NEW WORK OF PHILIP JOHNSON

ARCHITECTS' OFFICES DESIGNED WITH ECONOMY AND FLAIR

BUILDING TYPES STUDY: RESORT HOTELS—SYMBOL AND ASSOCIATION IN THEIR DESIGN

SEMI-ANNUAL INDEX

FULL CONTENTS ON PAGES 4 AND 5

DECEMBER 1969 12 A McGRAW-HILL PUBLICATION TWO DOLLARS PER COPY

Safe, new silencer for the ceiling game: Domino.

ACOUSTONE*

Tile scores again!

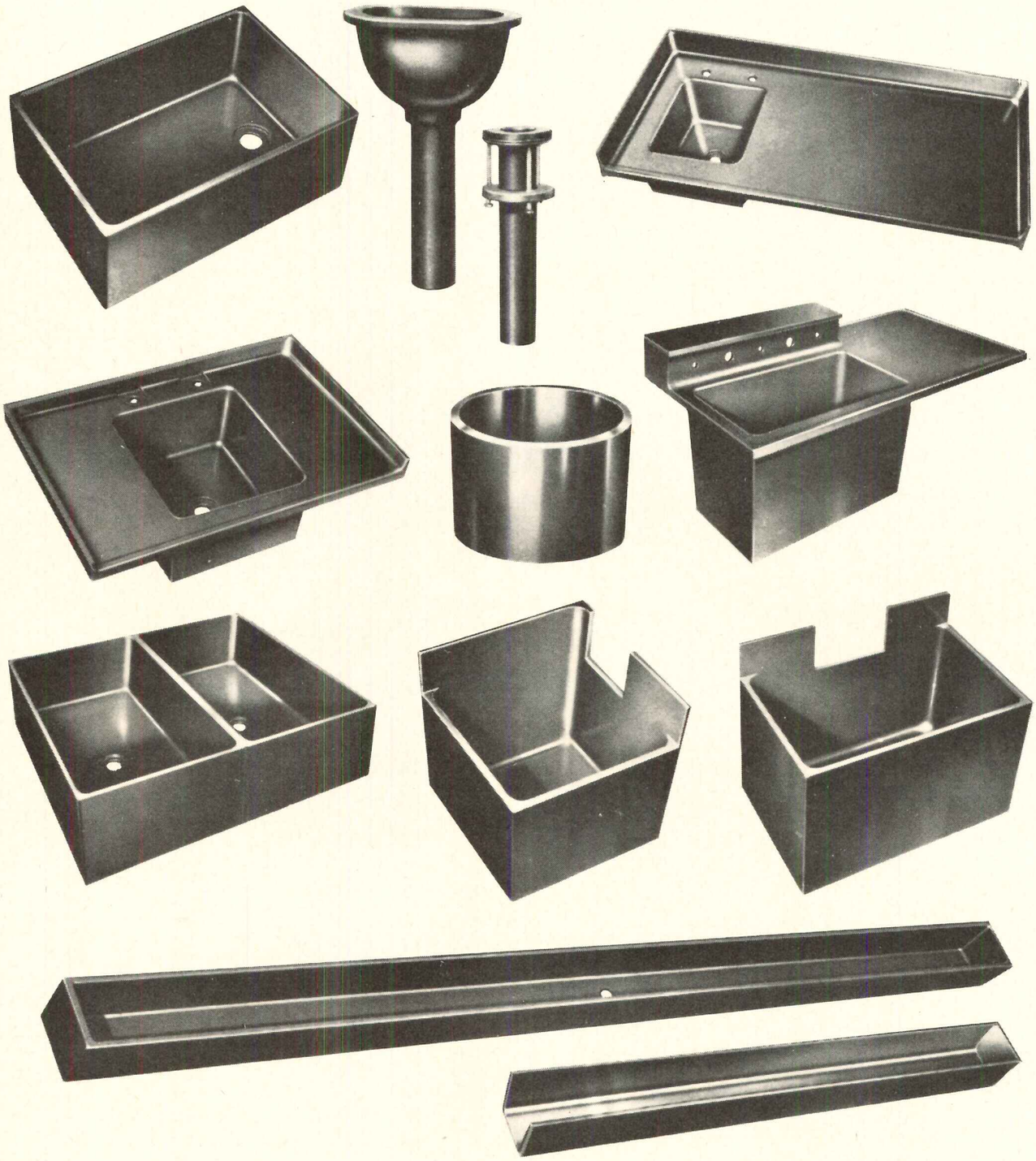
Like all patterns in ACOUSTONE Mineral Acoustical Ceiling Tile, Domino wins out handsomely! NRC range of ACOUSTONE is .70 to .80. Fire resistance rating: Class 25. Flame spread rating: 15. Light reflectance: Class a. Standard Kerf accommodates splines for mechanical and adhesive applications. See your U.S.G. man for all the facts. Or write us at 101 S. Wacker Dr., Dept. AR-96, Chicago, Ill. 60606.

Domino pattern in ACOUSTONE Tile, ¾" thick, 12"x12". Millionaires Club, Chicago, Ill. Designer: James Efston.

UNITED STATES GYPSUM

*Reg. U. S. Pat. Off.

For more data, circle 2 on inquiry card



Light in Weight, Esthetically Appealing, Corrosion Resistant,
Heat Resistant, Shock Resistant, Easy to Install,
Readily Available, and LOW IN COST. Why install anything
but DURCON when it comes to chemical laboratory sinks?

THE DURIRON COMPANY, INC. DAYTON , OHIO DURCO

For more data, circle 3 on inquiry card

From the radical and the daring comes the revolutionary.

They're here to revolutionize treatment of walls and ceilings. To give interiors a radically different look. To break traditional paneling barriers.

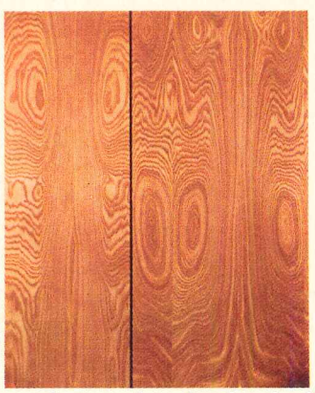
Element I™ from U.S. Plywood. Five exclusive concepts in which veneers of a wide variety of wood species are used as they've never been used before.

Panels of mismatched or random-matched veneers. Panels which retain the rough natural textural beauty of wood. Panels joined in new ways with plastic or built-in reveals. Panels or battens that are available in many widths to vary surface treatment.

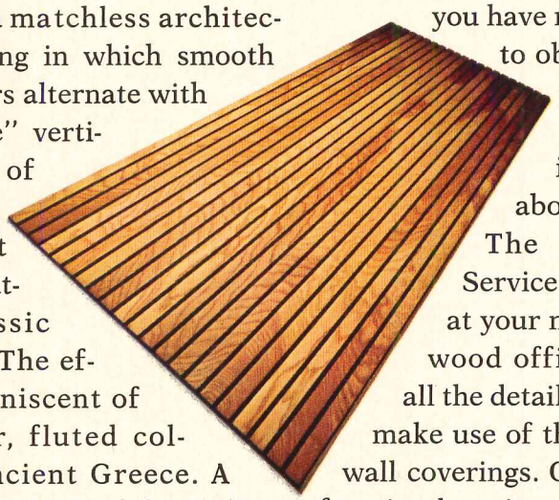
For a breakthrough in the use of wood for interior design, U.S. Plywood's Element I includes:

Butcherbloc™—a paneling of dramatic impact inspired by the counter of the neighborhood butcher shop. Cedar veneers are laid end-to-end in vertical rows to reproduce the handsome look of heavy board inlay. Veneers are random length, in a variety of natural color tones and grainings. The overall effect is solid and audacious—in keeping with the paneling's namesake.

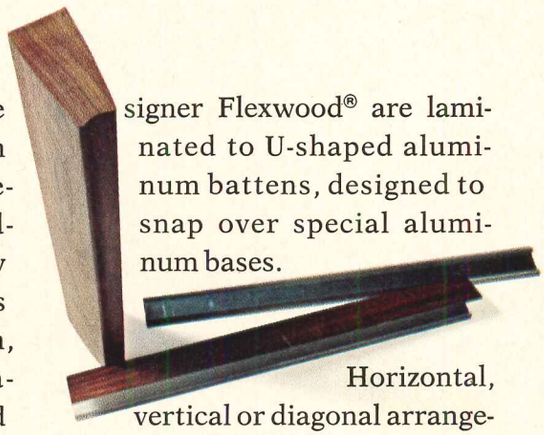
Collage™—choice wood veneers of birch, elm, oak, walnut, pecan, teak and rosewood are overlapped in random arrangements across each panel face to form a syncopated pattern of wood grains and color shadings. Veneers vary in length and width, texturing the surface of each panel in bold three-dimensional relief. A special bonding process has been devised to retain this unique and strikingly beautiful sculptured appearance.



Ionic®—a matchless architectural paneling in which smooth wood veneers alternate with "black olive" vertical reveals of plastic. This arrangement creates a pattern of classic simplicity. The effect is reminiscent of the slender, fluted columns of ancient Greece. A masterpiece of graceful paneling.



Palisade™ batten & trim—an unconventional decorating material in which veneers of Designer Flexwood® are laminated to U-shaped aluminum battens, designed to snap over special aluminum bases.



Horizontal, vertical or diagonal arrangements produce a limitless range of arresting visual effects. A novel, versatile, unique decorating material.

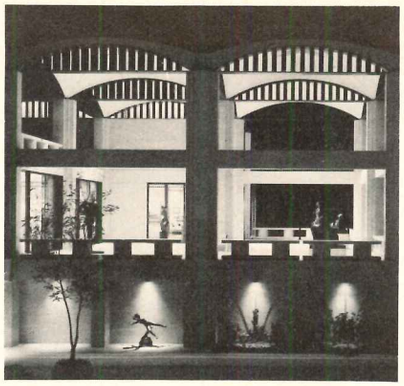
Concept 32™—a stark, beautifully basic interior paneling in which natural grain patterns of walnut, ash, teak and rosewood swirl unfettered across 32-inch wide panel faces, accented by charcoal black or deep chestnut brown reveals. Faces are mismatched and flush. The look is modern, symmetrical, fundamental.

Element I. Because of its radical departure from tradition, it may be the kind of wholly different wall or ceiling treatment you've always wanted to specify, but one that you have never been able to obtain until now. So why not get more complete information about Element I? The Architectural Service Representative at your nearest U.S. Plywood office can supply all the details you'll need to make use of these innovative wall coverings. Or, if you'd prefer, simply write to U.S. Plywood, 777 Third Ave., N.Y., N.Y. 10017.

U.S. Plywood

A Division of U.S. Plywood-Champion Papers Inc.
777 Third Avenue, New York, New York 10017

For more data, circle 4 on inquiry card



Cover: Residence for Mr. and Mrs. David Lloyd Kreeger, Washington, D.C.
Architects: Philip Johnson and Richard Foster
Photographer: © Ezra Stoller (ESTO)

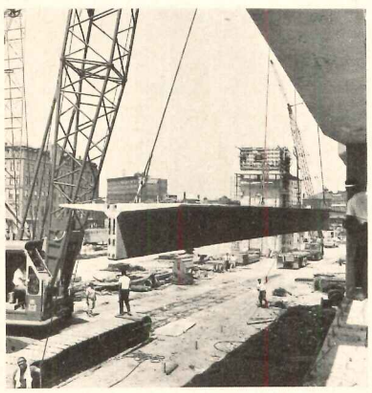
ARCHITECTURAL RECORD

CONTENTS: DECEMBER 1969

BUILDING TYPES STUDY 404

Edmund Y. Lee

ARCHITECTURAL ENGINEERING



ARCHITECTURAL RECORD, December 1969, Vol. 146, No. 6. Published monthly, except May, when semi-monthly, by McGraw-Hill, Inc., 330 West 42nd Street, New York, New York 10036. CORPORATE OFFICERS: Shelton Fisher, President and Chief Executive Officer; John L. McGraw, Chairman; John J. Cooke, Vice President and Secretary; Gordon W. McKinley, Vice President and Treasurer. SUBSCRIPTION RATE: for individuals in the fields served $6.60 per year in U.S., U.S. possessions and Canada; single copies $2.00; further details on page 6. THIS ISSUE is published in national and separate editions. Additional pages of separate edition numbered or allowed for as follows: Western Section 32-1 through 32-8. PUBLICATION OFFICE: 1500 Eckington Place, N.E., Washington, D.C. 20002. Second-class postage paid at Washington, D.C. and at additional mailing offices. POSTMASTER: Please send form 3579 to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520.

COMING IN THE RECORD

THE NEW DIMENSIONS OF ARCHITECTURAL PRACTICE

Throughout 1970, RECORD will be emphasizing "The New Dimensions of Architectural Practice"—demonstrating at a time of great change within the building industry the growing influence and range of practice of architects. The January issue, for example, will include an article by A.I.A. President Rex Allen on "The Future of the Profession" describing some of the Institute's new and aggressive policies; a 24-page portfolio of RECORD INTERIORS (see also below) pointing up the architects' broadening practice; an article on the development and experience of New York City's Urban Design Group, a team of young architects who have worked to improve the quality of urban life by working within the political framework; and a Building Types Study on the work of architects within a whole new system of medical care.

RECORD INTERIORS OF 1970

This 24-page report will show the work chosen by the editors of the RECORD as the best architect-designed interiors of the year. They cover a broad range of building types—and include interior work done both as part of a total design—in which the architect designed the building, and separate interior commissions in existing buildings.

McGraw-Hill

ARCHITECTURAL RECORD (combined with AMERICAN ARCHITECT, ARCHITECTURE and WESTERN ARCHITECT AND ENGINEER), December 1969, Vol. 146, No. 6. Title ® reg. in U.S. Patent Office © copyright 1969 by McGraw-Hill, Inc. All rights reserved including the right to reproduce the contents of this publication either in whole or in part. Quotations on bulk reprints of articles available on request. Indexed in Reader's Guide to Periodical Literature, Art Index, Applied Science & Technology Index, Engineering Index, and the Architectural Index. Architectural Record is a McGraw-Hill publication, published monthly, except May, when semi-monthly, by McGraw-Hill Publications, a division of McGraw-Hill, Inc., 330 West 42nd Street, New York, New York 10036. James H. McGraw (1860-1948), Founder.

EXECUTIVE, EDITORIAL, CIRCULATION AND ADVERTISING OFFICES: 330 West 42nd Street, New York, New York 10036. Western Editorial Office: 255 California Street, San Francisco, California 94111. PUBLICATION OFFICE: 1500 Eckington Place, N.E., Washington, D.C. 20002; second-class postage paid at Washington, D.C.

OFFICERS OF McGRAW-HILL PUBLICATIONS COMPANY: Joseph H. Allen, president; John R. Emery, J. Elton Tuohig, senior vice presidents; George H. Reppert, group vice president; vice presidents: John R. Callaham, editorial; Paul F. Cowie, circulation; John M. Holden, marketing; David G. Jensen, manufacturing; Jerome D. Luntz, planning & development; Robert F. Marshall, administration; Robert M. Wilhelmy, finance.

OFFICERS OF THE CORPORATION: Shelton Fisher, president and chief executive officer; John L. McGraw, chairman; Donald C. McGraw, chairman, executive committee; Robert E. Slaughter, executive vice president; Frederick A. Stahl, chairman, finance committee; Daniel F. Crowley, Donald C. McGraw, Jr., Bayard E. Sawyer, senior vice presidents; John J. Cooke, vice president and secretary; Gordon W. McKinley, vice president and treasurer.

Every effort will be made to return material submitted for possible publication (if accompanied by stamped, addressed envelope), but the editors and the corporation will not be responsible for loss or damage.

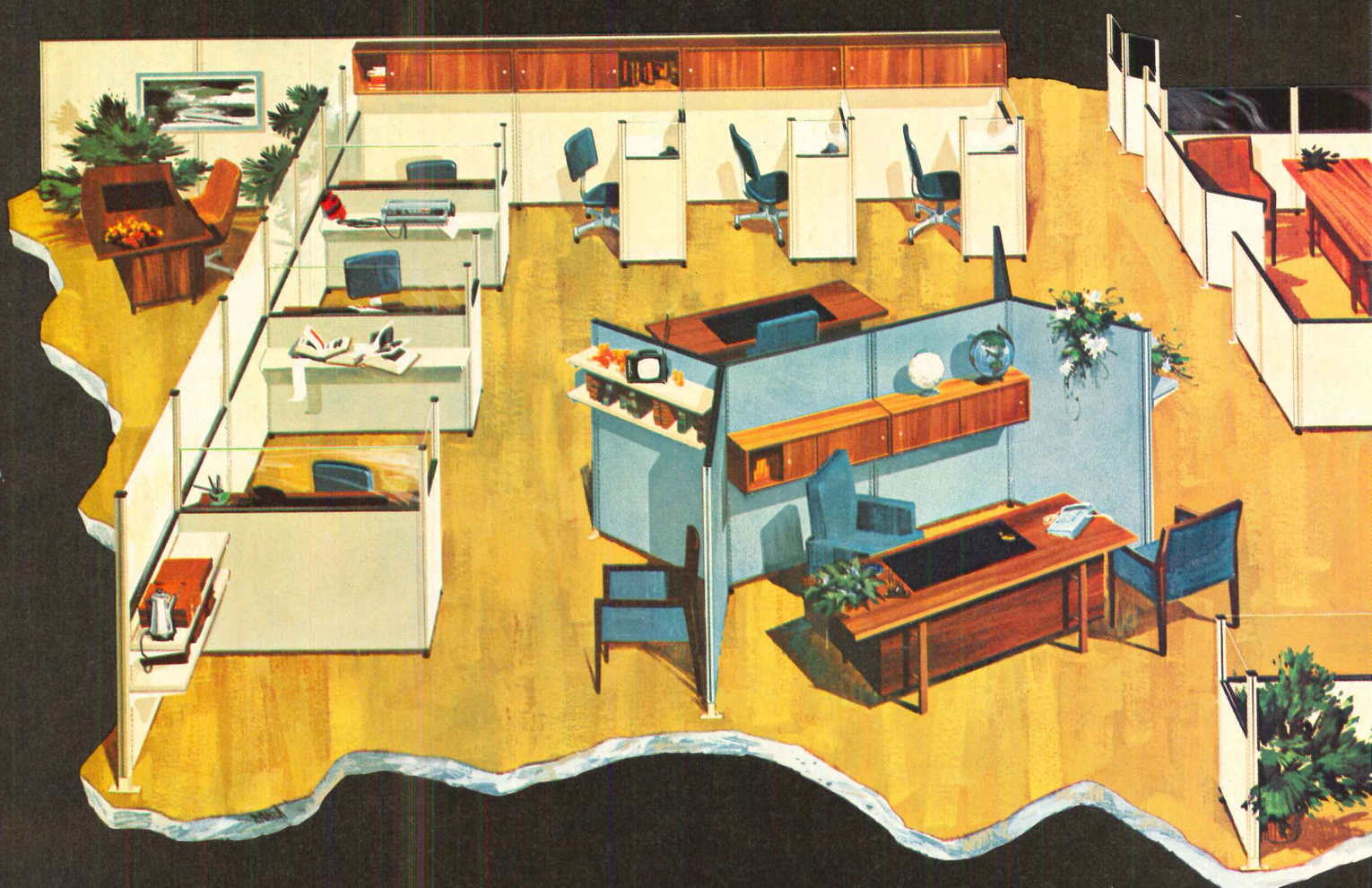
SUBSCRIPTIONS: Available only by paid subscription. Publisher reserves the right to refuse non-qualified subscriptions. Subscriptions solicited only from architects and engineers. Position, firm connection, and type of firm must be indicated on subscription orders forwarded to Fulfillment Manager, Architectural Record, P.O. Box 430, Hightstown, New Jersey 08520. Subscription prices: U.S., Possessions and Canada: $6.60 per year; other countries, to those who by title are architects and engineers, $15.00 per year. Subscription from all others outside U.S., U.S. Possessions and Canada, $24 per year. Subscription includes 12 monthly issues and Mid-May "Record Houses" issue.

SUBSCRIBERS: Address change of address notice, correspondence regarding subscription service or subscription orders to Fulfillment Manager, Architectural Record, P.O. Box 430, Hightstown, New Jersey 08520. Change of address notices should be sent promptly; provide old as well as new address; include zip code or postal zone number if any. If possible, attach address label from recent issue. Please allow one month for change of address to become effective.

UNCONDITIONAL GUARANTEE: The publisher, upon written request, agrees to refund the part of the subscription price applying to the remaining unfilled portion of the subscription if service is unsatisfactory.

OTHER McGRAW-HILL SERVICES TO THE BUILDING AND CONSTRUCTION INDUSTRY: College and University Business—Construction Methods and Equipment—Daily Construction Reports (Los Angeles)—Dodge Building Costs Services—Dodge Construction News (Chicago, Denver, San Francisco)—Dodge Construction Statistics—Dodge Reports—Dodge Spec-Fax—Engineering News-Record—Hospital Purchasing File—House & Home—House & Home Planners' Digest—Management Control Service—Modern Hospital—Modern Nursing Home—Nation's Schools—Sweet's Construction Catalog Systems—Sweet's Canadian Construction Catalogue Services—Sweet's information and Library Centers—Sweet's Microfilm Systems.

Your ideas about office walls are in for a lot of changes.



Think what you can do with your imagination and our new Hauserman Divider Wall. Surely more than you ever thought possible with conventional office walls.

Divider Wall provides a setting that stimulates productivity. Increases efficiency. Gives an open feeling. And allows you to keep up with and manage change in everything from technology to personnel arrangement.

It's simple. Convertible. Economical. Attractive. Each panel has grooves to receive slotted standards which support a full range of accessories. So now you can design entire work situations with components that naturally complement one another.

The 120° posts and square posts allow you to create a greater variety of semi-private surroundings to meet the needs of offices today . . . and tomorrow!

If you'd like to know all about our economical office walls that are built for change, ask for our Divider Wall brochure. It tells in detail how our new wall system can work for you. Write: Wall Systems Division, E. F. Hauserman Company, 5711 Grant Avenue, Cleveland, Ohio 44105.

All it will cost you is your old ideas.

Hauserman Divider Wall:

Wall systems you can change as your needs change.

For more data, circle 5 on inquiry card

"Carpet eliminates noise -makes sales seem easier'

Mr. A. O'Meara, O'Meara Ford Center Showroom, North Glenn, Colorado

Pattorque Carpet by Patcraft.

Mr. O'Meara is happy to hear us say "We told you so." For the truth is that we told him a few things about the carpet of Creslan acrylic fiber when he had it installed in his showroom almost a year ago.

We told him it would make his showroom quieter. And a year later, he says it does. We told him the relaxed, quiet atmosphere would help make sales seem easier. And he says it does.

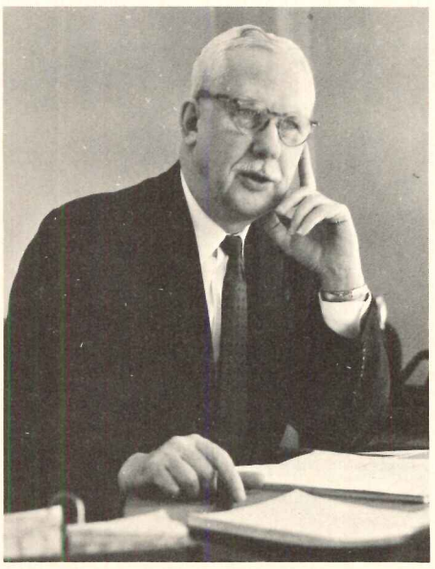
We also said the beauty of color and texture would help attract customers. That the carpet's easy-cleanability (even against oil drips from car power brakes) would keep it looking new. And he says it does.

Every claim we made for that carpet has proved out. So you see how true it is that

Creslan® keeps its promise.

Creslan acrylic fiber is a product of American Cyanamid Co., Wayne, New Jersey. CYANAMID

For more data, circle 6 on inquiry card



EMERSON GOBLE: 1901-1969

He was a man of integrity and of conviction. He thought it was important to know as well as to do, more important to analyze than to criticize, most important to try to understand. He was both an idealist and a realist: He was not discouraged but stimulated by the knowledge that tough problems seldom have easy solutions, and that some questions cannot be answered. And he never pretended to have answers when he didn't. He was a man without pretension.

His courage through nearly ten years of struggle against cancer is already a legend among those of us who worked with him. How to meet adversity: If we did not learn, it was not for lack of a teacher.

Communication was not only his profession but his unique gift and his way of life. As so many do not, he understood communication to be receiving as well as giving, and he learned as much from his editors and his readers as they learned from him. He sent his editors out not to do articles but to learn, and thus equipped them to share at the highest level of which each was capable in the editorial direction of the magazine.

He became an editor because "writing was always the hardest thing for me," and that was characteristic. Electrical engineering, in which he got his B.S. degree at the University of Illinois in 1923, turned out before long to be too easy to be absorbing. From 1927 to 1934 he was eastern editor of Building Management and from 1934 to 1941 editor of the National Real Estate Journal.

When he came to the RECORD — then published by F. W. Dodge — in 1941, it was at the beginning of a new era under a new publisher, the late H. Judd Payne, and his close collaborator, Robert F. Marshall, later the RECORD's publisher and now a vice president of McGraw-Hill, Inc. Their mission was to make a publishing success of the RECORD, then a poor third in its field. Their method included an editorial concept that was a radical departure in the architectural publishing field: the concept of an architectural magazine that sought to be — and to *profit* from being — an authoritative *information service* for practicing architects and their consulting engineers, rather than an avant-garde journal about avant-garde architecture for a restricted circle of architectural cognoscenti. It was this new editorial concept of the RECORD that he was to be so much involved in developing, for 17 years as managing editor and for nine years (until his retirement in 1967) as editor.

The information service as he interpreted it ranged from nuts-and-bolts to inspiration and from esthetics through functional planning to technology and economics. The Building Types Studies, intended as basic research on functional planning of a particular building type, and the Architectural Engineering section, relating building technology to building design, became major foundations of editorial content during his era. The series of Building Types Studies on hospitals and other medical facilities which he was personally responsible for initiating and developing over many years brought him a special Citation in 1967 from the U.S. Public Health Service, the first its Division of Hospital and Medical Facilities had ever given, saluting his leadership in elevating the quality of hospital design "from both a functional and an esthetic viewpoint" and recognizing the Studies as "a major contributing factor to the continuing improvement in hospital design."

Such departments as Building Components, Behind the Record and Perspectives were instituted. A pivotal series of articles, "The Image of the Architect," in 1959 began a searching examination of the changing role of the architect which was to be strongly influential in the development of vast changes in the attitudes and policies of the American Institute of Architects. And the frontiers of architectural design theory and architectural philosophy were explored in a long series of articles by leading architects and critics, among them Frank Lloyd Wright, Walter Gropius, Pietro Belluschi, William Wilson Wurster, Henry-Russell Hitchcock, Albert Mayer, Osbert Lancaster, Russell Lynes and Lewis Mumford. The degree of his creative contribution as an editor to this series is suggested by a comment of Lewis Mumford: "Many of my most important articles on architecture and planning would not have been written without his encouragement and stimulation."

During his 26 years on the RECORD, its combined architect-engineer circulation more than tripled, its architect circulation more than doubled and its engineer circulation increased more than sixfold. Its advertising volume went from 725 pages in 1941 to 2666 in 1966, his last full year as editor; by 1947 it was leading its field in advertising volume, and it has held that lead ever since.

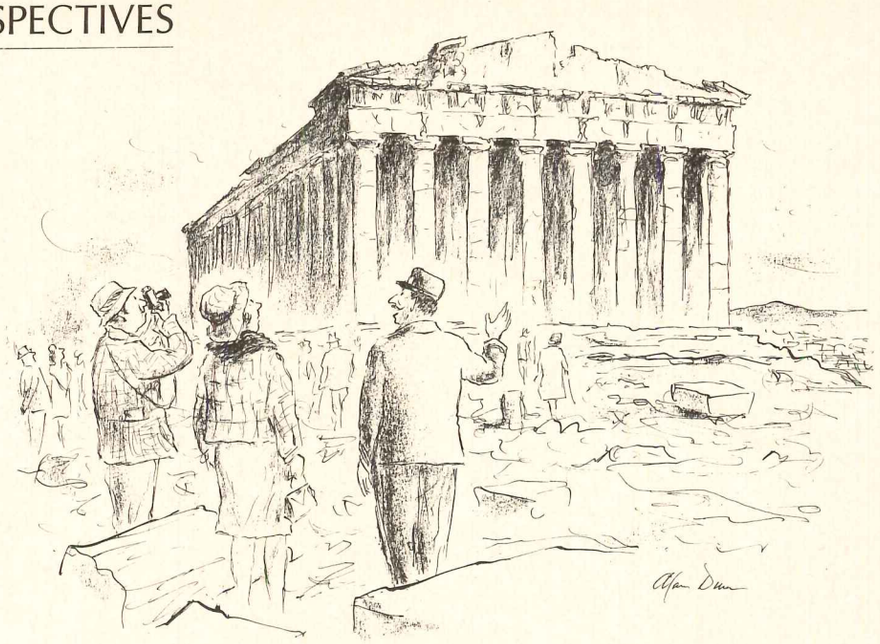
The big editorial difference from the RECORD's predecessors and its competitors was the difference between a magazine *about architecture* and a magazine *for architects* and the engineers who work with them in the design of buildings. The difference was a difference in the relationship of the magazine to its readers: The question was not whether they *liked* it but whether they *needed* it.

In a time of demagogues, he told his publisher, his editors and his readers the truth as he saw it. He had no respect for fashion. He was not an architect, but as a journalist he was a thorough professional, and he understood and respected the roles of other professionals.

And in a time of deepening confusion about the future of the profession, he saw plainly what is really happening to horizons for architecture. "Clearly," he said in the May 1959 editorial that launched the "Image of the Architect" series, "the dizzier the rush of technology the greater the call for design services of all kinds." And: "We shall proceed in the firm belief that the architect represents, as in Renaissance times, the complete man of design. He is the master builder in the sense of master planner. Only now, of course, the master planner must be backed up by an integrated group; no single individual could encompass all necessary knowledge today. But design must represent a melding of all necessary disciplines; it cannot consist of fragments. The architect must be conscious of his special orientation toward order and integration, and must develop it; as technology forces more and more specialization, the need for the coordinator becomes more pronounced. The architect is not a member of a team; he is coach, captain, cheerleader." I do not believe he would change a single word today.

—Jeanne Davern

—Drawn for the RECORD by Alan Dunn



"With what Pericles spent on this he could have eradicated all the slums of Athens— but you know human nature—"

Money isn't everything, but . . .

The first paragraph of a November 7th news story in the New York Times reports that: "Edward J. Logue, who heads the state's Urban Development Corporation, said yesterday that the city would need $1 billion a year in Federal funds for five years to reverse the spiral of housing decay in the slums."

The second paragraph reports that "Last year the city received $100 million for housing from Washington."

A FLLW house going, going, . . .

A 1903 Frank Lloyd Wright house in Chicago needs a sympathetic buyer in a hurry. The J. J. Walser house is on Chicago's West Side in a declining though "substantial" neighborhood, and for the past two years it has belonged to J. Alan Baldridge, an advertising executive who is moving out of Chicago to a new job. Mr. Baldridge was offered land nearby in Oak Park among the many Wright houses there where its value would have doubled and where its preservation would be almost certain; he found moving the two-story twelve-room house was completely practical . . . except that trolley wires and the "El" were in the way. So far, Mr. Baldridge has received two financially acceptable offers, both of which would chop the house into tiny apartments (the interiors are now basically intact, including stained-glass windows and a matching sideboard and fireplace in the dining room). The owner turned them down, but now he is running out of time: "The next guy who comes along with $12,000 cash and the ability to pay $250 monthly, gets the property—no matter what he plans to do with it."

One more line about architects and Operation Breakthrough

Last month on this page I carried on about the "in-house" procedure for evaluating the Operation Breakthrough proposals, pointing out that not calling on outside help (say, some representatives of the American Institute of Architects) was, "at best, very bad judgment indeed."

I'm dismayed to find that, except at the staff level, no one at A.I.A. seems very excited about the evaluation procedure. I think that's pretty bad judgment too. If I were a member of the board of the A.I.A. I'd have made a lot of phone calls to Secretary Romney's office—and no one seems to have done that.

It has been reported that the Housing Committee of the A.I.A. is going to request permission to go over the proposals and "critique" them. Which it would seem is closing the barn door a bit behind schedule.

The proclaimer concept: sharp scissor for red tape

Buried deep in a speech by HUD Assistant Secretary for Renewal and Housing Assistance Lawrence Cox was an idea I'd not heard of before, and which seems to hold out real hope for faster action on local proposals submitted to Washington. Secretary Cox described it this way to a meeting of the National Association of Housing and Redevelopment Officials: "The proclaimer concept is a technique designed to reverse HUD's long-standing operating policy, which seems based on the assumption that all local officials are either incompetent or crooked, or both, and should be judged guilty until proven innocent. Operating on that assumption, the Department has developed a web of regulations and procedures which require a review or inspection and prior approval of every conceivable matter where trouble might arise. . . .

"The proclaimer concept, in contrast, is based on a principle of trust . . . The proclaimer itself is a duly signed certification that will substitute for the documentation now submitted for prior review and approval by HUD [and] will serve as certification by responsible local officials of the facts and information recited in the document. The proclaimer will be accepted by us without further review or approval, though it will be subject to post-audit as deemed necessary."

This proposed system has, as it should have, a single tough control. "The recitation of the facts and circumstances contained in the proclaimer will serve as a point-by-point reminder of the obligations and responsibilities which the community has freely chosen to accept, after careful consideration and deliberate judgment.

"The proclaimer will be signed by the appropriate local official . . . and the signatories will be held accountable for the representations contained in the proclaimer."

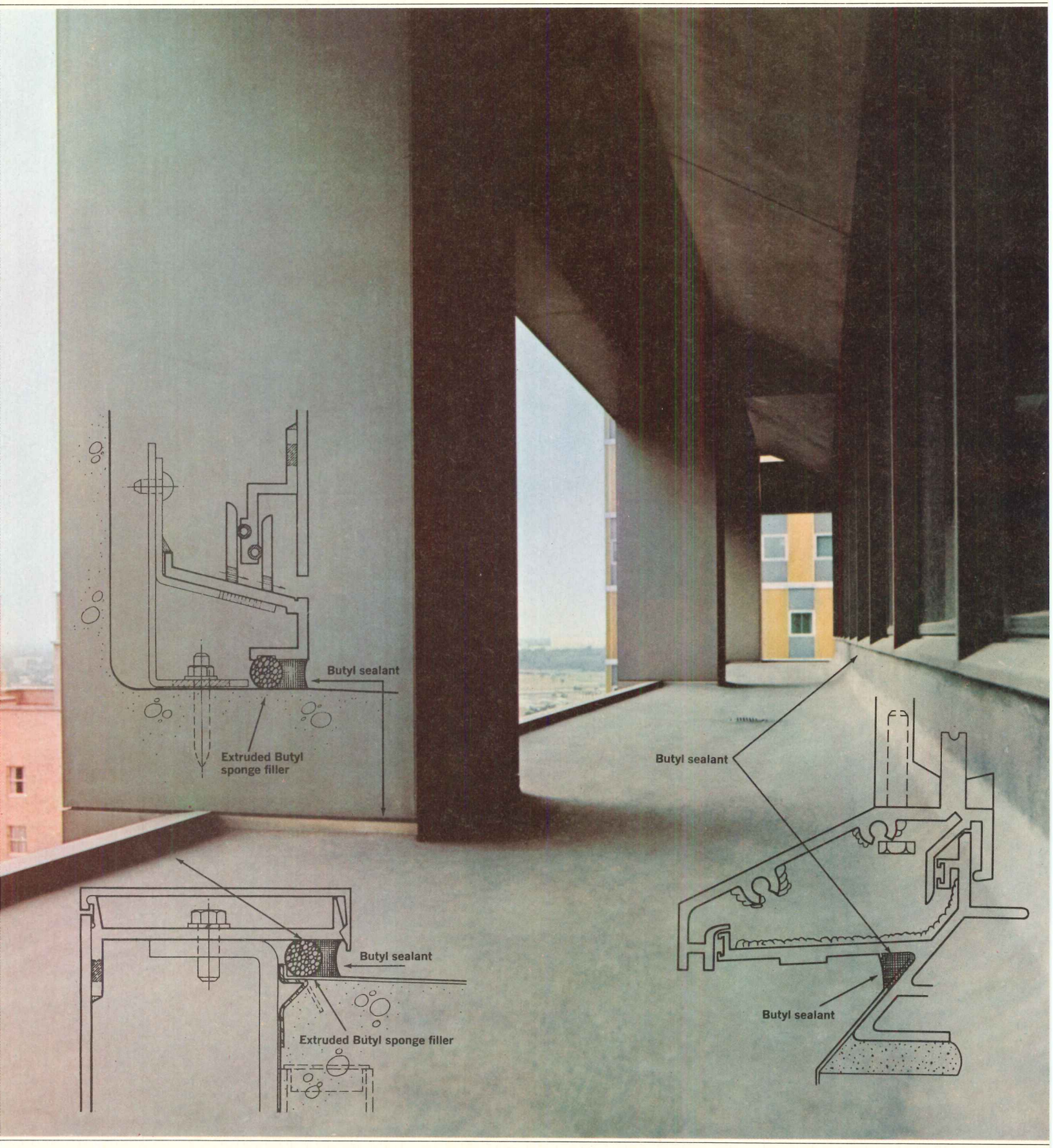
So far, HUD is planning to accept proclaimers on feasibility of rehabilitation projects, on many urban renewal plan changes, on third party contracts undertaken by local housing authorities for professional services (including architectural services!), on submission and review of final working drawings (think how much time that will save!), on authorization to advertise for bids, and the award of main construction contracts as long as they are covered by approved budgets.

At any rate, this concept is just beginning to surface, and probably no one at this point sees all of the applications and implications. But this is the kind of local voluntary action—local voluntary acceptance of responsibility—that can really speed up some of the bureaucratic delays that cost so much in time and money. —*W.W.*

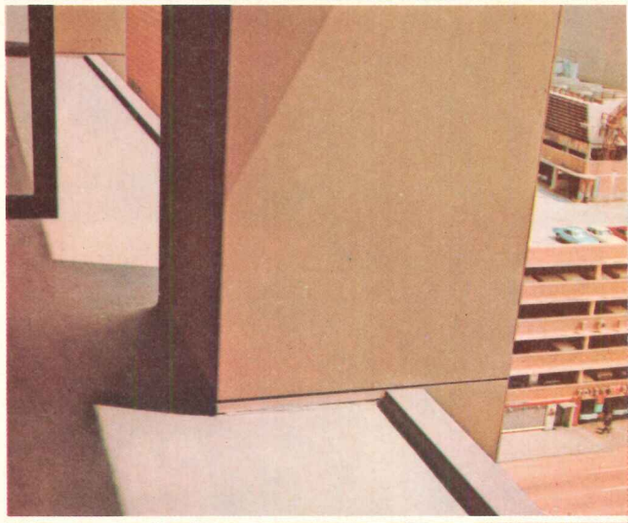
Elastomers in Industry/Engineered Construction.

ENJAY

ENJAY


Butyl sealant
Extruded Butyl sponge filler
Butyl sealant
Butyl sealant
Extruded Butyl sponge filler
Butyl sealant

Sealant based on Enjay Butyl rubber used extensively on striking Houston landmark.



The Tenneco Building—a notable feature of the Houston, Texas skyline—owes much of its distinction to its unusual sunshaded facades which permit setback of the glass walls four and five feet.

A compound based on Enjay Butyl rubber was used exclusively to seal three key joints on each setback. The photo at left shows all three—the long snap-on aluminum copings at the outer edge of the setback floor, the supporting column base joints, and the undersides of the slanting sills below both the windows. An extruded sponge void-filler made with Enjay Butyl rubber was first pressed into position under the aluminum floor copings and at the column bases and then covered with the Butyl sealant.

The Butyl sealant was chosen because it has excellent adhesion to construction materials and is non-corrosive to metals. It provides outstanding weatherproofing and long life over a temperature range of —20° F to 200° F. It has little heat or electrical conductivity, cures with minimum shrinkage. The one-component compound has excellent container stability and is easily applied with conventional tools. It can be colored to match other materials.

Owner: Houston National Company
Architect: Skidmore, Owings & Merrill
Sealing Contractor: Kawneer Company, Inc., a subsidiary of American Metal Climax Inc.
Sealant: Construction Products Div., W. R. Grace & Co., Cambridge, Mass.

Enjay Chemical Company
Synthetic Rubber Division
Adhesives Intermediates Dept.
60 West 49th Street
New York, N.Y. 10020

ENJAY

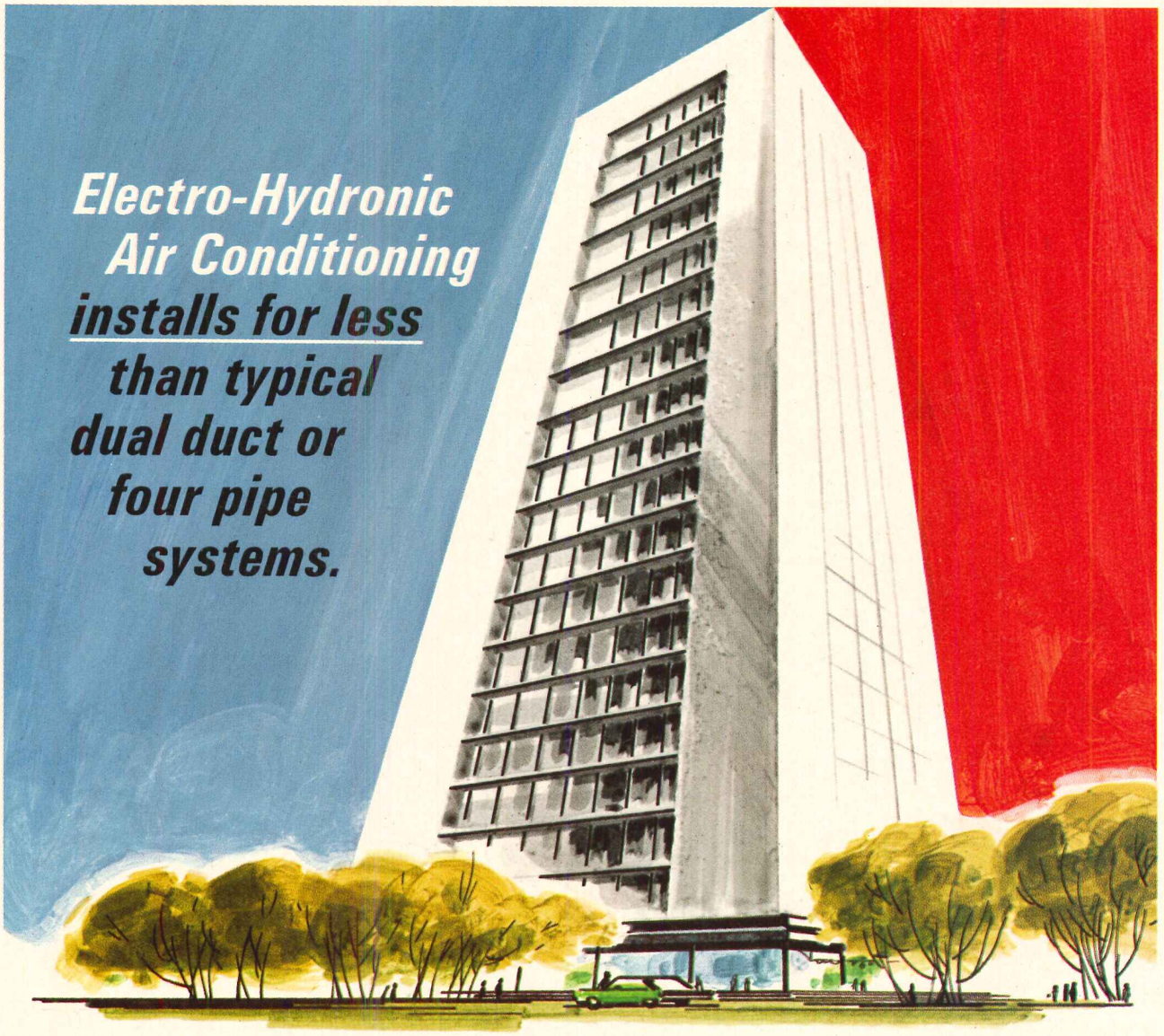
Butyl rubber compound seals all joints around windows and doors of new apartment tower.

DeKalb Tower #2, now nearing completion in Decatur, Georgia, is the tallest building in DeKalb County—the "bedroom" of Atlanta. Like its twin—University Tower #1, which was completed three years ago—this 184-apartment structure has all its window and door openings sealed with a compound based on Enjay Butyl.

The Butyl sealant was used because of its excellent weatherability and permanent flexibility. It lasts up to five times longer than conventional oil-based caulks over a wide range of temperatures. It was applied to both these Decatur buildings with a caulking gun from five-gallon drums. The compound is, "reasonably priced and easy to apply," according to the caulking contractor on this job. His firm has been using it for a long time.

Owner: The Frances Wood Wilson Foundation, Decatur, Ga.
Architect: Wise, Simpson and Aiken, Atlanta, Ga.
Caulking Contractor: Holbrook Waterproofing Co., Charlotte, N. C.
Sealant: DAP Inc., Dayton, Ohio.

For more data, circle 7 on inquiry card



One reason is uninsulated piping. Electro-Hydronic uses a two-pipe, closed-loop water circuit. Water in this circuit is supplied year 'round at 60° to 90° Fahrenheit. Hence, no condensate on pipes and no need for insulation.

A second reason is the flexibility of modular design. The 3 types of room conditioners—console, horizontal and vertical models—occupy little or no usable floor space. They can be installed in the ceiling, in a closet or recessed in the wall . . . requiring little or no ductwork.

There are other reasons, too, Reduced boiler size, no central chiller, no complex controls, no large, power-hungry central fans, no attenuating or mixing boxes, and no automatic water valves at each room terminal are a few. Electro-Hydronic air conditioning also costs less to operate than most conventional systems available today.

Contact your local American-Standard Sales Representative for an estimate on that next building—new or renovation. You'll be pleased with what he'll show you. If you want more information and professional sales assistance, write for Bulletin EH 1-1 to:

Working with air to keep people comfortable.

AMERICAN STANDARD
APPLIED AIR CONDITIONING DEPT.
COLUMBUS, OHIO 43207

For more data, circle 8 on inquiry card

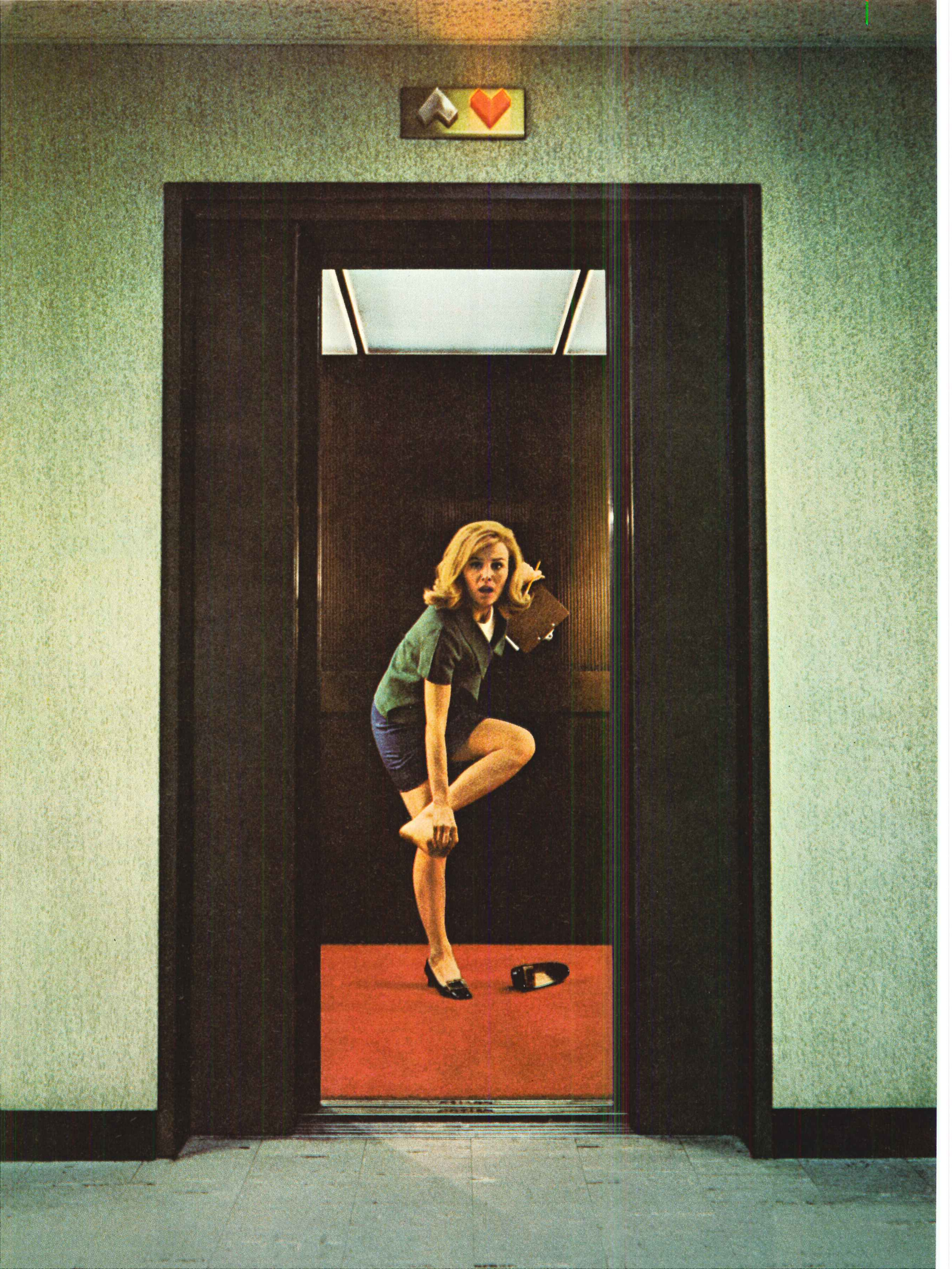
'Our company image sets the pattern for offices of The Home Insurance Company. Our choice in furniture is Royalmetal.'

—Ralph Johnson, Vice President

There's a contemporary point of view at field offices of The Home Insurance Company. Royalmetal furniture in bright modern colors is part of the efficient image. With coordinated desks, credenzas, and chairs for management offices. Comfortable conference room chairs and tables. And graceful reception area seating. Royalmetal also makes executive furniture, filing equipment, and partitions for today's offices. See them at your Royalmetal dealer. Or write Royalmetal Corporation, One Park Avenue, New York 10016.

Royalmetal®

For more data, circle 9 on inquiry card



You'll be surprised how fast VIP-260 service is.

Stay on your toes.

With the new Otis VIP-260 system, you'll be at your floor before you know it.

Because a computer controls and coordinates every movement the elevator makes. Starts and stops are swifter and smoother than ever. Our fast, gentle arrivals could catch you offguard.

The system's electronic brain also saves waiting time. It responds instantly to changing situations. Actually anticipates calls.

VIP-260 is the most advanced elevatoring system ever devised. Our engineers spent years on it.

To save you a few moments every day.

Otis®

The Elevator Company

The no-show carpet.

Even 10,000,000 people can't make a carpet of Antron® look worn and dirty.

At Du Pont, we were sure Antron* nylon was the ultimate carpet fiber for any heavy traffic use. But we were absolutely positive after we got the following report from Bonded Services, the maintenance firm at McCarran International Airport in Las Vegas:

> "The carpeting is wearing like iron. One area has been subjected to approximately 10,000,000 traffics and it has yet to show a single sign of wear.
>
> 'Antron' has proved highly resistant to the appearance of soil.
>
> The actual cost of maintaining the carpeting versus tile has been at least 40% saving in labor and material. As of this date, we don't anticipate having to replace the carpet. It might even double our original five-year wear prediction."

Can you have any doubts after this kind of rave? Wherever you're considering carpet, consider "Antron". No matter how light, how bright the color, no matter how hard the wear, a carpet of "Antron" will keep looking cleaner, fresher, newer longer than you ever thought possible. If you have any questions, get in touch with us. Du Pont, Contract Carpet Specialist, 308 E. Lancaster Ave., Wynnewood, Pa. 19096. We're convinced. Let us convince you.

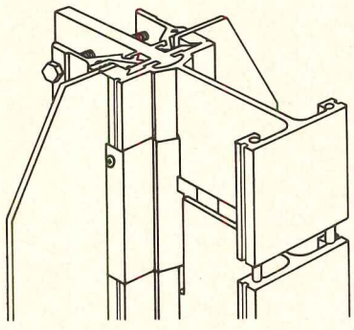
Antron®-the no-show carpet fiber.

DU PONT
REG. U.S. PAT. OFF.

Better things for better living
...through chemistry

*Du Pont registered trademark.

About the high cost of beauty and other myths.



Pittco's new Seventy-Five Curtain Wall system has upset a lot of old rules for buildings. Like the one that says beauty should cost a lot. Nonsense.

The Seventy-Five Curtain Wall lets you erect your building without compromising your design or budget. It's available in your choice of five anodized aluminum colors, each integrated with Pittco® entrance systems and storefront metals. And Seventy-Five Curtain Wall accommodates any standard thickness of glass or spandrel.

We've also squelched those ugly tales about curtain wall leakage with our rainscreen system, a proved method of pressure equalization. Keeps tenants dry and civil.

We've even made it clumsyproof with a controlled-pressure glazing system for secure installation without breakage. Interior glazing saves expensive days of glazing and erection. And we've subjected Seventy-Five Curtain Wall to a merciless series of performance tests. (It's satisfied all the standards of NAAMM Tests A, B, C-1 and C-2.)

Pittco's new Seventy-Five series has erased all the old slander about curtain walls. Take advantage. Write for complete details: Pittco Architectural Metals, Box 930, Kokomo, Indiana 46901.

PPG INDUSTRIES

For more data, circle 11 on inquiry card

Overlooked: The use of communications has doubled in the last decade—and will double again in the coming decade.

Overlooked: An avalanche of innovations is being developed to send data, pictures, charts, diagrams—you name it—over our network.

Overlooked: Within a few years every company with more than a hundred employees will need a computer or access to one.

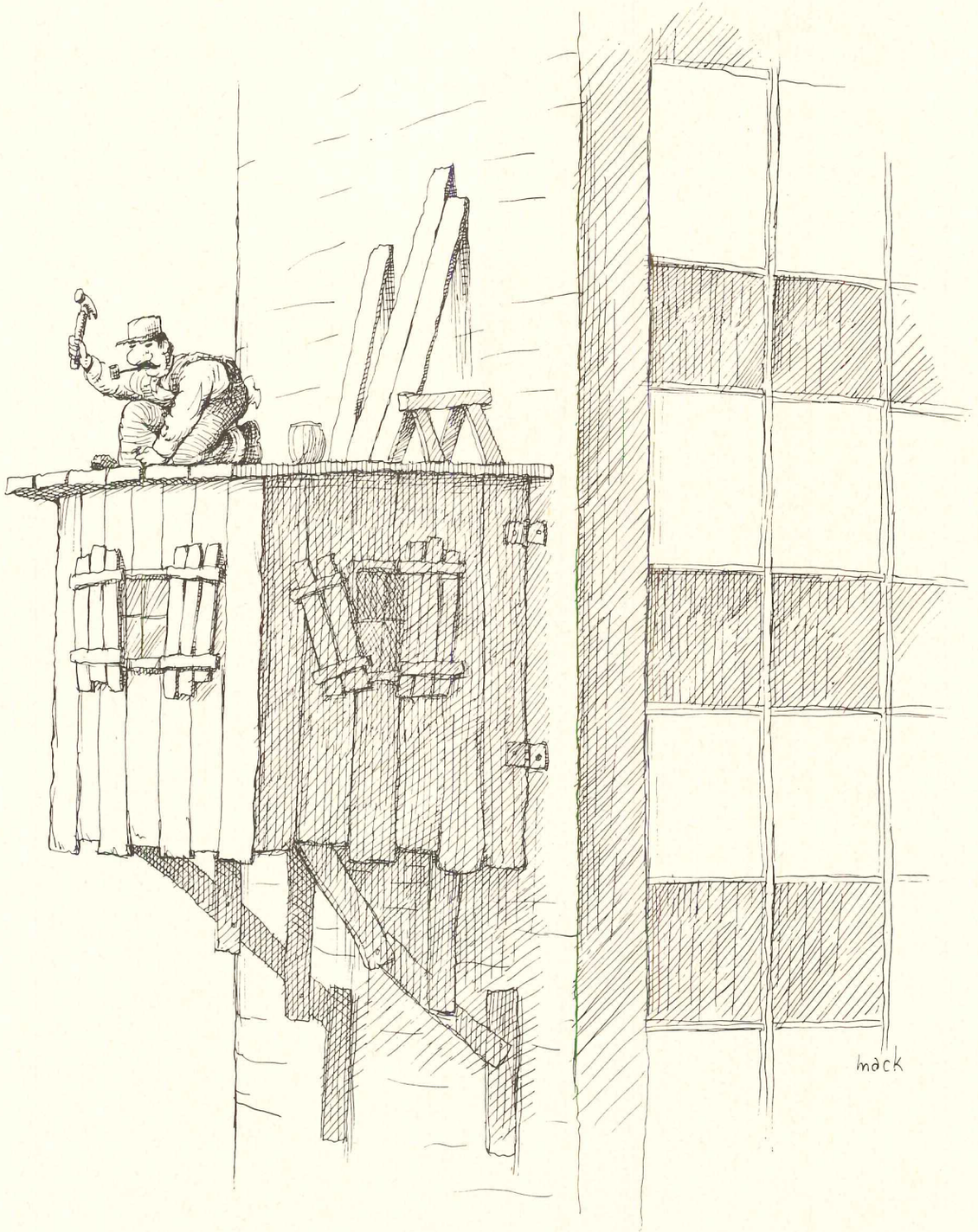
When you overlook facts like these, it won't take long for the communications explosion to disfigure your award-winning, sleek, modern building.

To help you plan for the communications explosion, call 212-393-4537 (collect) for our complete list of Building Industry Consultants.

They'll help you steer clear of Overlooks.

AT&T

Introducing the Overlook.



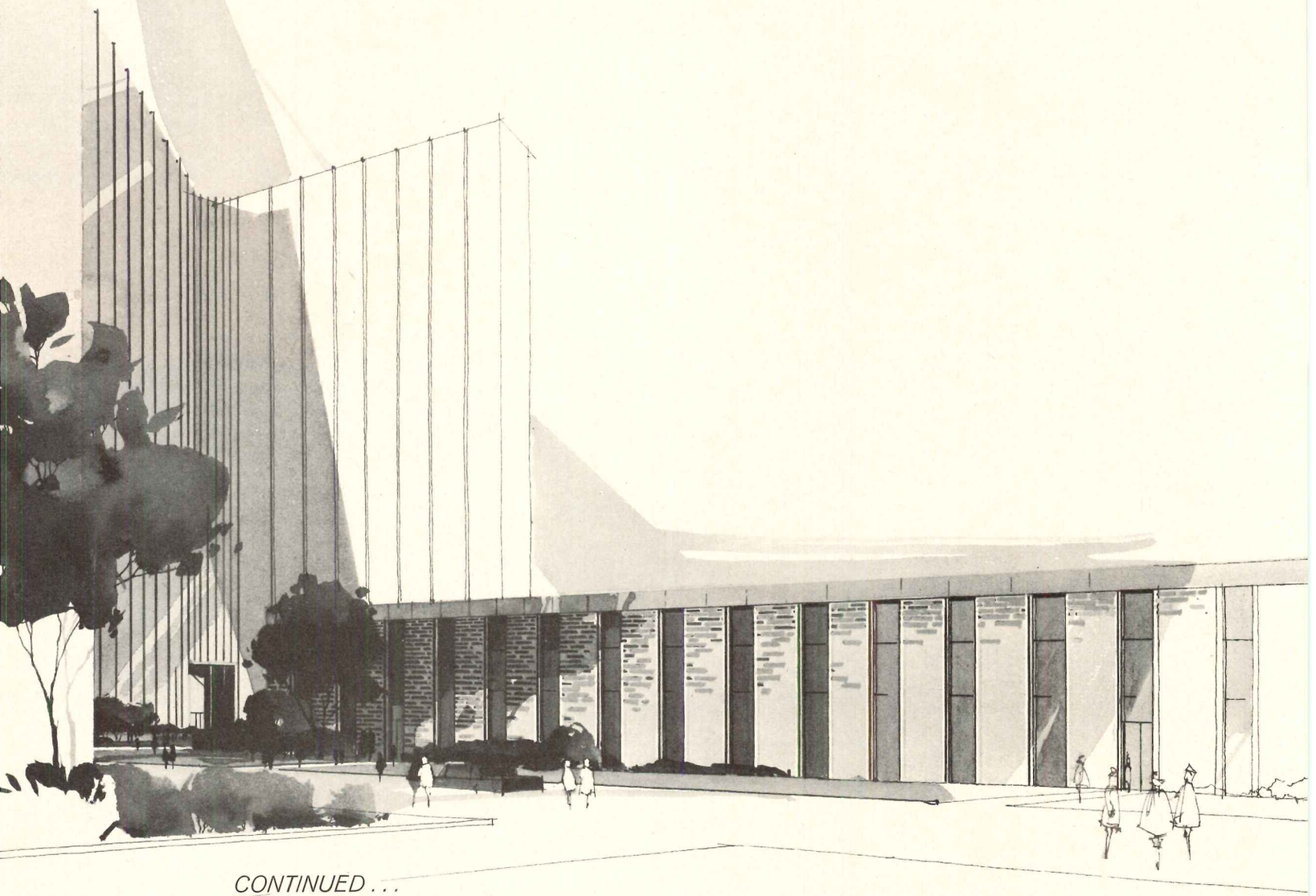
For more data, circle 12 on inquiry card

Lennox presents controllability in office comfort: a case of progressive occupancy

Ever-rising office building costs dictate early and progressive occupancy, pacing the construction. This demands that physical facilities—including heating and air conditioning—be able to meet the same pace. The central, ducted "micro-climates" of Lennox modular systems provide the necessary flexibility for step-by-step occupancy through the individual controllability of office comfort. *continued . . .*

Freeway Office Park, outside Atlanta, Georgia, is an exciting example of the suburban office complex. Ten buildings and 145,000 sq. ft. are heated, cooled and ventilated by hidden Lennox rooftop equipment. Architects: Heery & Heery. Engineers: Frank M. Brewer and Associates. Developer and general contractor: Newman & Associates.

