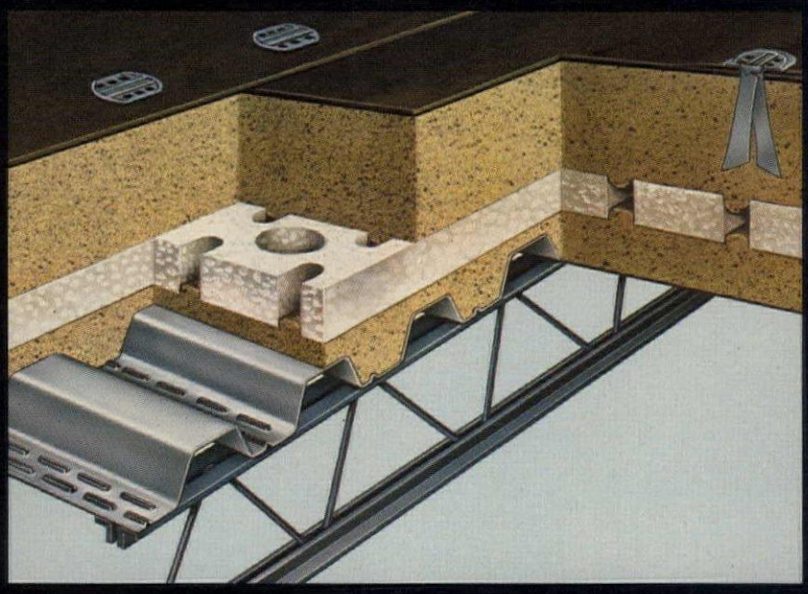
Building materials

Major materials suppliers for buildings that are featured this month, as they were furnished to P/A by the architects.

Lancaster Neighborhood Center, Lancaster, PA (p. 72). Architects: Friday Architects/ Planners, Philadelphia, PA. Structural steel: Bethlehem Steel Co., Light gauge steel framing: Wheeling Corrugating Co. Short span joists: Republic Steel Corp. Long span joists: Standard Building Systems. Insulating porcelain panel wall surfacing: Ervite Corp. Glass block: Pittsburgh Corning. Gypsum drywall: National Gypsum Co. CMU: Binkley-Ober. V A T floor surfacing system: Armstrong Cork Co. Acoustical tile ceiling surfacing system: Armstrong Cork Co. Suspension system: National Rolling Mills. Built-up roofing: Celotex Corp. Membrane waterproofing: Celotex Corp. Bituminous dampproofing: Celotex Corp. Roof insulation "celotherm": Celotex Corp. Wall insulation-polyurethane: Celotex Corp. Roof drains: Zurn. Gypsum drywall on metal studs partitions: National Gypsum Co. Aluminum casements and fixed windows: Wausau Metals Corp. Storefront windows: Alum/Line Corp. Glass: PPG and CE. Hollow metal doors: Country Fire Door Corp. Security grilles: North American Door Corp. Aluminum doors: Alumiline Corp. Locksets: Corbin. Door closers: LCN. Hinges: Stanley. Rolling door: Richards-Wilcox. Panic exit: Corbin. Alkyd flat and eggshell interior paint: M.A. Bruder. Equipment stainless steel kitchen: T & A Metal Products. Range: Vulcan-Hart. Dishwasher: Hobart. Refrigerators: Tyler. Compactor: A.M. F. Swimming pool gutter: Whitten Corp. Swimming pool concrete shell: National Construction Co., Inc. Swimming pool accessories: KDI Paragon. Hydraulic elevators: Dover Elevator Co. Skylights: Fisher. Exterior lighting fixtures: Landmark Lighting. Surface fluorescent and track interior lighting: Lightolier. Pool lighting: Kurtzon. Electrical panels and transformers: Westinghouse. Wiring devices: Sierra. Emergency generator: Onan. Vitreous china water closets: American Standard. Flush valves: Sloan. Stainless wall strip shower: Bradley. Drains, etc.: Zurn. Water curtain: Meckley (Star). Sprinkler heads: Grinnell. Boilers: Weil-McLain. Controls: Johnson Service. Pumps: Bell and Gossett. Radiation, air handlers, fan coils, unit heaters, condensors: Trane. Lightening protection: Warren Lightening Rod Co.

