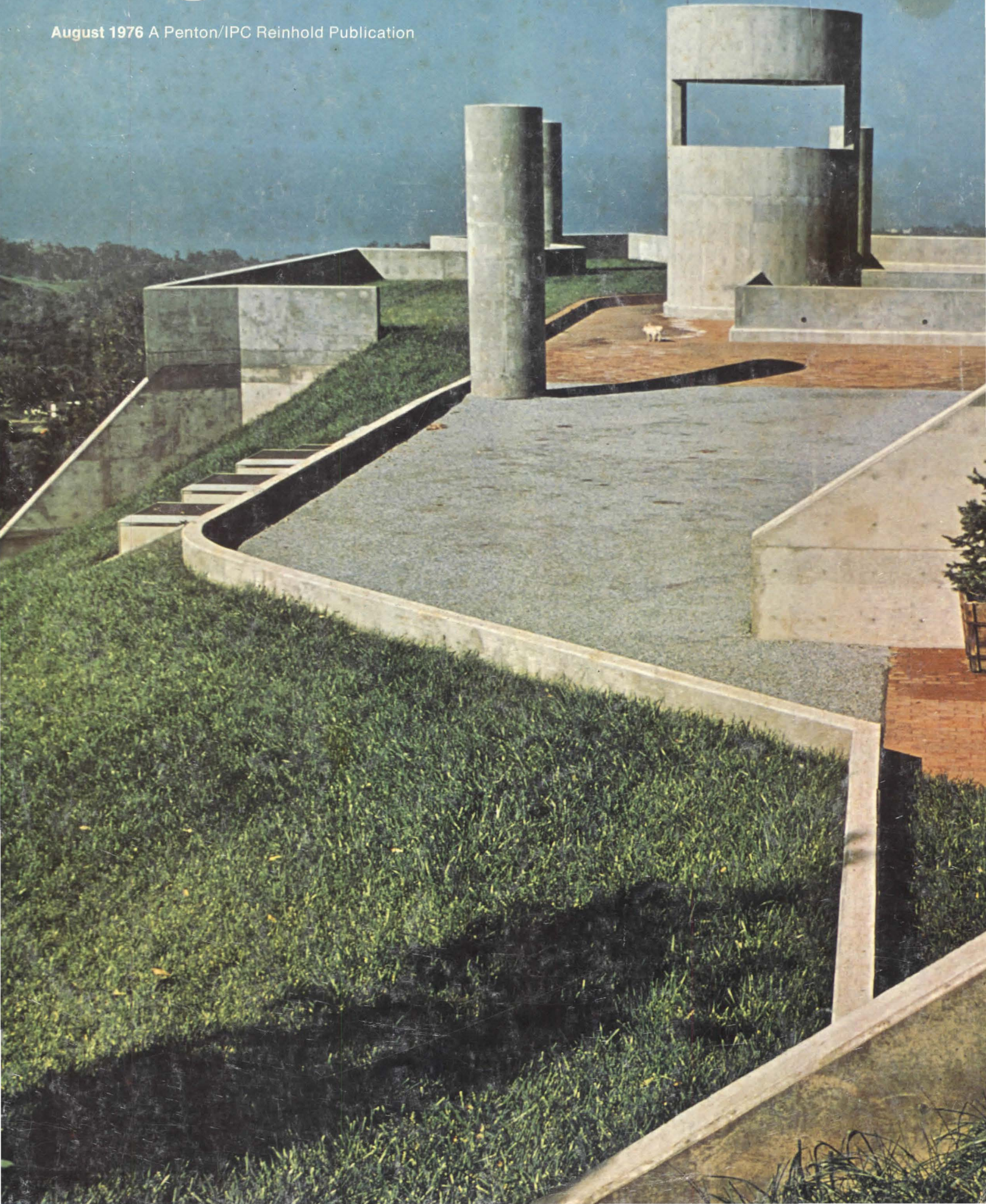


# Progressive Architecture

August 1976 A Penton/IPC Reinhold Publication



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Datacenter/The Equitable Life Assurance Society of the United States, Easton, Pennsylvania, Architects: Kahn and Jacobs, New York City, Ceiling System: Armstrong C-60/60 Luminaire

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Security National Bank, San Antonio, Texas, Architects: Environmental Professionals Corporation, San Antonio, Texas, Ceiling System: Armstrong AW 3600 Luminaire

results in almost unlimited design possibilities.

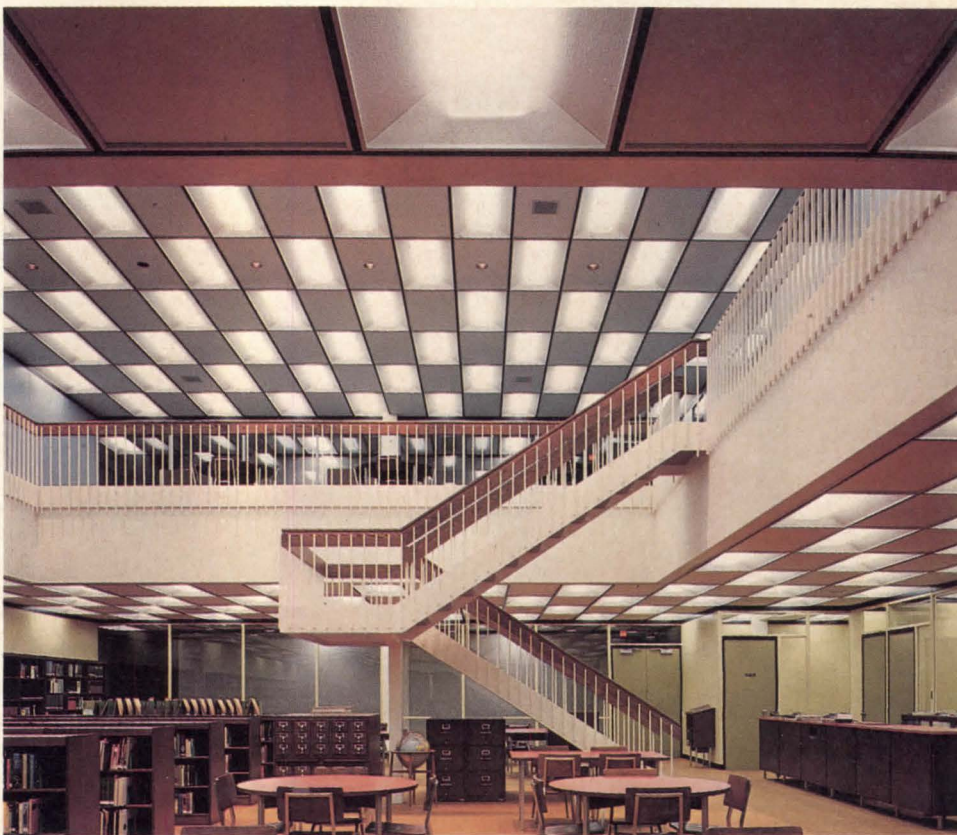
For instance, you can choose from three vaulted systems as well as two flat-type systems that provide either exposed or concealed grids. You can vault your entire ceiling or mix your vaults with flat types. You can light all the vaults or space your lighting to meet specific requirements of the job. Within a vaulted system like the C-60/60, you can even choose various light options — including square light fixtures 2' x 2', 2½' x 2½', 3' x 3', or rectangular fixtures 1' x 4' and 2' x 4'. All of which adds up to a freedom of choice you'd be hard put to match.

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Lancaster, Pa. 17604.



Palmyra Area High School, Palmyra, Pennsylvania, Architects: Lawrie and Green, Harrisburg, Pennsylvania, Ceiling System: Armstrong C-60/30 Luminaire

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August 1976

# Progressive Architecture

**7 Editorial: Innovation and acceptance****Design and planning:****37 Introduction: The house as a relevant object**

P/A postulates that the house is not dying but is very much alive and is making a strong recovery as a proving ground for design ideas.

**42 Tigerman**

The architect has taken some off-the-shelf industrial building components for use in this aluminum-paneled private residence in a Chicago suburb.

**46 Netsch**

His own house in Chicago constitutes a personal proving ground for testing some of this architect's design theories on a small scale.

**50 Venturi & Rauch**

This Greenwich, Conn. house succeeds in its mission: to sympathetically accept the owners' important and diverse collection of art and furnishings.

**54 Rudolph**

The architect deals with ideas of thrust and counter-thrust in this seven-level house overlooking Long Island Sound in suburban Connecticut.

**58 Coate**

An all-concrete house buried in the California hills provides privacy and protection as well as plenty of light, views, and ventilation.

**62 House is more than a home**

Excerpts from "Symbols in the Home," part of the Renwick Gallery exhibit "Signs of Life: Symbols in the American City" by Venturi &amp; Rauch.

**68 Interior architecture: A tome on foam**

There's more to furniture than what meets the eye, and much of its success depends on the polyurethane foam that's hidden within.

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A discussion of the commonly used reprodrafting techniques, how they are used, and the equipment that produces the time-saving results.

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**Cover:** In Montecito, Ca., Roland Coate's controversial Alexander House (p. 58) is buried into the hills above the ocean. Photo: Roland Coate.

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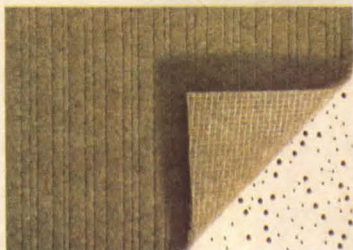
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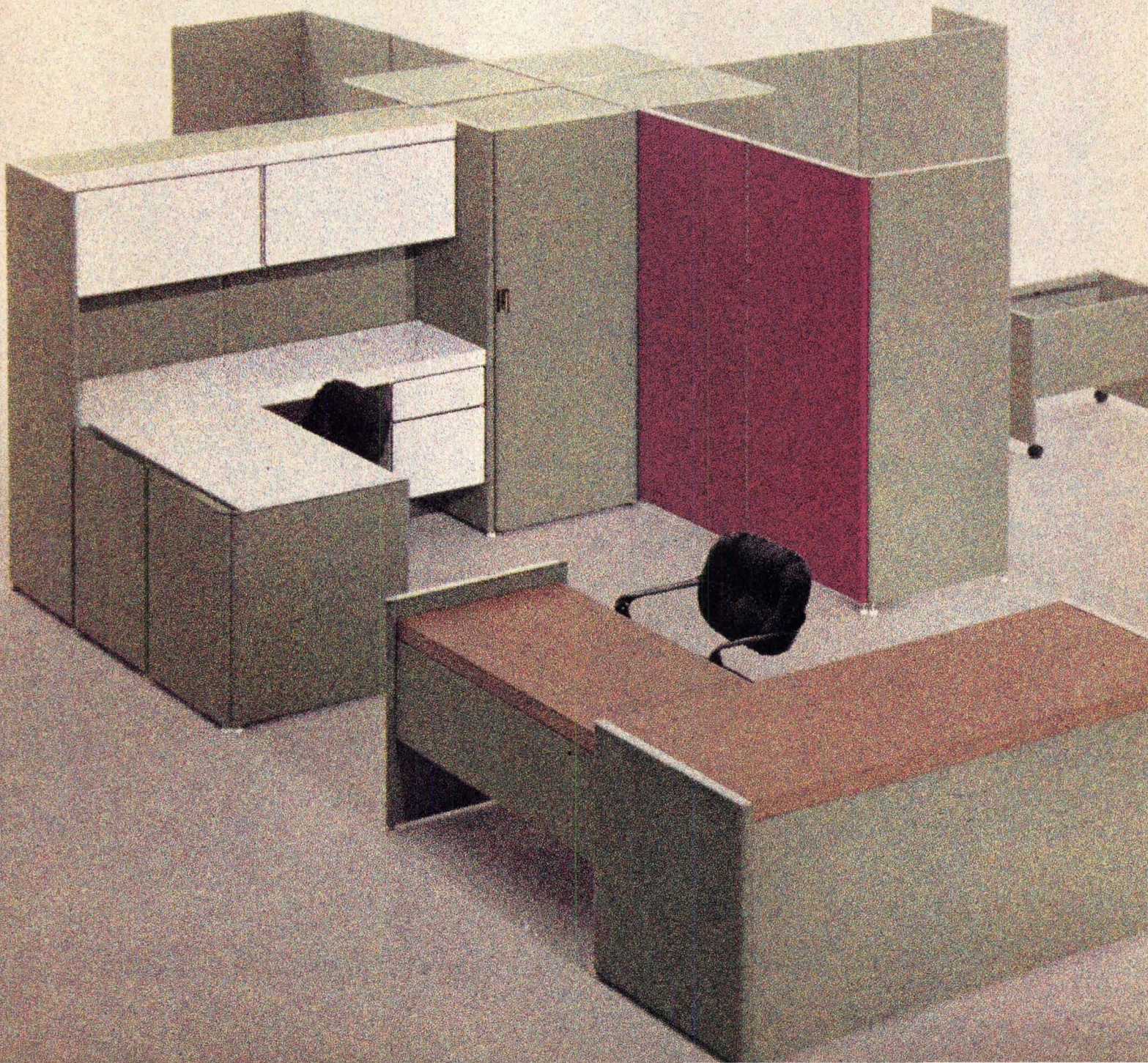
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# Knoll

Shot from above, the Zapf Office System is pure geometry but shows the flexibility, within that geometry, for choice and chance for change.

The group on the left uses the 61 3/4" high vertical panel, while the group on the right uses the 80 3/4" high panel. Basically the same configuration,

## OTTO ZAPF



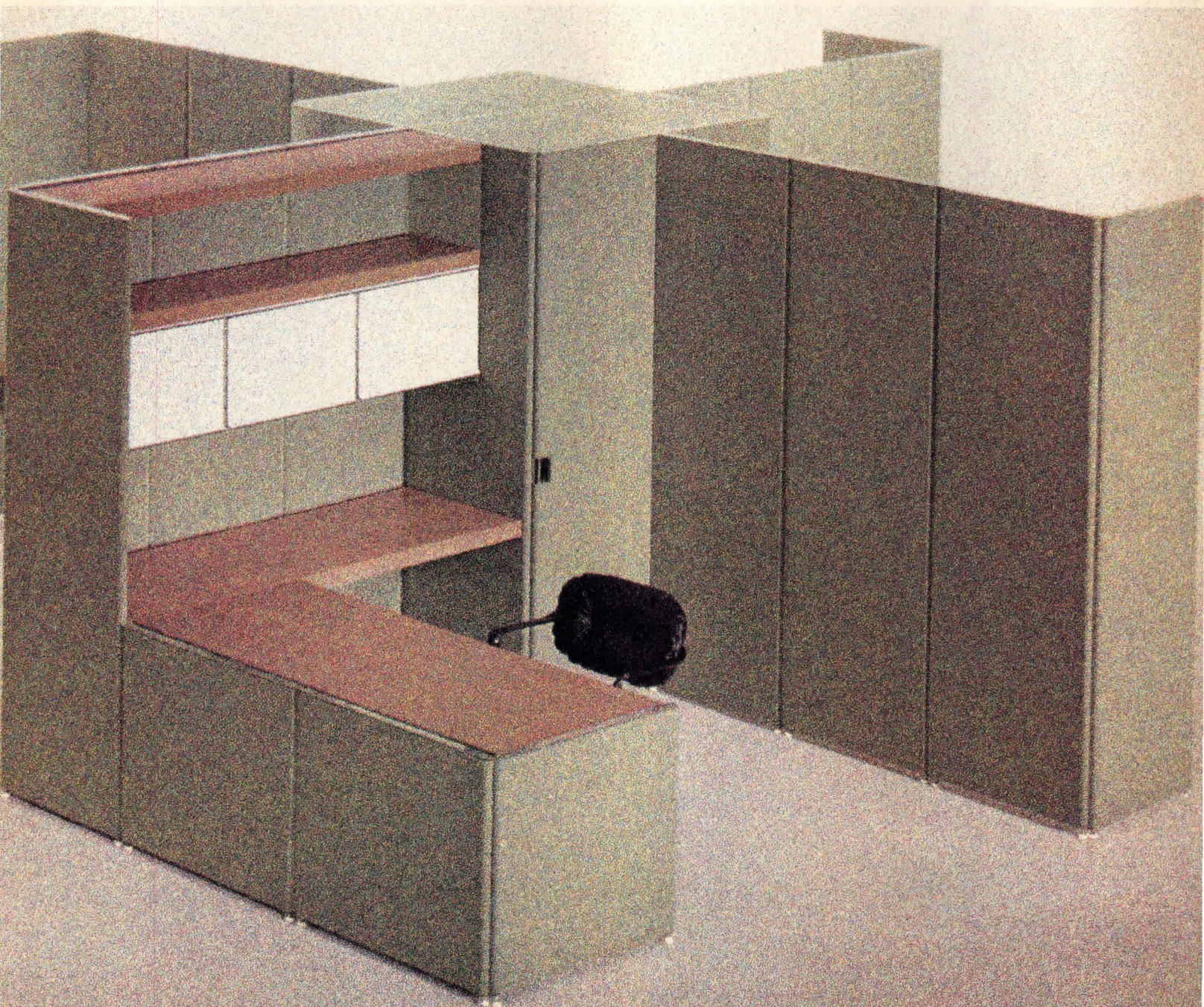
these two groups combine for eight separate but related functions. A variety of facilities has been achieved through the selection of components - individual work surfaces, overhead and closet storage, file cart, and freestanding desk with return. And Knoll Task Lighting has been adapted for use with the system.

We think one of the exciting features of Otto's concept for Knoll Office Systems is the focus on the inherent warmth and beauty of the fabric covers of the panels. And certainly a change in color can effectively indicate a change in function or just brighten up a corner. The panels here are covered in "Regency" - a Knoll fabric

developed specially for the Zapf System, and "Partition" red. For more details, may we send you a Zapf tabloid?

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# Innovation and acceptance

August 1976

Philip Johnson once proposed, facetiously, that he and his partner change the title on their door to read "Philip Johnson and John Burgee, Innovators." The occasion was the January 1975 P/A Awards presentation, and Johnson was commenting caustically on the advent of architectural research—questioning whether architects weren't venturing too far outside their ancient and honorable role as building designers or—worse—weren't merely promoting traditional services under new, faddish names. ("We used to call that programming.")

While I did not share Johnson's doubts about the legitimacy of architectural research, it was obvious from the spontaneous response that he had touched on some very sensitive issues. To what extent is innovation an integral part of architectural service? To what extent are innovation and excellence in conflict? Do we strive too hard for innovation, or at least the appearance of it?

There are no simple answers. It is easy to dismiss obvious gimmickry or handstands, yet the architect has always promised innovation as at least a potential benefit of his service. Except in those rare cases where the client wants only the tried and true, the architect is chosen in expectation of a distinctive—to some extent unprecedented—solution. Individuals and firms flourish on their ability to innovate, and the whole profession moves ahead on the cumulative innovations of its members.

Architectural journals, quite properly, see an obligation to chart the *progress* of the profession. We try to show not only what is good—sound, effective, refined—but what is *new* as well. P/A marks the beginning of every new year with an annual awards issue devoted to what is not merely new but, in effect, just beyond the horizon. Every year's P/A jury struggles with the question—among other crucial

questions—of rewarding excellence vs. innovation. The very first jury, back in 1953, decided that every P/A award and citation must involve something new—some advance beyond the prevailing state of the art.

We are now inviting submissions for the 24th P/A Awards competition. Most of you have the opportunity, by participating in it, to make the jury's challenge more demanding and their selections more truly representative. Your entries will be welcome. (See p. 92 for details.)

Meanwhile, in this issue, P/A's editors present a series of features on individual houses plainly intended—by both architects and clients—as laboratories for the working out of architectural ideas. Their provisions for family living, while adequate and appropriate, are not the primary sources of their interest. In each you will find elements of innovation and elements of accommodation and refinement as well. We don't think you will find these houses predictable; if any strike you as outrageous, that is a risk we can accept.

Another feature in this issue takes up a broader, complementary subject: what the public finds acceptable. While we can say with confidence that Modern Architecture has given the American public some institutional and commercial buildings that it loves, we must admit that 50 years of persuasion have failed to win over that public where it lives. Except for a small, informed clientele, even well-educated Americans remain bound to the fantasies that this article discusses. Obviously, there must be factors operating here that architects have failed to grasp. Although underlying public motives have not been analyzed here (or anywhere), their efforts are shown in a most illuminating way. Much of the real innovations that 20th-Century architects could offer society can never be delivered until we have explored—and eventually bridged—this public acceptance gap.

*John Morris Diefen*

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## Letters from readers

# Views

### Reflections on glass

The June article on glass is by far the best technical article I have read in an architectural magazine. It certainly is timely, if not a little overdue. It is complete, concise, and interesting, not boring and over-detailed as English technical reports. P/A should be congratulated.

*John Dinkeloo, Architect and Engineer  
Kevin Roche-John Dinkeloo & Associates  
Hamden, Conn.*

### Thoughts on fellowship

Thoroughly appreciated your editorial "Show us the way," (P/A, June 1976). Of particular interest were comments on the Venturi/Scully matter.

I hold great respect for the Institute (AIA) at large and its position as a voice for the profession. However, inconsistencies you mentioned, particularly in selection of membership in the College of Fellows, predicated my own decision (and of other younger architects) not to join the AIA. Hopefully, Vincent Scully's action may bring about serious reflection within the Institute's membership and underline the need for more responsive representation.

*Robert Edward Lyon, Architect and Engineer  
Redwood City, Calif.*

### Encouraging signs

I want to compliment Lee Ryder for the "A sign of the times" article in the May 1976 issue.

I struggle with this signage problem continually. This type of coverage in your magazine is extremely effective in reinforcing the use of professional graphic consultants and in encouraging the demise of Helvetica.

*Pamela Waters, Designer  
New York, N.Y.*

### Light on Courthouse Square

In your article about Courthouse Center and The Commons (P/A, June 1976) the discussion of the lighting is a bizarre combination of gratuitous criticism and uninformed reporting that does you no credit. It's all the more astonishing in view of the fact that I carefully explained the whole system to you. Your comment "ideal for a high school prom" is in high contrast to the reaction of the public, the architects, and the owners.

The main point is that a space originally programmed and designed as an exciting public gathering place has proved to be so attractive

that it is now being called upon to function, in effect, as a theater. Your use of such phrases as "defy human intervention" and "discourage more ambitious programs" is outrageous. (I'm sure you have excellent lighting in your office, but if you suddenly had to use it as a stage, the same comments could be made—with about as much relevance.) The fixed lighting was specifically designed to light the fixed structure or elements in it and it was purposely—and very effectively—made to function without human intervention so it would remain properly aimed and focused. Thus you make a fault of a virtue.

Your point about replacing lamps of almost 100 varieties is inaccurate. There are 28 lamp types—11 to light the main space, 2 to light the stage, 3 to light the exhibit space and 12 for special effects. We could have done it with 1 lamp type, fluorescent perhaps in 2' x 4' troffers. Wouldn't that have been lovely? Each lamp selected has a usable life of 4000 to 5000 hours so that replacement requirements are minimal.

The lighting in The Commons is very special, and highly innovative. I can't understand why you neglected to write about any of its amply good features, which might even be useful to your readers.

You do acknowledge that "only at dusk does the frustrating film dissolve bringing the indoor plaza visibly into the life of Columbus." Too bad you didn't take the time to see it at night—you would have learned that it's light, brother, light that turns it on—and perhaps it may have turned you on too!

*Sylvan R. Shemitz, FIES*

*Sylvan R. Shemitz & Associates, Inc.  
West Haven, Conn.*

[The fine points of the Courthouse Center lighting could be the subject of another whole article, but the discrepancies between design program and actual use would not go away. The use of this space for performances could have been foreseen (just as the impossibility of their occurrence in my office can be). Criticisms quoted above are based on long conversations with the Commons management, whose reactions Mr. Shemitz does not account for above. It may be that they were not adequately briefed about the lighting system, and we understand steps are being taken to correct that. Our editor did in fact make a point of seeing The Commons at night; under most circumstances, the night lighting is very effective, and we are sorry if that point was not sufficiently stressed.—Editors]

### Philadelphia blues

In your April editorial you did not speculate on the economic fate of Philadelphia as a Northeastern city, but I do wish, in an issue devoted entirely to this town, that you could have mentioned the tragically high rate of unemployment amongst architects here. Estimates range from 30 to 55 percent!

*Steven Lichtenstein  
Philadelphia, Pa.*

### Construction correction

The project on the Bordersville Neighborhood Services Center in Texas (P/A May, 1976, p. 43) was built by a contractor and not prefabricated by students, as was reported. The roof is corrugated Onduline, and the walls are cement-asbestos, exterior, and particle board, interior.

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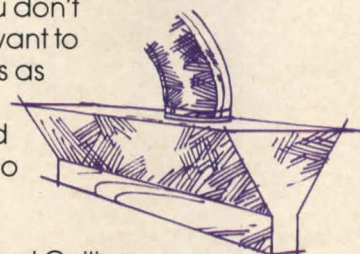
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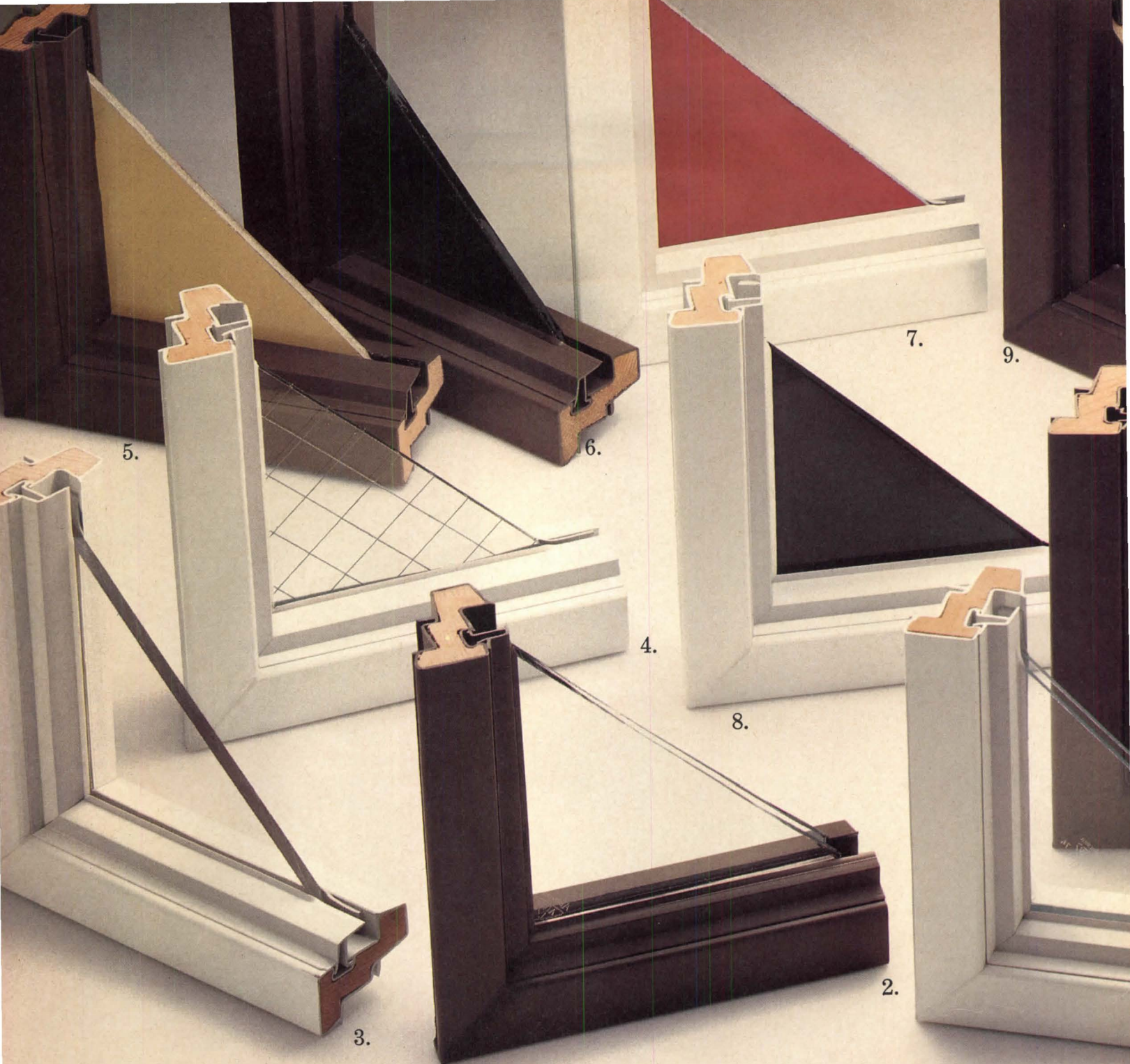
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# News report

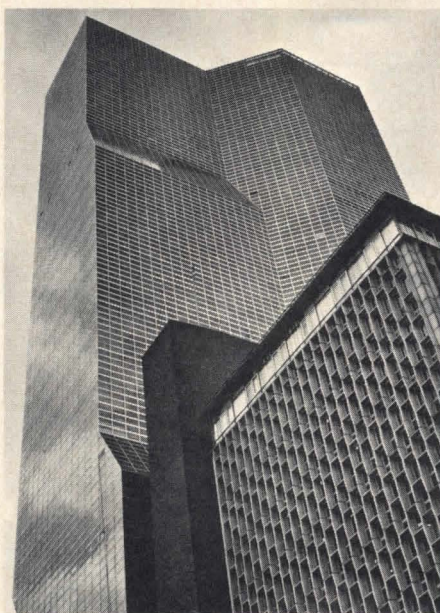
## Roche's UN Plaza opens in New York

The recent opening of the \$32 million United Nations Plaza hotel and office building by Kevin Roche, John Dinkeloo & Associates provides New York with one of its most striking skyline additions. The 39-story mirrored glass building rises like a faceted prism opposite the UN Headquarters on First Ave at 44 St. The hotel contains 288 rooms and luxury two-story suites—one with a baby grand piano and a spectacular view up and down the East River. There's a health club and pool on the 27th floor open to the public as well as to guests, and on the lower level a swank American-fare grill and lounge trimmed with mirrors on the walls and arched canopy.

Roche-Dinkeloo did all the hotel interiors, and emerald green is the color scheme throughout the public spaces. The green becomes too dominant, but the plush good taste of the guest rooms' decor is redeeming.

The office portion of the building occupies the first 26 floors; the hotel is on floors 28 to 38. The top floor is devoted to a tennis court open 24 hours (at \$25 per hour, prime time). With that view, it's a shame to waste such an opportunity on an enclosed space.

The building is owned by the City of New York, which has leased it to the United Nations Development Corporation. Although open to the public, the hotel also will provide luxury accommodations for visiting UN dignitaries. The office space is fully rented to UN concerns and to foreign missions.



U.N. Plaza (above) and hotel entrance (below).



## Expo dome destroyed in Montreal blaze

Buckminster Fuller's 20-story geodesic dome that served as the U.S. Pavilion for Expo 67 in Montreal was destroyed in late May by a fire that ignited during a welding operation. The fire apparently went through two stages: for five



Expo dome erupts in fire and smoke.

minutes it was small and workmen attempted to smother it with coats and a fire extinguisher, which failed to work. Then the blazes flared, and everybody ran, but the flames were under control within an hour. The ruins will be examined to see if the dome can be salvaged. No injuries were reported.

The welding was being done on a piece of acrylic and metal frame on a platform 25 ft above ground, and the acrylic skin of the dome caught fire. One Canadian architect remarked that its loss is regrettable since "it was a landmark—one of the nicer features of Expo that survived."

In recent years the \$4 million pavilion, renamed the Biosphere, was used as an environmental display for the exposition, "Man and His World."

## Architects picked for Venice Biennale

Eleven architects have been selected to represent the United States at the Venice Biennale in Italy. They are Raimund Abraham, Emilio Ambasz, Peter Eisenman, John Hejduk, Richard Meier, and Robert Stern, all of New York; Craig Hodgetts, Charles Moore, and Cesar Pelli, Los Angeles; and the team of Denise Scott Brown and Robert Venturi, Philadelphia.

The architectural exhibit theme is "Suburban Alternatives: 11 American Projects." The Institute for Architecture and Urban Studies, New York, Peter

## News report



Photos: Stuart Cohen

'A Lunch from White Castle,' first prize, given the 'Having Learned from Las Vegas Award'—note French fries in foreground, hamburger to right.



'City Beautiful Award' received by a replica of Navy Pier.



'MOMA Beaux-Arts Award' presented to SOM and Metz, Train, Olsen & Youngren (above). 'Big Firm Award' goes to the office of Jensen & Halstead for megacastle (below).



Eisenman, director, was invited by the Biennale Committee to organize the American contribution.

One of the Institute's criteria was that designers as opposed to "program-or-method" architects be picked. They also had to represent different ideological positions and be from different parts of the country.

The exhibition opened in July. The European portion of the architectural section will exhibit works by O.M. Ungers, James Stirling, Peter Smithson, Aldo Rossi, Hans Hollein, Siza y Vierra, and Aldo van Eyck. Following the Venice showing, the exhibit is expected to travel both in the United States and Europe under auspices of the American Federation of Arts.

## 'Space, Time, and Sandcastles'

MID-EAST MATERIALS LAB, CHICAGO BEACH, June 5—Hundreds of Chicago architects turned out for "Space, Time and Sandcastles," the first sandcastle building competition sponsored by the Illinois Council/AIA and the Chicago Park District, which plan to hold the event annually.

Among the award-winning sandcastles produced as joint efforts were first prize, "The Having Learned from Las Vegas Award," to a team from the firm of Milton Schwartz & Associates—Neil Frankel, Jack Busby, and Jim Strobe—for their sand-hamburger, French fries, and Coke bottle titled "Lunch from White Castle."

Awards for traditional castle forms went to groups from the firms of Jensen & Halstead—John Herendeen, Sharon Herendeen, Karen King, Francisco King, Janet Wood, and Jane Eilers; and from Sargent & Lundy—John Nipaver, Phil Ricker, Kyung Tott, Sue Tott, John Fishbeck, and Vern Molburg. The "City Beautiful Award" was given to a sandcastle built in the form of Chicago's Navy Pier by Dan Jones, Don Wadly, Glen Shiver, and Michael Moore. Also reviving traditional sandcastle forms were a stepped pyramid and tower of babel given the "MOMA Beaux Arts Award" built by Herb Fritz, Lynn Welker, Bill Caskey, Mathew Mullen, Shirley Mullen, Amanda Mullen, and Debbie Fritz representing the firms of Metz, Train, Olsen & Youngren and Skidmore, Owings & Merrill, and Ed

Micken of IIT.

Judging the competition were T. Graham Bradley, president of the Illinois Council/AIA; architecture and art critics for the *Chicago Daily News* Nory Miller and Franz Schulze; architects James Hammond, Stanley Tigerman, Thomas Welch; and Richard Whitaker, head of the school of Architecture at the University of Illinois, Chicago Circle Campus. [Stuart Cohen]

## Midwesterner wins Biscayne West

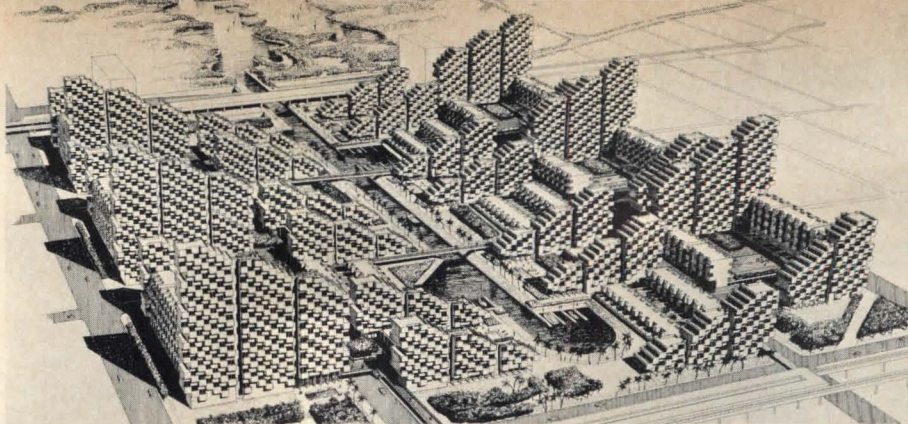
Ralph E. Johnson of the firm Kellan & Smith, Columbus, Ohio, won the \$10,000 first prize in the Biscayne West urban design competition. A team from La Crosse, Wis. won the \$5000 second prize; the \$2000 third prize went to a Tucson, Ariz., team; and two Cleveland architects, Darryl Scherba and Michael Miller, will share the \$1000 fourth prize. Jurors were George Acton, director of planning for the City of Miami; Paul Rudolph of New York; and Harry Weese of Chicago.

The team taking second place was composed of A. James Gersich, Gary Kastner, and Thomas Reuter. The third-place team was headed by William Lockhard. The competition was for the design of a 50-acre community of 7000 residential units and other facilities. Co-sponsors were the Lowe Art Museum at the University of Miami, and the Southeast Banking Corporation.

Biscayne West was the second national competition Johnson had entered. He received an honorable mention in the Roosevelt Island competition last year. Johnson is a graduate of the University of Illinois and the Harvard Graduate School of Design.

Commenting on the entries in general—there were 103 architects participating—the jurors noted efforts to reduce the scale and impact of the development, humanize its character, and give it a sense of place.

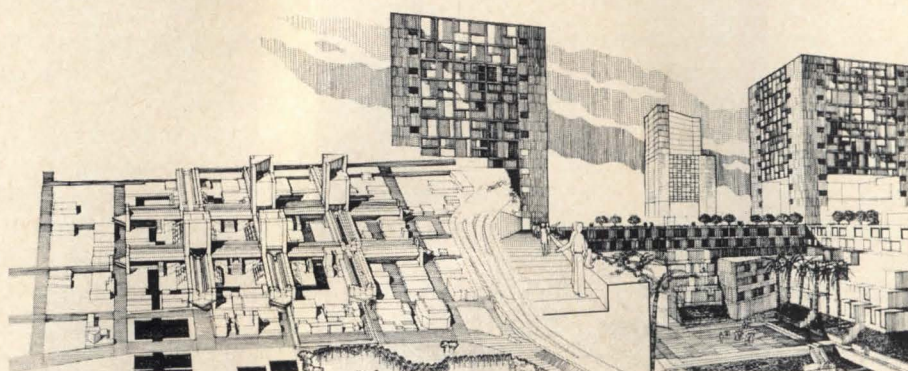
The jury also stated that "the proposed relationship to the existing infrastructure, the existing and proposed methods of access, and the relationship to facilities and activities outside the project boundaries were often thoughtfully considered, although this was sometimes ignored by the various participants.



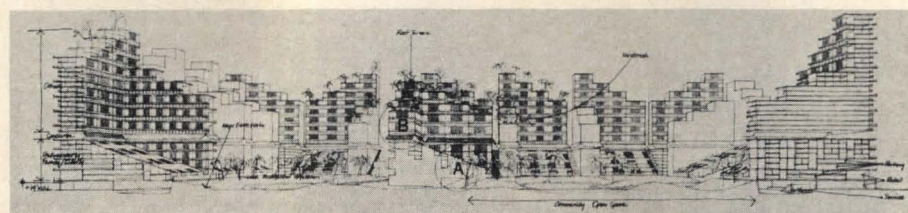
Biscayne West first prize by Ralph Johnson.