In the Minneapolis-St. Paul suburb of Bloomington, Minn. a 28-acre site is fast becoming Metro Office Park. By 1973, its one 12-story and ten 3-story buildings will house 872,000 sq. ft. of air conditioned offices. Architect: Frank Reese. Developer: Metro Office Park Co.



CONTINUED . . .

controllability in office comfort

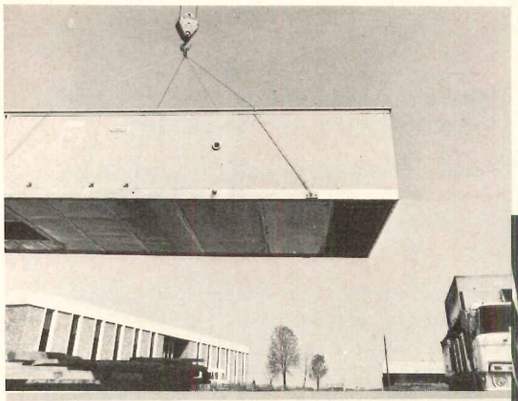
Many of today's newest office buildings are being designed into gracious parklike settings—in attractive, spacious complexes that combine easy suburban accessibility, tenant freedom and maximum efficiency.

Both comfort and design requirements are ideally met by Lennox modular systems—the practical way to building-by-building completion of an office park. Rooftop mounting is fast and eliminates equipment rooms. Individual zone control can be "shifted" as rental areas change. Power Saver™ gives many days of free cooling with outdoor air, also ventilates.

Lennox units eliminate the necessity for maintaining a costly overcapacity, such as encountered where a central station system is installed. And local service is available.

Lennox systems impose no design restrictions on you. The low-profile units can be concealed on the roof with little or no enclosure needed. They never steal valuable floor space. And their light weight allows use of non-loadbearing walls. You can design for future growth with ease, too: because these are unitary systems, building additions simply call for extra units.

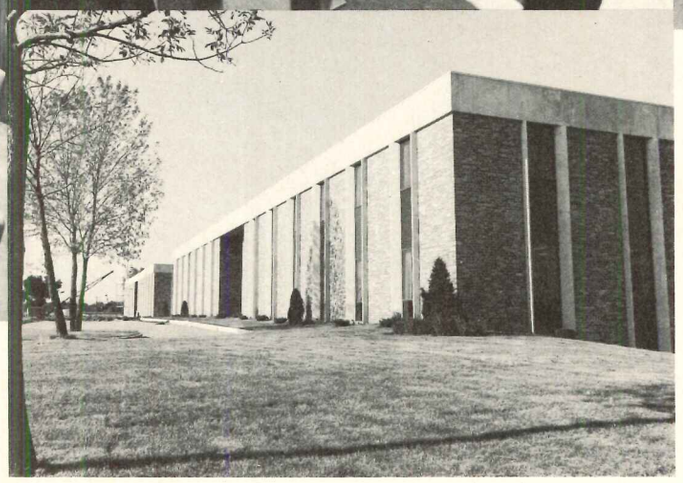
There's economy, too, in the Lennox systems: roof mounting saves time and labor; the mounting frame is flashed in place with the roof, further reducing on-site labor; and these units are completely assembled, wired and tested at the factory. This means a single-source responsibility: Lennox.



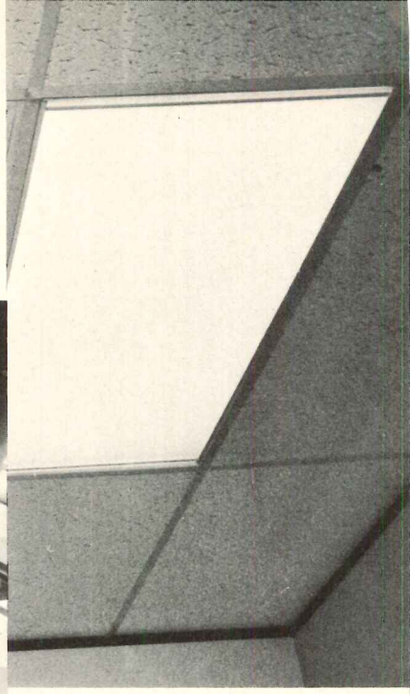
◀ Each 3-story building in Metro Office Park will be heated and cooled by four Lennox DMS (Direct Multizone System) units, rooftop mounted to save space, installation time and labor.

▼ Spacious interiors and gracious styling are offered in Metro Park buildings with modular comfort systems serving from the rooftops.

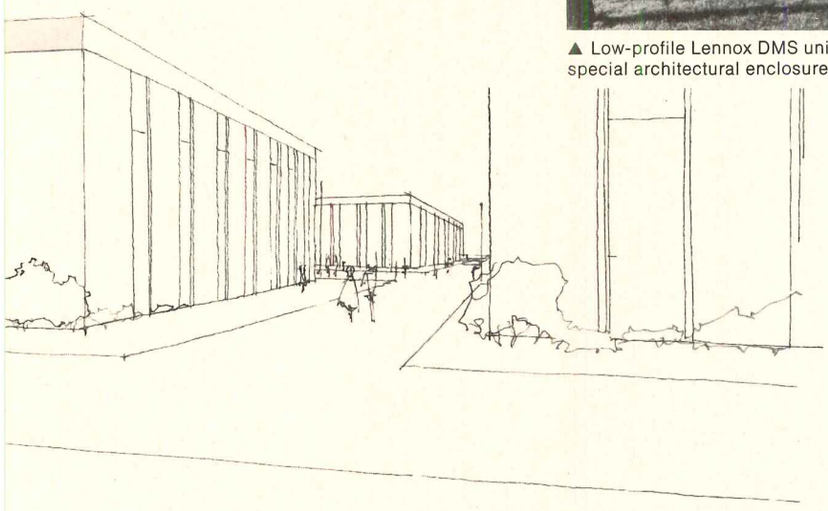
▲ Progressive occupancy during construction of the Metro buildings is offered by the modular flexibility of the Lennox DMS units.



▲ Low-profile Lennox DMS units stay hidden on rooftops without special architectural enclosures.



▲ A unique feature of Atlanta's Freeway Office Park ducted heating and air conditioning system: all return air goes through lighting fixtures, cooling them and extending life of lights by 15-20%.

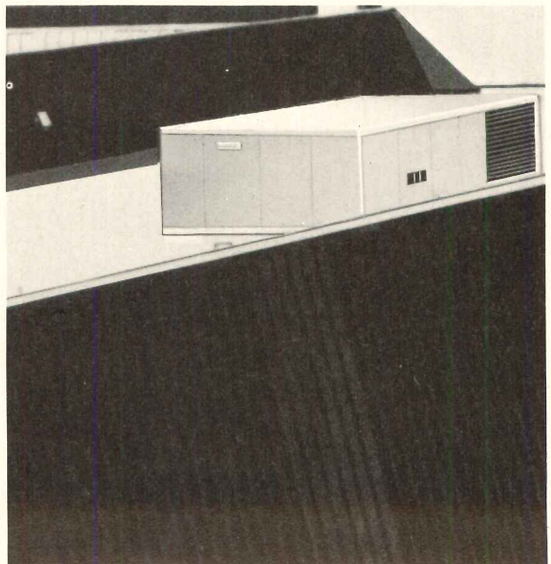


Lennox "micro-climates" assure comfort all year long—whatever the types and ages of people, in any activity, regardless of occupancy. Some zones might need cooling; others might need heat. They get what they need with Lennox.

Lennox units are available for multizone or single zone control, each perfectly compatible with the other. Gas, electric or oil heat source.

Before you plan an office building—or any other type—learn why Lennox should be your choice to recommend. See Sweet's 29a/Le—or write Lennox Industries Inc., 500 South 12th Avenue, Marshalltown, Iowa 50158.

For more data, circle 13 on inquiry card



◀ In Freeway Office Park, buildings have handsome copper mansard roofs which provide all-weather protection for walkways. Their slight rise above normal roof line is sufficient to conceal the Lennox DMS units that deliver 350 tons of cooling and 6,000,000 Btuh heating for the total complex.

LENNOX
AIR CONDITIONING · HEATING

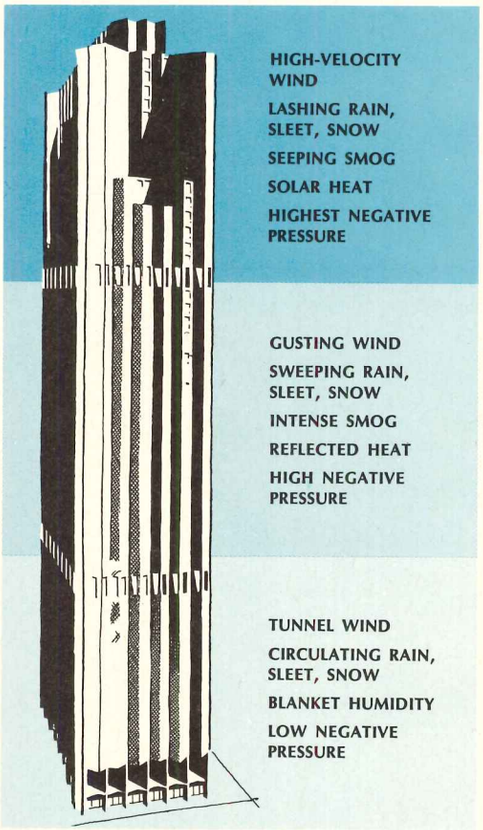
Proven results

Kawneer wall/window capability tames the elements on any size building.

Ground zero to top, the ultra-rise wall/window installation *has* to stand up to the widest, wildest range of turbulence and temperature of every weather condition.

So—as a result of Kawneer's attention to detail on many of America's most emulated larger buildings—Kawneer wall/window systems handle more modest size installations in stride. The Kawneer-clad building—commercial, educational, institutional, or apartment—keeps the outside out, the desired environment within.

From aluminum billet to installed wall system, Kawneer assures proven results. True today . . . and true tomorrow. For full information write Kawneer Product Information, 1105 N. Front Street, Niles, Michigan 49120.



left and above:
Bank of America, San Francisco, Calif.

Architect: Worster, Bernardi and Emmons
Skidmore, Owings and Merrill
San Francisco, Calif.

General Contractor: Dinwiddie, Fuller and Cahill
San Francisco, Calif.

KAWNEER
ARCHITECTURAL PRODUCTS

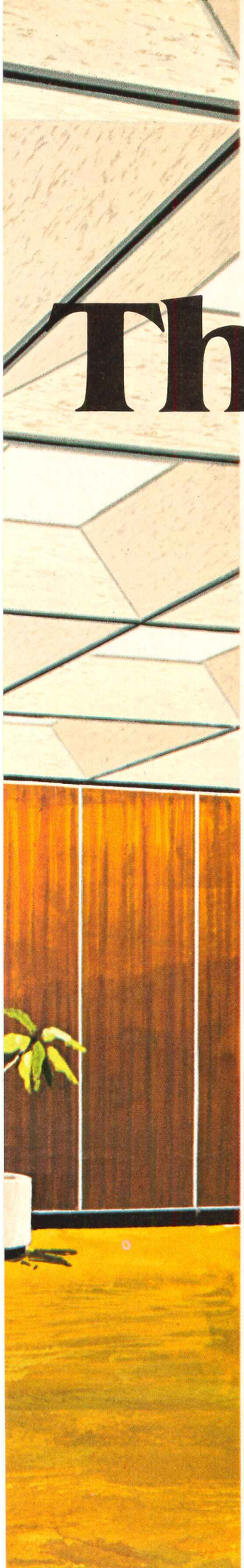
AMAX
ALUMINUM

Kawneer Company, Inc., a Subsidiary of American Metal Climax, Inc. Niles, Michigan • Richmond, California • Atlanta, Georgia • Bloomsburg, Penn. • Kawneer Company Canada, Ltd., Toronto

For more data, circle 14 on inquiry card

THE KAWNEER CONCEPT:
Attention to detail

H. D. Lee Company, Kansas City, Mo.
Architect: Linscott, Kiene and Haylett
Kansas City, Mo.
General Contractor: Bob Eldridge Construction Co.
Kansas City, Mo.



Spec 30: The 25-year interior

You are looking at something totally unique—not only in appearance and concept, but function as well. Spec-30 is a flexible, 5′ x 5′ modular system of interior components designed, manufactured and installed entirely by one company—Keene Corporation.

The ceiling materials are manufactured by Keene Sound Control Division. The lighting fixtures, handling both supply and return air distribution, are by Keene Lighting Division. Partitions and doors by Keene Metal Construction Products Division. And all products are interdesigned and installed by Keene Interior Systems Division—with total single-source responsibility.

Architects and owners, recognizing the value of interiors that can be easily and quickly rearranged, over and over, now design entire buildings for modular flexibility. Over-all dimensions, including core configuration and window-mullion spacing, are designed on a 5′ x 5′ planning module. And even HVAC systems incorporate multiple reheat coils for dividing each floor into many zones—again so that partitions may be rearranged frequently in future years.

Basically, Spec-30 has the same design characteristics as all Keene Interior Systems. Each 5′ x 5′ module contains illumination, air distribution and acoustical control—forming a complete ceiling with all the services needed for its 25 square feet of floor space. The ceiling grid not only structurally supports the ceiling elements, but also provides channels for the movable partition walls. What's more, each 5′ length of grid has a capped opening for electrical and phone line routing from above the ceiling into partitions. And to permit frequent wall relocation without damage to floors, Keene partitions do not require shooting or nailing to the floor.

If you're looking for coordinated interior products to match the useful life of the rest of your building's components, please write and tell us your needs. Keene's total capability includes design, delivery and installation of over 8,000 combinations of products to meet every interior system requirement. Keene Corporation, Interior Systems Division, Route 206 Center, Princeton, New Jersey 08540.

KEENE
CORPORATION

INTERIOR SYSTEMS DIVISION

We've just begun to grow.

For more data, circle 15 on inquiry card

Ancient as the Pyramids

Porcelain Enamel Comes Home Again To The Desert

The ageless beauty and durability of porcelain enameled metal artifacts, hand crafted by the Egyptians as early as 500 B.C., can be seen in museums throughout the world. In spite of its early beginning, however, use of the porcelainizing process during the next 2000 years was restricted mainly to jewelry, cookware and household items.

SHUAIBA SOUTH POWER AND WATER PRODUCTION STATION, KUWAIT. Chas. T. Main International, Inc., Architects and Engineers; Taisei Construction Co., Ltd., Contractor.

In the past few decades, new methods of building construction have created a demand for colorful, long-lasting wall finishes. Porcelain was "re-discovered" and has increased steadily in popularity, world-wide, for architectural applications. An outstanding example of this international trend is Shuaiba South, largest thermal power plant in the Middle East—now under construction in Kuwait.

At Shuaiba, Vitralume®—Robertson's porcelain enameled aluminum—was selected for the large insulated wall areas. Here, on a building designed to stand against the rigors of the glaring sun and wind-blown sand of the Arabian Gulf coast, Vitralume's tested ability to resist abrasion and color fading made it an ideal choice.

Vitralume is available in a wide variety of panel shapes for both insulated and uninsulated architectural walls. And, Robertson's Total Capability concept begins with technical assistance in the design stage of your building and carries through to final erection. Write for further information.

H-H Robertson COMPANY

TWO GATEWAY CENTER
PITTSBURGH, PA. 15222

For more data, circle 16 on inquiry card

News in brief

Emerson Goble, editor of ARCHITECTURAL RECORD from 1958 until his retirement in 1967 and managing editor from 1941 until he became editor, died November 18 in Holy Ghost Hospital, Cambridge, Massachusetts, after a ten-year struggle against cancer. His age was 68. Memorial services were held November 22 at the First Congregational Church, Rockport, Massachusetts, where he and Mrs. Goble had been living (at 41 Atlantic Avenue) since his retirement, and on November 25 at the First Congregational Church of Chappaqua, New York, where they had lived from 1942 to 1967. Mr. Goble was born in Elgin, Illinois, and graduated from the University of Illinois in 1923 with a B.S. in electrical engineering. He was eastern editor of Building Magazine from 1927 to 1934 and editor of the National Real Estate Journal from 1934 to 1941. (See page 9.)

The implementation of Washington's Pennsylvania Avenue Plan was set back last month when Rep. John Saylor (R—Pa.) blocked the passage of funds for the Pennsylvania Avenue Commission in Congress. President Nixon has given the plan strong support (June, page 9), and the Commission hopes to continue as part of the White House budget. Eventually, the Commission, led by Nathaniel Owings, F.A.I.A., hopes its work will be carried out by a public development corporation. (See also May, July 1962, July 1964.)

New York City's new Comprehensive Plan puts the emphasis on process rather than massive renewal. It was released in conjunction with the 40th Anniversary Conference of the Regional Plan Association, November 18. For details, see page 36.

The Building Industry Conference awards will go to Rex Whitaker Allen—architect (Achievement Award), Henry J. Powers—structural engineer (Honor Award), and Donald Beach Kirby—architect (Special Award), according to chairman Rod McGavran.

Nominations for the 1970 fifth semi-annual Library Buildings Awards Program are open. The program is sponsored by the American Institute of Architects with the American Library Association and the National Book Committee. The jury of architects and librarians will be chaired by John Dinkeloo.

Publications: (1) The U.S. Chamber of Commerce has published an illustrated booklet, "Form, Design and a More Attractive City Environment," which supports good design in city plans and individual buildings as a better investment in the long run; its examples include among others buildings by Weese, Wright and Saarinen. (2) The A.I.A. has added "Methods of Compensation for Architectural Services" (104 pp.) to its series of business-oriented educational publications. (3) HUD has released an illustrated study, "The Model Cities Program—An Analysis of the Planning Process in Three Cities." The three cities described are Atlanta, Seattle and Dayton.

Ujima Village, a new community near the Watts section of Los Angeles, will center around a large post office facility, planned to provide employment for the area. "Ujima" is Swahili for "collective community effort." The village is sponsored by more than 50 black Los Angeles citizens' groups, and planning is completely under the control of these groups. Two California congressmen, Augustus Hawkins and Charles H. Wilson, were instrumental in arranging the site purchase; Prudential Insurance is providing much of the financing.

The Urban Land Institute has published a detailed study, "Air Rights and Highways," which discusses design, legal, and financial aspects, and concludes with recommendations to make "multiple development" simpler. The report also contains an extensive bibliography on the subject. It is available from U.L.I. in Washington, D.C. for $6.00.

Back Bay, Boston is the subject of a major exhibit at Boston's Museum of Fine Arts through January 11. The exhibit includes seamless 360-degree projections, using a system developed by Dr. Eugene Trachtman, and contains separate exhibits on Back Bay architects from Richardson to Rudolph (see next page).

New York City gets its first comprehensive plan

New York City's new comprehensive plan is both pragmatic and flexible. Rather than propose sweeping renewal programs, it favors redirecting the city's growth and change through incentives and revisions of the processes which affect it. The first part, called "Critical Issues," gives a general view of the city; highly detailed volumes on each of the city's five boroughs will appear over the next few months. The plan was called for in the 1938 city charter, but often became bogged down. The present volume is the result of an ultimatum from HUD, which made a comprehensive plan a requisite for receipt of Federal funds.

The plan is optimistic. It argues the city has never been more vigorous, despite its many problems. The first section of the report, "National Center" describes this strength of the city and suggests a continuation of the rapid increase in the amount of office space and the number of workers in Manhattan because "concentration is the genius of the City, its reason for being. . . . We are not afraid of high density." The plan proposes improved transportation, reduction of automobile use in favor of mass transit and enhancement of the center city by construction of such amenities as a covered arcade along part of Broadway, opening up Manhattan's waterfront for recreation and multi-use areas and buildings: "Downtown will stay open after five." Some projects having the multi-use approach are under way, such as Battery Park City (January, and this issue, page 149).

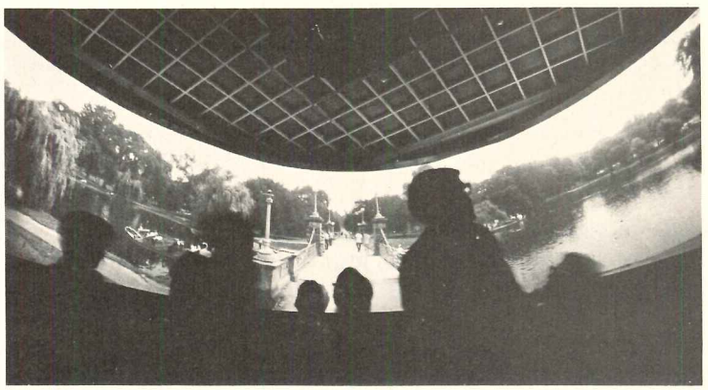
The second major topic, "Opportunity," concerns improving the economic chances of the city's huge black and Puerto Rican population. The plan argues that every effort must be made to improve the city's economic balance and keep its middle class—including specifically job development and improvement of welfare and education systems. As part of the effort to keep blue-collar jobs in the city, zoning changes are suggested which would encourage multi-level industrial buildings.

"Environment," the third topic, calls for improvement of public housing design, landmark preservation, and the need for very strong pollution control measures (including noise pollution) with possible use of solid waste incinerators to generate steam and electricity, and the reuse of materials.

The last topic, "Government," urges streamlining of municipal services and decentralization of decision-making.

The plan, which was put together by members of the City Planning Commission, its staff, and consultants, will not become binding even if, as expected, the Planning Commission formally adopts it. It will be modified during a series of hearings before the Commission formally approves it, and it will continue to change after it is adopted.

If its recommendations are adopted (some of them, such as incentives to build theatres, already have been), the new plan will cost "at the very minimum," $52 billion beyond "present anticipated resources" by 1980.



Back Bay Boston: The City as a Work of Art

It took nearly forty years working night and day to build, but when it was done, the Back Bay section of Boston was a very successful example of urban planning and architecture. Boston's Museum of Fine Arts, as part of its centennial celebration, has put together an exhibit on the area, "both as a tribute and a timely warning." Back Bay today is threatened by superhighways, overbuilding, and partial deterioration, but the greater part survives as planned in 1856 by Arthur Gilman, whose Arlington Street Church was among the first built on the reclaimed land.

Back Bay's success came from the "firm and forceful decision" to control building heights, street widths, and land use. The area centers on Commonwealth Avenue, the park-like boulevard which, along with the Charles River Embankment, became part of Frederick Law Olmsted's municipal park system, the first in America.

Back Bay contains four buildings of Henry Hobson Richardson, several by McKim, Mead and White, and it will soon include a major addition to McKim's Public Library by Philip Johnson, a church by Paul Rudolph, an office tower and a religious center by I.M. Pei and Partners and the redesign of Copley Square in front of Richardson's Trinity Church by Sasaki, Dawson, Demay Assoc.

Environment notes

■ "Peaceful" uses of atomic energy are coming under attack from scientists and senators because of the danger to the environment. Senator Edmund S. Muskie (D-Maine) has held hearings on the subject with a view towards broadening the picture, too much of which, he says, comes from the Atomic Energy Commission. "We have long passed the time when we should expect Federal agencies to evaluate adequately the environmental effects of their own activities," says Mr. Muskie.

"The Careless Atom" (Houghton Mifflin Company) by Sheldon Novick is one of the more forceful attacks. Mr. Novick is Program Administrator of the Center for the Biology of Natural Systems at Washington University in St. Louis. He points out that nuclear wastes from atomic energy plants build up through the ecosystem in the manner of DDT, and with even worse potential results.

■ San Francisco will be the subject of a comprehensive three-year environmental resource study by HUD and the Interior Department. The pilot study will use geologists, geophysicists, seismologists, cartographers, hydrologists, engineers and urban planners to get a "3-D" picture. The way the resulting material is used will be as important as the material itself. San Francisco is the first of seven pilot studies. Other possible areas include Puget Sound, Connecticut Valley, Pittsburgh, Washington, D.C., Atlanta and Miami.

■ Conservation lawyers met this fall to discuss such questions as a constitutional right to freedom from air pollution at a conference sponsored by the Conservation Foundation of Washington, D.C., and the Conservation and Research Foundation of New London. They heard consumer advocate Ralph Nader and pesticide-fighter Victor J. Yannacone Jr., who told them, "It's about time the legal profession got some ecological sophistication."

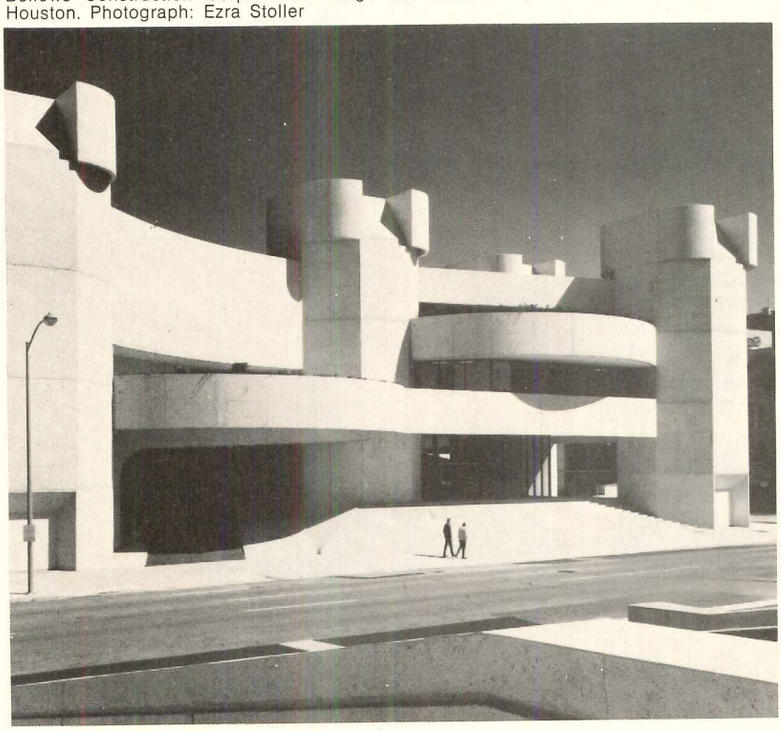
■ Noise pollution: Two separate studies financed by the Federal Aviation Administration are studying the effects of airplane noise and sonic booms. The Stanford Research Institute is testing noise effects on people, and Wyle Laboratories will see how pressure waves affect glass.

Experiments with rats at high noise levels have produced insanity, cannibalism and sterility, according to the Lord Manufacturing Company, which has started an Acoustics Systems division. Lord also says sound levels in cities will double in the next ten years if we don't begin noise abatement.

Continued on page 148

Two for the show with Dover Stage Lifts

Theater and Classroom Building, Birmingham-Southern College, Birmingham, Ala. Architects: Warren, Knight & Davis. Theater Consultant: Dr. Arnold .Powell. General Contractor: Brice Building Company, Inc. Dover Stage Lift installed by Dover Elevator Co., Birmingham.



Alley Theatre, Houston, Texas. Architects: Ulrich Franzen & Associates. Associate Architects: MacKie & Kamrath. Consultant: George Izenour. General Contractor: W. S. Bellows Construction Corp. Dover Stage Lift installed by Dover/Hunter-Hayes Co., Houston. Photograph: Ezra Stoller

Two of the most exciting new theaters for the dramatic arts utilize Dover Stage Lifts for versatility of presentation.

The Alley Theatre in Houston and the Birmingham-Southern College Theatre at Birmingham are the latest additions to a long list of distinguished theatrical complexes served by Dover. A few others include the Metropolitan Opera House, Loeb Drama Center, Santa Fe Opera House, Atlanta Cultural Center and the Jesse H. Jones Hall for the Performing Arts.

Dover Stage Lifts are custom built to meet your requirements of design, size and capacity. Smooth, quiet, Oildraulic® Elevator power units and controls provide dependable operation for the critical requirements of theatrical presentations.

Our experience in building stage lifts for multi-purpose theaters, orchestra pits, organ lifts and special effects can be helpful to you—on any project from the most complex theater to a high school auditorium. Call us for design and engineering assistance, or see our catalog in Sweet's Files. Dover Corporation, Elevator Division, Dept. D-12, P. O. Box 2177, Memphis, Tenn. 38102. In Canada: Dover/Turnbull.

DOVER
the elevator innovators

For more data, circle 23 on inquiry card

See how this total Nesbitt comfort system fits into the new Parkview Hospital.

This five-story, 57,900 square foot, building is the Parkview Hospital in Philadelphia, Pa. It cost $1,581,000 to construct. Air conditioning, heating and ventilating cost only $3.47 per square foot. Amazingly economical when you consider some of the problems involved.

Here's how Nesbitt helped the Architect and Engineer solve the comfort conditioning problems so economically. First, Nesbitt had the product mix (modular self-contained units, Rooftop Multizone units, cabinet heaters, unit heaters and finned tube radiation) to ideally meet the various requirements of spaces in the building. Also, the selection of equipment with a high degree of factory-assembled components eliminated much on-site labor.

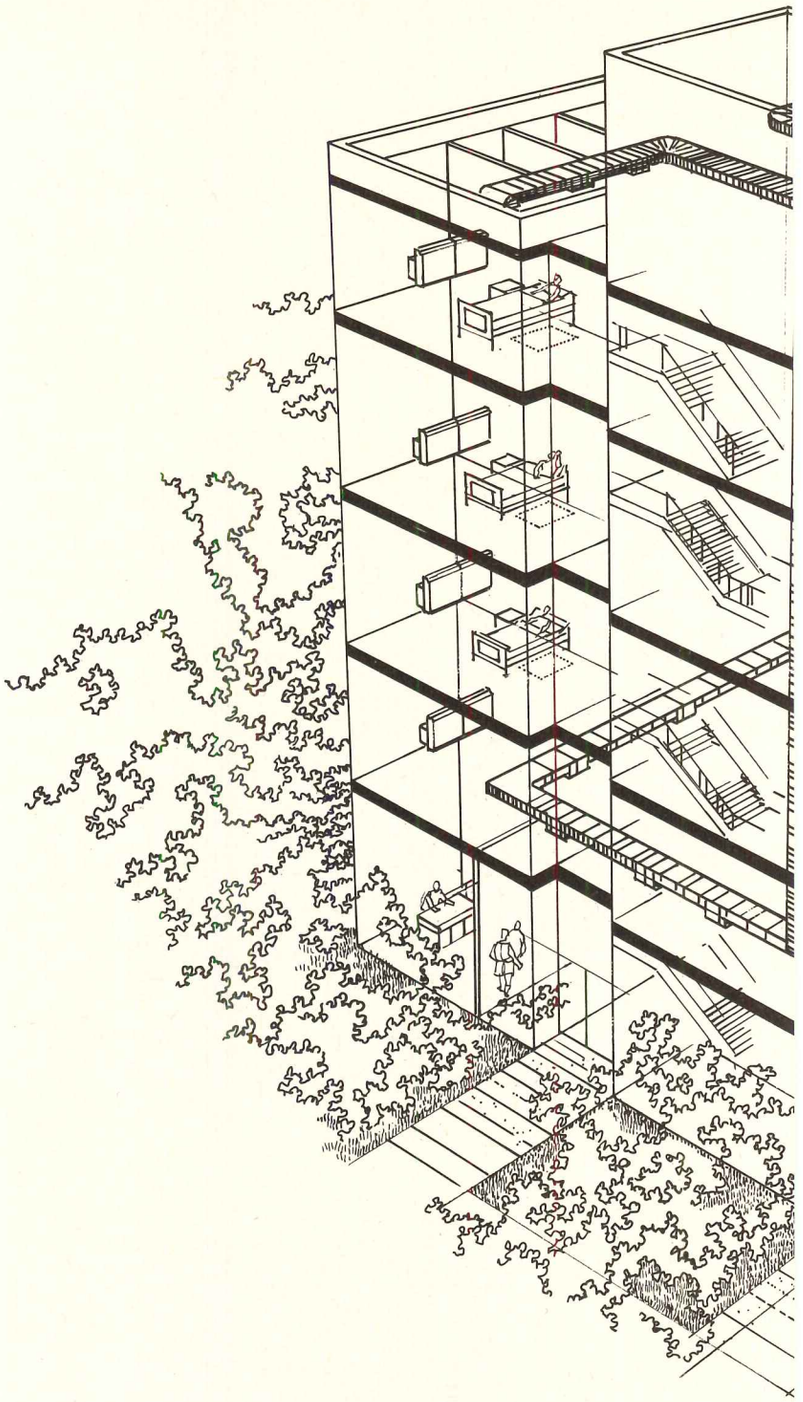
Patients' rooms were located around the perimeter of the building. A modular system was needed that would automatically compensate for the varying exposures as well as the individual needs of the patients. This required a system with the ability to provide simultaneous heating and cooling automatically on demand from each space. A Modular Roommate in each room with its own thermostat provided the ideal answer.

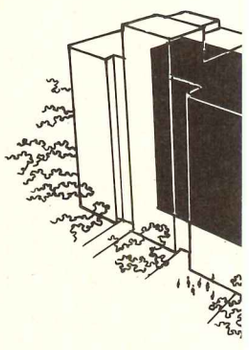
The service core contained a lobby on the first floor, and on each of the upper floors—nurses' stations, utility rooms, treatment rooms and food service facilities.

Twin Nesbitt Rooftop Multizone units were installed to service the five-floor core area. Duct shafts were constructed to run from each roof-mounted unit to each of the five floors. Each of the five floors were treated as separate control zones supplied with conditioned air to meet individual comfort requirements.

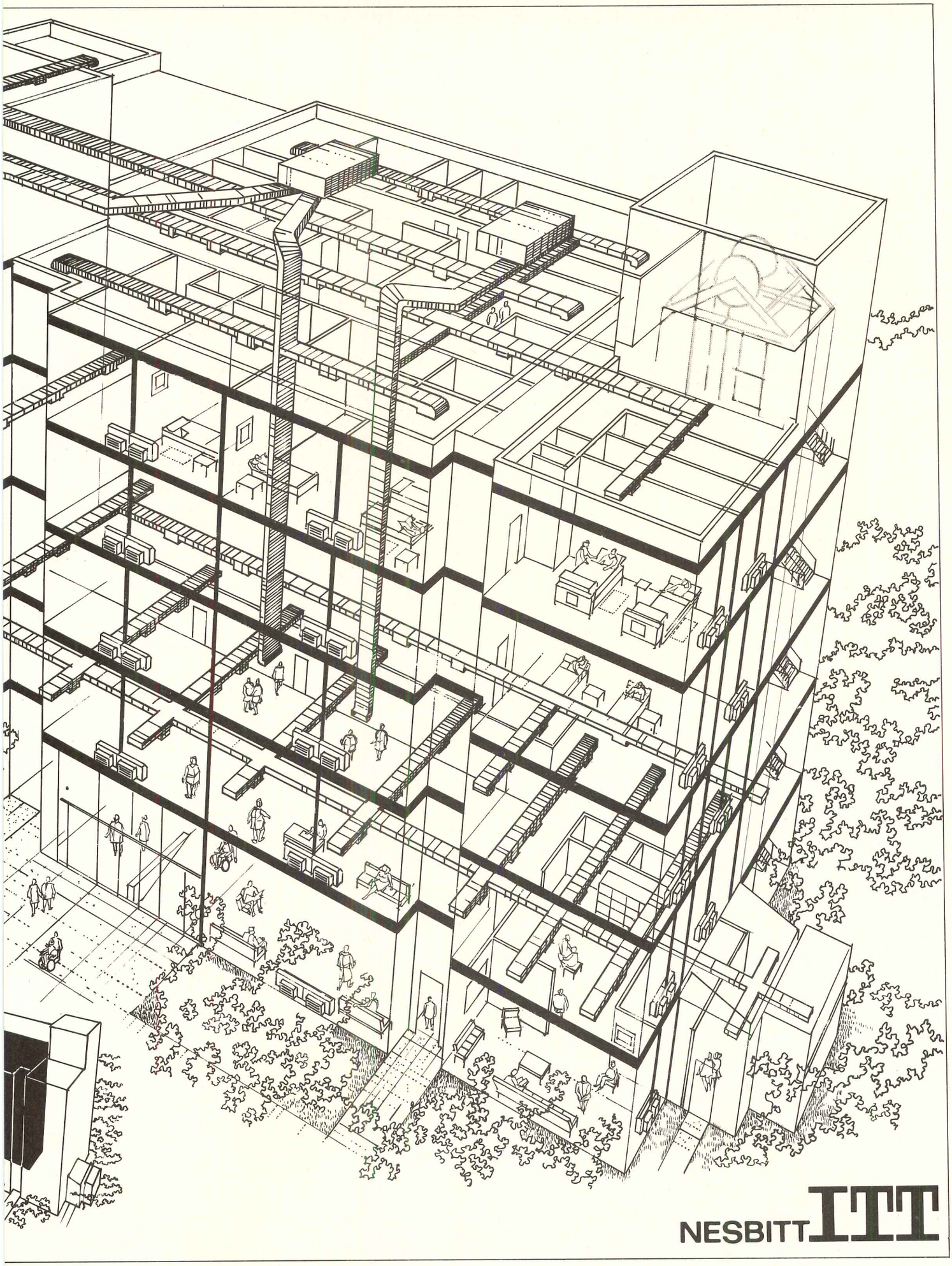
The net result was to provide a total system with a high degree of factory-assembled components, which in turn reduced field labor costs and optimized the overall air-conditioning costs. In addition, the system is unique in its ability to meet the individual comfort requirements of the various spaces.

For full details of how the Nesbitt product mix can help you solve some of your problems, write Nesbitt Operation, ITT Environmental Products Division, International Telephone and Telegraph Corporation, Philadelphia, Pa. 19136.





Parkview Hospital, A Subsidiary of American Medicorp
Architect: Henry D. Dagit & Sons
Consulting Engineers: Paul H. Yeomans, Inc.
General Contractor: Frank A. D'Lauro Co.
Mechanical Contractor: Wolfson & Schnoll, Inc.

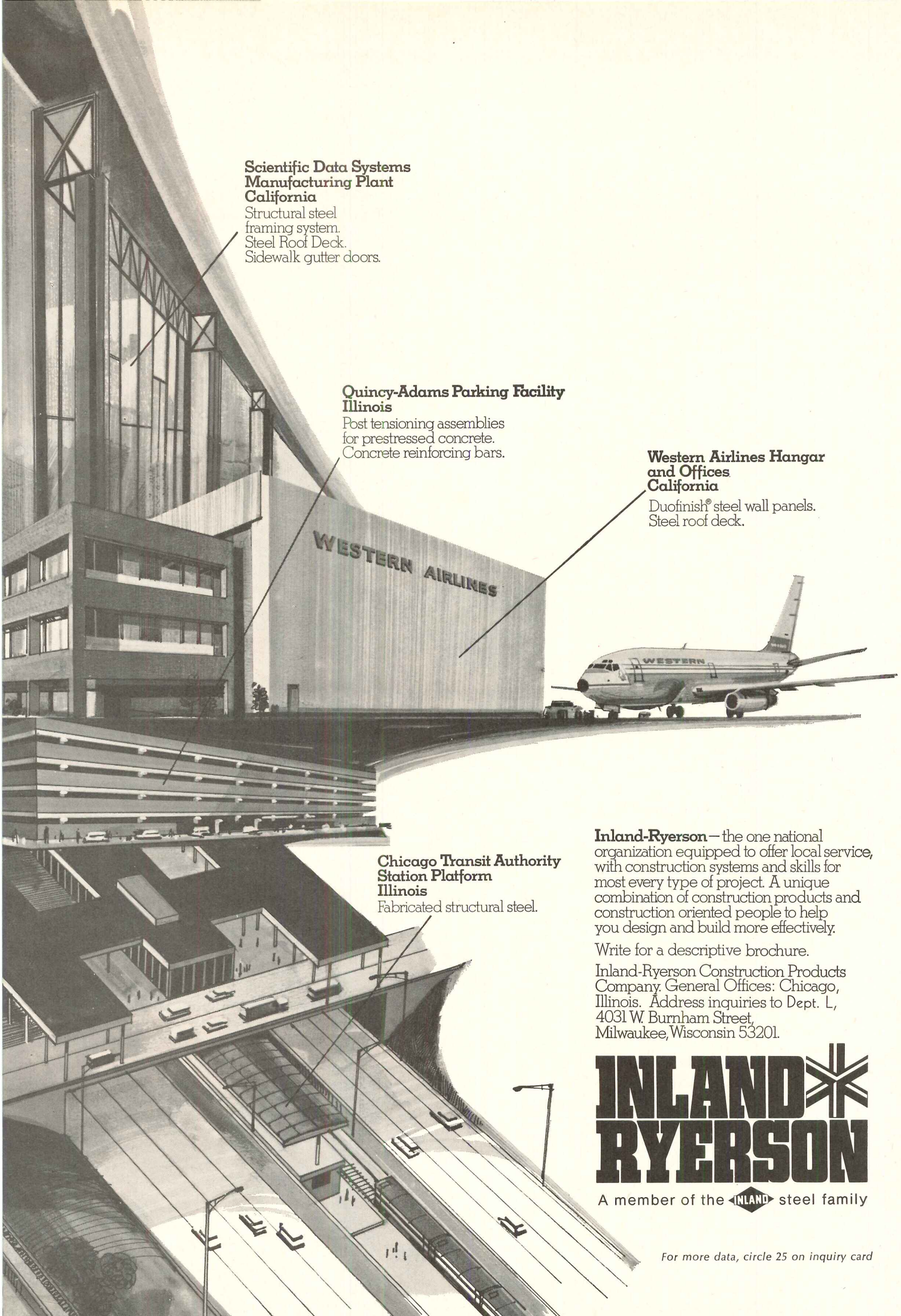


Who's responsible for all this?

Embarcadero Center Office Building California
Hi-Bond® steel floor deck.

Wayne County Hospital North Carolina
Milcor® structural and non-bearing studs; metal lath products. Steel access doors.

PPG Industries Manufacturing Facility, Pennsylvania
Building systems including structural framing system, steel roof and wall panels.



Scientific Data Systems Manufacturing Plant California
Structural steel framing system.
Steel Roof Deck.
Sidewalk gutter doors.

Quincy-Adams Parking Facility Illinois
Post tensioning assemblies for prestressed concrete.
Concrete reinforcing bars.

Western Airlines Hangar and Offices California
Duofinish® steel wall panels.
Steel roof deck.

Chicago Transit Authority Station Platform Illinois
Fabricated structural steel.

Inland-Ryerson—the one national organization equipped to offer local service, with construction systems and skills for most every type of project. A unique combination of construction products and construction oriented people to help you design and build more effectively.

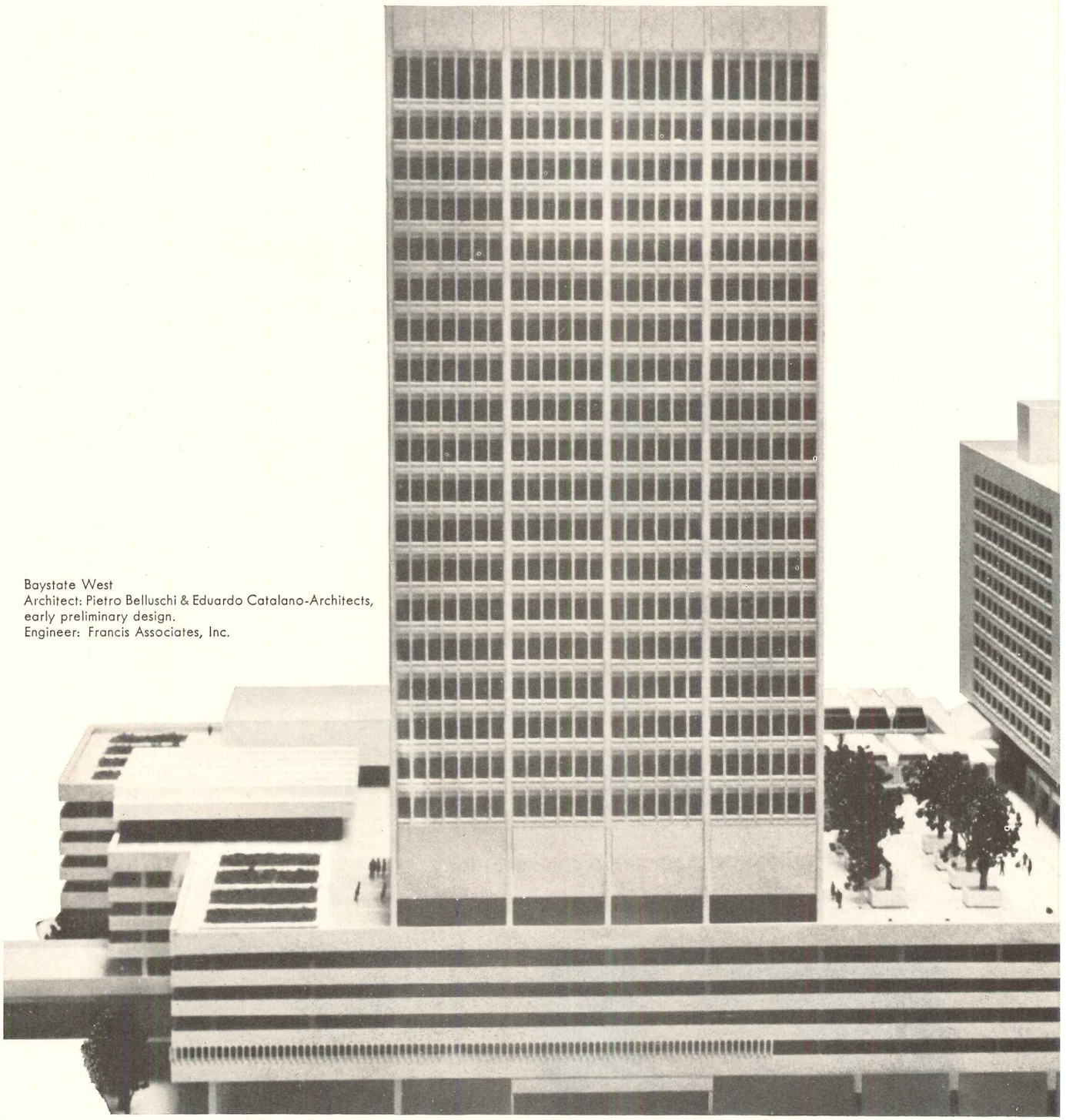
Write for a descriptive brochure.

Inland-Ryerson Construction Products Company. General Offices: Chicago, Illinois. Address inquiries to Dept. L, 4031 W. Burnham Street, Milwaukee, Wisconsin 53201.

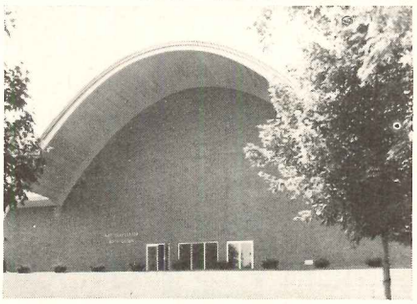
INLAND RYERSON

A member of the INLAND steel family

For more data, circle 25 on inquiry card

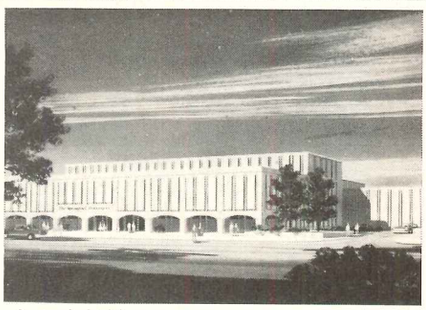


Baystate West
Architect: Pietro Belluschi & Eduardo Catalano-Architects, early preliminary design.
Engineer: Francis Associates, Inc.



Linkletter Natatorium, Springfield College
Architect: Munson & Mallis
Engineer: E. M. Sullivan

Forbes & Wallace Department Store
Designers: Raymond Loewy/William Snaith, Inc.
Engineers: Strobel and Rongved, Engineers
Herman Blum, Consulting Engineers



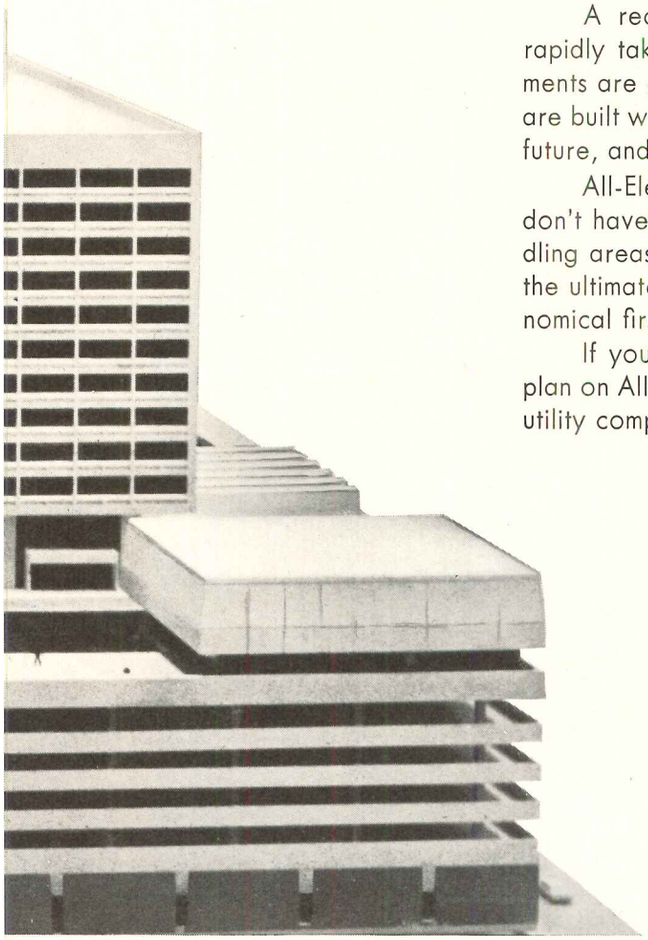
Springfield Newspapers
Engineer: Lockwood Greene Engineers, Inc.
Architect: Lockwood Greene Engineers, Inc.

How the architects of "new" Springfield planned for the future with All-Electric design.

A reconstructed and revitalized Springfield, Massachusetts, is rapidly taking shape. New buildings, new complexes, new developments are going up all over the city. Seven out of nine new buildings are built with All-Electric design. They're built to meet the needs of the future, and will still be modern for years to come.

All-Electric design gives architects greater design freedom. They don't have to plan around boiler rooms, flues, fuel storage and handling areas and unsightly smokestacks. All-Electric design gives tenants the ultimate in modern environmental comfort, and gives owners economical first costs and operating costs, and lower maintenance costs.

If you're planning a building to meet present and future needs, plan on All-Electric design. For more information, contact your electric utility company.



All-Electric design

ALL-ELECTRIC BUILDING AWARD ®

Live Better Electrically

Edison Electric Institute
750 Third Ave., N.Y., N.Y. 10017

Holiday Inns of America
Architect: William Bond, Jr. & Associates, Inc.

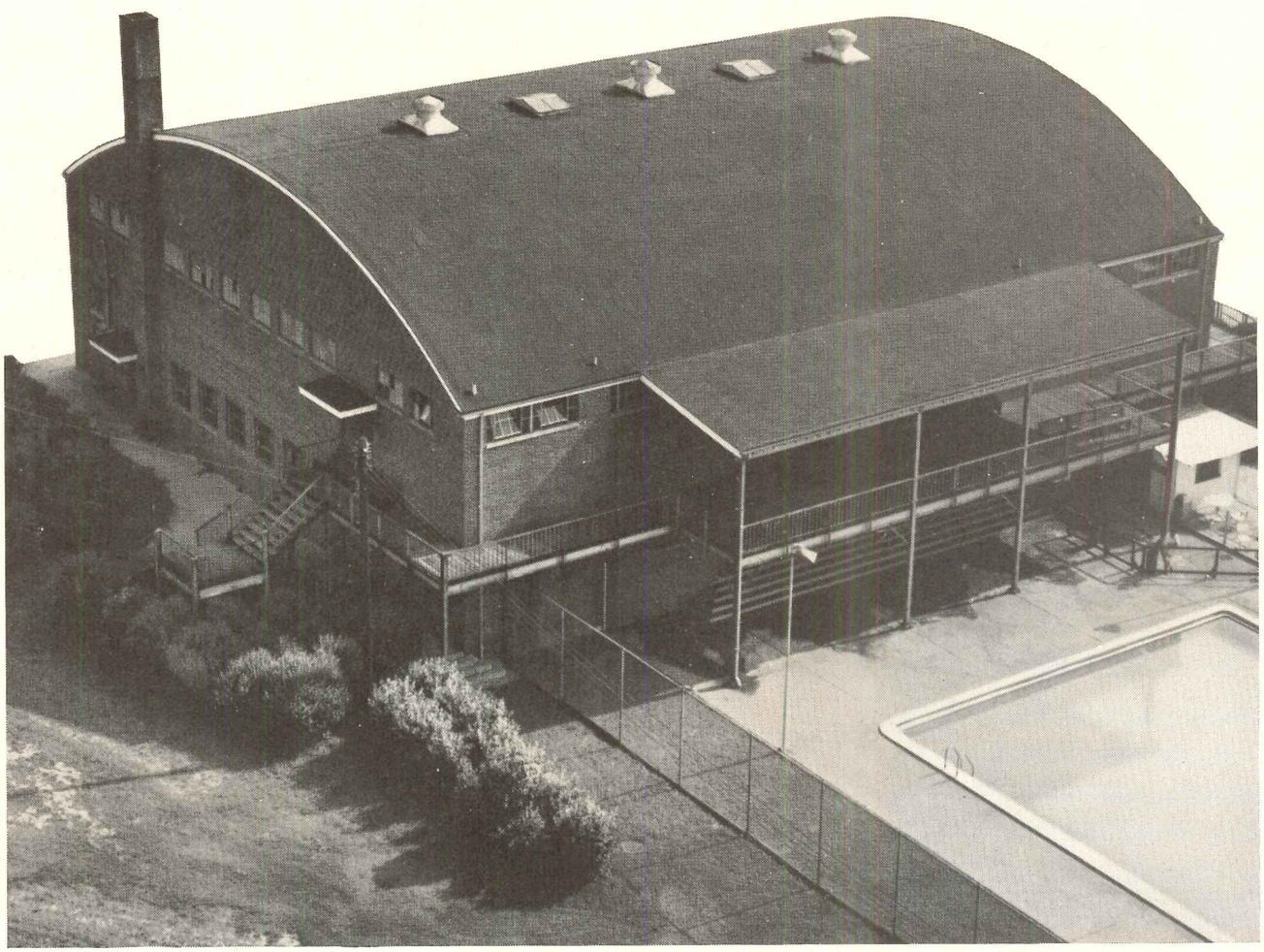
Eastfield Mall
Architect: Daverman Associates, Inc.
Engineer: Daverman Associates, Inc.

Stephen J. Collins Elderly Housing "Twin Towers"
Architect: Caolo & Bieniek Associates
Engineer: Greenleaf Associates

For more data, circle 27 on inquiry card

This J-M asbestos built-up roof just had its 30th birthday.

And still looks like it was born yesterday



The Reynolds Park Gymnasium in Winston-Salem, N.C., was topped with a Johns-Manville asbestos smooth surface built-up roof in 1939. Today, it looks brand new. And it's never even had minor repairs. But long wear is only part of the story.

J-M asbestos built-up roofing needs less bitumen than organic felts. And organic roofs take 300 to 400 lbs. of gravel or slag per square. Asbestos roofs need none. You save time, labor and money—and get a much lighter roof.

Another plus: you can check a smooth-surface roof just by walking on it. Gravel surfaces require annoying, often expensive trouble-spotting procedures.

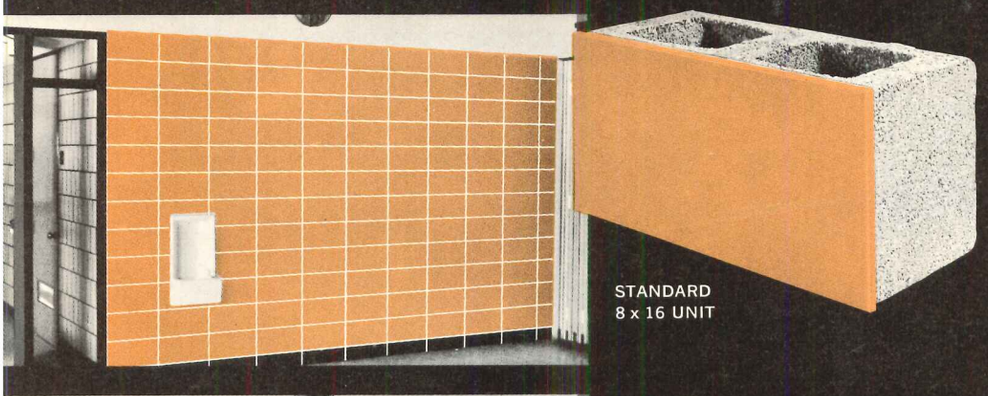
J-M asbestos built-up roofing. A very smart investment. With many happy returns.

For details, write Johns-Manville, Box 290-BI, New York, New York 10016. Also available in Canada and overseas. Cable: Johnmanvil.

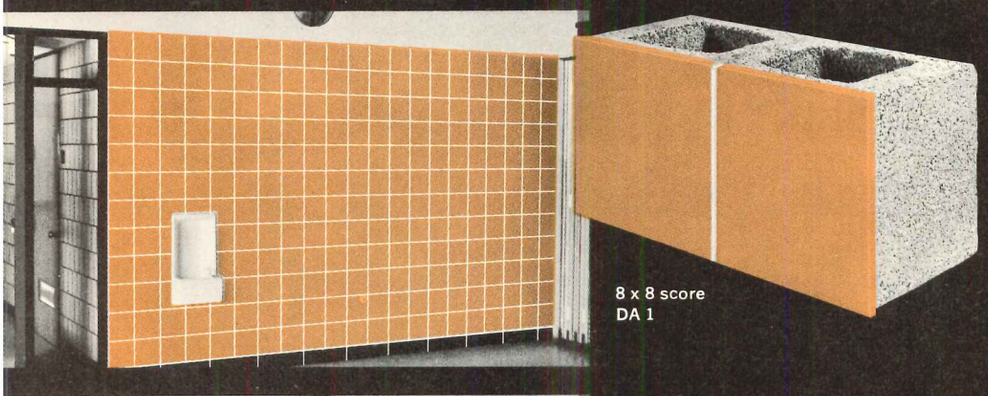
JM
Johns-Manville

For more data, circle 28 on inquiry card

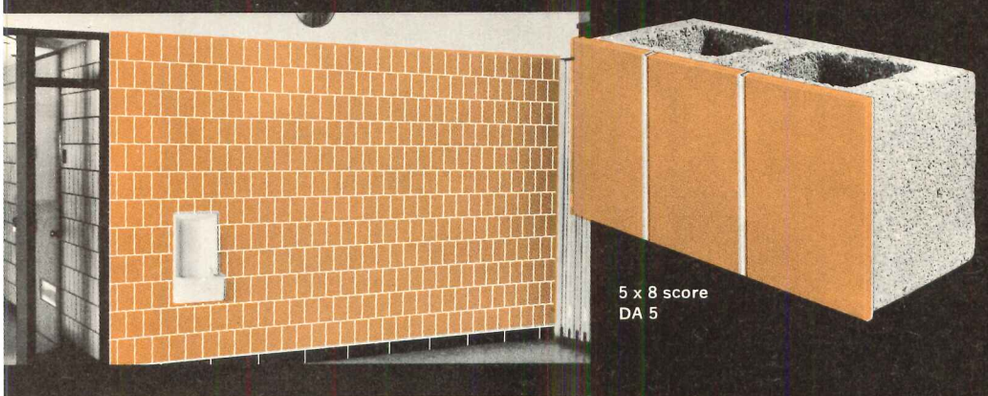
For more data, circle 29 on inquiry card



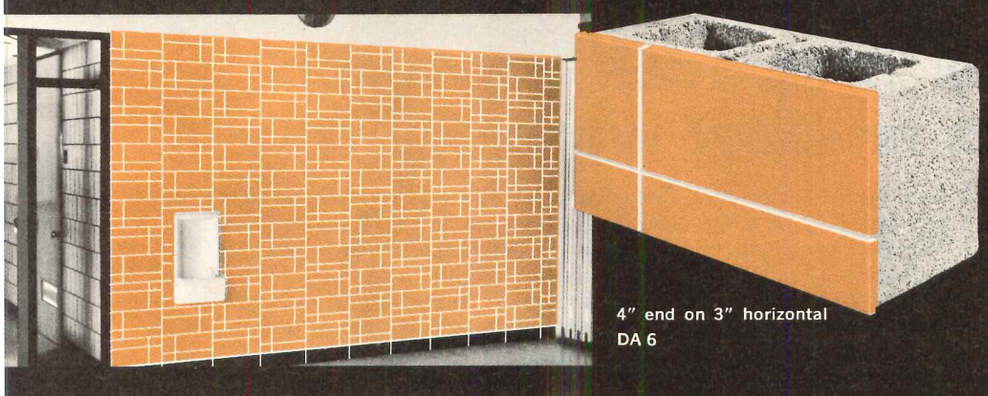
STANDARD
8 x 16 UNIT



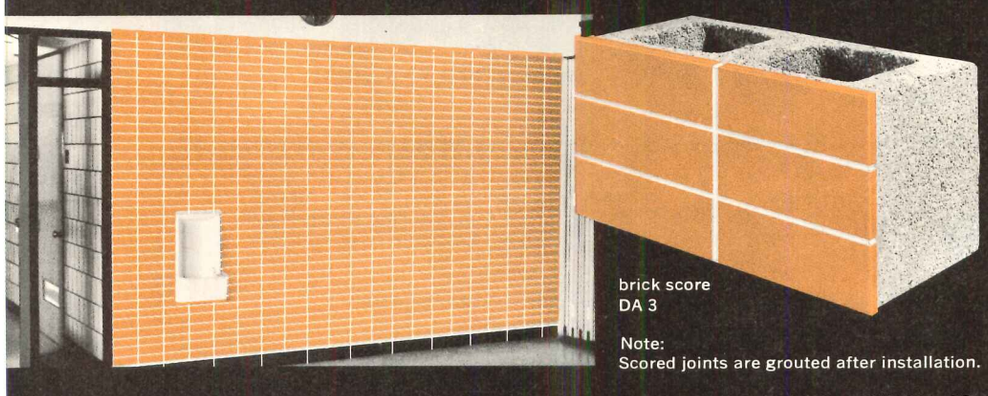
8 x 8 score
DA 1



5 x 8 score
DA 5



4" end on 3" horizontal
DA 6



brick score
DA 3

Note:
Scored joints are grouted after installation.