Law offices, NYC (p. 76). Architect: Susana Torre. Gypsum board: U.S. Gypsum. Glass block: Owens-Corning. Studded rubber flooring: Hastings. Perforated metal ceiling panels: Simplex. Low-intensity track lighting: Lightolier. Kitchen unit: Dwyer. Storage: Lundia. New furniture: Herman Miller.

Positive, permanent, in-place performance



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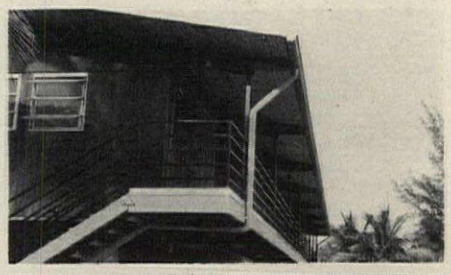

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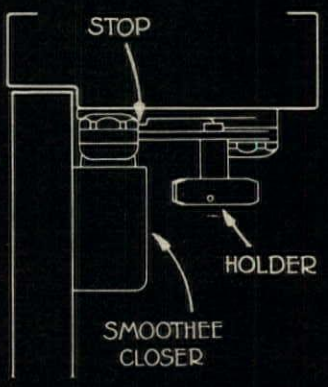

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The gap between knowledge and documentation had to be closed.

And building designers and others had to be provided with a way to easily use the new proof.

Not easy tasks. But critical ones in an era when the energy performance of buildings is a matter of the highest priority.

For thousands of years people have *known* that buildings with masonry walls were more easily kept warm in winter and remained cooler in the summer. The reason was obvious: masonry walls both stored and slowed down the passage of heat, making interior climates more stable. A simple, observable fact. But no longer sufficient.

Designers and owners needed to know *how much better* masonry conserved energy than did competitive materials and systems. And they needed a simple way to calculate the differential.

Only then could masonry's superior thermal performance be reliably taken into account in meeting energy conservation goals and requirements. Only then could heating-cooling equipment be more accurately sized to save money on both initial and operating costs.

Disdaining "claims" without documentation, the masonry industry began a broad research project to quantify the relationship of the mass or weight of masonry walls to the transmission of energy. The masonry industry engaged a highly qualified firm of consulting engineers (Hankins & Anderson, Inc.) to conduct the study. Ten different walls ranging in weight or mass from four pounds (19.5kg/m^2) to 116 pounds (567.5kg/m^2) per square foot were specified for analysis in 10 widely varying climatic conditions. And in eight solar orientations.

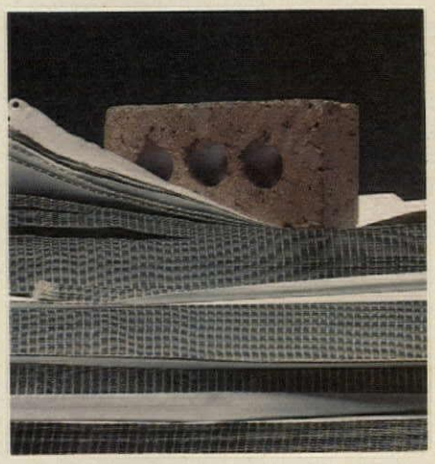
Researchers used a special computer program built around the "response factor" method adopted by the National Bureau of Standards Load Program along with other computer programs. They analyzed U.S. Weather Bureau data and considered the effects of many variables, including the weight of walls, on thermal performance.