Gersich, Kastner, Reuter, second prize.



Lockard team, third prize.



Scherba and Miller, fourth prize.

"Technological innovation played a relatively small part in the whole (all of the finalists' proposals could be constructed with today's technology), although two of the four finalists devoted much thought to developing a 'comprehensive systems approach' to the project which might have more universal application and therefore greater meaning for similar projects.

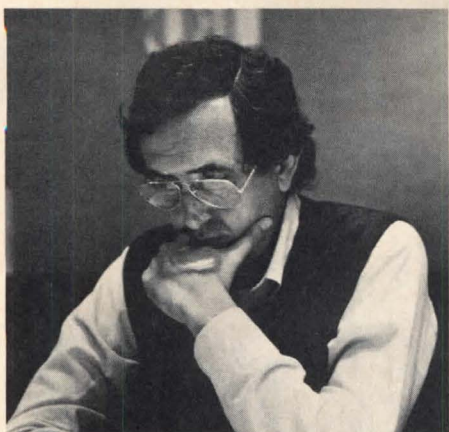
"Technological innovation always costs more at first; therefore two of the prize winners can be said to be more 'practical and economical' today than the others. However, since the program was addressed to the 'future,' the present economic equations will not remain the same in the year 2000. The more sophisticated entries may become the more economical since both are based on technologies which today show great promise."

## Cesar Pelli named dean at Yale

Cesar Pelli, partner in charge of design for Gruen Associates, Los Angeles, will become dean of the Yale University School of Architecture starting Jan. 1. He will continue to be a member of his architectural firm and to participate in the design of projects. Currently Pelli is designing the Yale Music Center.

Dean Herman D.J. Spiegel, who asked that his term end this year, recommended Pelli to fill the post. Spiegel, a member of the faculty since 1955 and dean for the past six years, will return to his teaching at Yale and to his professional work.

Pelli's teaching activities at Yale date from 1972 when he was the Davenport Professor in Architecture. Two years



Cesar Pelli at last year's P/A Awards judging.

Suzanne Stephens

later he was the Bishop Visiting Professor of Architecture. He also has taught at the University of Illinois and the University of Tucuman, Argentina, and is teaching now at the University of California, Los Angeles.

Pelli was born in Argentina, and graduated from the University of Tucuman. He came to the United States and received his master's degree in architecture from the University of Illinois. From 1954–1964 he worked with Eero Saarinen & Associates and was designer in charge of the Stiles and Morse colleges on the Yale campus. Prior to joining Gruen Associates in 1968 he was vice president of Daniel, Mann, Johnson & Mendenhall. Of recent note are his design of the U.S. Embassy, Tokyo, and the Pacific Design Center and Fox Hills Mall, both in Los Angeles.

## Teaching philosophies discussed at USC

Does the "star designer" thrust of architectural education make for a disastrous environment? That was the crux of a debate this spring in California in which students—all female—felt that it does, while the faculty—predominantly female—felt that current educational practices do successfully relate to both present and future needs of the environment and of the profession.

The meeting was the third and final workshop, held at the University of Southern California School of Architecture, in a series called "Emerging Issues: Women in Environmental Design" sponsored by the Association of

Women in Architecture.

Faculty members conducting this last session were Clare Forrest of USC; Mary Nastronero of Cal Poly Pomona; Milica Mihich of the University of California at Los Angeles; Ena Dubnoff and John Madian, Southern California Institute of Architecture; and Christie Coffin, of the University of California at Berkeley.

Students voiced opinions that such role-models as Le Corbusier, the "Grays," and the "Whites," perpetuated by male faculty in architectural schools were not constructive in preparing for the future. There was a strong feeling that the star system fosters destructive competitiveness and relegates those who don't "make it" to a status of inferiority and that power architecture has been disastrous to cities both socially and visually.

The faculty/workshop leaders, stood behind their traditional training, pointing out that when alternatives are offered few students respond and in fact now students are asking for a structured education that will qualify them for a job in today's market.

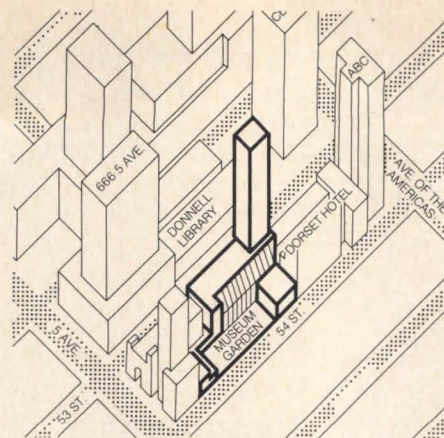
Other issues included the sexism to which women are exposed in the schools. Sexist attitudes come from both male students and faculty. The problem is most evident where the proportion of women to men is small. Women faculty members said they feel uncomfortable being the "token" woman on the staff and wished for greater numbers of women. Women students, while aware of discrimination, said they would rather blend in than join women's groups.

[Elsa Levisseur-Fleischmann]

*Ms. Levisseur-Fleischmann is a member of the Association of Women in Architecture, and has an architectural practice in Los Angeles. She is a graduate of the University of Cape Town School of Architecture.*

## MOMA tower gets legislative OK

A proposal to build a \$40-million, 40-to-55-story luxury condominium tower and museum addition using air rights above the Museum of Modern Art in New York has received a reluctant go-ahead from the New York State Assembly. The Assembly had voted down a bill that would have given the non-



Proposed tower for Museum of Modern Art.

profit museum the right to go ahead with its income-producing development, but museum lobbyists persuaded the legislators to reverse the decision.

A committee of museum trustees headed by businessman/art collector Donald Marron is studying the field of architects and developers and will make its recommendations soon.

A recent Board decision that no museum trustee may receive the commission rules out Philip Johnson (long associated with MOMA's development), Edward Barnes, Gordon Bunshaft, Ivan Chermayeff, and Wallace Harrison. The architects are acting as consultants to the selection committee. Johnson served as MOMA's first director of the architectural department, and designed the museum's 1953 and 1964 additions and sculpture garden (1953). In 1969, Johnson proposed an office tower addition.

The front-running developer is Arlen Development Company, which commissioned Hellmuth, Obata & Kassabaum to prepare a feasibility study. But MOMA is making clear it has signed no contracts yet.

Another hurdle the museum has to negotiate is winning a tax deductibility ruling from the Internal Revenue Service on the income received from the development. The museum's operating deficit runs about \$1 million annually.

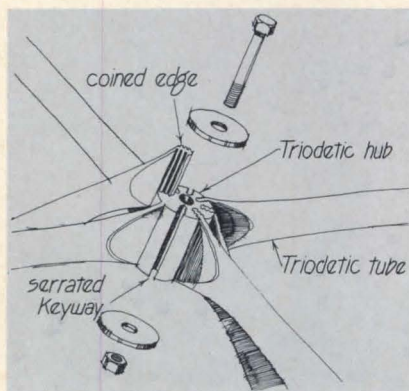
MOMA's plan has drawn a range of criticism—from a lawmaker who said "We can't build palaces of gold when we can't feed our children . . ." to those who are against highrises on narrow streets, mid-block, and worry about the afternoon shadow the tower would cast across the museum's sculpture garden—a year-round retreat [continued on page 23]

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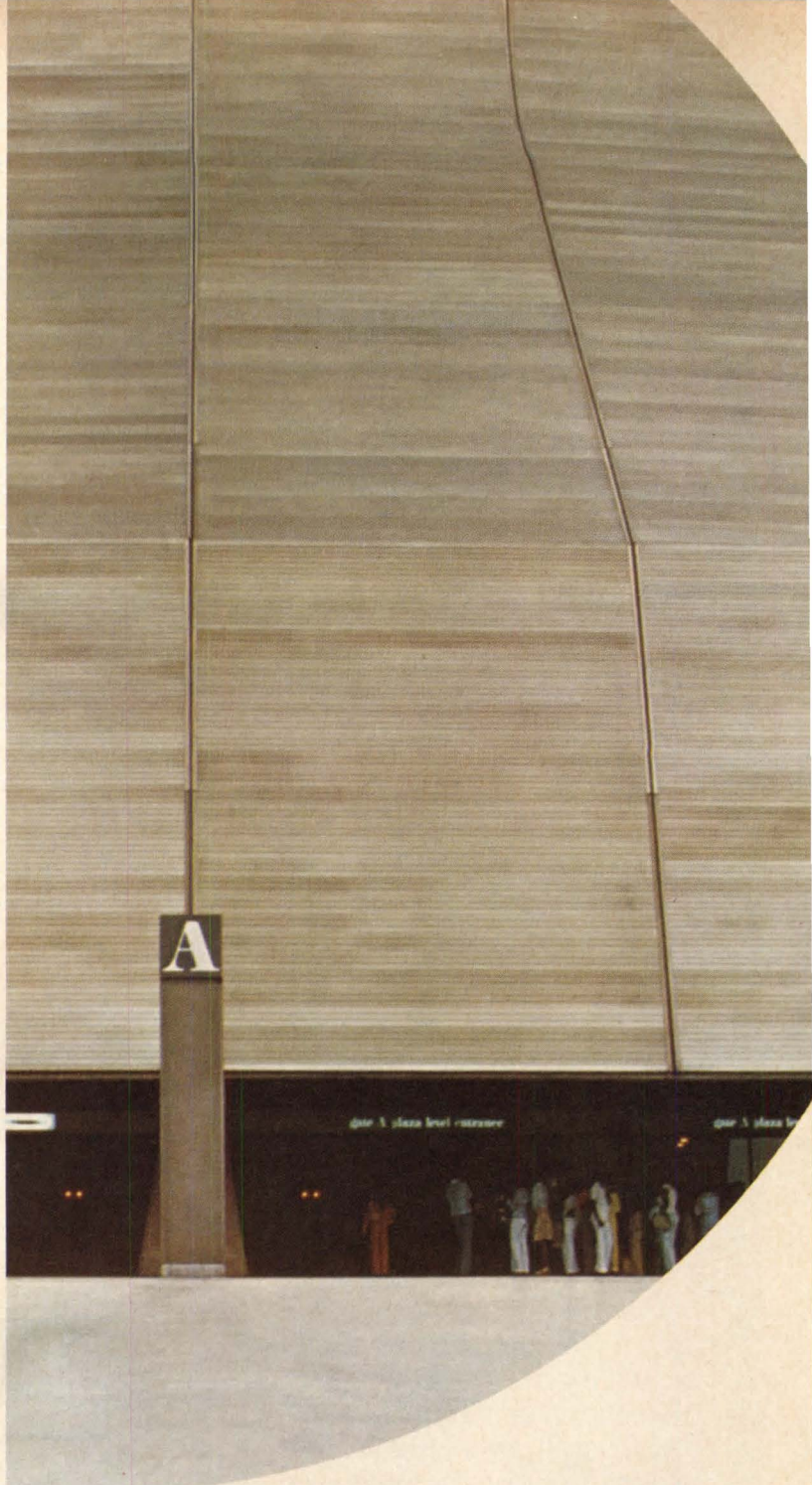
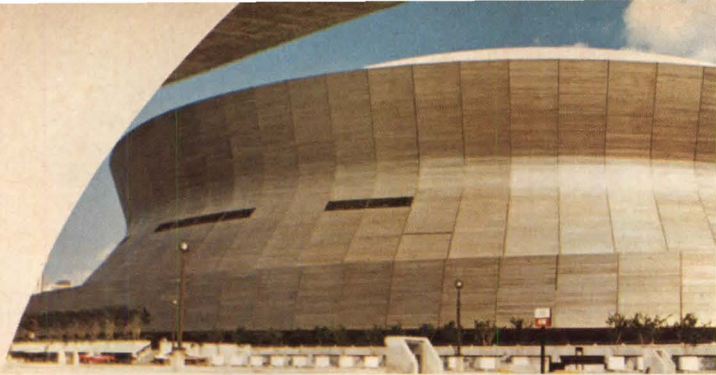


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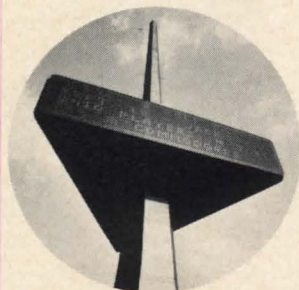
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**News report** continued from page 20

for New Yorkers—and expansion into the garden.

## Imperial Hotel is visible again

Frank Lloyd Wright's Imperial Hotel, built in 1923 in Tokyo and demolished nine years ago to make way for a new hotel, has been reconstructed in Meiji-mura, a village where architectural masterpieces are preserved. Only the entrance and main lobby wing, however, were reconstructed—at a cost of \$2 million.



Wright's reconstructed Imperial Hotel.

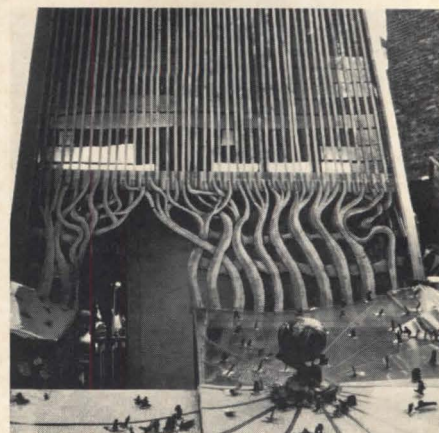
## Record crowds for play architecture

Record-setting attendance at Marlborough Gallery in New York had reached 70,000—each adult paying \$1.00—and was still climbing—for the display of a sprawling indoor-outdoor replica of New York by artist Red Grooms and the Ruckus Construction Co., a group of artists and students working under Grooms' direction. Ruckus Manhattan is to architecture what P.D.Q. Bach is to music. The vinelike columns of Yamasaki's World Trade Center descend into a limp tangle; the crisp curtain wall of SOM's Chase Manhattan Bank is a buckling plastic wrap.

With various grants, Grooms and company built the cityscape over a year's time. One actually can walk over the Brooklyn Bridge and can swing through the revolving doors of the Woolworth Building. The subway car really careens and lurches since its unstable floor appears to be made of plates fastened to heavy coils. The show was on view for over two months this summer and attracted several interested buyers.



Grooms' Chase Manhattan Bank (above) and a Ruckus World Trade Center (below).



John Hancock Tower in Boston.

## Hancock official discusses breakage

Now that Boston's 62-story John Hancock Tower by architect I.M. Pei & Partners has been approved for occupancy again after a six-week ban following additional window breakage, Hancock president J. Edwin Matz can



## News report

speak a little more easily. "We don't really think we have a problem with that glass curtain wall," he said at a Rotary Club meeting in Boston. "We have what has to be the best curtain wall, on the most scientifically examined building in the country."

Matz said that the new glass windows are rated to withstand pressure of 220 psf (the original glass was rated for 35-40 psf). Also, as an extra precaution, 1500 tons of steel were used in stiffening elevator shafts and stairwells to boost the building's strength. Tests showed, said Matz, that the structure might be deficient in strength under the most extreme conditions—such as once-a-100-year windstorm. Now it could easily endure the 1938 hurricane or worse.

"We began very early to instrument the building," Matz said. "The result was an enormous amount of data." He said these tests revealed what caused the glass failures in the celebrated breakage of the Hancock's first glass curtain wall. The cause, however, was the one thing Matz couldn't discuss in light of the "difficult and probably extended court battle (that) will be fought out over the next few years."

The problem has given Hancock a tremendous amount of notoriety, the official acknowledged. "People came from all over the world and, on landing at Logan Airport, said, 'I've got to go see the plywood skyscraper!'"

"I personally feel we are going to come out of it before long with all of that in the past and just a memory," he said, adding. "I certainly hope so."

## Uncle Sam's expo: a media event

The U.S. Bicentennial Exposition on Science and Technology at Cape Canaveral, Fla., opened on Memorial Day to 40,000 people—foreshadowing a projected attendance in the millions by the Labor Day closing. This, the only federally sponsored exposition during the Bicentennial year, emphasizes life styles for the next century. In total, US-BEST is a media event communicating a range of facts to an audience not generally well read on matters relating to the man-made environment.



Audiovisual and aniform show at HUD exhibit.

Among the attractions were "Mr. Hud," an aniform character that appeared on television screens and talked individually with viewers pointing out important activities by the Dept. of Housing and Urban Development. The character has proved one of the exposition hits. Visitors also like to listen to a "voices of the city" debate over a renewal project.

Houses were made to speak of their strong and weak points, and passersby were reminded of the diversity of lifestyles that America encompasses. Displayed are construction techniques, noise abatement efforts, satellite and computer applications to planning and management, and energy conservation—all backed by HUD. The exhibit was designed by Sir James Gardner of London and uses a substantial range of audiovisual techniques.

In contrast, historical presentation designed by George Nelson for the American Revolution Bicentennial Administration is constructed of sizeable well-joined modular panels. It also has a handsome catalogue. The Energy Research and Development Administration exhibit is highlighted by test automobiles powered by electric or gas turbine motors. The Department of Transportation showed new city buses and people-movers.

The National Aeronautics and Space Administration exhibit occupies part of the Vehicle Assembly Building—one of the world's largest structures now adorned with one of the largest American flags ever painted—and includes a new "flat" building wiring system, a photo-mosaic of the U.S. taken from space, and a display of future space colonies as pioneered by Dr. Gerrard K. O'Neill at Princeton University.

The National Endowment for the Arts

commissioned artist Rockne Krebs to create a light sculpture of reflected laser beams and sunlight refracted through numerous prisms. The light descends in a rainbow-mist as the laser cooling water cascades from the center of the exhibit down into a reflecting pool. A sand beach complete with beach chairs provides a comfortable setting for the twilight viewing. [Ralph Warburton]

## EDRA 7 in Vancouver

From May 25th through the 28th, approximately 600 design professionals and behavioral scientists convened at the University of British Columbia campus in Vancouver, Canada, for the 7th annual EDRA (Environmental Design Research Association) conference. Compared to EDRA conferences of the past, this one seemed particularly well organized.

While 68 papers were presented, 58 participation sessions were established, and 9 formal speeches were given during the 4-day conference, some criticisms were raised about the general nature of the proceedings. In particular, it was widely felt that if problems concerning the built environment are to be discussed at all meaningfully, some consideration must be given to the important role that economics and politics play in structuring the environment. But these were rarely, if ever, mentioned. In general, the results of research presented dealt with hypothetical situations.

A large part of this problem has to do with the fact that EDRA has consciously decided to be what it calls a non-organization organization; that is, it has decided that its only purpose should be to bring people together who are working on problems of environmental design, in an atmosphere where ideas can be freely presented and exchanged—if lacking focus.

Even with such an attitude, however, the general level of presentations at EDRA was higher this year than it has been in the past. For the first time, the organizers of the conference screened research that was submitted for possible presentation; and this year they screened out over half of what had been submitted. [DM]

[continued on page 28]



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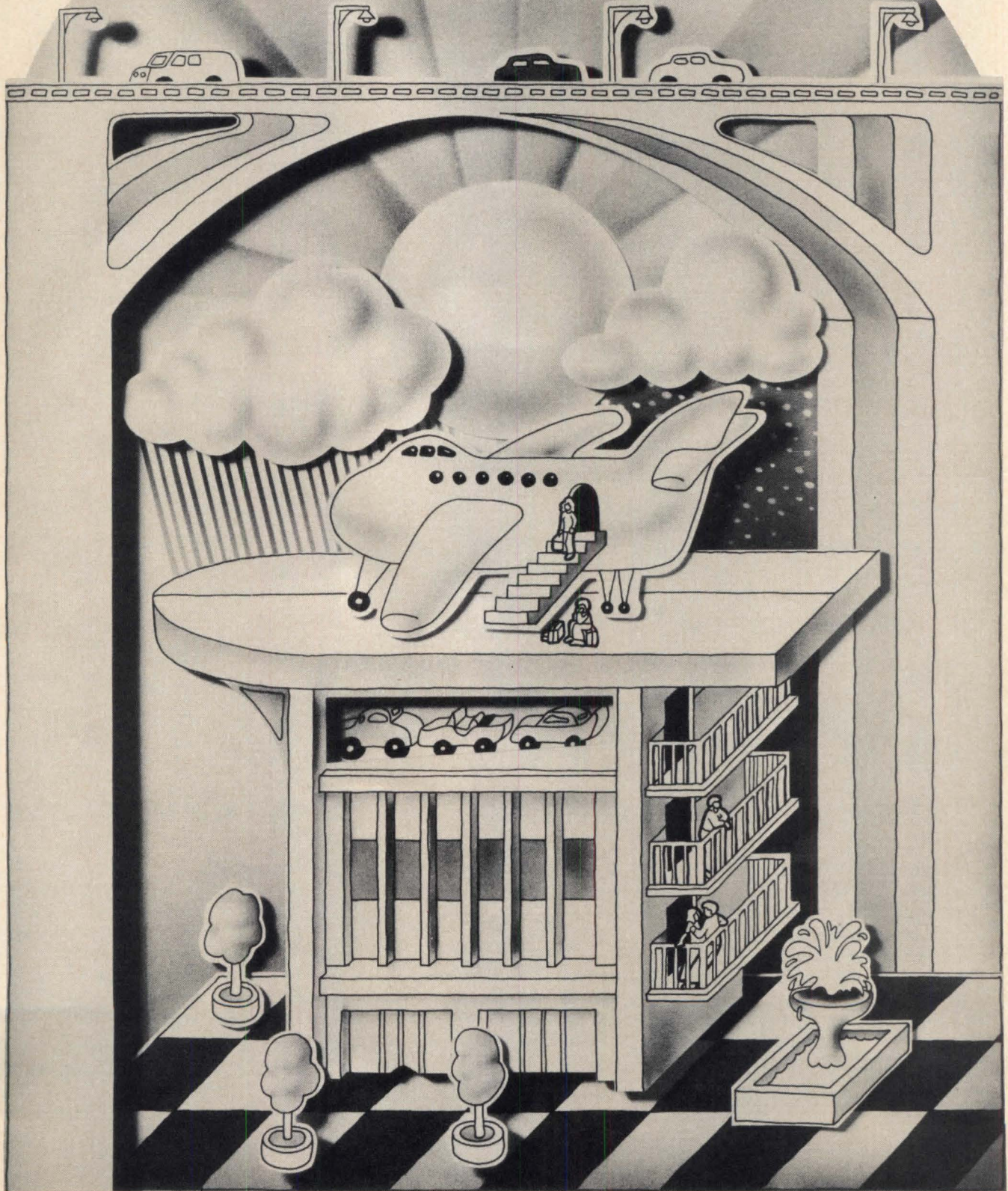
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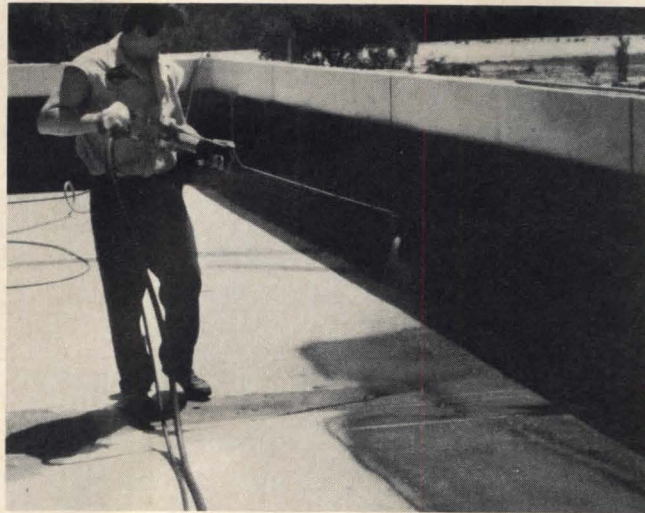
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United Nations—EGAR

Documenting a Colombian squatter village for Habitat.

## UN's Habitat 76 draws 10,000

The United Nations Conference on Human Settlements—popularly named Habitat—attracted 10,000 people in June to Vancouver on the Pacific coast of British Columbia, Canada, to both the official and unofficial sessions, and on the surface most of the action seemed to happen at the unofficial conference called Habitat Forum. The Forum was established with the cooperation of the U.N. to include participation by anyone in attendance—the non-governmental officials (NGOs). Official delegates numbered 931 from 146 countries.

Several days before the official conference began, a group of 24 internationally renowned thinkers, including Barbara Ward, Buckminster Fuller, and Margaret Mead, met privately and issued their Declaration of the Vancouver Symposium, the purpose of which was to pose a dramatic challenge to the official delegates.

It is not speculation, but a certainty, that the world's population will double (to 7 billion) by the end of this century. What this means is that as much human habitation as exists in the world today will be duplicated in just 24 years; and this will be done in a world *where one-third* of the population already is living in substandard conditions without an adequate supply of even basics, such as clean water. Sewage and food are yet more critical.

The Declaration of the Vancouver Symposium (Ward, Fuller, Mead, *et al*) cited the inequitable distribution of the

world's resources between the developed and developing worlds as "an uncontrollable source of despair and violence." But, "the human community can learn from its mistakes and has the skills and means to do so."

In particular, the declaration called for greater recognition of the vitality of squatter communities in the Third World. "Every encouragement must be given to the citizens themselves to arrange, build, and diversify their communities." Also urged was a strong commitment to public control over development land. The "unearned increment" created by changes in land use "must return to the community, and not to private landowners."

In his opening statement, Secretary-General of Habitat Enrique Penalosa of Mexico declared that "by the act of convening this conference the governments of the world have accepted that the living conditions of mankind are unacceptable, that the human environment of village, town, and city is deteriorating . . . that the Home of Man is shabby and getting worse even while the family of man is growing quickly."

The realistic purpose of the conference was not to find immediate solutions to the problems, but to initiate a world-wide concern about the environment in an atmosphere where the human settlements will be viewed from an environmental standpoint, linking physical, economic, and social elements in a strategy aimed at improving the living spaces of the earth's population. [DM]

## Aspen Meeting: 'Exploring Change'

The annual International Design Conference at Aspen, Colo., opened Sunday, June 13 under a brilliant blue sky with temperatures in the basking 80s. On Monday it snowed. Somehow it all seemed appropriate to this year's conference theme of "Exploring Change."

This year, as in the years past, some of the program worked and some did not. Tom Wolfe, the writer, titillated the conference with a keynote speech stressing among alliterations that there is a new narcissism amuck in America that would stimulate original design in art, food, and fashion. The talk was illustrated by his three-piece lemon custard, ice cream colored suit.



Doug Lee

Snow and sun brighten the tent at Aspen.

There were few workshops this year on physical planning, a reflection on the recession in the building industry, a dearth of public contracts, and an increasing emphasis at recent conferences on industrial and product design. Nevertheless, an overflow crowd of 100 jammed into a seminar room to hear Raquel Ramati, director of the Urban Design Group of the New York City Planning Department, and Richard Saul Wurman, architect and author, discuss the new politics of planning. Illustrating her extended talk with case studies and slides, Ramati noted the absolute necessity for architects and planners to be able to communicate with increasingly concerned and active community groups. If not, she warned that no matter how sensitive or rational a design solution may be to a particular community problem it would probably be shot down by local skepticism of public plans and private proposals. Wurman added with humor his experiences as a professional and a concerned resident in Philadelphia.

The single family house was the largest physical problem tackled by a workshop on the effect of energy consciousness on design, despite the engaging efforts of Bernard P. Spring, dean of the School of Architecture and Environmental Studies at the City College of New York. Dean Spring raised the critical issue of how energy conservation may change concepts of land use, but the workshop participants kept refocusing the discussion on the problems and potential of solar heating of the single detached house.

Fashion design also consumed  
[continued on page 30]

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much attention of the conference, formally and informally. Ever-resplendent in a variety of zipper-encrusted jumpsuits, Rudi Gernreich gave a reasoned report on the state of design, without the benefit of models. It was not swimsuit weather, certainly not the weather needed for some of Gernreich's more controversial designs. Models were used for the Marimekko presentation, but they did not help.

The sun was out again Friday, basking the last day of the conference in good cheer. Inside the big tent Gloria Steinem, undaunted by a male streaker, called anew for women's liberation, and with it, human liberation. Outside the tent conferees were exchanging cards, addresses, and farewells. Even after Jack Roberts, president of the IDCA, officially closed the conference, the crowd continued to mill about. Few seemed in a hurry to leave. It was that sort of conference. [Samuel Kaplan] Kaplan is director of the New York City Educational Construction Fund and teaches at City College of New York

## Prognostications and products at NEOCON

Architects and designers attending NEOCON 8 in Chicago this June—30 percent more of them than last year—were offered a sobering keynote talk on the future by researchers of the Club of Rome. Carrying on their earlier, widely publicized studies of the worldwide economic outlook, these scientists are now developing alternative scenarios for various regions and resources, depending on policies pursued. Most sobering report: there will be mass starvation in South Asia before the year 2000, no matter what. More encouraging: there will be moderate economic growth in the West for the rest of the century.

For the following three days, attendees heard about here-today topics such as carpeting, lighting, and the renovation market. New product introductions were numerous and of high caliber (p. 83). Most notable were the several new open office systems shown and the many new components for existing ones. Two major contributions toward office comfort were the

Vertebra chair (Krueger) designed by Emilio Ambasz, shown for the first time, and the Ergon chair (Herman Miller) designed by Bill Stumpf (P/A, May 1976, p. 108).

Ergon took one of seven ASID awards presented at NEOCON. Others: Boris Kroll, textiles; Risom, case goods; Jack Lenor Larsen, floor coverings; Upstate Precision Mfg., Inc., office systems; Habitat, lighting; Multiple Originals, wall covering. [JMD]

## P/A joins network of communications

Reinhold Publishing Company, publisher of *Progressive Architecture* and a subsidiary of Industrial Publishing Co. of Cleveland, has become part of a new communications company: Penton/IPC. The new firm was created by the merger of IPC—a division of Pittway Corporation—and Penton, Inc. of Cleveland, recently acquired by Pittway.

Both Penton and IPC are important elements in the business press. While specialized business magazines are the base of both firms' activities, the companies have added related services over the years. Together they now offer complete marketing-communications capabilities in addition to the publication of 24 magazines. Penton was incorporated in 1904 and IPC in 1930.

Reinhold Publishing Company headquarters will remain in Stamford, Conn. Thomas L. Dempsey, chairman of IPC, has become chairman of Penton/IPC. Sal F. Marino, president of Penton, Inc., is president of the new company.

Penton/IPC activities employ 1200 people in 17 cities. Among its communications services are research, industrial films and animation, directories, direct-response media, adult education programs, and trade shows.



Penton/IPC officers Dempsey (left) and Marino.

## Personalities

**John Portman**, architect of Atlanta, Ga., has received the Elsie de Wolfe award presented by the American Society of Interior Designers.

**Minoru Yamasaki**, architect of Troy, Mich., has received an honorary Doctor of Fine Arts degree from Franklin and Marshall College, Lancaster, Pa.

**Vincent G. Kling, FAIA** of Philadelphia has been awarded the 1976 Gold Medal of Tau Sigma Delta, a national honor society in architecture and allied arts.

## Calendar

**Through Sept. 7.** "The Taxi Project: Realistic Solutions for Today," The Museum of Modern Art, New York City.

**Through Oct. 10.** Venice Biennale, "Suburban Alternatives: 11 American Projects," Venice, Italy.

**Aug. 18–22.** "2020 Visions of the Community" symposium, hosted by the Association of Student Chapters/AIA Philadelphia Chapters.

**Aug. 23–25.** American Society of Civil Engineers structural engineering conference, Madison, Wis.

**Aug. 29–Sept. 2.** Technical conference and International Lighting Exposition sponsored by the Illuminating Engineering Society of North America, Cleveland, Ohio.

**Aug. 31.** Annual P/A Awards Program entry deadline.

**Aug. 31.** Owens-Corning Fiberglas Corp., Toledo, Ohio, annual energy conservation awards program entry deadline.

**Beginning Sept. 3.** Four consecutive Fridays of meetings on solar energy applications for buildings, sponsored by Interactive Resources, Inc., Point Richmond, Calif.

**Sept. 15.** International Chair Design Competition, sponsored by AIA San Diego Chapter, extended deadline.

**Sept. 20.** Registration deadline for handicapped/able-bodied playground design competition open to architects and landscape architects licensed in New York State. Four \$10,000 awards. Write sponsor, N.Y. City Dept. of City Planning, Playground Competition, Room 1616, 2 Lafayette St., N.Y., N.Y.

**Nov. 17–19.** Building & Construction Exposition & Conference sponsored by The Producers' Council, Inc., McCormick Place, Chicago.

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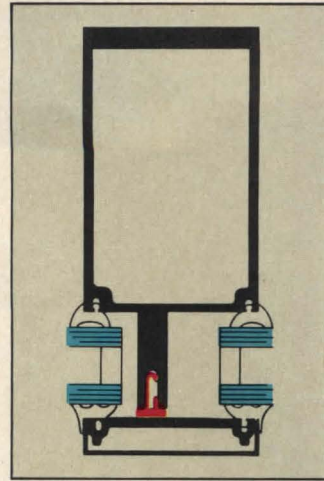
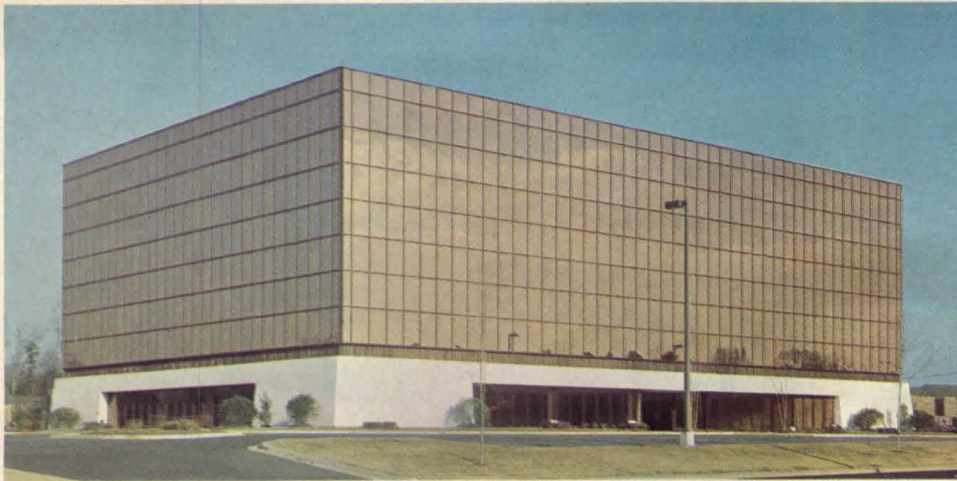
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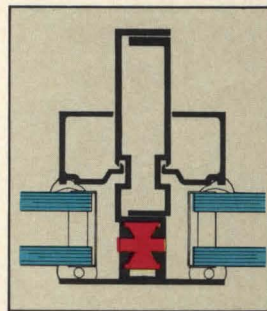
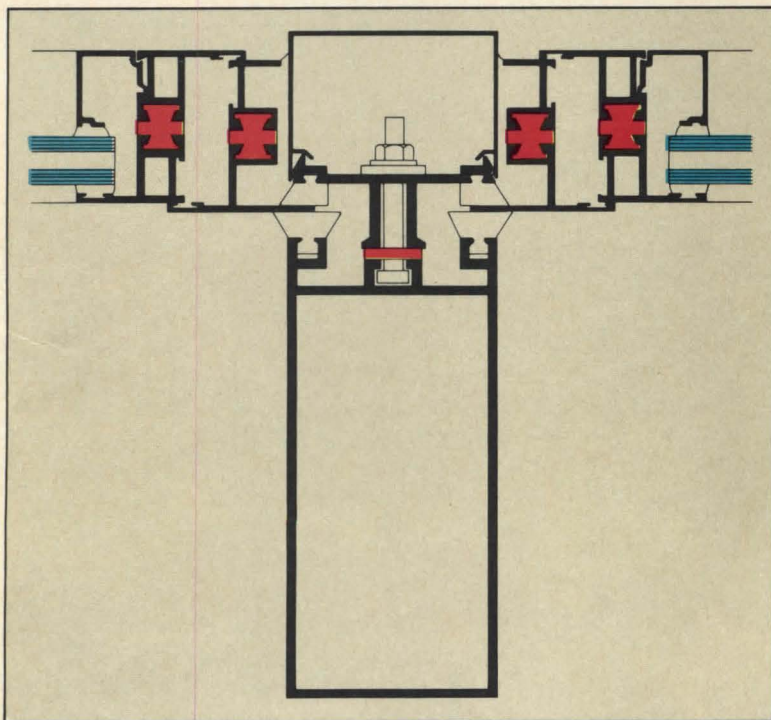
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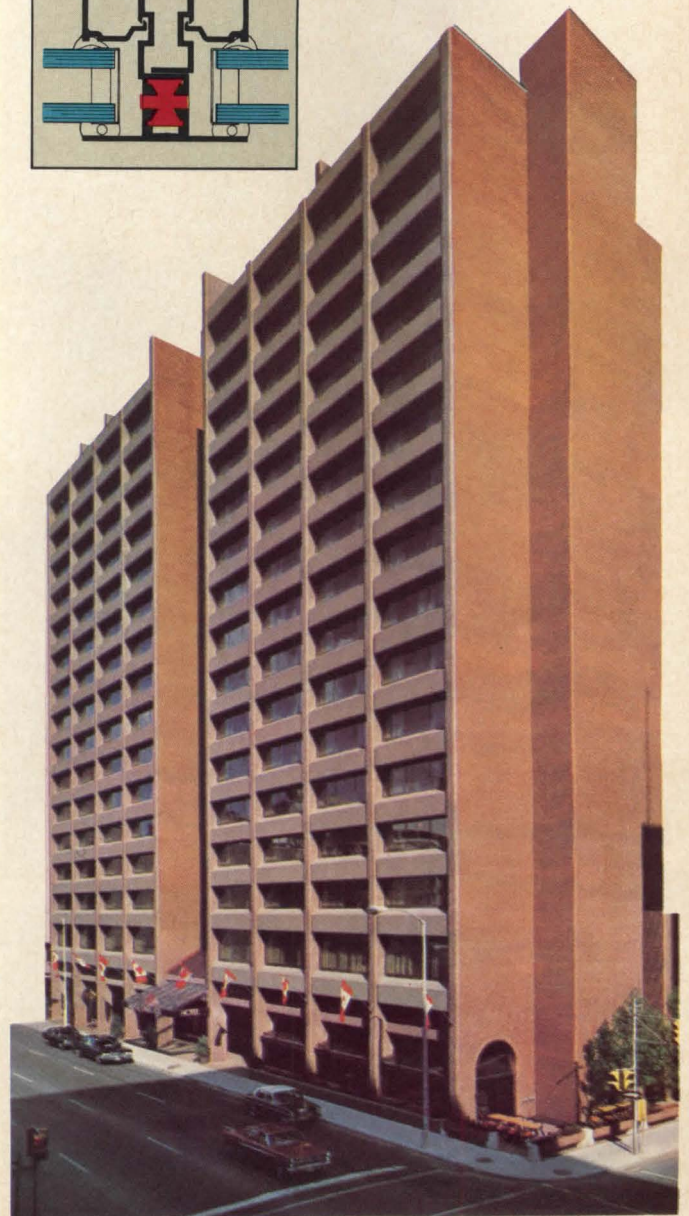


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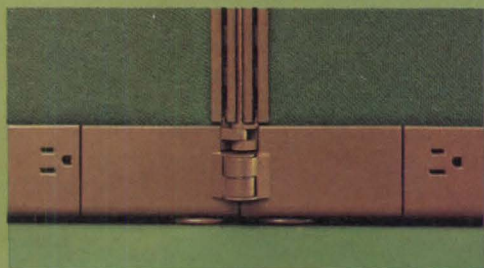
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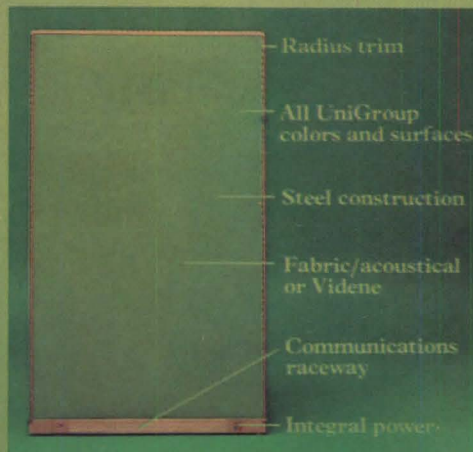
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## Introduction

# The house as a relevant object

**Is the house a has-been, and should it be forgotten? P/A argues the reverse. Ever resilient, the house is making a strong come-back as a topic of interest.**

The house as an architectural concern has had its ups and downs. Ten years ago the P/A design awards jury dismissed the whole idea of the house; juror Vincent Scully proclaimed "An individual house is embarrassing" (P/A, Jan. 1966, p. 161). In general, for the last ten years, architects have looked upon the house as "dead," and have addressed themselves largely to problems of mass housing, urban development, schools, and hospitals—and to the production of taller and taller buildings.