CHOICE OF SCALE & PATTERN with new scored faces...

in a wide range of colors plus the economy of 8 x 16 units!

Spectra-Glaze®

SCORED glazed masonry UNITS, *used vertically or horizontally,* provide the most practical if not the only means of achieving certain patterns for special effects in scale and design.

MANUFACTURERS WORLD-WIDE

Manufacturing plants located throughout the United States, Canada, and over-seas make SPECTRA-GLAZE® Units locally available in most areas. Flexible production schedules and quick truck deliveries greatly reduce job delays encountered because of add orders, plan changes or forgotten shapes.

ARIZONA Zenith Glazed Products, 630 W. 24th St., P.O. Box 421, Tempe 85281, 602 967-7575 • **CALIFORNIA** California Glazed Products Co., Inc., 1670 Rogers Ave., San Jose 95112, 408 295-4362 • **CONNECTICUT** Plasticrete Corporation, 1883 Dixwell Ave., Hamden 06514, 203 288-1641 • **ILLINOIS** SGM Corporation, 9326 S. Anthony Ave., Chicago 60617, 312 731-6010 • **KANSAS** Acme Brick Company, 1337 N. Mosley, Box 397, Wichita 67201, 316 264-8301 • **LOUISIANA** Acme Brick Co., 4747 Choctaw Dr., Box 1107, Baton Rouge 70821, 504 357-4312 • **MARYLAND** United Glazed Products, Inc., Box 6077, Baltimore 21231, 301 752-5118 • **MICHIGAN** United Glazed Products (Michigan), Inc., 4500 Aurelius Rd., Box 9546, Lansing 48910, 517 882-2463 • **MINNESOTA** Zenith Glazed Products Company, Box 367, Osseo 55369, 612 425-4111 • **MISSOURI** Mid-West Glazed Products, Inc., 1950 Walton Road, St. Louis 63114, 314 428-4800 • **NEW JERSEY** United Glazed Products (New Jersey), Inc., 194 N. Fifth St., Saddle Brook 07763, 201 843-6334 • **PENNSYLVANIA** A. Duchini, Inc., 24th & Brandes St., Erie 16503, 814 456-7027 • **SOUTH CAROLINA** Tidewater Concrete Block & Pipe Co., Inc., Box 162, Charleston 29402, 803 744-5376 • **TEXAS** Acme Brick Company, Box 34, Dallas 75221, 214 742-8723; Box 141, Houston 77001, 712 228-8484. Featherlite Tile Company, Box 489, Lubbock 79408, 806 PO 3-8202. Southwest Glazed Masonry Corporation, Box 895, Texarkana 75501, 214 838-7551 • **UTAH** Utah Concrete Pipe Co., 379 17th St., Box 229, Ogden 84402, 801 EX 9-1171.

CANADA

Cermatex (Western) Ltd., 1 Cole Ave., Winnipeg 5, Manitoba, 204 533-4741.

Edmonton Concrete Block Co., Ltd., Box 5060, Station "E", Edmonton, Alberta, 403 484-4421, TELEX 037 2686.

General Concrete Ltd., Box 46, Station C, Hamilton, Ontario, 416 549-4121; 130 Richer St., Ville St. Pierre, Montreal, Quebec, 514 482-7690; Ottawa — 235-1388; St. Catharines — 684-1211; Toronto — 925-8821.

Pedersen & MacTaggart Ltd., 22652 Fraser Hwy., RR7, Langley, British Columbia, 604 594-0516.

BELGIUM

Charbonnages de Bonne Expérance, a Lambusart. Tel. 07-771009. Cable Address: MEILLEUR-Tamines.

DENMARK

A/S Hasle Klinker-OG Chamottestensfabrik, Oslo Plads 16 Copenhagen. Tel. TRIA-6201, TELEX 2523.

ITALY

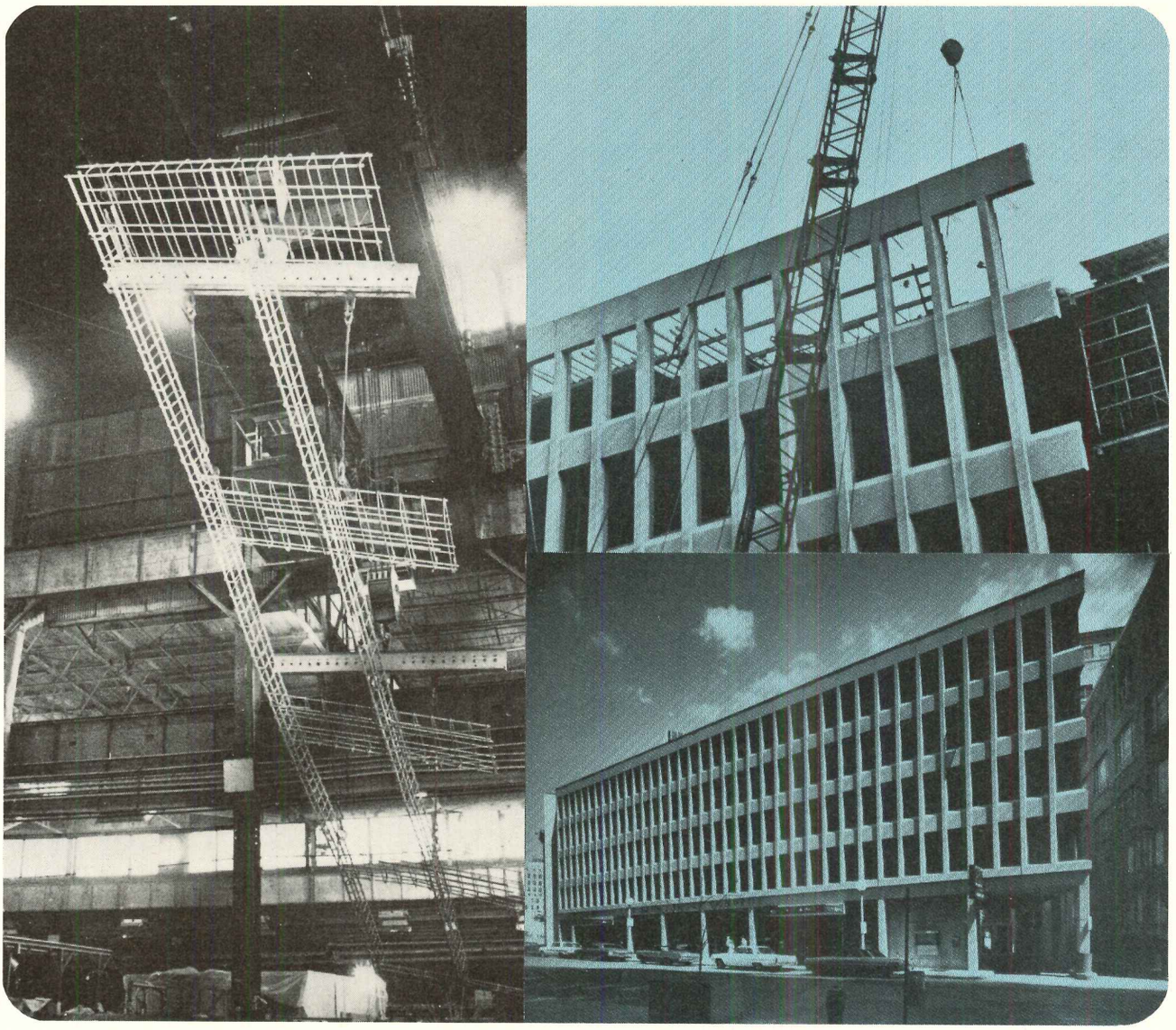
Vetroblock, S.p.A., Carlo Fea, 6, Rome. Tel. 484996.

UNITED KINGDOM

The Lilleshall Company, Ltd., St. George's, Nr. Oakengates Shropshire. Tel. Oakengates 3120.

DISTRIBUTORS IN ALL MAJOR CITIES

(S) Cataloged in SWEET'S. Write for SPEC-DATA® Sheet.



Galvanized rebar precludes corrosion in unique bank's precast walls

Zinc galvanized steel protects the huge 46' long by 9' wide precast panels which face the upper part of the new City Bank & Trust Company Building in Boston. ☐ Only two inches below the panels' surface are reinforcing bars which were hot dip galvanized to prevent rust which could cause surface staining and spalling plus structural weakening. ☐ Designed by F. A. Stahl and Associates, with LeMessurier Associates, Inc. as structural engineers, the new building in Boston's government center was conventionally built to the second floor. Floors three and four were then built with six feet of clearance left for the precast wall panels. ☐ Set on the second floor spandrel beams, the precast concrete panels were braced at the fourth floor, cantilevering past the fifth floor to the roof. Rerods projecting from the panels were welded to reinforcing bars jutting from the third and fourth floor decks after which the deck portions between the joints and the precast panels were poured in place. ☐ Next time you specify materials, keep in mind that nothing else gives you the proven combination of strength, corrosion resistance and economy that you have in galvanized steel. ☐ **St. Joe supplies quality zinc... American Industry puts it to work.**

OFFICE NOTES

OFFICES OPENED

Eugene Aubrey has recently announced the opening of his office for the practice of architecture at 1914 West Capitol, Houston.

Richard W. Campbell, Consulting Civil and Structural Engineer, has recently established a consulting office at 315 Washington Street, Marina del Rey, California.

Joseph M. Gabriel, A.I.A.—C.S.I. has announced the opening of his offices for the practice of architecture and planning at 2180 McCulloch Boulevard, Lake Havasu City, Arizona.

Joseph Handwerger and **Edward Canino** have formed an office for the practice of architecture and planning at 1000 Wisconsin Avenue, N.W., Washington, D.C.

Walter Kidde Constructors, Inc. has opened a Midwest operations office in the Prudential Building, Chicago, to be directed by engineer **John A. Faas,** a vice president of the firm.

Philip Lembo & Associates, Architects have recently opened new offices at 232 Anthony Court, Buffalo Grove, Illinois.

Albert C. Martin and Associates, architectural, engineering and planning firm headquartered in Los Angeles, has opened a Honolulu office headed by **Charles H. Griggs, A.I.A.,** an associate of the firm.

Terry H. Parker, Architect has announced the opening of his office at 40 East Main Street, Little Falls, New Jersey.

Weiskopf & Pickworth Consulting Engineers has opened a new office at 120 Montgomery Street, San Francisco.

NEW FIRMS, FIRM CHANGES

John Adelberg, A.I.A., A.I.P. has recently been made a principal of **Sasaki, Dawson, DeMay Associates, Inc.,** landscape architects and planners of Watertown, Mass.

Ken Brooks & Partners, Architects, South 121 Wall Street, Spokane, Washington, have announced the formation of a partnership for the practice of architecture, urban design and environmental planning. Partners are: **Kenneth W. Brooks, F.A.I.A.; Joseph M. Hensley, A.I.A.; Frederick L. Creager, A.I.A. Donald F. Trail, A.I.A.** is an associate.

The Cedar Rapids, Iowa firm of **Brown Healey Bock, Architects—Engineers** and **Herman Thompson Associates, Landscape Architects—Urban Planners** have recently merged to form **Brown Healey Bock, Architects—Engineers—Planners.** The firm's principal office is located at 3413 Mt. Vernon Road S.E., Cedar Rapids. **Herman W. Thompson, A.S.L.A.** is in charge of the new department of landscape architecture and planning.

Formation of **The Compla Corporation,** succeeding the San Francisco architectural and planning firm, **Hayes, Smith, Trockey and Blair,** has recently been announced. Offices are at 70 Broadway, San Francisco.

David Dambowic has been appointed executive architect in the New York office of **Charles Luckman Associates. Michael G. Bobick, A.I.A.** has joined the firm as a design director.

Leon Winters is now a partner in the San Francisco office of **Dames & Moore, Consulting Engineers.**

Merrill M. Bush has been made an executive vice president of **Ellis-Naeyaert Associates, Inc.,** Warren, Michigan architecture and engineering firm. **J. Edward Genheimer** has been made a vice president and director of the industrial division.

Building Program Associates has recently announced that it has become **The Environmental Analysis Group** and that it has moved its offices to Pier 35, San Francisco and Central Building, Seattle, in order to provide an expanded range of services to its clients.

Helmut F. Geiger, principal of his own engineering and architectural firm at 1544 Irving Street, Rahway, New Jersey, has announced the appointment of **Fred Holzman** as partner and the change of the firm name to **Helmut F. Geiger & Fred Holzman, Architects & Engineer.**

Two Washington, D.C. architectural firms, **Gortner/Associates** and **Benjamin P. Elliott Associates Architects,** have moved to joint offices at 8750 Georgia Avenue, Suite

continued on page 66

Inflation curbs: some progress, but no giant steps

Current events cast their shadows before—and the courage as well as the logic of today's measures to curb inflation raise some nagging doubts

By Bradford Perkins, McKee-Berger-Mansueto Inc., Construction Consultants

It has been almost a full-time job, in recent months, to keep track of the deluge of programs and events which are likely to affect construction costs. Diversity is the order of the day, as everyone seems to have something to say about the industry's problems and how to solve them.

Three kite strings on costs: money, management and labor

Many emerging developments appear, on the surface, to be unrelated, but there are several unifying threads. Each development, as it takes place, will affect the allocation and relative strength of the construction industry's three major resources—money, contract management and labor. Basically, the potential effects can be summarized as follows:

1. Money in the form of public and private investment in construction will continue to be cut back.
2. Management will be expanded and strengthened.
3. Labor will be expanded and its power brought into perspective.

In almost any other industry, this cutback and balancing would presage a slowdown in inflation or even a decline in prices. But in construction, even if all these changes occur, there will not be any dramatic reduction in costs. Too many of the basic causes of the industry's inflation will still exist. Nevertheless, the country may be witnessing some of the first, halting steps toward greater construction price stability.

Unfortunately, part of this move toward stability is being paid for by a slowdown in several types of construction.

One of these types is public building. The refusal of local and state groups to pass more bond issues is one cause, but government policies—in particular, the tax law proposals, monetary restrictions, and budgetary cuts—are the major forces behind the slowdown.

As was pointed out in a previous article (October), the President's cutback order is not extremely important in the context of the industry as a whole. The Federally encouraged state and local cutbacks which, the cooperating states now promise, will exceed $2 billion, are potentially much more significant. The most important effects so far, however, have been those caused by tax and monetary policies.

Tax on municipal bonds, the biggest bone of contention

The House proposal to tax municipal bond interest—plus new depreciation rules—promise to make private real estate investment somewhat less attractive; but it is the municipal bond provision that has the most people upset. Senator Long's Finance Committee listened to a long line of mayors and governors adamantly opposed to Federal taxation of their bonds before it voted against recommending the provision.

This opposition is understandable, but most analysts agree removal of the tax-free status of these securities is basically sound from both a financial and a social-equity point of view. The basic argument for taxation is that the Federal government loses more money in taxes than the states and municipalities save in interest. Some experts claim the ratio is $2 to $1. Moreover, the tax-free status benefits only the higher-income investor. For example: A person in a 25 per cent tax bracket investing in a six per cent municipal bond receives the same return after taxes as he would from an eight per cent corporate bond. Therefore, the tax-free status benefits only those in tax brackets above 25 to 30 per cent.

The House provision would partially close this major "loophole" and yield approximately $80 million a year additional.

Unfortunately, the current effect of the proposal has been chaos in the $130-billion municipal bond market. Private investors are hesitant to buy low-interest bonds which may be taxed, and mayors and governors are irate because they cannot sell their bonds at an acceptable interest rate. Until the provision is finally defeated or until a law which meets the many objections to the current proposal is passed and operating, the municipal bond market will continue to suffer. Even the Nixon-Johnson idea for a Federal bank, which would help the market by buying up state and local bonds, cannot be instituted soon enough to bring relief. So, in the meantime, hundreds of millions of dollars of state and local public projects will continue to be postponed.

Not all of the postponements are due entirely to this one tax proposal. Equally damaging are the legal ceilings placed on interest rates in some areas. Illinois, for example, has not been able to sell bond issues because of a 6 per cent limit placed on the issues' interest rates.

Private builders are facing inhibitions similar to those of states and cities. State usury laws are restricting the private mortgage market. Housing starts have nosedived to the second lowest level since the end of World War II, but this is not due only to the high cost of money. Probably more important are the legal ceilings on the interest an individual can be charged—as low as 7 per cent in some states. A recent study by the Advance Mortgage Corporation of Detroit showed no decline in housing starts in states where buyers were free to pay whatever interest rate the market required. Virtually all of the decline was concentrated in nine states where ceilings are stringent.

Some private sectors are digging in heels

Most of the above cutbacks are involuntary. Private industry, on the other hand, is beginning to show signs that it is considering a voluntary slowdown. For example, most of the entrepreneurs behind the New York building boom that will add over 60,000,000 square feet of office space to Manhattan's inventory by 1972, no longer seem so bullish. They note that the boom is far from over, but the new tax provisions and the tightness of money are making new project

ARCHITECTURAL BUSINESS THIS MONTH

proposals appear less and less attractive.

What could be a more important development is that what dollars are spent in the future will be spent more carefully. Some of the nation's major private purchasers of construction have banded together under the former chairman of U.S. Steel, Roger Blough, to make up an informal communication group on construction inflation. This group will attempt to analyze industry inflationary problems; educate owners not to add to them through unrealistic completion dates, unnecessary overtime, and authorization, in the name of expediency, of inefficient and detrimental practices, and also has a goal of helping counterbalance the power of the building trades unions.

Overall, if the combined restriction and redirection of public-agency, private-individual and corporate purchasing of construction continues, the industry might begin to experience a real slackening in demand. This cutback will not be felt immediately, but when it is, the drop in construction should make contractors shave the premiums they now demand to work on any project.

This will slow industry inflation, but the cost in unfilled social and economic needs will of course be considerable.

Needed: management and labor to build more for less

In order to build more while it begins to control inflation, the country will need a major expansion of both of its other two construction resources—management and labor. Several recent developments promise to bring about increases in both areas:

One is the recent move of hundreds of companies into construction. Numbered among these firms are many of the nation's largest corporations. The most visible baits for this increase in the industry's management-manufacturing resources are the nation's unfulfilled housing needs and HUD's Operation Breakthrough. Over 525 companies submitted proposals to build Breakthrough's first prototype groups of industrialized housing in HUD's regional showcases. In addition, HUD Secretary Romney has concentrated his considerable energies on this project in an attempt to make it succeed. If successful, this program will not only increase the number of housing units that can be built annually, but perhaps more importantly it will bring stronger, more sophisticated management and lower-cost labor into the construction field.

The barriers to Operation Breakthrough's success are major, however (see "Toward 'a Decent Home . . . For Every American Family' " RECORD, October). Local building codes, labor unions and many other powerful forces are standing in the way. The barrier which may prove most important, though, is public acceptance. People will not buy some of the allegedly advanced designs; and the traditional ones are not inexpensive. One prefabricated townhouse program in Akron, Ohio, being cited in the business press as a model, is typical. The houses, which are acceptable in appearance, will cost $17,000 exclusive of land and financing costs. This is still far out of a low-income family's price range—unless they have substantial subsidies.

But even if Romney's project cannot break through these barriers, something will have been accomplished. Many of the companies this program encouraged to enter the industry claim they are in construction to stay. In an industry that has sorely needed new labor, new management and new ideas, this may be an important development in competitive cost control.

A second development welcomed in the management area is the new strike insurance plan unveiled this summer by an Associated General Contractors' Committee. Right now, many contractors cannot afford a strike and so they quickly capitulate to unreasonable union demands. The plan is designed to change this by providing the contractors with a financial cushion during work stoppages.

Strike insurance is not a cure-all, however. The plan is not going to add much bargaining strength to the contractors nor is it going to bring dramatic deceleration in wage gains. Many increases have already been built in by this year's contracts and several unions who will bargain next year are preparing to fight the plan. In addition, if contractors can continue to pass costs along to the owners next year as they can now, it will still be more profitable for many of them to settle rather than fight.

Nevertheless, the plan is a step in the right direction. It just may begin to encourage more temperance on the part of the building trades and more courage on the part of the contractors.

Equal in importance to the developments which increase and strengthen the nation's construction management resources are those which increase the labor pool and curtail some of the building trade unions' more restrictive practices. The building trades are far from the only culprits in the industry inflation, but some of the recent developments that promise to bring about significant changes in labor conditions should be beneficial for costs and the industry as a whole.

The introduction of year-round factory labor is only one of the developments that could induce the construction unions to be more reasonable.

U.S. seeks curbs on seasonality and strikes

Government actions directly in labor affairs have a positive effect. One government group, for example, is studying techniques to reduce seasonality—a basic problem for both construction and labor. In addition, Congress has passed limited legislation to discourage union boycotts of prefabricated products.

These ideas have some merit, but an action which received what was probably an undue amount of fanfare was the Administration's creation of the Construction Industry Collective Bargaining Commission. The primary role of the panel, which is comprised of top-level officials from government, labor and industry, is to study industrial problems and to find ways to relieve the inflationary pressures caused by the large number of strikes.

Minority employment drives may stabilize, not reduce costs

The black drive for more jobs in construction promises to be one of the most important developments in the recent history of the industry. The "Black Monday" demonstrations in Pittsburgh and elsewhere, the powerful force of the civil rights movement, an administration willing to confront entrenched union restrictions, the rapidly rising number of unemployed and the general public disenchantment with the building trades might be enough to finally liberalize union hiring practices.

The government is helping this effort by pushing the Philadelphia Plan. Under this plan, contractors working on Federally assisted projects will be required to meet prescribed minority quotas ranging from four per cent this year to 26 per cent in 1973. The pilot program in Philadelphia began in October and it will be repeated in other cities in the near future.

There has been strong resistance to the Philadelphia Plan as well as the other parts of the minority employment drive. If this opposition is overcome, there should be an important expansion of the nation's labor resources. The construction unions currently are only about eight per cent black, and most of the blacks are in the lower paying trades. Negro membership in the critical, high-skill unions, such as the carpenters and plumbers, is usually under two per cent. If their number increases to a level anywhere near their percentage in the total urban population, that will represent a significant expansion of the labor force.

It should be pointed out, however, that even a major increase in the labor supply will not affect future union wage demands significantly, but contractors may not have to guarantee overtime and other premiums just to staff their projects. What is more important, there could be enough labor to build all projects. This return to normality will allow contractors to predict their project costs more accurately. The uncertainty existing today, which is due in part to the labor shortage, has been a major cause of the inflated bids suffered by many owners.

Overall, therefore, there is some potential for progress contained in recent developments. Unfortunately, progress purchased in part by cutting back on needed public and private projects may not be worth the price. Real relief will only come when there are sweeping changes in the industry. Until then, the small steps being taken now will only slow, not stop, the upward spiral of construction inflation.

INDEXES AND INDICATORS

William H. Edgerton
Dodge Building Cost Services
McGraw-Hill Information Systems Company

BUILDING COST INDEXES

The information presented here indicates trends of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). Information is included on past and present costs, and future costs can be projected by analysis of cost trends.

The indexes are computed on a basis of 40 per cent labor rate and 60 per cent materials price. Wage rates for nine skilled trades, together with common labor, are used. Prices of four common building materials are included for each listed city.

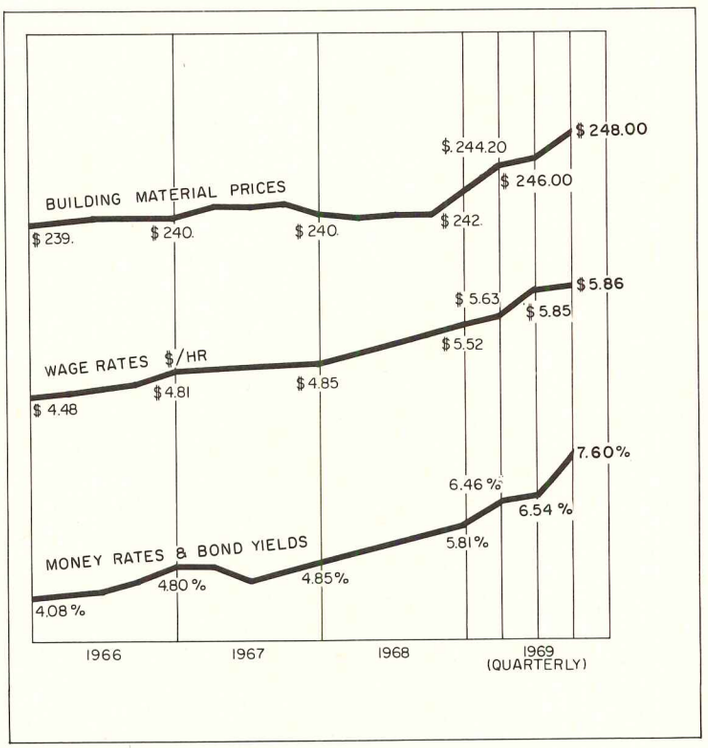
DECEMBER 1969

Metropolitan area	Cost differential	Current Index residential	Current Index non-res.	% change year ago res. & non-res.
U.S. Average	8.6	316.9	337.6	+ 7.45
Atlanta	7.4	365.6	387.8	+ 8.66
Baltimore	7.9	308.0	327.6	+ 4.51
Birmingham	7.4	285.2	306.6	+ 6.63
Boston	8.4	281.6	298.1	+ 6.41
Chicago	8.9	342.5	360.2	+ 4.78
Cincinnati	9.1	309.8	329.3	+ 7.62
Cleveland	9.8	341.0	362.4	+ 7.98
Dallas	7.7	300.8	310.7	+ 9.47
Denver	8.2	321.7	341.9	+ 8.40
Detroit	9.4	339.1	356.0	+11.50
Kansas City	8.3	282.1	298.6	+ 6.24
Los Angeles	8.4	320.7	350.9	+ 7.42
Miami	8.5	316.8	332.5	+ 7.82
Minneapolis	8.7	314.2	334.1	+ 6.83
New Orleans	8.0	283.8	300.7	+ 8.29
New York	10.0	326.9	351.6	+ 7.11
Philadelphia	8.6	308.5	323.8	+ 6.35
Pittsburgh	9.2	295.1	313.7	+ 5.76
St. Louis	9.1	309.8	328.2	+ 6.62
San Francisco	8.7	411.3	450.0	+ 9.45
Seattle	8.5	291.1	325.3	+ 8.64

Differences in costs between two cities may be compared by dividing the cost differential figure of one city by that of a second; if the cost differential of one city (10.0) divided by that of a second (8.0) equals 125%, then costs in the first city are 25% higher than costs in the second. Also, costs in the second city are 80% of those in the first (8.0÷10.00=80%) or they are 20% lower in the second city.

ECONOMIC INDICATORS

Indicators are intended to show only general direction of changes.
BUILDING MATERIALS—The U.S. average price of a "package" of common materials.
WAGE RATES—The U.S. average wages of nine skilled trades and common labor. Fringe benefits are included.
MONEY RATES AND BOND YIELDS—An arithmetic average of the latest prime rate, short term prime commercial paper rates, and state and local government AAA bond rates.



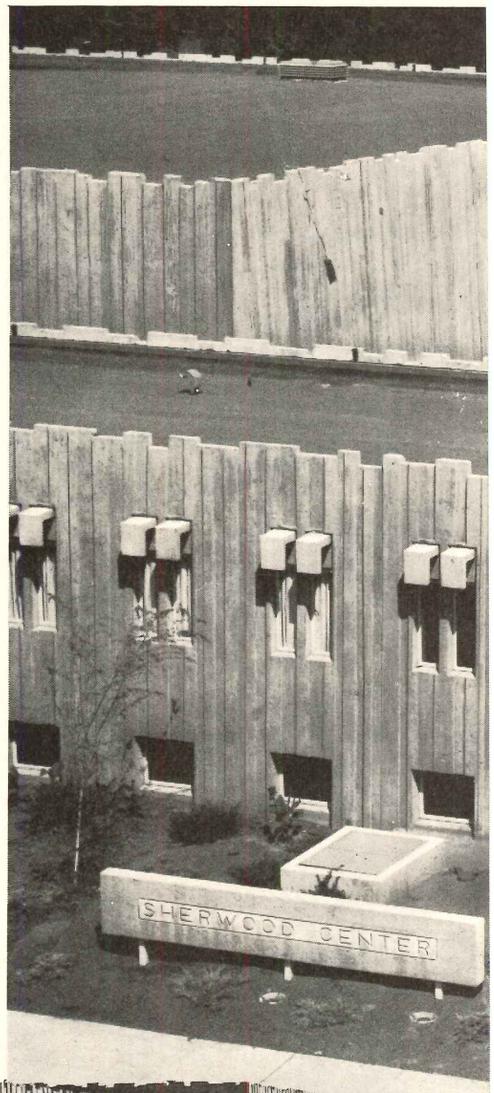
HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES

1941 average for each city = 100.00

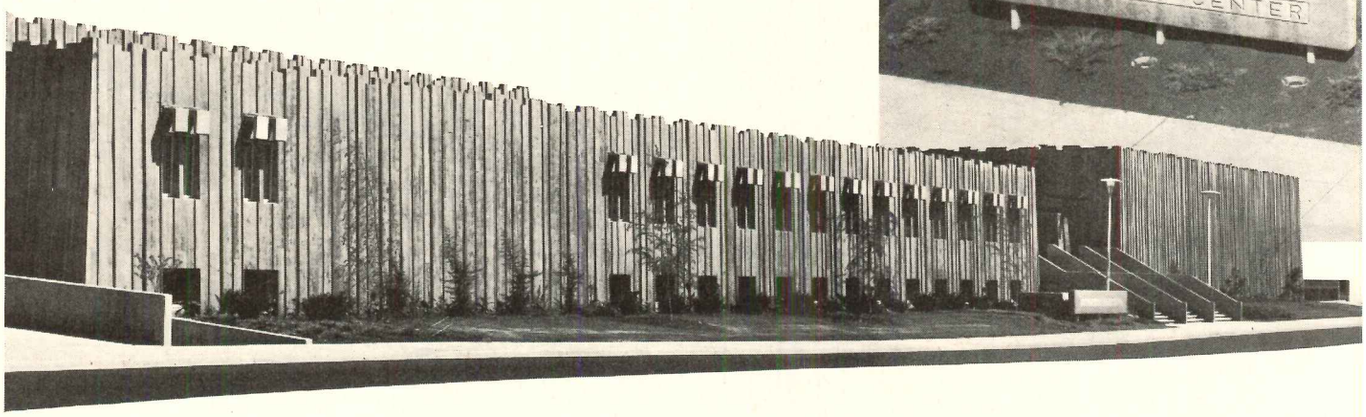
Metropolitan area	1961	1962	1963	1964	1965	1966	1967	1968 (Quarterly) 1st	1968 (Quarterly) 2nd	1968 (Quarterly) 3rd	1968 (Quarterly) 4th	1969 (Quarterly) 1st	1969 (Quarterly) 2nd	1969 (Quarterly) 3rd	1969 (Quarterly) 4th
U.S. Average	264.6	266.8	273.4	279.3	284.9	286.6	297.5	301.5	302.6	309.3	310.0	314.9	316.5	332.4	
Atlanta	294.7	298.2	305.7	313.7	321.5	329.8	335.7	345.6	346.7	352.3	353.1	364.2	365.9	382.8	
Baltimore	269.9	271.8	275.5	280.6	285.7	290.9	295.8	302.9	304.1	307.9	308.7	311.4	313.0	321.8	
Birmingham	249.9	250.0	256.3	260.9	265.6	270.7	274.7	278.5	279.5	283.6	284.3	288.4	289.9	302.4	
Boston	237.5	239.8	244.1	252.1	257.8	262.0	265.7	269.3	270.3	276.3	277.1	278.2	279.6	294.0	
Chicago	289.9	292.0	301.0	306.6	311.7	320.4	328.4	329.4	330.0	338.7	339.5	340.4	342.1	354.9	
Cincinnati	257.6	258.8	263.9	269.5	274.0	278.3	288.2	291.4	292.5	301.8	302.6	309.8	311.5	324.8	
Cleveland	265.7	268.5	275.8	283.0	292.3	300.7	303.7	316.5	318.3	330.7	331.5	334.9	336.7	357.1	
Dallas	244.7	246.9	253.0	256.4	260.8	266.9	270.4	272.3	273.4	281.0	281.7	287.2	288.7	307.6	
Denver	270.9	274.9	282.5	287.3	294.0	297.5	305.1	304.9	306.0	311.7	312.5	317.9	318.5	337.9	
Detroit	264.7	265.9	272.2	277.7	284.7	296.9	301.2	309.2	310.4	315.5	316.4	326.8	328.5	351.8	
Kansas City	237.1	240.1	247.8	250.5	256.4	261.0	264.3	267.5	268.5	277.2	278.0	281.0	282.3	294.5	
Los Angeles	274.3	276.3	282.5	288.2	297.1	302.7	310.1	312.0	313.1	319.3	320.1	323.7	325.4	343.0	
Miami	259.1	260.3	269.3	274.4	277.5	284.0	286.1	293.1	294.3	304.5	305.3	309.6	311.2	328.3	
Minneapolis	267.9	269.0	275.3	282.4	285.0	289.4	300.2	300.0	301.0	309.0	309.4	310.6	312.2	330.1	
New Orleans	244.7	245.1	248.3	249.9	256.3	259.8	267.6	270.6	271.6	273.9	274.2	285.5	287.1	296.6	
New York	270.8	276.0	282.3	289.4	297.1	304.0	313.6	315.9	317.0	320.6	321.4	324.9	326.6	343.4	
Philadelphia	265.4	265.2	271.2	275.2	280.8	286.6	293.7	293.3	294.2	300.9	301.7	304.6	306.2	320.0	
Pittsburgh	250.9	251.8	258.2	263.8	267.0	271.7	275.0	293.0	284.2	291.3	293.8	297.0	298.6	310.0	
St. Louis	256.9	255.4	263.4	272.1	280.9	288.3	293.2	293.7	294.7	303.6	304.4	306.8	308.3	323.7	
San Francisco	337.4	343.3	352.4	365.4	368.6	386.0	390.8	396.4	398.0	401.9	402.9	415.6	417.5	439.9	
Seattle	247.0	252.5	260.6	266.6	268.9	275.0	283.5	286.2	287.2	291.6	292.2	296.1	297.5	316.8	

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.0) divided by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0÷200.0=75%) or they are 25% lower in the second period.

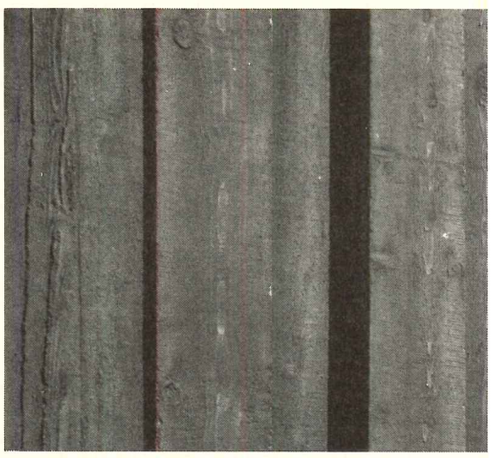
Sherwood Physical Education Center at Whitman College in Walla Walla, Washington, includes a 2000-seat gymnasium, a 6-lane swimming pool and associated physical fitness facilities. The unusual L-shaped sunshades over slit windows are cast concrete. Large concrete sign identifying the building, was cast-in-place. Concrete surrounding the "Sherwood Center" lettering is bushhammered.

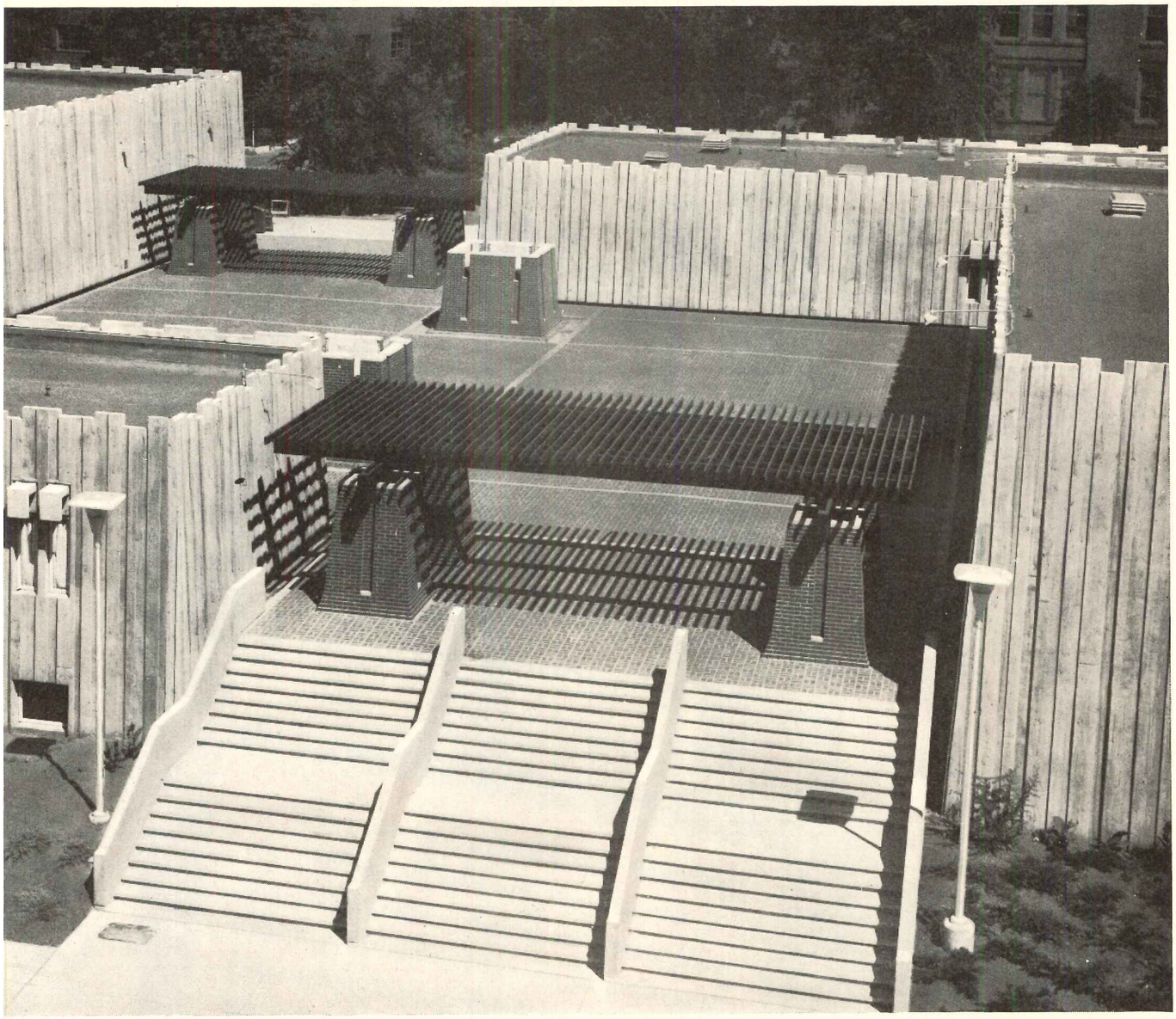


Concrete helps shape a new frontier for education.



Precast wall panels, 20′ x 30′, were cast on the jobsite. Rough board forms of random width and reveal add a warm esthetic quality to a material of known utility; a recollection of early frontier wood-plank construction restated in the idiom of today. Close-up at right is actual section of the textured concrete wall.





This new physical education complex reflects the roots of the college in pioneer history. A variety of concrete techniques were used to render the unique idea. Textured walls are precast panels. Bearing walls and some floors are cast-in-place. Other floors are prestressed single T construction. And the interior partitions are concrete masonry. Here, as in many important architectural ideas around the nation, concrete made with Lehigh Cements lends form to the designer's concept with economy and efficiency. Lehigh Portland Cement Company, Allentown, Pa.

Owner: Whitman College, Walla Walla, Wash.
Architect: Thomas R. Adkison, Architects, A.I.A. Spokane, Wash.
Structural Engineer: Andrew T. Bingham, Spokane, Wash.
Contractor: J. A. Jones Construction Co., Richland, Wash.
Sub-Contractor for Precast Walls: Boise Stone & Precast Inc., Boise, Idaho
Concrete Supplier: Jones-Scott Company, Walla Walla, Wash.
Precast T's & Sunshade Units: Ace Concrete Co., Spokane, Wash.
Concrete Masonry Units: Layrite Products Co., Kennewick, Wash.

LEHIGH

1970 Edition, STANDARD SPECIFICATIONS and LOAD TABLES

...a complete working handbook on steel joists

Open web steel joists—strong, safe, economical, versatile—are the practical answer to a wide range of construction needs. This booklet contains 32 pages of technical information for fast, accurate specification of joists to carry uniform loads on spans up to 96 feet. Includes J-Series, H-Series, LJ-Series and LH-Series joists. Send coupon today for your free copy.

STEEL JOIST INSTITUTE

STEEL JOIST INSTITUTE
7th Floor, 2001 Jefferson Davis Highway
Arlington, Virginia 22202

Please send me a copy of your 1970 edition, Standard Specifications and Load Tables for Open Web Steel Joists.

NAME_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____ 6915

For more data, circle 33 on inquiry card

CURRENT TRENDS IN CONSTRUCTION

Robert M. Young
Senior Economist
McGraw-Hill Information Systems Company

More About 1970: Regional Construction Markets

Supply, not demand; and money flow, not enterprise, are leveling out regional growth patterns as population shifts ease off

Perhaps the most striking aspect of next year's regional construction outlook is the small degree of differences among regional shifts in the volume of building activity. The changes in the value of construction contracts are expected to range from a two per cent decline in the Northeast to gains of only three per cent in the South and West. This is in contrast to a range of from plus three to 18 per cent in 1969 and similar differences in earlier years.

One of the reasons that regions normally show wide variations in the growth of construction activity is that major projects, such as electric generating facilities, tend to appear irregularly, thus exerting a fairly strong influence on year-to-year trends. Of equal or greater importance, however, are regional variations in demand for new housing, stores, schools, offices and other types of construction due to population and employment growth and changes in other types of economic activity. Thus, heavy migration to the West was reflected in sharply rising construction volume in that region in the early Sixties, while the Northeast has benefited the most from a recent surge in demand for new office space.

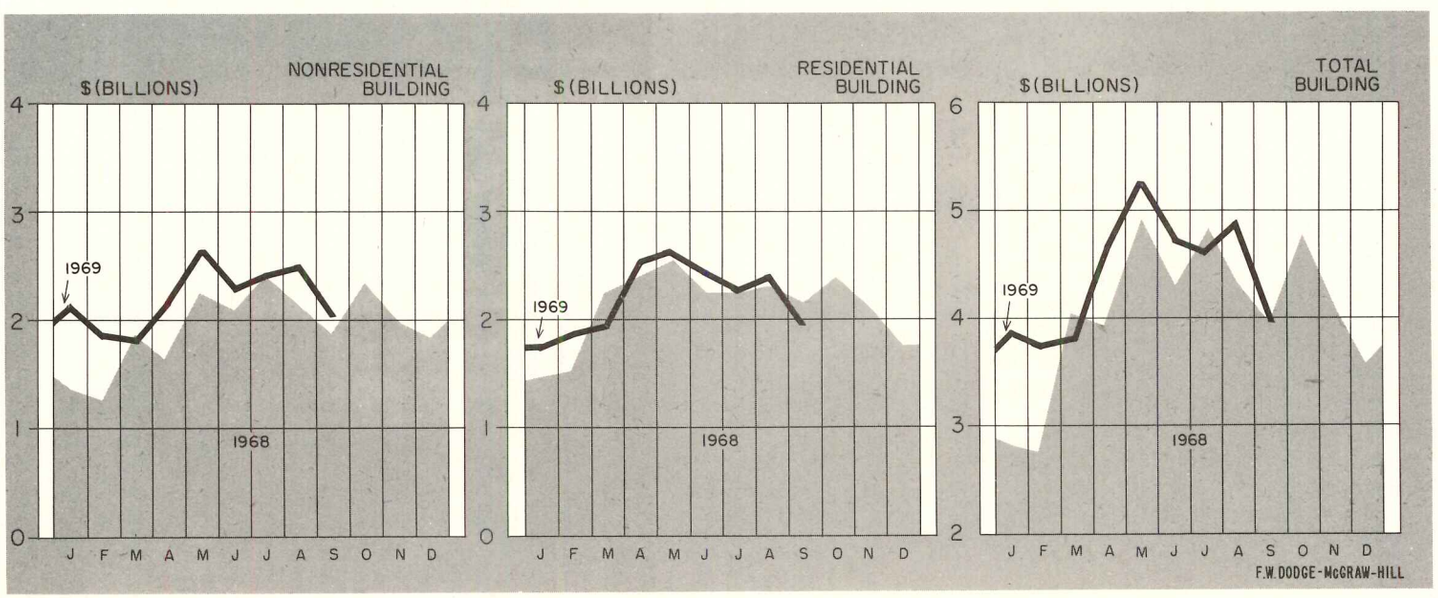
The fact that variations in regional construction patterns depend so much on *demand* factors gives us the first clue to the small range of expected changes in building activity next year. The 1970 construction markets will be determined more by *supply* factors than they have at any time in recent years. And these factors will be bearing down with almost equal force throughout the nation.

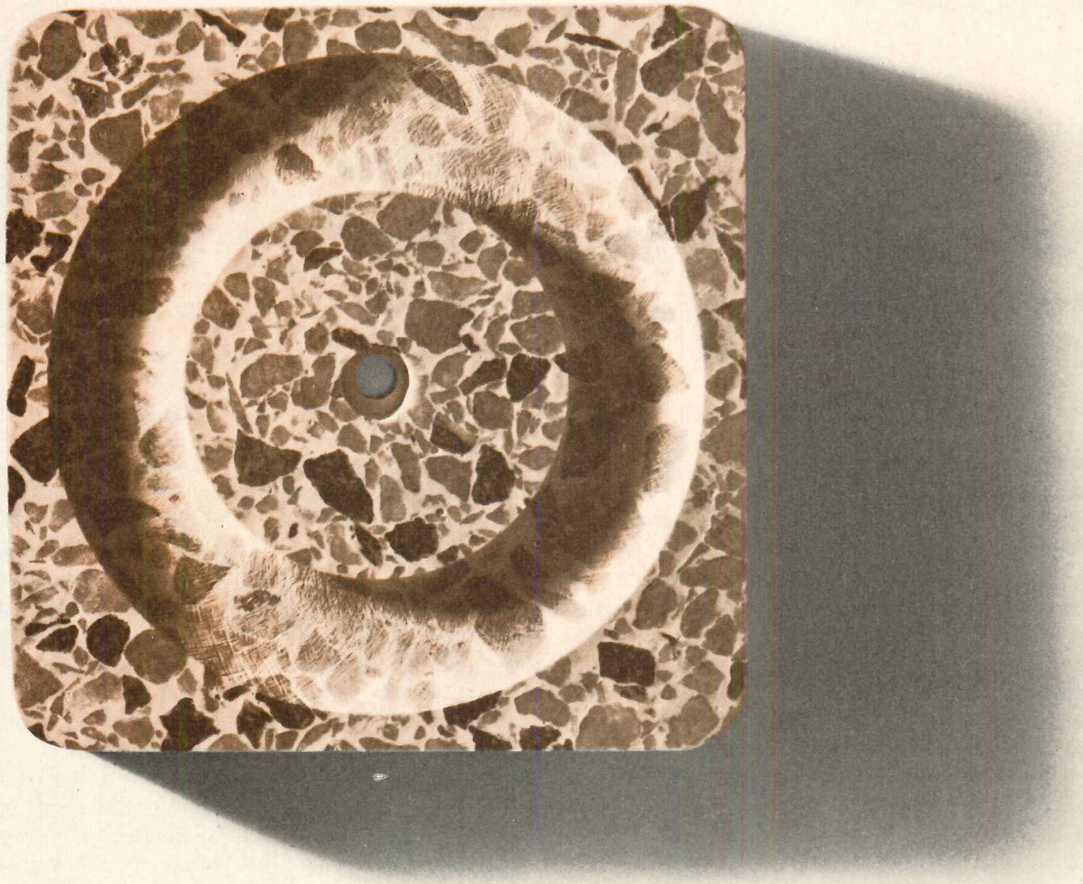
The equity financing commitments made by institutional investors that helped sustain apartment construction in Florida and other parts of the country in 1968 are drying up, and no new ones are being made. Mortgage money for single family homes—still available in those areas where allowable interest rates are competitive—will be scarcer throughout the nation until monetary policy is eased, hopefully next spring. Lower corporate profits, proposed tax reform and a depressed bond market will affect all types of industrial investment. Finally, Federal budget cutbacks will not honor regional boundaries, and most state and local governments will feel the pinch of prohibitive municipal bond rates.

The fiscal and monetary restraints expected in the early part of 1970 will be enough to iron out most of the usual differences in regional construction changes. In addition to these, however, shifts have been taking place in the basic economic growth patterns that affect the demand for new building in various parts of the country. For example, population growth in the 1960-68 period ranged from an annual average of 0.8 per cent in the Midwest to 2.4 per cent in the West, with the Northeast and South both falling halfway between the two extremes. By 1969, however, the Midwest continued to grow at the same rate, while in the West the gain had dropped to 1.5 per cent —just barely above that in the South. The reduction in migration implied by these trends removes an important source of regional differences in new construction—the provision of new housing and supporting commercial and public facilities for rapidly increasing populations.

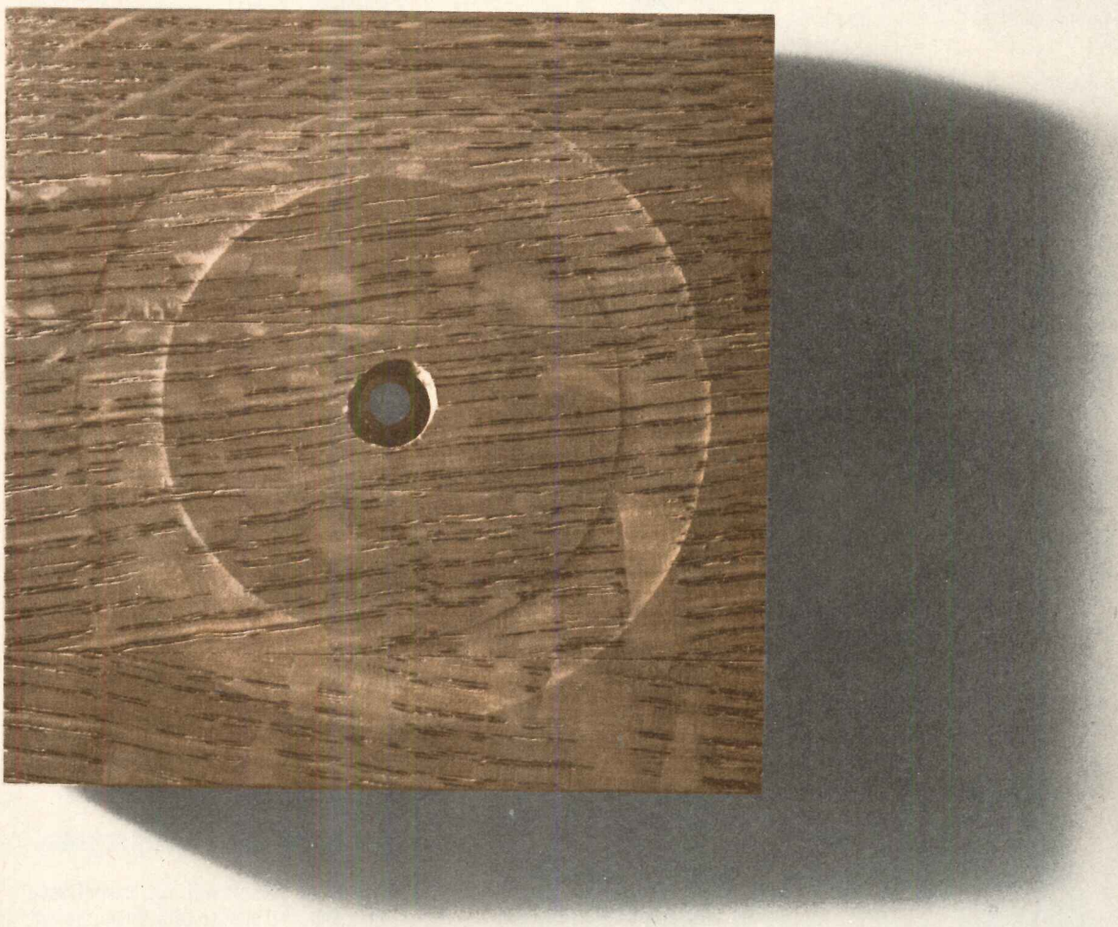
Despite the fairly narrow range of growth among *regions* expected in 1970, individual metropolitan areas should show a wide variety of growth patterns. And here, demand will be playing a bigger role, as available construction funds are channeled into those areas with the greatest need for new construction. Chicago, Los Angeles and San Francisco appear to be poised on the edge of office building booms similar (in growth, if not size) to the one that recently passed through New York. On a smaller scale, a good bit of office planning is going on in Dallas, Atlanta, Miami, Houston and Columbus, as well as other cities.

Building activity: monthly contract tabulations





This is epoxy terrazzo. It was just given 4000 wear cycles with a Taber Abraser.



This is PermaGrain.™ Ditto.

PermaGrain is not ordinary wood.

It's genuine red oak impregnated with a liquid plastic, which is then hardened throughout the entire wood-pore structure by atomic irradiation.

The test shown here, performed on a section of a PermaGrain tile, indicates just how tough it is. In a standard ASTM test (D-1044), depth of track was 50 mils in the terrazzo, 8.5 mils in the PermaGrain. In a series of tests, PermaGrain was proven to be 6 times more durable than epoxy terrazzo.

Obviously, this is important news for architects. It means that you can now specify real wood floors for high-traffic areas like lobbies and corridors in commercial buildings, stores, churches and schools.

When you install flooring, you install a surface. The surface in PermaGrain goes right through the entire 5/16-inch thickness of the 12 x 12 tile. PermaGrain is completely sanded and buffed at the factory. It requires no filling, sealing, staining, varnish, shellac or waxing. The result: very low maintenance cost.

PermaGrain is available in five colors: Natural, Provincial, Americana, Barcelona and Gothic. It is now being installed in a wide variety of applications. Its installed price is comparable with other high-quality materials like terrazzo, vinyl and urethane.

If you want more information, or an actual sample of PermaGrain, please write:

ARCO Chemical Company
Division of AtlanticRichfieldCompany
260 South Broad St.
Philadelphia, Pa. 19101

an ARCO-NUMEC product

For more data, circle 34 on inquiry card

The Pan Am Building, N.Y.C.,
Architect: Emery Roth & Sons, N.Y.C.
General Contractor: Diesel Construction N.Y.C.

What a difference the Seal makes...

TESTED* AND APPROVED SEALANT BASED ON Thiokol® LP® POLYSULFIDE POLYMER
MANUFACTURED BY LICENSEE OF THIOKOL CHEMICAL CORPORATION

*The manufacturer warrants by affixing this label that this product is a duplicate of materials independently tested and approved by, and in accordance with standards established by Thiokol Chemical Corporation

THIOKOL'S SEAL OF SECURITY means that the sealant product wearing it is supported by the industry's first and only full-service quality assurance program.

When you choose sealant with the Seal of Security on the label, you choose total weatherproofing protection.

The Seal symbolizes a Thiokol leadership program to raise sealant quality...to keep it at a level pacing or exceeding environmental service requirements of joints and building materials.

Behind the Seal lies a new standard of excellence for joint sealants established by Thiokol, extending professionally accepted specifications and supported by a monitoring program aimed at continuity of quality. Materials both from production runs and random selection at job sites are lab tested on a regular basis for conformance. Only compounds based on LP® polysulfide polymer meeting the standard earn the Seal. Only those maintaining standard keep the Seal.

The materials must provide steel-grip bonding, rubbery flexibility, highest resistance to weather, wear, and aging...must be capable of weatherproofing totally all joints, in all climates, under all service conditions, on a long-term basis. That's the difference the Seal makes. Get the facts. Write Thiokol.

Only LP® polymer based sealant offers assurance of quality—for new and remedial work

Thiokol
CHEMICAL CORPORATION
780 N. Clinton Ave., Trenton, New Jersey, 08607

For more data, circle 35 on inquiry card

if you have time to qualify a precast or prestressed concrete producer, fine.

if not, look for this label!

You put your professional reputation on the line whenever you specify an architectural or structural material. So, it pays to work with a qualified source.

Qualifying a producer of prestressed concrete or precast architectural panels could take a bit of doing. On your part.

A far easier, yet completely reliable way, is to look for the PCI Certified Plant symbol. It tells you three things. 1. The producer who displays it has demonstrated his capability to produce quality products to the satisfaction of a nationally recognized, independent consulting engineering and inspection firm engaged by PCI for the required annual inspections. 2. The rigid inspections his plant and personnel have passed are based on the PCI Manuals for Quality Control. 3. He, therefore, has *confirmed capability*.

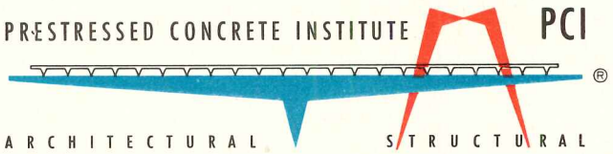
Three times during the course of each year, the producer is tested and graded on his aggregate stockpiles, concrete mixing, placing, and transporting. Tensioning and detensioning of beds, curing procedures and temperature controls, stripping, stockpiling, and inspection of product are among the items carefully observed. In addition, engineering, shop drawings, test record keeping and many other practices related to quality production are examined.

Failure to maintain acceptable standards makes decertification mandatory.

Fairness demands that no thoroughly tested, reliable producer be eliminated as a possible source for concrete products simply because his plant is not PCI certified. By the same token, acknowledged confidence should be in order for the plant with PCI Certification capability credentials.

To repeat, if you have the time and budget to qualify a producer, fine. If not, look for this label.

As plants are awarded certification, their names are added to a continually updated list we'll be happy to send you. Best time to ask us for it is *before* you get too deeply into your next project.



205 WEST WACKER DRIVE / CHICAGO, ILLINOIS 60606

For more data, circle 36 on inquiry card

continued from page 53

125, Silver Spring, Maryland, and have formed a new firm, **Benjamin P. Elliott, A.I.A., Willis A. Gortner II, A.I.A., Associated Architects and Planners.**

Frederick Grieger, Arnold Schwarzbart and **Shan Wilcox** have announced the opening of **GSW Architecture and Planning,** located in new offices at 517½ Market Street, Knoxville, Tennessee.

Wallace B. Berger, A.I.A.; Barnard A. Fischer; Irving L. Levett; Paul Silver, A.I.A.; and **Murray Sput, A.I.A.** have been named associate partners of **Gruzen & Partners,** architects, planners and engineers of New York and New Jersey. Promoted to the position of associate were **Harold E. Ehrenberg** and **Paul Willen, A.I.A.**

Harbeson Hough Livingston & Larson, Philadelphia architects, have announced that **John Malanga** and **Leon R. Brooks** are now associates in the firm.

Wesley L. Hessler has been appointed associate in the firm of **Wallace Holm and Associates** of Monterey, California.

The architectural firm of **Kamnitzer & Marks** is now known as **Kamnitzer/Marks & Partners.** New partners are **Matthew Goodwin, A.I.A., John G. McKinney and Fredrick K. Lappin.** Offices are moved to 1627 Pontius Avenue, Los Angeles.

Thomas Albert Kamstra, A.I.A., Architect, Robert I. Abrash, A.I.A., Architect and Beckham W. Dickerson, Jr., Associate A.I.P., Planner announce the formation of **Kamstra Abrash Dickerson & Associates,** 417 West Broad St., Falls Church, Virginia.

Chartier Newton, A.I.A. has become an associate in the Texas firm of **Van Ness and Mower, Architects.**

The formation of **Omnitech Inc., Consulting Engineers, Architectural & Interior Designers** has recently been announced. Principals are **Philip F. Healy,** president, and **Higinio Martin,** vice president. Main offices are at 600 Route 23, Pompton Plains, New Jersey.

The formation of a new firm, **Michael Painter and Associates,** 55 New Montgomery Street, San Francisco, has recently been announced. Principals of the new environmental design firm are **Michael Painter, Jerrold Mitchell** and **Hillar Falk.**

Robert W. DeVore and **Charles F. Rogers II** have become partners in the firm of **Perry, Dean and Stewart, Architects,** Boston. Newly named associates are: **Peter L. Butler, Garrold E. Baker, Gilbert V. Boro, James E. Heavey, Robert Marks** and **Peter A. Ringenbach.**

Samborn, Steketee, Otis and Evans, Toledo, Ohio engineers and architects, have recently established a new department of urban planning and design to be headed by **Walter T. Edelen.**

Architect **Joseph W. Santamaria** has recently joined **Clovis Heimsath, A.I.A.,** Houston, as an associate.

Setter, Leach & Lindstom, Inc., Minneapolis architects and engineers have formed a new interior design department headed by architect **Dan R. Fox.**

Donald C. Smith, A.I.A. and **Walter A. Costa, A.I.A.** are now general partners of **Skidmore, Owings & Merrill, Architects.**

The architectural firm of **SBC Design, Inc.,** has changed its name to **Robert H. Skinner & Associates** and announced an extension of its services in the fields of site planning, architecture, engineering and interior design. The firm continues to occupy headquarters at 11570 West Olympic Boulevard, Los Angeles.