Results of the computer analysis showed:

- Traditional "U" value measurements of the thermal performance of walls are inadequate. They are based on the incorrect assumption that energy transmission occurs in a "steady state". Contrarily, the process is dynamic and varies greatly in relation to many factors, one being the weight of walls.
- Steady-state "U" value measurements therefore may often result in the oversizing of heating equipment for buildings with masonry walls (and the undersizing of such equipment for buildings with lightweight walls).
- The difference between steady-state and dynamic measurements can be accounted for by the use of a *correction factor*—the "M" factor—in making heat gain and loss calculations.

The consulting engineers' report and data consisted of 460,800 numbers on 1,200 pages of computer print-out. Important as this proof of the superior thermal performance of masonry walls was, it was not enough.

The task of developing a tool for the easy use of the findings remained. Masonry industry engineers began studying and correlating the data to provide a simple *correction factor* for dynamic analysis.



The result: An easy-to-use "M" factor graph or curve.

Only two numbers are required in order to use the graph: the number of "degree days" in the locale (obtainable from the U.S. Weather Bureau) and the weight per square foot of the wall. The graph can then indicate the appropriate "M" factor modifier, or correction factor, to be applied to steady-state "U" value measurements. A more accurate measurement of the dynamic thermal performance of walls results.

The graph shows that in all cases, masonry walls perform better than lighter weight walls with the same "U" value rating. The heavier the wall, the greater the differential.

Results of the masonry industry study and the "M" factor graph have been submitted to the Conference of American Building Officials (CABO). And CABO has agreed that the effect of mass should be considered in making heat gain/loss calculations.

The "M" factor study findings are contained in a new Masonry Industry Committee publication, *Mass, Masonry, Energy.* With the findings are graphs and charts, and an explanation of how to use them. An all-in-one booklet—everything you need to know in order to take advantage of the superior thermal performance of masonry walls.

We're proud of the new proof that masonry walls save more energy than walls of competitive materials with the same "U" values.

We're proud of the fact that the masonry industry decided to produce this proof, rather than simply make a claim.

But our pride isn't important to you. What matters to you is that we've made it possible to design, build and operate buildings that will save energy and money.

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Architecture: Established A/E firm seeking architect with 3-5 years design experience. Responsibilities to include design, working drawings, inspection, some office management. Good position for architect with advancement in mind. Good benefit package including profit sharing. Send resume and starting salary requirements to: Stottler Stagg & Associates, P.O. Drawer D, Cape Canaveral, Florida 32920. An Equal Opportunity Employer, M/F.

Design & Building Systems Research: Growing research center in Southwest, with national perspective, desires to receive expression of interest and qualifications for a position in the field of design and building systems *research.* A specific focus on environmental control systems, energy conservation, and technology evaluation is most important. Information about qualifications for possible joint teaching appointment in well-known university school of architecture is also desired. This is a *preliminary* call for interest from highly qualified professionals. Equal opportunity employer. Please forward detailed resume with letter outlining future research interests, status of availability during late '77/early '78, and annual salary expectations to: Box #1361—137, *Progressive Architecture.*

Designer/Draftsman: Design oriented, small architectural office located in the Virgin Islands has a position open for a graduate with a minimum of one years experience. Send resume, salary requirements and examples of design and working drawings to: Frank Blaydon, AIA, 5 Company St., Christiansted, St. Croix, US Virgin Islands 00820.

Faculty: School of Architecture, Florida A&M University invites applications in areas of architectural structures, environmental systems, building construction materials and methods. Unique opportunity to assist in development of new school. Interest in research necessary. Tallahassee Florida 32307.

Faculty: The Syracuse University School of Architecture has openings for positions in the following areas: 1. *Architectural Theory and History* including Modern Architecture. Ph.D. in Architectural History preferred. 2. *Environmental Control* sequence covering H.V.A/C electrical and lighting. First professional degree in architecture or Engineering. State certification preferred. 3. Two positions in the Core Program of the undergraduate *Architectural Design Studies.* Registration preferred, Rank: Assistant or Associate Professor depending on qualifications and experience. Please send resumes and references to Julio M. San Jose, Associate Dean, Attn: Faculty Search Committee, 417 Slocum Hall, Syracuse University, Syracuse, NY 13210. Syracuse University is an Equal Opportunity/Affirmative Action Employer.