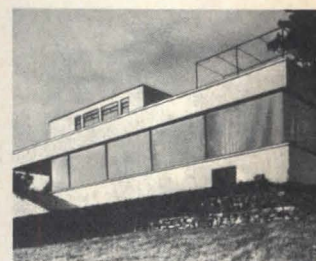
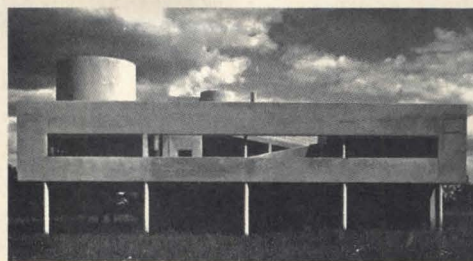
At the same time, however, a small number of architects have continued an interest and involvement in working in the "frivolous" field of the individual house; they have valued its historically important role in the development of 20th-Century modern architecture. Robert Venturi and Charles Moore exploited the house to postulate new attitudes and values that were eventually to pervade the entire architectural discipline. Charles Gwathmey and Richard Meier were later to add impetus to the reconstitution of the house as a significant object.

No one will deny that the house, in the last analysis, is an object, and a pretty small one in the general scheme of things. Nevertheless, it is not without meaning. In terms of that meaning, the house operates on two different levels: as the proving ground for the architect's ideas, and as an instrument of self-expression and gratification for the client.

As an architectural proving ground, the house has performed several roles. It has provided a prototype for the experimentation and refinement of design ideas that were later to be applied in other building types. Another role it played has been postulative, not just the "working out" of new design ideas, but also in their promulgation. In this respect, the house, perhaps more than any other building type, has often become the heraldic emblem signifying opposing sides drawn in architectural battles. In the third role, the house has functioned as a microcosm, that is, as a condensation or synthesis of an architect's oeuvre at a particular time in his development. Thus one example quickly sums up the architectural principles posed in that period.



Robie House, Frank Lloyd Wright, 1909 (above, left); Schroeder House, Gerrit Rietveld, 1924 (above, right); Villa Savoye, Le Corbusier, 1929 (below, left); Tugendhat House, Mies van der Rohe, 1930 (below, right).



## The mythic object

Because the house crystallizes all three of these aspects, it has attained mythic proportions, despite its relatively inconsequential size and well-known program. The Robie House, the Villa Savoye, the Tugendhat House, the Schroeder House, and numerous others have manifested ideas and images that were to advance the cause for modern architecture in America. Once that battle was won, it was the house that functioned as a symbol for the dissenting factions within the modern architectural phalanx. For example, at a 1948 Museum of Modern Art conference on "What is Happening to Modern Architecture," the argument of the "Bay Region style" versus the "International Style" was concentrated almost entirely on the single-family house, despite Henry-Russell Hitchcock's protest that the house was "not one of the important problems of the architecture of the present day."

The house played such a dramatic part in this discussion primarily because it was the major vehicle through which modern architecture became known in this country in the early post-war years. The house's role as agent and transmitter of the modern movement's ethos thus was to aid in its mythification. During the 1950s when large-scale projects were abundant, many young architects—Barnes, Johansen, Franzen, to name a few—who were to have such impact with large scale works in the 1960s, dramatically established their careers with the house form first. It is not surprising, then, that at the time the house was declared to be dead, vanguard architects such as Hardy Holzman Pfeiffer, Michael Graves, Peter Eisenman, John Hejduk, Robert Stern, and others were turning to the house as the platform for expounding their ideas.

In the last couple of years, owing primarily to the economic recession, many more architects have found themselves turning to this building type. In the 1976 P/A Awards program, for instance, there were twice as many entries in single-family houses than there were in any other category.

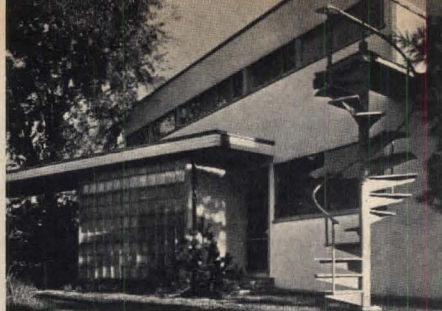
## The postulative object

While none of the five houses featured in the following pages may become mythic, each represents and expresses certain attitudes prevalent today. None is necessarily trying to revolutionize the world of architecture; each, however,

## Introduction: Singular houses



Fallingwater, Frank Lloyd Wright, 1937.



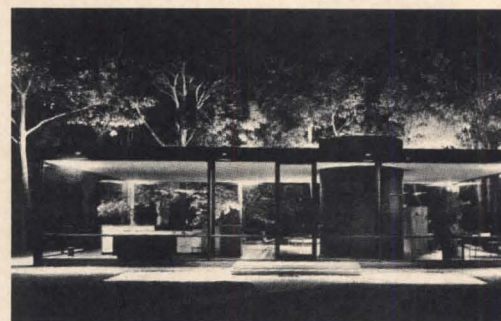
Lincoln house, Walter Gropius, 1938.



New Canaan house, Marcel Breuer, 1947.



A Bay Region house, William Wurster, 1943.



Glass House, Philip Johnson, 1949.

is very individualistic. Together, they confirm the pluralistic attitudes currently characteristic of American architecture. Individually, each speaks its own language and vigorously affirms its right to that language. Each house has a grammar of its own, to invoke Frank Lloyd Wright's phrase, and often explores materials that are aesthetically or technically unusual for residential construction. For example, Paul Rudolph uses prefabricated plywood boxbeams for structure and enclosure, Venturi & Rauch clads a house in green glazed brick, Stanley Tigerman experiments with modular aluminum panels and industrial construction, and Roland Coate fortifies a sod-roofed house with rough board-formed bunker-type concrete.

Each of the houses tends to incorporate in its "speech" memories of a particular architectural or archetypal form; for example, Walter Netsch creates a 20th-Century tree house; Coate, a cave. Venturi & Rauch freely evokes architectural styles of the past, Tigerman alludes to futuristic visions of the early moderns, and Rudolph's cantilevers recall Wright's Fallingwater.

### The gratifying object

If each of the houses engages in an architectural speech about other forms of architecture (and about the architects' own affinities), each also communicates something about its clients. Similarly, it must communicate something to the client. What the house says about and to these particular users is important because it can indicate certain values and attitudes endemic to American society today. These particular clients are affluent enough to indulge their whims, tastes, fantasies, and ideas (more so than the inhabitants of tract-built homes who can only personalize them with paint). Thus the houses become more interesting as subjects of analysis.

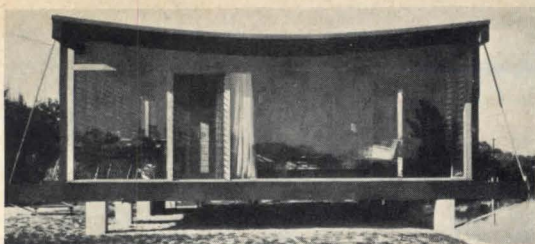
On the most general level, the house has always had a universal significance for its dwellers. Philosopher Gaston Bachelard perhaps has clarified most dramatically this importance in discussing the underlying meanings of the house. "The house is one of the greatest powers of integration for the thoughts, memories, and dreams of mankind," Bachelard writes (*The Poetics of Space*, orig. 1958, Beacon Press, 1969). Because only the house can shelter the dreams, reveries, and private thoughts of man, it has "po-

etic depth." "Memories of the outside world will never have the same tonality as those of the home." Obviously, then, what we are dealing with here is not simply the memories of architecture and archetypes for the architect, but for the client as well.

Added to this universal resonance is the nature of the specific image that the house embodies for its inhabitant. Since the 19th Century, the ideal of the country villa has been a pervasive fantasy common to the rising bourgeoisie in this country. Its roots are found in the Jeffersonian attitude toward small, decentralized communities, the pioneering spatial expansiveness traditional to the country, and the distaste for the filth, grime, and crime of the industrialized city. Trains, trolleys, and the car have enabled the middle class to leave the city for the suburb, inverting the traditional situation where only the rich and poor lived outside the city walls.

The machine ideal has followed closely behind the country villa, revolutionizing it as much as possible. Post-industrial beliefs in efficiency, economy, and functionalism created the mythic image of a completely automated house in the garden. Of the numerous examples of the "House of Tomorrow" exhibited during the 1930s and 1940s, the fullest realization of these architectural principles was seen, however, only in the kitchen and the bathroom—the functionalist domains par excellence. While this attitude also pervaded the rest of the house, its impact was to be felt primarily in the plan. The *space* of the house became the only other arena through which the functionalist credo was satisfied. Spaces had to do double duty. Residual areas—nooks, crannies, recesses, even hallways—were eliminated with a self-righteous élan. In the same cause, natural materials lost ground to simulations that were more economical and easier to maintain.

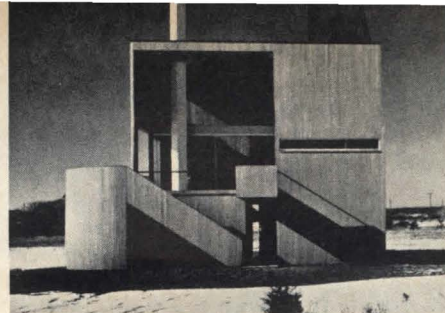
It is against the pervasiveness of the homogenized, standardized house that the custom house must be appreciated. In terms of shelter it is the last outpost of the individual against total immersion in mass-produced culture. At the same time that the custom-designed single-family dwelling seems doomed by political, social, and economic pressures, it appears to be acquiring greater significance through those who are able to buy it and those who are willing to design it—those often shrugged off as the rich



Healy House, Paul Rudolph, 1949.



Orinda house, Charles Moore, 1961.



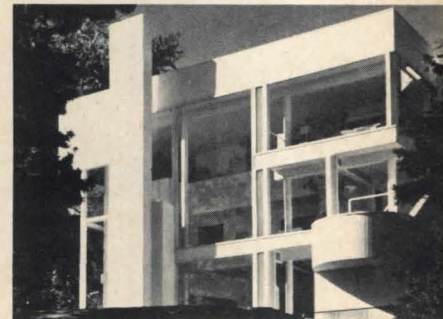
Gwathmey House, Charles Gwathmey, 1965.



Eames House, Charles and Ray Eames, 1949.



Chestnut Hill house, Venturi & Rauch, 1964.



Smith House, Richard Meier, 1967.

and the retardataire.

Not only does the house become a repository of deeper, underlying thoughts, dreams, and memories of man, it also becomes the physical manifestation of the search for the self, and of a way of expressing it. Clients consciously or unconsciously employ the house as a sign system to this end. More than other personal possessions, the house aggregates all the signs intensively in one milieu.

Each of the five houses shown on the following pages serves this sociological and psychological function well. Viewed in this light, they are particularly revealing in expressing the personal and private characteristics of the client, the architect, and the relationship between the two. None of these houses exhibits the acceptable "Shaker Heights" standard for the traditional, affluent home, or of the safe, clean-cut, fade-into-the-landscape modern version. Each then can be read as a criticism of the conforming, non-revelatory domicile. The degree to which these houses, on the other hand, disclose their clients' dreams, aspirations, and self-images is extensive—perhaps more than they would want known.

In all fairness to Scully, one must point out that he also stated ten years ago that a house need not be "embarrassing" if, among certain other reasons, "it's ironic, and thus expresses the human condition." Scully thus acknowledges the role a house plays in transmitting content, even though he only touches on one aspect of that potential for communication. Any presentation of houses, ten years later, should attempt to explore the broader realm of meaning the house form embodies. Nevertheless Scully's trenchant statement points to an intriguing aspect of the house that embraces architect and user-client. In addition, Scully's own writings about the house form over the last few years (e.g., *The Shingle Style Today*, or *The Historian's Revenge*, George Braziller, 1974) have served again to focus interest on this pursuit among younger architects.

### The anxious object

Certainly, young architects are aware of the significant aspect of architecture. Their work, much of which is in house design, often reflects that growing consciousness. Besides the formal and pragmatic concerns typical of architecture, their work indicates a more explicit interest in

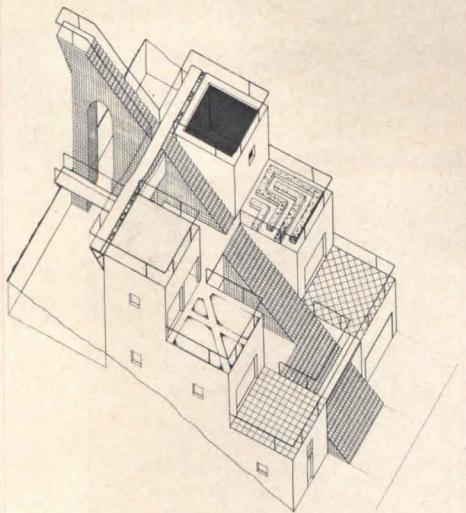
concept and content than evidenced in the past. Yet the architects explore different lines of thought within separate spheres of interest. For example, two opposing themes clearly reflected in their work deal with the idea of the finite form versus the idea of the replicative form.

Whereas some architects view the house as a self-contained object, others seek to understand it as a form capable of replication and extension. These two themes can also be seen in the built works presented on the following pages. The houses of Tigerman, Netsch, and Rudolph suggest possibilities for replication through structural and/or formal rationalization. The projects of Susana Torre, Martin Pawley, Peter de Bretteville, Diana Agrest, and Peter Hoppner make explicit gestures toward seeing the house as a generative form. On the other hand, the houses of Venturi & Rauch and Coate, and the projects of Joel Levinson, John Blatteau, and Stuart Cohen assertively adopt the opposite stance.

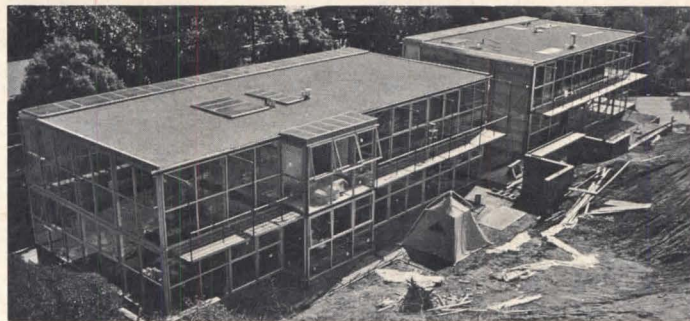
Within these broad areas, the range of exploration shown by the young architect's projects is extraordinary—from Pawley's "garbage" house to Blatteau's Beaux-Arts mansion. The evocative power of space is pursued in Agrest's terrace house and in Torre's spatially undesignated matrix. Both Hoppner and Levinson exhibit an obvious, traditional concern for relating the house to the site, but their approaches allude much more to historical attitudes than to modern ones. And, where Hoppner employs a systematic frame, and erodes it with vines, de Bretteville emphasizes the mechanistic quality of his steel-pipe frame by pulling it away from the landscape. While de Bretteville opens the interior with loftlike spaces, Cohen creates an enclosed form of small, high-ceilinged rooms; he augments its Victorian quality with William Morris-designed floral wallpaper.

Like the generations of architects before them, the young architects continue to turn to the house for postulative and polemical reasons. In their ongoing experiments specific elements are investigated which could become part of a later theoretical framework. Some results of this probing are not so different from what has gone on before. What is different is the increasing, conscious acknowledgment of architecture as an intellectual and theoretical discipline with an inherited, vital past. Meaning, after all, cannot exist without memory. [David Morton and Suzanne Stephens]

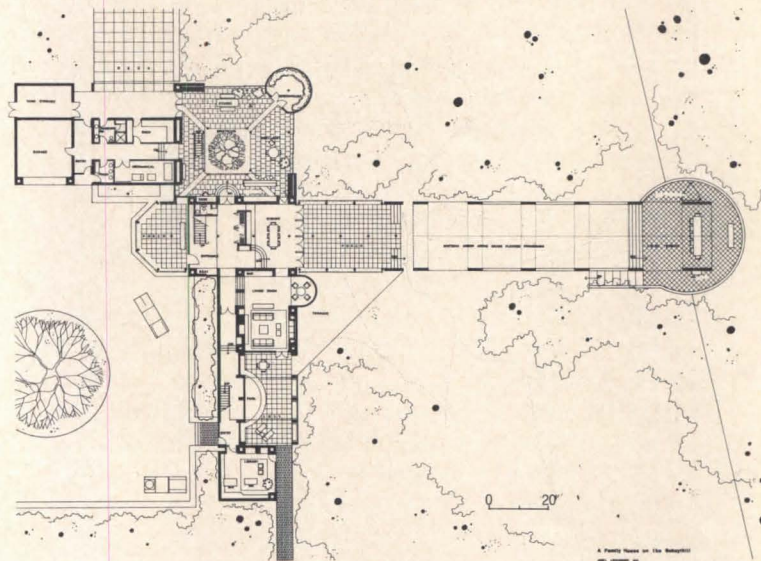
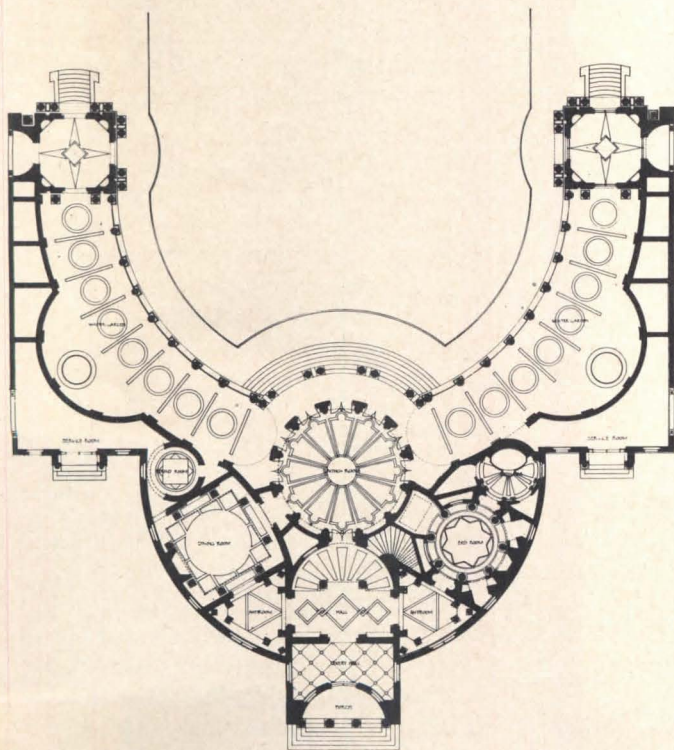
## Introduction: Singular houses



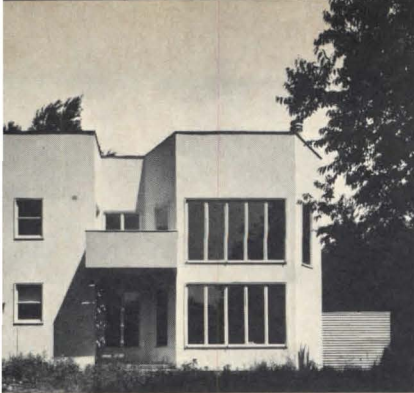
A house for a musician, designed by Diana Agrest, is conceived not just as an interior private space, but also as a building that has an outside life of its own. Situated on a hillside overlooking the water, the house was designed primarily in terms of its outside spaces, which are a series of terraced gardens and fragments of gardens that are intended to be used for musical and theatrical events. In this sense, the house becomes a kind of stage, and as a consequence it is also thought of, according to the architect, as a public object, as a cultural event in itself. The main staircase, which gives access to all the rooms and terraces of the one-bedroom house, is constructed of glass block and steel, and would be illuminated at night to emphasize the public nature of the house. The construction system has been kept very simple; the structure is concrete and walls are concrete block with painted stucco finish.



On a half-acre hill site in the Laurel Canyon of Los Angeles, Peter DeBretteville has designed two separate single-family dwellings for close friends who want to live cooperatively. In the family of four, both parents are writers and require isolated places for writing. In the other family of three, the parents are an architect and a graphic designer who share studio space. The two houses are two-story frames with second-level infill as required. A common outdoor access joins the houses on the east side, but on the west, each has a private court. Sun is controlled by cantilevered balconies and vertical extensions of pipe handrails to form awning frames. Square tubular steel columns support steel beams carrying floors and Trus Joists carrying ceilings. Lateral forces are resisted by diagonal steel rods. Opaque walls are corrugated asbestos, glazed walls are steel factory sash. All dimensioning is on a 4 ft cube.

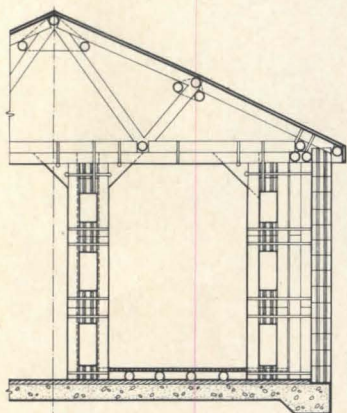
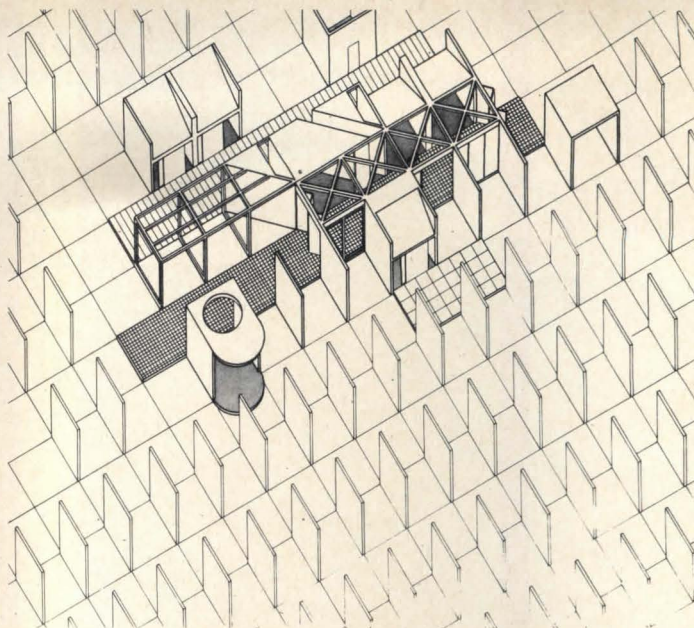


An unusual exhibition in Philadelphia, "The Mount Pleasant Show," to be held at the Langman Gallery in Jenkintown this fall, has prompted some unusual entries for the design of a house with no program, no client, and no budget. The only given is the site: one of the city's historic estates overlooking the Schuylkill River. Although the schemes may incorporate the existing buildings (including a Georgian mansion), the two shown here do not. Instead, they seek to complement the existing gardens and nearby mansion through style and parti. John Blatteau's French neo-classical one-bedroom, one-story house makes a very witty (although he is serious) statement about how history should be served. Joel Levinson's scheme, a two-story brick house uses traditional quasi-outdoor spaces including an arbored outdoor dining terrace and two-story glazed atrium to tie the house to the natural setting.

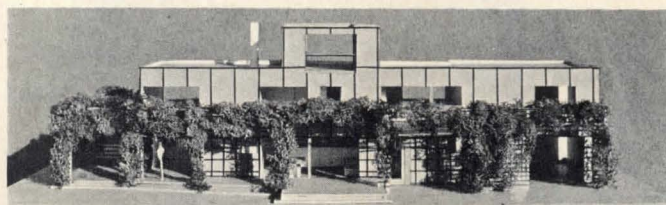
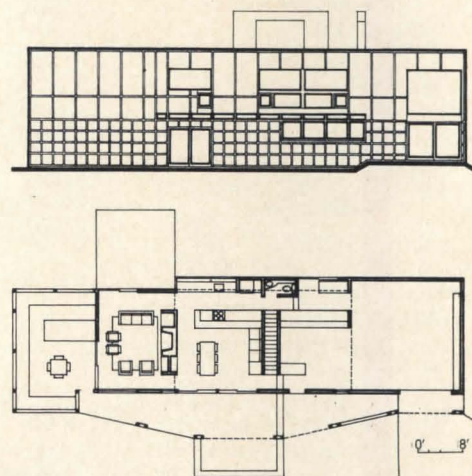


Chicago architect Stuart Cohen's house design for a bachelor psychiatrist "who is small and quiet, meticulous, and very formal" will have few large windows "because they make him feel exposed." Following the client's wishes, the small house in Shelby, Mich., will have separated rooms with high ceilings. To make the spaces calm and formal, the architect has used square or near-square proportions for all of the rooms, and symmetrical arrangements for interior and exterior wall openings. While the front of the house will be private and "closed," tall windows at the back will provide views to the woods. All walls inside will be covered with the same foliage-design wall paper in a pattern originally made by William Morris in England in the 1880s. The house will be Western platform wood frame construction with wood siding and wood casement and awning windows, and it will be air-conditioned throughout.

Susana Torre developed the design for a house in Puerto Rico from a spatial grid defined by walls. As in all her projects this generative matrix of space allows the house to expand, contract, or adapt to changing needs over time. While the actual configuration is not meant to be entirely predictable, the house can grow or become "dense" along the directions of the covered and open "street." Furthermore spaces are not explicitly differentiated between living room, dining room, etc.; rather they are meant to shift and change according to use, need, and desire, allowing the users to, in the architect's words, "appropriate space," for themselves.



"Using selected solid waste materials in low-cost construction is a way of life in most developing countries," notes British architect Martin Pawley, who is now teaching at Rensselaer Polytechnic Institute in Troy, N.Y. But, he says, "only recently has interest been aroused by the possibility of *systematic* building out of consumer waste materials such as glass, steel, aluminum, plastics, and fiber- or timber-based products which are already widely used in construction." Pawley observes that while the U.S. produces only seven billion bricks a year, it produces 50 billion tin cans, which are thrown away, and which could have been used for building. To prove this, he and the RPI students have constructed a 150-sq-ft house out of 2200 waste No. 10 steel cans brazed together with a gas torch, for 9¢ a sq ft (above right). A house presently under construction for RPI professor of architectural history Dora Crouch, is made of waste cans and cardboard tubes (newsprint rolls). It is 600 sq ft and costs \$1 a sq ft (above left). In addition, Pawley and the students have now developed flooring elements of composite can/tube sections that span 15 ft and conform to New York State building codes as regards load bearing capacity for multi-occupancy housing.



In the design of a summer beach house Peter Hoppner begins with a simple box form. Exterior walls are given texture by a panel and batten construction that tightens in proportional rhythm toward the top of the house. Hoppner softens this surface with another "vernacular" device that is evocative: a latticed porch-veranda structure covered by wisteria added to the front elevation. The back of the house will also be covered with planting—in this case espaliered fruit trees will be tied to the house's horizontal lattice of battens.

# Tigerman

**An aluminum-paneled house continues the tradition of prefabrication in residential construction with an evocative, idiosyncratic design.**

Planned for a family with three teenage sons in a Chicago suburb, the 7200-sq-ft house was designed to afford space and privacy to each of the members. The small site (1.5 acres) is secluded, and sits atop a cliff overlooking Lake Michigan. Soil conditions were too poor to permit the house to jut out over the cliff's edge. Thus the plan derives its unusual configuration in large part from the siting and the clients' desire to have rooms overlook the lake.

## Architect's Intention

"This is my last serious project," comments Stanley Tigerman. "It is the last project of an insecure person—it has no wit." Tigerman's statement should seem ironic to some Chicago architects—or even to the neighbors living in Colonial and Tudor houses near the aluminum-paneled rubber-gasketed house. But he means it. With this commission, Tigerman wanted to take some off-the-shelf industrial building components and apply them to the design of a house. Previously in fact, he had used the lally column, web-joist, metal deck, and concrete floor construction in the design of a speculative brick-clad industrial building for the same client. (The client knew of him through family.)

With the house design, Tigerman introduced a new feature: modular aluminum panels and glazing with H-shaped zipper gaskets. The structural mullion system of lally columns 5 ft on center, carrying the steel open web joists spanning 35 ft, give the house a high degree of flexibility for the partitioning of its interior spaces. This sort of structure makes sense, considering the highly defined separation of spaces needed now to accommodate a variety of activities. However, with children nearly grown, the clients like the idea of being able to tear down walls if they desired.

Tigerman views the house as part of the continuing Chicago tradition of creating a



Aluminum paneled house sits on cliff overlooking Lake Michigan.

prefabricated all-metal lightweight housing that can be traced to Fuller's Dymaxion House. However, he criticizes it for not being adventurous enough. In retrospect, he feels that the machine-made high-tech image the house suggests would be better reinforced by flush panels and smoothly curved walls instead of the highly visible gaskets and segmented curves.

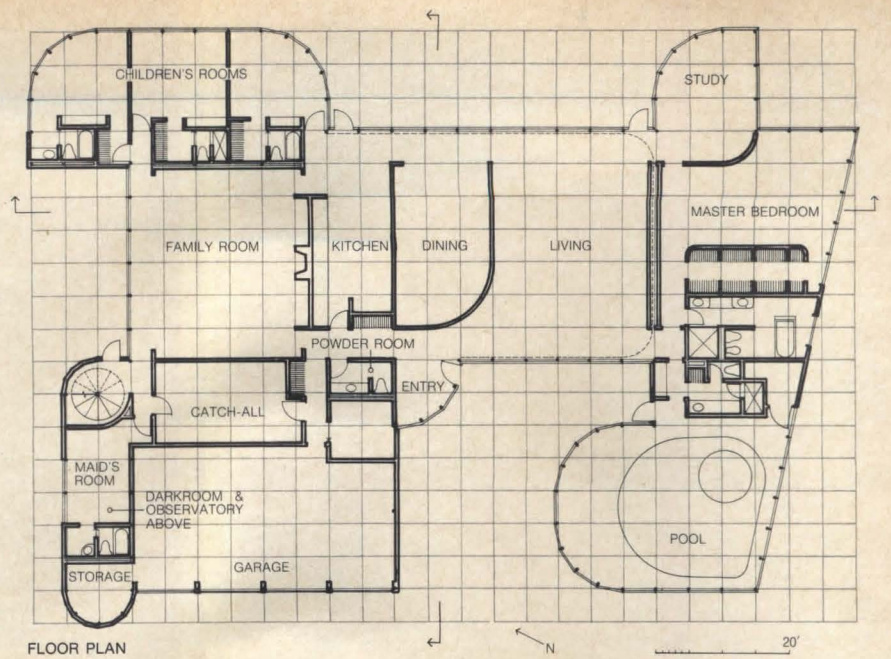
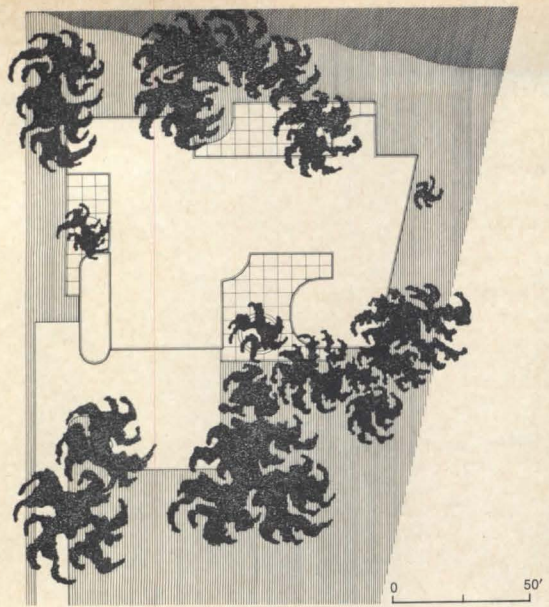
## Clients' vision

In this architecturally "unadventurous" house, the male client has hooked all the house's functions to a small computer terminal. With a pocket-size relay system he is able to turn on lights, (in a programmed sequence) heating, ventilating, air conditioning, stereo, TV, kitchen equipment, security surveillance, etc. The telephones (which have clocks, intercom, two-way outdoor public address system) link up with the computer so that it can be given instructions from anywhere the client can

get to a phone.

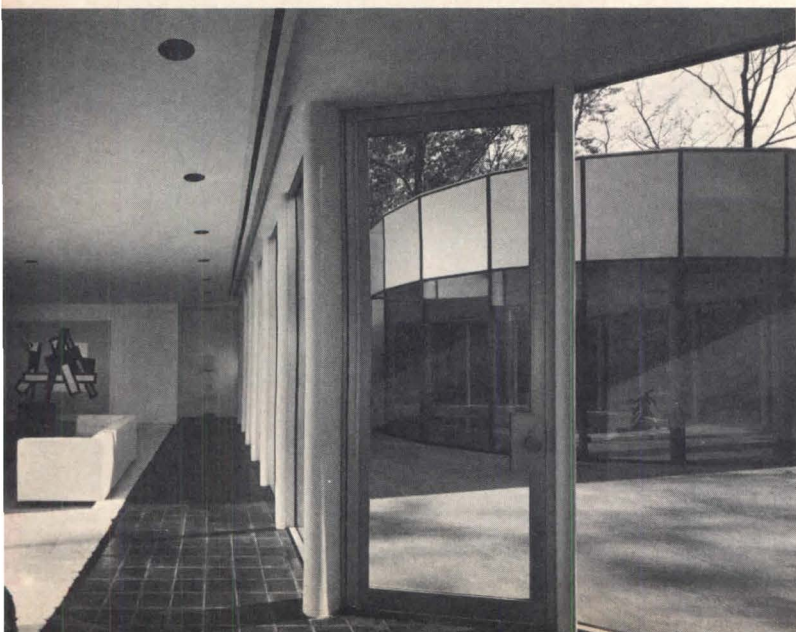
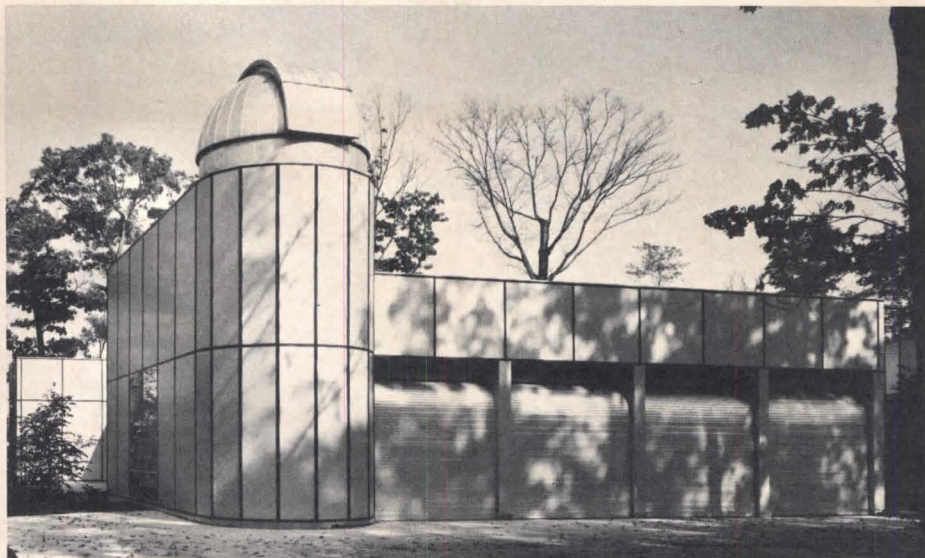
Since the client will be marketing this home computer and software system next year through his firm (Gimix, Inc.), he regarded his new house as a definite live-in experiment. There are other indulgences such as an observatory and radiant-heated pool. The client also took great interest in the planning and construction of the pre-fab custom house, (including wiring the floor for a computerized service cart), and even acted as his own contractor.

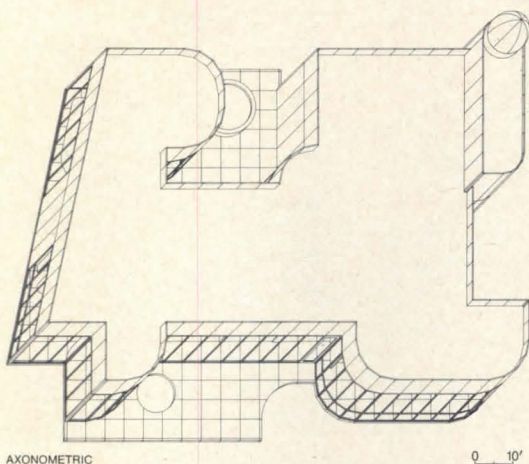
The mistress of the house characterizes herself as more "conservative." If her husband was inclined toward a *machine in the garden*, she had a country villa in mind—preferably in white brick. Her reaction to the architect's and husband's initial proposal for stainless steel cladding on the house can be easily imagined. Eventually she agreed to the duller pewterlike finish of the aluminum panels, and now claims no regret. Interior furnishings remained



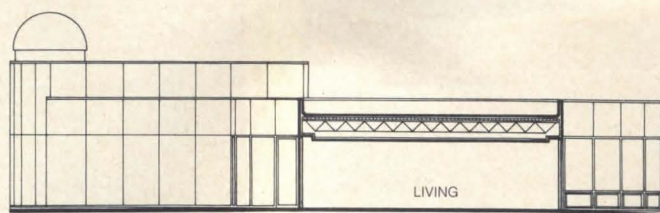
## Tigerman

Observatory, roll-up doors, and heated drive can be operated by house's own computer system. The fire-resistant structure permits long spans, so that clients may alter partitioning if desired. Visitors are announced through an electric eye or tv monitor; they enter the foyer near garage (bottom, left); then are directed by perimeter corridors to living room (bottom right), or the family room.