Charles S. Spector, A.I.A., Architect has announced his association with **Michael Harris Spector, A.I.A., Architect,** Great Neck, New York and New York City.

Robert G. Stevens is now an associate member of **Beardsley & Beardsley, Architects** of Auburn, New York.

Hugh Stubbins and Associates, Cambridge, Massachusetts architectural firm, has recently appointed five new associates: **W. Easley Hamner, A.I.A.; Robert A. Palermo; Amiel Vassilovski; Julius Loewy** and **Sebastian L. LaBella. Peter Woytuk, A.I.A.** has been appointed a vice president.

William B. Tabler, F.A.I.A., New York City, has announced the promotion of four associates as principals: **Eugene R. Branning, A.I.A.; David P. Dann, A.I.A.; John C. Mayer** and **John B. Robinson.**

continued on page 80

These light fixtures are 2′ x 4′.
Picture them as 1′ x 4′.

Or 1′ x 1′ or 2′ x 2′ or 3′ x 3′. Fact is, any of these standard troffers fit the new C-60/60 Luminaire Ceiling System by Armstrong. So now a room can have special design and lighting effects or meet a variety of lighting requirements without sacrificing the advantages of an integrated ceiling system. With Armstrong C-60/60, all that need be changed is the lighting function. C-60/60 (the accommodating square) and other ceiling innovations are described in our folio. Please write for a copy. Armstrong, 4212 Rock St., Lancaster, Pa. 17604.

Armstrong
Ceilings Systems that work

Or for more data, circle 1 on inquiry card.

30 voice power

in a 30-man meeting...

Today, whether the meeting is a businessmen's seminar, a teachers' workshop, or a debate on the floor of a State House, *everybody* wants to be heard. They *will* be heard, if each participant has his own microphone. That's the Shure concept of Total Communications: Every man with something to say has a microphone close at hand . . . so he *can* be heard.

To meet these changing concepts of modern meeting dynamics, Shure offers a broad range of specialized microphones, along with a selection of unique microphone mixers and associated circuitry products that let you connect those microphones through a single amplifier and loudspeaker set-up.

For you, they're easy to install. For your customers, they're easy to use. And for the people with things to say, they're a must!

SHURE

TOTAL COMMUNICATIONS

Shure Brothers Inc., 222 Hartrey Avenue, Evanston, Illinois 60204

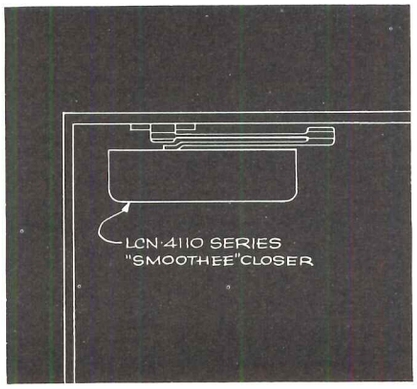
For more data, circle 38 on inquiry card

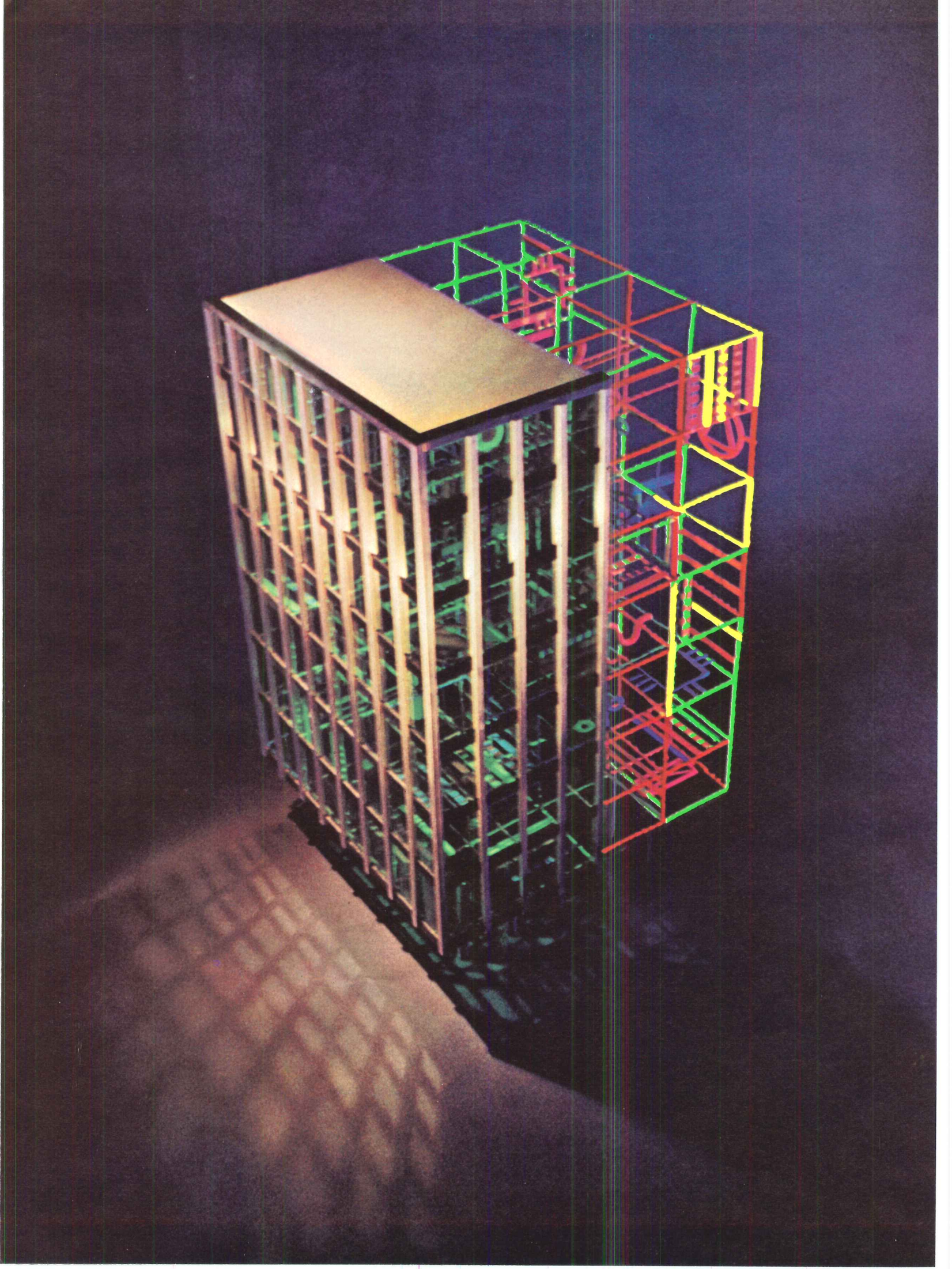
Oakland-Alameda County Coliseum, Oakland, California. Skidmore, Owings & Merrill, Architects/Engineers, San Francisco.

Get your doors ready for action

with LCN Smoothee® surface-mounted door closers. "Smoothees" are famed for the flawless door control they provide . . . for their simple good looks . . . for the way you can count on them for year-in, year-out, trouble-free, attention-free service. Look them up in Sweet's—or write: LCN Closers, Princeton, Illinois 61356.

For more data, circle 39 on inquiry card





Your building. More than a building. A vital, life-supporting environment, shaped by the design, energized by electricity—an Electro-environment.

Your design. More sophisticated than the last one because that's the nature of technology. Particularly electrical technology.

Your challenge. To profit from the benefits of the Electro-environment—and to make your design statement with the confidence that the industry is ready to support you.

The Qualified Electrical Contractor is ready. Ready to translate your ideas, your designs into a working, functioning reality.

Supplying, installing and maintaining the Electro-environment is his business. The Qualified Electrical Contractor advances with the state of the art.

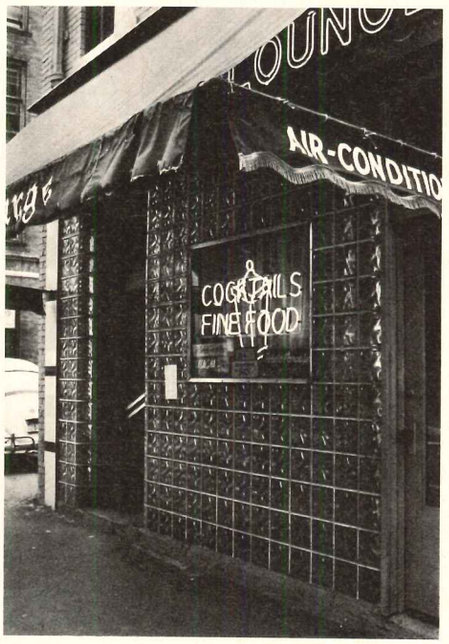
Your challenge is his challenge.

The challenge of the Electro-environment

The Qualified Electrical Contractor makes the Electro-environment work.

NECA. National Electrical Contractors Association.
1730 Rhode Island Avenue, N.W., Washington, D. C. 20036

IF YOU THINK GLASS BLOCK STILL LOOKS LIKE THIS



YOU'D BETTER

You'll see exciting new designs in sculptured patterns like Pittsburgh Corning's newest glass blocks — CHIARO. Alfred Clauss, A.I.A., of Bellante, Clauss, Miller and Nolan, the architect, used Chiaro in the lobby of Piper Aircraft headquarters in Lock Haven, Pa.

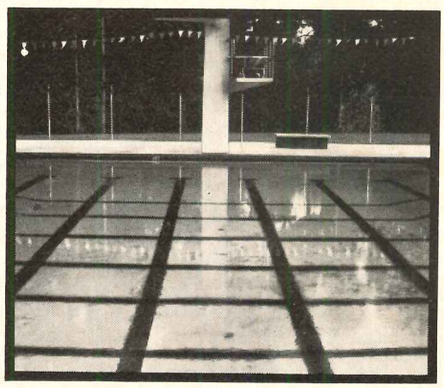
The handsome accent wall visually separates the vestibule and lobby spaces. Grille-like Chiaro creates the illusion of openness as it transmits outdoor light into the reception area. The unique pattern of the wall was designed to enhance the feeling of motion expressed throughout the building as appropriate for the manufacturer of aircraft.

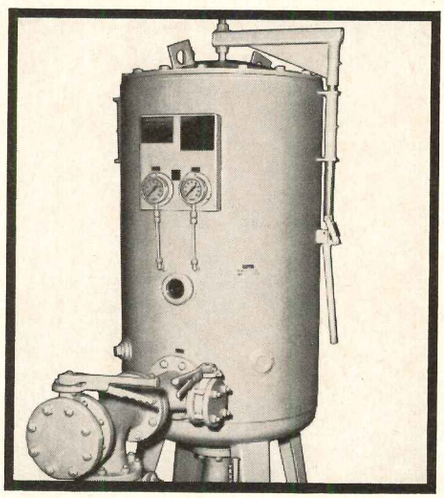
Get a closer look at new Chiaro glass blocks, PC Intaglio units and any others you may have missed. Write for our catalog: Pittsburgh Corning Corp., Dept. AR-88G, One Gateway Center, Pittsburgh, Pa. 15222.

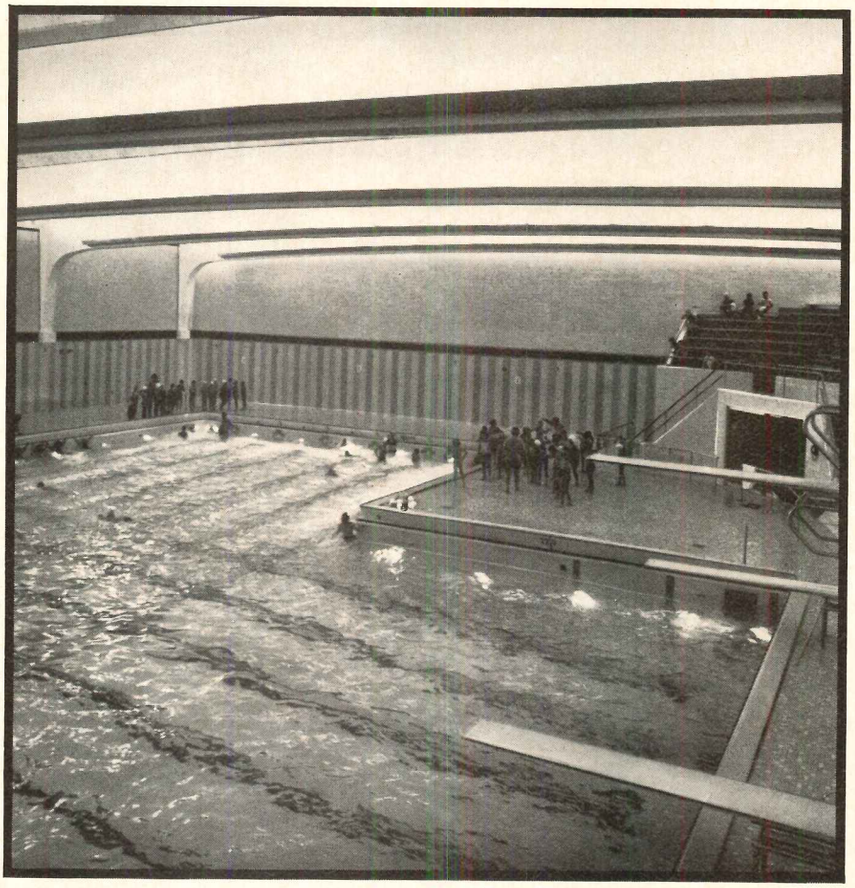
LOOK AGAIN

PITTSBURGH pc® CORNING

Besides the usual gunk, Keene filters out complaints.







Dirt, leaves, sediment of every variety...that's what a good filter has to cope with every day. And if for some reason it doesn't, then the complaints start coming in. To you. Every day.

It won't happen if you specify a Keene Model 610-E Filter for every pool you design—and make sure it goes in. The flexing action of its bags of fused-plastic STAR-COR® elements results in near-perfect cleaning during backwash. And there are no pockets for the backwash to settle in.

The 610-E is built to *keep* clearing the water, too. The bags of STAR-COR® seldom have to be changed. You could run a truck over these vertical, porous elements without harming them. And the filter's plastic components and advanced coatings fight corrosion.

The 610-E cleans up in pools of from 40,000 to 315,000 gallons. If you've got a bigger pool in mind, we've got a bigger filter. Write us at Cookeville, Tennessee 38501.

KEENE
CORPORATION

FLUID HANDLING DIVISION
Formerly Bowser Inc.

We've just begun to grow.

For more data, circle 41 on inquiry card

Globe Union, Inc.—Glendale, Wis.—Reception Area
Charles Harper and Assoc., Architects

Sears

Contract Sales Division

total interior space planning

Sears Contract Sales Division offers a complete service of interior work . . . from the initial concept of design to the creation of custom furnishings. The happy result is a "total concept" of interior decoration that is integral to the whole architectural intent.

Let us explain how we can put this "total concept" to work for you. Mail the coupon for your *free* Contract Furnishings catalog, or ask to have a Contract Representative contact you.

Sears, Roebuck and Co., Department 12AR
3609 W. Arthington Street, Chicago, Ill. 60607

☐ Send free Contract Furnishings Catalog

☐ Have Contract Representative contact me

Name_____

Company_____

Address_____

City_____ State_____ Zip_____

12AR

For more data, circle 42 on inquiry card

When it comes to setting thermostats, the girls in Martin Dorm each do their own thing.

Midwestern College, Dennison, Iowa, is a brand-new coeducational school that began in October of '65.

Now, when you start off new like Midwestern did, you can have the latest of everything.

Take Martin Dorm, for instance. Wall-to-wall carpeting, panelled walls in each room.

And to really spoil the gals, each room has its own GE Zoneline heating/cooling unit. So the coeds can set any temperature that pleases them. How's that for individuality?

But don't get the idea this is a rich kids' school. Not so. Midwestern is run on a taxpayers' budget. It's a gem of architectural efficiency.

That posh Zoneline comfort, for example, actually cost Midwestern a good bit less to install compared to traditional heating and air-conditioning systems.

True, any good zonal heating/cooling system could have done the job for Midwestern. So why was GE Zoneline the choice?

For one thing, GE service is nearby—a comforting thought to the building maintenance staff. Although with Zoneline you can keep a spare unit on hand for instant replacement. What could be easier?

The architects naturally considered GE exclusives in choosing Zoneline.

The GE rotary compressor, for instance, is much quieter than the reciprocating type generally used. Quiet enough to save a midnight complaint because of noisy air conditioning. For quietness, too, GE has a special low-speed blower.

Also nice to know, the unique GE Spine-fin coils use continuous tubing to eliminate many of the brazed joints found in most air conditioners. Every brazed joint is a potential refrigerant leak. Who needs headaches like this?

Zoneline controls are prominently located on top of the chassis, and so simple, a coed's little sister can operate them.

For added reliability, GE keeps the electrical connections of each unit on the room side of the weather barrier. Why give weather a chance at them?

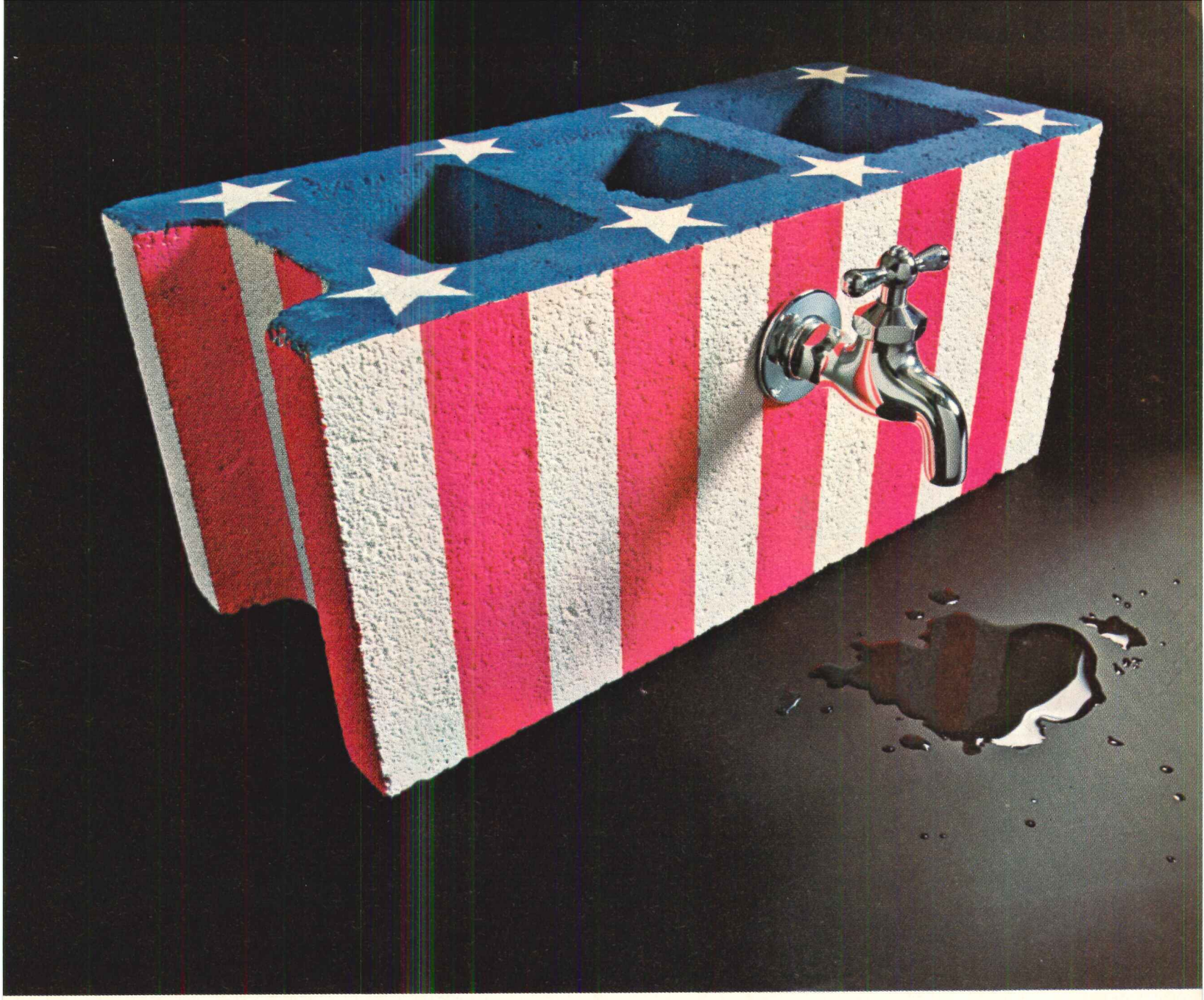
There are many more GE features the architects liked. The attractive grille, the washable air filter, the unique interior baffle, the positive seal air vent and so on.

Maybe the same features are what you're looking for in your next dormitory or office building. Find out. Check out a Zoneline application near you. Your GE Central Air Conditioning Distributor will tell you where.

Zoneline Cooling and Heating Systems.

GENERAL ELECTRIC

For more data, circle 50 on inquiry card



Keep America dry

Specify waterproof masonry coatings based on PLIOLITE® resins.

We put our sealer systems through some pretty tough tests. For example, they have to face a man-made hurricane: water driven at the equivalent of 100 mph for 8 hours. Then they have to meet the requirements in Federal Specification TT-P-001411.

PLIOLITE resin based systems won an "excellent" rating.

And they can do as well when it comes to keeping your client's basement dry.

They give lasting protection, on wet or dry masonry, above or below grade – unlike alkyd systems that soften and peel on damp surfaces. So you can skip surface preparation. And forget on-site mixing.

A PLIOLITE resin based sealer is a complete system. It can be applied by brush, roller or airless spraying. Dries to touch within two hours. And the first coat is usually the last any surface needs.

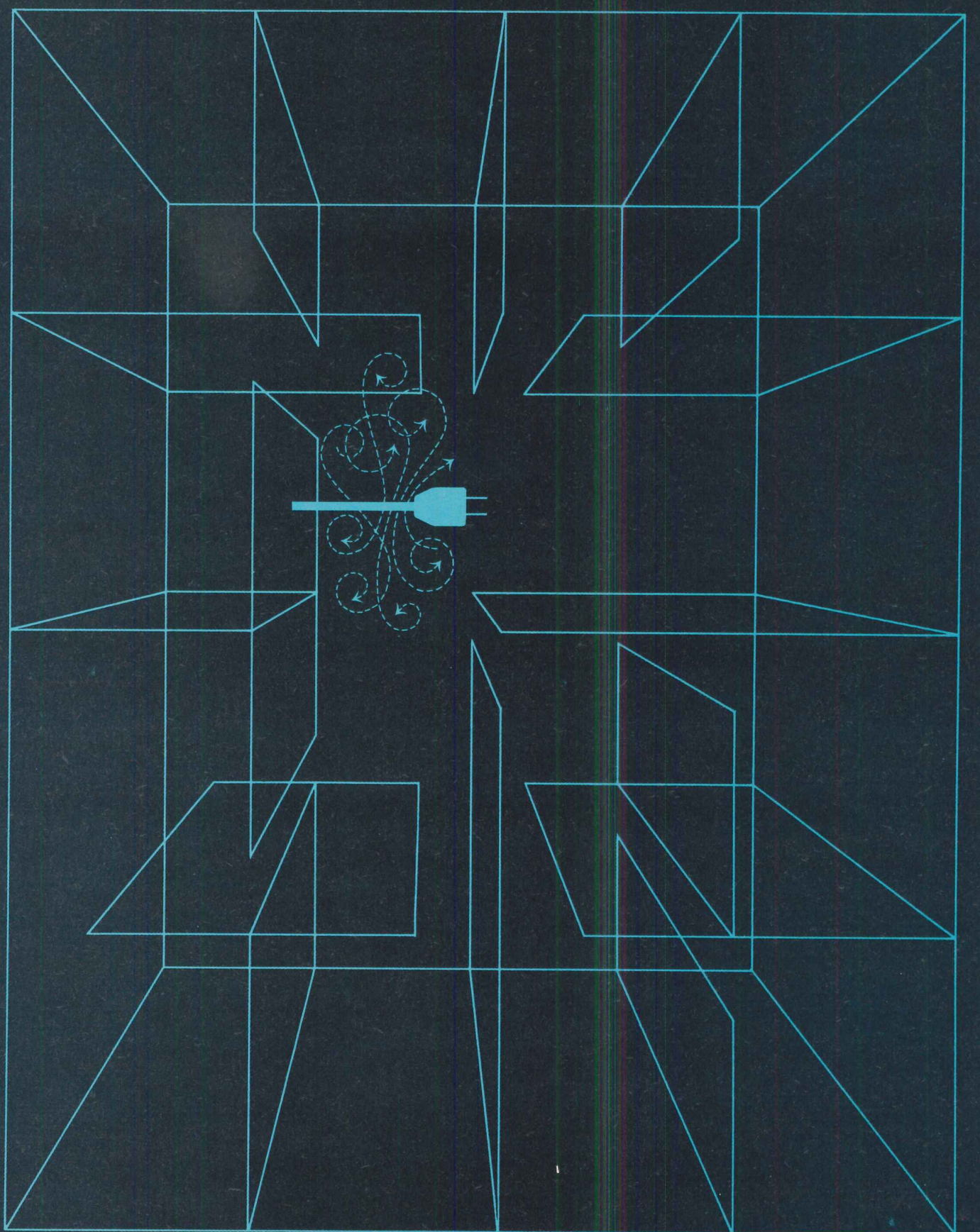
PLIOLITE resin based sealer systems satisfy anti-pollution regulations, too.

So turn off leaky walls. Specify PLIOLITE resin based sealer systems... in your own choice of colors.

For information, write Goodyear Chemicals Data Center, Dept. L-84, Box 9115, Akron, Ohio 44305.

GOODYEAR CHEMICALS

DESIGN



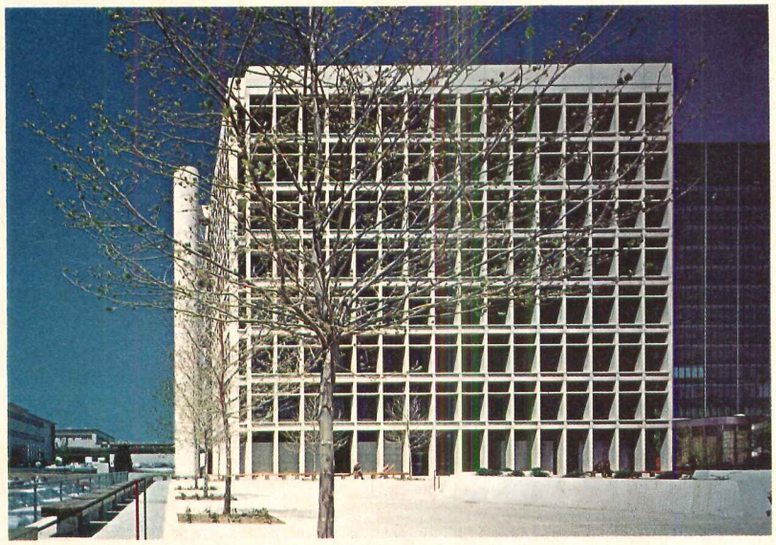
SPACE

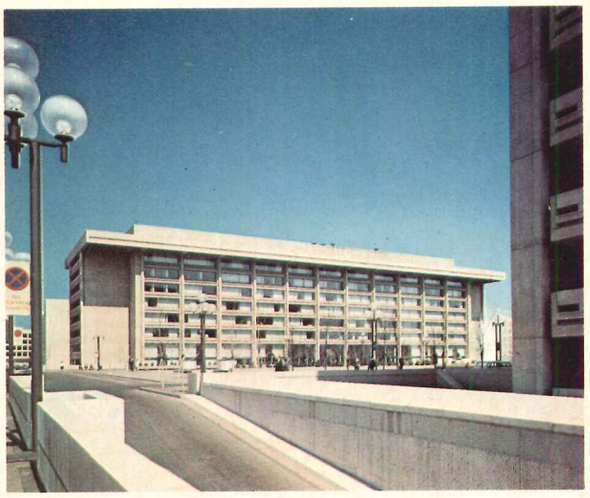
without compromises demanded by mechanical and electrical services

Design cantilevered floors or balconies, waffle ceilings, luminous or exposed ceilings with complete freedom. Eliminate sills at glass walls, include completely movable partitions . . . or add innovations . . . simply by designing A-E Floor into your next job.

A-E Floor contains air distribution channels as well as telephone, electric and signal cells integral with any building frame. This blends mechanical and electric services into a highly efficient structural system.

Learn how this unique floor system gives new flexibility and versatility to architectural design. Get a copy of the A-E FLOOR design brochure from Granco Steel Products Co., 6506 North Broadway, St. Louis, Missouri 63147. (A subsidiary of Granite City Steel.)



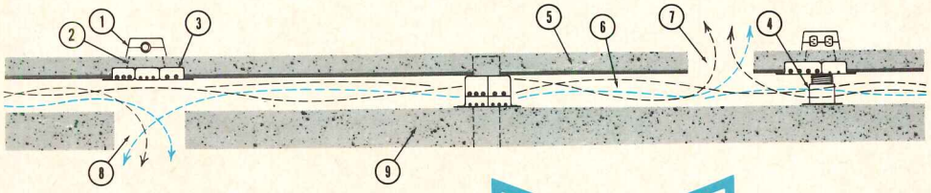


△ L'Enfant Plaza, Washington, D. C. (Office and Retail Center) Architect: I. M. Pei & Partners / Structural Engineer: Weiskopf & Pickworth / Mechanical-Electrical Engineer: Syska & Hennessy

A-E FLOOR PROJECTS

◁ Hoffman-LaRoche, Nutley, N. J. (Administration Building) Architect: Lundquist & Stonehill / Structural Engineer: Goldreich, Page & Thropp / Mechanical Engineer: Abrams & Moses / Electrical Engineer: Gustave P. Weiser

A-E FLOOR SYSTEM 1. Single floor fitting for power, telephone, signal service. 2. Preset insert. 3. Steel cells for telephone, electric and signal lines. 4. Vertical support. 5. Floor Slab. 6. Air plenum. 7. Outlet to floor or baseboard diffuser. 8. Outlet to ceiling diffuser. 9. Structural slab.



GRANCO®

Steel

IMAGINATION IN STEEL

NEW FIRMS, FIRM CHANGES

continued from page 66

Robert M. Thomas, A.I.A., president of **Thomas/Richardson/Associates,** has dissolved the Costa Mesa, California architectural firm to establish **R. M. Thomas, A.I.A. & Associates.** New offices are in Newport Center, Newport Beach, California. Associated with Mr. Thomas are **John C. Mitchell** and **K. Stanley Bell, A.I.A.**

Walton and Madden Architects, Cooper and Auerbach Architects and **John M. Walton and Associates** have recently joined for the continued practice of architecture and planning as **Walton, Madden, Cooper and Auerbach, A.I.A.** The new firm's main office is at 6201 Riverdale Road, Riverdale, Maryland, with branch offices at 2304 Wilson Boulevard, Arlington, Virginia and 1150 Connecticut Avenue N.W., Washington, D.C. **Seymour Auerbach, A.I.A.** is partner in charge of design. Other principals are **John M. Walton, Dennis W. Madden, A.I.A.** and **Clarke Thomas Cooper, Jr., A.I.A. George C. A. Brunatti** is senior associate.

Burton F. Weisbecker, A.I.A. recently announced that **Robert Earl Sussna, A.I.A.** has become a partner. The newly-named firm, **Weisbecker & Sussna, A.I.A., Architects,** continues in the general practice of architecture and planning at 10 Nassau Street, Princeton, New Jersey.

Walter H. Wheeler Inc., Minneapolis-based consulting engineering firm, has changed its name to **Wheeler & Tillitt, Inc. James C. Tillitt** is the president of the newly-named firm; **Walter H. Wheeler** is board chairman.

Widom/Wein & Associates, Architects and Planners, has been formed from **Widom and Abronson Associates, Architects,** following the withdrawal of **Walter Abronson** to open his own office. The offices of the newly-named firm are located at 672 South Lafayette Park Place, Los Angeles.

NEW ADDRESSES

Henri A. LeGendre & Associates, Architects, 14 East 38th Street, New York City.

Frank Schlesinger, Architect, Penthouse Eight, 210 Locust Street, Philadelphia.

Michael Harris Spector, A.I.A., Architects, 245 Great Neck Road, Great Neck, New York.

Edward Durell Stone & Associates, 745 Fifth Avenue, New York City. The firm has also opened a Chicago office at 624 South Michigan Avenue.

Hugh Stubbins and Associates, 1033 Massachusetts Avenue, Cambridge, Massachusetts.

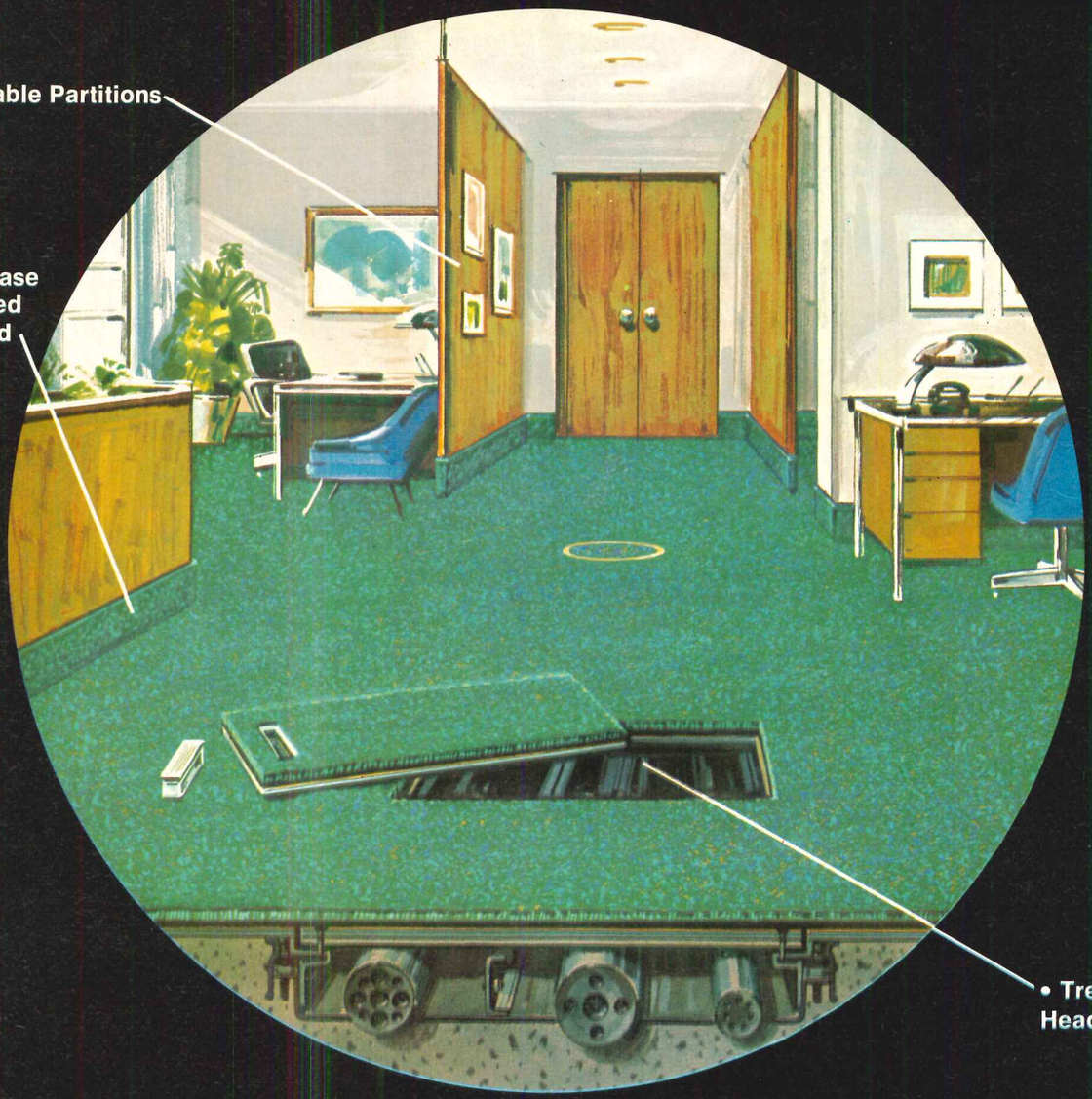
Paula Treder, A.I.A., Architect, 1458 Ebenezer Road, Rock Hill, South Carolina.

John Carl Warnecke, F.A.I.A. (New York City office), 745 Fifth Avenue.

Zion & Breen Associates, 221 Park Avenue South, New York City.

All systems are go

Carpet Systems from CCC with Acrylic 73... engineered to integrate with all architectural systems.



Carpeting is no longer a simple matter of beautiful floors. The challenge today is to integrate carpet with the total architectural environment.

CCC has this very complex problem down to a precise system—the unique Acrylic 73 Carpet System. We analyze every element involved—right from the blueprints. Recommendations are based on design, function and maintenance factors.

The result of this planning: a carpet system that lets you move partitions, gives you easy access to sub-floor systems and includes built-in static control to end the annoyance of shock.

Acrylic 73 is a total performance carpet. CCC's exclusive blend of 70% long-staple Creslan® acrylic and 30% long-staple commercial nylon combines unequalled stamina with design versatility and appearance retention.

CCC is the world's largest manufacturer of commercial and institutional carpet systems. We would like to tell you more about what we can do for you. Why not send in the coupon today.

CYANAMID Creslan® LUXURY ACRYLIC FIBER

Creslan is a product of American Cyanamid Company, Wayne, N.J.

CCC

Commercial Carpet Corporation
Dept. AR-12
10 West 33rd Street
New York, New York 10001

Attention: Mr. Walter Brooks
Please send me a copy of the booklet, "Office Carpet Systems, with Acrylic 73". ☐ Please have a CCC consultant contact me. ☐

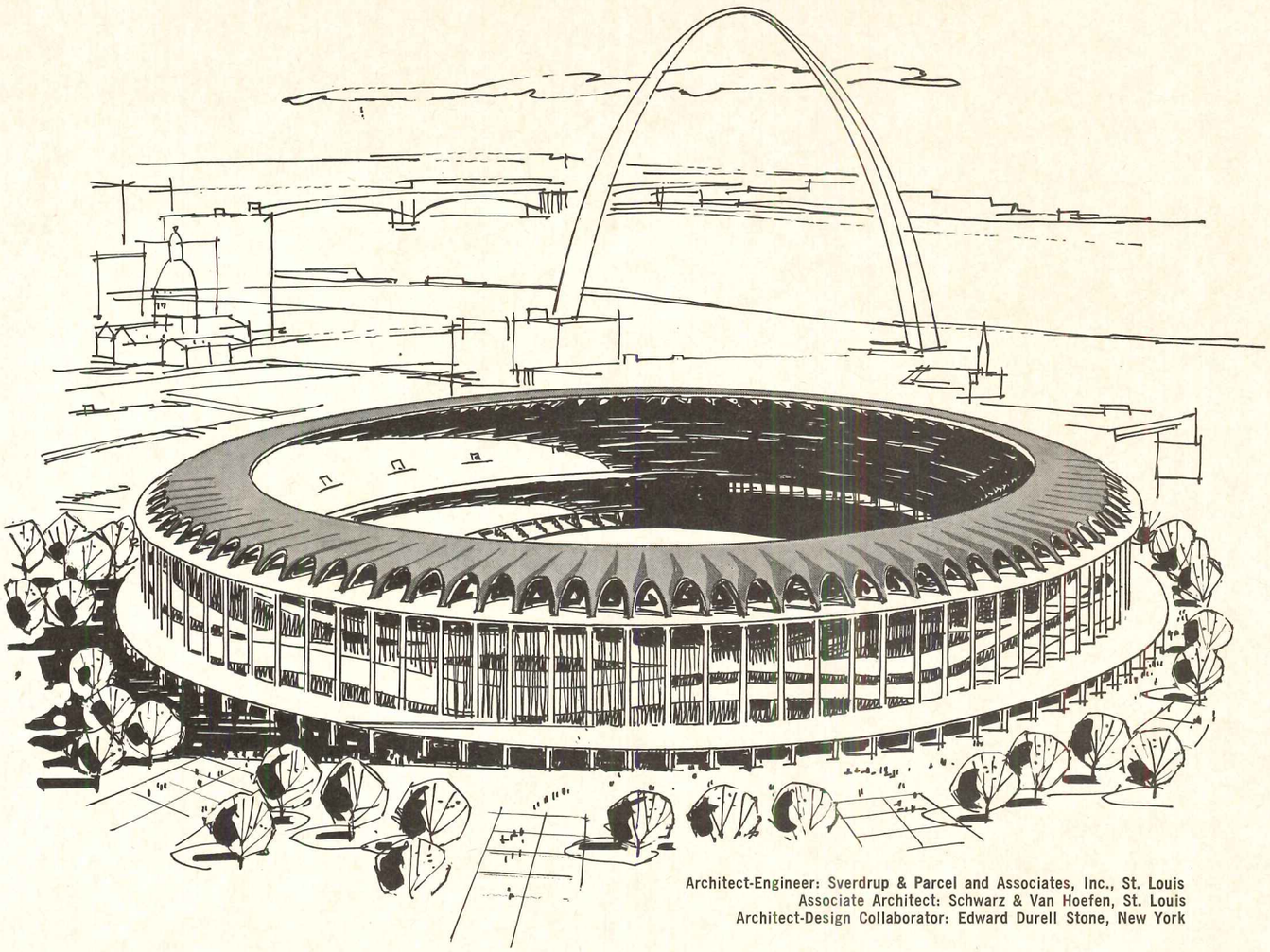
Name_____

Company_____

Address_____

City_____ State_____ Zip_____

For more data, circle 47 on inquiry card



Architect-Engineer: Sverdrup & Parcel and Associates, Inc., St. Louis
Associate Architect: Schwarz & Van Hoefen, St. Louis
Architect-Design Collaborator: Edward Durell Stone, New York

Fluid roofing is as flexible as your roof design

This is one of the important reasons fluid roofing was specified for Civic Center BUSCH MEMORIAL STADIUM in St. Louis (home of the baseball and football Cardinals).

The stadium's long span, multifaceted, cast-in-place concrete roof is subject to contraction and expansion. Fluid roofing of elastomeric Du Pont Neoprene and HYPALON* accommodates these movements. It protects the concrete against deterioration throughout the seasons.

Neoprene and HYPALON cure quickly after application to form a tough, continuous, weathertight membrane that resists ozone, sunlight, weathering, industrial fumes and abrasion. It's flame resistant, too. And HYPALON can be furnished in a wide range of colors.

When properly applied by experienced roofing contractors, fluid roofing delivers long-term dependable performance.

•

Du Pont makes both Neoprene and HYPALON, not fluid roofing compositions. Write for data sheet. Du Pont Company, Room 6863, Wilmington, DE 19898.

*Reg. U. S. Pat. Off. for Du Pont synthetic rubber.

DU PONT
REG. U. S. PAT. OFF.

Neoprene and HYPALON®

For more data, circle 48 on inquiry card

Prefab

Put a Bally Λ Walk-In Cooler/Freezer in the kitchen. Be ready for the leisure crowd seeking new adventures in dining. Bally Walk-Ins operating at temperatures from 35° cooling to −40° freezing provide the facilities to plan and prepare excitable and profitable menus in advance. Learn about many other important features from our 32-page booklet and urethane wall sample.

There's an evolution in the kitchen

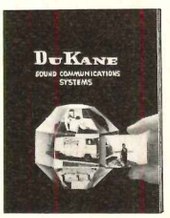
Bally

Bally Case & Cooler, Inc.
Dept. AR-12, Bally, Pa. 19503

Only one company can design, install, (and then service) every facet of a complete communications system, anywhere in the world.

DuKane.

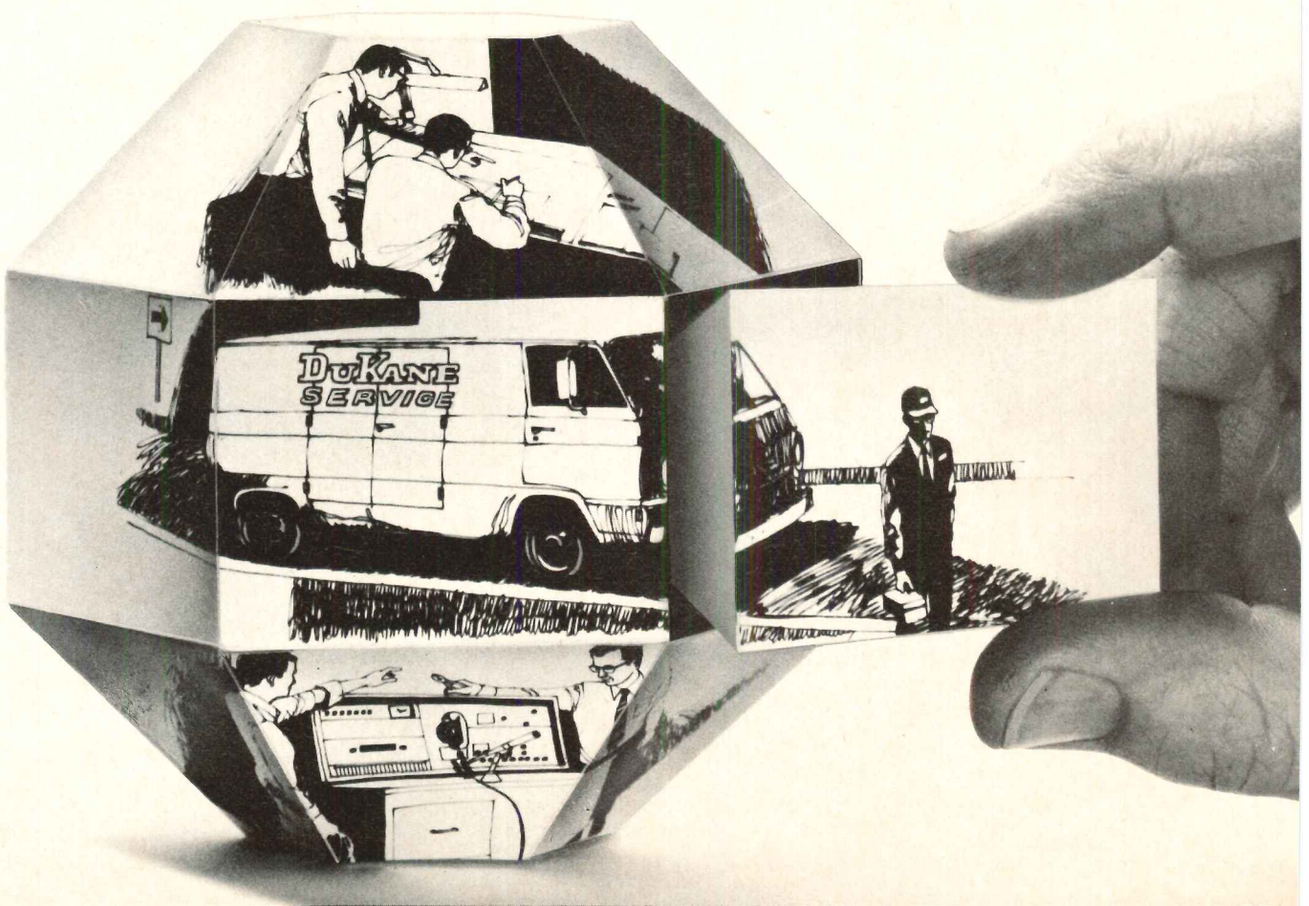
With over 200 sales/service outlets, DuKane is uniquely capable of coordinating all phases of complete communications systems anywhere in the United States . . . in the world, actually. Complete communications centers with paging and background music. Central clock systems with utility control. Radio paging. Private telephone systems. Intercommunications systems. Vandalism detection systems. For health care institutions, educational facilities, or industrial/commercial applications. Whether it's new construction or improvement, DuKane's sales/service organization is geographically closer to the job site and to you than that of any other manufacturer. And, should your equipment require service later (not even DuKane has designed that "perfect" piece of hardware yet), you're not left high and dry. DuKane has over 200 sales/service outlets in the United States, with helpful, expert service just a phone call away. Who else can say that?



Send for free literature

DuKane Corporation • Communications Systems Division • St. Charles, Illinois 60174 DuKane

For more data, circle 43 on inquiry card



THE THINK CARPET

Quiet progress from Patcraft Mills made with Zefkrome® acrylic fiber.

The new philosophy of quiet is carpet. Patcraft develops a handsome one especially for schools and libraries where people want to hear their own thoughts. "Entwine" is the last word in "shhh". And in matchless wear. Because Zefkrome is up to 50% stronger than other acrylics, its performance is unique. Producer-dyed, it offers vibrant lasting color. And Zefkrome makes the most of carpet's economical maintenance. Among acrylics, it has maximum cleanability. "Entwine" is made in different weights, for different areas, including heavy-traffic corridors. Find out about it with a call or a letter to Bill Conneen, Patcraft Mills, Inc., Dalton, Ga. 30720. (404) 278-2134.

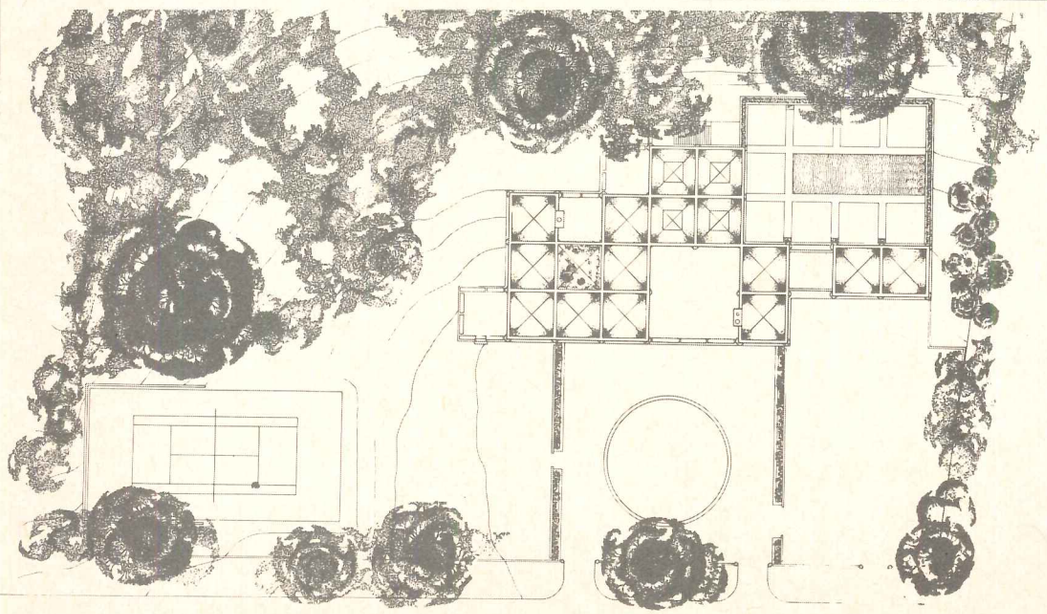
DOW BADISCHE
ZEFKROME® ACRYLIC

Zefkrome,® Zefran® II, Anavor,® Vivana,® Lurex® are trademarks of Dow Badische Company, 350 Fifth Avenue, New York, New York 10001

© Ezra Stoller (ESTO) photos

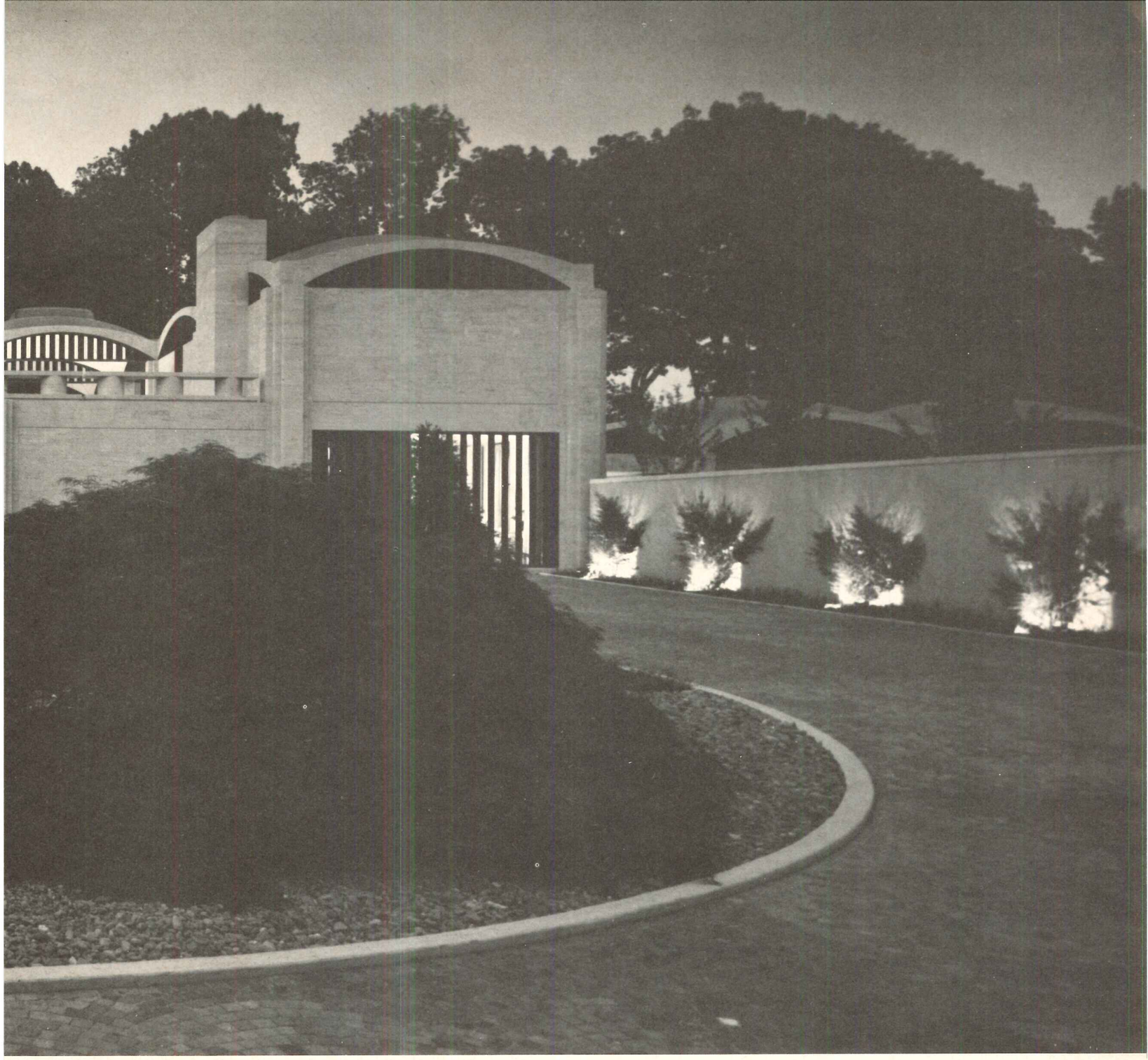
FOUR JUST-COMPLETED BUILDINGS BY PHILIP JOHNSON all reflect his characteristic aplomb in bringing an inventive, firm and sometimes witty eye to each new architectural problem. Whether the building soars or burrows, it is done with control and exuberance: a big mansion is handled in an unabashedly twentieth-century grand manner; on a constricted campus, a new library is plunged underground to simultaneously create a much-needed central plaza; a museum is interpreted as an inviting treasure house; and a radio station intended to be eye-catching yet compatible with an historic neighborhood does just that. In each, great attention has been given to the choice and direct expression of materials, structure and details, which amalgamate into the central design idea. This mixture of simplicity and bravura gives a refreshingly timeless individuality and quality.

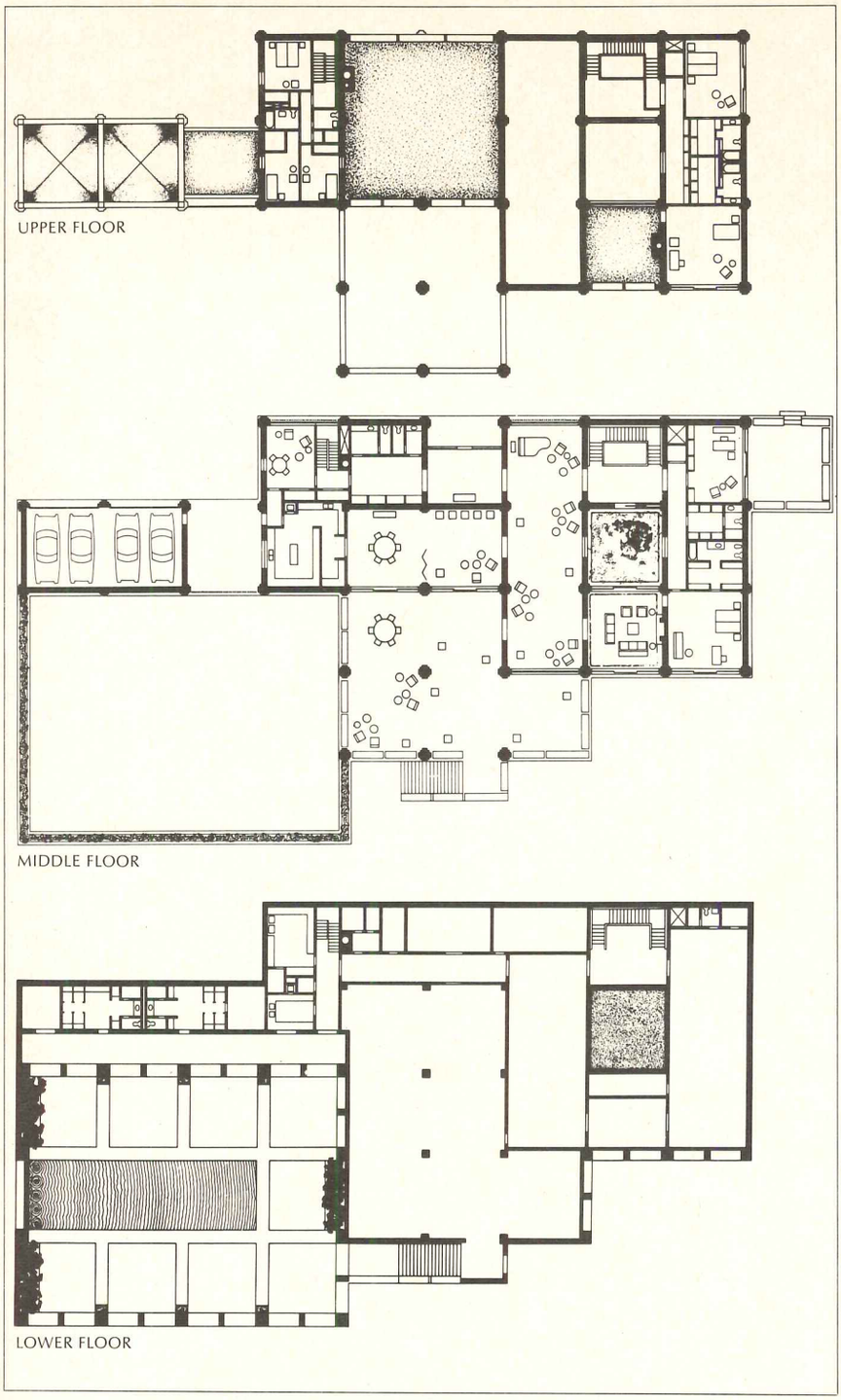
—Herbert L. Smith, Jr.



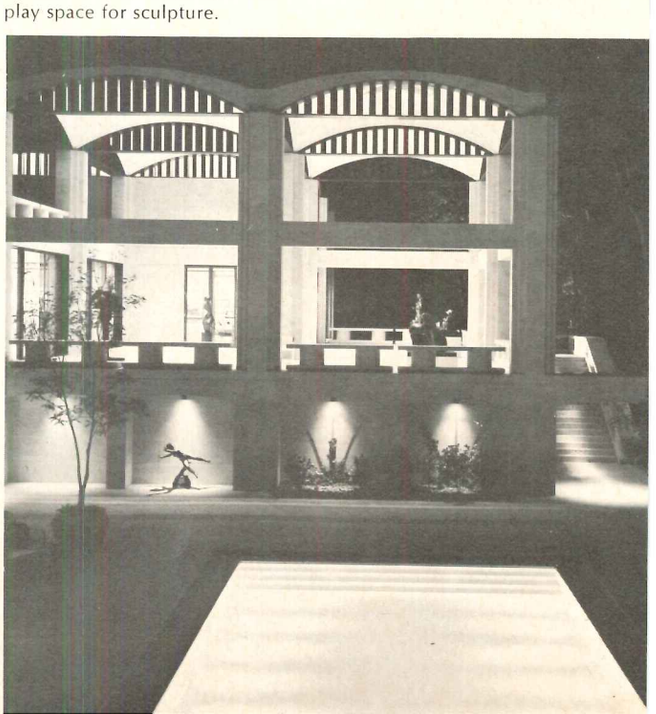
A TRULY STATELY HOME was designed by Philip Johnson and Richard Foster for a 5½-acre site in Washington, D.C. In addition to the provision of spacious facilities for living and entertaining, the program called for optimum conditions and spaces for the display of the owners' major collection of nineteenth and twentieth century painting and sculpture. An asymmetrical scheme of modular, 22-foot vaulted bays provides both spirited variety and order to the museum-sized spaces of the mansion. Though clad in travertine, the concrete frame is beautifully articulated, with all underlying structural shapes expressed on the surface.