Faculty and Administrative Positions Open for Academic Year 1977-1978:

Design Studio Instructor:
Assistant or Associate Professor level. Nine month appointment with $15,000 to $20,000 salary, to teach advanced architectural design studio, emphasizing thorough technical execution of design solutions, plus courses in related theory and methodology. M. Arch.; experience as principal in architecture firm and previous teaching experience desirable.
Design Studio Instructor:
Assistant or Associate Professor level. Nine month appointment with $13,000 to $16,000 salary, to teach introductory environmental design, plus courses in related theory and methodology. M. Arch.; previous teaching experience desirable.
Director of Professional Affairs:
Twelve month appointment with $20,000 to $24,000 salary. Responsibilities include management of activities with practitioners, alumni, continuing education, student residency program and career advising; also teach course in contract documents. Practice as principal architect; demonstrated teaching ability and involvement in professional activities preferred.
Director of Research:
Twelve month appointment, $20,000 to $24,000. Responsibilities include management and development of architectural research within the School to provide a significant research program; also teach research methodology. Background must include accomplishments in research related to architecture initiated by applicant and performed as principal investigator. Teaching experience desirable.
Construction and Structures Instructor:
Assistant or Associate Professor level. Nine month appointment with $13,000 to $18,000 salary, to teach one course in construction and one course in structural design. Require professional degrees in Architecture and Civil Engineering; previous teaching and professional experience desirable. Send curriculum vitae to Hal Box, FAIA, Dean of the School of Architecture, P.O. Box 7908, the University of Texas at Austin, Austin, Texas 78712. *The University of Texas at Austin is an Equal Employment Opportunity Employer.*

Faculty Appointments, 1977-78: As a consequence of program growth and enrichment, the College of Architecture and Urban Studies seeks applicants for the following newly created tenure-track positions: *Environmental Design:* Senior appointment for instruction and research in environmental design with complementary skills in such specializations as research methods, environmental systems analyses, electronic modeling, simulation, evaluation and implementation. Applicant must have appropriate professional/research experience. Ph.D required. *Site Systems Construction and Administration:* Position for landscape architect or civil engineer with advanced professional degree(s) and experience in the techniques and execution of site construction systems, specifications and estimating practice, at variety of scales. Faculty will be able to interrelate with other faculty in landscape architecture, architecture and planning programs in evolving a coordinated environmental systems methodology sequence. Letters of inquiry, including a resume and a statement of teaching and professional interests, should be sent to Dr. James E. Hackett, Environmental Design and Planning Program, or to Mr. J. Thomas Regan, Division of Architecture and Environmental Design, respectfully, VPI&SU, Blacksburg, Virginia 24061.

Faculty Position: The University of Colorado, Denver, College of Environmental Design anticipates a position beginning September 1, 1977 at the Assistant/Associate Professor level to develop and teach in a new graduate program in interior design. Initial duties will include teaching the beginning design studio and developing the program curriculum. Master's degree, teaching and professional experience required. Send VITA, statement of interest, design portfolio and three references to: Interior Design Committee, College of Environmental Design, University of Colorado at Denver, 1100 14th Street, Denver, Colorado 80202. The University of Colorado is an Affirmative Action/Equal Opportunity Employer.

[continued on page 138]

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Job mart continued from page 136

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Situations wanted

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Life Cycle Cost Analysis: A seminar of Life Cycle Cost Analysis of operating and maintaining buildings will be held June 1-3 at the University of Illinois at Urbana-Champaign, in response to the fact that rising energy costs have made it necessary for both building owners and architects to take into account the real cost of operation and upkeep of buildings. For more information, write Elmer F. Edwards, 116 Illini Hall, conference coordinator, or Prof. Lile Murphree Jr., Department of Architecture, both Champaign, Ill., 61820.