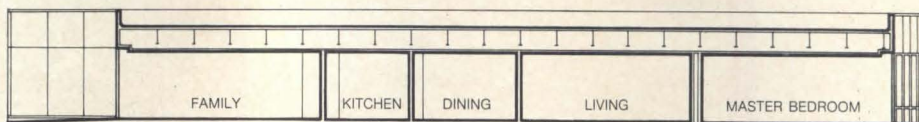




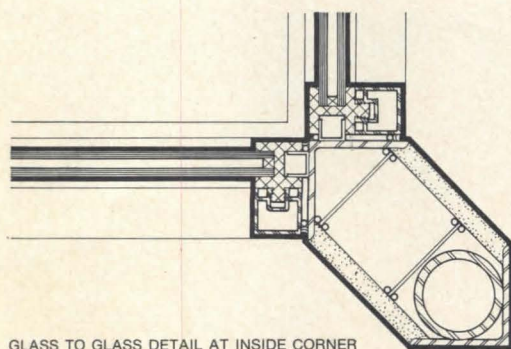
AXONOMETRIC



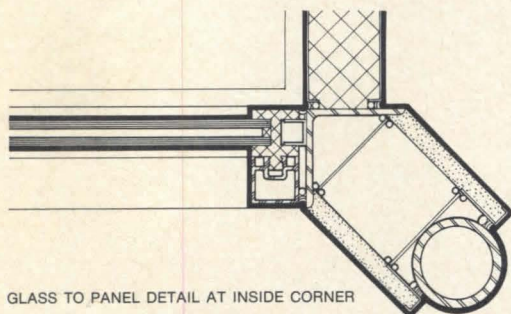
TRANSVERSE SECTION



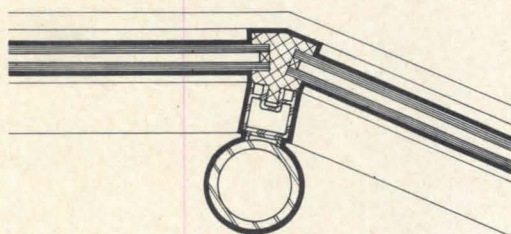
LONGITUDINAL SECTION



GLASS TO GLASS DETAIL AT INSIDE CORNER



GLASS TO PANEL DETAIL AT INSIDE CORNER



BENT GLASS TO GLASS CONDITION DETAIL



Indoor pool has radiant computer-operated heating.

steadfastly in her domain. Tigerman naturally would have liked to continue the mechanistic imagery of the house to the interiors, but the client decided to hire someone else: she wanted the modern look softened up a bit.

In discussing their reactions to the house's distinctively idiosyncratic style, both partners felt it satisfied a certain longing to have something different: they had lived almost 20 years in a smaller ranch-style house in the same town. The clients also made it clear, however, that their attraction to this scheme was affected by its secluded site, where the house would not have to be seen in context with an assortment of other houses.

#### P/A reaction

The apparent affinity of the aluminum house to Fuller's Dymaxion and the Chicago industrialized housing efforts of the 1920s and 1930s marks a worthwhile attempt to build on and refine past experimental efforts with lightweight housing. If it generates interest once again in exploring these materials and techniques for single family or multi-family housing, it will have made an architectural contribution. (For more details on prototypes see Stuart Cohen's essay in *Chicago Architects* (Swallow Press Inc. 1976). But, of course, neither the construction nor the imagery necessarily belongs exclusively to Chicago. Another prototype for the construction could be Kocher & Frey's 1934 Aluminaire House on Long Island. And in terms of imagery, the curved segmented sections (including the observatory) recall Bruno Taut's work, especially his steel industries pavilion for the Leipzig Fair in 1913, designed with Franz Hoffman.

Paradoxically, it is this *antiquated/visionary* aspect of the house that makes it likeable despite the awkwardness of the gaskets or the choppiness of the curves. The early expressionist imagery also helps make the interiors a little more compatible with the shell: the time warp between the two is paradoxically lessened by the more retardataire (technologically speaking) appearance of the exterior.

Thus one client is allowed to integrate her taste and lifestyle into this "machine" without feeling too compromised. Yet the house still carries enough of the futuristic feel to act as an appropriate setting for the other client's computer-fixation.

Although the house is too customized to offer any lesson in the economic benefits of this metal prefab construction, it does make another point. It demonstrates the accessibility of a highly technological idiom to house design (and other architectural building types). By applying these techniques in a highly individualistic personalized manner, Tigerman shows it's not what you use, but the way that you use it. [Suzanne Stephens]

#### Data

**Project:** Aluminum house, near Chicago, Ill.

**Architects:** Stanley Tigerman & Associates, Chicago; Stanley Tigerman, partner in charge; Anthony Saifuku, associate-in-charge.

**Contractor:** Kelmer Construction Management.

**Client:** Name withheld.

**Program:** a 7200-sq-ft house for a family of five; observatory, indoor pool, family room, and separate bedrooms for the children, maid's room.

**Site:** one and a half acres on secluded cliff overlooking Lake Michigan in one of Chicago's older suburbs.

**Structural system:** "metal bearing wall" (structural mullion) system of lally columns 5 ft on center supporting steel open web joists spanning 35 ft. Lateral bracing is provided by diagonal tension cables with turnbuckles.

**Mechanical system:** all electronic, low voltage, computer-controlled system. Composite radiant and air bar comfort conditioned.

**Major materials:** three-in.-thick insulated aluminum panels; aluminum tubes, channels, and mullions for window wall construction; neoprene gaskets; wallboard, plaster, tile, steel, insulated glass. (See *Building materials*, p. 90.)

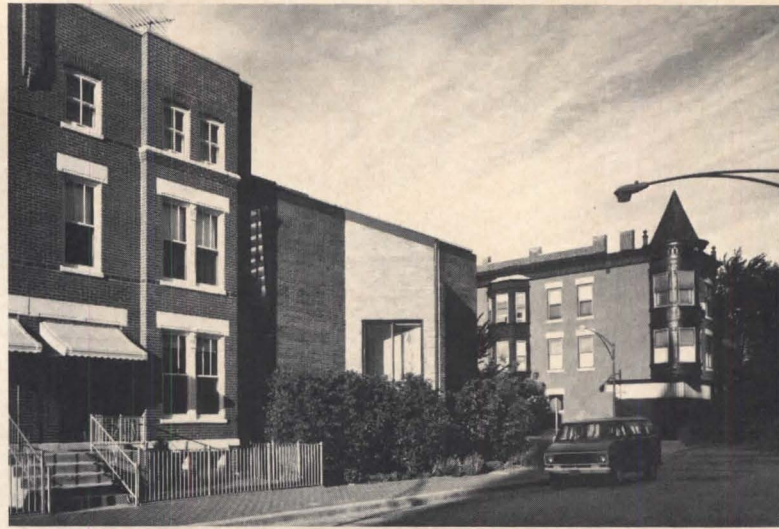
**Consultants:** Raymond Beebe, structural; Joe Karr and Associates, landscape architect; Robert Phillips, electronic engineer.

**Costs:** withheld at request of client.

**Photographs:** Philip Turner, except David Woodhouse, left.

Netsch house, Chicago, Ill.

# Netsch



Street elevation (above); ceiling during construction (below left) showing "field theory" diagram; main living space (below).





The simple brick massing of exterior elevations are intended to fit house in with surrounding low-scale old residential neighborhood.

### Architect's house in Chicago provides a personal proving ground to test his design theories on a small scale.

On an empty 40' x 75' corner lot in Chicago's North Side, Walter Netsch, a design partner of Skidmore Owings & Merrill, built his house for himself and his wife, a state senator. The approximately 3000-sq-ft house design was generated according to Netsch's "field theory," which he has been developing since the mid-1960s.

#### Architect's intention

The house comprises one unit of the "field"—a square over which a rotated square is placed. The goal of such a theory is to create a variety of spaces (main spaces and ancillary ones) in a rational manner. From this unit, an additive grid can be formed that is open-ended in both orthogonal and diagonal directions. Thus the townhouse, while comprising only one unit, bears implications for the formation of a row of houses, a cluster of houses, multiple dwellings, etc.

To date, Netsch's experiments in field theory at SOM have been applied to large-scale construction, usually of institutional nature. (P/A March 1969, p. 98; April 1973, p. 82). When SOM was hired to execute a feasibility study for replacing St. Louis' Pruitt-Igoe housing with alternative multiple dwellings, Netsch hoped to harness field theory to help develop inexpensive, spatially flexible, units without corridors. Finally however, the field theory solution was not recommended in the study, due to certain economic and programmatic snags.

In the house for himself and his wife, he saw one sort of opportunity to experiment further. There is a major difference, of course, in the program and disposition of interior spaces. The interior of the volume is essentially an open loft with living levels spiraling partially around a kitchen-bathroom core. The house, in Netsch's words, becomes an "event" in which the sequence of spaces is three-dimensional along a strong organizing diagonal.

While Netsch had wanted to clad the exterior of the house in aluminum panels, the price came in too high because of the non-standard dimensions of the walls. Therefore, he decided on brick cladding on concrete block walls with a wood frame interior and roof structure.

#### Clients' vision

Architects who design their own homes usually find themselves continually making "improvements." Netsch is no exception. Yet when the 1920s Tudor-style building in which he and his wife had been renting an apartment turned into a condominium, they realized that as long as he was becoming an owner (and as the only architect in the building with possibly more than the usual responsibilities), he might as well have his own house. However, it had to be located in Senator Netsch's district. Since neither of the Netsches wanted to tear down a building, they sought an empty lot—one wide enough to apply the field theory concept. However, the house's loftlike tree-house quality seems as derived from the personal as well as theoretical preferences of its most active client, the architect.

The program wasn't as complicated as the site selection process. Mrs. Netsch needed a private study, since she is a law professor as well as senator. Neither wanted long flights of stairs to climb. With their careers keeping them apart much of the time, they saw the house as a place where they would be together alone. (Nevertheless, they find themselves entertaining politicians, architects, and other friends quite often.) In addition, an extensive art collection required ample expanses of blank walls for display, plus appropriate illumination. The blank walls of the perimeter walls and the interior partitions responded to that requirement, as did strip skylights in the hipped roof.

Asked for his reactions to the house, Netsch points out that the heat load through the skylights was greater than anticipated: corrugated plastic shields had to be installed outside. In addition, the furniture has proved to be too static.



#### P/A reaction

With a geometrically determined solution, questions of a functional nature will inevitably present themselves. Unresolved areas tend to exist between the uses the building must serve and the exceptional order imposed by formal constraints. Walter Netsch's "field theory" buildings often suffer from this disjunction. A loss of orientation, absence of scale, and monotonous undefined masses are problems frequently observed in the built results. In this light, it is to the architect's credit that he continues to try to improve these geometrical constructs—even to the point of living in one.

But here too, the design solution is characterized by spectacular successes and disturbing failures. The exteriors of these buildings "pose an insoluble problem," P/A correspondent Stuart Cohen comments. "Since they are only volumetric projections of their plans, the openings, to be integral with the system, must occur as voids between solid volumes . . . Because volumes are non-hierarchical and undifferentiated, they do not generate logical locations for wall openings. Netsch's windows are awkward where they puncture walls."

Besides the seemingly arbitrary placement of windows in the Netsch house, there are other difficulties. For instance, the two elevations exposed to the street do not communicate their design rationale. With only one angular projection visible, the viewer is not able to comprehend the overall design concept. The garage, a rectangle, is obviously tacked onto the rotated square unit. The canopy that extends from the entrance is a gesture towards incorporating it into the geometry, and is even counterbalanced by an overhang on the opposite elevation. But it nevertheless remains unconvincing.

Inside, on the other hand, the spaces are lively, dynamic, and rather dramatic. The spiral tree house has taken over from the rotated squares. One sees the vestigial remains of the rotated square played out in the roof's beams and rafters (see reflected plan). It becomes a diagram of the field theory construct that now explains the

## Netsch

configuration of the house's exterior envelope. The skylights work exceptionally well in illuminating the art, plus providing lots of natural light with privacy, and even exploiting unconventional views: a diagonal skylight heading away from the entry toward living areas provides the visitor with a surprise glimpse of a nearby church steeple.

Similarly clear-cut movement patterns augment the three-dimensionally ordered hierarchy of living spaces. This spatial success, Cohen feels, stems from the *hierarchical* nature of these spaces—in contradiction to the field theory notion of a non-hierarchical and extendible "field."

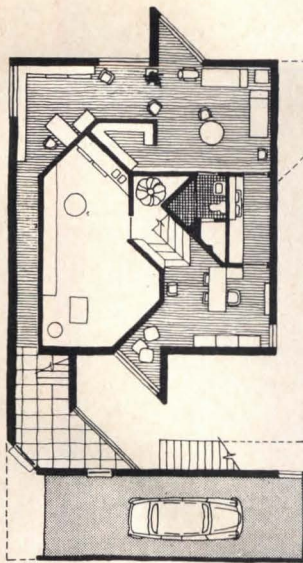
Nevertheless, unresolved elements still occur. Ancillary spaces sometimes create intriguing niches: for instance, those which remove the windows from the wall planes and diffuse the daylight. But at other times they seem left over. The very formal quality of the design concept makes one more aware of the aspects of the design that are not as exacting: For example the kind of detailing inside and out (the choice of stock drainpipes, skylights, the way a baseboard stops abruptly on the ramp, the arbitrary manner in which air grilles pop out). Detailing is casual to the point of being sloppy.

Another discrepancy: the expectations established by the spiraling circulation aren't carried through consistently. The parti suggests that each quadrant of the plan will shift a half-level as one walks around. But only one quadrant out of four is actually shifted vertically. Perhaps that's just as well one can always argue, considering normal living patterns.

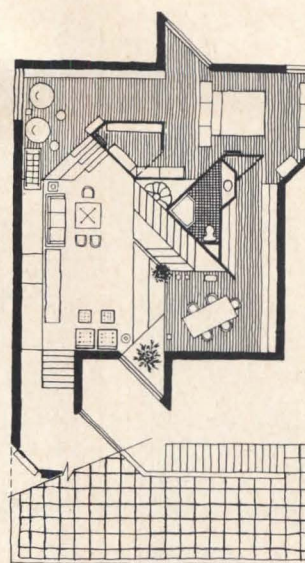
In addition, two scales are combined in the stair treads to accommodate dual roles as casual seating perches and actual steps. But the results can be rather disconcerting. Similarly, the device of using art objects to fence off the platforms instead of handrails is clever though rather cumbersome.

The plethora of paintings, sculptures, and objects in this loftlike space with exposed framing re-creates the cluttered ambience of a Victorian attic. Besides its indescribable charm, the anti-purist comment it makes in contrast to the more austere SOM aesthetic one would expect is exceedingly witty. If anything is in conflict here, it is Netsch's attitude toward his art objects and his attitude toward this space. Often the one interferes with the experience of the other.

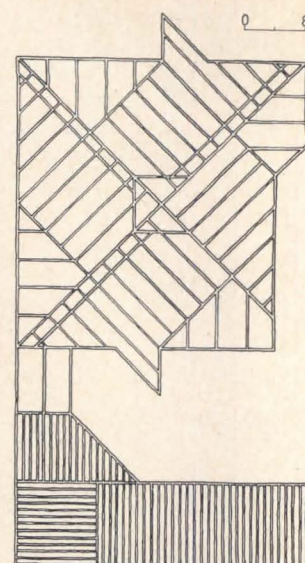
What does become clear in the long run is that this very personal statement is best taken on its own. When analyzed in terms of its implications for residential design, or with regard to its urban context, the "field theory" part of design solution is once again entrapped by its own self-consciousness. As a part of a way of approaching architecture, the theory, as demonstrated in this house, still needs further refinement. At this point the house is more successful in reflecting the architect's individuality. [Suzanne Stephens and John Dixon]



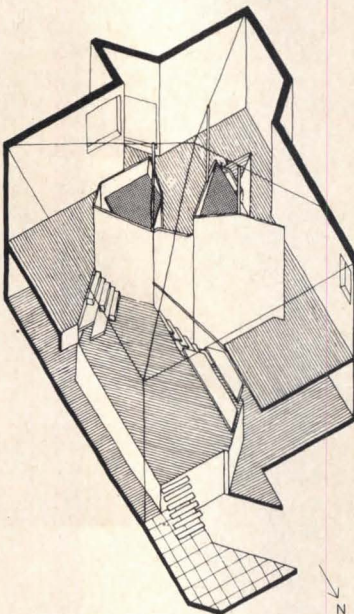
Levels 1, 2 (hatched), 3 (grid).



Levels 4, 5 (hatched) 6 (grid).



Reflected ceiling plan



Isometric



View of study-bedroom, level 2.

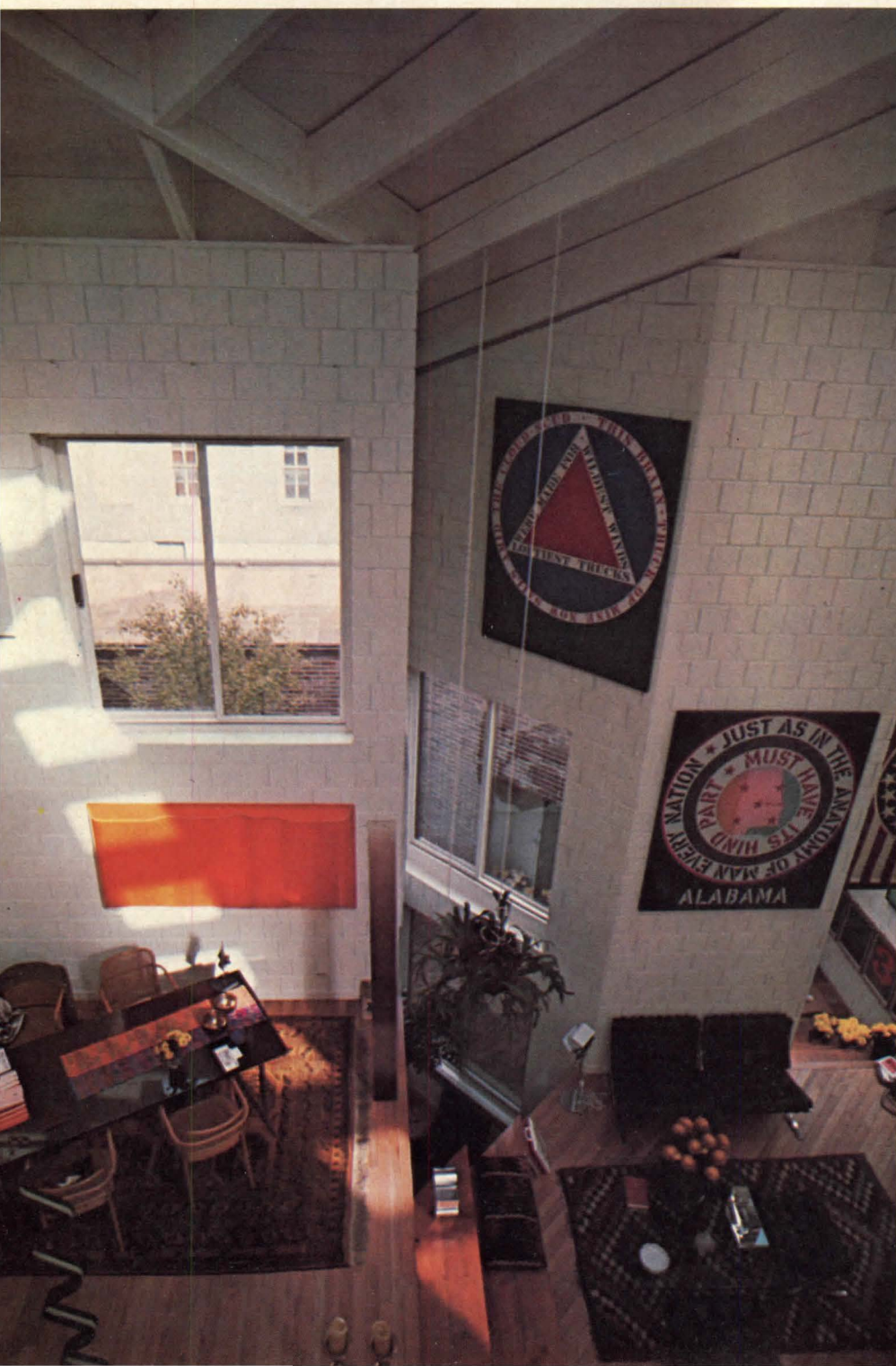


View of stair at entry, level 3, with view of down ramp to study on level 2.



View of stair from level 2 up to main living area on level 4.

The treehouse image is conveyed through the emphasis on vertical spaces in living (right and bottom) and bedroom areas (below right). The clutter of art objects both introduces the notion of a Victorian attic, and at times interferes greatly with the spatial dynamic. From the sixth level one has access to outdoor deck (below).



#### Data

**Project:** Netsch house, Chicago, Ill.

**Architect:** Walter Netsch (Skidmore Owings & Merrill) Chicago, Ill. Robert Wesley (SOM), technical coordinator.

**Client:** Walter and Dawn Netsch.

**Program:** an approximately 3000-sq-ft space in essentially one open volume for a husband and wife with separate career demands. Only private spaces are on the lowest level where an office for one, a lawyer and senator and a study for the other, the architect, are located.

**Site:** a 40' x 75' corner lot in Chicago's north section.

**Structural system:** brick and concrete block walls, wood frame.

**Mechanical system:** electrical heating and a/c; electrostatic filter, humidifier.

**Major materials:** brick, concrete block, wood, wallboard, laminated ultra-violet thermal-resistant glazing, oak flooring, tile, sliding wood sash windows. (See Building materials, p. 90.)

**Consultants:** Don Belford, structural engineer; Sam Sachs, mechanical.

**Costs:** withheld.

**Photography:** William Lukes.

# Venturi & Rauch

**In Greenwich, Conn., Venturi & Rauch have designed a house that is as complex and varied as the furnishings and art the owners have put in it.**

Mr. and Mrs. Peter Brant, the clients of this house, have an important collection of Art Deco furnishings and objects, as well as other furnishings and paintings ranging from the 18th Century to the present day, and also African, American Indian, and Oriental artifacts. One of their main concerns was that this new house be designed to accommodate these things—particularly the large contemporary paintings—and spatially relate to them in a sympathetic manner. Of course, the five-bedroom, 7474-sq-ft (including two-car garage) house was also to function well as a residence for five. The house is located in a flat, natural clearing on a 30-acre horse farm in a semi-rural area of suburban Greenwich.

## Architects' intention

As Robert Venturi explains the house, its analogies are to the 18th-Century manor house with respect to its absence of shrubbery, its sculptural form, and symmetrical façade with "Palladian" windows looking out over the flat, rolling lawn. This is not the only analogy, however, because as Venturi notes, the front also has a distinct "WPA Post Office" aspect to it, in addition to the Art Deco pattern of the two-tone green glazed tile. As one moves around the house it "becomes kind of Bauhaus at the garage with its banded windows above, then in the back it becomes kind of Deco at the dining room alcove, and ends up with a Regency-like porch at the west side."

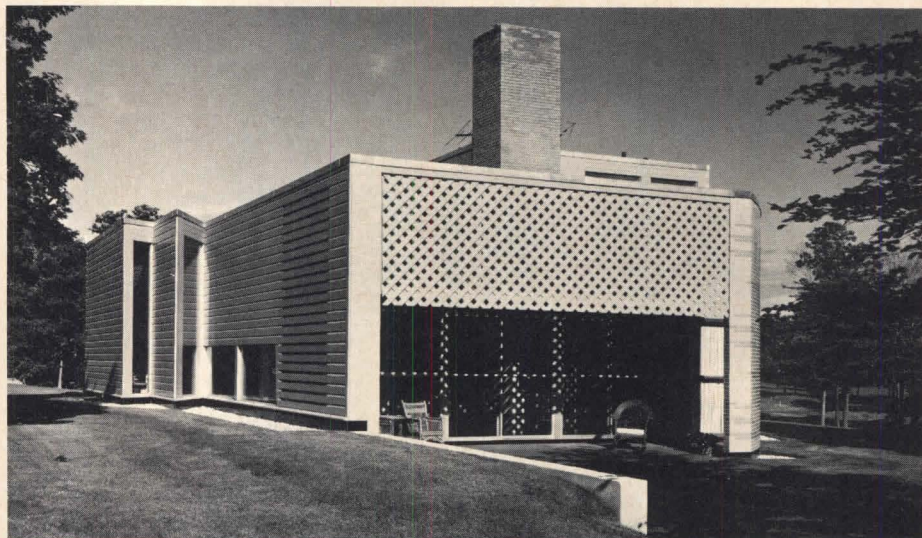
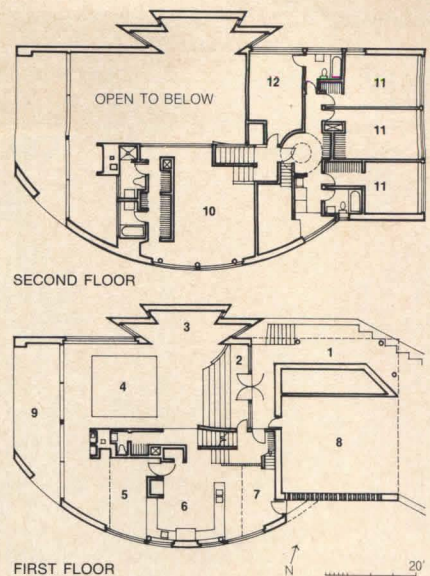
The house acknowledges that in the country one arrives by car, and as a consequence a side driveway leads to an auto court in front of the garage. Like the typical suburban American house, however, it also acknowledges that one rarely enters through the front door and, as a consequence, there is none; one enters via a covered walkway alongside the garage. In-

side, a formal vestibule leads up to a spacious, 14-ft-high living/dining area where windows have been minimized, except at the glazed west end, to give wall space over to large paintings. The rooms are essentially symmetrically arranged, but as Venturi explains, the symmetry soon breaks down because of functional necessities, and the kitchen becomes "kind of a central control point."

But historical analogies are not the only concerns the architects were interested in here. The house has several scales, Venturi notes: a "normal" scale at the front, a small scale at the playroom and its terrace, and a large scale at the living room and its side porch.

## Clients' vision

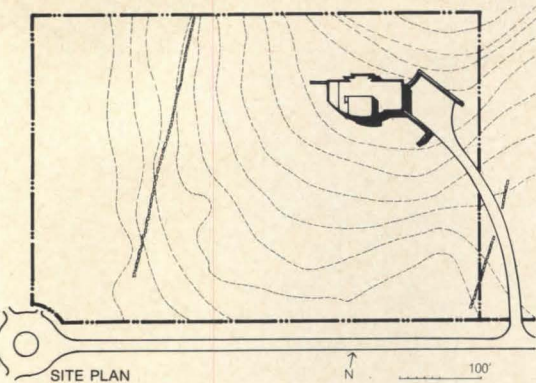
"One of the problems with apartments" says Mrs. Brant, whose family lived in one in New York before moving to their new house in Connecticut, "is that there was never enough of the right kind of wall space, and the big paintings always become squeezed." Consequently, the Brants' requirements were not only for functional family shelter, but they also wanted a place that would sympathetically accommodate their art and furnishings.



This was especially important to Mrs. Brant, whose formal education in art history and interest in connoisseurship have given her a trained and demanding eye.

The idea of the house as an object of high architectural art was of primary importance. "We looked at several young architects," Mrs. Brant said, "but chose Venturi and Rauch because we have always liked their work." One of the things Mrs. Brant likes most about the architects' work, she says, is their understanding of space planning. The tight, packed-in aspect of this house, she says, is not dissimilar to the space planning concepts found in Le Corbusier. "We tried not to say what we wanted, other than in a very general way in terms of space," Mrs. Brant explained, "because we wanted the architects to do the house their way . . . they knew we had period furniture, they knew the paintings . . . and we trusted them explicitly."

Would the Brants change anything about the house now that they have lived in it for a while? Mrs. Brant says now she wishes the house were bigger, but that they would never consider adding to it. "To me it's like a small English country house," she says, "and we adore it."



Beginning with a combination Palladian/WPA post office front in two-tone glazed brick (right), the house becomes "Bauhaus" at the garage (below). At the rear (facing page) a zig-zag moderne dining alcove complements a Regency-like side porch off the living room.



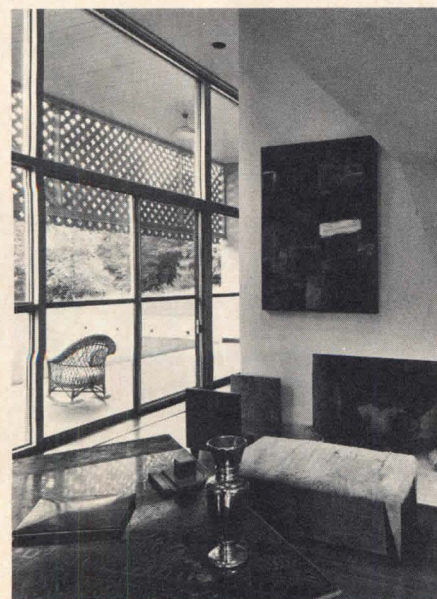
## Venturi & Rauch



Inside, a "formal" vestibule (above and below) connects garage and entry to the living spaces.



Like living room, study (below) looks to porch.



### P/A reaction

The Brant house looks relatively simple, but that aspect of it is pure deception. To use some of Robert Venturi's own terms, the house certainly has an aspect of the dumb and ordinary about it, yet at the same time it may be one of the most complex and contradictory works to come out of the Venturi & Rauch office. Certain stylistic devices and historicist images that could have been outrageous in combination with each other are synthesized here with grace and subtlety into a form that relates clearly to both "high" and "popular" architecture, but which gets its message across with endearing charm and wit.

On approaching the house, one first sees the curving, south façade where large, ordinary aluminum windows and sliding doors are set into a Palladian pattern against two-tone green-glazed brick, which was chosen to "blend" the house to the landscape. This façade reads as the

front of the house, if by "front" one means the place of main entry. There is a doorway but it is secluded under an eave and serves only as passage from the playroom to an outdoor terrace. The main entry is through a rear walkway adjacent to the carport (or directly through the carport for the Brants), not unlike that at most suburban American houses.

At the end of the walkway, however, and unlike the typical suburban house, one enters a formal vestibule that is dressed in patterned black and white marble reminiscent of an 18th-Century English country house. A few steps up lead to a double-height living and dining area that is terminated at the far end by a glazed wall where thin Miesian columns in pairs lead to a Regency-like porch. The dining area is a zig-zag alcove that juts off the north side of the house, and its ceiling has an Art Deco-like cove-lighted section that seems to recall, in miniature, the overall plan of the



In living and dining areas (color) owners' furnishings find sympathetic surroundings.

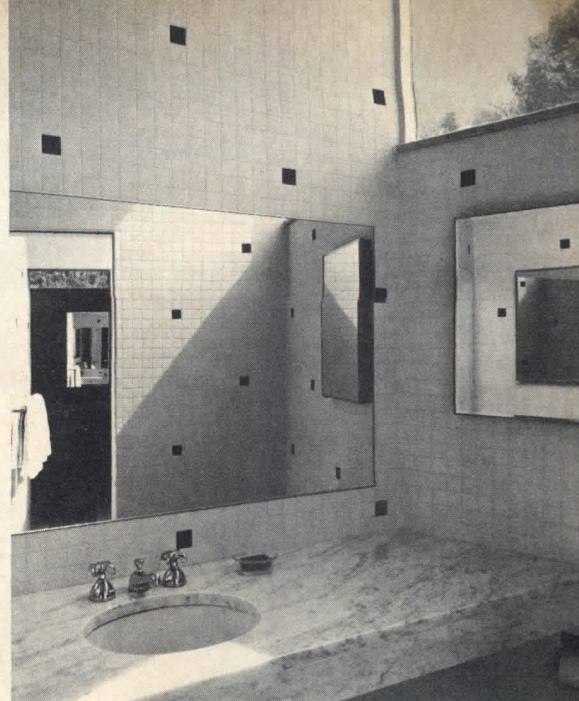


house. To the left of the vestibule a major and a minor (service) stairway lead to the upper level, where three children's rooms and a guest room radiate off one side of a skylighted stairwell/hallway. The master bedroom extends from another side but is raised to higher level for acoustical and visual separation. Here, another cove-lighted section provides soft, indirect light to the room.

If the house involves itself in historical recall of the Palladian style, of 18th-Century English country houses, of the Regency style, Art Deco, WPA, Zig-Zag Moderne, and typical suburban house, it does so no less than the Brants' own collection of furnishings and paintings. For in addition to the important pieces of French furniture of the 1930s by E. J. Ruhlmann and Jean Michael Frank, and the modern American paintings of Warhol and Lichtenstein, the Brants have also collected, and used in this house, early American

paintings, 18th-Century New England furniture, French empire pieces, American Indian rugs and artifacts, and oriental rugs.

It is rare that architect and client come together with such rich and complex sets of associations and objects and are able to share them with each other so successfully in the making of a house. But one senses that the key to the success of the Brant house is that both the architects and the clients were able to look beyond the "fact" of an idea or an image to extract its essence. In this respect, they could work together at a level of communication where the elements of space and objects were analytically dealt with in terms of their basic physical attributes and relationships rather than with their apparent levels of perception and meaning. That would have limited elements to time and place, and would inhibit their unification into the rare level of synthesis and accommodation found here. [David Morton]



"Cubistic depth" is created in bathroom (above).



"Steps" in bedroom (above) are over real stairs.

#### Data

**Project:** Brant House, Greenwich, Conn.

**Architects:** Venturi & Rauch, Phila., Pa.

**Contractor:** Louis E. Lee Co.

**Program:** a residence for five, designed to accommodate collection of art and furnishings.

**Site:** a natural clearing in a lightly wooded, relatively flat, 30-acre horse farm.

**Structural system:** wood frame and masonry bearing walls supplemented with steel members where required.

**Mechanical system:** combination hot water/warm air heating, gas air conditioning.

**Major materials:** glazed brick main façade for richness and color contrast; wood siding elsewhere; all green color to complement site. (See Building materials, p. 90.)

**Consultants:** Sandra Brant, interiors; Vinokur-Pace Engineering Services, Inc., mechanical; The Keast and Hood Co., structural.

**Client:** Sandra and Peter Brant.

**Costs:** withheld by request.

**Photography:** Cervin Robinson.

Private residence, western Conn.

# Rudolph

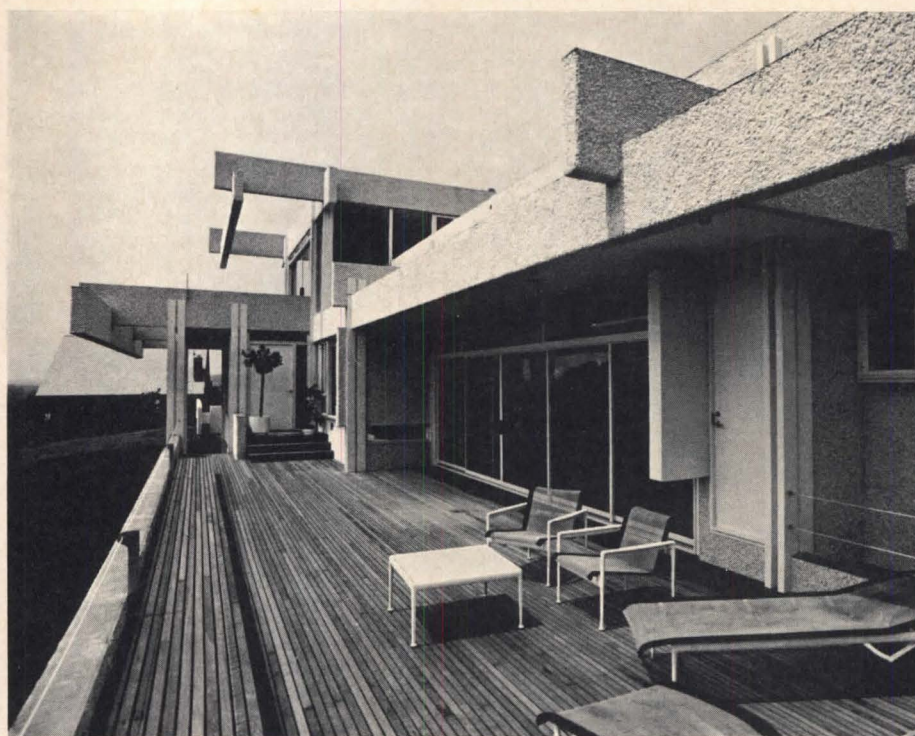
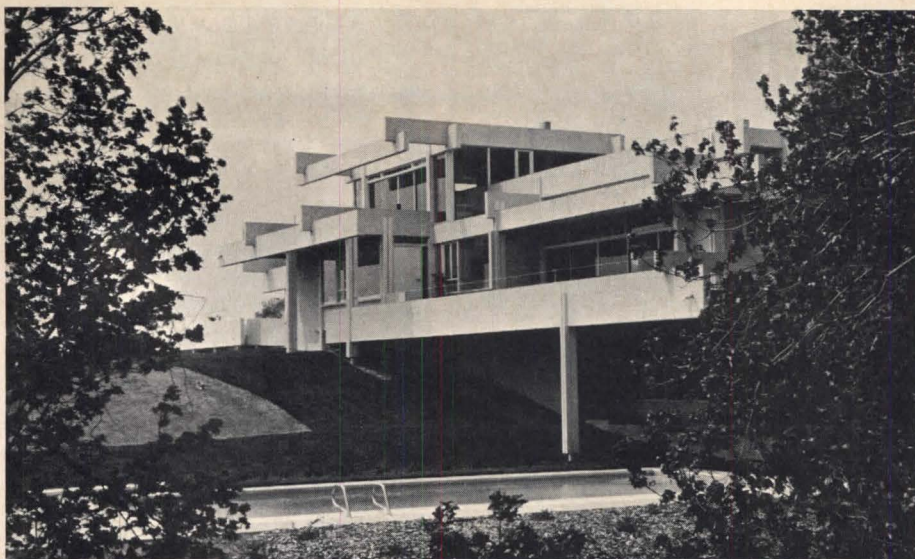
**A seven-level house designed by Paul Rudolph faces Long Island Sound from a hill in western Connecticut.**

In this house designed for a family of four, rooms are arranged in a linear fashion but on different levels, with the living and dining rooms forming the essential separation between the master bedroom and guest room at the east end of the house, and the two children's rooms, study, and kitchen at the west end. One particular requirement of the clients was that all rooms have a view to the Sound. As a result, the open, exposed side of the house faces south, where overhanging outdoor terraces and flat, deep beams give protection from the sun. In addition, cool breezes from the Sound move so easily throughout the house that air conditioning is rarely used. The house is constructed of interlocking, prefabricated boxbeams covered in field-applied white cement and aggregate.