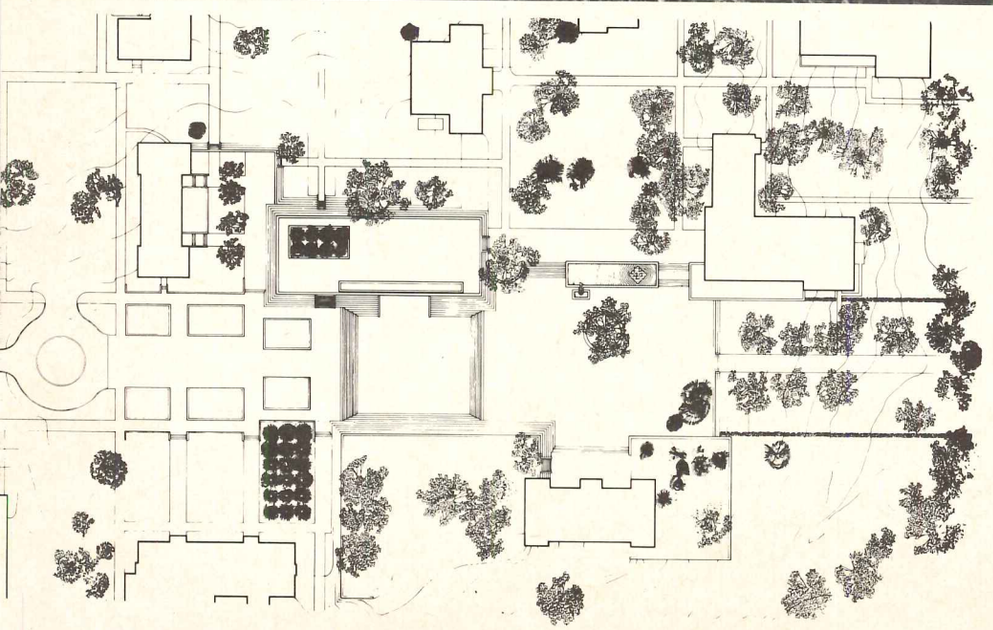
RESIDENCE FOR MR. AND MRS. DAVID LLOYD KREEGER, Washington, D.C. Architects: *Philip Johnson and Richard Foster*. Engineers: *Lev Zetlin & Associates* (structural); *Jaros, Baum & Bolles* (mechanical). Contractor: *George A. Fuller Company*. Lighting consultant: *John L. Kilpatrick*. Interiors: *Samuel A. Morrow*.





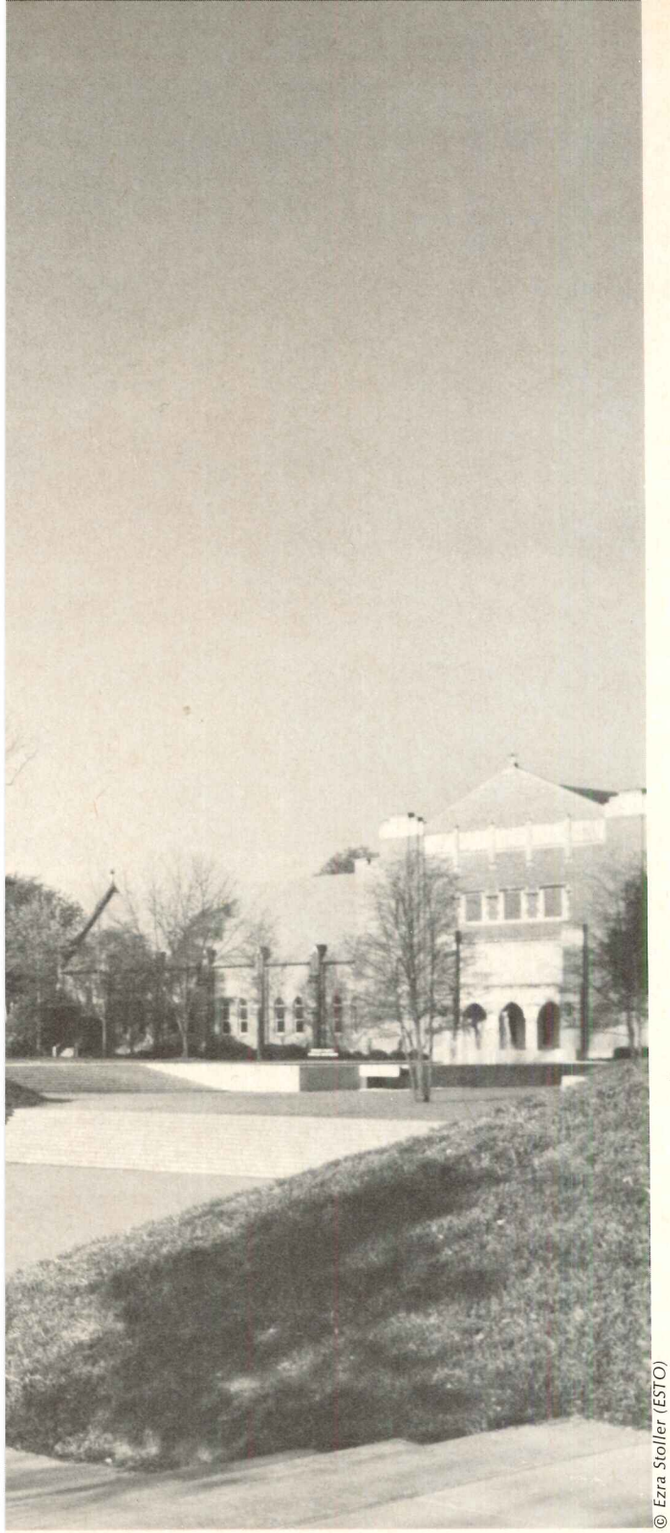
The Kreeger house centers on a great hall formed of three 22-foot bays, roofed with vaults 25 feet high. This impressive room (right) has panels of carpeting dyed to match the beige travertine to facilitate changing displays of paintings. Heating and air conditioning, carefully humidified and filtered, is provided through narrow slots running just above the carpet panels. Art is also displayed in the living spaces surrounding the hall, and in three galleries on the lower level. Huge covered terraces at the back of the house extend the spaces of the house, frame the woodland views, and form the major display space for sculpture.





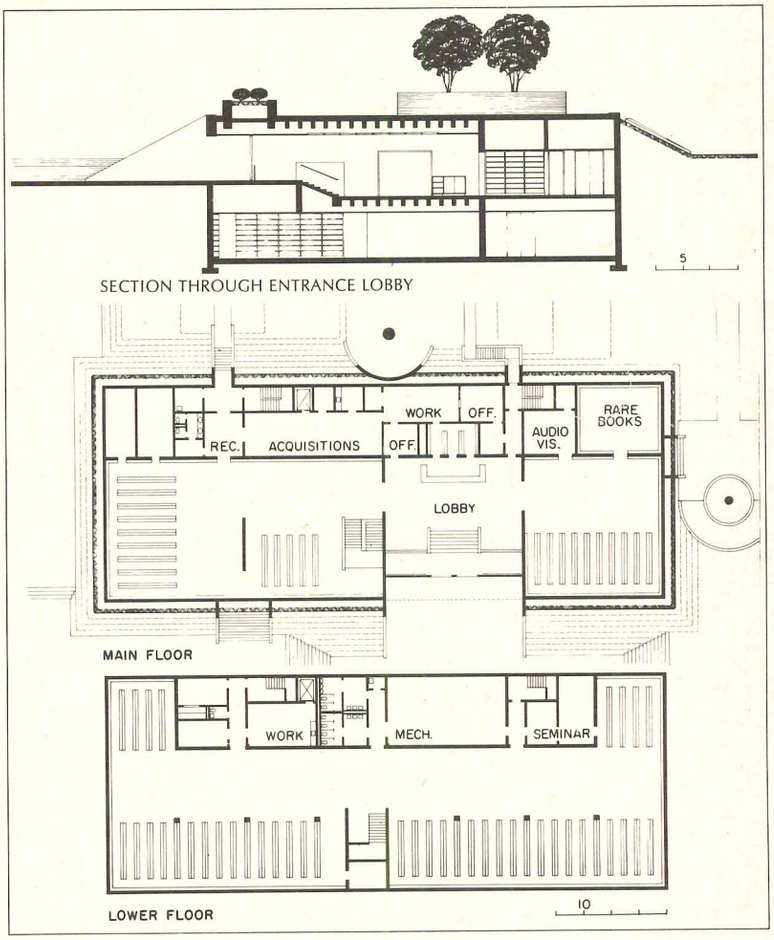
AN UNDERGROUND LIBRARY solved an interesting planning problem for this college in Arkansas. It was strongly desired that the library be centrally located on the campus for maximum convenience and usage, but there was not land available in such a spot without sacrificing open spaces also considered indispensable. The result solves both with a two-story concrete building burrowed within earth sculpture, landscaping and plazas on a series of interrelated horizontal planes. In addition to library facilities, the college has a vital new focal point. The sunken plaza doubles as an effective space for ceremonial outdoor functions.

BAILEY LIBRARY, Hendrix College, Conway, Arkansas. Architects: *Philip Johnson* and *Wittenberg, Delony & Davidson, Inc.*; engineers: *W. H. Goodman, Jr.* (mechanical); *Charles E. Dietz* (electrical); *Engineering Consultants* (structural). Landscape consultant: *Joe Lambert*; graphics: *Walter Kacik Design Associates*.

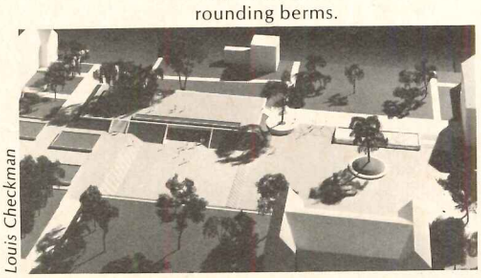


© Ezra Stoller (ESTO)

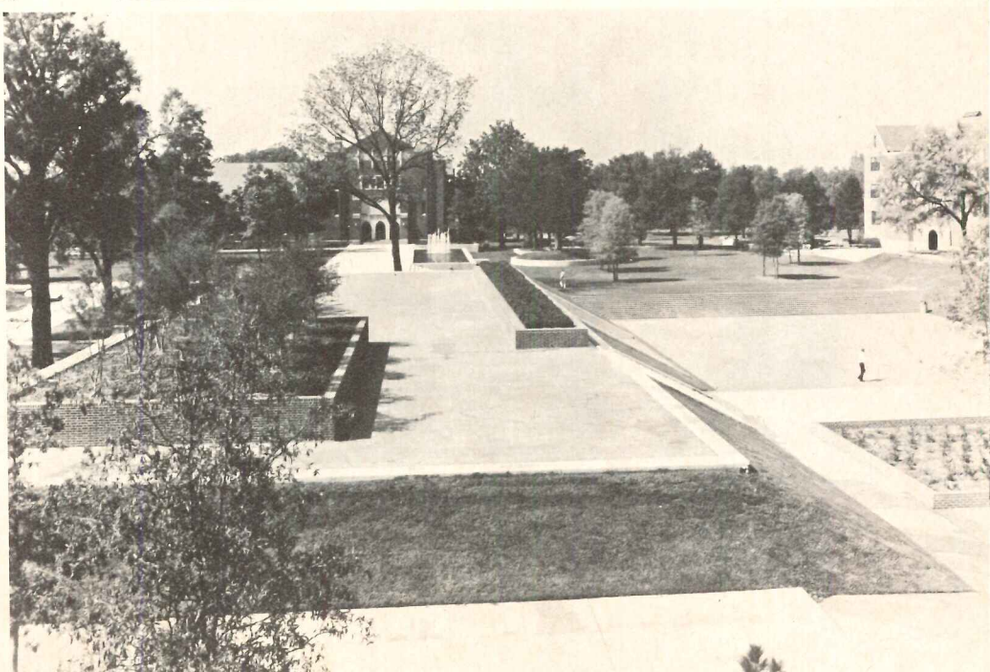
© Ezra Stoller (ESTO)

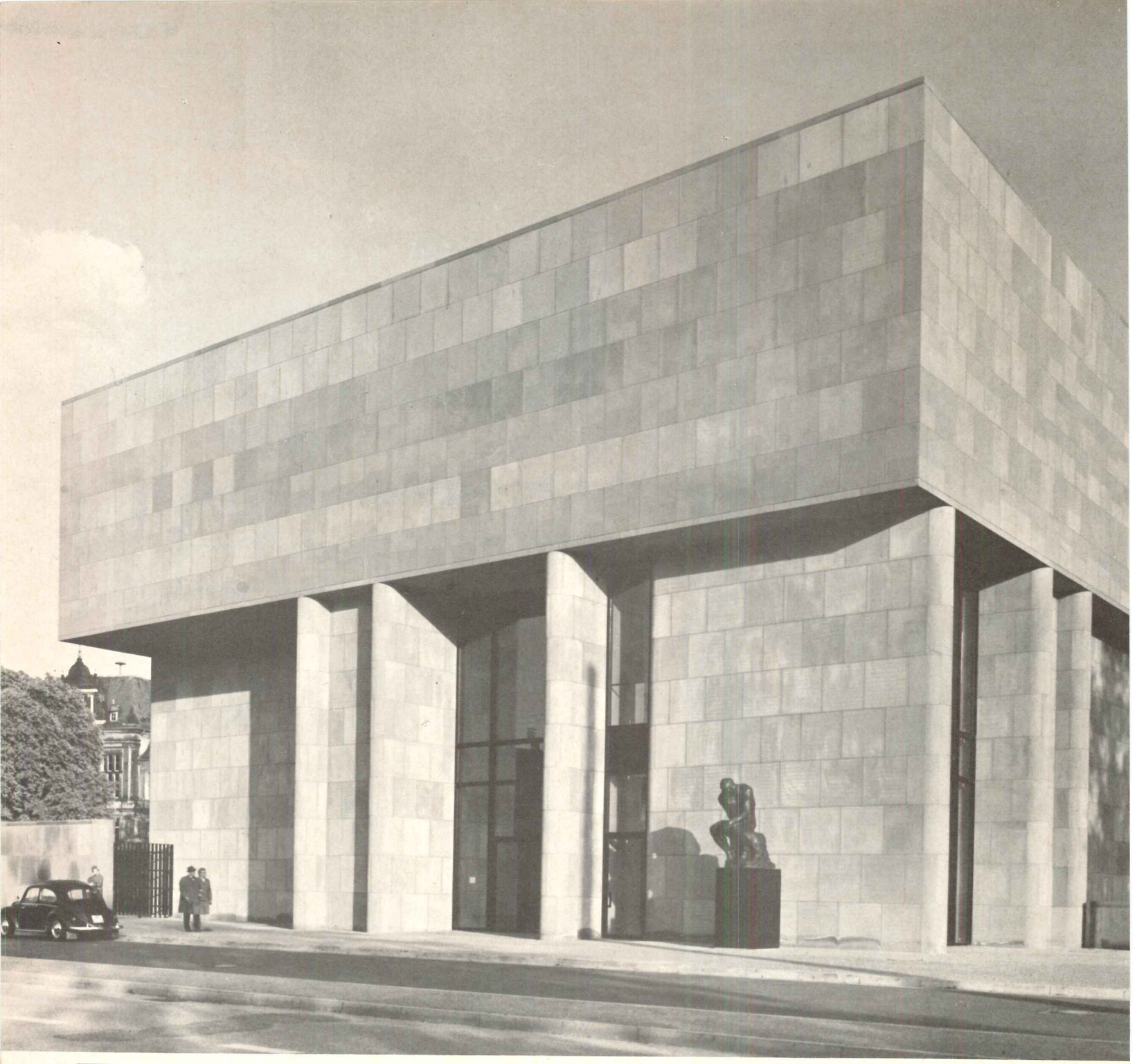


The architects realized a number of advantages with an underground library: maximum utilization of available land; diversion of funds from finishing the exterior to landscaping needs; reduction in the amount of traffic congestion; better control of light, dust and humidity; and earth insulation to minimize heat loss in winter. The earth removed for the building and the big sunken court was used to form the surrounding berms.

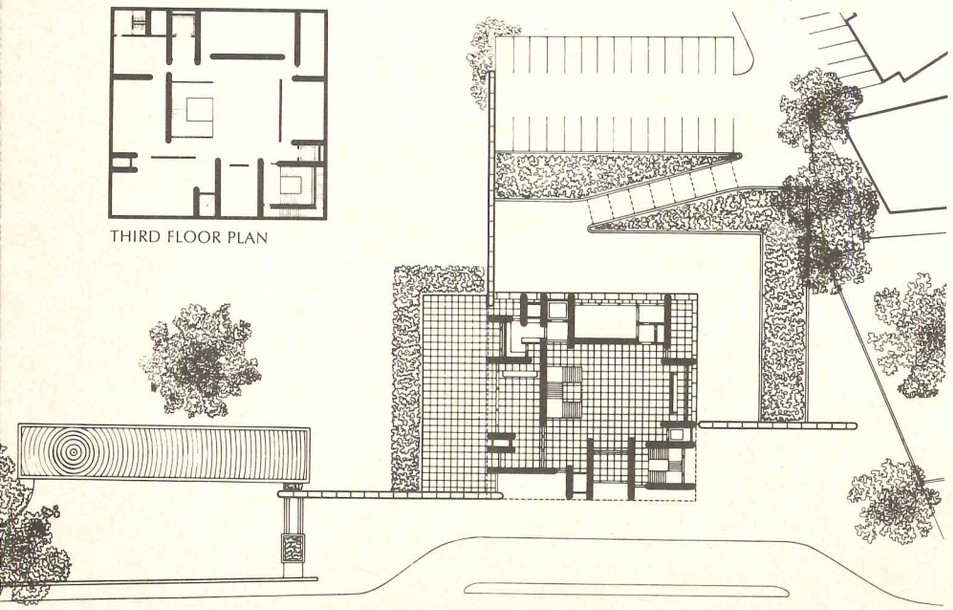


Louis Checkman



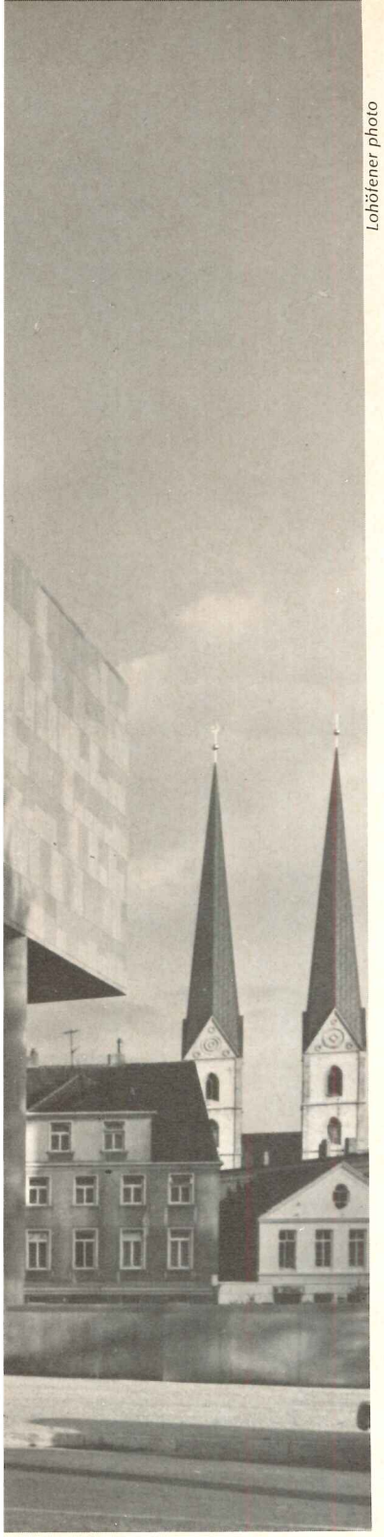


THIRD FLOOR PLAN

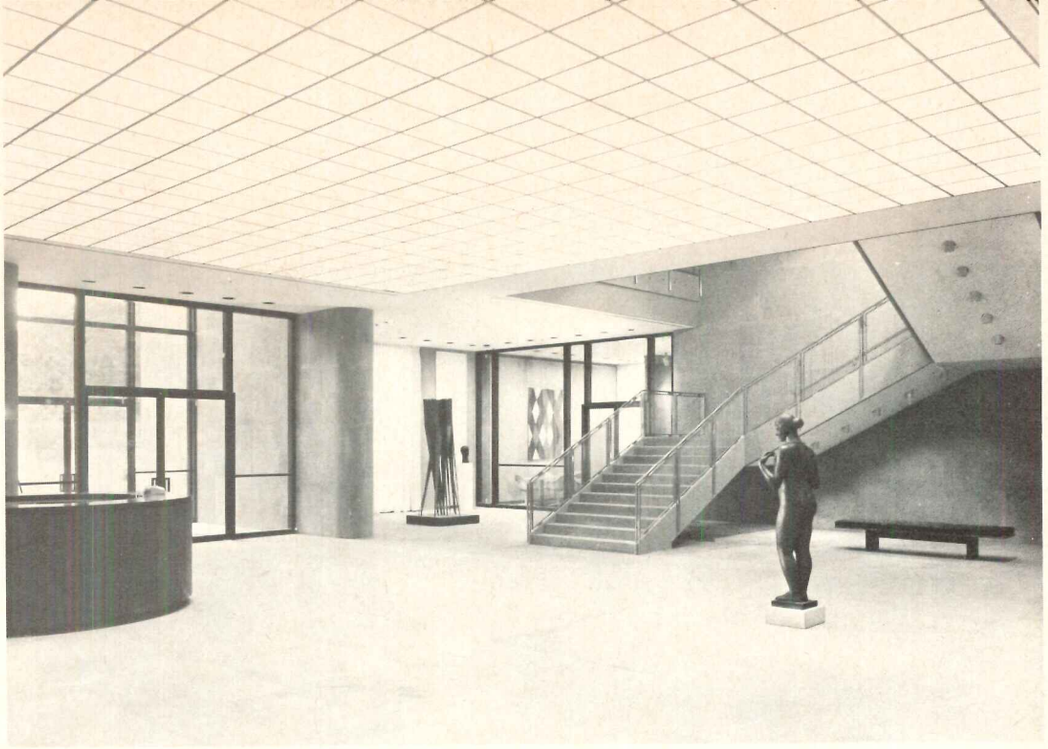


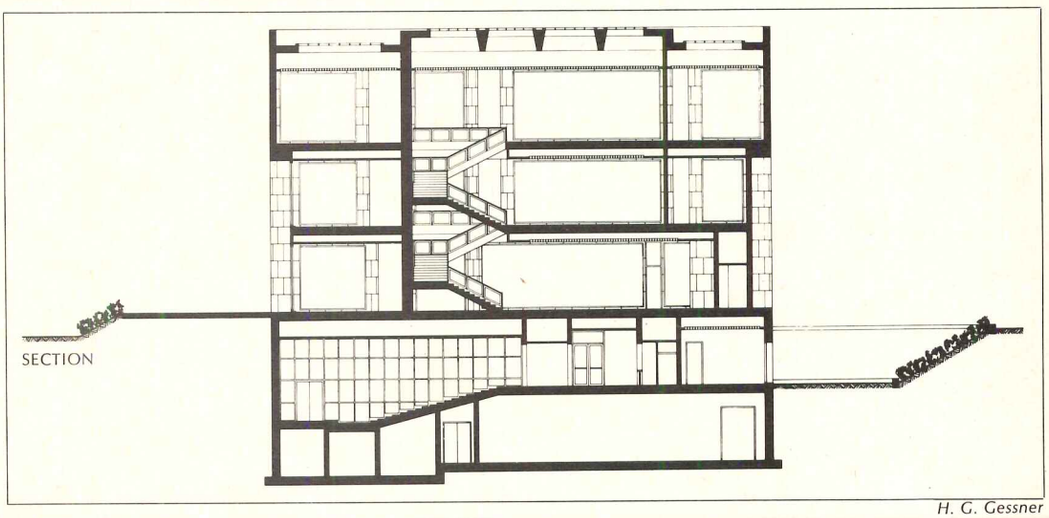
AN IMPRESSIVE MUSEUM set in a small park in Bielefeld, Germany, achieves the air of a protecting, but inviting, treasure house for art. The bearing walls of the granite-clad, concrete structure are emphasized inside and out—giving pattern and modulation to the exterior, and generating basic, fixed gallery spaces on the interior. A series of carefully placed garden walls extend the building horizontally for a close link with the park. Three above-grade floors are exhibit spaces. The lower floors contain service areas, library and lecture hall. All exhibit floors are similar, but the third floor is windowless for added hanging space.

RICHARD KASELOWSKY MUSEUM, Bielefeld, Germany. Architect: *Philip Johnson*. Associate architect: *Architekt Professor Casar F. Pinnau*. Engineers: *Jaros, Baum & Bolles* (mechanical); *Severud, Perrone, Sturm, Conlin Bandel* (structural). Acoustics: *Bolt Beranek & Newman;* graphics: *Elaine Lustig Cohen;* lighting: *Jack Kilpatrick*.

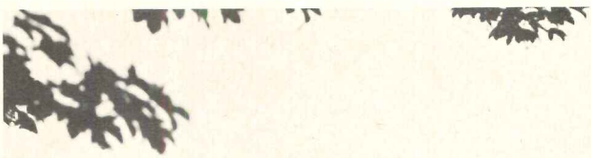


Lohöfener photo

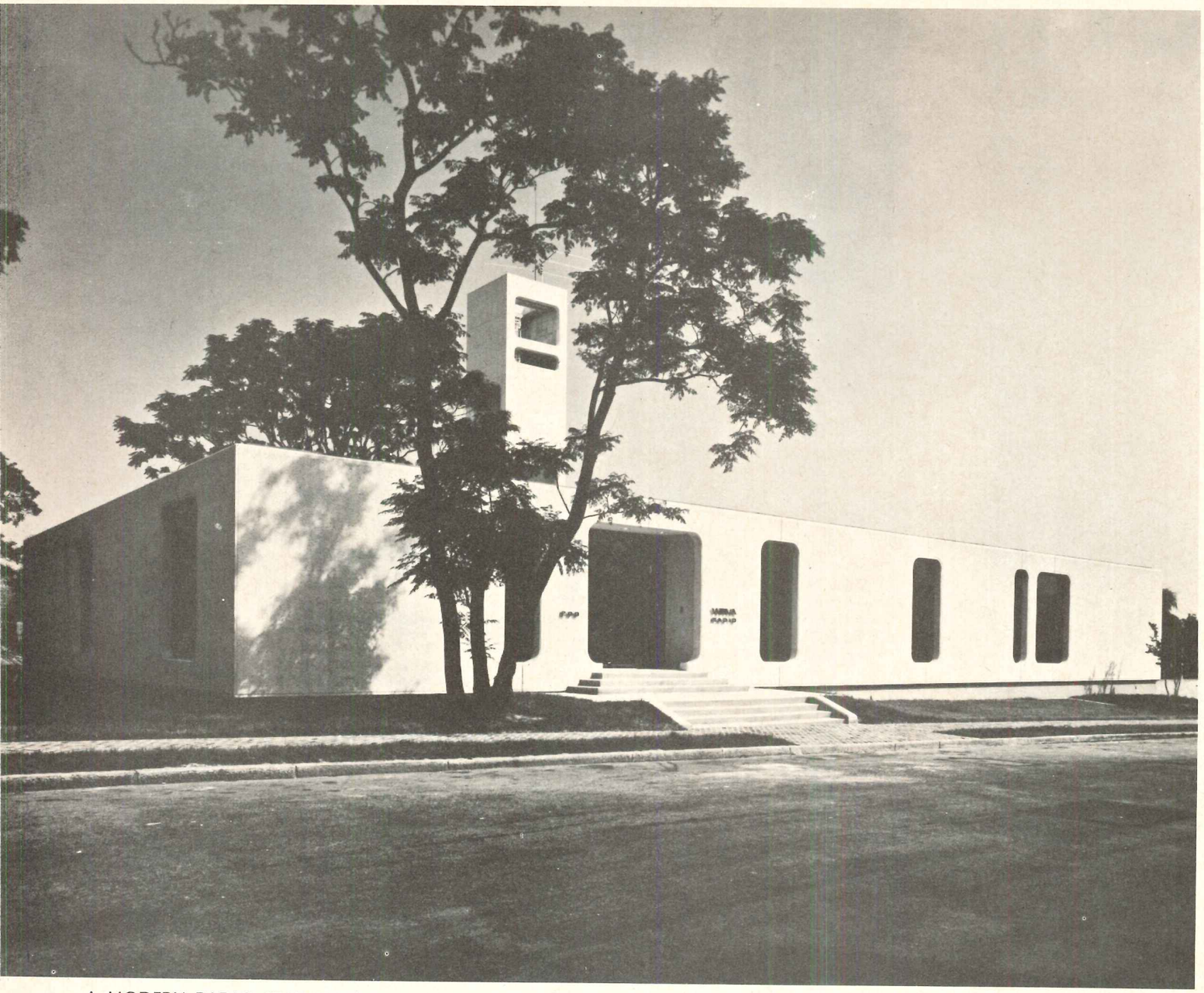




H. G. Gessner



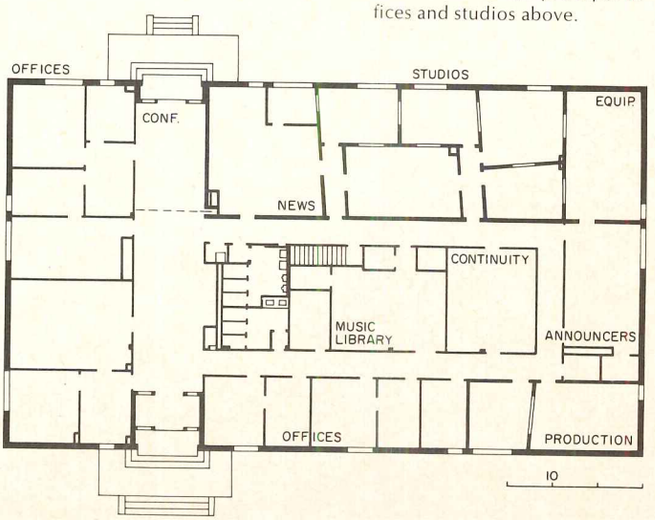
As an extremely pleasant place for people, as well as art, the main level of the museum opens directly on a series of terraces and a long pool (right). The top floor of the building is windowless, but skylighted. A depressed area at the back of the building provides well-screened and convenient access for deliveries and service. As in many of Johnson's museums, the display walls on the interior are surfaced with carpet to permit rearrangement of the exhibits without visible damage to the walls. The three upper floors are linked by an open stairwell.

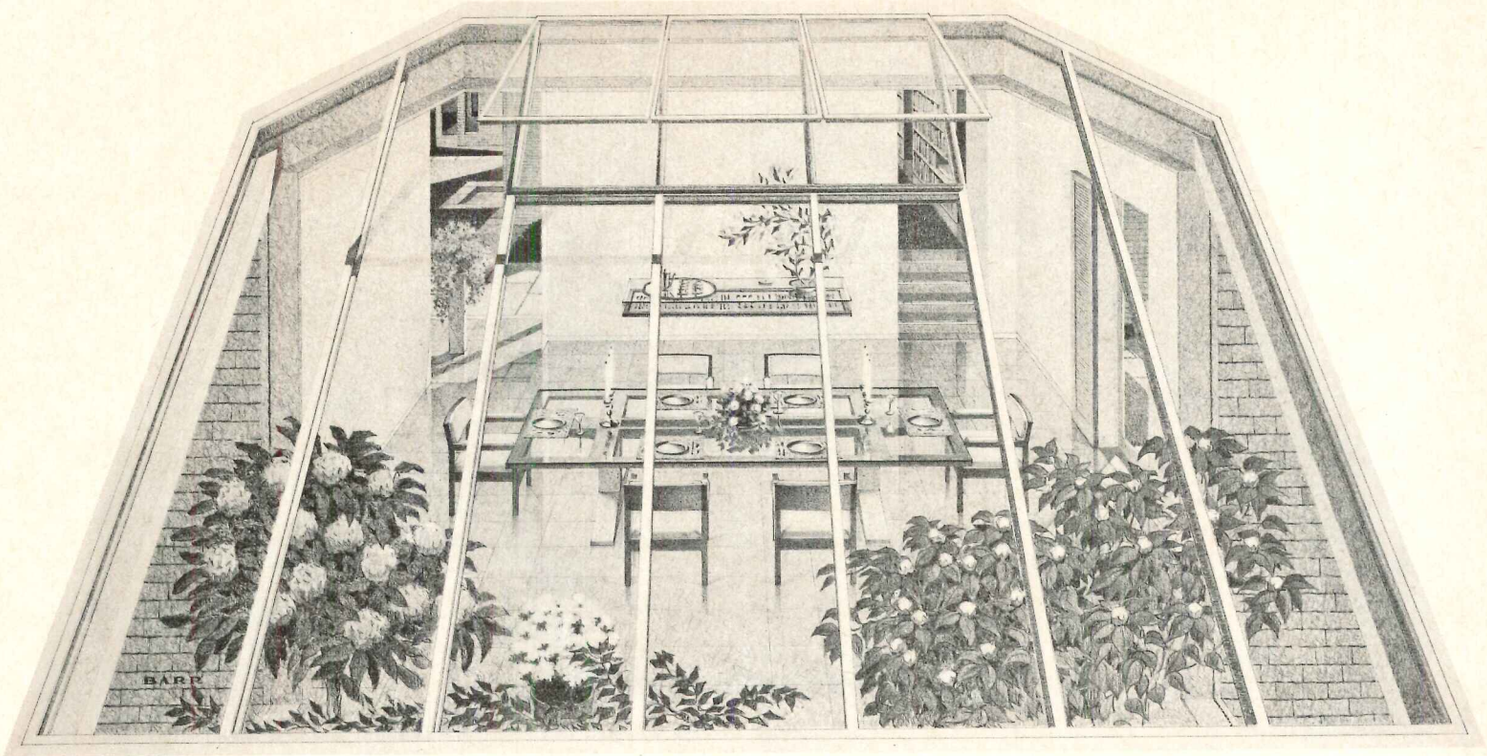


A MODERN RADIO STATION that would be compatible with an adjoining area zoned, and being restored as Historical Richmond, was the paramount design objective of this sprightly little building. Architects Budina and Freeman aptly comment that, "when Mr. Johnson was consulted, he came up with a suggested design that did just that." His sophisticated scheme is a simple, but effective one—a bush-hammered monolithic concrete exterior wall, rhythmically punctuated by varying-width, rounded openings; the sculptural quality of this horizontal form is accented by a belfry-like tower, which also serves to screen the broadcasting antenna and relays in an extremely effective manner.

RADIO STATION WRVA, Richmond, Virginia. Consultant: *Philip Johnson*. Architects: *Budina and Freeman;* mechanical and structural engineers: *Wiley & Wilson*.

A slope in the site to the rear permitted ground level access to the two floors of the building: from an off-street parking area at the back, and from street level to the principal offices and studios above.



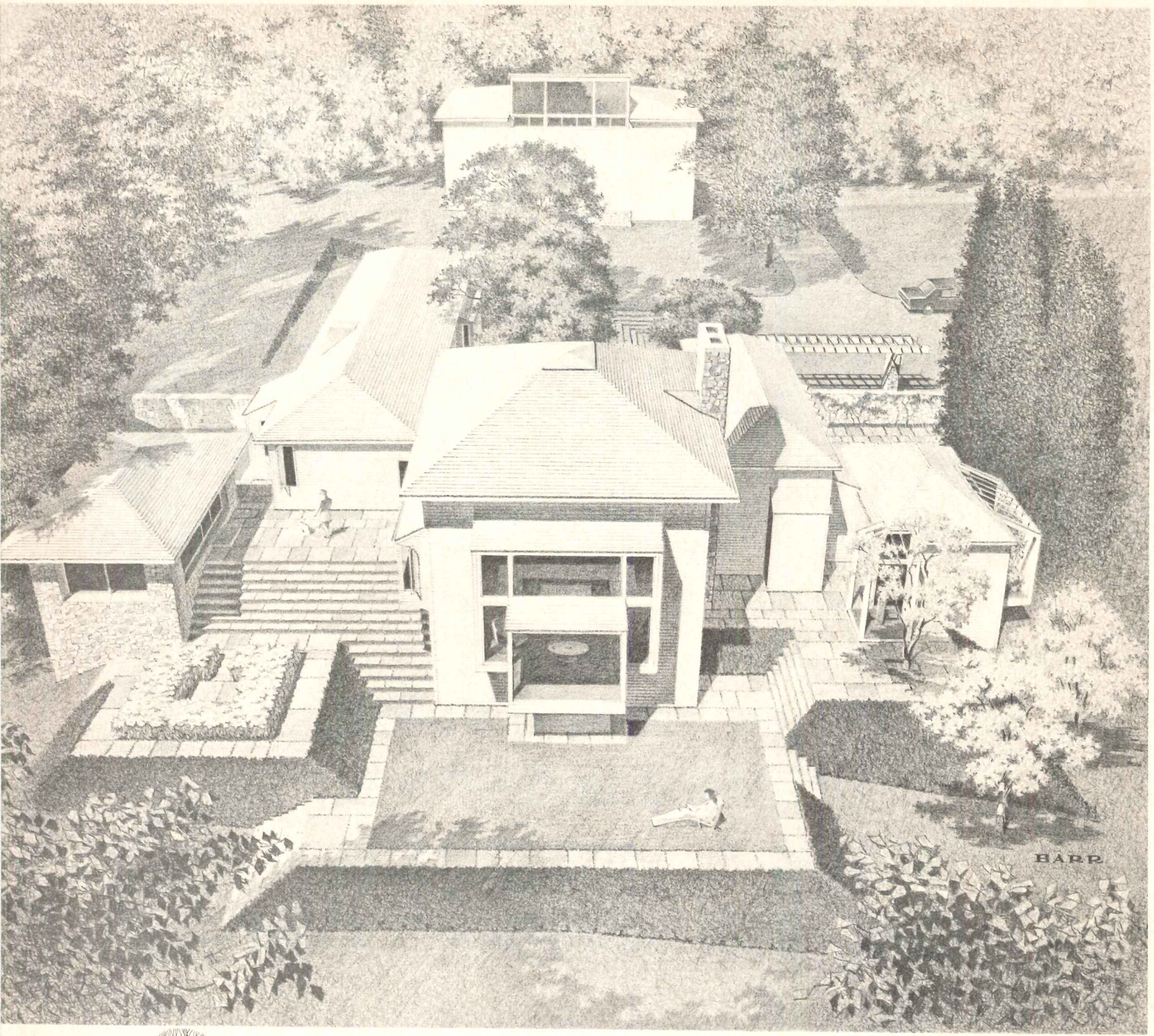


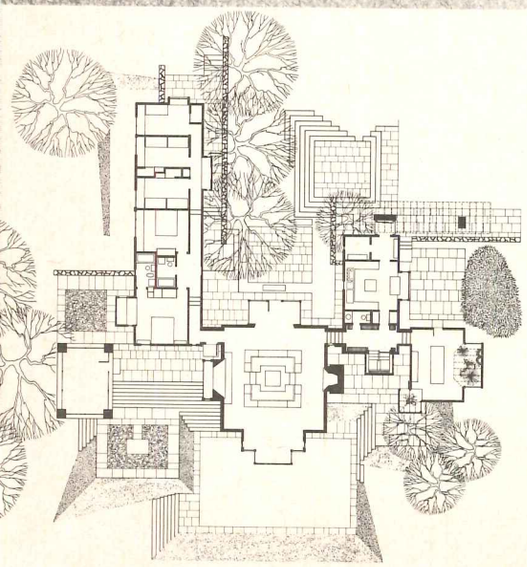
TWO UNCOMPROMISINGLY MODERN BUILDINGS DESIGNED—AND DRAWN—WITH OLD-FASHIONED CARE

Architect Warren Platner is one of the sadly vanishing breed of architects which still values the elegant architectural drawing as one of the best means to express and crystallize a project's qualities before it is built. Like many good architects of today he is a painstaking constructor of highly finished study models that lend themselves well to photography. Unlike many of his photography-obsessed contemporaries, however, he realizes that a fine rendering almost always looks better in print than a model photograph and that the right drawing is a highly effective persuader. To this end he commissioned the artist J. Barr to render his proposal for the Kent Memorial Library (pages 100-104)—a decision which helped win design approval from the rather conservative client and local governing bodies.

Platner also remembers that architectural drawings can be of artistic consequence in their own right—indeed he had Barr working on a set of renderings of the Platner house, shown above and on the following two pages, long after he was sufficiently persuaded of its merits to begin constructing it for himself and his family.

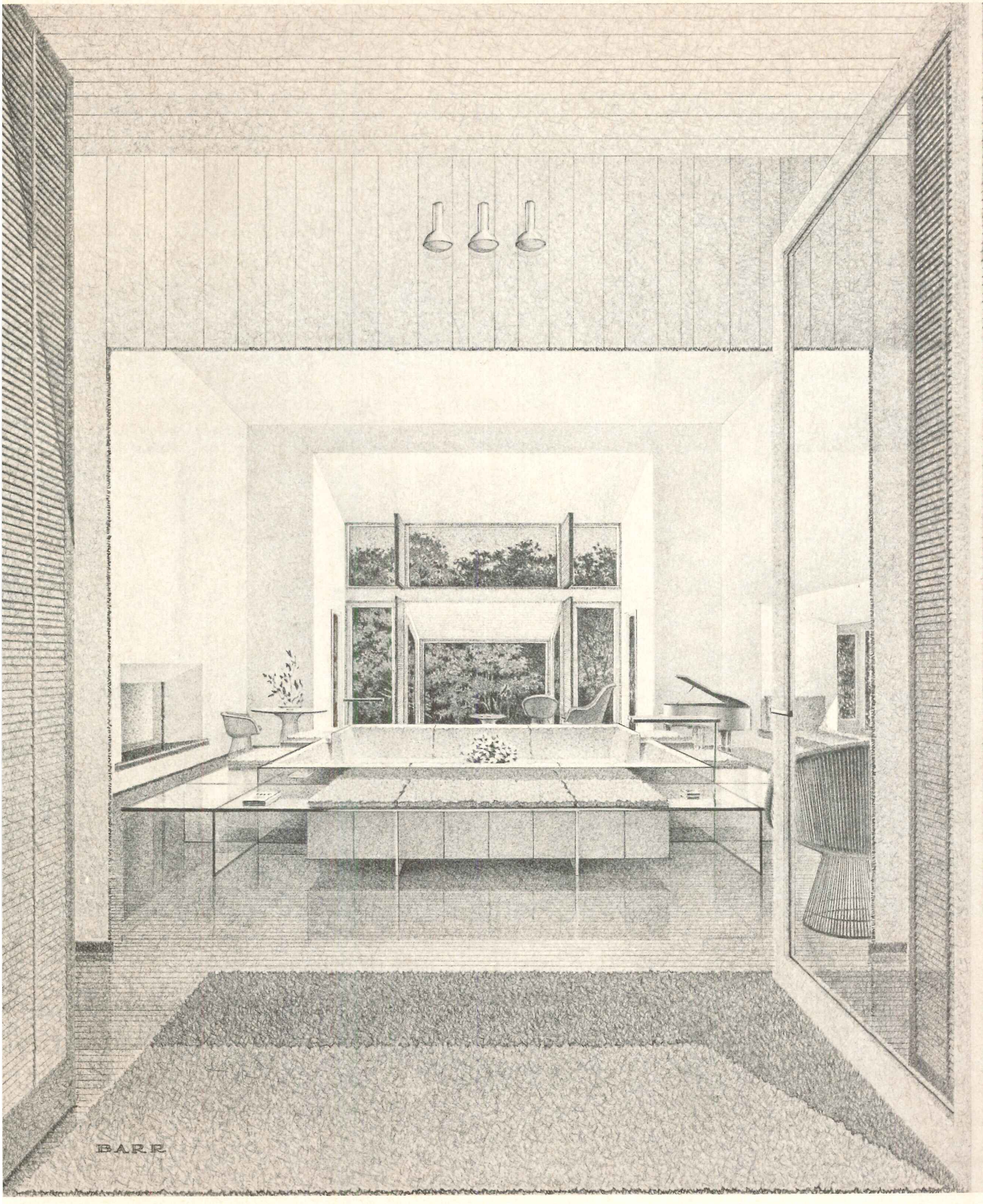
No renderer of course, even one as good as Barr, can create the appearance of architectural excellence when it is lacking. Careful study will show that these two Platner projects promise to be fine buildings. When complete they will be as interesting as architecture as they are now in graphic form.

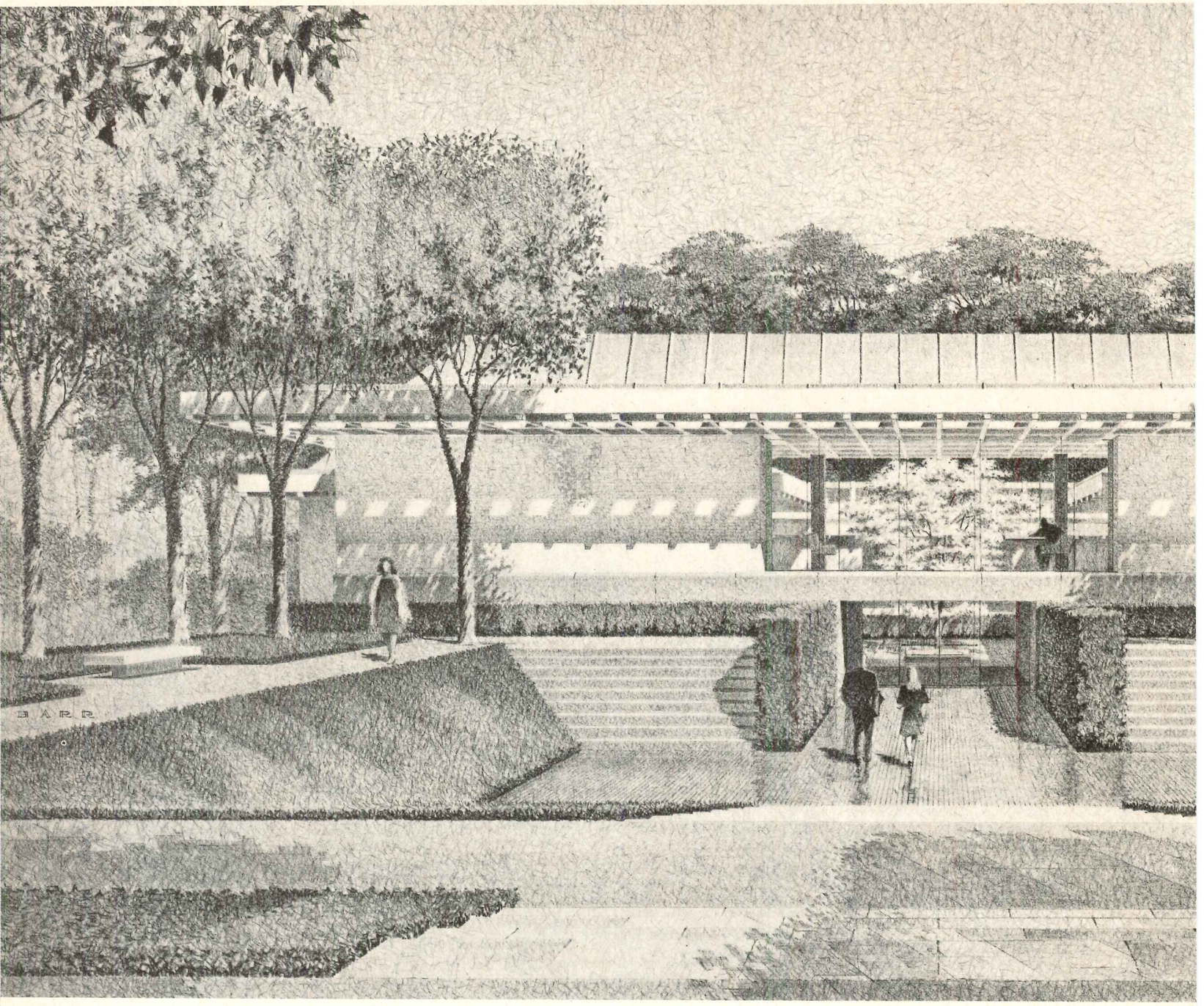


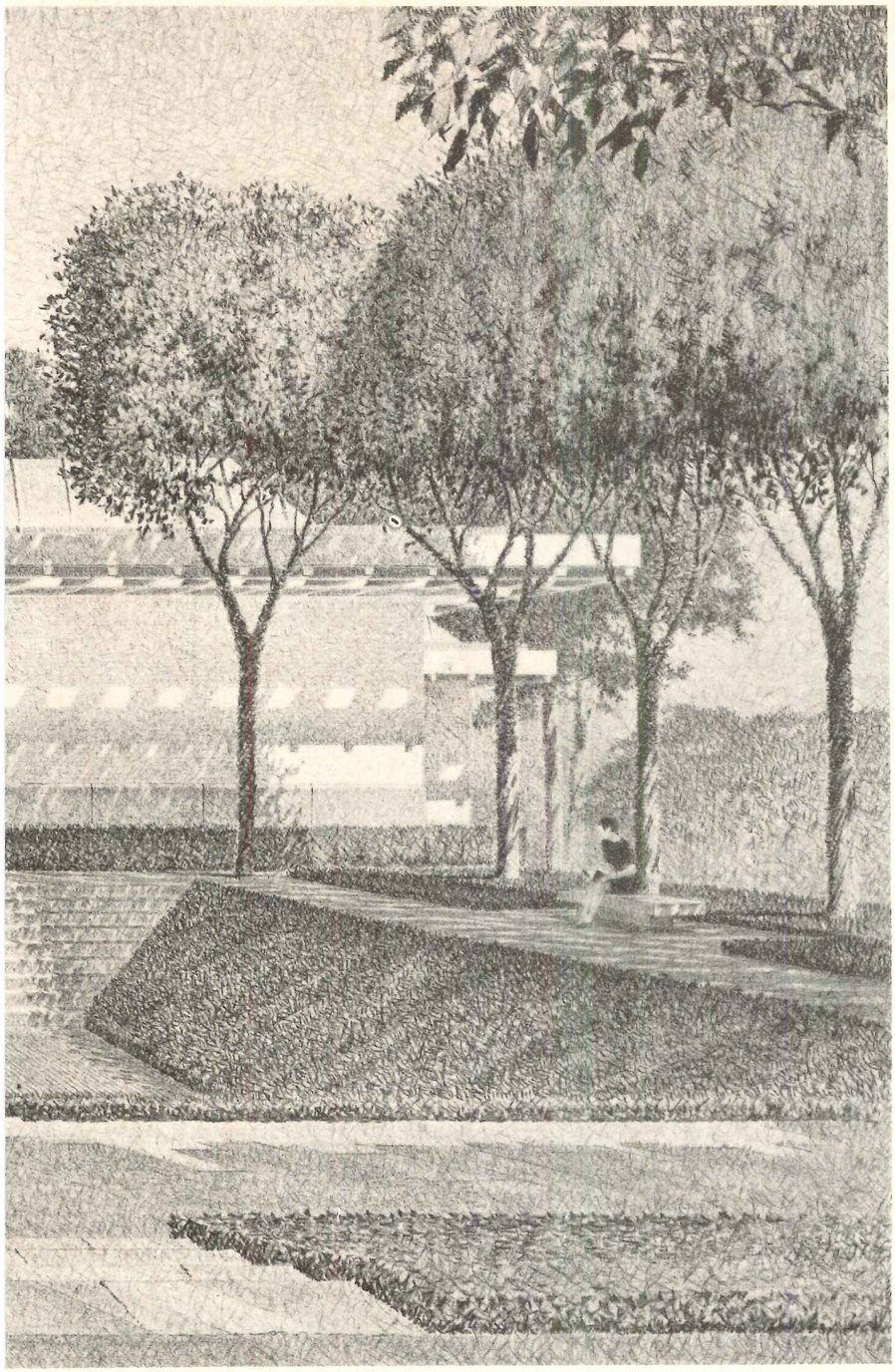


The Warren Platner house in Guilford, Connecticut, now in the early stages of construction, has been described by the architect as follows: "Situated on a promontory in a rural river valley, my Connecticut residence for a family of six overlooks fields, woods, stream and salt marsh. The design is conceived as a series of related pavilions, varying in scale and outlook, stepping down the hillside toward the river and also toward the northwest, following the natural contours. Interwoven with the pavilions are a series of terraces on several levels, some paved, some planted, open on the river side and enclosed on the opposite. Spaces within the houses are simple and formal and vary greatly in size and atmosphere, although there is a consistent character common to all parts. Windows frame a variety of views, both intimate and distant, and a majority of them are bays, many of them double-bayed in such a way that one sees one bay beyond, or within, another, thus giving a special character both to the framing of views and to the natural lighting within. Bays on the northwest side have glass-roofs. The dining room is a plant conservatory, the living room (right) an airy luminous cube oriented toward the river."

WARREN PLATNER RESIDENCE, Guilford, Connecticut. Architect: *Warren Platner;* structural engineer: *Henry Pfisterer;* mechanical engineer: *John L. Altieri, P.E., Consulting Engineers.*

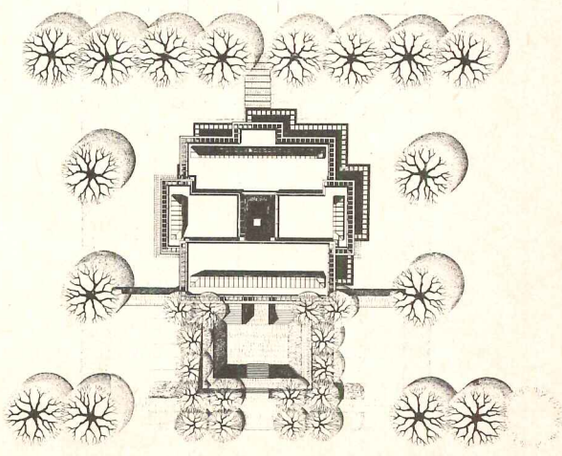

BARR





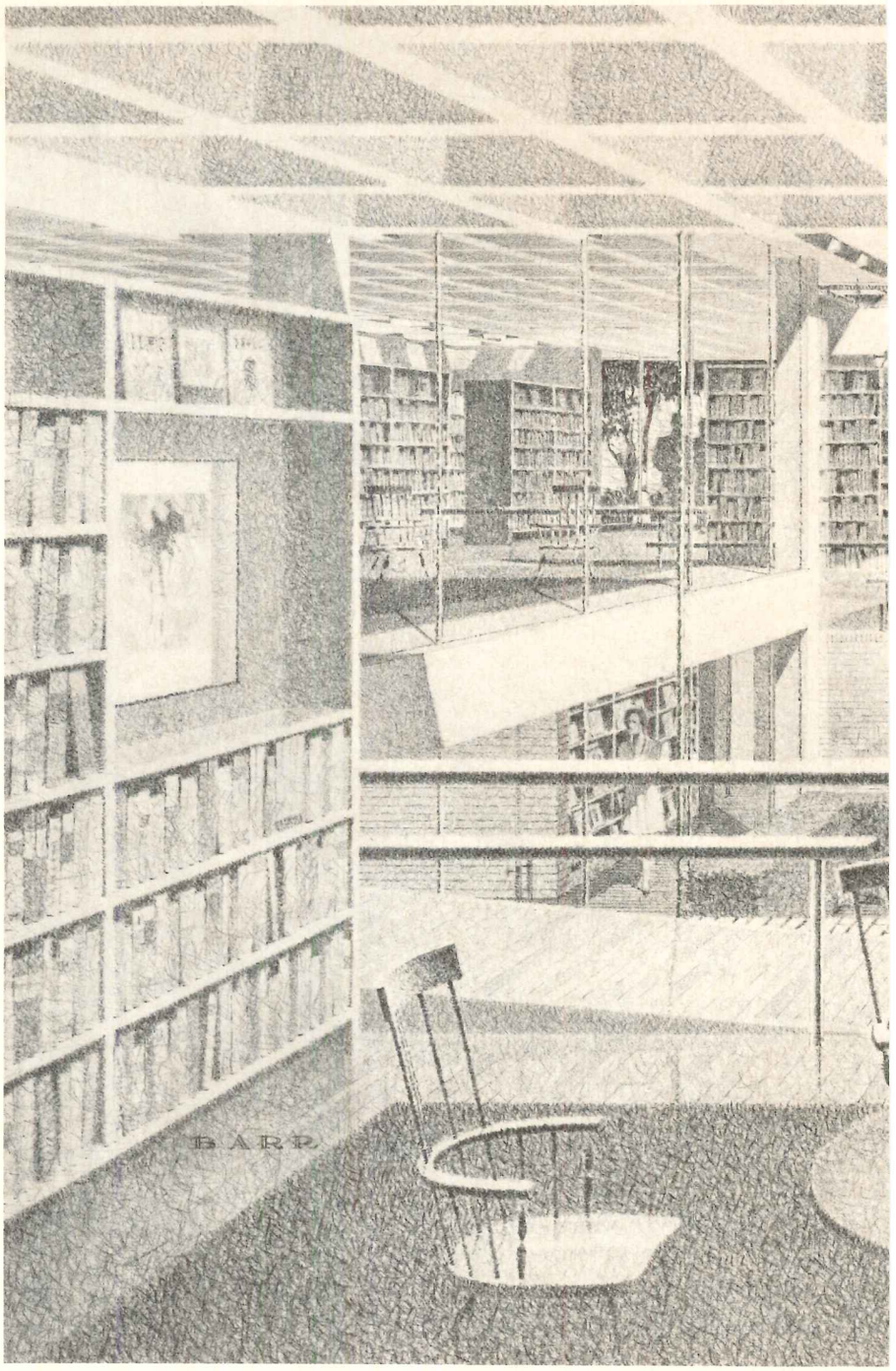
The Kent Memorial Library is situated on the most prominent site in the town of Suffield, Connecticut, and has been designed as a focal point. According to architect Platner, his building has been conceived as classical in form "basically three interconnected pavilions stepping down the slope from Main Street. The structure is masonry and composed of brick terraces and ramps, brownstone base and steps, white painted sand-molded brick walls, white painted, delicately detailed concrete eaves, cornice and fascia and standing-seam metal covered skylight dormers. The building frame is pan-formed reinforced concrete, designed to make the most of its economical and esthetic aspects and painted white throughout.

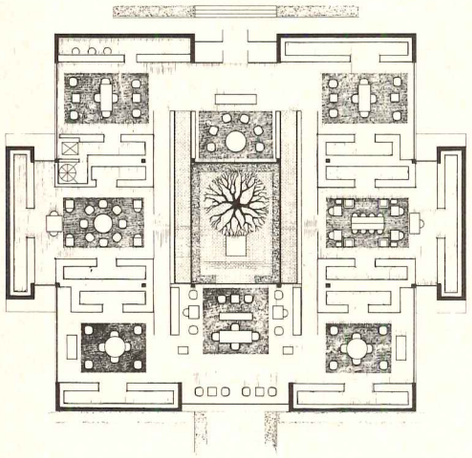
"The library spaces are arranged on five different levels connected by ramps, around an open garden court on a sloping site. The uppermost level faces on Main Street, the center of Suffield Green to the west. The median level faces east to the only commercial area in town, an area which provides general parking and whose shops, banks and services combine with the library in a convenient nucleus of activity. It was necessary to plan two opposite main entrances to the building and the resulting scheme brings visitors to the building into the library at one central control point, near the charge desk, through the garden to the west (left) and through a covered entrance on the shopping center side to the east. This arrangement of spaces assures an easily supervised and serviced library, an understandable and orderly system of book collection identity and an open-viewed building providing a degree of personal reading privacy and warmth of character rare in public libraries. Economical future expansion of the building is planned to the north and south as part of the design."

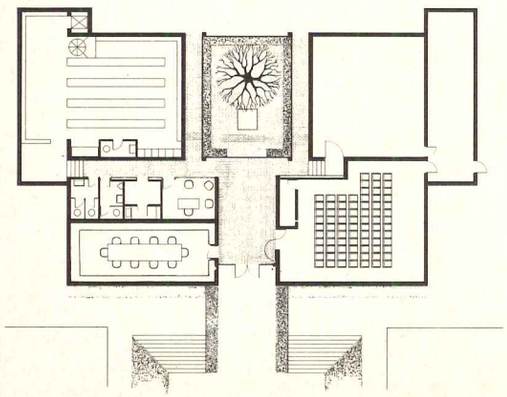


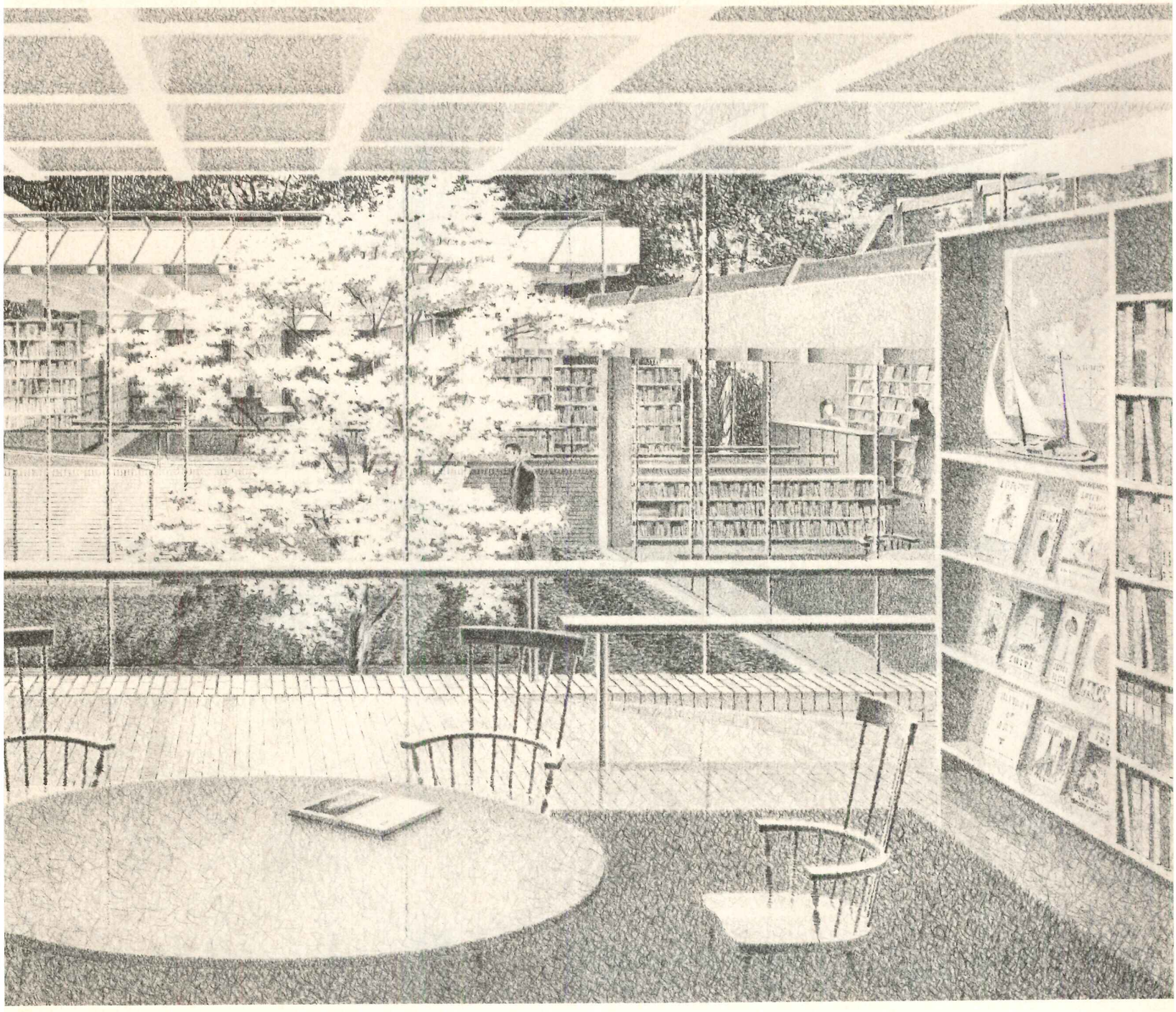
For the library interior "the most desirable arrangement," according to Platner, "would be one of intimate spaces surrounded by books, much as one's library at home would be a book-walled room. Such an atmosphere is naturally conducive to the relaxed and pleasurable search for books and to the reading of them. It provides an interior that is handsome by its very nature, since walls of books are one of the most friendly and beautiful of building materials." Based on this concept, the library plan was developed as a series of relatively small booklined spaces, each with comfortable and efficient furniture for reading and study, the books arranged in double-walled alcoves, each space with a windowed view into the garden court, or out upon the surrounding landscape of Suffield, or, in some spaces, both.