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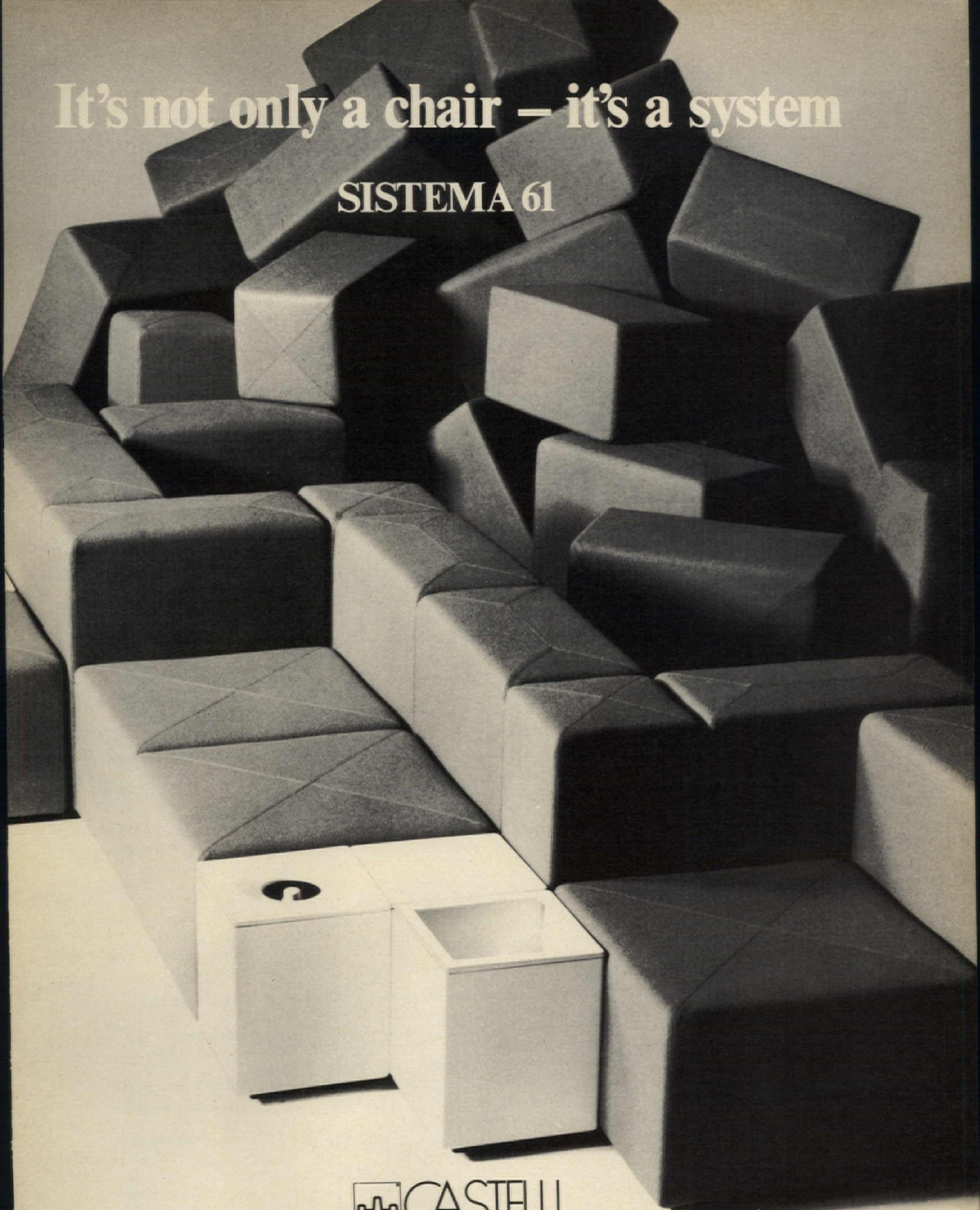

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