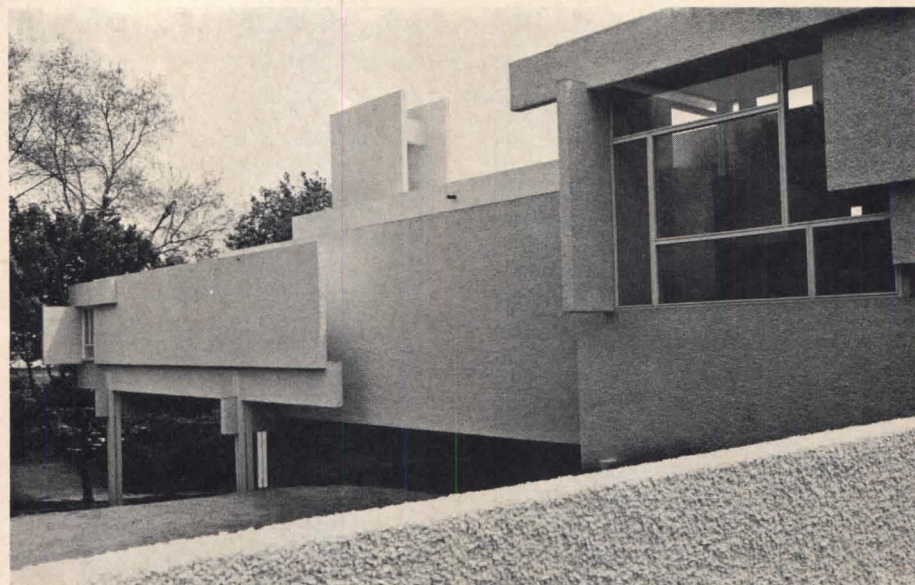
## Architect's intention

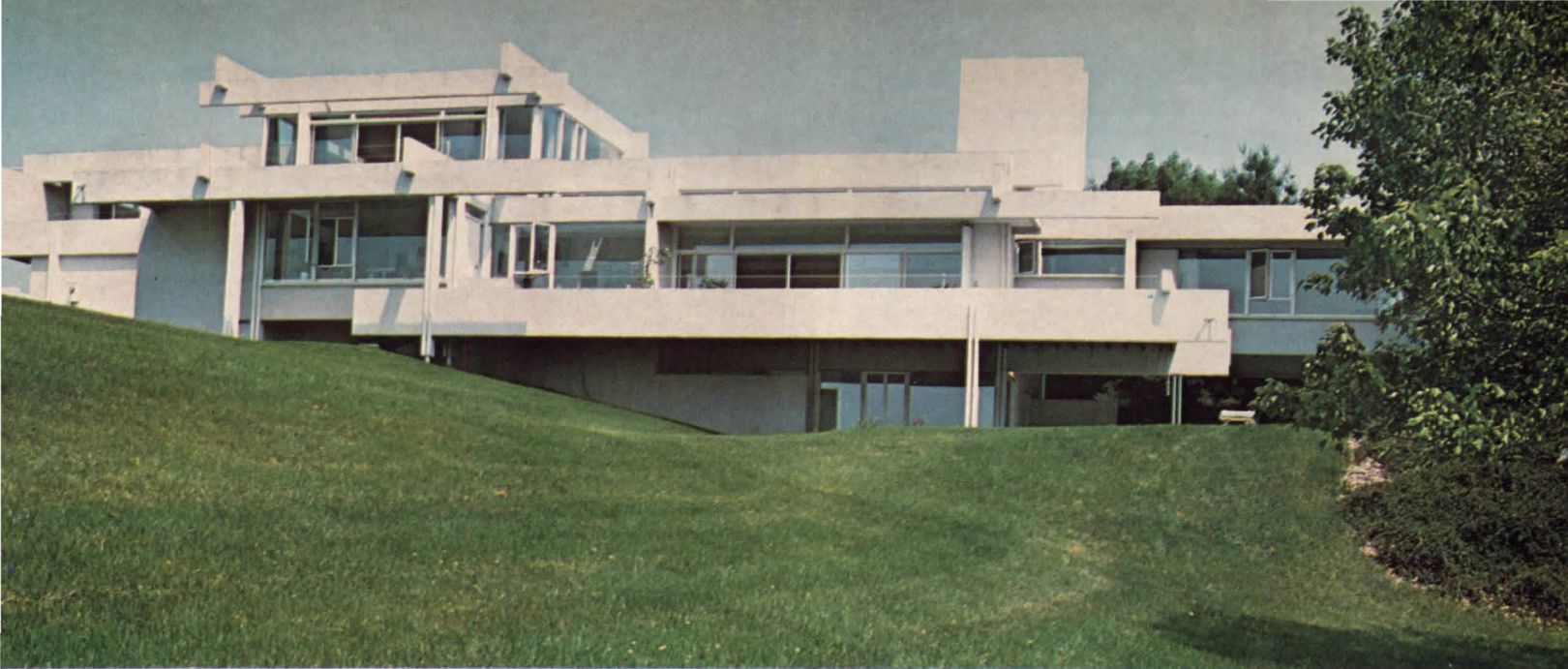
A major concept dealt with here, Paul Rudolph explains, is motion ("which the 20th-Century is about"), and specifically with the idea of thrust and counterthrust of spaces and volumes. It would seem natural, then, that the spatial concepts dealt with by the De Stijl and by Wright—especially his Fallingwater—would interest Rudolph because, he says, they dealt with the same kinds of problems. But the work of Le Corbusier, which seems so opposite, also interests him because of its sense of containment, of pulling in. If you look carefully at a building by Wright and one by Le Corbusier, he explains, they're not so different "if you do one to the other," that is, if you "push in" the Wright and "pull out" the Le Corbusier.

In the house in Connecticut, Rudolph has not assigned roles to materials. Everything is coated in the same aggregate "so you can't tell a load-bearing wall from a beam," which, he adds, "is very anti-20th-Century architecture." But what he was concerned with here was the idea of walls and structure as planes. Although he has



Open, south side of house (top, above) contrasts with more closed, north entry side (below).





South side of house (above) looks to Long Island Sound. Cantilevered east side (below left, right) dramatically illustrates boxbeam construction.



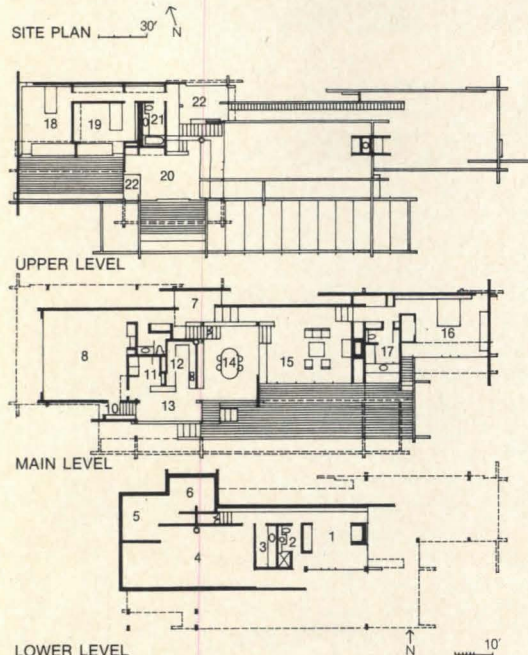
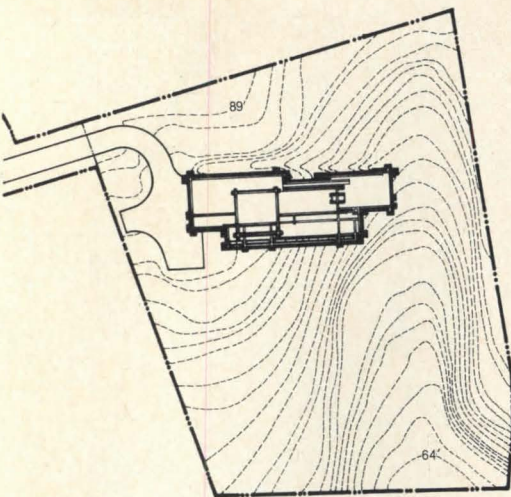
Detail (below) of North façade (left).



## Rudolph

Inside, public spaces flow into each other, bathed in soft light from the glazed façade facing south toward Long Island Sound. View from dining room (right) shows skylit passage-way to master bedroom. In opposite view (below) study (detail, middle right) is seen above dining room. Skylight passage (below right) extends from entrance foyer to master bedroom, terminated by vertical circulation at each end. Detail (facing page) is from upper landing that leads to childrens' bedrooms and study.





**KEY:** 1 Work room, 2 Bath, 3 Darkroom, 4 Sail drying room, 5 Storage, 6 Mechanical, 7 Foyer, 8 Garage, 9 Powder room, 10 Service entry, 11 Laundry, 12 Kitchen, 13 Breakfast room, 14 Dining room, 15 Living room, 16 Master bedroom, 17 Bath, 18 Bedroom, 19 Bedroom, 20 Library, 21 Bath, 22 Open to below.



dealt with this notion in concrete, he has not worked with it in wood before because, he says, wood by its nature becomes a linear element. But in this house, with wood treated as planes, Rudolph explains that he was able to achieve relative freedom and lack of purity in structure which, he suggests, may be a concrete aesthetic treated in another way.

Throughout the house the idea of thrust and counterthrust is expressed through the creation of great tension between the overlapping and interconnected volumes and planes of rooms, walls, beams, and even the swimming pool, extending from and meeting each other in different ways. "I want a million and one things going on at once," Rudolph says, "but they must be resolved and balanced, because it is through the resolution of tension that something becomes dynamic."

#### Clients' vision

"Our main wish," the client said, besides having views to the Sound, "was that we wanted the house to be absolutely beautiful . . . we didn't want just a number of rooms—you can get that from anybody; but Rudolph is a genius with spaces and light and we wanted a light, airy feeling—not a big house, but a 'smallish' one, like a piece of sculpture."

The clients had previously lived in a ranch house, which they said was okay but lacked style, character, and beauty, and that what they had always wanted was a modern house. They originally talked to some local architects but were then encouraged, through friends, to see Rudolph, who had worked for the friends in the past. "He won't want to do a small house," the clients argued, but they were surprised when he said he would.

"What really impressed us," they said, "was that he does all of the designing himself; he worked out everything, and if there was something we didn't understand, he would make a sketch to explain it." The clients wanted that close relationship with the architect because they had some very distinct notions of their own about what the house should be like in terms of how the public spaces would flow into each other, of light and views, and of its general ambience of simplicity, inside and out.

The only changes the clients made were to make the kitchen smaller, which they now realize was a mistake; they also wanted part of the living room ceiling lowered to make that room appear smaller, and they asked that one flat beam not be included over the main terrace. "You have to work very closely with an architect to get exactly what you want," the clients said; "we respected each other. Now we have a house we think is gorgeous."

#### P/A reaction

It is true, as Rudolph said, that there are a million and one things going on in this house. But it is also true, as the clients said, that it is simple. The idea of complication and simplicity may seem incompatible, but when the parts are fused together

into a whole of such logical clarity and precision as they are here, the individual elements become subsumed in the total conception. The tensions of thrust and counterthrust, and of opposing planes, are resolved into a form that is balanced and dynamic, but which also imparts a distinct sense of serenity at the same time. But it is precisely because the opposing forces are resolved, thus making the form dynamic, that the sense of serenity, of wholeness, is achieved.

The form of the house is sculptural in that it "occupies" the space around it through its suggestion of being capable of extension in all directions. This makes one more aware of the space it occupies. But, also like a piece of sculpture, it is a contained form. It not only sets up a system of dynamics within itself, but it also establishes and resolves tensions between itself and its surroundings.

The clients wanted a sculptural form, and they got it. But one thing that rarely happens in cases such as this is that the clients also got an extremely functional house. Interior spaces flow into each other in an easy way, but are private where necessary. The street façade is almost completely enclosed, yet an open spaciousness inside belies this fact.

On many levels, then, what this house is really about is tensions and their resolution. It deals with tensions between thrust and counterthrust, between opposing planes, between public and private, open and closed, extension and containment, and between formal and natural space. It is extraordinary to deal with so many opposing forces at once, and even more extraordinary to have them so masterfully resolved. [David Morton]

#### Data

- Project:** private residence, western Conn.
- Architect:** Paul Rudolph; James Brown, project architect.
- Contractor:** Charles Remlin.
- Program:** residence for family of four; each room with view to Long Island Sound. Rooms are dispersed in a linear fashion on seven inter-related and overlapping levels.
- Site:** on a hill in a suburban community overlooking Long Island Sound; trees saved.
- Structural system:** 40 box beams constructed of ¾ in. plywood with built-in insulation. Interlocking notched beams are connected with a threaded rod through joint and steel clip angles bolted to sides and bottom.
- Mechanical system:** forced warm air; forced chilled air.
- Major materials:** poured concrete foundation, wood box beams, plywood floors, gypsum board ceiling and partitions, exposed field-applied cement and aggregate on exterior, painted aluminum-frame windows with insulating glass. (See Building materials, p. 90.)
- Consultants:** David Hofman, structural engineer.
- Client:** name withheld on request.
- Costs:** withheld on request.
- Photography:** Donald Luckenbill, pp. 54,57; David Morton, pp. 55, 56.

# Coate

Thomas S. Hines

**A controversial earth-covered house of board-formed concrete presents a provocative approach to the use of raw materials for domestic design.**

Moving up and around the alternately rolling and precipitous hills near Santa Barbara, Calif., then along the encompassing driveway, one catches glimpses of rough concrete formations that recall the cave-enclosed cliff dwellings at Gila and Mesa Verde. As one pulls into the central parking space three round concrete chimneys and a larger, slightly taller circular watch-tower, bombard one with more recollections: from the Appian Way to the Los Angeles freeway, from the totem heads of Easter Island to Le Corbusier's rooftop "landscapes."

The "house" is still not visible, because the visitor is on top of it—on a roof of densely sodded lawn, interspersed with brick plazas tied together by concrete parapet retaining walls. Back across the parking space to the east lies a separate unit of concrete sod-covered bunkers, housing garages on the north side and guest rooms on the south.

Symbolically and operationally, the tower forms the spine of the house, dropping a stair down from its summit like a caisson into the two lower floors. The main entrance is from the top through a rectangular hole in the earth roof, with brick stairs descending to an open-topped terrace abutting the tower. On the west side of this sunken terrace, a bank of casement openings leads into the house. Inside, an open "hallway" runs the length of this space, north to the kitchen, dining, and service areas, south to the baths, bedrooms, work areas, and spiral tower stairs. From the central hallway, broader stairs descend to the vast living area (itself reminiscent of a Mesa Verde Great Room), which overlooks the pool and the ocean.

## Clients' vision

When Jesse and Nancy Alexander decided to give up their pleasant but unexceptional Monterey-style dwelling in the

early 1970s and build a house more responsive to their needs and hankerings, they chose Los Angeles architect Roland Coate. One of the most interesting aspects of the project is that clients of such sophistication (with the taste, means, and knowledge to commission practically anyone they desired) would choose a Southern California architect without a large national reputation, who had built good but relatively few buildings, and who worked virtually alone in a small studio-office in Venice. However, they had admired his previous buildings and wanted a local designer they could work with closely through all stages of the process.

Nancy Alexander has a strong interest in, and involvement with, the arts. Jesse Alexander is a professional photographer and documentary film maker who eloquently documented the whole building process in a film called "Mudhouse." A major part of the building program was his need for a laboratory/studio that would assure privacy and convenience and still be integrally connected to the family's living quarters.

The house was to be sited on land the Alexanders already owned, which, though beautiful beyond belief, posed special design problems with its high vulnerability to fire, flood, and mudslides. Yet, in securing protection from the vagaries of nature, the clients also wanted to honor and complement the landscape.

## Architect's intention

The solution to such imperatives was an all-concrete, largely underground house and studio that provided protection and privacy as well as sufficient openings for light, views, and ventilation—a kneading, in a sense, of earth, grass, glass, and concrete. The berm is separated from the ceiling of the house below by a membrane waterproofing system. The walls, floors, ceilings, and foundations are plain, rough concrete poured in place, combining visual simplicity and restrained sculptural plasticity with a sturdy resistance to fire and flood. Interior floors are sealed and waxed; ceilings and walls are left natural.



Jesse Alexander

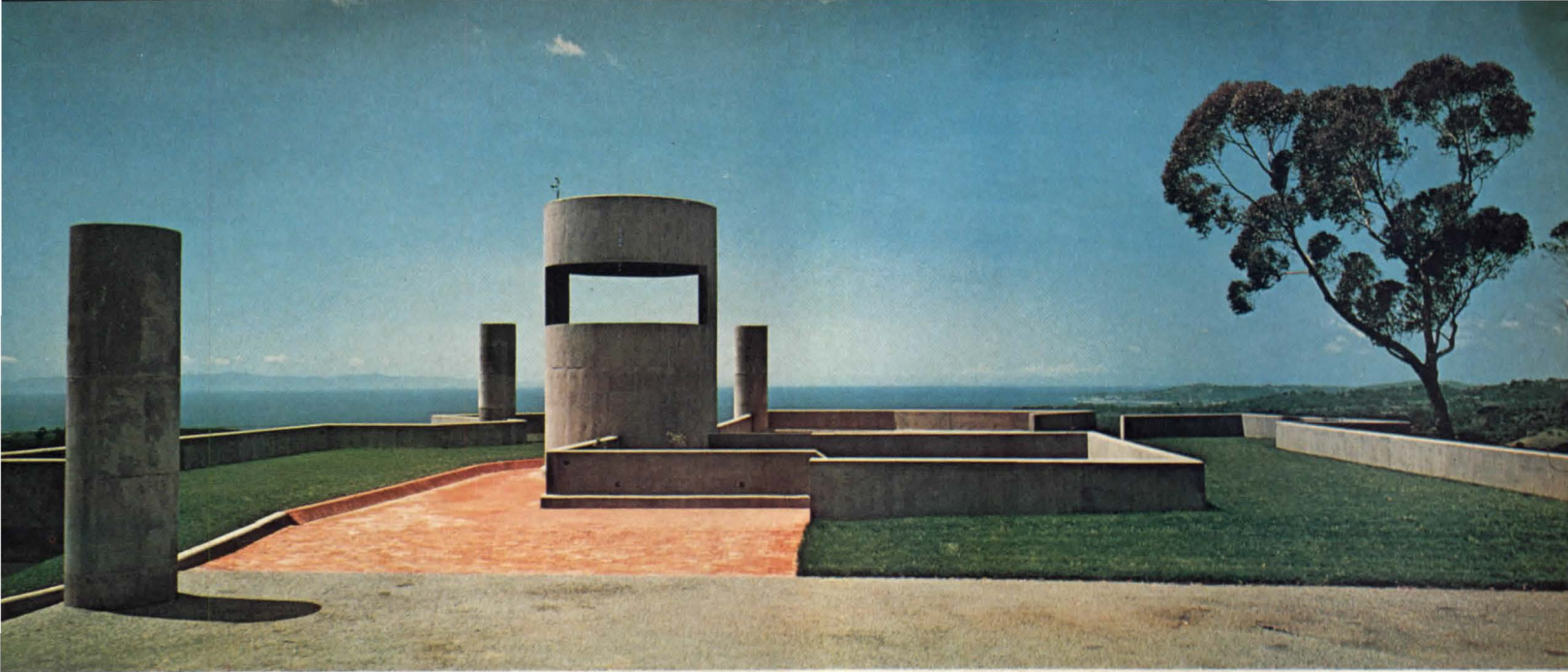
In one of the building's most stunning design features, fixed plate glass alternates with elegantly modulated steel casements.

Both Coate and the Alexanders have long been fascinated with the poignant solemnity and aesthetic toughness of Southwestern ridge and cliff dwellings, and the house is furnished, appropriately, with splendid Indian rugs and artifacts. Yet there was another "vernacular" aesthetic that the architect and owners also admired. While acknowledging various historical allusions, both conscious and unconscious, Coate insists that they loved and learned from Los Angeles freeway construction as well. "Because of the scale of the system and its consistent use of concrete, we can relate to it as we would to a great bridge or boat, in a very emotional way," Coate says. "But it lacks an intended or evoked emotional response beyond the purely functional . . . and that is what I am seeking in architecture."

## P/A reaction

Since its completion in 1974, the Alexander house has engendered controversy. Not all critics have shared the architect's, the clients', or my own general enthusiasm for it. While some respond positively to its cool austerity and large, eloquent serenity, others reject it as being too "cold" and "monumental." A Venturi house it is not. Frequently called "Brutalist," the Alexander house forcefully reminds us of the need to define and qualify "the New Brutalism" as a process and a quality of beautifully and lovingly wrought "roughness" and "rawness."

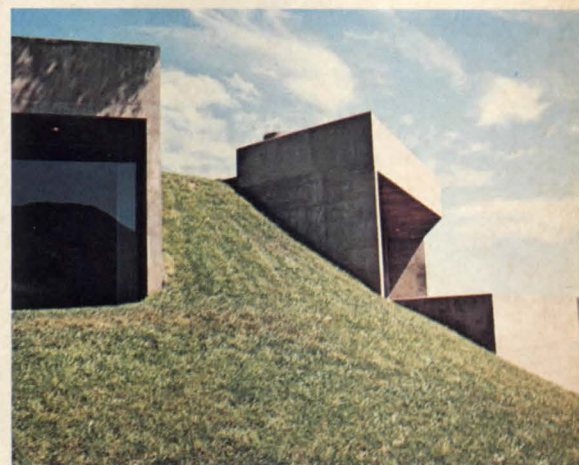
Like most good and beautiful things, the house is rich in ambiguities. It is a serious, even brooding, "sport" of a building. It is elusive and difficult to photograph, though it comes off more convincingly in Alexander's motion picture. The architect and clients obviously "tried very hard" and succeeded in producing an environment that somehow does not seem to be trying too hard. They controlled and created with love, care, finesse—and money—not only a beautiful and comfortable dwelling but a sensitive addition to the California land-



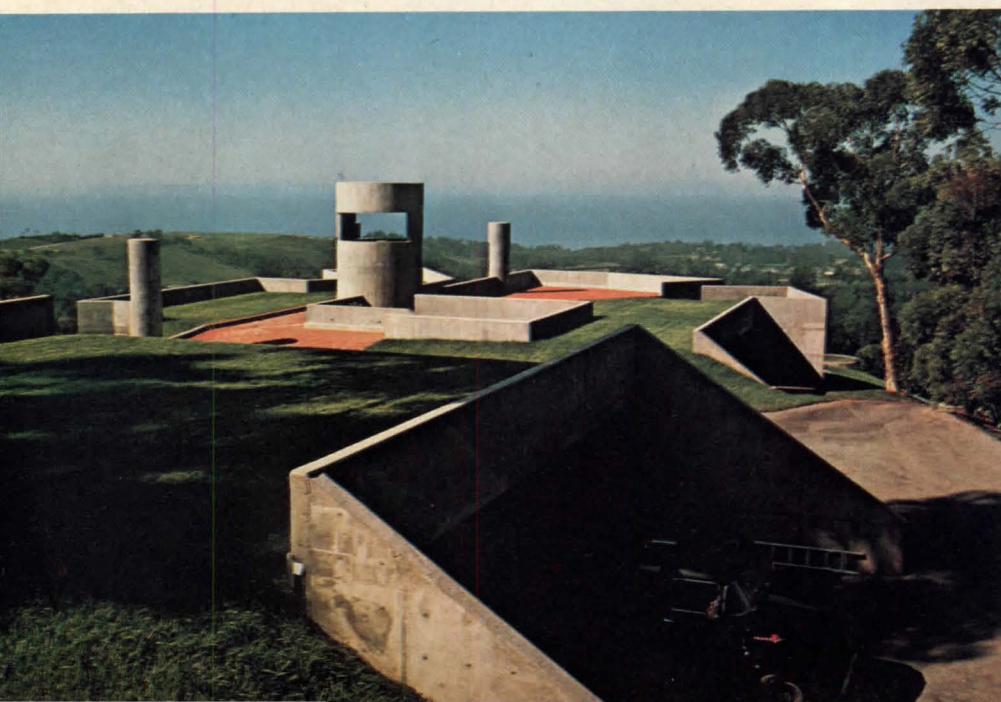
Large circular tower at rooftop entry level (above) is main vertical circulation core to the bunkerlike, sod-covered concrete house below.



Dining, living, and master bedroom wings extend toward pool at west, front end of house (above).



Berm separates dining and living wings (above); stairway (below) is between living and master bedrooms; garage (below left) is on north side.



## Coate

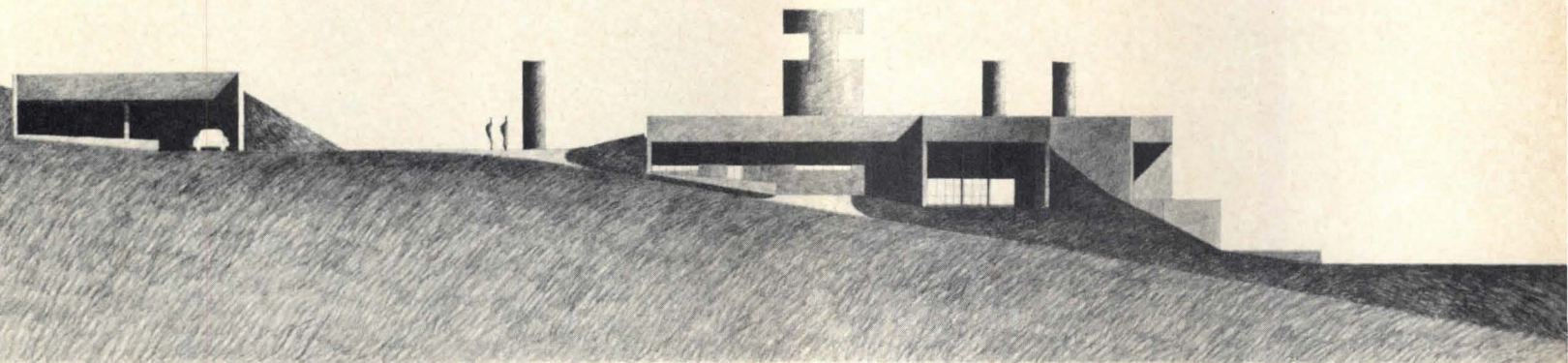


Inside as well as out, concrete is left in rough state, and low dividers are used to separate living room library area from dining room (above and below). Main living area (middle right) is oriented toward west ocean view; inner court (above right) is directly behind living room.

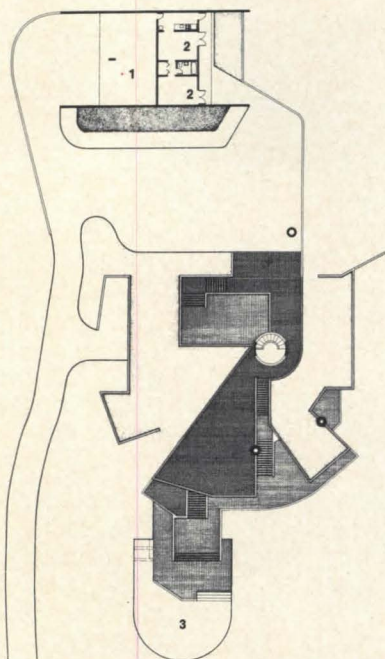


Master bedroom (above and right) is minimally furnished, with quilts and rugs for contrast.

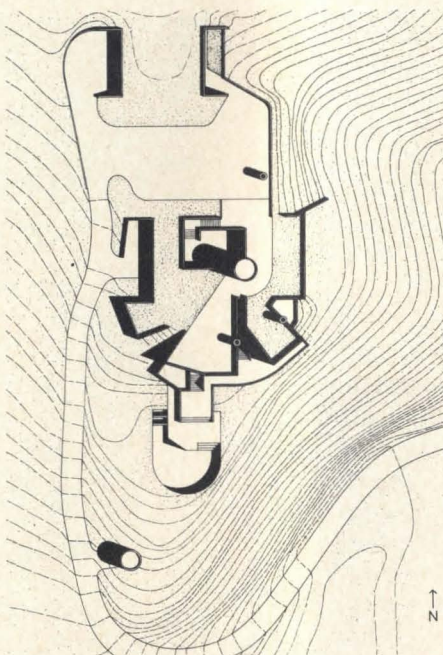




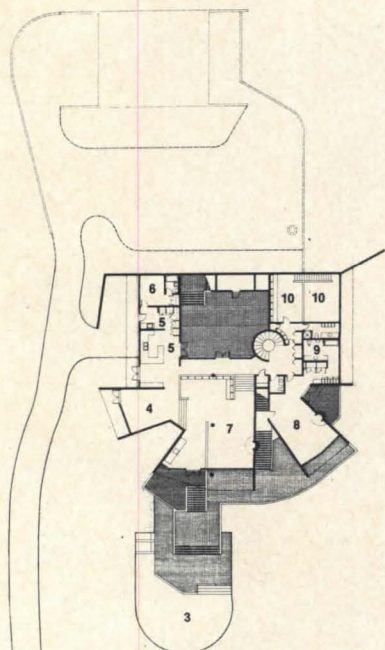
NORTH ELEVATION



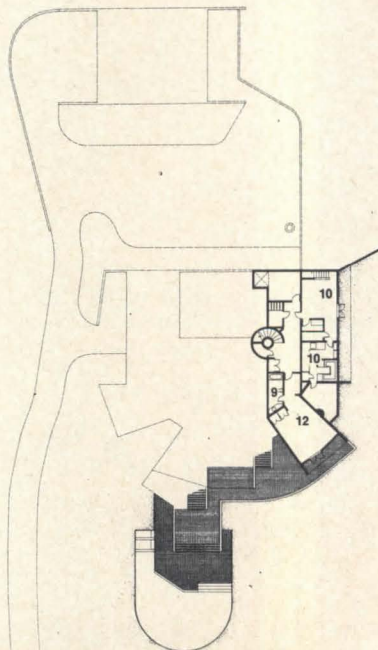
UPPER LEVEL



SITE PLAN



MIDDLE LEVEL



LOWER LEVEL

scape. "Art being bartender is never drunk/And magic that believes itself must die," wrote poet Peter Viereck (*Terror and Decorum*, 1948), "Being absurd as well as beautiful/Magic, like art, is hoax re-deemed by awe." □

**Author:** Thomas S. Hines teaches urban and architectural history in the history department and school of architecture at UCLA. He is the author of *Burnham of Chicago*. Portions of this article appeared in the Mar. 1976 *L.A. Architect*.

#### Data

**Project:** Alexander House, Montecito, Calif.  
**Architect:** Roland Coate, Jr.  
**Contractor:** Frank Ashley.  
**Program:** a house for a family of three (with room for guests) and working spaces for owners in form of darkroom, study, flexible living spaces. Respect for site a major program requirement.  
**Site:** A ridge of land above ocean near Santa Barbara, exposed to wind, susceptible to fire.  
**Structural system:** reinforced concrete for walls, ceiling, roof.  
**Mechanical system:** gas fired heating, a/c condensing units and coils.  
**Major materials:** unfinished walls and ceilings; floors, sealants on floors, earth berms and sod, fireproof brick. (See Building materials, p. 90.)  
**Consultants:** Hahn, Hoffman and Schmidt, landscape architects; Kumar Patel & Assoc, mechanical and electrical engineers; Andrew Nasser, structural.  
**Client:** Jesse and Nancy Alexander.  
**Photography:** Roland Coate, except p. 58, Jesse Alexander; p. 59, top, Jurgen Hilmer.

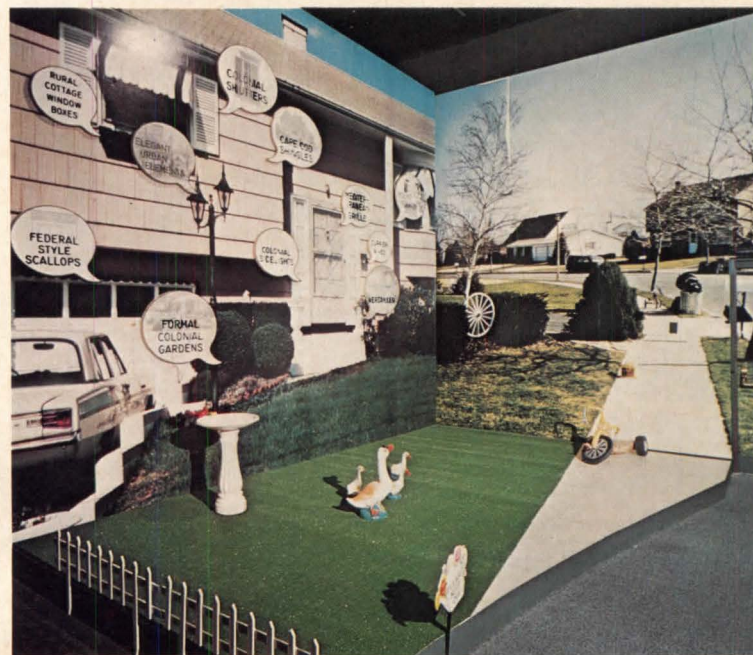
**Key:** 1 Garages, 2 Guest rooms, 3 Pool, 4 Dining room, 5 Kitchen, 6 Service, 7 Living room, 8 Master bedroom, 9 Bath, 10 Studio, 11 Equipment, 12 Bedroom.

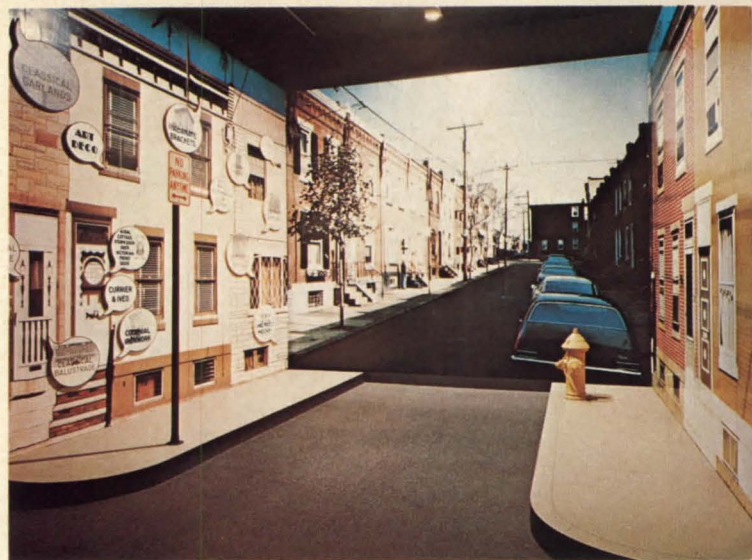
A further aim of this exhibition is to suggest to urban designers, architects, and planners, that they open-mindedly study today's urban landscapes, and especially the symbolic meanings people invest in them. In so doing, these urbanists will learn more than they now know about the needs, tastes, and preferences of people whose lives they influence, and particularly about the tastes of groups



IN THIS ROOM  
WE ENJOYABLE OF AMERICAN  
ATTITUDES EXPRES HISTORICAL  
TRADITION AND EXPRESSES THE  
MODERN TASTE OF THE OCCUPANTS.  
THE CONTRASTING, PRESENT—SAY  
THE CONTRASTING SOFA AND CHAIR  
ARE THERE FOR REASONS  
OF COMFORT AND  
FUNCTION.

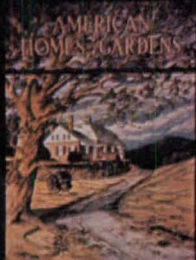
New suburban house, exterior (below), interior (opposite).





Urban row house, exterior (left), interior (right).





Curving suburban streets are the equivalent of the winding country road that led home. Curves were introduced in early planned suburbs to look picturesque and to avoid the monotony of the urban grid. The pattern of curving streets is still the major organizer of suburban space today.

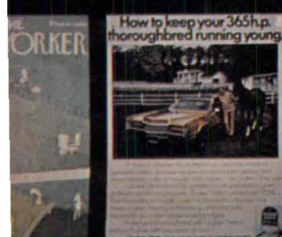
continuous roll-road.



is important and formal. With its shrub, it is the most suburban symbolic communication. of its appearance is an index of ing and good citizenship. Setbacks to the suburban mansion, separating road. The lawn is symbolically en if it is meager, and even if it is concrete or Astroturf.



the private yard, ne the boundaries



Suburbia's curving asphalt driveway recalls the mansion's majestic entrance, where the old carriage road "breaks off from the highway at the entrance lodge and proceeds in easy curves to the mansion." (A. J. Downing, *A Treatise on the Theory of Landscape Gardening* 1849)

The lawn is a stage, the facade a backdrop, and the roofline a romantic silhouette.



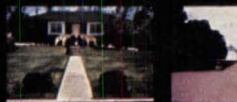
The eclectic ornament on and around the relatively small house acts as a visual booster between the house and the curb, reaching out to you across the big lawn, linking the symbolic architecture



A country residence improved by A. J. Downing following Romantic principles of landscape gardening.



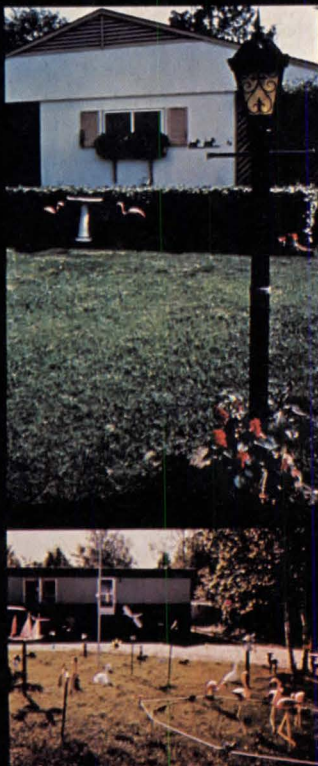
The curving footpath stems from the Romantic landscape's drives and walkways that wind to open up new vistas. The formal footpath originates in European formal gardens.



Cars and recreation vehicles in the driveway suggest social status and symbolize mobility and leisure. A house in the background lends status to the car.



to the moving vehicle. The decorated house and lawn make an impact that pure architectural articulation could never make, at least in time, before you have passed on to the next house.



Lampposts and nameplates are commonly used entry markers in suburbia.

Lampposts make inexpensive, romantic allusions to colonial America, 18th century London, or New Orleans. These associations are reinforced by movie, Christmas cards and historical restorations such as Williamsburg.

Commercially produced lanterns are often adorned with nameplates, ornaments and seasonal decorations. Nameplates may stand alone or be attached to other entry markers. Like mailboxes, they tend to express more idiosyncratic and personal symbolism than do other garden ornaments.



Garden ornaments appear in suburban housing of all income groups, but the most elaborate displays occur in working-class and lower-middle-income neighborhoods. As house prices rise, commercially produced nameplates and lampposts become the most common decorations. Suburban formal gardens and ornaments derive from the formal gardens of American estates which in turn were based on European formal gardens.

Formal gardens of Villandry.



The h by bo



A sym is th



Resid



# THE DOORSTEP



The front facade is the surface on which the builder applies the most elaborate elements of styling. Residents embellish it with statuary, ornamental carvings, lamps, screens, doors, personal messages, and seasonal decorations, and with the most ubiquitous of all decorations, the American flag and eagle.