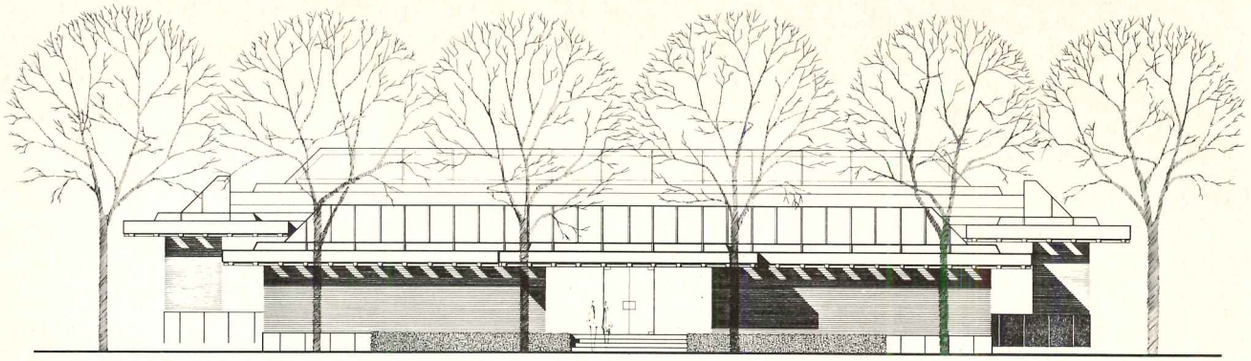
THE KENT MEMORIAL LIBRARY, Suffield, Connecticut. Architect: *Warren Platner;* library consultant: *Kenneth R. Shaffer;* structural engineer: *Pfisterer, Tor & Associates;* mechanical engineer: *John L. Altieri, P.E., Consulting Engineers.*

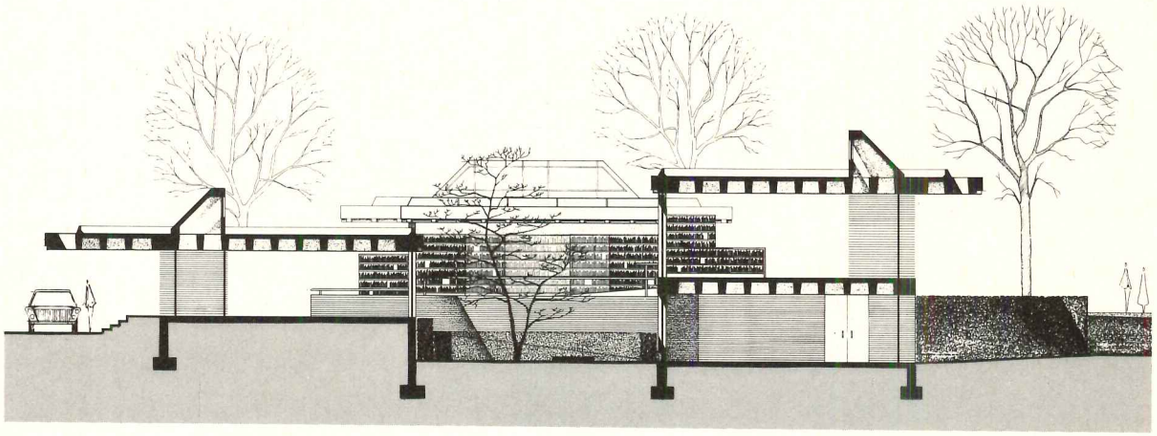


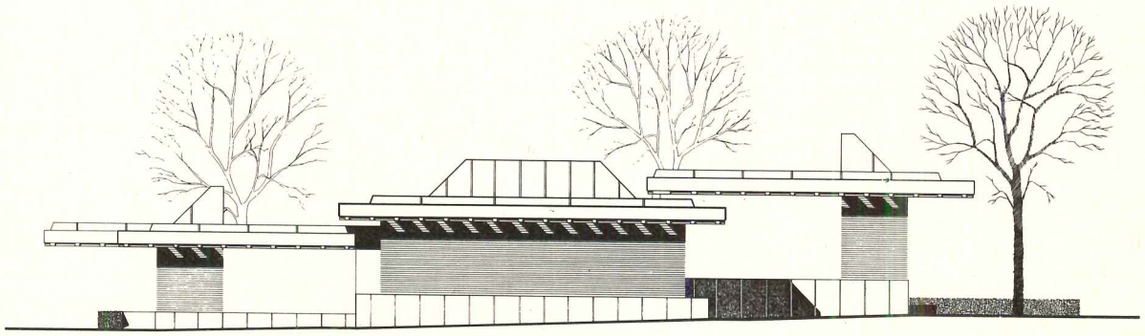












Skylights illuminate the reading alcoves wherever possible as the elevations and sections show. The east elevation (top) is on the downhill side. Its principal entrance leads directly to the main floor. The north elevation and section show how the design accommodates to the slope. From the west one enters by ramps passing under and through the building.

IT'S NOT JUST THE CITIES

by Albert Mayer

Part Three: Nodes on the national continuum: a rich tapestry of varied magnets

The second installment of Part III of the continuing series by architect and planner Albert Mayer completes his overview of the alternatives to present trends Mr. Mayer believes could be designed toward a more humane future environment. The outline below covers both last month's installment and this one, with the sections covered in this month's installment shown in bold type.

1 The new planning: Some elements involved. Building-in the dynamic limitations, from the start. New areas: Scatteration, or sub-concentration.

2 New metropolitan areas based on a middle-sized city.

3 New towns and new cities. From scratch; or up from small settlements.

4 Galaxy of cities: the Regional City.

5 Cluster of small towns. One hour, say, from a middle-sized metropolis. More remote, with new central town. Multi-county set-up.

6 The small city or town: Freshly examined in the 20th century. With college or university. Diverse; multi-county again.

7 Mini-nodes: Wide experience and nationwide sub-regional impact.

8 Poor people's cooperatives. Development mini-nodes. Ad hoc: or, powerful new directions?

9 States – Regions – Corridors based on range of nodes and adaptations.

10 Over-developed areas: "Residual" development.

11 "New" state or region: Arkansas as an example.

Part One of this series, "The National Continuum of Urgency and Opportunity," appeared in June 1969, pages 151-162; Part Two, "Megalopolis—Multiplying the Intolerable," in September 1969, pages 171-182; the first installment of Part Three in November 1969, pages 139-146.

7 Mini-nodes: Wide experience and nationwide sub-regional impact.

The Rural Electrification Administration has, as everybody knows, deeply changed the nature and functioning of rural enterprise, the availability of amenity, and of task-easing in domestic life.

As a quick index, 98.5 per cent of farms are now electrified, as against 11 per cent when it started over 30 years ago. From its New Deal origin in relieving the forlornness of life on farms, it has long since enhanced the environment and productivity of rural non-farm communities.

A great deal of its dynamism is explained by the dynamic National Rural Electric Cooperative Association (NRECA) which has 1,000 local member groups in 46 states; and in 2,600 out of 3,100 counties. Aided by NRECA's Rural Areas Development Department, set up in 1961 in its national headquarters, these local groups are doing a major job of creating counter-magnets in still smaller concentrations of population than we have considered. They are not allowed to operate directly in communities over 1,500 population, but they are multi-county in membership and in the areas creatively affected, their average constituency being a little under three counties.

A few over-all statistics. In seven years some 250,000 new jobs have been created in industry, recreation (both local type and tourist scale), community facilities from water supply to hospitals, even new colleges in some instances, some housing. Their own newer local headquarters buildings usually include auditorium and community meeting room. This dynamism has, of course, played a major part in stemming out-migration, and to an appreciable extent is producing in-migration. The co-op appears to be not only an advantageous form or expedient, but involves a way and a high degree of active people-participation in the work. And there is much involvement by members and staff on planning commissions, committees to raise money for a new college or hospital, etc.

A brief note covering three cases shows the range from old habits through statesmanlike concern:

An article appropriately entitled *Booming and Blooming* recounts pridefully the achievement of the co-op Mohave Electric in Arizona. "Fantastic in-

creases in land values," sell-out of sub-dividers' lots on Lake Mohave and on one side of the Colorado River "is setting a fantastic pace," while just across the river in California there is no development. "This is because of one thing—we have electric power available. They don't."

Well, we in the over-developed areas know all about these lakefront booms, private preemption of access to the beaches, etc. Nothing new there. The same old institutions-habits, and booster incentives.

"The Rural Electrification Administration has . . . deeply changed the nature and functioning of rural enterprise. . . ."

On the statesmanlike side, in the five-county area in the Endless Mountains of Pennsylvania, Larry Hubbard and Fred Fiester of the Claverack Electric Co-op have been active in attracting industry and tourist recreation. In a previously depressed area, unemployment has in 10 years been cut from six per cent to labor scarcity. They say these things:

"Without good schools, hospitals, water, electric power and recreational attractions, industry will not even consider locating in an area," and:

". . . [Our effort is] becoming involved in programs which benefit an entire area, not just rural areas served by co-op power. Sometimes leadership is our role. Other times we need to join region-wide programs. . . . Balance between urban and rural needs by cooperation and common interest."

And I like the confident tone of another, both in the title, *Catalyst for Progress,* and the statement: "Co-op leadership plus local initiative and local funds helped create a spirit of community involvement that can generate great things. . . . It's just part of the rural electric tradition of assuming leadership in tasks others say can't be done."

In a third case, another dimension: as part of the community-area undertaking. In many instances there are such elements as VISTA work, day care centers, home-maker health centers. The Caddo Electric Co-op in Oklahoma helped organize and further helped low-income potato farmers in a purchasing and marketing co-op, helped organize a project and obtain funds for low-cost housing from Farmers Home Administration.

"In seven years some 250,000 new jobs were created in industry, recreation (both local and tourist scale), community facilities, water supply to hospitals, new colleges in some instances, housing. . . ."

In sum, here is an effort and set of efforts of national vision, sophistication, financing, and clout, being efflated and activated by alert locals at local and sub-regional scale. These constitute seminal nodes. One might say of these rural electric groups that starting literally and technically as a power-house of electric energy, they have become a figurative power-house of ferment, performance, total potential. And the NRECA, an organized and organic framework. This is another case of massive financial input paying off, even financially, as big words and eye-dropper input can never do. REA loans 1935 through 1968: $5.7 billion. Repaid up to date in interest and principal: $2.9 billion, plus very substantial reserves which are going in appreciable measure into community development. But, note the present nationally endemic problem of curtailed loan funds.

There is much that needs to be added onto them in terms of planning for measured and not uncharted indefinitely upward ends, of need for some physical and visual distinction—what I have called decentralization of excellence; for more active engagement in the racial arena. But here is great achievement, great promise, great challenge. One of their protagonists said to me, "You professionals and intellectuals just haven't given creative attention to us and our rural small community scene." I agree; agree that we should, and that there is terrific opportunity. In fact, what it needs is a good deal more exposure of the people to architecture and visual-functional development, a feeling of interest in it and need for it. The Main Streets of some of their most active communities look no different than any others; just as crummy and crude, except perhaps no empty stores. And *our* American Institute of Architects "urban design" efforts couldn't at this moment care less, though beginning to stir. An animated but still undistinguished part of the national tapestry, still to be fully realized in rounded planning, development, architectural terms.

8 Poor people's cooperatives. Development mini-nodes. Ad hoc: or, powerful new directions?

Cooperatives were started more than a century ago in Rochdale, England, by poor people banding together for strength and self-help. While they have retained that spirit and are very effective, they have long since changed their habitat into more middle-class circumstances. Within the last few years the cooperative impulse and enterprise have again begun to spring up among the poor, chiefly in small communities and rural areas, who in various ways find themselves trapped, with only embryonic or sub-marginal skills, and whose relatives by and large found no solution in migration. One has just been noted in the Binger Purchasing and Marketing Co-op, Caddo County, Oklahoma. There are other examples helped by NRECA groups. There are in the south a number that arose spontaneously, of mostly Negro membership, but they exist in other areas also. Some of them show both achievement and promise.

They are essentially of two varieties: Some composed of marginal farmers, others of handicrafting women. The marginal farmers are changing from cotton to vegetables—okra, cucumber, peppers—and getting the benefit of growing and marketing expertise. Most members have markedly improved their previous "incomes", *and* in terms of self-respect, the beginnings of self-confidence, self-belief, competence to manage affairs. Bare beginnings of housing and "civic improvement" are visible. Up to now, the scale of solid fully cooperative operations has been small. There may be somewhere near 100, of which perhaps a quarter or a third have by now proven themselves solid and durable: these involve some 15,000-20,000 members.

There has been some financing and help by Ford Foundation, by OEO, by smaller foundations, by Farmers Home Administration. Experience and trained understanding are accumulating. This is D-Day for a much heavier in-put of capital-and-management; for only so will there be a fair test of survival-expansion.

It would then be possible to test out and prove what Father McKnight and others maintain. Father McKnight, director of the Southern Co-op Development Program, has been active and successful in various forms of cooperatives since 1960. He and others are convinced that co-operatives have a definite role in vitalizing rural areas and small towns; can create the social cohesion which is lacking in the present scattered disorganization of the poor: not, Father McKnight feels, to be attained in the disadvantaged areas of the cities. In any event, this is an alternative of some internal promise to the generally

recognized attempts at solutions, and it *could* go a good deal further. It should arouse purposeful attention and active allocation of expertise and funds as a systematic *program* of social-economic-ecological importance, rather than just an *ad hoc* picturesque Sunday newspaper feature. In it the people themselves are taking an increasingly mature part. In our pluralistic tapestry it is a venture and set of ventures that could be a re-play of Rochdale in the 20th century, of our own "intentional communities" of semi-religious character about the same time. They could attain much of the strength of the Israeli pioneering and now very flourishing settlements which have become centers of farming and industry and agri-business.

A number of cooperators and their inspirers have visited and been inspired by the Israeli Kibbutzim and Moshavim which, as everyone knows, have amply proved their social, economic and planning viability in the face of the customary assumptions about the necessity of very large scale and specialization, its actual successful competition with large-scale enterprise. Serious development along these lines would accord with our recognition of pluralism, and above all the validity and necessity of living alternatives to over-developed metropolitan areas. They could develop the same sustained and sustaining fervor, determination, conviction as to mission. The circumstances of their founding by oppressed people who see a new vision have obvious similarity. While they start far behind that stage, the feeling of need is there, and strong efforts are being made to train and indoctrinate. Not exactly a co-op, but with a large component of self-help: Freedom Village, a community of some 400 acres, 12 miles out of Greenville, Mississippi, is being created with the people of the Delta Opportunities Corporation. One example of effort, of many that do, or could, exist.

Personal commitment, leadership and maturity are growing at the local-regional level. But what is lacking and desperately needed is major commitment of funds, and upper level political commitment, on a scale commensurate with other major efforts. There are not only the arguments for massive scale that have been repeatedly made so far. But this being an innovative operation, chance of survival and effectiveness is particularly dependent on the mutual buttressing. Remember that in the New Deal from 1937-1941 the Federal Government spent a quarter of a billion dollars to re-settle people, a good deal of it for land purchase (approximately 35,000 families). It was a substantial start. We need such a start now, a major demonstration. We might turn to the massive Israeli example of the development corporation form which I have been urging: in this case The Jewish National Fund, a combination of both heavy private contribution and government funds over the years, and the best expertise available to both: physical, economic, social, architectural.

The fact is that the required large scale ought to come easy, because agriculture subsidies here come to something over $5 billion a year, most of it to large-scale farmers and farming operations for various forms of keeping land out of production. Two hundred million dollars a year, say, for the poor end of the spectrum would mean less than four per cent of that total. The purpose of noting all this here is not to make agricultural experts out of us. But it has become calamitously evident that unless we from outside the charmed and limited circle of wealthy agricultural lobbying and beneficiaries move in on our own Congressmen, no change will happen. For decades now, the Department of Agriculture has had to be forced, step by step, by us non-agricultural people to help the poor and the poor cultivator. We are enormously involved as city people and as saviors of over-developed areas in providing fresh alternatives. We are members of the continuum.

One other fact. Even now, at once, before the big push that our sense of national continuum requires, there is need not only for capital and operational support, and people's know-how, but to conceive and apply what does not yet exist: a structure and an environmental framework for such cooperative entities, which, as in Israel, would reflect and refresh the bread-and-butter efforts. One example of the functional architectural possibilities in these groupings can be seen in the illustration: The Moshave at Nahalal in Yizrael Valley, designed and built by the distinguished Israeli architect Neumann. A number of other eminent architects have been involved in these simple and highly significant enterprises. So, physically-environmentally, distinctive elements in the tapestry. A brave new world here calls for the same skill and devotion.

". . . Here is an effort and set of efforts of national vision, sophistication, financing and clout, being efflated and activated by alert locals at local and sub-regional scale. . . ."

9 States — Regions — Corridors based on range of nodes and adaptations.

The previous article made clear that there is a central two-fold thesis in the healthy development or cure or re-birth of these areas.

One is to dampen the growth rate of the very elements now emphasized that continue to spiral upward themselves, as well as the accompanying services and intra-transportation and external transportation particularly by air: office buildings, hotels-motels, larger-than-ever mega-convention halls. The concentration needs to be on enhancing the life-giving elements: housing, education, community facilities, recreation, parks great and small.

The other is to realize that the desired dampening of growth will not take place unless excessive present predicted pressures are relieved by developing counter-magnets in new regions of a range such as just described; that it is to the real interest of over-developed regions to support counter-magnets so that creative living and efficient working in the old areas can be enhanced. (Parenthetically, in addition to its better known New Towns program, England's major city-regions such as London, Birmingham, Liverpool have, under their Town Development Act, actually been making contracts with smaller urban entities around the country and successfully carrying out planned neo-migration of population and enterprise into them.)

As in the other sections of this article describing the principal nodes selected, there can of course be no attempt at completeness or exhaustiveness. This would take a volume for each. Instead, we pick out aspects that by their character speak for the character of total development outlook and direction. There is in this section no attempt to go systematically across the board, considering in detail all the kit of tools: urban renewal, Model Cities, turnkey, rent supplements, various inter-escalation or de-escalation of pollutions. Some of these have been con-

". . . What it needs is a good deal more exposure of the people to architecture and visual-functional development, a feeling of interest in it and need for it. . . ."

sidered previously. This section is, really, a continuation from the September article.

Within the viewpoint of lesser upswing in the over-developed areas, but recognizing that some rise must be provided for, the question is: how? The fact is we must apply in these areas themselves the conceptions we have developed in other sections: in terms of growth away from the over-grown metropolitan area into the middle-sized city region which still has room for healthy growth, into New Towns, into other nodes, so as not to swell further the swollen concentrations as we are now doing and encouraging. These programs can to some extent de-escalate the scales of transportation costs required into the super-centers, examples of whose typical out-size magnitudes were noted in the last article. (Note that even more fantastic future costs were not listed there because they haven't yet been estimated: such as automated highways and guideways, gravity-vacuum tube trains in tunnels from Washington to Boston.)

"... It is to the real interest of over-developed regions to support counter-magnets so that creative living and efficient working in the old areas can be enhanced. ..."

10 Over-developed areas: "Residual" development.

Within the present metropolitan configurations we have to face the well-known multiple plight of the cities, their terrible internal housing and socio-economic problems; and their inability to get help in solving these by having access to surrounding political jurisdictions to make sites available on their vacant land. One may consider two aspects: (1) making available some of this vacant land, for housing and community; and (2) the city's internal situation itself.

In regard to access to outlying land: New York State has made a brilliant move in creating the New York State Urban Development Corporation, with very broad powers, and with $1 billion of funds initially. This is the kind of massive funding that can make real dents in our range of problems, and is starting to. It has power to build anywhere, independent of local zoning ordinances, thus including the vacant land we have just been talking about. It has decided on a policy of building only to the extent of five per cent of the total local housing supply, for low-income occupancy in any one suburb, and only in small groupings. If this worked out, there is a major contribution in two directions: the housing problem of cities, and placing low-income workers near the outlying industrial jobs. Many hoorays for this, and fervent pleas to other states. This is indeed an example of putting development capital into improving the quality of life in place of indefinite expansion.

"For decades now, the Department of Agriculture has had to be forced ... by non-agricultural people to help the poor and the poor cultivator. ..."

Obviously and happily, if this move works well, it can make a real dent in central city conditions not only substantively but with the wide powers and the decisiveness that characterize the public-private development corporation form and experience, it should be able to produce results at a rapid rate: in itself so powerful a psychological factor amid the normal murk of uncertainty and delay. And if skillfully worked out, with industry and employment, which is already independently under way in some suburbs, we have here something of the character of a New Town: a node variation.

In New York City, too, there is a creative move on substantial scale. Not only is the New York State Development Corporation operating there also, but two savings banks (The Bowery, and the New York Bank for Savings)—and unfortunately no others—are making both equity and mortgage investments in housing, substantial amounts, *in partnership with local sponsors*—note this merit—with whom they are sharing managerial and operating know-how. Sensitive, encouraging; but in this case, too, only a specimen scale (the word *substantial* used above applies to scale for these two banks; in the whole picture the scale is meager).

In this skim-over of problems and solutions of a section of the eastern over-developed region, several other points are observed that are by no means peculiar to it:

The housing being created as just described reaches down to rentals for middle-income families, and possibly somewhat lower. Beyond that, subsidy is required. The sums appropriated by Congress are just too tragically meager, and it desperately remains to develop Federal and other sources. All the more important, then, to have the economy of vacant land.

Within the major cities there are two increasingly negative phenomena. One, taken up in section 6 of the first article, is the decline of stable neighborhoods, even neighborhoods with a tradition of sturdy excellence, of pride, organization, tenacity. Whole families move away, more frequently the present young-married generation is moving out to the suburbs. The urban neighborhoods they leave are, or just were, pleasant places. There is still a good deal of allegiance locally. But in addition to the overriding movement suburb-ward, this quotation from a New York Times report [1] epitomizes the situation:

"The Rev. John H. Leonard . . . was surrounded by more than 300 youngsters. . . . In the courtyard and gymnasium, they carried rolled-up towels and bathing suits, still moist from trips to upstate lakes or Queens swimming pools because of the lack of recreation facilities in Highbridge."

The point here is that city policy or non-policy causes, accelerates decline because of failure to update with relatively minor and imaginative expenditures on facilities, amenities, schools: not so important then, but critical now. Not only have individual neighborhoods been getting worse under one's very eyes, but new ones keep joining the dismal downhill parade. As far as I can make out, cities don't appreciably move into action until crisis and post-crisis, when expenditure is mountainously more, and the dike has irretrievably burst.

The Greenwich Villages, the Georgetowns, the Germantowns are exceptions, and anyway are now occupied by quite wealthy people. One of the very few cases of re-vitalization in place with much the same middle-class types still living there, in an integrated situation, is the South Shore area of Chicago. New York has just stepped into dwindling Grand Concourse with $1.1 million.

Two other matters in this connection: The major cities need to go further: to create or re-create sub-cities, geographic, political, with a sense of pride and identifiable responsibility, and with sub-centers of some distinction.

A serious irony in the acceleration of deterioration of middle-class neighborhoods: Medical Centers and universities which are given huge grants to study and forward the well-being of cities, are characteris-

[1] New York Times, July 10, 1968.

tically by their giant expansions-in-place a leading agent in accelerating deterioration: desiccating them, not enriching them. Perhaps their first research discovery should be "Physician, heal thyself." Massachusetts Institute of Technology in Cambridge, Temple University in Philadelphia are creative exceptions.

One other facet in the cut-over and then eroded areas in these cities. The stages has been reached in the slums where land has become much less crowded, and people-density has decreased too. The reason is that neglected buildings develop empty apartments, drug addicts and other vandals begin to take over, tearing out walls as well as fittings, danger and insecurity take over, everyone moves out; finally the building is torn down. In many cases there could have been possibly not excessive cost of rehabilitation if the situation had been tackled early enough. But what happens is that the property owner, with generally no particular allegiance to what is only property to him, sees less total rental, decides to meet this by less maintenance expenditure rather than by improvement sufficient to keep up the occupancy and rent roll (which he may or may not have the capital to do). The downward spiral proceeds apace. He lets the taxes run. Finally (to use the expressive jargon), he "walks away" from the property. Literally walks away, doesn't leave any staff. In many, many cases, too, the mortgage holder, often a savings bank, also walks away; as then, later, does the city itself.

The funny (I mean sad) part of it is that I have close personal knowledge of a large a-typical original owner and later mortgagee of such properties, who reverses the classic process of debacle by actual reinvestment as required for proper maintenance and up-dated equipment. It earns a modest and so far steady return, in spite of the general decay: but not private enterprise's normal or hoped-for 15 per cent profit or whatever. Thus, no emulators.

It has already been pointed out that in the new regions, in the counter-magnets, their ultimate well-being cannot be expected if the usual kind of private enterprise and land speculation is the basis. Pretty much the same cycles will be gone through, after a first period.

What I am getting at here is that under the exquisitely difficult conditions in core cities, the next stages have been playing themselves out: a preview of coming attractions as it were.

The whole land and development syndrome has got to be drastically re-examined in favor of some form of public or public-interest-group development and ownership. Otherwise the "never-catch-up" situation which we identified in transit and transportation will surely take over here, as it already has largely done. In Philadelphia and Baltimore, with their simpler row-house situation, and caught at an earlier stage, there is extensive quite low-cost rehabilitation. In most cases the ultimate owner is the housing authority (i.e., public) or a form of individual owner-occupancy on very easy terms—i.e., not the typical private entrepreneur.

If we are really going to upgrade the cities' cut-over areas we must grapple with these underlying factors, against which the new large-scale construction and rehabilitation are measures quite unequal in volume to the total situation. In the new regions, or new towns of the over-developed areas, we have a longer rope, but that's all, until we satisfy these underlying essentials.

11 "New" state or region: Arkansas as an example.

This section is a sort of preliminary workout or model to see what the presentation and discussion of counter-magnet nodes might yield in some overall related place and space. It is, as will be quickly seen, nothing like a state plan, will simply incorporate some of the ideas, try to conjure up a living picture, see what some of the difficulties are, what elements need to be injected that could overcome these. Arkansas is chosen because:

Of the "new" regions, it seems fairly close to, and in some ways, beyond, the threshold of much more development, and correspondingly in danger of what I have called de-development.

It is a state that I happen to know fairly well, so can present with some vividness as an example. Any one of eight or ten other states are probably as suitable, nearly or quite as ripe.

"Personal commitment, leadership and maturity are growing at the local-regional level. But what is lacking and desperately needed is major commitment of funds, and upper-level political commitment. . . ."

Arkansas, with an area of 53,104 square miles, an estimated population (1969) of 1,982,000, has 39 people per square mile. In the over-developed regions: New Jersey has a density of 910 per square mile; Massachusetts 690. And on the urban side, the density of Boston, Newark, New York City, are vastly higher than Little Rock. So, comparatively empty. So, lots of vacant land or practically vacant land, still available, and at much lower prices. To look at it another way, for every man, woman and child there are still some 18 acres of open area at mainly farm or woodland prices. Even when the population will have doubled, there will still be something like eight acres per person available for recreation, wildlife, and natural areas, personal exploration; some almost at one's doorstep, none of it seriously distant. In New Jersey this comes to about one-fortieth of that amount. These are very crude figures, but they make the point.

So, physically, we can do all sorts of things still, create positive conditions whose side effects and millennial effects will be unforcedly beneficial. So, let's hurry up and do it; and attract people from the over-developed areas. This represents a new kind of pioneering—the car and trailer, or the airplane replacing the covered wagon hardships—with "all the comforts of home" and indeed more. Or, looked at another way, it can be thought of as an alternative and more adventurous outlet for those who are now flooding into the suburbs, or wishing to.

Consider some elements and pattern:

A new kind and size of metropolitan area (Little Rock—North Little Rock) with its Green Heart and New Towns, with the possibility of much less of the continuous frenetic quality of the over-developed metropolitan areas and with the equivalent actualities and potentials offered in an ambience of ample size and scale.

". . . There is need not only for capital and operational support, and people's know-how, but to conceive and apply what does not yet exist: a structure and environmental framework for such cooperative entities, which, as in Israel, would reflect and refresh the bread-and-butter efforts. . . ."

The Regional City or inter-related grouping of small towns in the East, such as, specifically, the *Forest City—Wynne—Brinkley—Marianna* surrounding the new State Park, and the larger *Fayetteville* (University of Arkansas) *Springdale-Rogers-Bentonville* grouping in the Northwest corner.

Independent New Towns, either started from scratch or developed as planned growth from present smaller communities.

No inhabited place in Arkansas is as much as 200 miles away from Little Rock, which should afford a

distinguished concentration of high-level cultural opportunities to supplement the localities' own. The urban nodes should be compact and urbane, but in an ambience of openness, nature.

The area has also the interspersed smaller nodes —as for example the NRECA centers.

The State program of the most varied parks and riversides can of course be generous because it is still a new region.

What else? One *else* is the Buffalo River, a wild stream of 132 miles in the Ozark mountains, among the most outstandingly scenic of free-flowing streams, for which the Interior Department has proposed legislation to preserve it as a wild river before it becomes lined with cabins and the old debbil pollution. Read what the New York Times said of it[2]: "Great rocky bluffs and an unusually rich variety of plant and animal life are found along its unpolluted waters, which are ideal for canoeing, float, fishing, swimming." Another *else,* out of a number, is the proposed Ozark Way, an intimate meandering parkway:

"Frontier beauty is a great Arkansas heritage. The Ozark Way is offered as one means for Arkansas to enhance, utilize and protect that heritage . . . The Ozark Way would offer a new driving experience. It would provide a scenic one-way drive through woods and fields. (By the manner in which the divided four lanes would be located and landscaped, a driver would seldom see the two lanes heading in the opposite direction.) It would be a leisurely drive with only the landscape or perhaps a flashing stream or campsite on the driver's mind, designed for safe driving at speeds comfortable to the land it passes through. . ."

So much, then, for the flavor of total urban and natural environmental development, and controlled un-development, as it were. There can be achieved, as I see it, the essence of the urban experience at the range of smaller scales and at the metropolitan scales with enhanced cultural resources (complemented by not too distant other ones such as Memphis, St. Louis, Tulsa; and further by traveling exhibits of great museums; and occasional air trips, as the spirit moves one, to the New Yorks, Chicagos); and ambience of land and nature close at hand, often intertwined.

The picture I've sketched out ain't exactly true. Why? There *is* all that land and scenery and climate and adventure. Well, not quite all that land. For one thing, the here largely beneficial interstate highways have interchanges. Unfortunately, we didn't buy up that land around the interchanges for a song at the time we bought the land for the highway itself, and keep it in public ownership for public benefit, specify 20th-21st century land use purposes and controls. So, the land has now been bought up and is being held for a big multiple of the original price and/or "developed" in the usual sleazy way.

Nor, widespread as they are, are they by any means the only cases. In Arkansas, I will cite just one, as showing what can and does happen the moment there is any new development, and what fails to happen. This *happen* and *failure to happen* is going on all over.

Lonoke was a modest settlement of 2856 people 22 miles east of North Little Rock. Then Remington acquired some 600 acres near there, is now building a plant to employ 1000 people initally. This was done just as a single foray. No community or housing provided for, no pre-consultation with local or state authorities on these, or as to land planning or land controls. This kind of civic or corporation absent-mindedness or policy of non-interest is just too bad. Results as usual: land speculation, orderly development already out of the question both for this reason, and because already there is toadstool development at a number of points, strip road development, etc., etc., etc.

A different kind of case: a tremendous new cave (bigger than Carlsbad) has been opened by Federal and state government near the tiny town of Mountain View; also now the scene of a Folk Center Musical Festival, and an Arts and Crafts Center; heavily visited. This is and will be a terrific tourist attraction. No extra land acquired, no land controls on surrounding areas. Who is going to move in first? Alert authorities, or, the land despoilers?

It is not only that prices soar, but the conditions of large-visioned development-continuity of available land is interfered with by spotty private speculation, as well as often by subsequent scattered chunks of slum-commercial fungus. This is indeed under way. Must it go its full dreary course, or can it be slowed and stopped? While troubling developments have just been pointed out, the state is still largely open and the total of de-development is still proportionately small; much smaller than the appetite for profitable speculative purchase and redevelopment, once things really begin to move, or even give indications of moving. What is required is a series of measures and early strategic purchases by local public-spirited citizens and citizen groups and Ford Foundations and state and municipal agencies—for which there are hundreds of stirring precedents around the country (but usually only after crises have developed). These can somewhat hold the fort, while we drive for institutional change governing ownership and disposition of land and its use. To achieve these means mounting a very determined and persistent drive for legislation and funding at various levels of government.

Fifty for the Future, that remarkably titled spearheading group in Little Rock, has been mentioned before. Its spirited outlook and undertakings supply a new tradition, which is spreading in Arkansas; Forty for the Future in Hot Springs, Fifty for the Future in Pine Bluff, Twenty-five for the Future in Jacksonville. They funded and participated in the state-wide seminar by the Brookings Institution, among other much more massive and forward-oriented studies and undertakings. Could they in a state-wide effort move along both necessary lines? Such groups *could* become the Promethean avant-garde that will preserve, develop, transform, on to the new high ground we have been visualizing. I have no idea whether these aims and means would appeal to them. It is simply an unsolicited challenge.

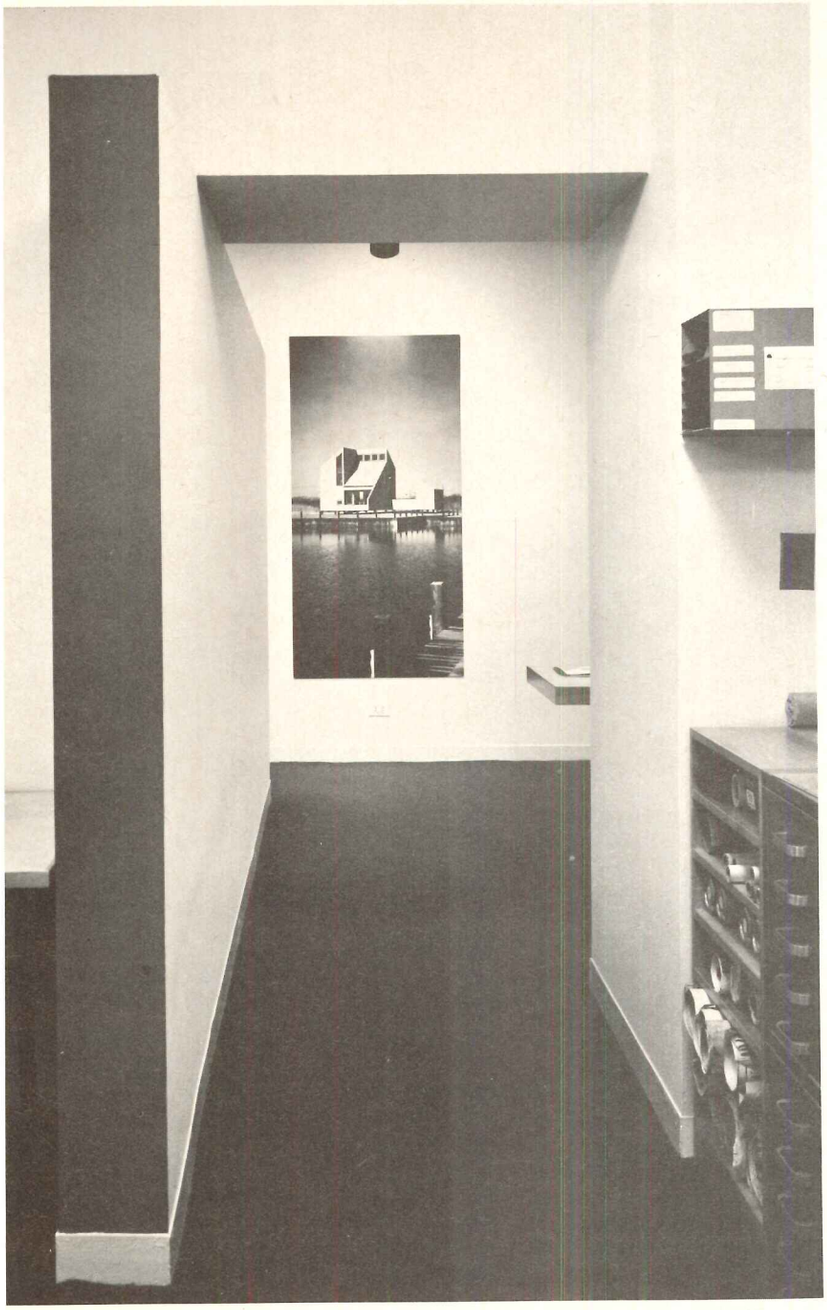
If this thinking, pre-action, can in a timely way be injected into the still favorable physical and settlement conditions, we can create a new kind of environmental total, as a creative alternative to the simultaneously re-forming, refreshed "ex-over-developed" areas, which the energetic preservation of land and energetic development of counter-magnets in New Regions will have made possible. They should become equivalents of each other, not duplicates of each other. Each emphasizes its own special character and values; and within them, nuances and varied kinds of settlements.

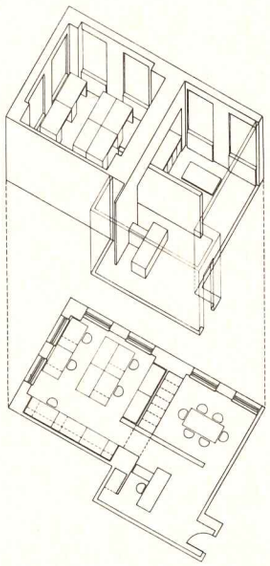
"In regard to access to outlying land: New York State has made a brilliant move in creating the New York State Urban Development Corporation, with very broad powers, and with $1 billion of funds initially. This is the kind of funding that can make massive dents in our range of problems. . . ."

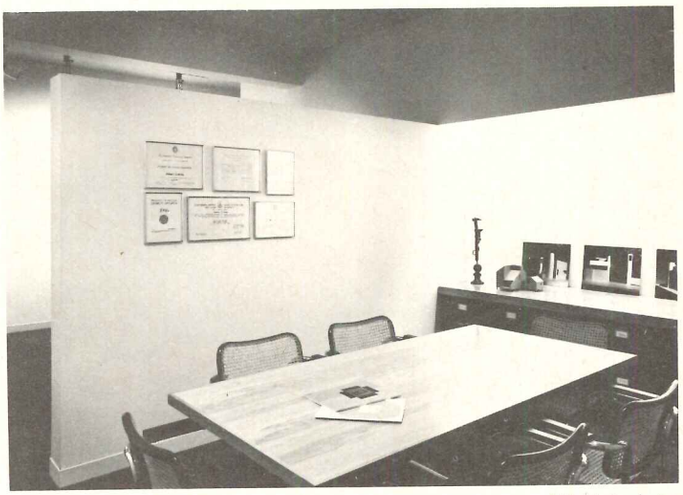
"The whole land and development syndrome has got to be drastically re-examined in favor of some form of public or public-interest-group development and ownership. . . ."

[2] New York Times Editorial, July 5, 1969.

ECONOMY AND FLAIR HIGHLIGHT SIX ARCHITECTS' OWN OFFICES



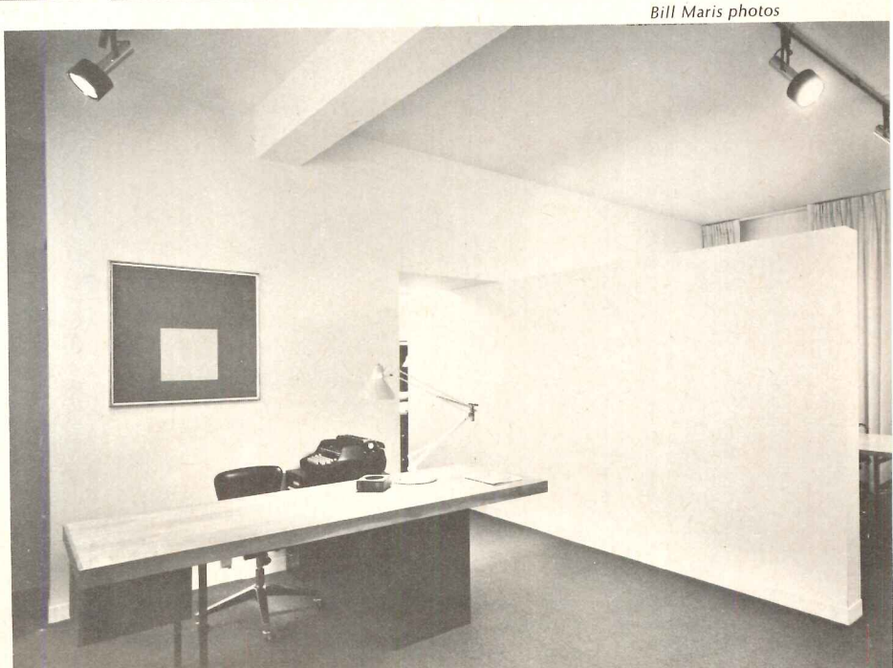




Bill Maris photos

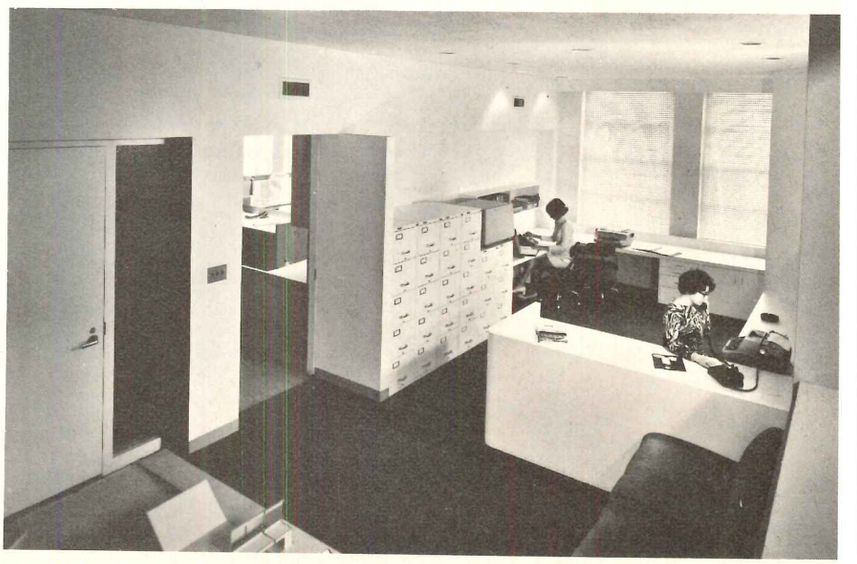
Hobart C. Betts

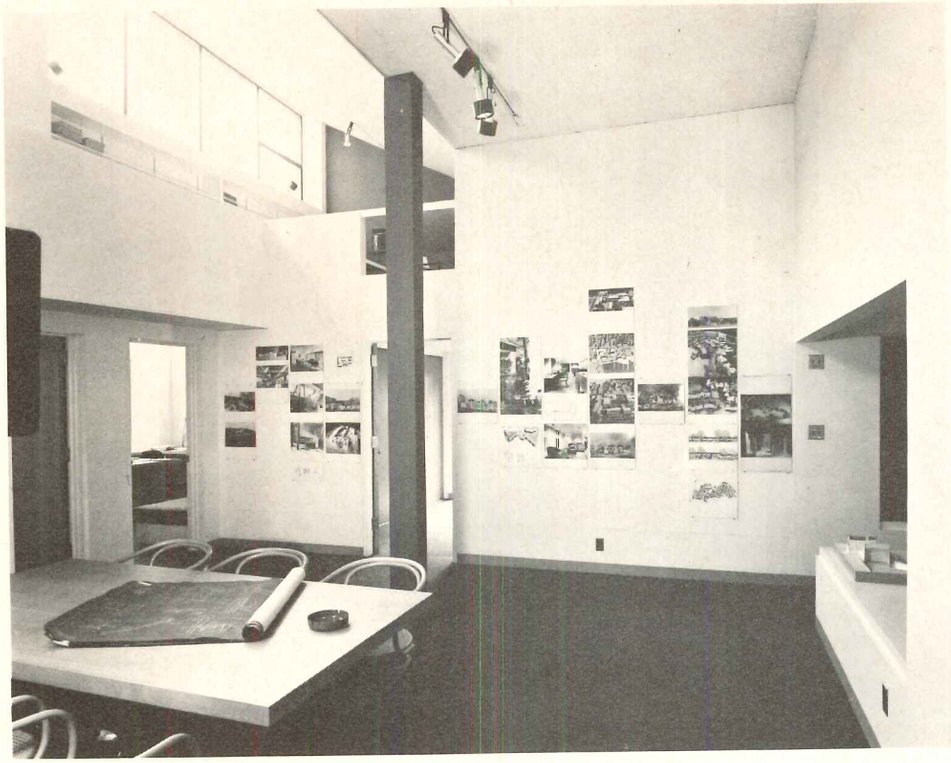
Careful, tidy organization of furnishings and equipment, coupled with some simple space-expanding techniques, have produced some very sophisticated quarters for this young New York City firm. Created from a non-descript "L" shaped rental space of about seven hundred square feet, the offices provide a drafting room with six work stations, a reception area, a conference area, and the necessary storage for coats, supplies, reference materials, drawings and records. Sight lines are directed—or blocked—throughout the area by the use of a free-standing center partition, and by carefully placed and lighted pictures. The contractor was H. L. Lazar, Inc.



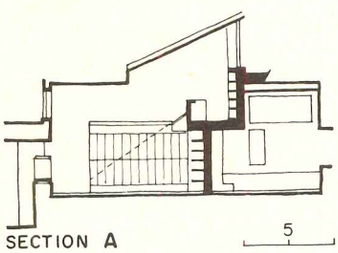
Hoberman & Wasserman

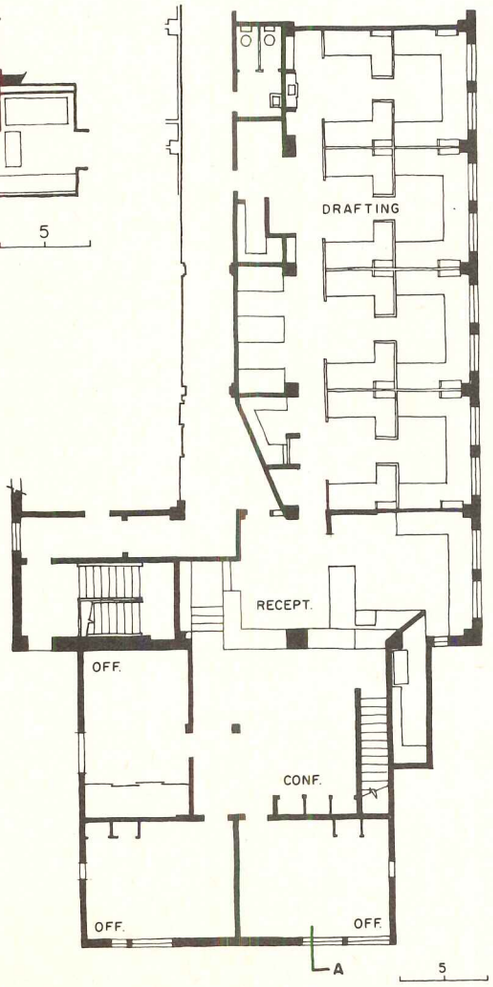
Differing shapes of two rooms in an old New York building were put to inventive and practical use in this colorful scheme. Private offices, a conference room and a library were accommodated in what was formerly a handball court built on top of the existing roof. A mezzanine to contain the library was introduced to scale down the high ceiling, take best advantage of a skylight, and create space for private offices below. Drafting tables were planned in groups of four to create space for reference surfaces and for impromptu conferences at any desk, and to make best use of the existing 14-foot structural bays of the second, adjacent room. The conference area, shown at left and right, top, is centrally located but gives all the privacy required—openings onto the reception area were windows of the original exterior wall. The contractor was Sweet Construction Corporation.

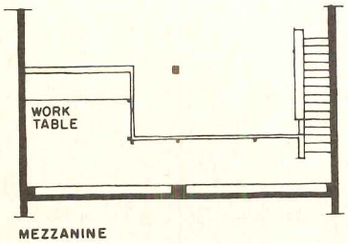


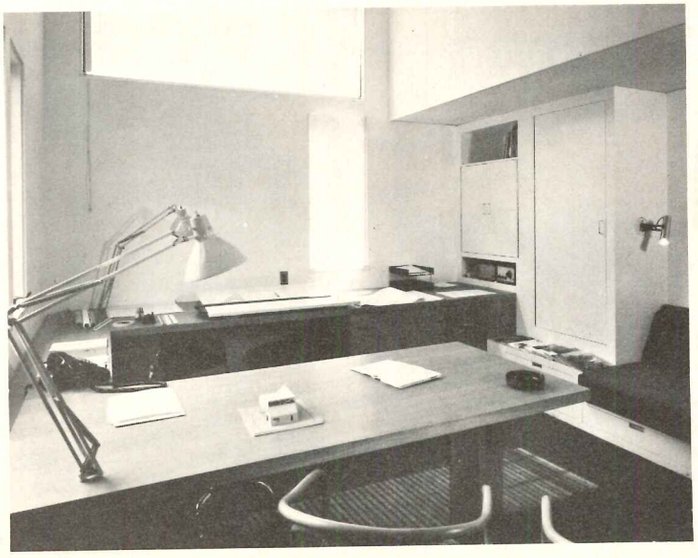


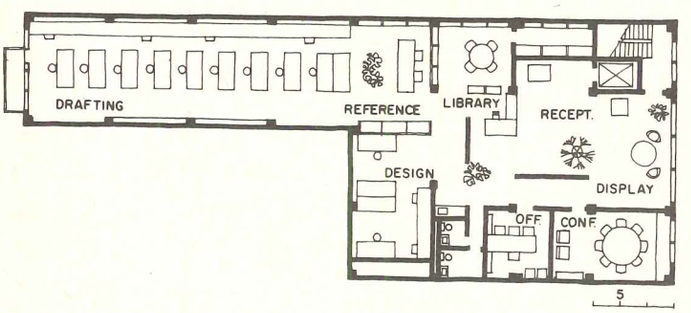
Joseph W. Molitor photos











Robert Brandeis photos

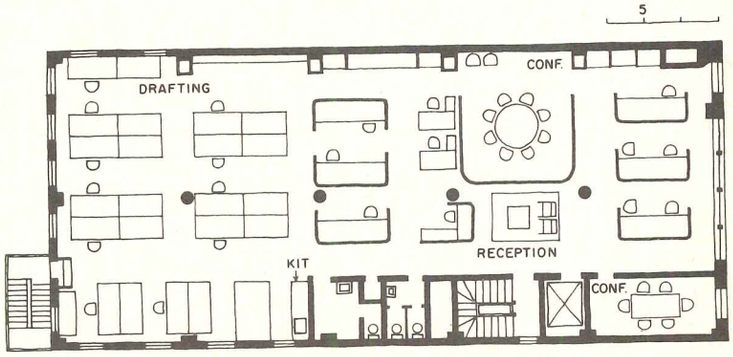
Knorr & Elliott

For this renovation in San Francisco, the architects made use of skylights, concrete pillars, beams and other structural and spatial eccentricities of an old warehouse to create an inviting atmosphere for clients and pleasant work spaces for their staff. Most concrete work is left exposed and painted white. Two display walls of resawn redwood and contrasting gypsum wallboard partitions were added so that, while almost the entire office is visible to the client from the reception room, office activities are effectively divided in the over-all space. Engineers were O'Kelly & Schoenlank; Plant Brothers Corp. was contractor.

Charles E. Hughes

A 40- by 90-foot floor in a New York City loft building was chosen to accommodate the office of a somewhat unusual, informal "atelier" consisting of several semi-independent professionals. Five-foot high cubicles give the privacy required and a degree of autonomy to each, while allowing light to reach the centrally located portions of the floor. The demountable office partitions are gypsum board on wood studs; lighting fixtures are 18-inch diameter fiberglass globes. Architects Mary T. Hood and Christopher H. L. Owen, and designers John Hughes Hall, Maria Ardena Radoslovich and Joseph Paul D'Urso participated in the joint design.

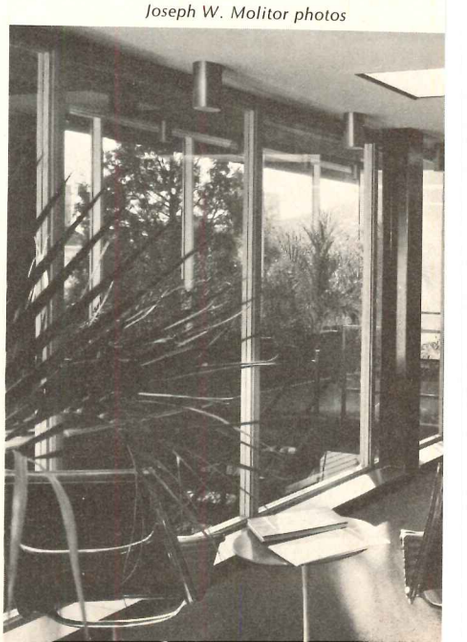
Joseph W. Molitor photos

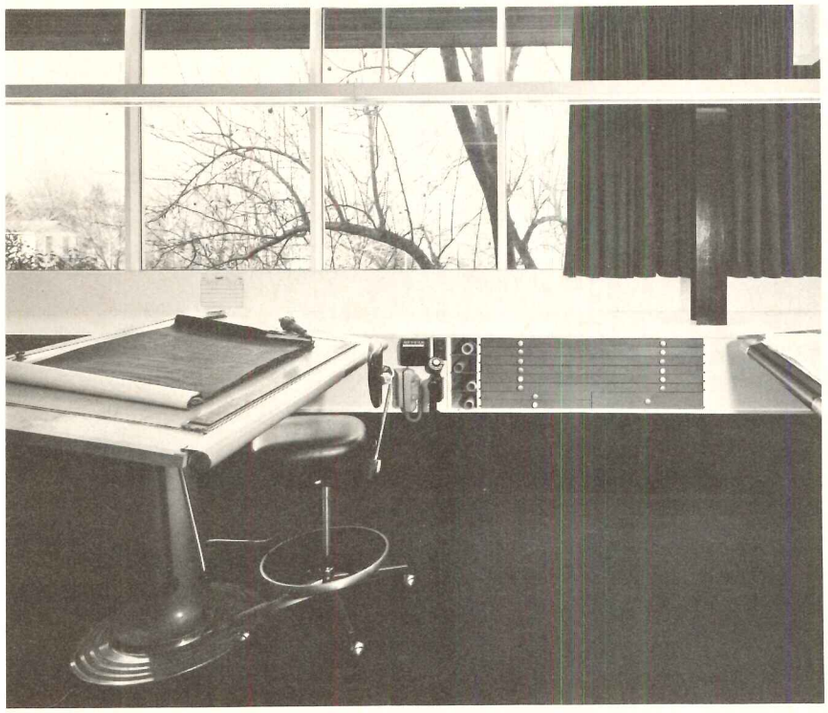


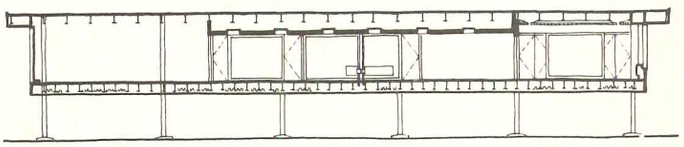
G. Milton Small and Associates

A tree-strewn residential lot near North Carolina State University in Raleigh forms an ideal setting for this little single-occupancy office building. The new building was the result of careful financial studies which led to the decision that constructing rather than leasing space was more economical for the firm, which includes registered personnel for architecture, and mechanical and electrical engineering. The lot is only 69 by 165 feet, but by raising the structure, ample parking and a garden-like approach were provided below the steel-framed and glassed-in offices above. The structural consultant was Ezra Meir and Associates; Frank Walser was contractor.

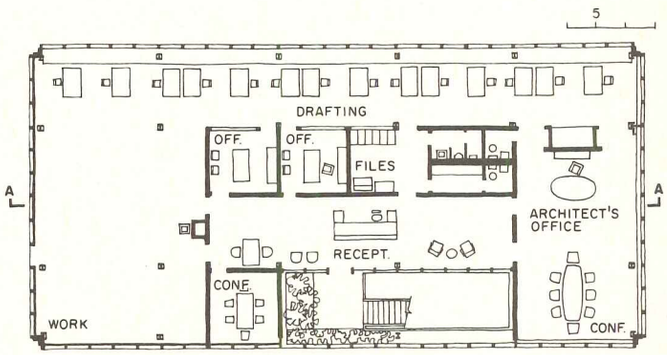
Joseph W. Molitor photos

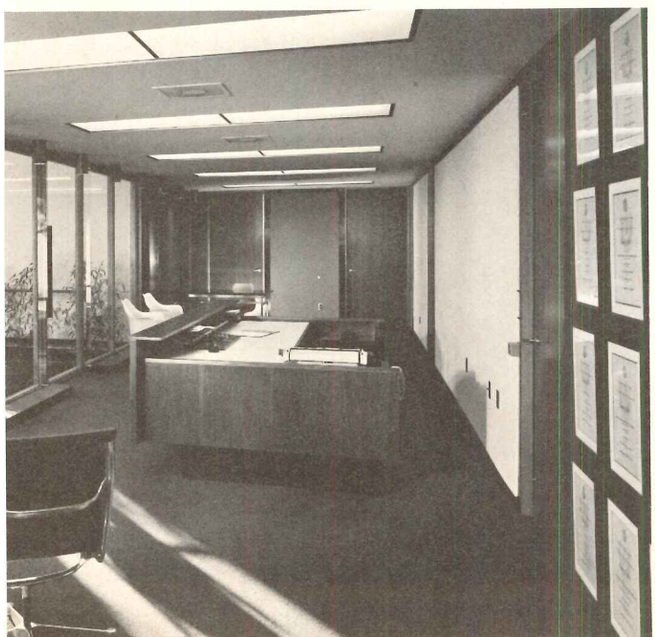


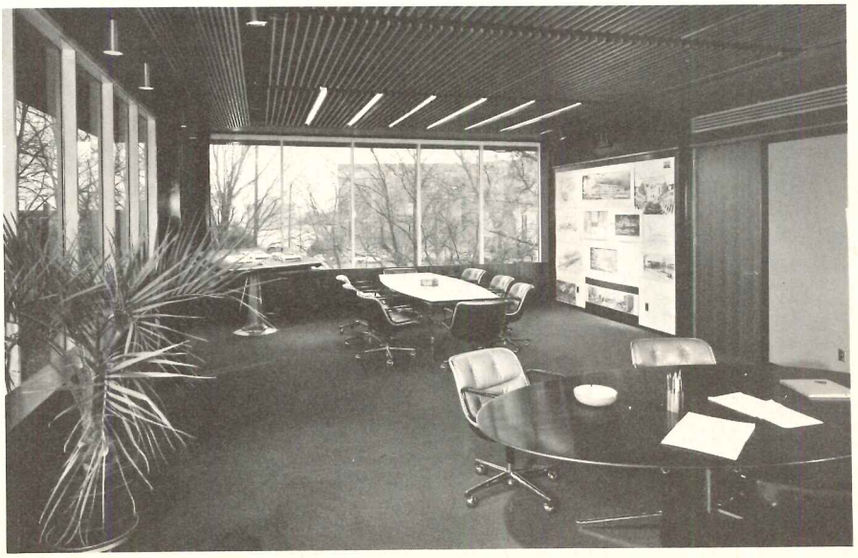




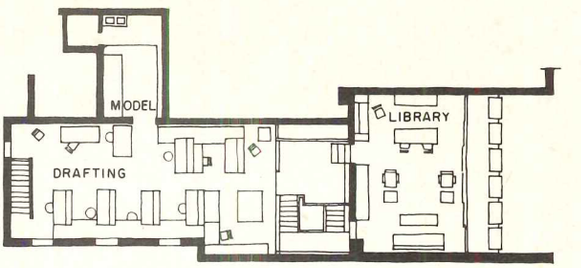
SECTION A-A


5
DRAFTING
OFF.
OFF.
FILES
A
A
ARCHITECT'S OFFICE
RECEPT.
CONF.
WORK
CONF.

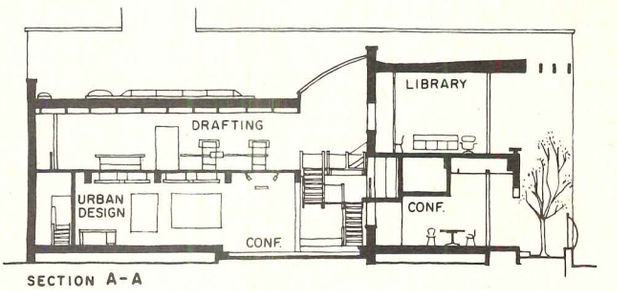




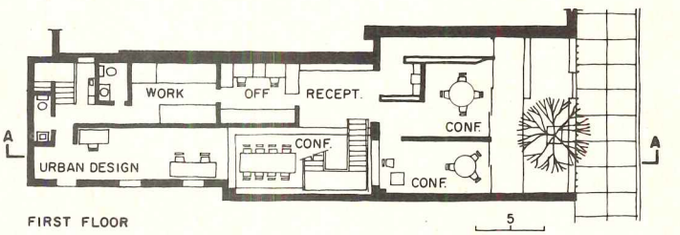
Charles R. Pearson



SECOND FLOOR

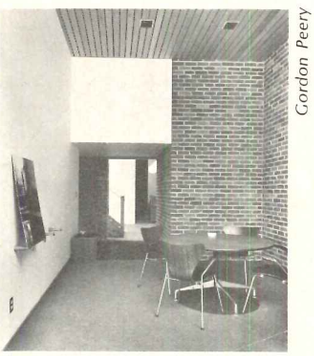


SECTION A-A

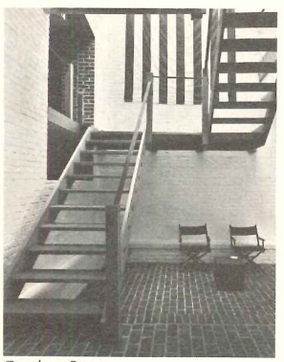


FIRST FLOOR

5



Gordon Peery



Gordon Peery

Charles R. Pearson

Kenneth W. Brooks

Deft rehabilitation of a downtown Spokane, Washington, warehouse has created bright, comfortable offices for this firm practicing architecture and urban design. To penetrate spaces with light, the facade was knocked out and replaced with glass, and an arched skylight was placed over the stairwell. It was planned to house 10 to 15 architects and staff and includes such amenities as air conditioning and a fireplace in the library. The old brick was sandblasted and left exposed; new partitions are canvas on gypsum board. Consultants were: Lyerla & Peden (structural); Kendall M. Wood (mechanical); Joseph M. Doyle & Associates (electrical).

RESORT HOTELS:

SYMBOL AND ASSOCIATION IN THEIR DESIGN

There is a problem in the design of modern hotels which everyone acknowledges but no one seems to know what to do about, or even express very well. The problem can become obvious when an architect who has never done a hotel is commissioned to do one; he suddenly finds himself differing strongly with his client, the client's interior designer and other "experts" in the hotel field regarding that part of architecture in which the architect feels most secure, and about which he is least accustomed to challenge—that is, esthetics and the visual repercussions of design.

Herbert Weisskamp, who has written a recent and excellently illustrated book on hotel architecture,[1] states it this way: "Hotel people see the architect as a puritan who sticks rigidly to his austere modern style, and refuses to give them the ornate or glamorous interior, the trappings of delight, elegance or romance which they hanker for; and the famous architect, better able to get his own way, may seem even more of a peril. From the other side of the fence, architects find that hotel managers place too much emphasis on decor and stage-management, demand over-designed exteriors which disrupt the essential outline and texture of buildings, and leave only elevations and lobbies to architects, handing over the interior facades to unspeakable decorators who horse around with chandeliers, fake antiques and folksy bric-a-brac. Architects feel that they are allowed too little control of the design process, with the consequence that most hotels end up as trivial or flashy stage sets, draped heedlessly over a structural frame."

Disagreements between the architect and hotel developers concerning visual matters tend to diminish, of course, when the architect has designed several hotels, or when his practice is based upon this building type. And historically the architect, not the developer, has made the compromises; he has re-thought the problem of esthetics in hotels or has decided that he must provide what the owner says he needs in the belief that the owner often really *knows* what he needs. Whatever has happened, said established hotel architect tends to feel guilty about this deference to his client's demands in regard to esthetics, may stay off the subject of architecture as art at the local A.I.A. meetings, preferring architecture as business, and thinks the students at the local architectural school may be laughing.

We need, then, to ask some questions: Why do developers and architects tend to disagree about how a hotel should look more often than they disagree about how a house, industrial plant, church or office building should look? What is the basis for the architect's point of view, and what is the basis for the developer-interior designer-hotel expert's point of view? Who is right? Answering any of these questions is not easy, of course, because it requires talking about some principles in modern architecture, how they might need changing, and how they are changing already.

The developer knows what he likes

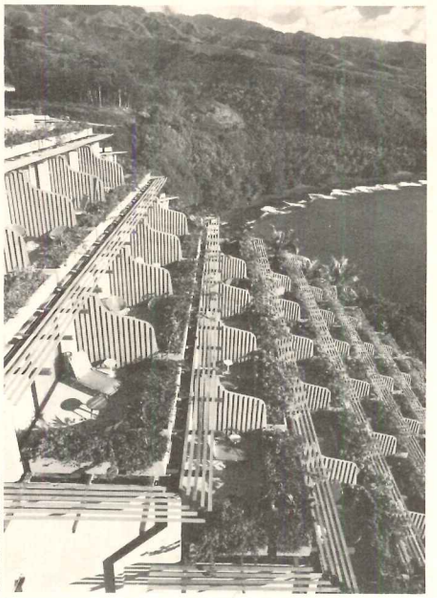
When asking non-architects what they think a hotel, particularly a resort hotel, should look like, or at least what they think it should try to *do*, visually, one gets back a wild variety of answers—unclassified, instinctive, not particularly articulate. But they know what they like and it is worthwhile trying to understand why they like it. The answers can be placed in one of two categories, which may be used to broadly organize and evaluate them; there is the scenographic approach and the psychological approach to explaining what a hotel should look like, and they are closely related to each other.

Stephen W. Brener, who is a hotel consultant and senior vice president of Helmsley-Spear Inc., a real estate firm, says that "atmosphere" is the most important requirement for a hotel if it is to be successful. Atmosphere, to Brener, connotes a sense of specialness, excitement and mood a particular place may cause in the person who sees it or walks through it: what kind of atmosphere one tries to achieve in a hotel depends first upon what clientele one wishes to appeal to and secondly upon where the hotel is located. As examples of what he means by atmosphere, Brener says that good atmospheres are achieved by nature, first of all, and that if the site is well chosen, atmosphere takes care of itself. A pine-covered mountainous site with sweeping views, or an ocean-front site with a white sand beach and semi-tropical vegetation, has atmosphere without the help of, or perhaps in spite of, whatever building is put upon it. Conversely, it is possible for an architect to provide the atmosphere where none existed before; the Regency-Hyatt Hotel in Atlanta by John Portman with its 21-story interior court, the five "theme" hotels planned by Walt Disney for Orlando, Florida (Brener refers to these as "the five atmospheres planned by Disney") or even "The Tree Hotel" in Kenya which is built as a treehouse, off the ground.

A crucial issue in all this is the protection of the hotel's atmosphere from destruction. This is relatively easy in hotels like the Regency-Hyatt where atmosphere is man-made, but not so easy in those establishments that depend on views or the quality of the land around the hotel which is not owned by that hotel. Over-development of an area, and the desecration of the landscape by others is the major threat to many resort hotels, in Brener's view.

Brener's examples tell us little about the real visual and tactile basis for the atmospheres he thinks are important, nor how to create them, but the concept of atmosphere may be classified as a psychological approach to defining a successful hotel, as

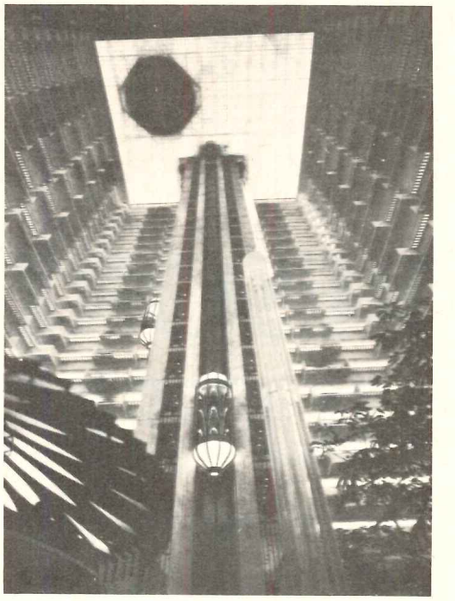
1 Herbert Weisskamp, *Hotels; an International Survey*, Frederick A. Praeger, New York, 1968.



Erwin Christian

SIGNIFIER FORMS, SPATIAL PROGRESSIONS
Eden Roc Hotel, Miami Beach; Morris Lapidus Associates

ATMOSPHERE DEPENDENT ON THE SITE
Hotel Tahara'a, Tahiti; Wimberly, Whisenand, Allison & Tong



ATMOSPHERE DEPENDENT ON THE ARCHITECTURE
Regency-Hyatt Hotel, Atlanta; Edwards and Portman

we said before; we can return later to what its primary foundations are.

Another psychological approach to architecture by a layman was presented by Dr. Bruno Bettelheim, speaking at the NEOCON convention in Chicago last June. Dr. Bettelheim, who is professor of psychology and director of the Orthogenic School at the University of Chicago, did not direct his remarks at hotels and their proper design, but at interior environments in general; nevertheless, his ideas are directly related to what Brener has called atmosphere and represent an articulate version of ideas reported by several interior designers, managers and hotel developers. The following remarks—with which you may not agree, but which represent a common viewpoint —are taken from Dr. Bettelheim's paper, *How Interior Environment Affects People:*

"Our modern buildings offer excellent protection against rain or physical cold; but none against emotional coldness, the sense of loneliness, isolation, lack of purpose.

"The dominant attitude I have encountered among architects is: you tell us what you want, and we'll see that you get it, as if it were as simple as that. What I wanted from them was creative ideas for living. What I got was a series of cubicles based on identical modules, and long discussions on dollar costs of the cubic foot. I got answers to problems of living in terms of machine efficiency and traffic flow, but when it came to why traffic should flow in the first place, we seemed to part ways.

"They seemed shocked when I told them I knew good design is expensive, that unless it expresses the particular spirit it should serve, a building cannot serve the purpose it is planned for. This they should have told me in the first place.

"I do not believe, as I'm told, that beauty flows from function. Certainly beauty does not flow from the function of materials. Huge empty walls, whether of glass or concrete, whether solid or broken into identical rows of windows give, at best, a feeling of cold intellectualism, a stark, economical function and avoidance of frills. But puritanism is not an esthetic virtue; it never warmed the soul." [2]

In contrast to Brener and to Bettelheim, Alan Lapidus is an architect, one who is committed to the design of hotels as the primary basis of his practice. The firm of Morris Lapidus and Associates, in which Alan is a partner with his father, is responsible for such hotels as the Eden Roc in Miami Beach, The Americana in New York, the Jamaica Hilton in Ocho Rios, and the Aruba Caribbean Hotel in the Netherlands West Indies. In Mr. Lapidus' view, most guests come to hotels, particularly resort hotels, for release from the everyday problems of their lives, for two weeks or two days of regeneration, escape and refreshment. In this context, the public areas of the hotel, those parts which the guests see, must act as stage sets—they become backdrops and vehicles for role-playing by the guests. Even salesmen, executives traveling on business, or conventions of whole companies are subconsciously attracted to settings which provide fresh, novel or exciting environments in comfort, where they may be allowed to forget the normal routine and roles of their life. Role-playing varies in intensity for different people, of course, and might be subconscious in most. Yet the phenomenon of role-playing in our society has been tellingly described by Tom Wolfe, in *The Pump House Gang*, a collection of essays about people who seem to be playing roles during much of their day-to-day existence, in an effort to think of themselves as more than just average (Wolfe calls it "starting your own league"), and simply find it more comfortable in Las Vegas and places built for that purpose. Lapidus ventures the opinion that for many of the older vacationers in Miami Beach and Puerto Rico, their role is the 1930's movie, the Bugsby Berkley musical conceived within the lavish and streamlined forms they valued and that became associated illustrations of "the good life." Las Vegas makes its public "King for a Day," broadcasting the aura of fantasy, a mile-a-minute kind of excitement and architecture. It is not just for the people who might live that way normally, but for the blue-collar worker from Pittsburgh and his family on a week's vacation in the West, who can afford Las Vegas because income from gambling makes lavish entertainment free and hotel rooms inexpensive. Las Vegas is for the farmer and the grocery clerk away from his small-town daily routine, or for the just plain bored escaping from any routine. To cope with these issues within the context of hotel or motel architecture, Lapidus talks about "signifier forms", the illusionary use of lighting, the importance of changes in level, and the need for "spatial experiences." It is with these architectural techniques that Lapidus creates his hotels, and it is from the above issues that the need for such techniques grow. They are not the "normal" issues upon which architects found their design philosophies, and may be called a combination of scenographic and psychological criteria, in the context of our original classifications. Lapidus is an articulate architectural specialist who has learned to deal with the issues raised by the hotel professionals and developers; people who know what they want, again, but do not necessarily know how to express it.

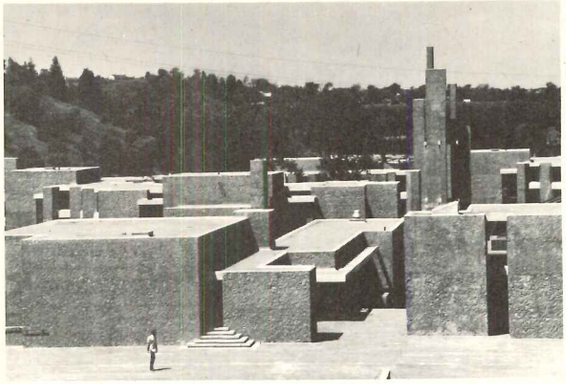
But . . . the architect knows what he knows

The basis of the architect's point of view concerning good hotel design, or good design in general, for that matter—lies in his professional schooling as an architect, what he has learned as a practicing professional about good design, his theoretical commitments to modern architecture, and his own

2 Dr. Bruno Bettelheim, *How Interior Environment Affects People*, speech before the National Exposition of Contract Interior Furnishings Convention, Chicago, June 22, 1969.

© Ezra Stoller (ESTO)

Carrol Moore Ede



© Ezra Stoller (ESTO)

SIMPLE GEOMETRIC FORMS, EXPRESSION OF STRUCTURE EXPRESSION OF MATERIAL

left: Smith House; Richard Meier
above: Trent University; Ron Thom
right: Gateway Center; Skidmore, Owings and Merrill

developing, changing personal style.

In visual terms, architects' training has been founded on the use of simple geometric solids as the formal elements of building; the cube, the sphere, the cylinder, the pyramid. These simple shapes are combined in three dimensions and in complex ways to form the esthetic of modern architecture, with wide variations of color, texture and systems of combination. This is no revolutionary statement, of course; it has been pointed out by historians of modern architecture since the early 1920's, and was clearly stated by Le Corbusier as early as 1923: "Our eyes are made to see forms in light; light and shade reveal these forms; cubes, cones, spheres, cylinders, or pyramids are the great primary forms which light reveals to advantage; the image of these is distinct and tangible within us and without ambiguity. It is for that reason that these are beautiful forms, the most beautiful forms." [3]

The simple geometric solids of that period—untextured, combined so each form is read separately, so that each change in plane or shape is "articulated"—are still with us as a primary generator of the architectural forms of our day.

A second tenet upon which our education was founded, and which the practice of architecture seems to reinforce, is the belief that structure in architecture should be as efficient as possible, should have its outlines or locations acknowledged in plan, elevation or room shape, and should in some cases be entirely exposed to view. Related to this tenet is the insistence that materials be used "honestly," to reflect qualities inherent in that material which do not exist in other materials. Thus, wood should look like wood if possible, and its uses must somehow be different from, say, concrete; a proper analysis of the particular design problem in question should even demand separate usages, separate expressions. Brick cannot necessarily be substituted for wood in a design, or vice versa, without the designer also needing to change the architectural system, or the expression of structure—at least he must feel guilty if he does not consider these issues.

Other preoccupations, both conscious and subconscious, dominate design philosophies in modern architecture; most designers are "functionalists" in one or another sense of that complex word; an architectural solution may be conceived within the framework of as many immutable economic, social and programmatic conditions as possible; an architect learns to estimate costs, cut costs, save the owner money, think of himself as a watchdog for the owner's financial interests.

Now, it should be clear that the basis upon which most architects must found their opinions concerning excellence in modern architecture, and the basis upon which many hotel developers, their interiors people, and some experienced hotel architects found their opinions concerning how a hotel should look, have very little in common with each other. The architect's opinions are founded in academic, carefully learned principles concerning modern architecture in general, which are transferred to hotels in particular. Hotel people, without any very complex academic background in hotels, at least in relation to esthetics, are inarticulate about that subject as related to hotels, deriving their opinions from their own intuitions, guest's opinions, and hearsay—and these opinions tend to come out in terms of mood, feeling, "atmosphere".

Symbol and associations in design

At the heart of the problem are the roles of symbol, association and allusion in art and how these qualities, which all objects possess, are used and understood today. In architectural terms, these issues relate to the ways in which whole forms, small details, or techniques such as lighting can be manipulated to cause associations in the mind of the viewer, can remind him of something, can allude to and call up in the viewer whole categories of subconscious ideas or emotions.

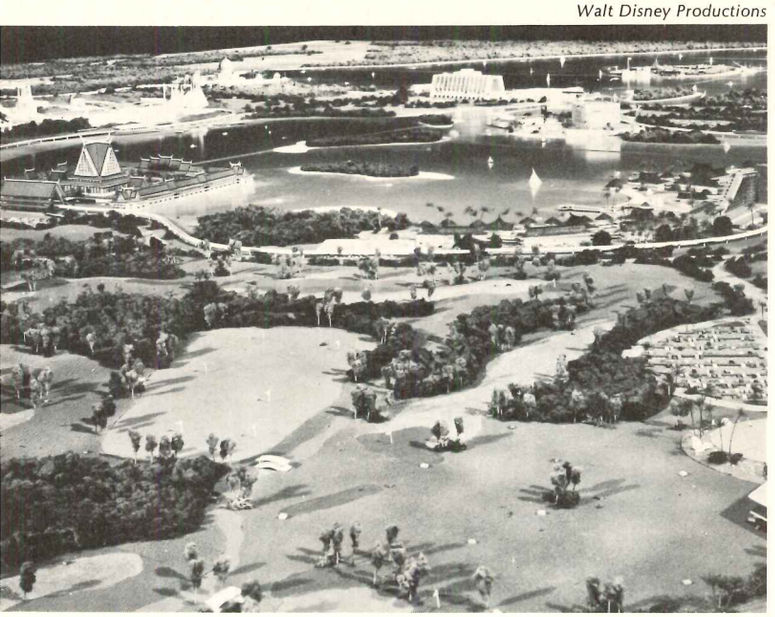
There are banal applications of symbol in architecture, as when a roadside fried chicken stand has been shaped to look like a chicken; and there are highly complex and subconscious applications, as in the feelings of subservience, awe or reverence one might get from a Gothic cathedral, St. Peters in Rome, a New England country church, a stable, three lit candles or a cross. One can use religion and its architecture as an example because this building type has the widest and most commonly agreed upon set of associations and symbols connected with it. Also, implied by the character of the preceding list is another important point: though most forms communicate symbolically with a viewer, the intensity of that communication is not necessarily dependent on the "quality" of that form, on its high or low ranking in terms like the subtlety of its proportions, the rhythm of its solids and voids, or in its correct use of material, texture or color. Nor do the associations we have with a building necessarily depend upon the size of that building, the magnificence of its spaces, or its current use.

What we want to be, not what we are

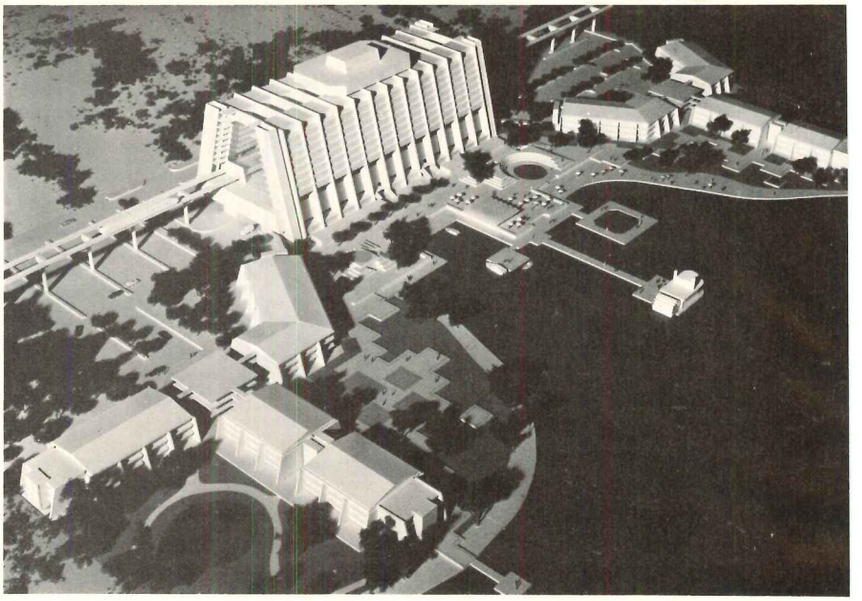
It is not that modern architecture lacks a symbolic sense, or attempts to symbolize as little as possible. Rather, the issue is what modern architecture (and modern hotel architecture) is symbolic of—what people associate it with, and how effective such associations are in creating a successful hotel; one that people want to stay at, or come back to, or tell their friends about, so that the management makes money. It has been stated to the point of triteness that modern architecture is a symbol of the machine age, of a technological industrial society, of ef-

3 Le Corbusier, *Towards a New Architecture*, translated by Frederick Etchells, London, 1927, p. 31.

Walt Disney Productions



Richard Karl Koch



ficiency and clarity rather than multiplicity and ambiguity, but it is still true. The polemicists of modern architecture intended it to be this way, and it probably expresses the way we are most of the time today, though not, perhaps, what we are coming to want to be. ". . . Invincible, triumphant, the machine goes on, gathering force and knitting the material necessities of mankind ever closer into a universal automatic fabric; the engine, the motor, and the battleship, the work of art of the century." [4] This is not Le Corbusier speaking, or the current president of General Motors, but Frank Lloyd Wright, Chicago, 1901. Colin St. John Wilson, in a paper he called "Architecture as Symbol" talks about the "twentieth century myth" and its expression: "If there was a sign of the zodiac underneath which this myth was born, it would be something to do with structure. The psychologist talks of the structure of consciousness, the philosopher of the structure of language, the atomic physicist of the structure of the atomic nucleus, and everybody talks about the structure of society. It has a sort of obsessive power over us, and in that sense, architecture is very much more than the mother of the arts. It is out of such concerns as these that we get our feeling for the purpose of architecture, the action of architecture as being to give the unique and perfect form to a specific combination of functions." [5]

The forms developed by modern architecture to express symbolically the purposes Wilson speaks of, we have mentioned here at the outset: geometric solids, pure forms free from images of past experience, determined by logical process, program and structure. But these issues are not what people vacationing for two weeks in a resort, or staying one night in a strange town necessarily want to be reminded of, even subconsciously.

Venturi, the Romans, and the hotel as Israel

Robert Venturi has been an evocative commentator on current uses of associational elements in hotel and motel architecture. In his ". . . Learning From Las Vegas" article, Venturi writes:

"The Miami Beach modern motel on a bleak stretch of highway in southern Delaware reminds the jaded driver of the welcome luxury of a tropical resort, persuading him, perhaps, to forego the gracious plantation across the Virginia border called Motel Monticello. The real hotel in Miami alludes to the international stylishness of a Brazilian resort, which, in turn, derives from the International Style of middle Corbu. This evolution from the high source through the middle source to the low source took only 30 years." [6]

Venturi points out, too, that associational values in architecture are complex and contradictory, that they add to meanings rather than clarify them, and often alarm architects who are consciously or by habit committed to categorization, further definition and articulation.

The manipulation of associational forms is little understood, but is practiced constantly in hotels, especially in successful ones. A deep red carpet leading through a hotel entrance lobby lined with mass-molded, life-sized statuaries of toga-clad Romans may cost less than a fine-grained oak flooring, furnished with hand-welded steel shaped on marble bases—but the entering guest may associate the first with gaiety, wealth and personal attention, the second with efficiency, business, or similar spaces in which he always had to remain quiet. He may prefer that first association and he has little concern that the second motif is "better design."

The Tel Aviv Hilton, designed by architects Rechter, Zarchi & Peri, has been a very successful hotel, and its architectural forms and functions are thoroughly modern. Designers Dora Gad and Arye L. Noy were responsible for its interior design, however, and Olga Gueft, writing in *Interiors,* tells us why this hotel may be so effective: "The Hilton assignment confronted Mrs. Gad and her partner with a new problem: to dramatize the region so that the guest, who entered the public rooms or opened his eyes in the morning, would sense immediately that he was in Israel and nowhere else. The devices they used were those one would expect—colors of earth, sand and sky, Bedouin stripes in guest room fabrics, desert plants such as cacti, a ceiling of silken-striped folds for the Chalim night club ("chalim" means tent), earthenware suggesting pots of honey and jugs to draw water from a well, copper ceilings recalling King Solomon's mines in the Negeb, sculptural niches in white plaster repeating the deep sun and shadows of desert villages, fabric textures evoking homespun wool and goatshair, also soft leather and tough rawhide." [7]

Walt Disney Modern

One of the most obviously associational and allusionary hotel projects is the series of five resorts planned by Walt Disney Enterprises for a 2500-acre lakefront property near Orlando, Florida. There will be a "Contemporary" hotel, the Polynesian hotel, the Persian hotel, the Asian hotel, and the Venetian hotel, all within sight of each other and grouped around a lake. A "Magic Kingdom" resort similar to Disneyland in

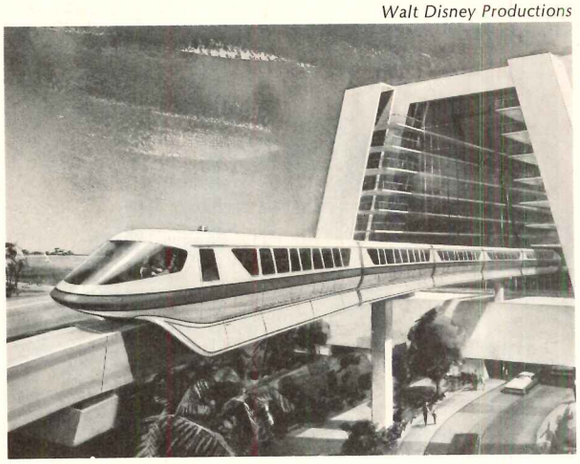
4 Edgar Kaufmann and Ben Raeburn, *Frank Lloyd Wright: Writings and Buildings,* Meridian, New York, 1960, p. 59.

5 Colin St. John Wilson, *Symbolism and Architecture,* "Architectural Association Journal," November, 1953, p. 105.

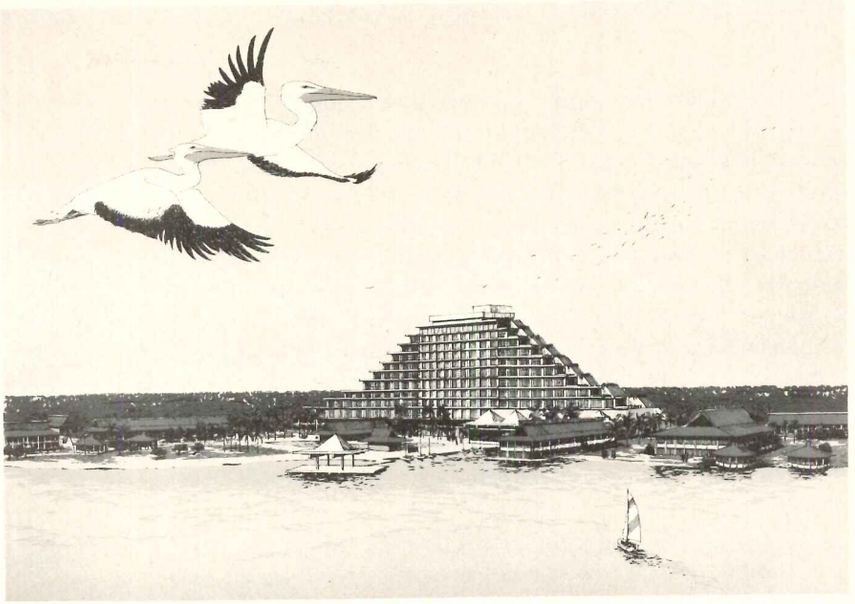
6 Robert Venturi and Denise Scott Brown, *A Significance for A & P Parking Lots or Learning from Las Vegas,* "Architectural Forum," March, 1968, p. 38.

7 Olga Gueft, *The Tel Aviv Hilton—The Work of Dora Gad,* "Interiors," October, 1966, p. 152.

Walt Disney Productions



Walt Disney Productions



EXTRAVAGANT ASSOCIATIONAL AND ALLUSIVE DESIGN

far left: site plan, Walt Disney World, Orlando, Florida
left: The Contemporary Hotel; Welton Becket and Associates
above: monorail through the Contemporary Hotel
right: The Polynesian Hotel

California, but much larger, will be the focus of the area and a key attraction. The contemporary hotel will consist of two 14-story-high slabs placed back to back and sloped into each other, with the structural frame of the two slabs joining at the top to form a very high and long (several football fields placed end to end) interior mall between them. An overhead monorail, the on-site transportation system for the complex, will run down the center of the mall —stopping, going, loading and unloading guests. The architectural expression is not just contemporary—it is super-modern futuristic; the architecture and every detail that creates the hotel's "atmosphere" is straining toward that end, alluding to technological-utopian worlds to come. The train zooms through the center of life on feather-quiet rails, speed without sound; full-size palms grow within the hotel as well as without; nature, the whole site, is controlled. The shape of the building must be "nothing-we-have-ever-seen," the space within must be the largest, the way it is built must be the newest, the never-been-done-before. The U.S. Steel Corporation is in the final stages of developing a prefabricated steel framing system for the hotel with stacked, pre-finished steel rooms to fit in it. The Disney people say it is being developed to save costs, but it is also part of the show; you can suppose that when the hotel is complete (late 1971, and currently moving quickly ahead) there will be a large model continually displaying to the lucky families-with-a-future who have elected to stay there, just how their room was hauled into place and their hotel constructed; all moving by some mysterious, invisible, unknown force, the same invisible technological forces that could create this fantastic place in the beginning.

The other four hotels planned by Disney allude to other things. The Polynesian hotel evokes the far Pacific, Tahiti, jungle drums, Gaughin painting native girls. It doesn't matter that one's images are mixtures of different times or places than what *really* is Polynesia—no Polynesian long house ever looked like that, no pelicans ever flew over them, the water has waves there, the beach is not that clean. It is the image of what people *think* Polynesia should be and is, that they are after; derived from Rogers and Hammerstein musicals, thousands of Hawaiian travel posters, those articles in Holiday, Maugham's Gaughin, James Michener, or television's "Adventures in Paradise." The allusions may be vulgar and the associations laughable to those who have really been there. Or the allusions are vulgar to those who have been carefully taught that forms should be refined and abstracted, so as to make the reading and understanding of them clear, "honest," focused, alluding to nothing but the desire to express them unambiguously. And the allusions are dishonest to those who are habitually accustomed to forms related to the technological age, the image of the machine or the definition and categorization of parts, whether it be the economic system, political or building techniques that is being defined; in other words, to those who have an artistic commitment to such forms as the medium they believe is proper for the age, or the only medium they *understand* —by habit, training and choice.

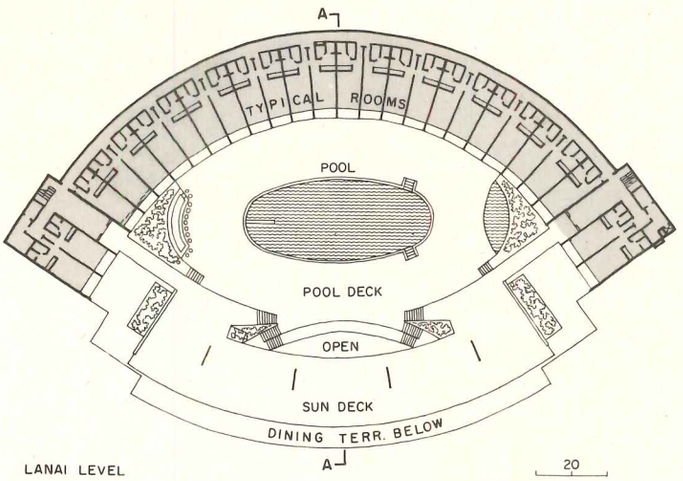
Is there a more appropriate way?

We may be able to say, then, from what men like Stephen Brener and Alan Lapidus tell us, and from what can be seen in some hotels, that hotels often demand associational connections with fantasy, wealth, cultures and geographies other than our own, the personal rather than the bureaucratic, times past or times future rather than the present; with aspirations, perhaps, rather than with what has been realized. Such categorizations are vague and superficial, however, and the ultimate foundations of hotel design have only been suggested; roughly outlined by contrasting their surface characteristics with those of other architectural types, by weighing the evidence of why hotels are used and how they tend to look. The user—the guest—communicates his values by remaining at and returning to certain hotels, his preferences are devious, subconscious, inconsistent, not the same for all, but there is a basis of common needs which a hotel can fulfill, as successful ones prove. To the extent that the fulfillment of these needs rests on the visual qualities of the surroundings, as well as with the functional or economic criteria which we have not considered here, architects must try to understand how the necessary visual qualities are achieved, and how they may be manipulated. We must avoid condemning what has been achieved in this building type on grounds of "taste" or learned esthetic principles; indeed, one of the characteristics of symbolism in forms makes it possible that architects could perhaps improve the "taste" of hotel environments. The original assertion was that the symbolic or associational content of an object (or a building) is essentially separate from that object's quality in other artistic terms—texture, proportion, the subtlety of rhythms, or the play of solids and voids. From this, it is possible for architects to focus their visual perceptions within the framework of the symbolic and associational criteria upon which hotel architecture is based; not contradicting the need for associational qualities in that environment, but making them more subtle, more unified, more complex, more artistic. No other current architectural problem might offer the architect such broad outlets for the foundations of his training; to break issues into their first principles, to combine them and build a solution to a particular hotel design without dependence on criteria used for other building types.

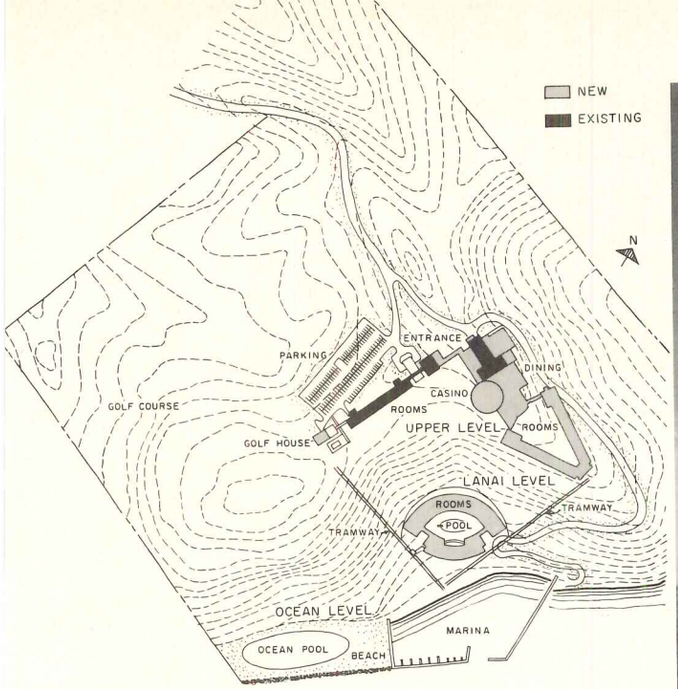
—Robert Jensen

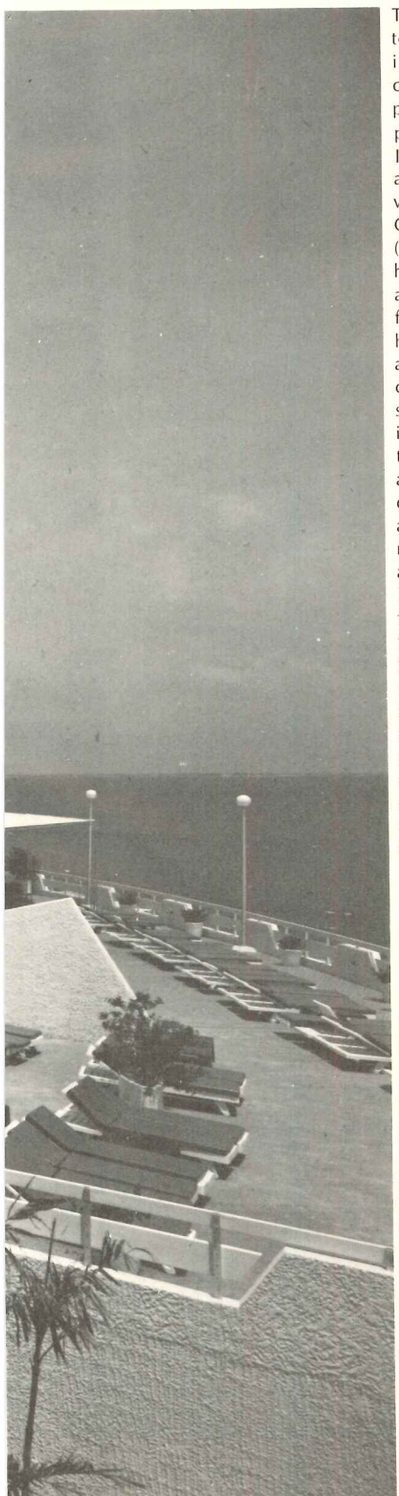
EL CONQUISTADOR: SITING AND DESIGN TO TELL THE GUEST HOW SPECIAL HE IS

The Conquistador tells guests that they have made it. The architecture and siting are controlled to tell you why this hotel is expensive, how special you are, and therefore, why you are doing what you are doing at this price and loving it. There is a view from every room, sun deck, and snack bar; the guest is presented with an extravagant and sometimes dramatic series of spatial experiences; the drive through the golf course to the main entrance, a walk near the casino and major interior spaces to his room on the upper cliff, a tramway ride down the cliff to the lanai and pool portion of the hotel, which he has previously glimpsed from his room, or the continuation of that trip to the sea and man-made swimming lagoon far below. The architecture has been arranged to exploit these issues of siting and view, for the benefit of atmosphere.

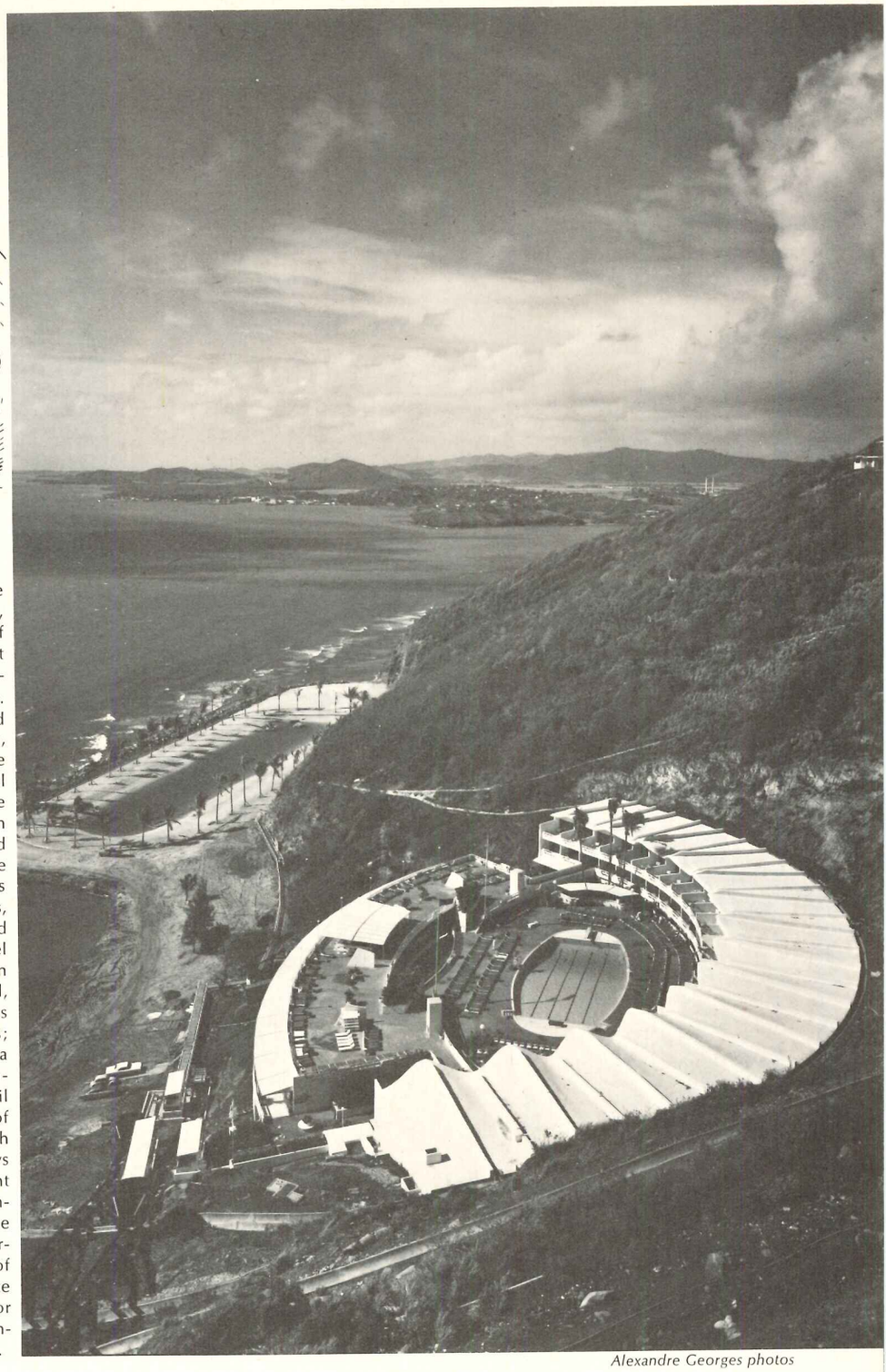


EL CONQUISTADOR HOTEL, Punta Gorda, Puerto Rico. Architect: *Jose de la Torre;* Hotel Consultants: *Morris Lapidus Associates—Alan H. Lapidus, associate-in-charge.*

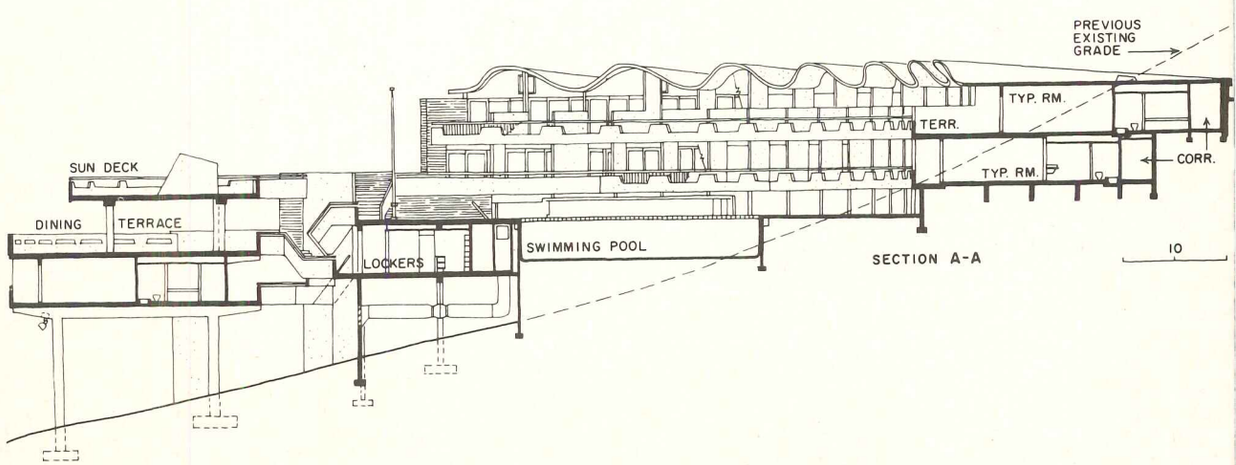


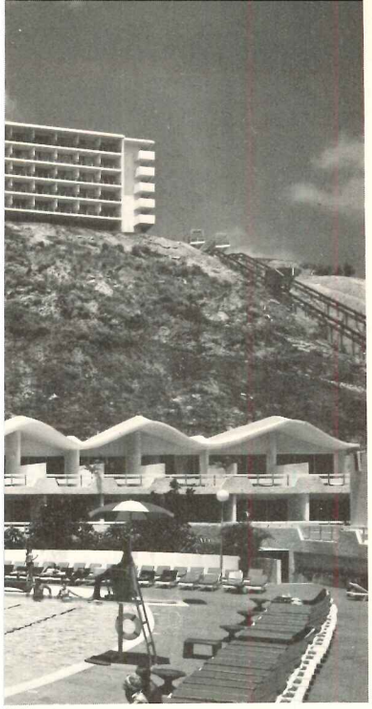


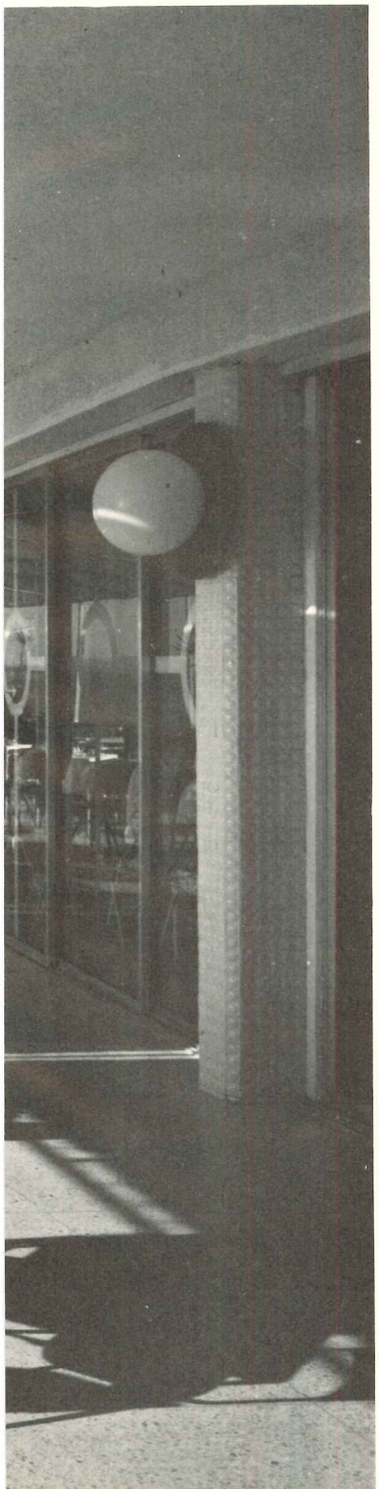
The site plan (above) shows the total El Conquistador complex, including a portion of the golf course, with the most recent portion of the hotel (completed in 1967) shaded in gray. It is located on a point of land about 36 miles from San Juan, with a sweeping view of the Caribbean. The lanai level (photos, left and right) of the hotel sits about halfway down a steeply sloping ridge of land from the major portion of the hotel, which houses the shops and lounges, dining rooms, casino and convention hall, and suites of rooms. The lanai level is reached via a rail car from the upper portion of the hotel, and this same rail car continues down to the sea-level facilities; a beach, an ocean pool, and a marina. The hotel will eventually have three separate rail lines linking its three levels of facilities. The section through the lanai level (below) shows the two floors of ocean front rooms curving around the central swimming pool, plus the dining and deck facilities nearest the ocean. The curving roof of the rooms, plus the white stucco finish on the exterior walls echo earlier and indigenous Puerto Rican architecture.



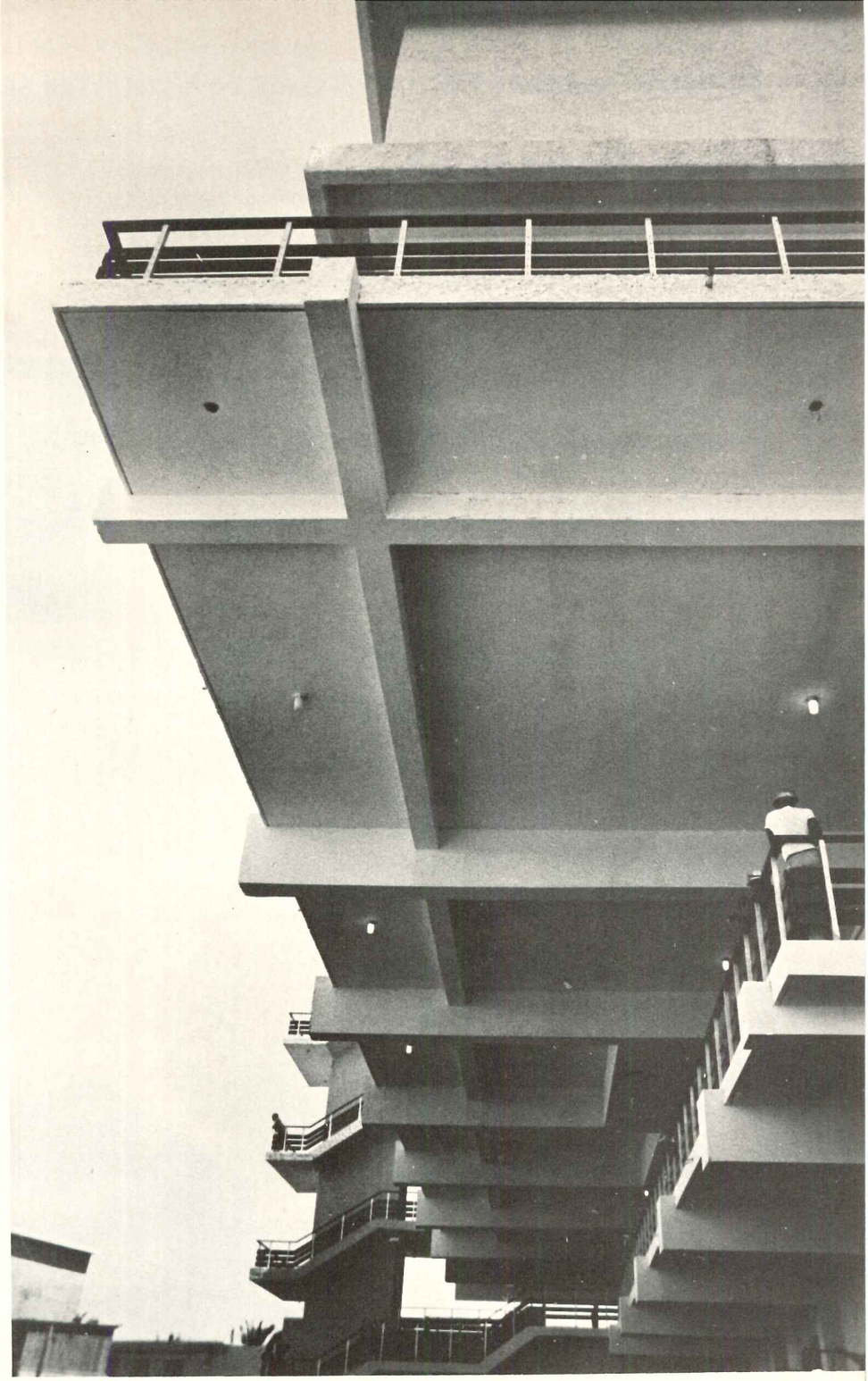
Alexandre Georges photos







The dining deck of the Conquistador's restaurant at the lanai level (left) enjoys a sweeping view of the sea, and is rather simply appointed to take advantage of this view. The outdoor bar adjacent to this restaurant exhibits this same comparatively restrained decor with plain white stuccoed walls and a simple awning—again emphasizing the siting and the view. Within spaces without a view, however, as in the upper level dining room shown below, left, allusive forms and artifacts abound, scrambling for attention and giving various messages, some of them redundant. The primary associations which the room attempts to imply are sumptuousness, wealth, aristocratic comfort. This will work for many people, appear vulgar to a few, and the use of eclectic forms—indeed, the whole methodology of the appeal—may offend the trained eye. More modern and rational in its associations is the underside of a portion of the upper level hotel wing (right), with its exhibition of primary forms, simple surfaces, and expression of structure.

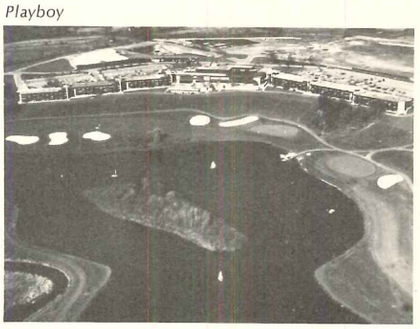


PLAYBOY: ALLUSIONS TO CITY TASTES IN A COUNTRY SETTING

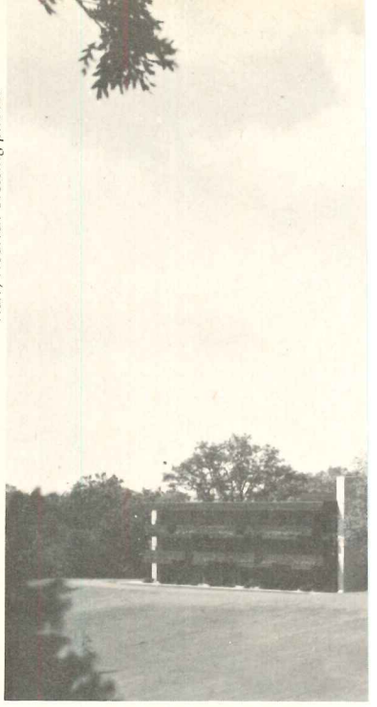
The Playboy Club Resort is insistently rectilinear and hardedged in its individual forms, with bronze glass areas running from floor to ceiling, "office" style, and with its austere, undecorated right angles rigidly limited to two materials. In this sense the club is intellectualized, urbane, sophisticated; related to the city and suburban associations from which it springs. But in its siting, its landscaping, and particularly in its horizontality and jutting overhangs which hug the ground, the Playboy Club relates to the land, to the rural, attempting to speak of carefree pleasures in the country air. This is a valid combination of associations for this city-born club in this setting, but the combination is difficult to achieve, and is one of the chief successes of the architecture.

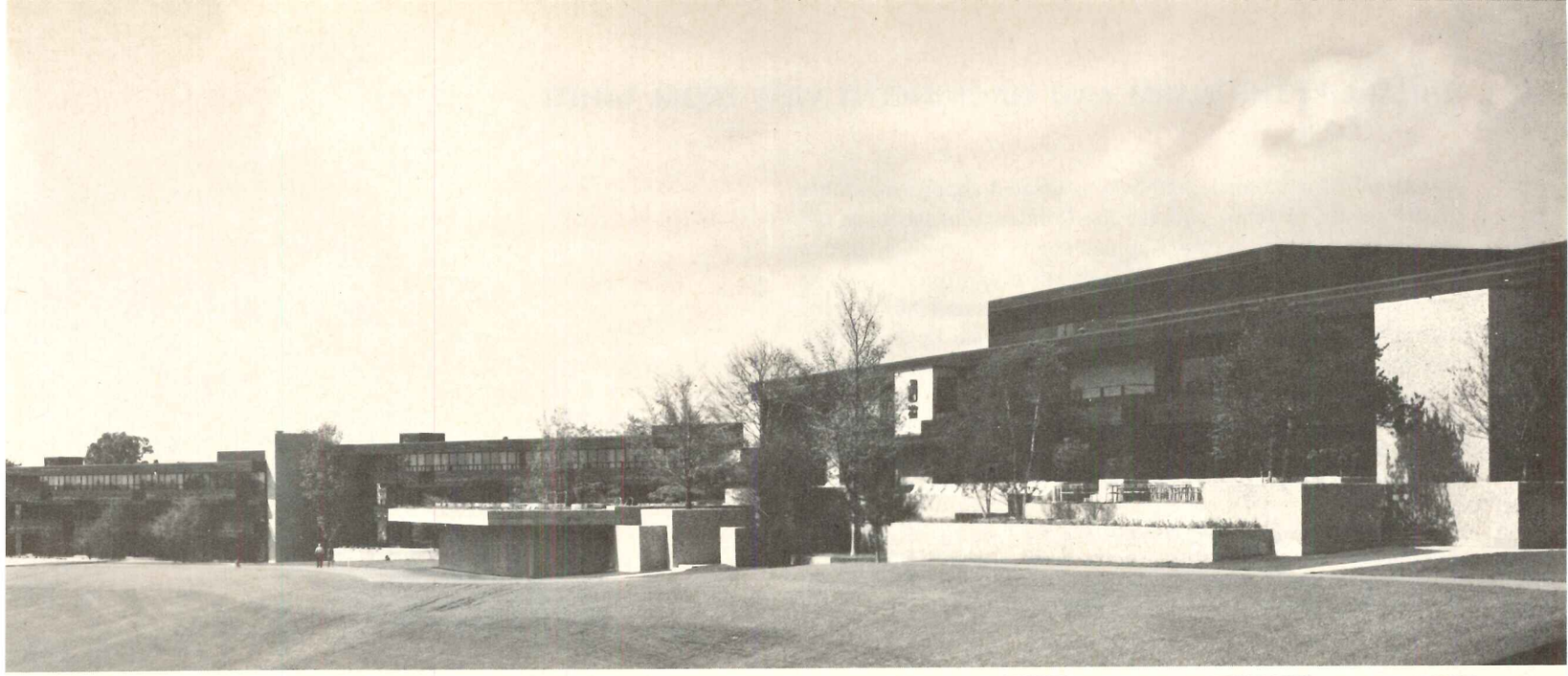
PLAYBOY RESORT HOTEL, Lake Geneva, Wisconsin. Architects: *Robert L. Taege & Associates—Robert L. Taege, executive architect; Paul Magierek, design architect;* structural engineers: *Donald McElfresh (main building); Peter Fung & Associates (lodge units);* electrical engineers: *Melvin Cohn & Associates;* mechanical engineers: *Mechanical Design Incorporated.*

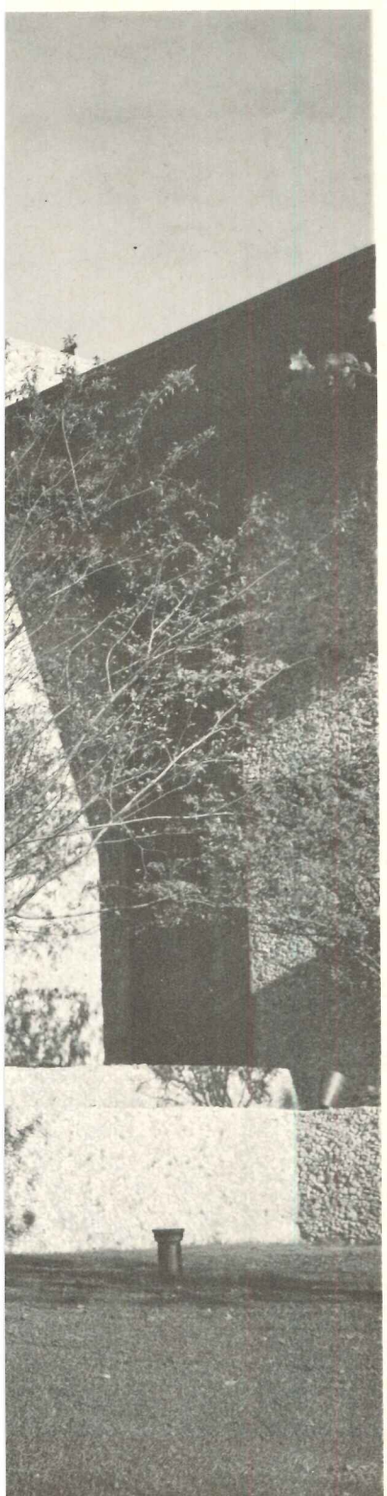
Playboy



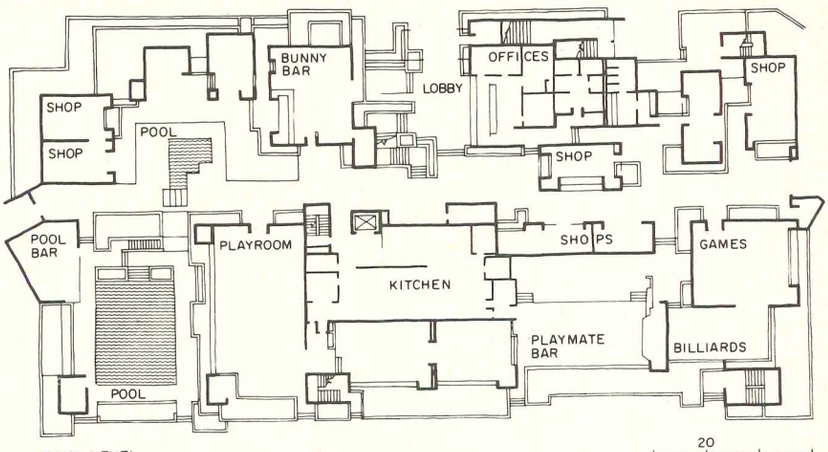
Harr, Hedrich-Blessing photos



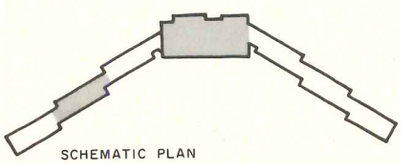




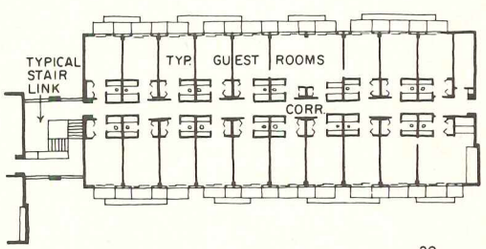
The resort is located in southern Wisconsin, on a large tract of land including a golf course, small lake, riding and tennis facilities, and a private airfield. The main lodge has 300 guest rooms in two symmetrical wings spreading out from the central public facilities, and each of these wings has three rectangular three-floor nodes with stair towers between them (floor plans and schematic, right). Exposed surfaces have been limited to two materials; redwood boarding along the roof edges and most balconies, and exposed aggregate concrete, usually poured-in-place. There is much use of retaining walls and planting terraces in the resort, so that the facade is everywhere jutting out or receding, with trees and shrubbery planted throughout the various levels. This, plus the large panes of glass, often butt-joined with mastic rather than set in mullions, breaks the massiveness of the architecture, making it transparent and open in places.