Residences with stylized fronts and plain backs, "Queen Anne" in taste, and Mary Anne behind, are so common that they offer the media a constant source of comment.

In less expensive housing, the chief source of imagery is the occupant's car. This do-it-yourself imagery is usually accumulated incrementally and is often stylistically incoherent. But it is also vital, because it reveals needs and intentions.

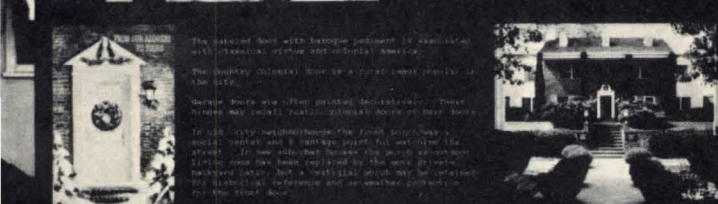
ent is treated as a kind of billboard  
ents and builders.



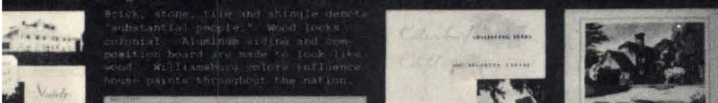
Foundation planting varies from elaborately pruned trees to foundation blocks painted green. Planting is often combined with symmetrically placed statues, lamps, potted plants, rural antiques, and decorative plaques that flank the front door and cluster on the wall surface.



ospitality and warmth, the front door  
element for symbolic decoration.



uilding materials are symbolic, too.



## Symbols in the home

whose values are different from their own.

The section on The Home surveys suburban and urban residential neighborhoods and individual houses. It focuses particularly upon the decorations people add to their houses and yards once they occupy them. But it surveys, too, developer house styles and the housing content of television commercials, home journals, automobile advertisements, *New Yorker* cartoons, developers' blurbs, and mail-order catalogs, because these mass media sources attempt to reach their markets by using residential symbols that reflect current social and personal aspirations.

The physical elements of suburbia—the roads, houses, roofs, lawns, and front doors—serve practical purposes such as giving access and shelter, but they also serve as means of self-expression for suburban residents.

Winding roads, romantic rooflines, garden ornaments, Colonial front doors, and coach lanterns are decorative elements with symbolic overtones that residents use to communicate with others about themselves. The communication is mainly about social status, social aspirations, personal identity, individual freedom, and nostalgia for another time or place. The symbolic subject matter of residential decoration comes from history, rural life, patriotism, and the estates of the rich.

One caveat: suburban housing symbolism doesn't tell us why people live in suburbia, nor does it reveal much about the problems people experience in suburbia; it merely indicates some of their aspirations while they are there. The same applies to urban housing. Also, although the mass media provide interesting information on some group attitudes toward housing, this source should not be taken as the last word on personal and social values in the United States. However, Americans' self-expression in and around their homes is an important clue to their attitudes, the more

The occupants of an Italian medieval street or one of Nash's London terraces could achieve identity through decoration of their front doors, within the scale of a spatially limited, footgoing community. But for the suburbanite living, not in an antebellum mansion, but in a smaller version lost in a large space, identity must come through symbolic treatment of the form of the house, either through styling provided by the developer or through a variety of symbolic ornaments applied thereafter by the owner. (Two scales of communication shown in photos, left.)

# HOUSE STYLING AND SYMBOLISM

"Exquisite Modern Home with Norman French Exterior." (C. W. Leiper)

Residents and merchant builders use styling, as do automobile manufacturers, to augment the symbolic communication of house decoration by evoking the associations people make with different styles. "Colonial

American," for example, suggests European elite jet set.

## SOURCES OF AMERICAN STYLING

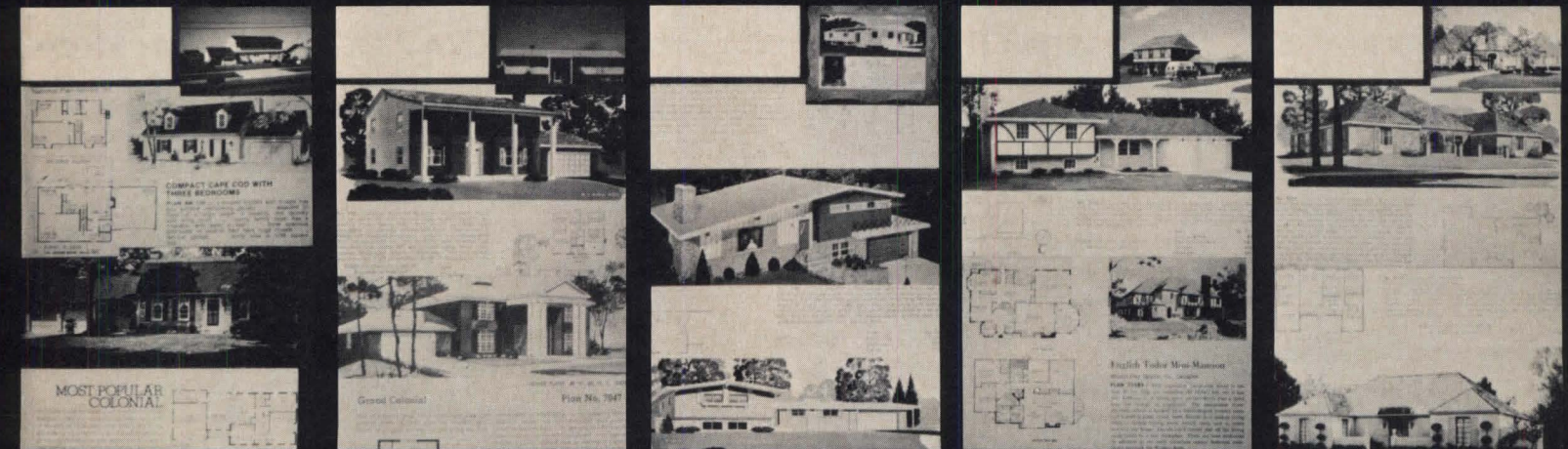
The chart below illustrates four main sources or exemplars for recent American styling. These styles are reproduced by owners and builders with different degrees of accuracy

ranging from "hot" (close to source) to "cold" (a distant copy). At the "cold" end of the scale, styling may be watered down, perhaps for economic reasons, to a minimum set of

cues that makes the styles may be mixed. For associations as, for example, marked "Prairie Palladian."



What are the minimum cues required to define a style?



# LISM

ook 1964)

sts Yankee virtues, "French Provincial"  
nd "Modern" suggests the international

zable, or  
vey multiple  
the house

COLD

B-LEVEL

ENTHUSIASM

COOL

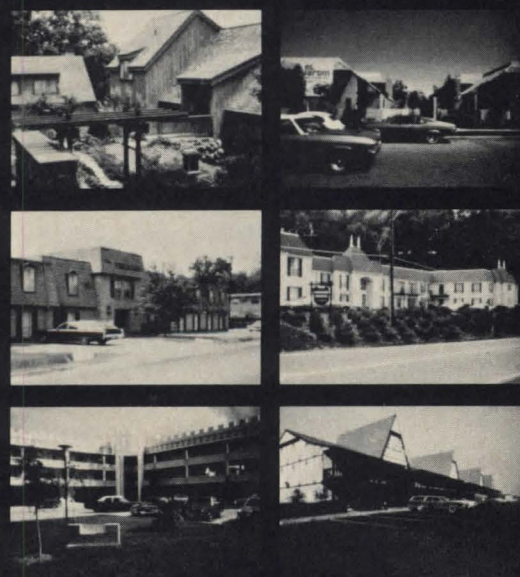
from The Old West

from The Old West

from The Old West



The use of decorative styling in residential areas increased dramatically in the late 1950s and 1960s. In the mid-1960s and early 1970s, new "town housing" that was built throughout suburbia, particularly in the Southwest used intensive styling to create backdrops for new definitions of life styles: Georgian London, complete with street signs, in Houston, or Japanese Modern in Beverly Hills.



so because this form of self-expression is practiced by almost all social groups, by young and old, rich and poor, renters and owners, urbanites and suburbanites.

## Credits

**Exhibition organizer:** Venturi & Rauch, Architects and Planners, Philadelphia, Pa.

**Principal in charge of design and installation:** Steve Izenour.

**Principal in charge of research and text:** Denise Scott Brown.

**Home section period rooms:** Dian Boone, Missy Maxwell, Robert Venturi.

**Home panels:** Elizabeth Izenour, Missy Maxwell, Janet Schuerin with Denise Scott Brown.

**Exhibition team:** (other than those previously mentioned): Ted Agoof, Tony Atkin, Thomas Bernard, Nicholas Custer, Kevin Gray, Paul Hirshorn, Stephen Kieran, David Knowlton, Madeline Maglicco, Deborah Marum, Paul Opel, Ricki Petersen, Daniel Rauch, Douglas Southworth, Amy Weinstein.

**Photographs:** Robert Lautman.



# A tome on foam

**What's really behind that expensive contract fabric, so carefully selected for its color or texture? If you think its simply polyurethane foam, read on.**

In the early 1950s, when polyurethane foams were first introduced in this country, the industry produced some 43 million lbs annually. In 1975, the figure was close to one billion. Foam began to revolutionize the furniture industry and, in the short 15-year span since its introduction, technological advances have made its formulations, manufacturing processes, and resultant products quite sophisticated and varied.

Polyurethane foam, however, is not just polyurethane foam, at least not that which is produced and used in the contract market. What can be bought over the counter in most retail outlets is frowned upon by any serious manufacturer of foams whose products are formulated with incredible precision to certain performance standards. People in the business talk about density, compression modulus, and ILD as if one encountered these things in an ordinary day. Logically one might expect that density has something to do with compression, but not so in this business. Density is the weight of one cu ft of the material and is in direct proportion to the amount of raw materials used in the manufacture. Compression, on the other hand, is the measurement of the resistance of the material to loads placed on it. Compression and density factors are perhaps the two most important criteria in determining the characteristics and quality of the foam. ILD, the abbreviation for Indentation Load Deflection, is a term used to describe the amount of force, in lbs, required to hold an indenter at any given deflection (usually 25 percent and 65 percent). The ratio of these two measurements (65/25) is the compression modulus of any foam. The 25 percent figure describes the "initial" touch or feel of the foam; the 65 percent figure describes the load bearing characteristics—how well it will support the average man (as if there were such a thing) without "bottoming" out. Besides these variables in foam characteristics, there are numerous other tests to which various formulations are subjected before their performance specifications can be determined. These include tensile strength and elongation, tear strength, resiliency, and

static and dynamic fatigue, all of which have more to do with the durability of the product under normal wear than with the structural capability or inherent "feel" of the finished product in its final use.

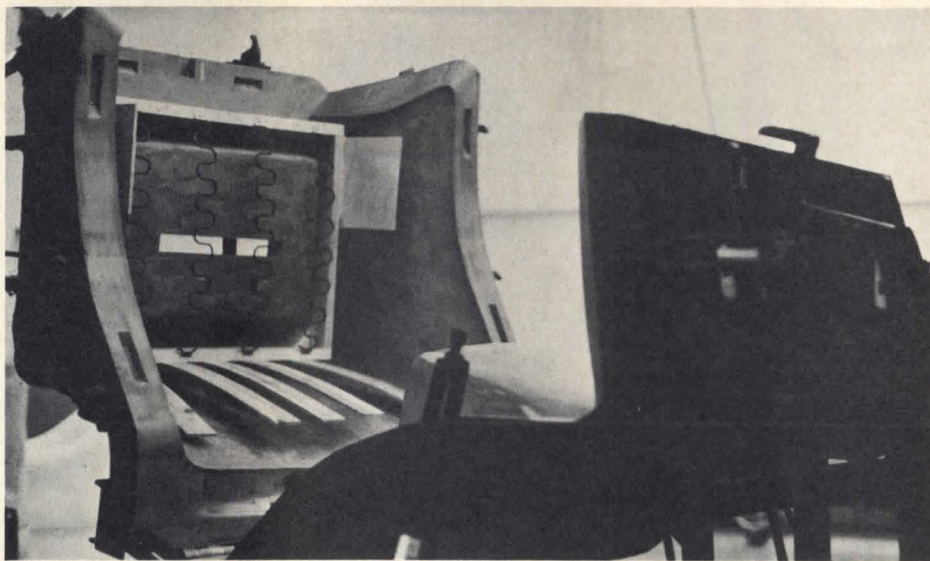
Polyurethane foam is basically one of two types: conventional, hot cure, or high-resilient, cold cure. Both are still being produced, although furniture in the contract industry is primarily constructed of the cold cure foams. The conventional hot cure foams are exactly what the name implies. The chemicals will only react when an external heat source is applied. This heat source, although necessary for the production, also gives the foam a shorter life span, a more brittle cardboardlike feel, and a tendency to bottom out. Cold cure foams are thermal. The combination of chemicals produces its own heat, and consequently a more integral bond is formed in the molecular structure. This, in turn, produces a higher quality product with a longer life span, as well as better load-bearing and compression characteristics.

Both types of foams are manufactured in one of two ways—as a bun or as molded parts. In either case, the mix of chemicals (isocyanate and polyol as well as various additives) occurs only as the foam is being poured. Depending on the desired formulation, automated equipment measures the proper amounts of each chemical which must be stored at the proper temperature and humidity. The mixing head with separate nozzles is used to spray the chemicals.

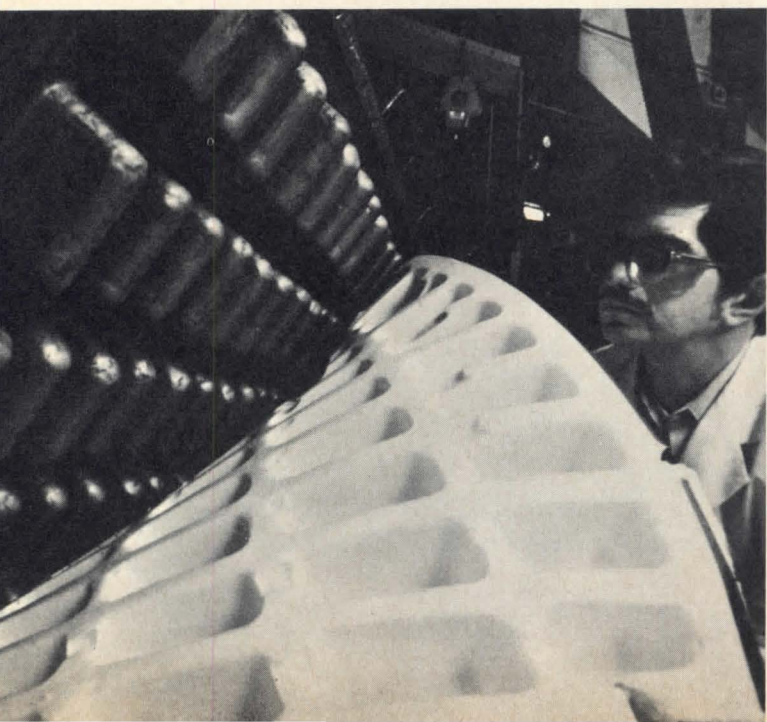
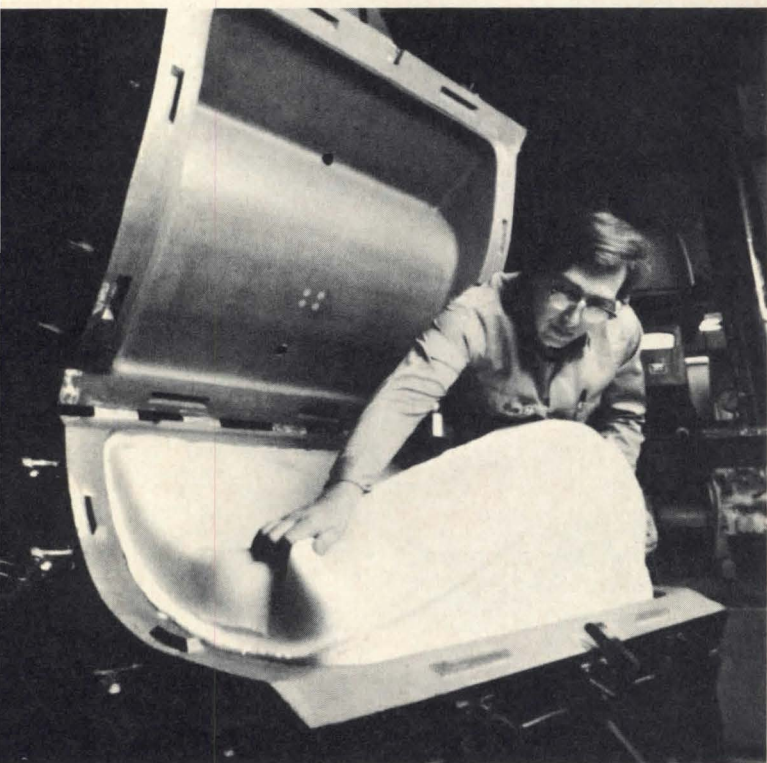
Producing foam in a bun is probably one of the most unusual processes to be seen in any industry. The chemicals are poured at the top of a moving conveyor belt lined on the sides and bottom with sheets of plastic. The chemicals, when poured, appear as a gelatinous mass, but as the conveyor moves along, the foam begins to rise until, at the bottom, a long continuous foam extrusion emerges (looking more like a loaf of bread suitable for the Jolly Green Giant than for the contract furniture industry). As the conveyor continues, band saws lop off 15-ft segments and these are then allowed to cure for 24 hours before having the surface skin removed in preparation for fabrication.

The process of making molded parts is a much less exciting visual phenomenon. The closed and clamped molds, constructed of aluminum or reinforced fiberglass, are injected with the chemicals, and 8–10 minutes later the

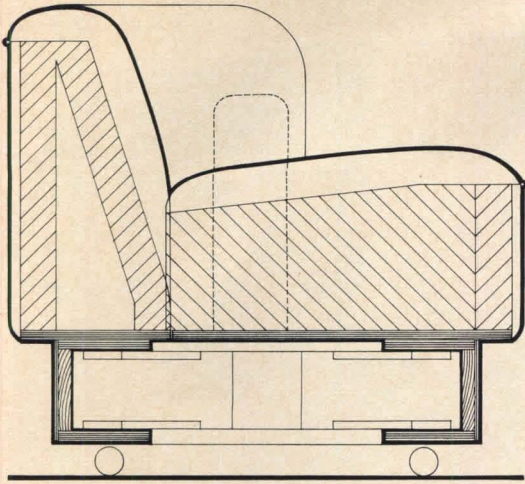
The open mold (right) has frame inserted in place before being closed. Foam is being poured into the mold (right, below) through a mixing head. The finished molded pieces can be removed from their molds (below, left and bottom) 8-10 minutes after the injection of the chemicals, but must be allowed to cure for 24 hours. A presewn cover (bottom, right) is being fitted over the finished foam piece.



Photos: Courtesy of Mobay Chemical Co.



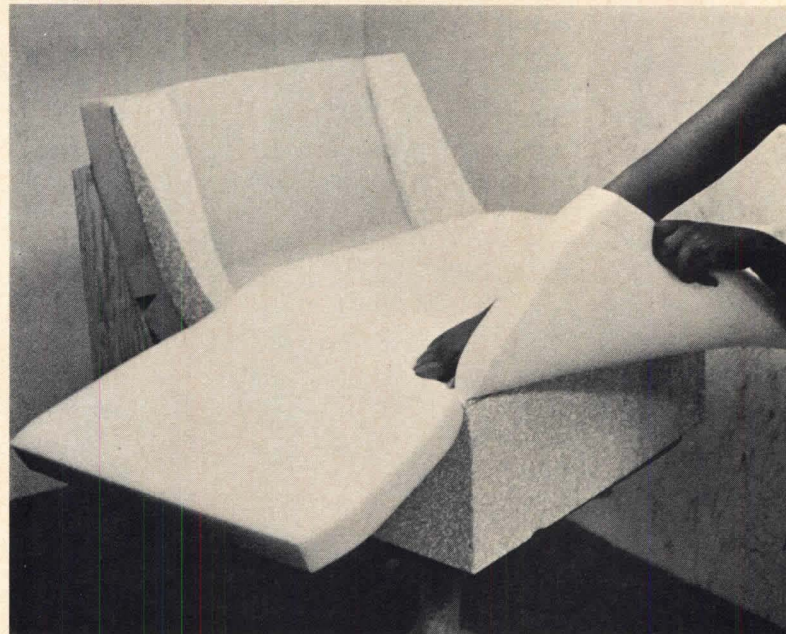
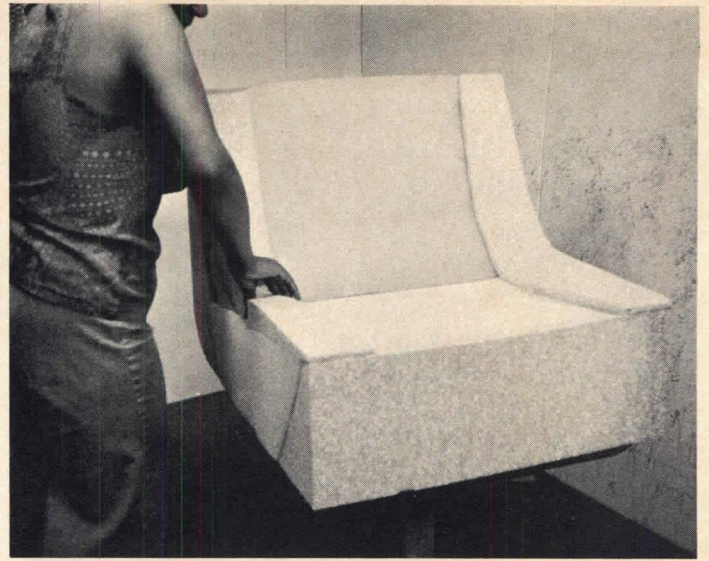
## A Tome on Foam



molds are opened. The finished pieces are then removed and allowed to cure an additional time in the open air. The molds are cleaned, a release agent sprayed on, and the process continues. The quantity and speed with which foam is produced and the seeming simplicity of the operations is rather astonishing on the surface, until one realizes the immense investment in specialized equipment necessary to insure proper control and mix of the chemicals. Tolerances for error, in this business, do not exist.

### One two four

The actual number of operations involved in foam production, beginning with the chemicals and ending with a finished, upholstered chair, do not vary, but the number of people or places involved in its manufacture can. At one end of the spectrum, a furniture manufacturer like Harvey Probber produces his own pieces. Working with Mobay Chemical, who provide the raw materials and monitoring equipment, Probber produces his own furniture designs in his Fall River, Mass. factory. At the other end, the chemicals are purchased by a processor who pours the foam in bun or slab form. These buns are then shipped to a fabricator, who in turn cuts the pieces into cushions or seats upon order from various manufacturers. The manufacturer supplies only the upholstery and attaches the cushion to a frame. In some cases, the buns are poured and fabricated by the same company, then shipped to order. But because of the number of steps involved in the process, the end user, the manufacturer, is rather removed from technological development or research. Unless, like Probber, he is willing to invest in the equipment and work directly with a chemical company to develop the techniques for producing his own molded pieces, there is little possibility for a manufacturer to work with anything other than what the market supplies. Probber went through about two years of testing in the late 1960s in order to produce a foam product of a consistent quality. There was little published information at that time, as the industry was so young. The technology, which Probber has acquired from Europe, had only been used for small molded parts, and not for the total furniture pieces Probber had in mind. After many tests and rejects, Probber discovered that both the temperature of the materials and molds, and the humidity in the air could



Engineering drawings of chair section (top, left) show the various laminations used in this type of construction. Photos from top to bottom show: the first stages of the glued laminations; the soft, outer layer of foam being applied; the final chair before the fabric cover is fitted. The chair is the Stow/Davis Harty Modular Seating designed by Fillmore Harty.



cause tremendous problems. But once these problems were solved, he felt the process afforded the opportunity to easily mass-produce complex designs with total accuracy. In fact, he feels that foam allowed the industry to design and market furniture that would never have been possible to build in the conventional frame and upholstery method.

As a material, foam lends itself well to being freely shaped with soft rounded edges, but as the molding process allows for the injection of only one type of foam, most of the pieces, in order to be soft enough to give, must have a frame to provide the load-bearing characteristics necessary for adequate support. Most fully molded pieces have a metal or wooden frame inserted into the mold before the foam is injected. As the foam expands, the frame becomes an integral part of the structure, and can be designed at the same time so that it acts as a base and a point at which upholstery can be attached.

A more sophisticated one-piece molding process was started several years ago at Herman Miller for the production of the Eames fiberglass shell seating. In this process, the fabric was placed on one side of the mold and the shell on the other. The foam was injected between, bonding the components into one piece. The only remaining operation was to trim and seal the edges and attach a base. Unfortunately, however, in any molding process there is a certain reject rate, although normally the loss is simply a molded foam piece which can be shredded and resold. Here the loss, in a reject, involved both fabric and shell and Herman Miller finally found it better to produce the components separately, then assemble them.

Normally, in a one-piece molded form, it is not possible to vary the compression modulus of the foam, giving more support where necessary, less where not. However, through the design of a piece, namely the variation in the thickness of the cross section (as can be seen in the Eames chair), some variation in the soft-to-firm range can be achieved without varying the compression modulus.

Another technique was developed by Italian designer Antonio Busnelli, who pioneered the first molded-foam pieces in Europe with the German-based Beyer Chemical Co. in the middle 1960s. In this process, successive layers of foam are molded by inserting one already molded piece into a slightly larger mold and injecting more foam. Several layers of different load-bearing capacities can be built up this way and, because of the nature of the chemical reaction, the bonds are quite strong. However, while this seems a logical way to use the molding process to achieve what only cut and laminated pieces had been able to do, the process is not in use in this country, because the cost, for the number of molds involved, is prohibitive.

Slab construction is the alternative method of producing foam furniture, and, while it may seem not to take advantage of technology, it offers other opportunities. Slab construction is a process of cutting and laminating to produce the desired form. What this process affords that molding doesn't is the possibility of varying the foam's compression modulus in the laminations to suit the support needs. Arms must be fairly stiff, backs need to have more give, the seat must feel soft initially, but provide good load bearing. By selecting forms with the proper compression modulus, the overall comfort of a piece constructed in this manner, is subtly different. For many smaller pieces like chairs no in-

ner frame is necessary, as the structural characteristics of the foam are sufficient. But on larger pieces such as sofas, some stiffening in the form of bent plywood or cardboard is used. The finished, laminated piece is then wrapped in a sheet of softer foam, 1 in. to 2 in. thick, which gives the piece its final soft, contoured finish.

Designer Fillmore Harty, who is both a designer for companies such as Stow-Davis and a consultant to Dow Chemical, works mostly with these types of laminated constructions. He feels it not only produces a more comfortable finished piece in terms of body support, but also permits the design and marketing of foam furniture without all the tooling-cost investment required by a molding process. The Harty modular seating, which he designed for Stow-Davis, comes to their factory already cut by a fabricator. The pieces are glued together, wrapped, and the upholstery slipped on and tied. The whole operation requires a minimum of space, little investment in equipment, and the quality control of the finished product is very high.

There are, needless to say, advantages to both methods of producing foam furniture, but those involved in the manufacture or design in one or the other area are usually convinced that theirs is the only way. However, all agree that the technology of foam, both its chemical composition and production processes, could be further developed. Polyurethane foams were originally developed when the supplies of natural latex dwindled and the price rose considerably. Most of the efforts in developing the cold cure foams have been efforts to duplicate the characteristics of the natural latex foams whose initial feel was quite soft, the load-bearing capability quite good. HR foams (short for high resilient) have many of these same qualities and the differences are not noticeable until one compares the HR foams with a synthetic Neoprene latex developed by duPont. While the synthetic product is quite extraordinary in the physical feel and inherently more fire retardant, its application has been limited by its considerably higher cost.

In an effort to develop foams with better compression moduli, Dow Chemical has introduced a product called Voraspring, a urethane foam with expandable plastic beads that can greatly increase the compression modulus, depending on the amount of beads used per cu ft.

Fire retardancy is another of the prime issues currently in the minds of manufacturers, as the possibility of stricter codes governing furnishings becomes more of a reality. There are now foams available which pass even the Port of New York Authority's stringent tests. Perfecting molding techniques is another area for more research, but since the chemical companies don't actually make foam, they have little interest in pursuing this aspect. It is equally difficult for a manufacturer of furniture to spend time and money in research and those who have, like Propper and Miller, are more inclined to produce their own products once the process is perfected than to remain in the research business. The fragmentation of the industry, with all the various separate steps in the processing of foam tends to encourage the hands-off, its-not-my-area-of-concern-attitude. But nonetheless, even though the process or the product is not what those in the know think it could be, the material has radically altered the production process and opened up new areas of design in a relatively short space of time.

[Sharon Lee Ryder]

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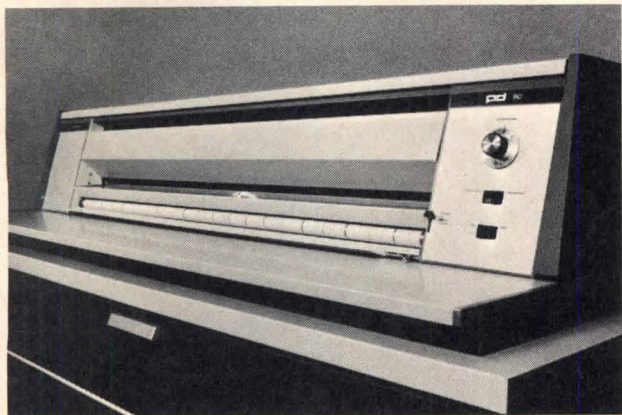
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# Laboratory accreditation

Alvin D. Skolnik

**The need for more stringent regulation of testing lab qualifications is pronounced. Here are cited some steps being taken to upgrade this important service.**

There is a growing interest in the use of performance specifications as a means of identifying the attributes necessary for a product or system without imposing the unnecessary restraints sometimes resulting from proprietary specifications. Properly written and properly administered contract documents will rely very heavily on the identification of the required attributes and the methods by which those attributes are tested and evaluated. This will create an increased demand for quality testing laboratory services.

The current state of the art leaves much to be desired. My own experience with testing laboratories (which I suspect is typical) is that there is a wide variation in the qualifications of their staffs, quality of physical plant, organization, operational procedures, control programs, and quality assurance. More than once I've gone to a test site only to find upon arrival that the testing apparatus itself did not meet the specified criteria; thereby canceling any further activity for that day. I have occasionally encountered, to my dismay, testing laboratory personnel who were less than absolute in their determination to strictly adhere to specified test procedures, who were at times unfamiliar with the prescribed procedures, or whose reports were rendered improperly. A report is virtually useless, no matter how carefully a test is carried out with suitable and well calibrated instruments, if the report is not rendered in a comprehensive, consistent manner as usually stipulated in the test procedure standards.

The story is told too often about the part-time testing lab employee (a college architectural student) who takes concrete cylinder samples, tosses them in the back of his pickup truck and drives 30 miles over bumpy roads to a well-equipped lab for compression tests. Are these well vibrated cylinders representative of the concrete in the project? Of course not!

The need for more stringent regulation of testing laboratory qualification is pronounced. The U.S. Department of Commerce has taken an important first step by publishing Proposed Procedures for a National Voluntary Laboratory

Accreditation Program. (Refer to the Federal Register, Vol. 40, No. 90 dated May 8, 1975.) The proposal identifies the goal of providing "... a national voluntary system to examine the technical competence of private and public testing laboratories that serve ... product evaluation and certification needs, and to accredit those laboratories that meet the qualifications. ..." The program will also require accredited labs to maintain an acceptable level of competence. The program would be carried out through the establishment of a National Laboratory Accreditation Board and a corresponding Advisory Committee within each class of technology.

As usual, the American Society For Testing and Materials is also responding to the need. Their Committee E-36 on Criteria for the Evaluation of Testing and/or Inspection Agencies has developed a proposed recommended practice which is designated ASTM E548 (not yet approved).

The thrust of both the Department of Commerce document and the ASTM document is to help regulate laboratory quality through voluntary disclosure of information related to a laboratory's management, facilities, personnel qualifications, and quality control program. Since both the Department of Commerce and the American Society For Testing and Materials serve the interests of a broad spectrum of industries, considerable additional work will be necessary within each class of technology to identify the specific problems peculiar to each discipline and to determine the basis for dealing with each problem. The March 1976 issue of ASTM Standardization News is devoted to this entire subject and provides an excellent basis for further understanding.

The testing laboratories can no longer remain behind the scenes in the construction industry. Increased reliance on their full participation in the design-construct process will only be possible when laboratories meet and maintain proper standards. The regulatory programs being developed need and deserve the support of the laboratories, trade associations, and design professionals. □

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

# Draw the line once

**Drawings may be the road map guiding the architect's creation along the path to realization, but the mechanics of drafting too often form a bottleneck in the path. Here are ways to break the jam.**

If Horowitz recopied the manuscript of Beethoven's *Appassionata* before every concert you'd think he was crazy. Aside from the fact that it's not necessary, it would leave him little time for the performance and still less for practice. This is so trite it's almost embarrassing to say it. Except that too few architects seem to have grasped its relevance to their own situation.

In architects' offices across the country, talented professionals are still wasting time, effort, and money in needlessly redrawing again and again the same plans, designs, and details, when much of the work can be done faster, and usually better, by a combination of photoreproduction and copier/duplicator techniques. The savings are not piddling. Drafting time on some major projects may be cut one-third or more and months may be slashed off the time it takes to bring a project to completion.

The idea behind these speedup techniques is that a line should be drawn only once; that's the ideal, anyway. An original drawing can then reappear in every phase of a project's life—or in a new project—reproduced same size, enlarged or reduced, duplicated line-for-line or revised, and on any desired drafting surface.

Firms that already use reprodrafting (some call it reprographic drafting) claim savings in drafting time of as much as 90 percent on some new drawings. Welton Beckett & Associates saved four to six months of drafting time by using reprodrafting techniques on a Manhattan building project. This is the estimate of Joseph E. Epps, Beckett project director on the Moscow World Trade Center. Epps recently hosted in New York a group of Russian architects and engineers who are associated with the project and are looking for ways to assure its completion in time for the 1980 Olympic Games.

If we accept DuPont's estimates, which seem reasonable, that an average-complex drawing takes 2 to 2½ hrs of drafting time per sq ft at an average cost of \$10 an hr (including overhead) or Kodak's estimate that it can cost

\$300 or more to redraw a C size print, it's clear that the potential for saving is high. Even better, unlike many other cost-cutters, reprodrafting does not exact a price for its advantages. On the contrary, it offers extra advantages. It eliminates copying errors and omissions. It can telescope project time through the use of team drafting, which allows several draftsmen or construction disciplines to work on the same basic plans simultaneously, and through adaptation of design development drawings to working drawings with only minor changes. It permits size reduction of bulky plan sets for easier handling and cheaper mailing. It often produces sharper, clearer lines and crisper drawings than the original.

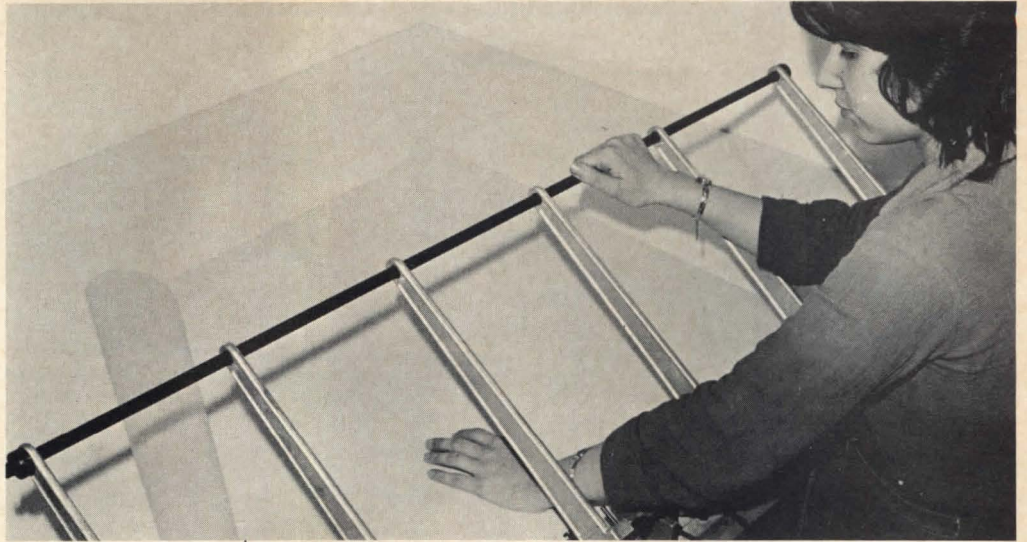
Most of the techniques used in reprodrafting are not new. The printing and advertising trades have been using them for years. In architecture too, many large offices have been applying them for some time; Gruzen & Partners, for example, started getting deeply into reprodrafting about eight years ago. But to many firms, especially smaller ones, the techniques are still new or at least seem exotic. Based on Jerry Lee Quebe's experience, probably fewer than one in five architectural firms is knowledgeable about reprodrafting. Quebe, a principal in the Iowa City firm of Hansen Lind Meyer, Inc., and manager of its architectural section, has been a fervent preacher of the gospel of reprodrafting in his role as consultant on drafting systems to several architectural firms. One of Quebe's tenets: If it will take more than two hours to redraw, use reprodrafting.

The basic reprodrafting techniques are simple. Where professional photographic skills are involved, these are provided by blueprint and reprographic service companies in most cities. These companies, along with the dealers and makers of drafting materials and of architects' duplicating and copying equipment, can also help in converting jobs to reprodrafting.

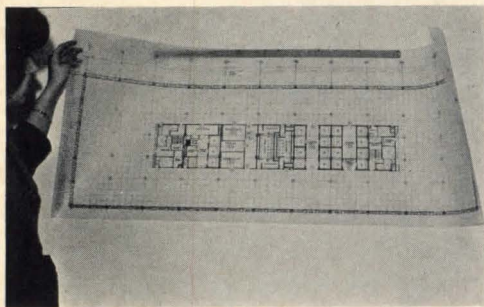
The equipment used in reprodrafting is familiar and much of it is already in place in architects' offices: diazo machines, copier/duplicators (including those that can copy

## Drawing sizes

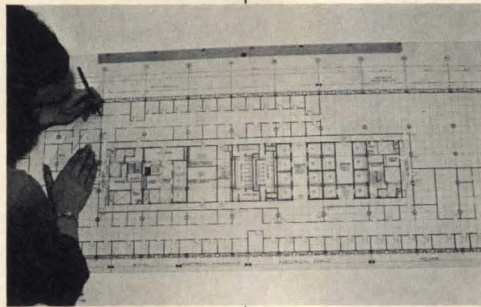
A	8½ x 11, 9 x 12	C	17 x 22, 18 x 24
B	11 x 17, 12 x 18	D	22 x 34, 24 x 36



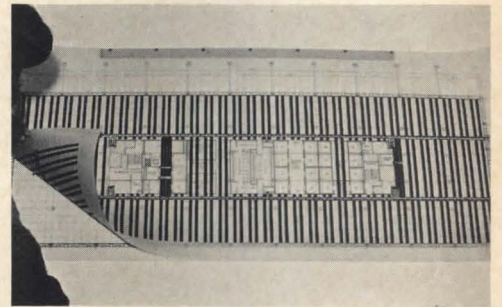
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2



3



4

#### Pinbar overlay drafting

1 Drafting film is hole-punched for registration.

2 Blank sheet is placed on pinbar, and master core/grid plan is drafted.

3 Overlay blank is placed on pinbar over the master core/grid plan and partitions are drawn.

4 Another overlay blank is placed on pinbar over the master core/grid plan and partition plan. A second overlay is drawn.

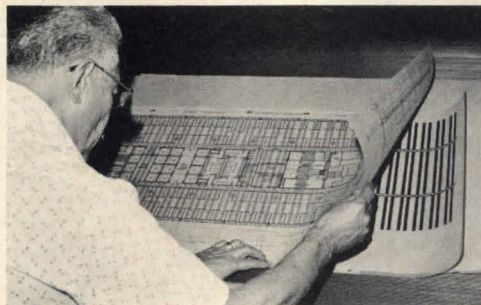
5 Base and overlays are contact-printed on diazo machine to make additional bases, check prints, and reproducible.

6 From each base and overlay, negatives are produced on camera projector at  $\frac{1}{2}$  size or  $8\frac{1}{2}'' \times 11''$ . The registration pinbar on the copyboard matches the ones the draftsmen use.

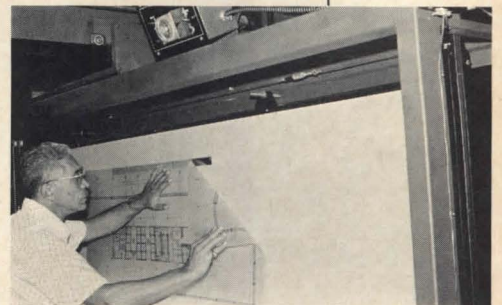
7 Negatives are opaqued to remove blemishes and unwanted areas.

8 Final composite print—sharp, clear, easily readable—combines the work of several draftsmen.

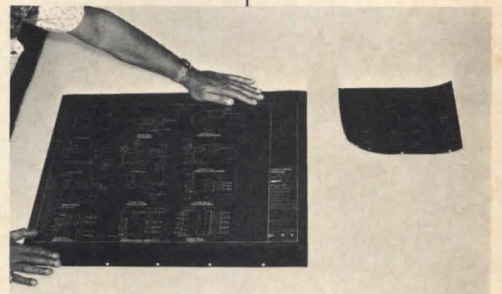
9 When preparing final contract documents, negatives are pinbar-registered and copied onto Mylar to produce composite Mylar and/or offset printing plates. (Photos: National Blue Print Company.)



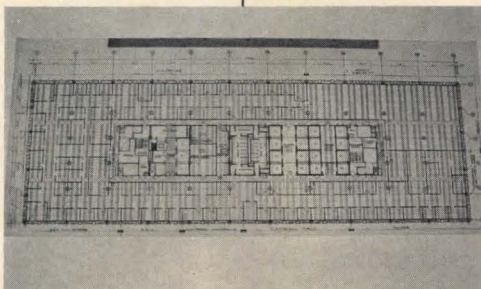
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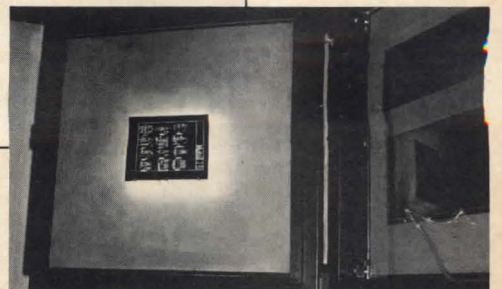
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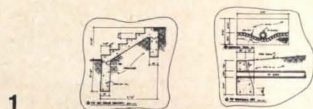


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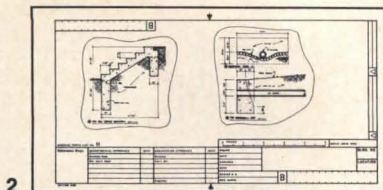
## Technics: Reprodrafting



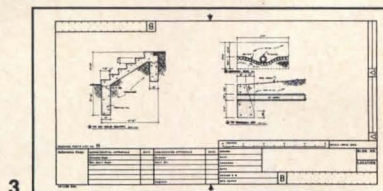
1

### Paste-up drafting

Individual drafting elements are cut out of existing drawings (1), positioned on format sheet (2) and a new original drawing is produced (3). (Eastman Kodak.)



2



3

large-size documents) and microfilm retrievers and readers. The more sophisticated equipment, such as large document-copying cameras and their associated processing set-ups, is found in the reproduction service houses. As far as the architect need be concerned, this sophisticated equipment is merely a "black box" that accepts his raw input at one end and produces finished drawings at the other.

### Tools with sharp edges

Here is a brief description of the most commonly used reprodrafting techniques and how they are used:

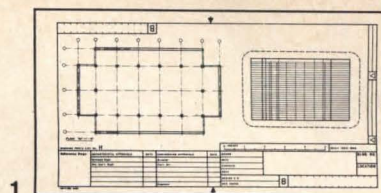
**Paste-up drafting.** If significant portions of a planned drawing already exist, copy the existing drawings, cut the desired details from the copies and paste them in place on a new format sheet. Reproduce a new drawing from the composite pasteup and add new drafting details. If the scale of the various elements is not uniform the reproduction specialist can adjust them photographically. Sources of paste-up elements include drawings from other jobs, details from catalogs and technical books, standard details, standard specifications, and freehand sketches. The elements may be on translucent, transparent, or solid drafting media, depending on the reproduction equipment that will be used.

**Applique drafting.** This refers to the use of adhesive-backed paste-ons. For repetitive detail or frequently used elements such as title blocks, draw the element once carefully, possibly oversize for convenience. Have multiple copies made on clear pressure-sensitive film or tape. If the repetition is extreme (say windows in a big building), mount several copies in a strip and make copies of the strip. Press the required elements in place on the drawing, complete the drafting and reproduce. Standard applique elements are available from suppliers, who will also produce custom appliques from the architect's drawings. Custom appliques may also be made on in-house copiers using blank adhesive-backed stock.

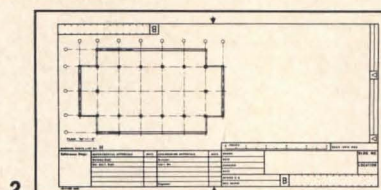
**Scissors or erasure drafting.** Part of an existing drawing is eliminated to make room for new details. A simple way to use this technique: Make a diazo copy of the existing drawing and mark deletions on the diazo; the reproduction specialist makes the deletions photographically and

### Scissors drafting

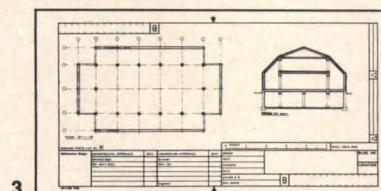
When part of an existing drawing is to be deleted to make room for new detail: Make a diazo copy of the original drawing and indicate area(s) to be deleted (1); the diazo and original are sent to the reproduction specialist, who makes the deletions photographically and makes a new matte film (2); draftsman generates new detail (3). (Du Pont.)



1



2



3

produces a new matte film copy; the draftsman generates new detail on this film. A somewhat more complicated method for more complex work is described in the paragraphs on overlay drafting.

**Photographic restoration of drawings.** Sharp, clean second originals of damaged or deteriorated drawings can be produced by dropping out stains, blotches, and creases photographically. At the same time, the reproduction specialist can heavy up weak lines in the original by scribing on negatives (cutting away emulsion) or ink-drawing on positives. The second original, with dense black lines, is excellent for multiple print-making, revising, or microfilming.

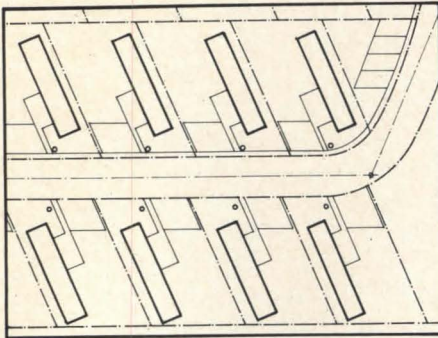
**Opaquing.** This technique is useful for restoration or revision of drawings. On a negative of the drawing, large blotches or parts that are to be redrawn are painted out by the reproduction specialist and a new film is made of the treated original. (In any of these processes, the reproduction may be on a draftable—matte—or nondraftable surface, positive or negative, film or paper.)

**Overlay, pinbar registration.** In overlay drafting, selected details are drawn on a separate film and are combined photographically with the base drawing.

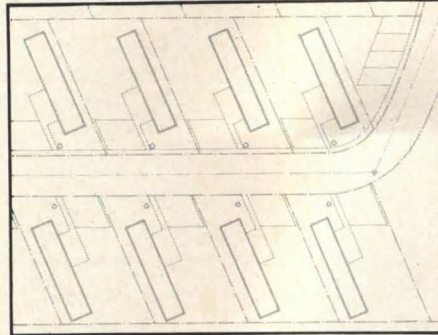
Pinbar registration is a refinement that opens a host of reprodrafting possibilities. It is based on standardized registration bars, metal strips with vertical pins spaced at precise intervals. Pin spacing is standard throughout the U.S. and much of the rest of the world. With this technique, several draftsmen—even in widely separated locations—can work on the same drawings simultaneously.

As a first step, all drafting films, negatives, and second originals to be used in the system are punched with alignment holes matching the pin locations on the registration bar. A base drawing is prepared, showing only information common to the drawings that will follow. Hole-punched copies are distributed to the draftsmen who will be working on the base drawing. Each draftsman positions his copy over the pinbar on his drafting table and covers it with a clear drafting film on which he draws his part of the job. When the drawing work is done, the reproduction specialist uses his pinbar to register the base film and as many overlays as are involved and photographs the composite to produce a new original drawing.

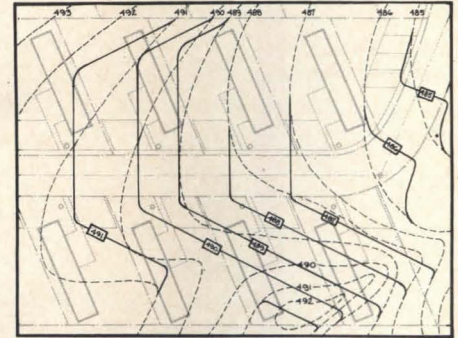
This is how the system is used in connection with scissors



Original drawing  
**Shadow drafting**



Shadow print



Working drawing

sors drafting to create a new drawing: Register a drafting overlay film over the original drawing; on the overlay, mark the location of the details to be deleted; remove the sheets from the pinbar and lay down a format sheet with the overlay over it; draw the new detail in its appropriate position on the overlay; send the original, the format sheet, and the overlay to the reproduction specialist for the photographic creation of a new, composite original on matte film.

On major building projects, the National Blue Print Company, a New York reproduction specialist, recommends this procedure:

- 1 Prepare the base drawing. This could show the information common to a single floor or a group of floors (and may be a combination of several overlays), including walls, columns, stairwells, etc., or "existing conditions" in alteration work, or a site plan or elevation.

- 2 Have the reproduction house make the required number of base copies. National Blue Print makes these on red-line diazo film that is shiny on both sides, to alert the draftsmen that it is a base, not an overlay, and is not to be altered except by the architect.

- 3 Each member of the drafting team places his copy of the base and a punched sheet of overlay drafting film on his pinbar and adds his details. Various floors and disciplines are worked on separately and simultaneously. During the design development phase, different members of the drafting team can be inking in contractor-installed equipment, owner-installed equipment, electrical fixtures, telephones and intercoms, furniture, etc.

- 4 The same overlays can be used for contract documents and can be combined. For example, the plumbing drawings can combine the base with the sprinkler and piping overlays; the electrical drawings can combine the base with lighting, electrical fixture and circuit diagram overlays.

- 5 When drafting is complete, the base drawings and overlays may be combined and photographically reduced to 8½" x 11" or half-size. These are blown back onto stable film for contract documents. (The pinbar overlay plus reduction/enlargement technique is called MiniMax by a network of reproduction houses that offers the service.)

- 6 If project prints are needed at any stage, a diazo reproducible can be made from the base and overlays and used for multiple reproductions. If only a few copies are

needed, the base and overlays may be fastened with flexible rubber pins and copies printed in a conventional diazo white print machine.

**Shadow prints or phantom images.** This technique, often used with pinbar overlays, eliminates the need to continually redraw an object, such as a floor plan, when several subsequent drawings will be based on it. It also makes final drawings easier to read and interpret by reducing clutter. The base drawing is photographed with a dotted-pattern screen—the kind photo-engravers use to prepare continuous-tone illustrations for printing. The base information then shows as a subdued image on the copies. Each draftsman adds his detail—plumbing, heating, ventilating, office layout, rental information, etc.—to his copy, which then serves as an original for new prints or may be combined with other copies to make an overlay composite.

**Photodrawing.** Photographs are combined with line work. Suppose it's desired to show how a proposed building would look in its actual surroundings. A photograph—possibly an aerial view—is taken of the area. The site of the new building is outlined on an overlay placed over an enlargement of the photo. A rendering of the new building is drawn to appropriate scale in the outlined section. The reproduction specialist then photographically combines the photo and rendering. The same technique may be used to show how a new façade would look on an existing building.

**Microfilm and microfilm blowback.** Drawings, drafting details, specification pages, catalog sheets, and similar materials are microfilmed to save space. They are often mounted on microfilm aperture cards, which have space for descriptive information and may be keypunched for fast retrieval by a card reader. The microfilm may be blown back to full size for use as second originals, or to reduced size (18" x 24") for use as distribution prints, or to any convenient size for upgrading or revising original drawings. More than 75,000 drawings on aperture cards can be stored in a card cabinet ten drawers high by 18 in. wide.

Obviously, the various reprodrafting techniques may be combined in different ways, and usually are. There's no one right way. And there's no law chiseled in granite that decrees that only the techniques described in this article may be used. Like *architectural design itself*, reprodrafting is hospitable to creativity.

## Technics: Reprodrafting

### A look at surfaces

Conventional drawing surfaces are used for original work in reprodrafting: linen, vellum, or clear polyester film with vellum on both faces; opaque sheets such as bond paper may also be used, since they can produce translucent or clear film copies on xerographic copier machines.

Photographic copies may be made on a wide variety of products, depending on how they will be used in the reprodrafting system. The copies may be on draftable or non-draftable materials; clear, translucent, or opaque; polyester or acetate film or paper; positive or negative images. Most of them are easily erasable; lines on opaque material may be painted out.

A useful new photographic drafting medium is wash-off film. Where photographic lines on conventional films must be erased with a two-part chemical bleach, lines on wash-off film may be removed by swabbing with a moistened felt tip; the resulting surface is draftable in both cases.

### In-house equipment

Among the types of reproducing equipment commonly found in architects' offices, but not necessarily used as yet for reprodrafting:

**Diazo.** Very large drawings can be reproduced same-size on diazo blueprint or whiteprint machines only. The larger models can copy any translucent material up to 54 in. wide by any length. They make copies on a variety of prepared surfaces, including film, cloth, or sensitized paper. A feature many architects like is the ability to control the tonality of the print by adjusting the illumination. Some new models require no external venting to carry off the ammonia fumes.

**Xerography.** Xerographic copiers can make black and white prints, translucent diazo intermediates, and paper offset masters on unsensitized material from opaque, translucent, or transparent originals. One large-document copier of this type offers the option of same-size copies or five reductions (copy size percentages of 95, 75, 62, 50, and 45 of the original). It will accept drawings and documents from 8½" x 8½" to 36 in. by any length, but the maximum size of copies is 18" x 60"; any originals larger than this can be gotten only in reduced-size copies on this machine. A smaller, faster copier made by the same manufacturer takes documents up to 24" x 36" and reduces them either to 65 percent or 50 percent of the size of the original.

**Color copying.** A color copier may be used for presentations and renderings. It copies color materials or reproduces black and white originals in color in minutes. With a slide adaptor and projector, one model copies 35mm color slides. Using an overlay plus slide, composite color prints may be made; i.e., project identification superimposed on a rendering.

**Microfilm.** Microfilm enlargers and printers can blow back drawings or documents from aperture cards to A, B, or C size and make letter-size copies from 16mm or 35mm roll film, microfilm, or jacketed film. These blowbacks can then be used for further work. High-speed, automatic units are useful for making multiple sets of specifications.

Some architects microfilm a drawing as soon as it is

completed. They can then go to a full-size blowback as a second original, make a reference copy on a reader-printer, make an offset plate for mass distribution or an 8½" x 11" copy for xerographic reproduction.

**Telecopying.** Design and blueprint changes, even photographs, can be transmitted in minutes between geographically separated offices by telecopier using commercial telephone connections. The machines have both sending and receiving capability. A portable model may be carried to field sites or wherever a conventional telephone and standard electric outlets are available. The architect can settle troublesome field detailing problems immediately by telephone discussion and telecopier transmission, with both sides working from identical copies of the drawing or detail in question. Sketches transmitted from the field may be incorporated in revised drawings.

An unattended answering device makes it possible to send or receive automatically from an unattended phone. This permits use of lines during reduced-rate hours.

### Proof of the pudding

Here is how some firms are currently using reprodrafting:

**Gruzen & Partners** microfilms all working drawings as soon as they are completed. Two sets of the complete job are transferred to aperture cards. Job number, drawing number, and description are typed on the cards, which are also key-punched for retrieval. One set is kept handy in the safe of Charles Silverman, director of technical and construction services, and the other in a fireproof safe. The record of cards is cross-indexed by job number and alphabetically. When needed, cards are retrieved and printed on 18" x 24" sheets to make sets for project managers on the job site, etc. After three years, the original drawings are destroyed and only the microfilm retained.

Gruzen makes large presentation drawings do double duty; they are photographically reduced for use in brochures. They are further reduced to 35mm slides for the firm's library.

**Schwenn & Clark Architects, Inc.**, in Phoenix, keeps standard construction details in a file of 8½" x 11" masters. As details are needed, they are reproduced by xerography on adhesive-backed transparent film and affixed to the supplement section of the working drawings. If changes are needed in the master, a duplicate is printed and altered. A copy of this becomes a new master for the file.

**Myers & D'Aleo, Inc.**, Baltimore, has eased document set problems by standardizing sizes and formats of drawings and using reduced-size prints (except for bidding contractors, who still get large-size sets). Staff drawings are standardized at 24" x 36". These are printed at 12" x 18" on a direct-reduction copying machine, which also folds the copies. The project documentation is integrated, with folded drawings interleaved in the sets with descriptive and specification sheets, making for a logical presentation.

The firm of **Everett I. Brown Co.**, Indianapolis, stresses what it calls "minimum drafting technique." The master detail file includes original detail drawings, shop drawings, and details cut out of manufacturers' literature and trade publications; draftsmen make large-scale freehand drawings, later reduced to fit the final drawing; notes and schedules are typewritten instead of hand-lettered; scissors and paste-up drafting assemblies these elements to make the fi-

nal drawings, usually on polyester film. From this, diazo copies are made.

### Making good better

Louis Di Paolo, president of Reprostat, one of the leading New York reproduction houses that services architects, cautions that the quality of reprodrafting is determined largely by drafting practices. He makes these suggestions:

1 Prepare a line-quality guide for draftsmen to follow. Do this by drawing a series of lines of different thicknesses and densities in ink, pencil, and color and have it copied in various sizes on different kinds of equipment. Prepare a similar guide for letter size and spacing.

2 Keep drawings clean. Background dirt can obscure differences in line weight.

3 Do not expect people to scale off drawings accurately; always show dimensions.

4 Polyester film has a "memory"; draftsmen should give it about an hour after cutting off the roll before drawing, to allow dimensions to stabilize. This is especially important if the film is to be used in pinbar overlay work.

5 For highest quality reproductions, use transparent or translucent drafting materials—"something we can shoot through"—since the shop can get better reproductions with transmitted light. This is important if you expect later to make sharply reduced copies.

6 On renderings, get additional impact by using dot-pattern appliques or photographically applied screen to outline or highlight selected areas. All sorts of screen patterns are available, including horizontal lines and mezzotint.

7 Cardboard models may be photographed from various perspectives and under various lighting conditions. A preferred enlargement may then be used as a guide for a free-hand rendering. Another easy way to make a rendering is to sketch a proposal in pencil or ink, blow it up photographically and color the enlargement with water color, etc.

8 If the drawing is to be reproduced by diazo, paste any appliques on the back for best reproduction; if it is to be photographed, paste them on the front. The draftsman should determine this in advance and plan for one or the other.

9 Desktop lettering machines that produce sharp, black images on pressure-sensitive tape can improve the legibility of drawings. Printed letters can also be enlarged or reduced photographically.

Robert S. Hill, partner in Everett I. Brown Co., emphasizes the need for careful planning before embarking on reprodrafting, especially when reductions and enlargements are involved. "The draftsman must plan his work at proper scales and be able to visualize each phase of the work in terms of the finished drawing. But once this is mastered," he says, "we have found that one man can do as much as seven or eight could before."

DuPont estimates the potential drafting-time savings possible with reprodrafting as 50-100 percent for drawing restoration (100 percent when the entire restoration is done photographically), 20-60 percent for paste-up drafting, 40-80 percent for scissors drafting, 40-90 percent for photo drawing and 20-80 percent for revisions through overlay drafting.

The paydirt is clearly there. All it takes is some informed digging. [Henry Lefer]

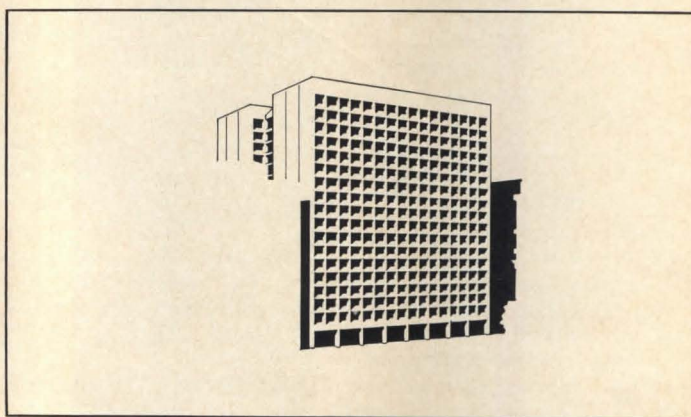
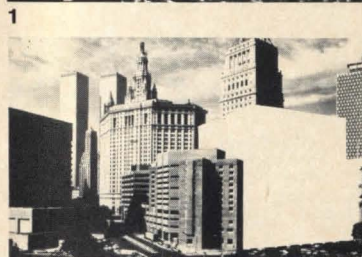
### Photodrawing

1 Photograph of building which is to be remodeled, or proposed site.

2 Marked-up print of photograph, showing portion which is to be retained.

3 Draftable film containing only the retained portion.

4 Photoreproduction combining original structure and remodeling; color may be added. (Eastman Kodak.)



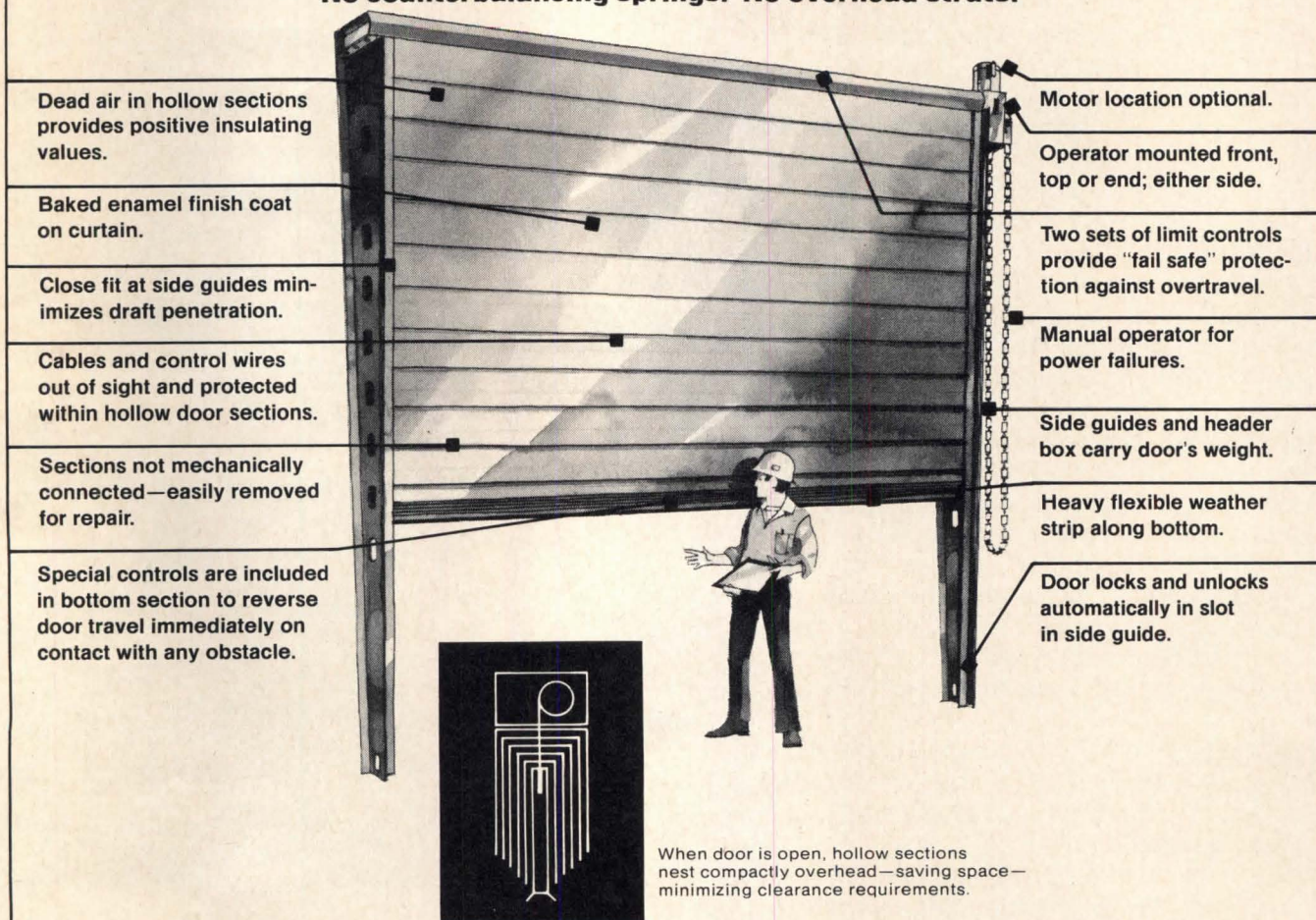
### Acknowledgments

For their time and help in the preparation of this report, we wish to thank these individuals and companies: Alan Schwartzman of Davis, Brody, Architects; J. Karl Justin of O'Brien and Justin, Architects; Charles Silverman and Todd Lee of Gruzen & Partners, Architects; Vince Giummo, Henry Morgan, Jr., and Roger Wirth, Eastman Kodak Graphic Markets Division; William Hegarty and James La Verdera, Xerox ACE Products; Du Pont Photo Products Dept.; GAF Repro Products; Bruning, Multigraphics, and Varityper Divisions, Addressograph Multigraph; Stanpat Products; Louis DiPaolo, Reprostat; Chris Charles and Sol Magid, National Blue Print Co.; Apeco Corp.; Columbia Ribbon & Carbon Mfg. Co.; Quip Systems; Toshiba America, Business Equipment Division.

[For product information, see Products and literature, p. 83.]

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For further information, see Sweet's Arch. or Ind. Constr. Files, section 8.9/In. Or write to Special Products Group—Milcor Division; INRYCO, Inc.; Dept. H, 4069 W. Burnham St.; Box 393; Milwaukee, WI 53201.



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CONSTRUCTION PRODUCTS CO.

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This relatively simple but superbly designed bank is a striking example of the manner in which Terne roofing can become an integral part of a total architectural concept.

Aesthetics aside however, Terne also has certain outstanding functional characteristics. Among these are great tensile strength combined with light weight and a low coefficient of expansion; exceptional resistance to corrosive attack, and a durability measured in generations rather than years.

Terne roofs are also relatively inexpensive when judged by the standards of those to whom ultimate performance is no less significant than initial cost.

Citizens' Bank, N.A., Readington Township, New Jersey  
Finne · Lyman · Finne · Reese,  
Architects-Engineers, Elizabeth, New Jersey  
Roofers: J. Strober and Sons, Ringoes, New Jersey  
Photographs by Otto Baitz

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FUNCTION?**



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One 54-inch Washfountain can serve up to eight people at the same time. It takes about 15% less space than lavs, and can cut installation costs as much as 80%. It also reduces the amount of

water used and the energy used to heat it.

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WRITE FOR OUR WASHROOM/SHOWER ROOM PLANNING GUIDE. Bradley Corporation, 9107 Fountain Blvd., Menomonee Falls, WI 53051.

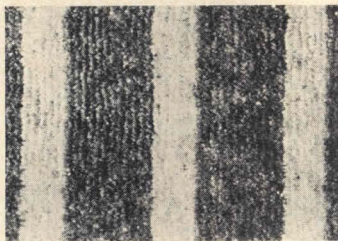
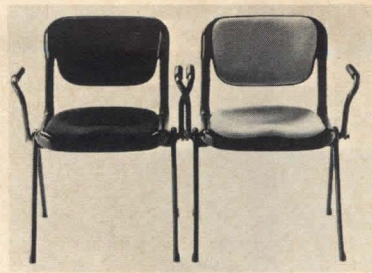
Another  
right idea  
from  **Bradley**

Circle No. 313, on Reader Service Card

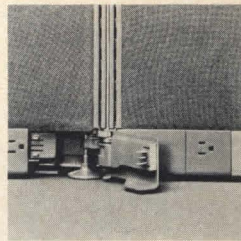
# Products and literature



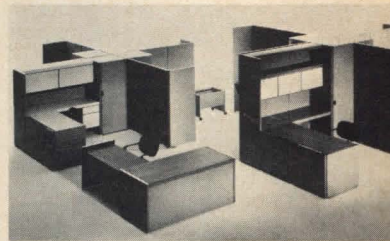
Vertebra seating



Colony Club carpet



Pre-wired panel system



Zapf office system

## New at Neocon

**Vertebra seating** adjusts automatically to varying spinal movements associated with the working person's activities. Mechanisms permit backrest to tilt backward and the seat to slide forward, then return automatically, and provides forward tilt for work situations. Mechanisms are concealed by rubber bellows which also form arms on certain models. Seat and backrest components are dark molded ABS with complementary finished pedestals or legs. A black finished disc base pedestal is also available. The line includes institutional seating (stack chairs) with black tubular steel frames, with or without arms, and tablet arms. These versions also gang for row control; operational seating features pedestal bases. Both types have upholstered cushion options. Managerial and executive seating is offered with or without arms, fully cushioned and upholstered, with pedestal bases. Krueger.

Circle 101 on reader service card

**Colony Club carpet collection.** A group of special order items (minimum order is 500 sq yds) with promised six-week delivery. Items include an acrylic, solid cut velvet in eight natural Berber tones, and a coordinating 1/4 in. and 1 in. stripe in any of the eight colorations. Fabrics are offered in 42 oz and 48 oz face weights on a jute back. An acrylic/nylon cut pile comes in over 70 solid and heather tones and is a 42 oz fabric on a jute back. Company also has a three-ply yarn-dyed cut and loop in Anso X which carries a 5-year wear guarantee. The 28 oz fabric is a stocked item in 11 colorations on a synthetic secondary back. Collins & Aikman.

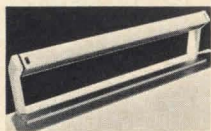
Circle 102 on reader service card

**Zapf office system.** Components include metal frame, fabric or vinyl covered, vertical panels, in two widths and three heights; and oak or plastic laminate horizontal tops, with radius edge, in four widths and four depths. These combine to produce screens, work stations, returns, free-standing desks, and storage units. Accessories include shelves, closet doors, overhead storage units in two sizes, pedestals with box and file drawers, connecting hardware, brackets, glides, and electrical accessories. Knoll International.

Circle 103 on reader service card



Design Option III



Task lighting fixture



Modular sofa

Office screens



**Design Option III screens,** in two heights and four widths, provide for semi-private offices.

They can be used separately or in conjunction with any of the company's full-height wall systems. Modifications and options include:

**Graphics,** silk-screened on 3-M film, are designed and scaled for application to Design Option III walls but may also be retrofitted to existing panels supplied by maker.

**Glass panels.** Three glass options—etched, beveled, and stained glass—are offered for installation in Design Option III frames.

**Multiples.** Among the new units is a 30"x62" work surface which may be used as a free-standing table unit or modified in many ways. Freestanding equipment stands have also been added to group.

**Task lighting fixtures.** Each model, one table and two screen-mounted versions, features a steel housing with a single fluorescent tube and low-brightness parabolic wedge louver. Each has a separate on/off switch.

**In-line power screen.** Eight electrical outlets are provided at three levels plus a pass through slot for power cords. Hauserman Inc.

Circle 104 on reader service card

**Pre-wired panel system.** Power runs through each panel via integrated wiring built into compartmentalized raceways. Wherever panels join, flexible power connectors snap into place to complete the circuit. Each panel offers a total of

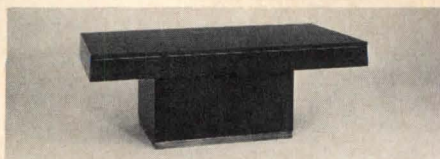
four outlets, located in power blocks at both ends for electrical equipment plug-in. System also handles telephone and CRT requirements. Haworth, Inc.

Circle 105 on reader service card

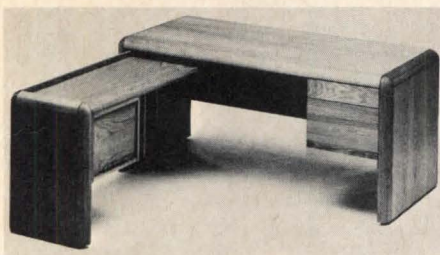
**Modular sofa group** can be specified in configurations from a single chair to a six-seat unit. Optional tables can be interchanged with any seat unit and a companion collection of occasional tables complete the grouping. Plywood structure is surrounded by polyurethane foam, and seat, back, and arm sections are upholstered without visible welts, pleats, or puckers. Modules are bolted to a tubular black steel frame suspended between the arm sections. Occasional tables feature folding legs of tubular solid steel with bright chrome plated finish. Sofa tables and occasional tables are available in solid walnut, white plastic laminate, and soft black upholstered vinyl finishes. Herman Miller, Inc.

Circle 106 on reader service card

**Office screens.** Planscape 2 screens come with bold graphics in six bright geometric patterns in 19 colors, which are said to have improved acoustical and flammability properties. Screens come in 17 sizes, 7 straight or curved widths and 3 heights. ScreenOne is designed solely for office landscape application and is said to provide top fire and noise protection. Of metal and fiberglass construction and flame retardant fab-



Profile Twenty series



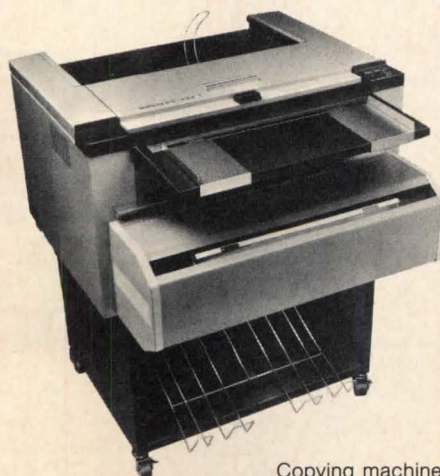
Delta Oak



Ad infinitum open plan office system



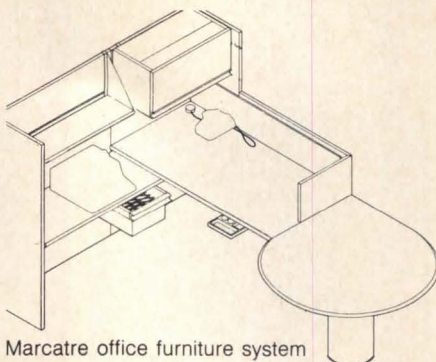
Seating.  
Tee-chair and  
executive high-back.



Copying machine



Word processing work station



Marcatre office furniture system

rics, the screens offer a variety of trims including walnut and oak plus walnut vinyl, bronze, or silver anodized aluminum and full-fabric trims. A complete range of sizes is available in both straight and curved, in three heights and three widths. Fabric cover can be removed and changed as needed by pulling a cord in the screen's frame which releases the fabric. Vogel-Peterson Company.

Circle 107 on reader service card

**Profile Twenty Series** of executive office furniture in cantilevered, cube design is offered in American Walnut veneers in either a high gloss or a hand-rubbed oil walnut finish, accented with burnished bronze reveal strips, perimeter bases, and drawer pulls. Myrtle Desk Company.

Circle 108 on reader service card

**Word processing work station.** Work surfaces and storage areas can be raised or lowered in one-in. increments and are also cantilevered so that swivel chairs can move freely. An acoustical hood and acoustical panels give noise control.

**Open Office Lighting System** combines indirect and task lighting. Fixtures can be mounted on the tops of work station panels for flexibility. Westinghouse Architectural Systems Div.

Circle 109 on reader service card

**'Delta Oak.'** A transitional collection which includes desks, credenzas, and tables compatible with Delta Oak seating. All drawer fronts, rails, and posts are solid oak. Wood core end and modesty panels feature randomly chosen select oak veneer surfaces. Full ball-bearing suspension throughout. The Gunlocke Company.

Circle 110 on reader service card

**Marcatre office furniture system.** Vertical and horizontal panels in graduated dimensions consist of high density cores faced with PVC in off-white, light or dark gray, or wood veneer laminates. Edges facing the worker are trimmed with an oak bull nose. Joints are steel bars joined to steel bushings with blocking set screws. Table supports are welded steel cylinders embossed-baked with matte polyurethane lacquer. Included is a full range of filing equipment and lockable storage doors, also file pedestals on casters. Accessories are handled as add-ons. The Marcatre/Archizoom chairs, designed for

middle and upper management stations, have stretched fabric on tubular metal frame and base of chrome or enameled metal. Alternate base: 4-footed pedestal with glides or casters. The DLD chairs, intended for administrative and clerical personnel are molded fiber glass in white, dark brown, or green, with or without arms, with or without upholstery, 4-legged base (stacking) or legs with casters. Atelier International.

Circle 111 on reader service card

**Ad infinitum open plan office system.** Lightweight panels use Corstak, a corrugated material which employs the honeycomb principle to achieve desired characteristics. They are available in 43-, 53-, and 68-in. heights and 21-, 30-, 36-, and 42-in. widths. All are 2½-in. thick and use the same core material. Customer has choice of walnut or oak veneer, plastic, or fabric acoustic surfaces for panels. Work surface and cabinet heights can be varied to individual needs. Work surfaces come in six different sizes with wood veneer or plastic finishes and can be attached to the panels, or a line of specially designed free-standing wood furniture, or existing free standing furniture may be used. Attachable raceways for electrical and telephone wiring can be installed vertically or horizontally. Alma Desk.

Circle 112 on reader service card

**Seating.** Completely upholstered executive highback chair has urethane in arms, back, and attached cushions, polished aluminum base with double-wheel hooded casters, swivel tilt mechanism, adjustable seat height. Tee Chair has polished chrome plated frame, urethane in seat and back. Thonet Industries, Inc.

Circle 113 on reader service card

**Carpet tiles.** Fusion-bonded, PVC-backed tiles, according to maker, are dimensionally stable, will not ravel at the edges, and are suitable for loose-laid as well as cemented installations. The 19-11/16-in. square tiles are available in 34 colors. Eurotex, Inc.

Circle 114 on reader service card

**Whiteprinter.** Tabletop unit is said to turn out copies at the rate of 21 ft per min. Copy dimensions can be up to 53-in. wide by any desired length. Unit has separate heater switch for instant-on operation, a built-in pump switch, and forward-reverse switches. Unit may also be wall mounted. Teledyne Rotolite.

Circle 115 on reader service card

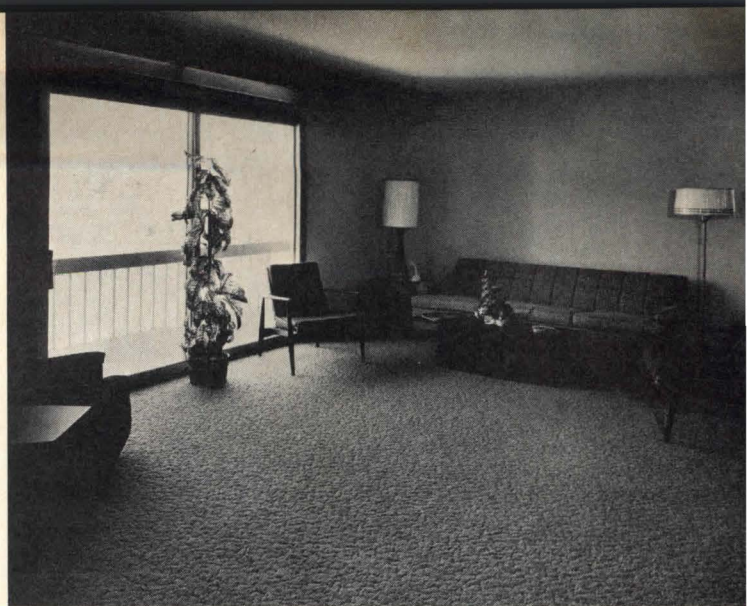
**VariType Engineering Lettering Machine** is said to have instantly changeable type styles and sizes and be designed to relieve the draftsman of hand lettering. Type sizes are from .062" to .150". Addressograph Multigraph Corporation.

Circle 116 on reader service card

**Copying machine** is designed to accept single sheet or bound originals up to 18-in. wide by any length and is said to be ideal for applications involving oversize and odd-size originals, such as computer printouts, plat books, proof sheets, continuous-roll originals, story boards, aerial photos, blueprints, newspapers and architectural drawings. Unit is a console on rollers. Minolta Corporation.

Circle 117 on reader service card

[continued on page 86]



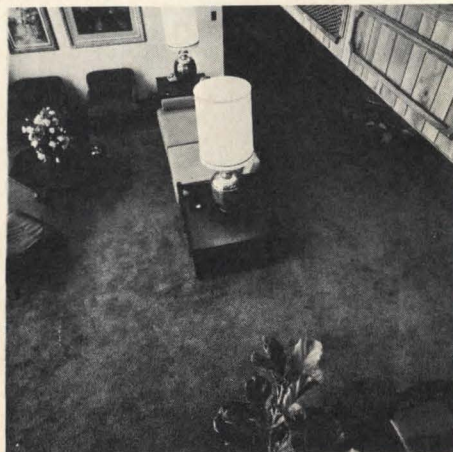
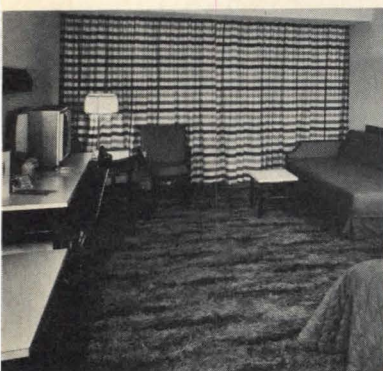
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## Literature

**'Innovations for Architecture, Construction, and Engineering.'** An eight-page pamphlet illustrates and explains the company's equipment whose capabilities include document creation, duplicating, automatic document handling, document finishing/distribution, facsimile communications, micrographics, and education. Xerox Corporation.

Circle 201 on reader service card

**'Overlay drafting for architects.'** Pamphlet states that an architectural drawing does not necessarily have to be made on one piece of material, that through the use of a series of overlays, several types of information with a common base, such as a basic floor plan, can be drawn without drawing the common base more than once. Eastman Kodak Company.

Circle 202 on reader service card

**'Photoreproduction for Architects.'** Brochure describes how photography can work in such techniques as paste-up drafting, renderings, reproducing basic designs for multiple floors, and shadow prints. Eastman Kodak Company.

Circle 203 on reader service card

**'Packaged draftsmen'** are pressure-sensitive appliques of your own repetitive symbols, diagrams, and title blocks that are applied to your drawing. Samples of appliques and pressure-sensitive films are included with brochure. Stanpat Products Inc.

Circle 204 on reader service card

**Diazo copiers.** Brochures describe the PD80, the PD160, and the 600 and give model specifications. Each copier makes prints up to 42 in. wide, uses no ammonia, and requires no venting. Model PD80 may be used on-site. Bruning.

Circle 205 on reader service card

**Drawing reproduction.** Brochure describes and illustrates the variety of equipment for reproducing drawings. Eastman Kodak Company.

Circle 206 on reader service card

**'Color on Kodagraph Wash-Off Contact Film.'**

Brochure describes technique for combining a color-proofing technique from the field of color lithography with the characteristics of Kodagraph film system for adding color. The film is said to be well-suited for engineering drawings, maps, charts, and graphs, displays, teaching aids, etc. Eastman Kodak Company.

Circle 207 on reader service card

**Photocopier monitoring system.** The Copy-corder consists of a control receptacle that activates the photo copier and an unlimited number of Keycounters which are inserted into the re-

ceptacle. The Keycounters activate the copier circuit and record the number of copies produced. Readings are periodically taken to accurately allocate copying costs to the responsible cost centers. For 4-page brochure write to Heccon Corporation.

Circle 208 on reader service card

**Printers.** Model 1824 is said to produce prints up to 18"x24" from all types of microfilmed records. Operation is automatic. Prints emerge dry for immediate use, and may be written on easily with pen or pencil. Request literature from Xerox Corporation.

Circle 209 on reader service card

**Telecopier.** Literature explains and illustrates how the 400 transceiver can send and receive a full page in just four minutes; partial documents in less time, or you can move to the six-minute speed to be compatible with other equipment. Anything typed, written, or drawn can be reproduced in black on white. Xerox Corporation.

Circle 210 on reader service card

**Reprodrafting** is the use of photographic techniques and reproductions in the drafting process. Booklet sets forth the benefits to be derived from this process, tells when and how it may be most profitably used, and explains the techniques involved. E.I. Du Pont De Nemours & Co. (Inc.).

Circle 211 on reader service card

[continued on page 88]

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 Turner Ltd.  
 Vecta Contract Company

P/A in September will bring you a complete preview-report

# Designer's Saturday

**Date:** Saturday, October 2nd plus Friday, October 1st

**Place:** 30 New York furniture showrooms

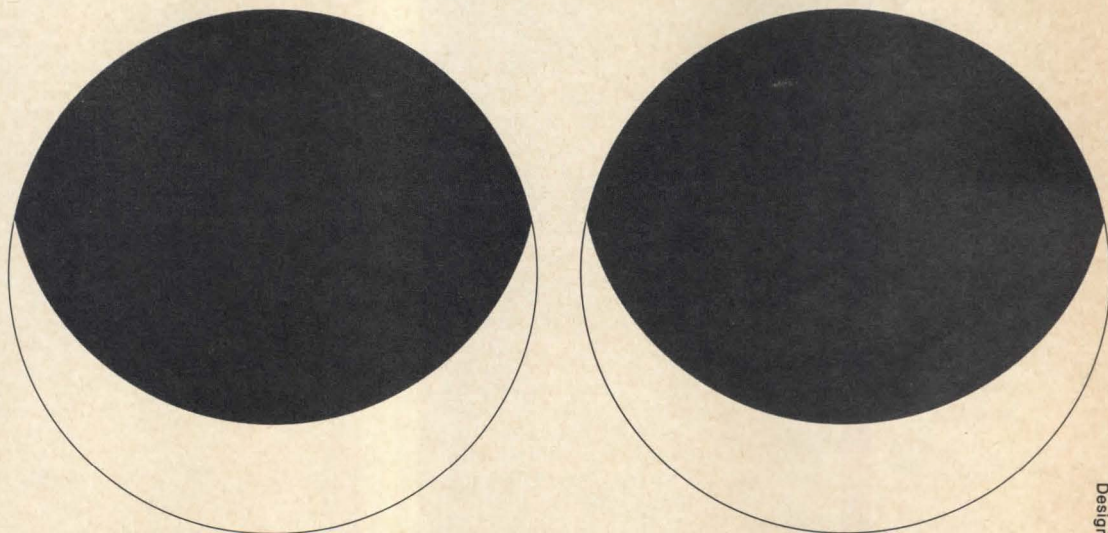
**Reception:** Museum of Modern Art  
 Saturday evening (7-9) October 2nd  
 Cocktails and hors d'oeuvres

Major exhibits will be open

**Architecture & Design Study Center** A comprehensive overview of painting in America (1800-1950)

**Natural Paradise** Selections from the Museum's unique international furniture design collection from Michael Thonet to recent experimental design work. A large part of the collection is composed of donations from members of Designer's Saturday

**Philip Goodwin Galleries** Normally closed to the public, will be open for this event by special arrangement with MOMA



No registration fee

Special rates have been made with Loews Hotel Group, including the Drake, Summit and Warwick Hotels

Write for your Invitation—Poster—Map—Hotel Information

Designer's Saturday, Inc.  
 P.O. Box 1103  
 FDR Station  
 New York, N.Y. 10022

**Copiers.** The 3100 LDC may be used as a general purpose copier, as a stream-feed copier whereby originals don't have to be positioned, or a large document handler with capability for making size-for-size copies up to 14"x18" (B-size drawings). The 7000 unit in addition to duplicating size-for-size, automatically reduces and standardizes oversize business documents by 15, 23, 35, or 38.5 percent. It can automatically collate, slit, and perforate. The 840 EPS will automatically reproduce any A, B, C, or D size drawing, reduce them 65 or 50 percent, then fold and sort the prints. The 1860 printer makes paper offset masters, translucent intermediates, and black-on-white prints from originals as large as 36"x120" or as small as 8½"x8½", uses ordinary paper, and any written, typed, printed, or drawn original. It will copy size-for-size or at 95, 75, 62, 50, or 45 percent reductions. Brochures are available from Xerox Corporation.  
*Circle 212 on reader service card*

**Lettering machine** lets you choose your type styles and type sizes from 66 different fonts. Each font has a complete alphabet, along with punctuation, numerals, and math symbols which are printed on a translucent, adhesive-backed tape. Letter spacing and work alignment are automatic, but letters can be condensed or spread out. Write for literature. GAF Corporation.  
*Circle 213 on reader service card*

**'The Colorful Generation.'** The 6500 color copier can generate a seven-color range from its three basic colors. The addition of the 6500 Slide Adapter II, when used with projector, allows the color copier to produce enlarged copies directly from 35 mm and other size slides. With the Slide Adapter, the color copier can also produce size-for-size copies of other photographic transparencies up to 8"x10". Booklets on these units which work together can be obtained from Xerox Corp.  
*Circle 214 on reader service card*

**Lettering machine.** Designed and developed in West Germany the machine weighs only two lbs and, according to brochure, moves freely over the surface of the drawing to provide lettering at any point necessary. It is said to be suitable for use on all types of drafting media and is positioned by either drafting machine or parallel bar. Gritzner Graphics.  
*Circle 215 on reader service card*

**Compact whiteprinter** makes copies up to 45 in. wide by any length. It can be used as a tabletop unit or installed on custom stand. Unit features automatic built-in ammonia vapor pump, a single speed control dial, horizontal or vertical print delivery, a forward and reverse switch, a heated stainless steel developer chamber, and a pyrex printer cylinder. Leaflet illustrates and gives model specifications. Diazit Company Inc.  
*Circle 216 on reader service card*

**'Drawings Made Easy'** is a brochure which suggests ways in which photography can be used in connection with various techniques used by architects, for renderings, restoring old drawings, and others. Eastman Kodak Company.  
*Circle 217 on reader service card*

**Distribution system.** The Telelift network consists of two fully automatic basic vehicles, a modular track, switching units for flexibility in routing, power monitors, and fire dampers. Station design provides for re-entry, exit/entry, and transfer. Brochure. Mosler.  
*Circle 218 on reader service card*

**'Contract Carpet Selection and Specifications Guide.'** Four-color brochure has been prepared to assist the specifier. It contains recommended guidelines for selection of carpet and charts giving specifications of various commercial grades of carpet from many different manufacturers. Dow Badische Company.  
*Circle 219 on reader service card*

**Door closers.** Brochure gives construction features and installation data of 3000 Series of closers. Units may be installed without cover or with any one of three covers. Closers are available in a wide choice of stock or special finishes. They may be mounted by several different methods including standard, parallel arm, top jamb, with or without hold-open arms, or where there's limited ceiling clearance. Eaton Corporation.  
*Circle 220 on reader service card*



**SEAL THE EAVES...  
STOP ROOF  
LEAKS!**

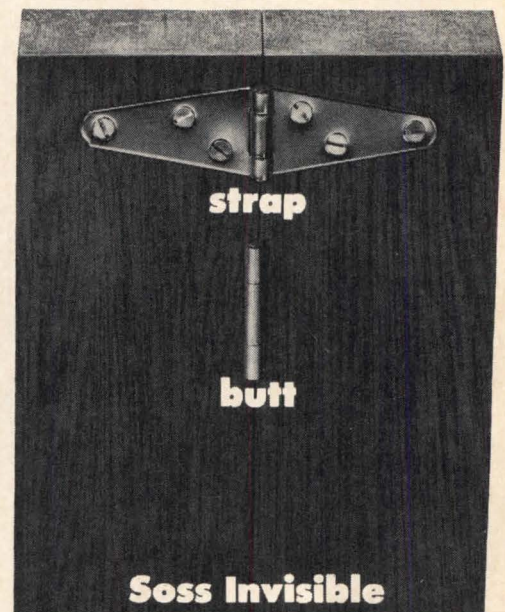
Hickman Gravel Stop prevents leaks at eaves by clamping out the moisture — permanently. It's a complete three-piece system: thermally-compatible galvanized water dam; free-floating extruded aluminum fascia; patented compression clamp with neoprene-washed fasteners. Our system excludes water so effectively, nobody's ever found a failure in a Hickman Gravel Stop. And permanent, foolproof protection like this is actually less expensive, installed, than less dependable gravel stops. Next time you're roofing (or re-roofing), specify Hickman and stop worrying.

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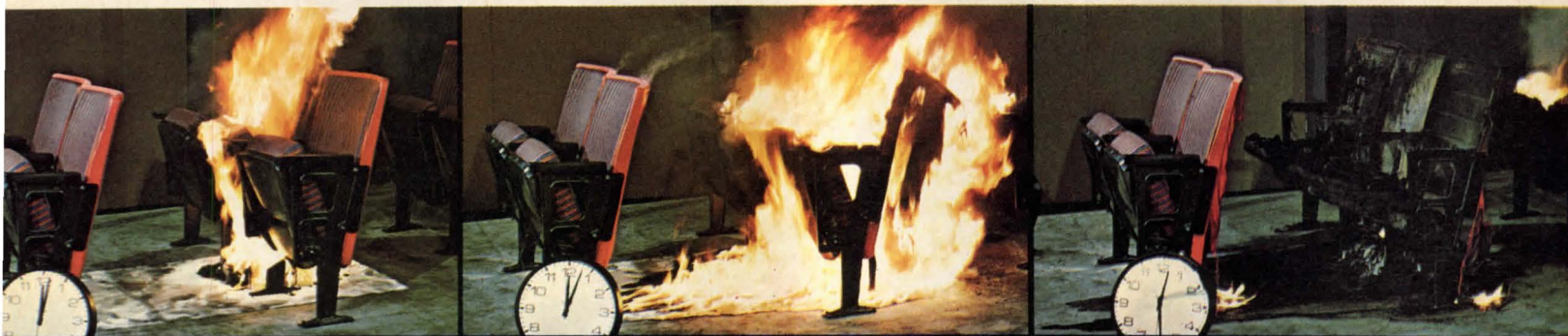
**the SOSS**  
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**TEST ONE: DU PONT NEOPRENE**  
Time: 1 minute, 30 seconds after ignition.

Time: 3 minutes, 00 seconds.  
Center chair involved.

Major flames out. Time: 6 minutes, 00 seconds.  
Damage: 1 chair involved, fabric melting and smoldering on two adjoining chairs.



**TEST TWO: HR POLYURETHANE**  
containing flame retardants.  
Time: 1 minute, 30 seconds after ignition.

Time: 3 minutes, 00 seconds.  
Five chairs in two rows involved.

Major flames out. Time: 29 minutes, 30 seconds.  
Damage: 5 chairs in two rows involved.



**TEST THREE: STANDARD POLYURETHANE**  
Time: 1 minute, 30 seconds after ignition.

Time: 3 minutes, 00 seconds.  
Five chairs in two rows involved.

Major flames out. Time: 40 minutes, 00 seconds.  
Damage: All seven chairs involved.

## We tested theatre seats against fire. Neoprene cushioning foam performed best.

We conducted three burn tests at Factory Mutual's Test Center.

In each test we used seven theatre chairs in an environment intended to simulate that found in a typical theatre or public auditorium. Our fuel source in each case was typical theatre trash—popcorn boxes, drink cartons, cups and napkins—placed under the center chair.

As the photographs above show, there was considerably less flame damage among the chairs cushioned with deep foam of Du Pont Neoprene than among those cushioned with other common cushioning foams.

### The Test Chairs

Test #1 used cushions of Neoprene deep foam. Test #2 used cushions of high resiliency (HR)

polyurethane foam containing flame retardants. The chairs in these two tests were otherwise identical, with upholstery fabric and plastic seat backs containing flame retardants.

Test #3 was conducted with a standard type polyurethane cushioning foam in chairs with untreated components.

### Smoke Obscuration

During each test, light obscuration by smoke was measured by photo cells six feet from the floor. Data gathered show the chairs cushioned with Neoprene produced less total smoke because only one chair was consumed by the fire.

Combine the results of these tests with the resilience and comfort of

Neoprene foam, and it's easy to see why this versatile, durable material has been widely specified wherever public safety is at a premium.

For complete test data, plus information on suppliers of Neoprene foam cushions or finished seats, write: Du Pont Company, Room 24402E, Wilmington, DE 19898.

## Cushioning Foam of DuPont Neoprene



## Building materials

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

### Private residence, Chicago suburb, Ill. (p. 42).

Architects: Stanley Tigerman & Assoc. Ltd., Chicago, Ill. Long span steel joist on steel pipe column structure: The Ceco Corp. Metal decking: Decks Inc. Aluminum urethane core panels: "Alply" by Alcoa. Neoprene gaskets: Stanlock Glazing Gaskets Standard Products Co. Aluminum garage roll doors: The Cookson Co. Roof-covering (traffic-bearing): Crossfield Products Corp. Sliding doors and frames: Allied Fire Equipment Co. Wallboard partitions: Celotex

Corp. Metal studs: Empcor Corp. Plaster: U.S. Gypsum. Stoneware tile floors: Structural Stoneware Inc. Recessed lighting fixtures: Lightolier. Interior paints: Pittsburgh Paint. Fireplace: Majestic. Locksets: Falcon. Hinges: Roton, Spiral Stair: Woodbridge Ornamental Iron Co. Observatory dome: Ash Mfg. Co. Telescope: Celestron. Electrical controls: Gimix. Plumbing fixtures: Kohler. Hot water heater: A. O. Smith. Kitchen equipment: Hobart, Thermador, Sub-Zero, Vesco, Maytag.

### Brant House, Greenwich, Conn. (p. 50). Architects: Venturi & Rauch, Philadelphia, Pa.

Glazed face brick: McKees Kittaning. Marble: Vermont Marble Co. Insulation: Owens-Corning. Aluminum rolling windows: Arcadia. Wood windows: Lupton. Kitchen equipment: Vulcan, Thermador, Hobart, General Electric. Lighting fixtures: Lightolier. Plumbing and sanitary: Briggs, Crane.

Heating system: H. B. Smith, Arbala Servel. Air conditioning system: Honeywell, Walton-Montclair.

### Netsch House, Chicago, Ill. (p. 46). Architects:

Walter Netsch, (design partner of Skidmore Owings & Merrill, Chicago). Brick: Woodacre Greer. Sliding wood sash windows: Peachtree. Laminated ultraviolet heat resistant glazing: Globe-Amerada.

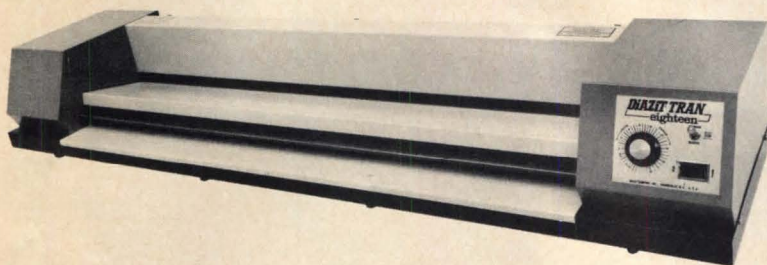
### Private residence, Western, Conn. (p. 54). Architect: Paul Rudolph, New York, N.Y.

Plywood box beams: The Champlin Co. Aluminum frame windows: Hope.

### Alexander House, Montecito, Calif. (p. 58).

Architects: Roland Coate, Jr. Venice, Calif. Reinforced concrete foundations, structure, and wall surfacing: Colton Cement Co.; Carpeting: Lees Carpet. Waterproofing and dampproofing (five-ply membrane): Johns Manville. Roof drainage: Zurin. Dry wall partition: U.S. Gypsum. Steel sash windows: Drewhit Mfg. Co. Solid core wood doors: Haley Bros. Mfg. Garage doors: Overhead Door Co. Locks and lever handles: Schlage Lock Co. Standard casements: Hager Hinge Co. Cremona bolts and custom lever handles: Whitney's Hardware Designs. Kitchen equipment: Wolf Mfg. Co. Intercom: Nutone. Recessed and track lighting. Electric distribution panels and switchboards: General Electric. Plumbing fixtures: American standard. Gas fired heating: Lennox. Air-cooled condensing units and coils: Lennox.

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## Notices

### Appointments

Der Scutt, AIA has been named a partner of Poor, Swanke, Hayden & Connell Architects, New York City. Ralph A. Krass, AIA Assoc. and Susan Podufaly Schaub, AIA Assoc. have become associates of the firm.

Herbert Rothman, FASCE has been appointed a general partner of Weidlinger Associates, Consulting Engineers of New York City.

Benedetto J. Puccio has been named an associate of Gruzen & Partners, New York City and Newark, N.J.

Lawrence B. Bernhardt has been appointed director of health care, and Robert N. Kronewitter, director of planning for Jones-Mayer & Associates, Inc., St. Louis, Mo.

Joseph A. Johnson has joined Schaefer, Schirmer & Associates, PA of Wichita, Kan. as managing director.

Liviu Brill, AIA has become an associate of Glaser/De Castro/Vitols Partnership, Boston, Mass.

William G. Anderson has joined A.J. Diamond Associates, Architects, Planners of Toronto and Ottawa, Canada.

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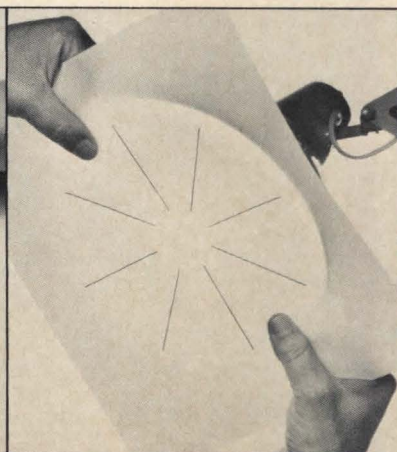
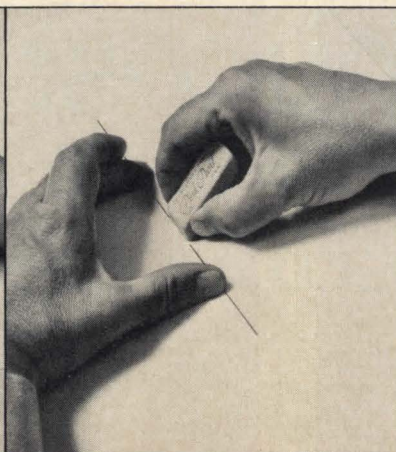
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## Job mart

### Situations open

**Architect or Architectural Engineer:** University of Petroleum & Minerals, Dhahran, Saudi Arabia. A newly established Architectural Engineering Department at the University of Petroleum & Minerals, Dhahran, Saudi Arabia, has a faculty position opening for an architect or architectural engineer with teaching and/or practical experience in architectural design. Minimum two-year renewable contract, competitive tax free salaries plus housing, transportation to and from Dhahran each two-year tour with annual two months' paid vacation plus other allowances and benefits in policy. Apply immediately with complete resume indicating marital status, home and office addresses and telephone numbers to: Dean of Faculty & Personnel Affairs, University of Petroleum & Minerals, Dhahran, Saudi Arabia.

**Architect or Civil Engineer:** U.S. firm has position available in Central Africa. Job consists of architectural and construction supervision responsibilities on renovation and new structures. Ten years minimum experience required; must speak French. Salary commensurate with experience and abilities. 18 month project minimum; housing provided. Please send resume to P.O. Box 5551, Baltimore, Maryland 21204.

**Architect-Engineer Firm:** Nationally ranked in top 400, seeking experienced person or persons, with established contacts and proven track record at marketing Architect-Engineer services for its southeastern regional office. Clientele desired includes full scale industrial and broad range of architectural. Reply with resume to Box 1361-955, *Progressive Architecture*.

**Architectural Director (Assistant Professor):** Appointment for September 1976. Must have M.A. in Architecture or related field, experience working with Community groups, and architectural registration required. Position involves Community Service and Teaching. Salary negotiable. Application deadline September 1, 1976. Inquire or send resumes and references to: Community Design Search Committee, University of Colorado at Denver, 1100 - 14th Street, Denver, Colorado 80202. The University of Colorado at Denver is an Equal Opportunity/Affirmative Action Employer.

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**Director of Research and Service Programs:** Candidates should have administrative

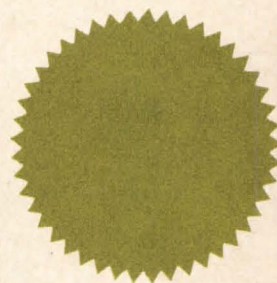
experience in the management of research programs, capability and experience in writing for publication, and knowledge and experience in dealing with foundations, government agencies and industry sources for funding support for research. They should also have experience in the practice of architecture and a record of meaningful personal accomplishments in the field. Teaching experience is desirable. Position open 1 September 1976. Send resume and references to College of Architecture and Urban Planning, The University of Michigan, Ann Arbor, Michigan 48109. The University is a non-discriminatory, affirmative action employer.

**Director:** The School of Architecture and Environmental Design at Kent State University invites applications and nominations for the position of Director of the School. The School is one of seven Schools in the College of Fine and Professional Arts and has a total enrollment of 550 undergraduate and graduate students with a faculty of seventeen. The School offers a four-year non-professional degree, a five-year professional Bachelor of Architecture degree, and a six-year Master of Architecture program. The degrees are fully accredited by the National Architectural Accrediting Board. Candidates should have suitable professional and educational credentials with abilities in administration, teaching, research, and practice. Twelve month contract; salary commensurate with qualifications and experience. Kent State University is an Equal Opportunity/Affirmative Action Employer. Application [continued on page 94]

# P/A annual Awards Program

## Deadline: August 31

for projects not yet completed  
in architecture,  
planning, and research



All U.S. and Canadian firms invited to submit. For details and entry forms, see July 76 P/A, p. 81, or June 76 P/A, p. 15, or call Awards Editor 203-348-7531



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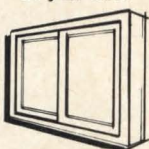
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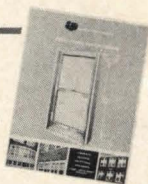


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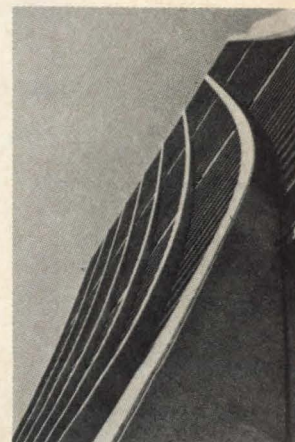
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\*Engineering News-Record,  
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tion deadline is November 15, 1976. Send applications and nominations to: Chairman, Search Committee-Architecture, Office of the Dean, College of Fine and Professional Arts, Kent State University, Kent, OH 44242.

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#### Situations Wanted

**Architect:** 35, married. B.S. in Architecture, registered three states, NCARB certificate. Ten years varied experience includes architecture, construction, teaching. Now completing MBA degree in Management; seeking administrative position with A-E firm, building products manufacturer, government, or educational institution in Southeast U.S. Resume, references upon request. Box 1361-965, *Progressive Architecture*.

**Architect/Designer:** 26, B. Arch., Pratt. 2 years experience including research, design, planning, working drawings, presentation work, and rendering. Familiar with European and Arabic cultures; fluent in French. Am highly motivated and committed to the projects on which I work. Interested in challenging position, U.S. or overseas. Box 542-S Backbay, Boston, Massachusetts 02116.

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**Architect/Principal:** 39, currently chief executive major A/E firm. Design, client development, management oriented. Major projects in health care, government and institutional fields. East Coast registrations (NCARB). Interested in permanent growth opportunity in Southern Florida. Reply to: Box 1361-967, *Progressive Architecture*.

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| Firm  |  |                  |       |      |                  |
| Business Address  |  |                  |       |      |                  |
| <input type="checkbox"/> Architectural Firm                         |  |                  |       |      |                  |
| <input type="checkbox"/> Engineering Firm                           |  |                  |       |      |                  |
| <input type="checkbox"/> Builder/Developer                          |  |                  |       |      |                  |
| <input type="checkbox"/> Dealer/Distributor                         |  |                  |       |      |                  |
| <input type="checkbox"/> Manufacturer Building Products             |  |                  |       |      |                  |
| <input type="checkbox"/> Contractor                                 |  |                  |       |      |                  |
| <input type="checkbox"/> Government (City, State, Federal)          |  |                  |       |      |                  |
| <input type="checkbox"/> Manufacturer Homes or Building Components  |  |                  |       |      |                  |
| <input type="checkbox"/> Financial/Real Estate                      |  |                  |       |      |                  |
| <input type="checkbox"/> Building Management/Operations             | <table border="1"> <tr><td>Business Address</td></tr> </table>   | Business Address |       |      |                  |
| Business Address  |  |                  |       |      |                  |
| <input type="checkbox"/> Interior Design                            |  |                  |       |      |                  |
| <input type="checkbox"/> Sales, Marketing or Advertising            |  |                  |       |      |                  |
| <input type="checkbox"/> Trade or Industry Association              |  |                  |       |      |                  |
| <input type="checkbox"/> Utility, Transportation                    | <table border="1"> <tr><td>Business Address</td></tr> </table>   | Business Address |       |      |                  |
| Business Address  |  |                  |       |      |                  |
| <input type="checkbox"/> Other (specify) _____                      |  |                  |       |      |                  |

## TITLE OR JOB FUNCTION

- ☐ President/Owner/Principal/Partner  
☐ Vice President, General Manager  
☐ Chief Engineer or Architect,  
☐ Superintendent, Foreman  
☐ Purchasing  
☐ Designer/Specifier/Draftsman  
☐ Maintenance  
☐ Sales/Marketing/Advertising  
☐ Other (specify)

[illegible]☐ Please send exhibit information.

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Harrington A. Rose, Francis X. Roberts, District Managers	
<b>Chicago, Illinois 60601</b>	
2 Illinois Center Bldg., Suite 1326	
312-565-1281	
Jerrold E. Driscoll, District Manager	
<b>Cleveland, Ohio 44113:</b>	
614 Superior Ave., W. 216-696-0300	
John F. Kelly, District Manager	
<b>West Coast</b>	
16250 Ventura Blvd. Suite 300	
Encino, CA 91436 213-981-4863	
(Toll free from LA: 872-2184)	
Philip W. Muller, District Manager	
<b>Atlanta, Georgia 30308:</b>	
805 Peachtree Bldg.—Room 505	
404-874-6421	
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<b>London, SW1H, OBH, England</b>	
14 Broadway	
John Lankester, Representative	
<b>Verviers, Belgium</b>	
1 rue Mallar	
Andre Jamar, Representative	
<b>Tokyo, Japan</b>	
Bancho Koheki	
15 Sanyei-cho, Skinjuku-ku	
Genzo Uchida, Representative	

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The essence of JG's IOP non-uniform reflected lighting system is a 50% electrical energy savings, controlling veiling reflections and eliminating shadows, improving both task and ambient lighting; our joining extrusion permits rapid re-location of work stations creating a totally new concept in a working office environment.

JG is the pioneer in reflected office lighting systems. We offer the interior planner and architect the use of our

testing laboratory insuring the proper lighting performance for each individual requirement. We manufacture our own lighting fixtures and power poles producing the best available state-of-the-art equipment for Illuminated Open Planning™ furniture. JG is a UL listed manufacturer.

**Installation:** The Atlantic Richfield Co., Philadelphia, Pa.

### JG FURNITURE COMPANY, INC.

Quakertown, Pa. 18951 (215) 536 7343

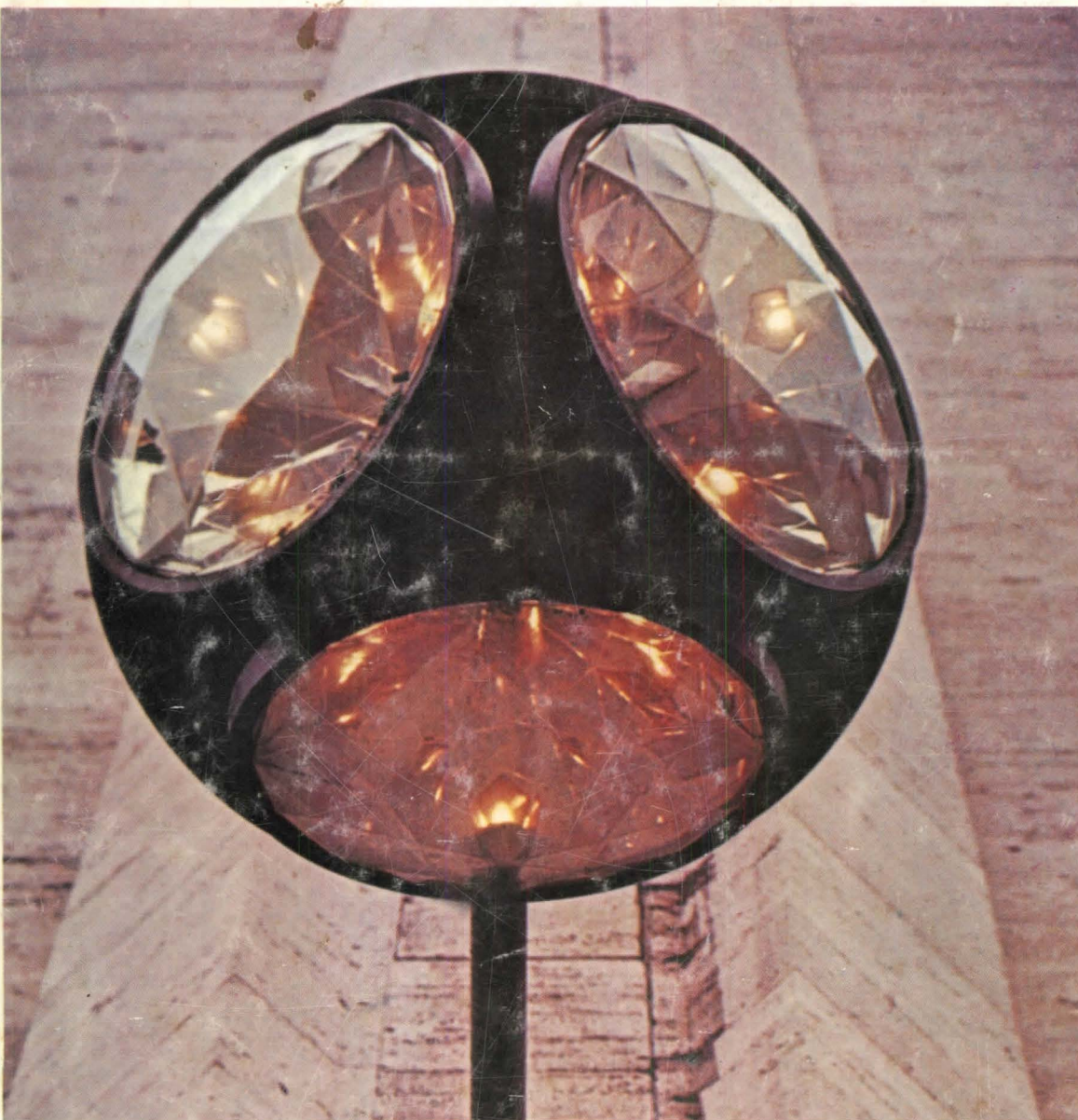
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# JG/IOP

LIGHTING FOR  
OPEN PLANNING





**Sterner custom lighting. Next time your imagination runs away with you, we'd like to tag along.**

There's nothing we like better than accepting the challenge of turning your lighting concepts into reality.

The lighting fixture shown above, built for the New York State Theater at Lincoln Center, is a prime example. The architect, Phillip Johnson & Associates of New York, supplied the original lighting design ideas, and we delivered a quality-built system that included everything from the chandelier in the theater to the submersible floods in the fountain.

In addition to our custom design capabilities, Sterner offers a lighting library of outstanding fixtures... plus the expertise of our Simes and Infranor Divisions to help solve specialty lighting and floodlighting problems.



**STERNER**

LIGHTING SYSTEMS  
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