MAIN LEVEL

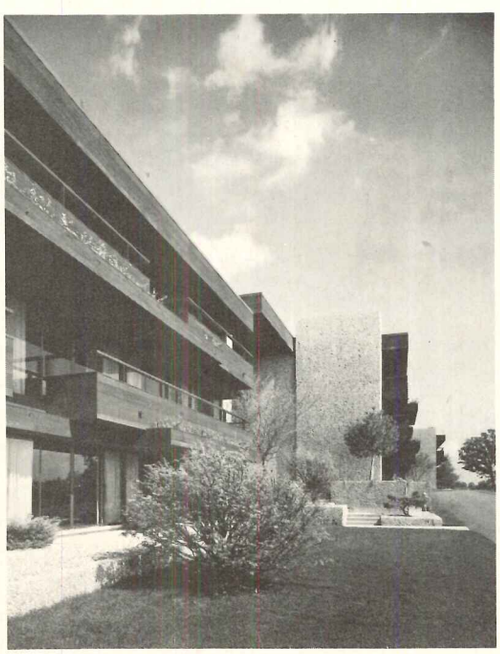


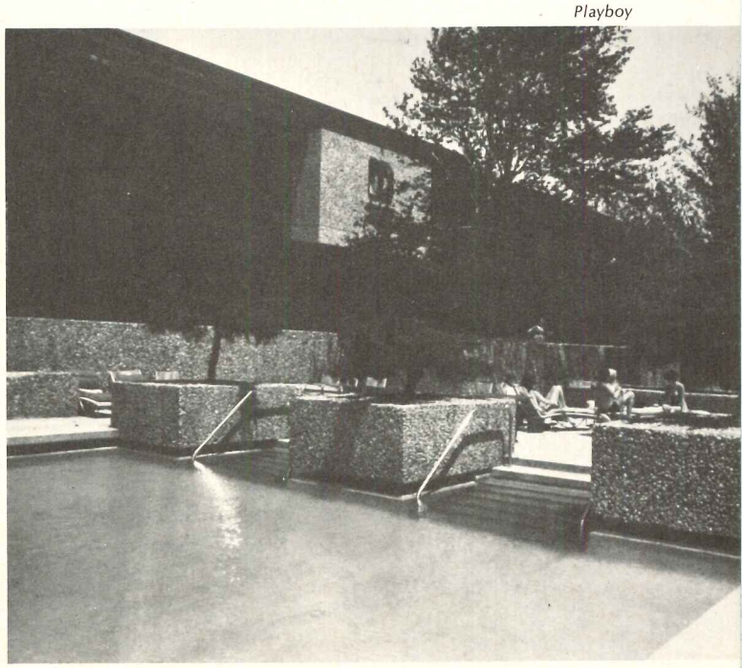
SCHEMATIC PLAN



TYPICAL 2ND & 3RD FLOOR

Playboy

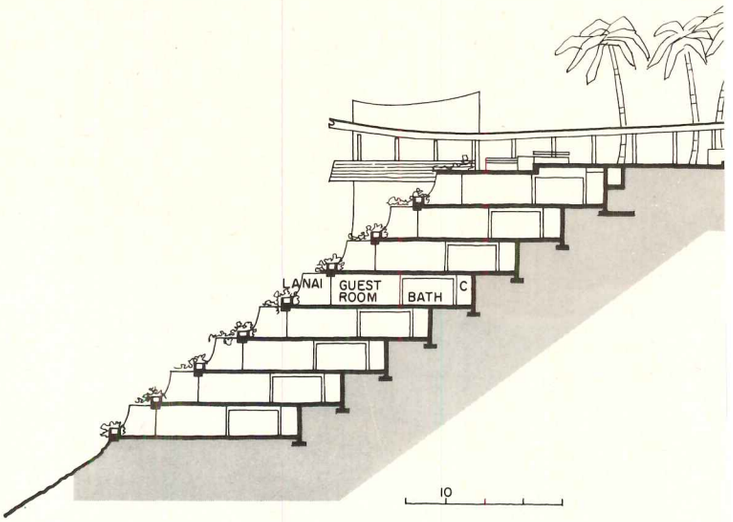


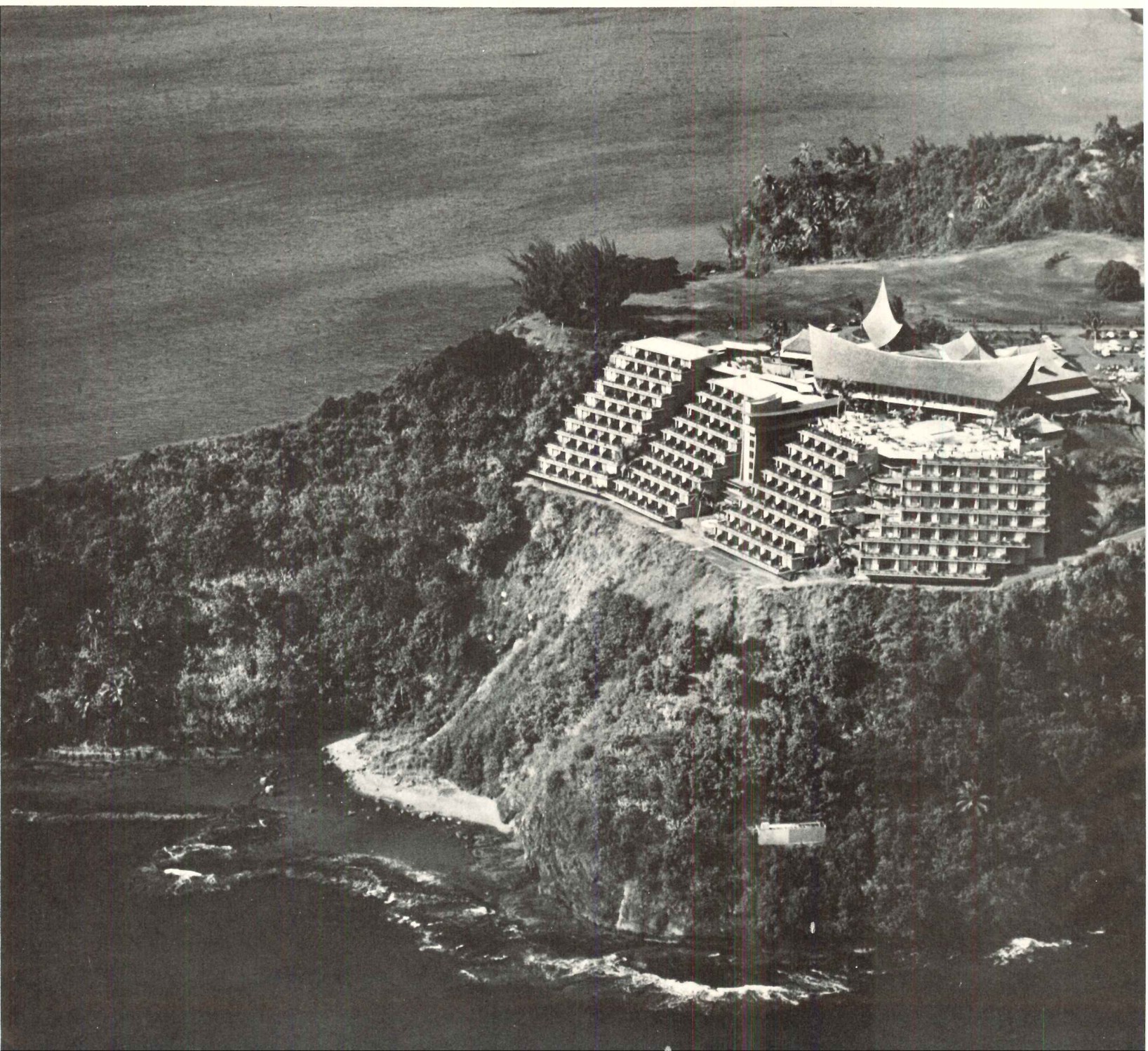


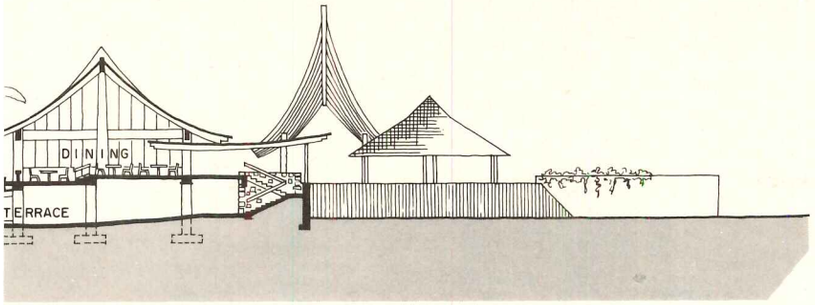
TAHARA'A: THE WARM AND MAGNIFICENT VIEW FROM TAHITI

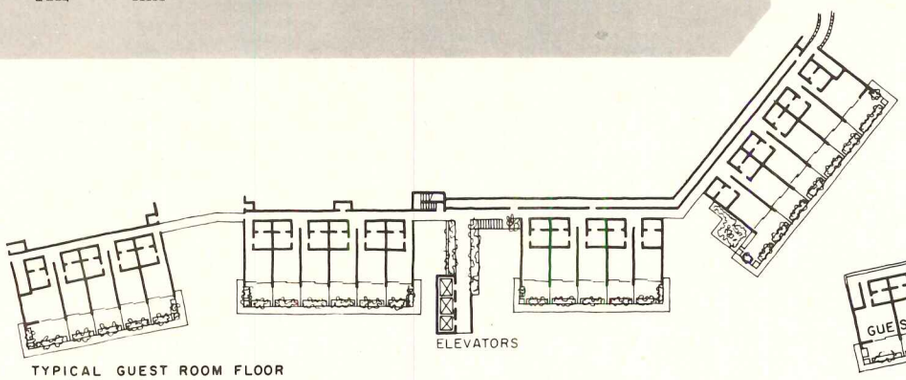
The Hotel Tahara'a Intercontinental is located about seven miles from Papeete, in Tahiti, and like the Conquistador has been designed to emphasize its site. Approaching by automobile, all that one sees of the hotel is the grouping of several long halls with their sloping, textured wooden roofs, grouped together forming the public facilities. These are attempts to blend by association into the indigenous architectural character of Tahiti. The 200 guest rooms are spread out below the ridge of the hill, to be as unobtrusive as possible within the landscape. Each tier of rooms has its plants and trellises on which the vegetation can grow, eventually making the terraces look very much like the hillside itself.

HOTEL TAHARA'A INTERCONTINENTAL, Papeete, Tahiti. Architects: *Wimberly, Whisenand, Allison & Tong, Ltd.;* structural engineer: *Richard Bradshaw, Inc.;* electrical engineer: *Douglas V. MacMahon, Ltd.;* interior design: *Neal A. Prince;* contractor: *Swinerton & Walberg Company.*

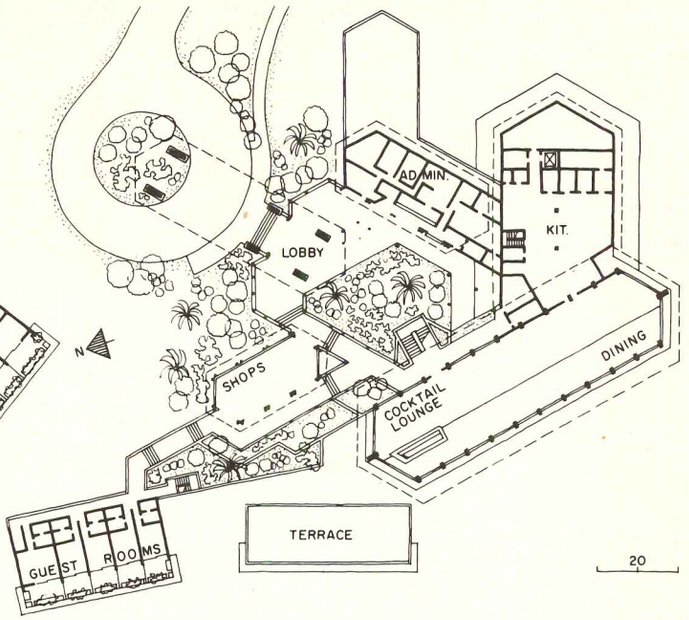




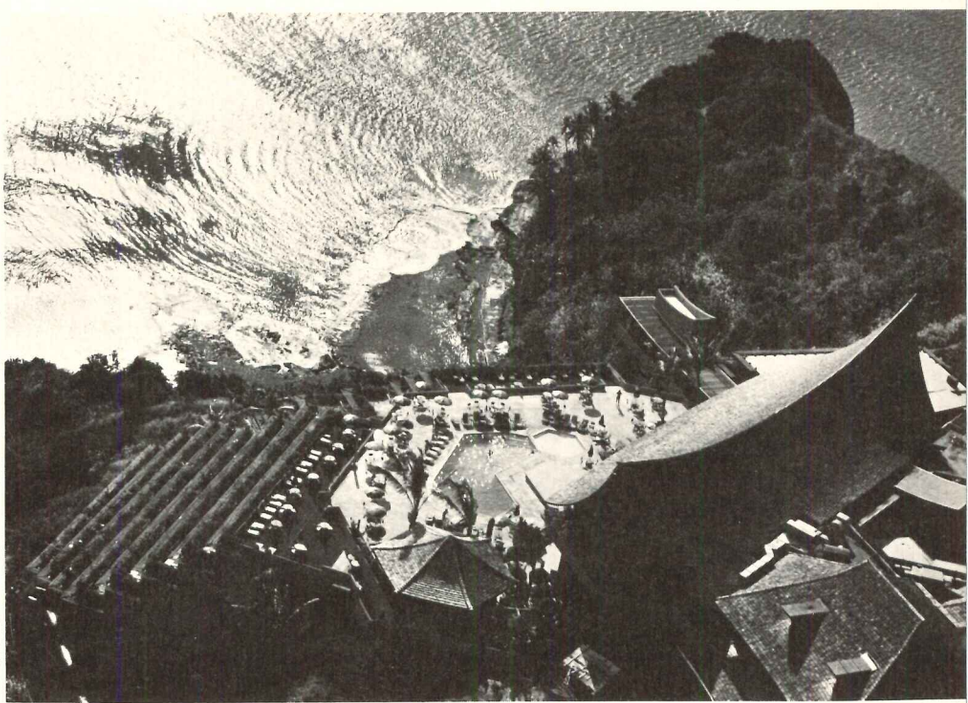


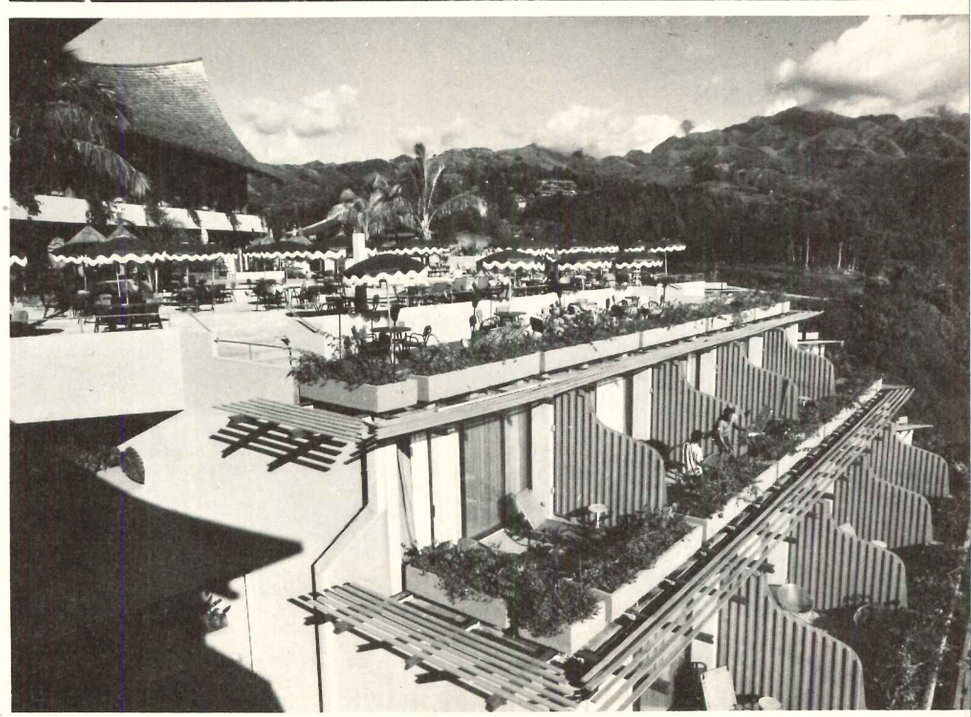


TYPICAL GUEST ROOM FLOOR



There are two levels of public area above the guest rooms; the major interior space of the dining room and bar occupies most of one level with the pool, recreation area and night club below. A long covered ramp sweeps out from between the tiers of rooms to connect with the elevator tower serving the seven levels of terraces; as can be seen in the plan above, the lines of rooms are broken to conform to the direction of the hill as well as its slope. The Hotel Tahara'a was built almost entirely by native construction workers over a period of 18 months. A plant nursery was established on the site before construction began, so that immediate landscaping was available on completion. The hotel sits on seven acres of land at about 200 feet above sea level, sloping down to a black sand beach (above, right). The view from the site is directly across Matavaia Bay to the island of Moorea.

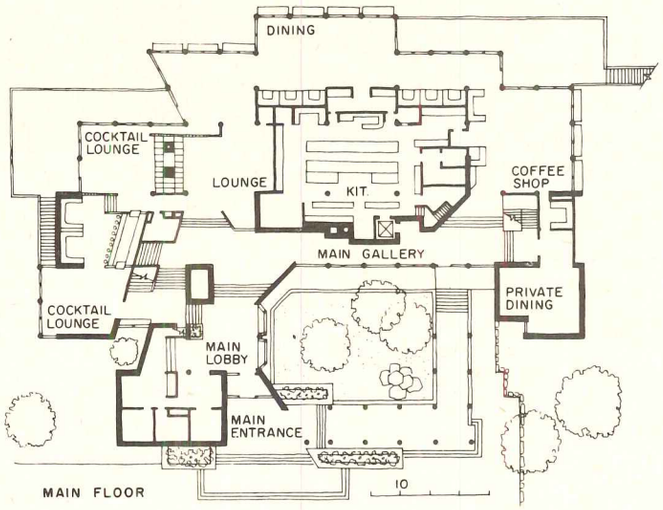




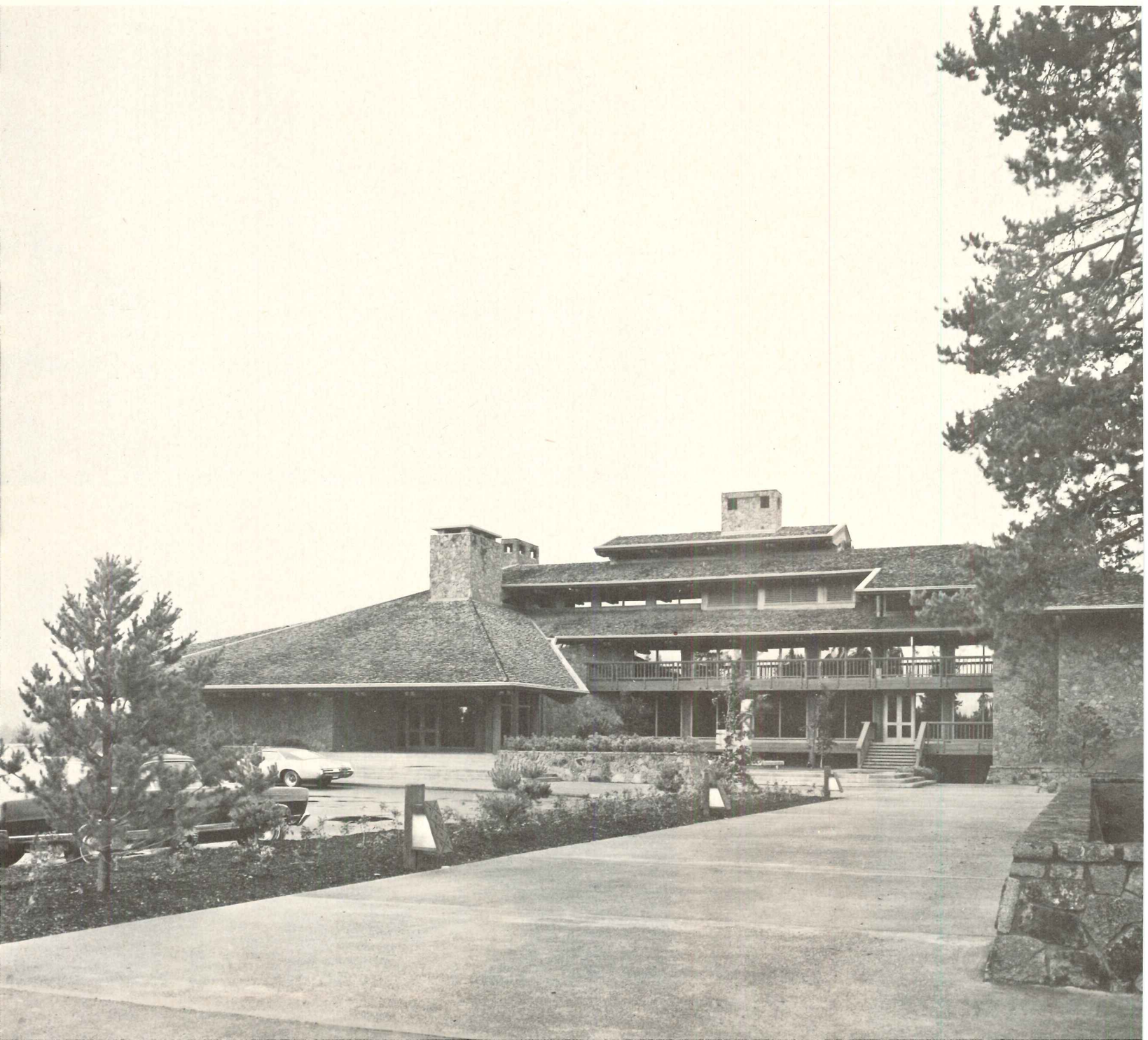
Erwin Christian photos

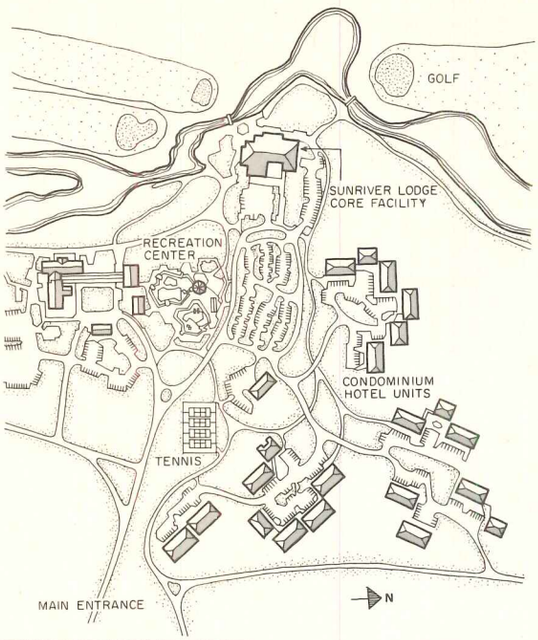
SUNRIVER: RELAXED AND NATURAL DOWN-HOME VERNACULAR IN OREGON

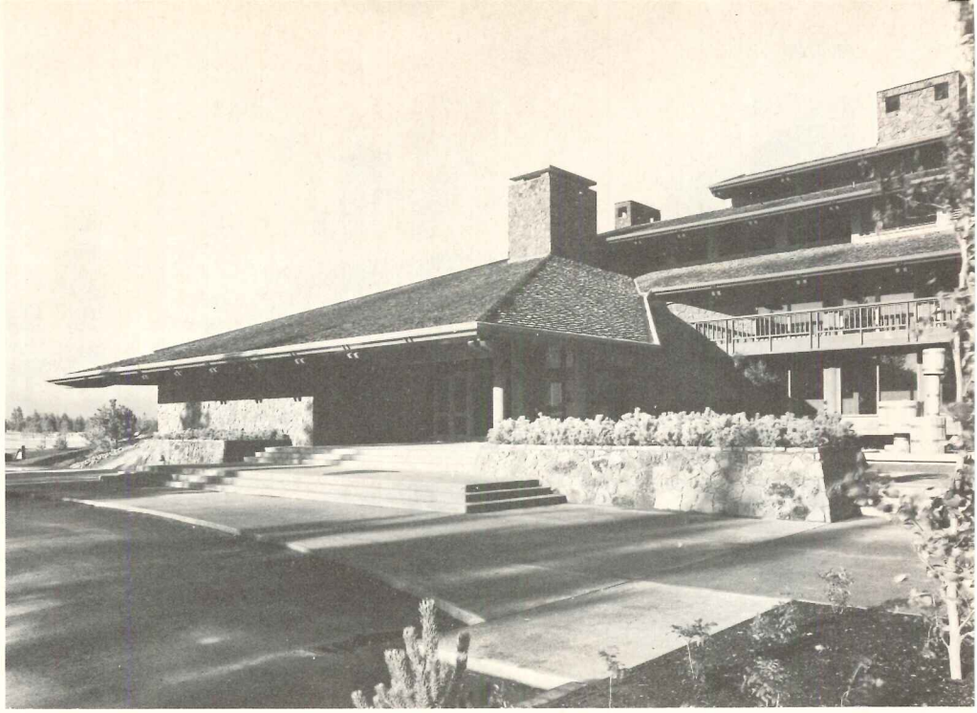
The architects of Sunriver Lodge combined exposed wood post-and-beam construction, pitched roofs and massive stone fireplaces to provide a warm, vernacular, "styleless" setting. The large roof planes of wood shingles radiate in fan-shaped sequence toward the land, with each change in elevation expressed with clerestory windows. Inside, the spaces intertwine on three floors with the framing often "free-standing" within them, so that the intricacy and informality of the exterior is repeated. Laminated round wood columns, paired laminated wood beams, wood purlins and wood decking are the basic structural ingredients. All wood in the project is rough or resawn, with a natural finish.

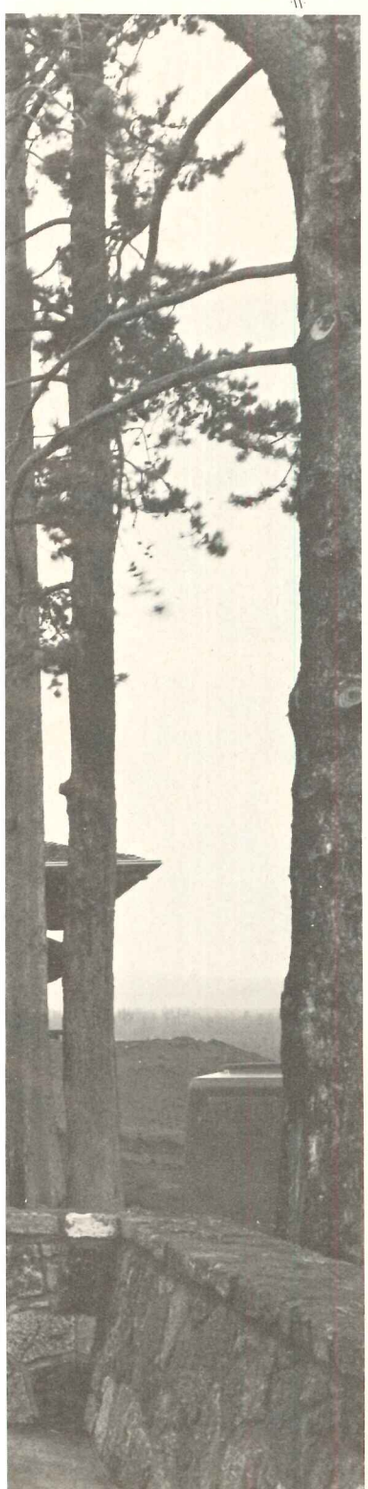


SUNRIVER LODGE, Bend, Oregon. Architects: *George T. Rockrise and Associates—James J. Amis, partner-in-charge; J. Matthew Myers,* project manager; *William F. Olin,* job captain; structural engineers: *GFDS Engineers;* mechanical/electrical engineers: *G. L. Gendler & Associates;* landscape architects: *Royston, Hanamoto, Beck and Abey;* interiors: *Heinz Janders;* architects for condominium hotel units: *Church and Shiels.*

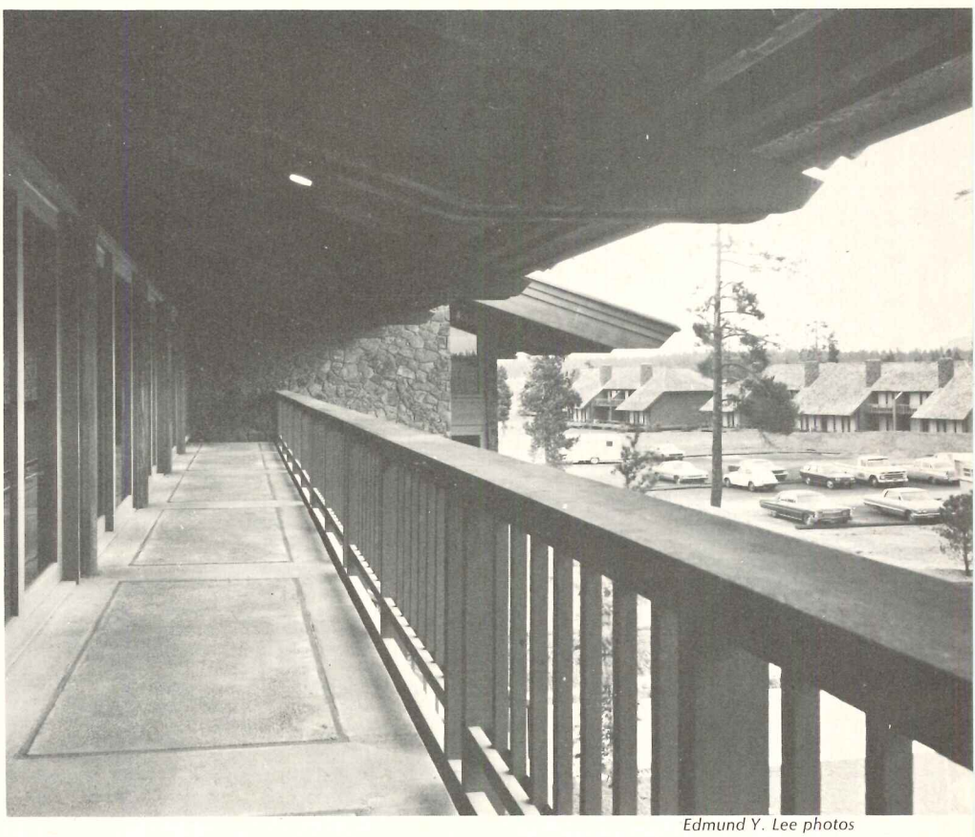




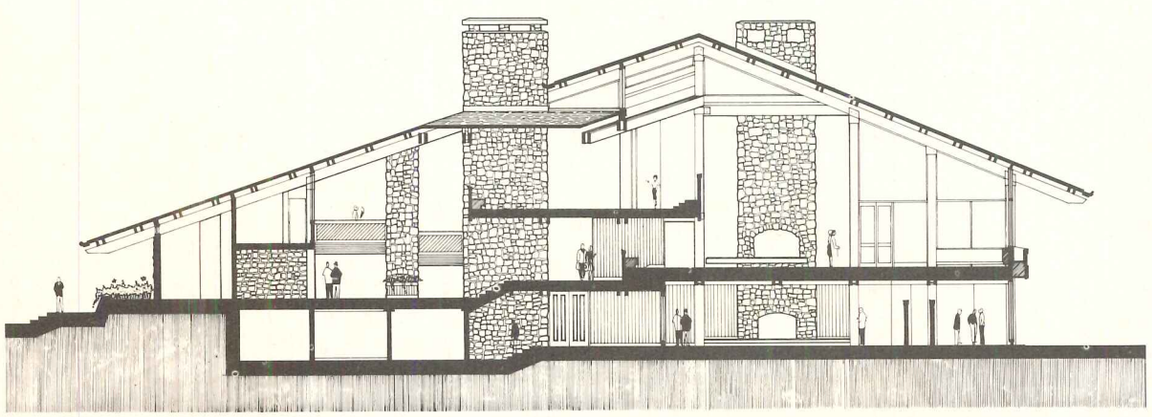


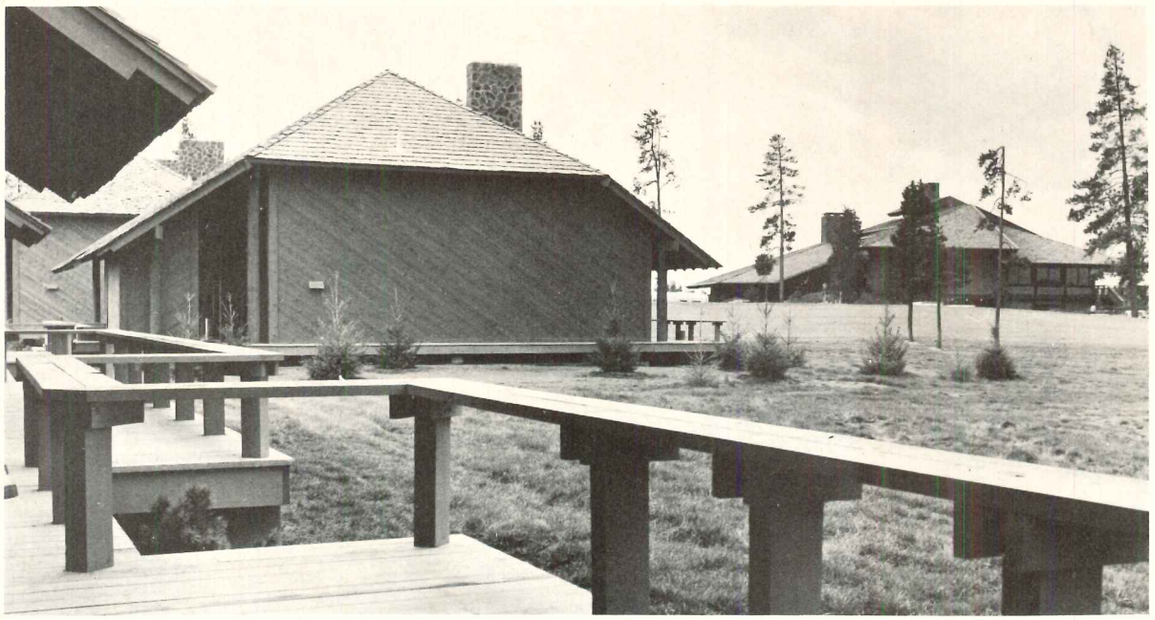


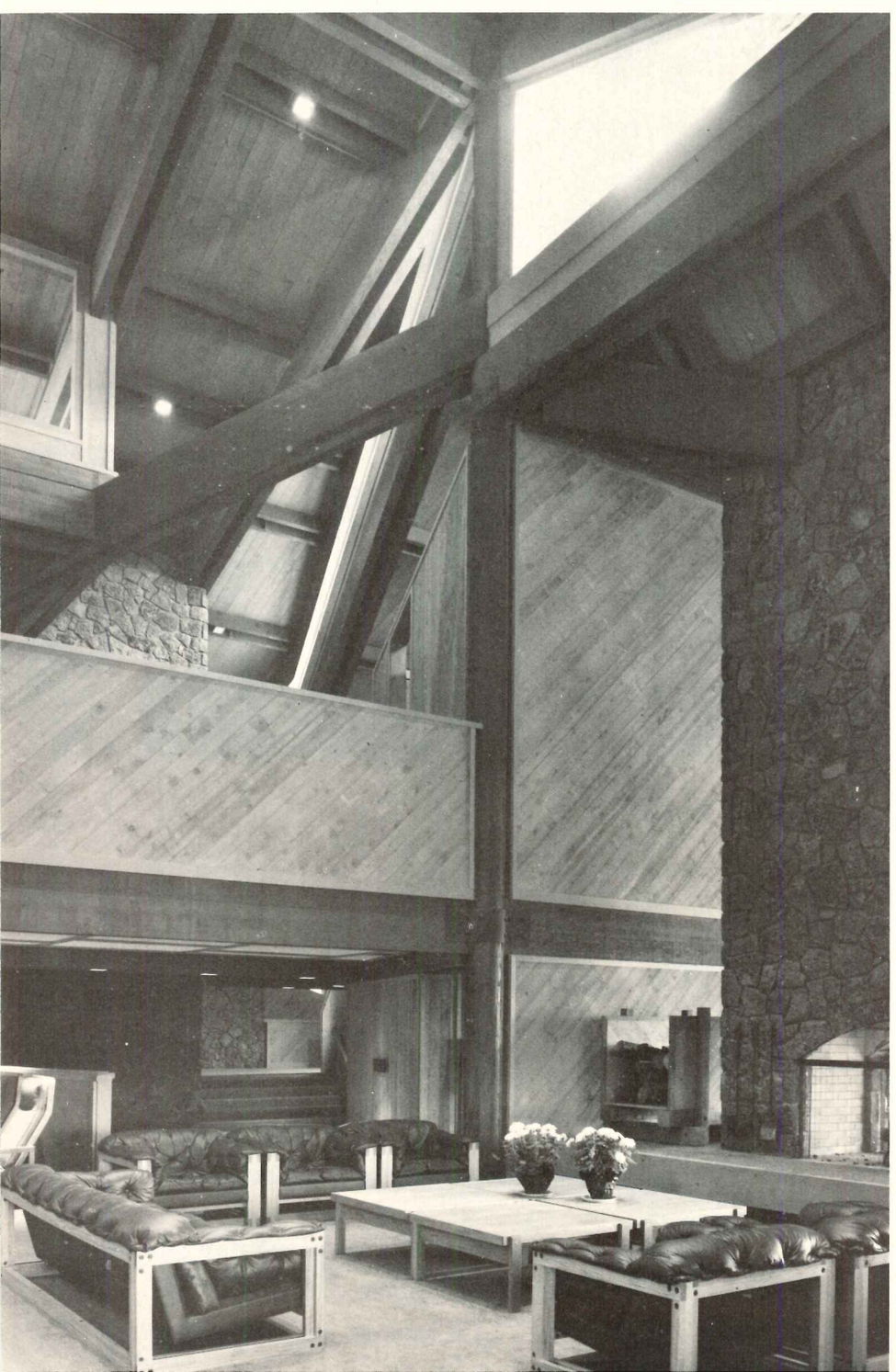
Sunriver is a new 5500-acre resort community being developed in central Oregon. The Deschutes River runs through the property, and the greater part of the land is level, covered with lodgepole and ponderosa pine. The new lodge facility (these pages) and the accompanying condominium hotel units (next page) form the first stage of development and establish the pattern for future work. The lodge provides the main dining rooms, coffee shop, kitchen, two bars, and conference and meeting facilities, while the hotel "rooms" are in the condominium units surrounding the lodge. These units are sold to private individuals as vacation retreats, which they own outright and which are available for their use a specified number of weeks per year. The rest of the time these units are leased back to the hotel for use as rooms and suites for normal hotel guests, the owner of the condominiums getting a share of the hotel profits. This method of financing a new hotel-resort is becoming widespread and popular.



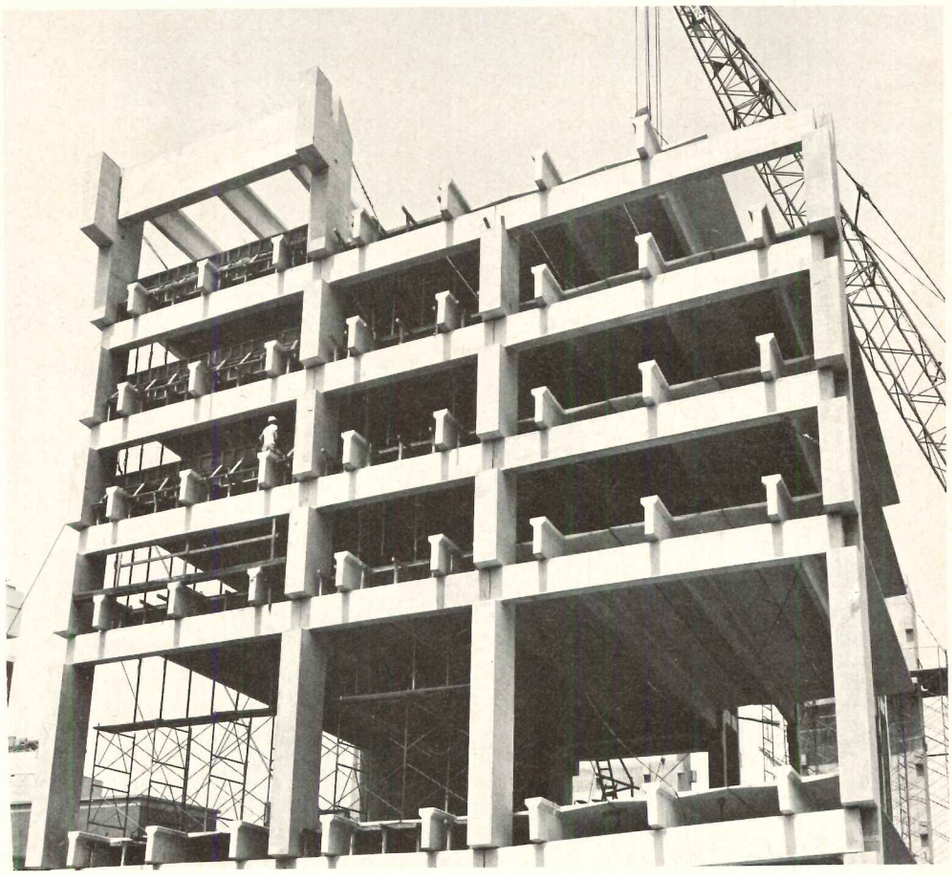
Edmund Y. Lee photos







Above is one of the condominium units at Sunriver, with the lodge building in the background. At left is the main lounge space in the lodge, running through two floors, and below is an interior of one of the condominium units, which becomes a hotel room during most weeks of the year. Materials are similar in both the lodge and the condominiums.



Two precast structures cushioned by neoprene

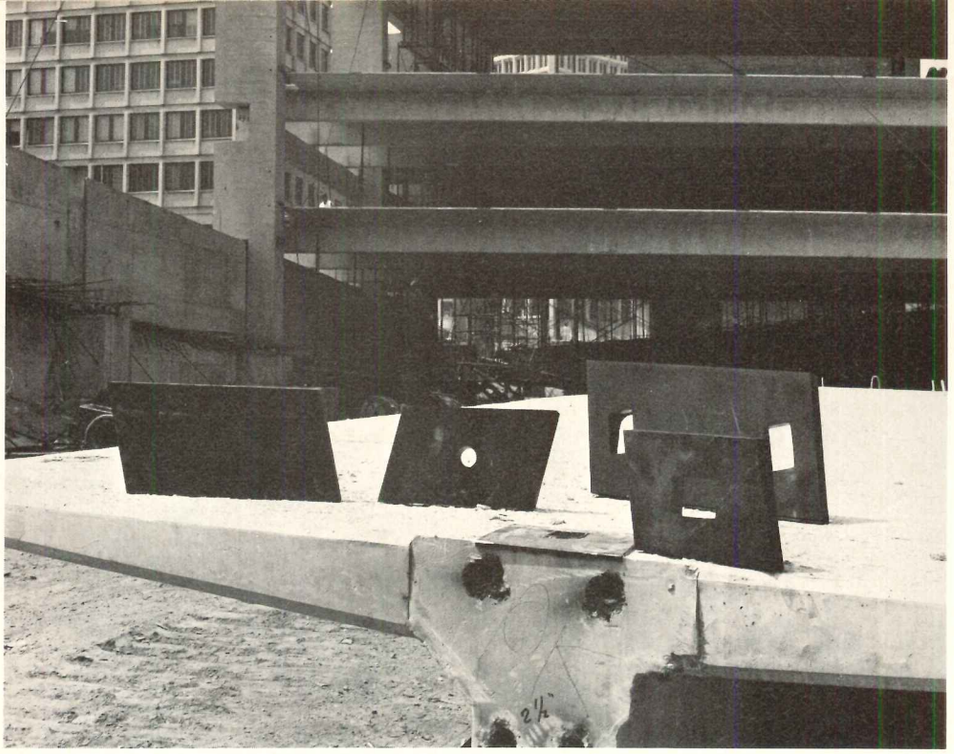
Precast concrete structures that use beams and floor planks in simple bending usually require some sort of flexible bearing pads to provide for even load distribution, joint rotation, and thermal expansion and contraction. A commonly used material for this purpose is neoprene because it performs the structural function well and, further, has excellent weather-aging characteristics, does not embrittle in cold weather, has high strength and physical durability, and is economical.

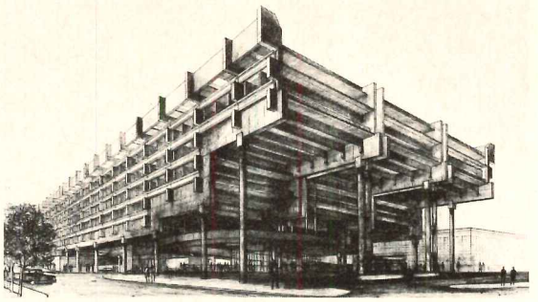
Two different applications of neoprene bearing pads in two vastly different types of structures are shown in this article. The first example is the 2000-car Government Center Garage in Boston which uses over 20 different sizes of neoprene pads under prestressed tees, under spandrel beams, and under several other types of precast beams.

The second example is a 27-building housing project in Lowell, Massachusetts which uses precast components building-block fashion with neoprene bearing pads being placed between horizontal joints of wall panels and floor planks to provide a horizontal seal against weather and water, and to prevent point-to-point loads where joint faces are not parallel. The structures, 2-, 3- or 4-stories high, contain eight or more units, and provide a total of 267 units for low- and moderate-income families.

Bearing pads essential to the performance of precast elements

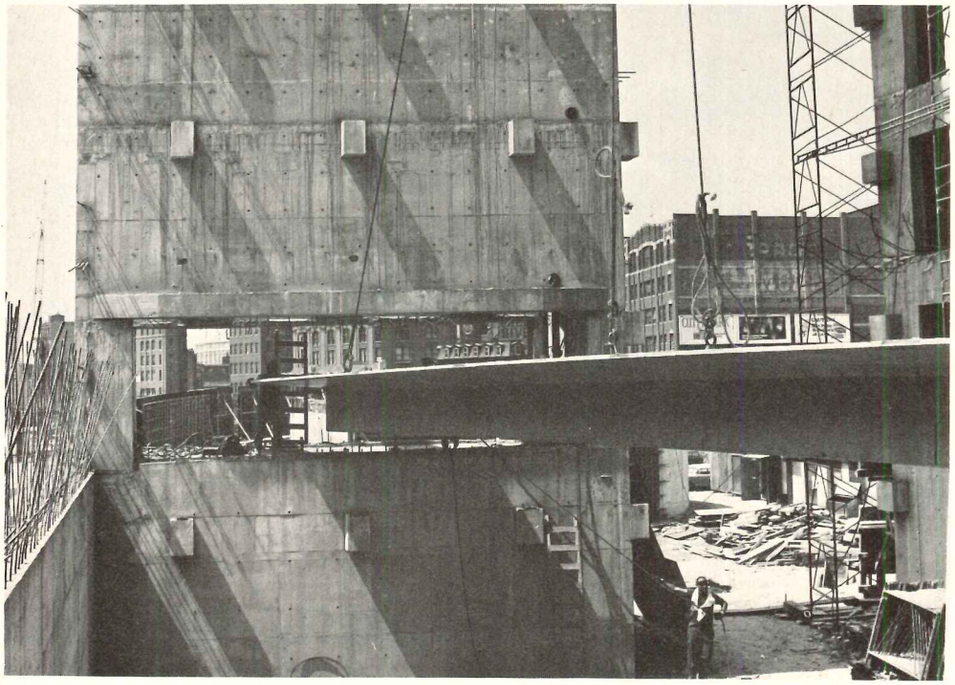
Government Center Garage is built up mainly of prestressed tees and precast columns. Cast in place were the stair and elevator towers, walls, ramps and some of the larger girders. The $6½ million garage is a parallelogram in plan, 210-ft wide by 600-ft long. Cars are parked on three "trays" at each level. The trays function as three independent "streets", being separated by 10-

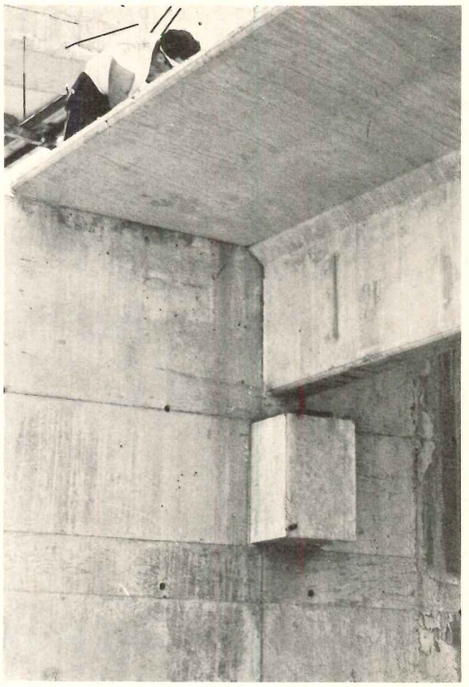




A few of the neoprene bearing pad configurations used in Government Center Garage can be seen in the photo, left, propped up on one of the prestressed tees that they cushion. One of the bearing applications is shown in the photos below, with a tee being lowered to the bracket-type support.

Precast load-bearing wall panels for Northern Canal Project (across page) utilize a ship-lap type of joint to provide a weather seal and means of support for wall panels and for the prestressed floor planks. The neoprene pads assure uniform bearing; the outer one also seals panel joints.





ft wide air spaces, but connected by bridges.

The 62-ft long prestressed tees are supported by spandrel beams on the exterior and by columns or wall brackets on the interior, so virtually the entire construction uses neoprene bearing pads to distribute load evenly so as to prevent local crushing that might result from point loading due to nonparallel surfaces, and to allow movement resulting from temperature change. The movement, though small, could cause cracking or spalling. The pads are selected to have sufficient capacity to accommodate change in length of the precast elements that comes with changing air temperature and solar effects.

The use of neoprene bearing pads in the New England climate is significant because of the large temperature range involved—from below zero to 120 F. Neoprene does not become brittle at low temperatures.

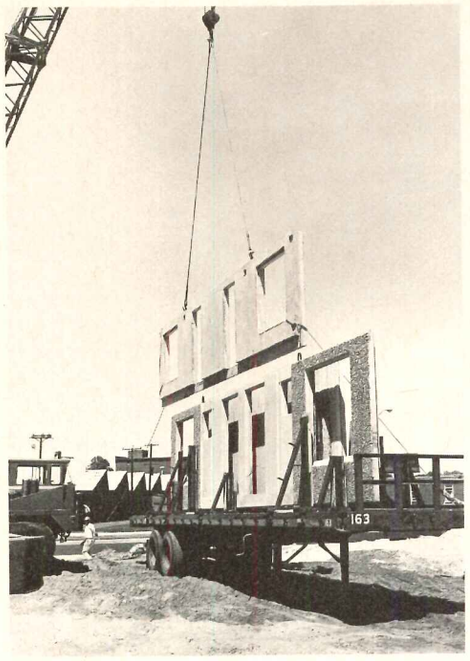
The neoprene pads are easily fabricated and installed, and do not involve any attachment to the structural elements themselves, as would be required for metal types.

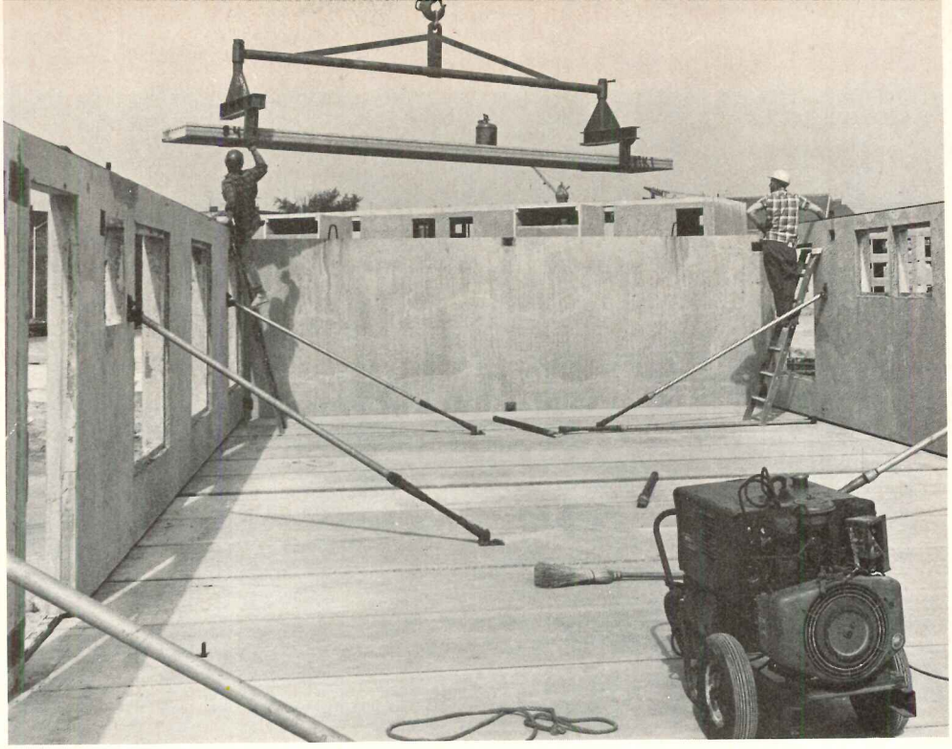
Not all of the precast elements perform structural functions. For example, the roof beams are ornamental sunshades that screen cars on the roof from the view of people looking down on the garage from nearby buildings which include the John F. Kennedy Federal Office Building, Center Plaza, the State Services Building and Boston City Hall.

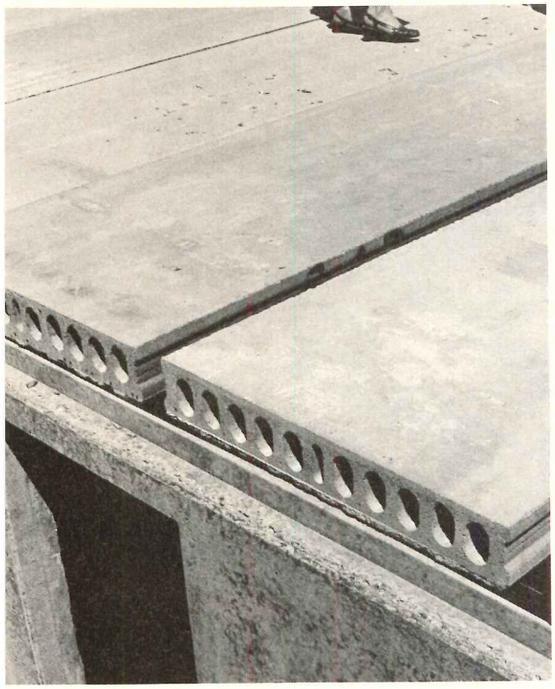
The garage, which is over 90 per cent complete is the only public parking facility for the Government Center complex, and also provides nighttime parking for sporting events at nearby Boston Garden.

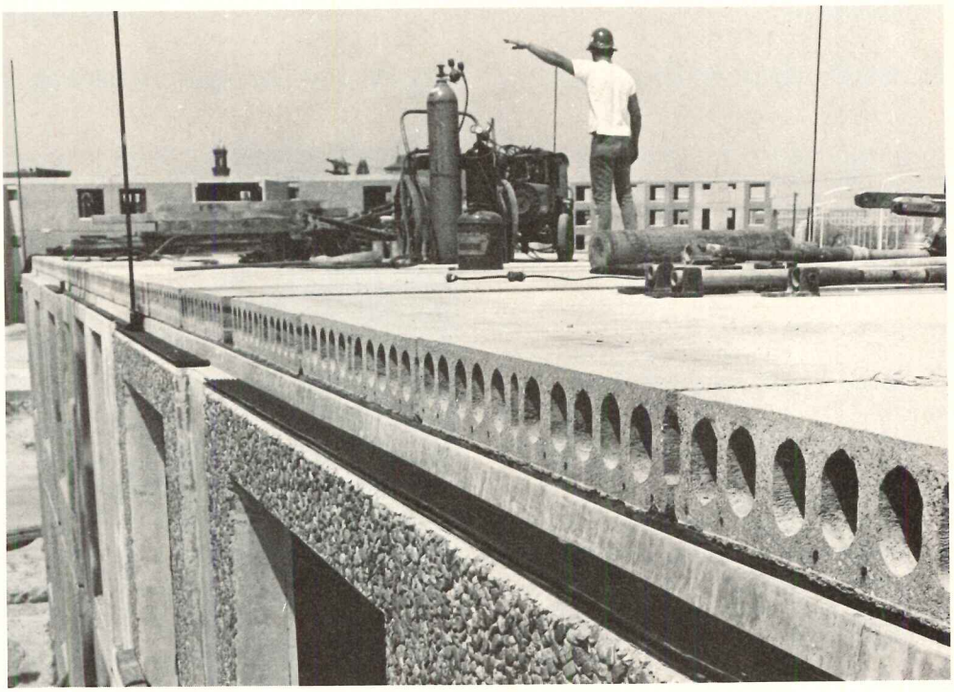
Perhaps the most difficult structural engineering problem was the handling of the columns supporting the east end of the building and the access ramp. Columns had to go through the ceiling and platform of the subway station and the passageway one level below the platform. In this area, the subway is under 12 ft of water, so where the columns penetrated the subway, the structural elements had to be waterproofed. To set the columns, sockets for concrete caissons were drilled into rock. Then steel columns were set into these caissons and encased in concrete. Where the columns penetrate the subway roof, neoprene sheet in the form of collars was placed around the columns. There are two layers of 1/16-in. neoprene bonded with a contact adhesive. In fitting the sheets it was necessary to cut joints, so, in both sheets, joints are cut opposite each other; joints in the bottom sheet are 90 degrees removed from joints in the top sheet.

GOVERNMENT CENTER GARAGE, Boston, Massachusetts. Project sponsor: *City of Boston, acting through Real Property Board.* Architects: *Samuel Glaser and Associates and Kallman and McKinnel;* structural engineers: *Albert Goldberg and Associates, Inc.;* contractor: *Joseph Rugo, Inc.*









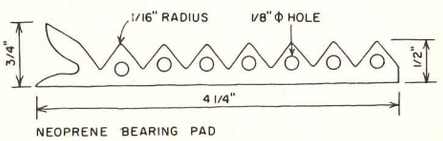
Bearings perform a weatherproofing as well as a structural function

Northern Canal Project consists of 27 precast structures utilizing pre-tensioned floor planks and post-tensioned wall panels. The bearings are a continuous saw-tooth extrusion of neoprene designed to provide both a weatherproofing function and uniform load bearing or load transfer throughout the width and length of the entire bearing surface. The bearings are either ⅜- or ½-in. thick, and are generally either 2-in. or 8-in. wide.

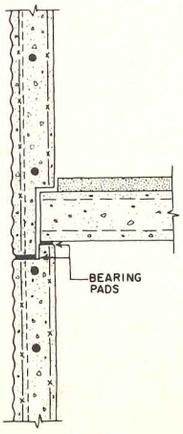
The precast elements are all factory fabricated, and are trucked to the site where they are erected by crane. Wall panels are designed with "lip" edges so that a shiplap type of joint is formed between successive panels; an indentation is provided in wall panels so that the 40-in. wide pre-tensioned floor planks are inset within the wall panels and have a bearing surface on top of them (see detail, right).

The structural system, developed by engineer Sepp Firnkas, uses steel rods for post-tensioning the wall panels, and tying floor planks and wall panels together into a unified structure. (See also RECORD, March 1967, page 187.) Surfaces of the panels are either exposed aggregate or smooth to give variation in texture and accent such design elements as windows and doors. Once the structure is erected it is only necessary to install roofing, windows, doors, partitions and to complete mechanical and electrical work. The foundation system consisting of piles, caissons or spread footings, and grade beams is site fabricated.

NORTHERN CANAL PROJECT, Lowell, Massachusetts. Builder: *Development Corporation of America.* Architects: *Stull Associates;* structural engineer: *Sepp Firnkas;* contractor: *DCA Builders, Inc.;* subcontractor on precasting and erection: *San-Vel Concrete Corp.*



NEOPRENE BEARING PAD



Sound-absorptive "shell" improves arena hearing conditions

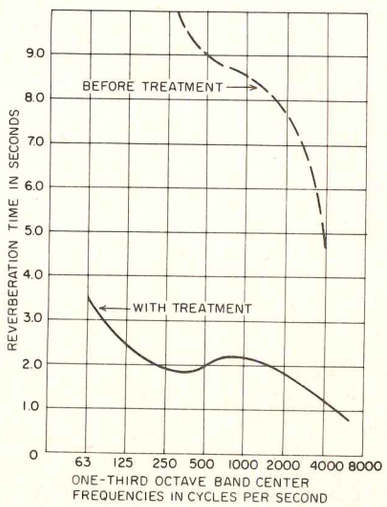
Sound-absorptive treatment has transformed the Milwaukee Civic Arena from a limited-use "problem" hall with high sound reverberations, reflections and echoes into a quiet multipurpose arena suitable for a wide variety of functions.

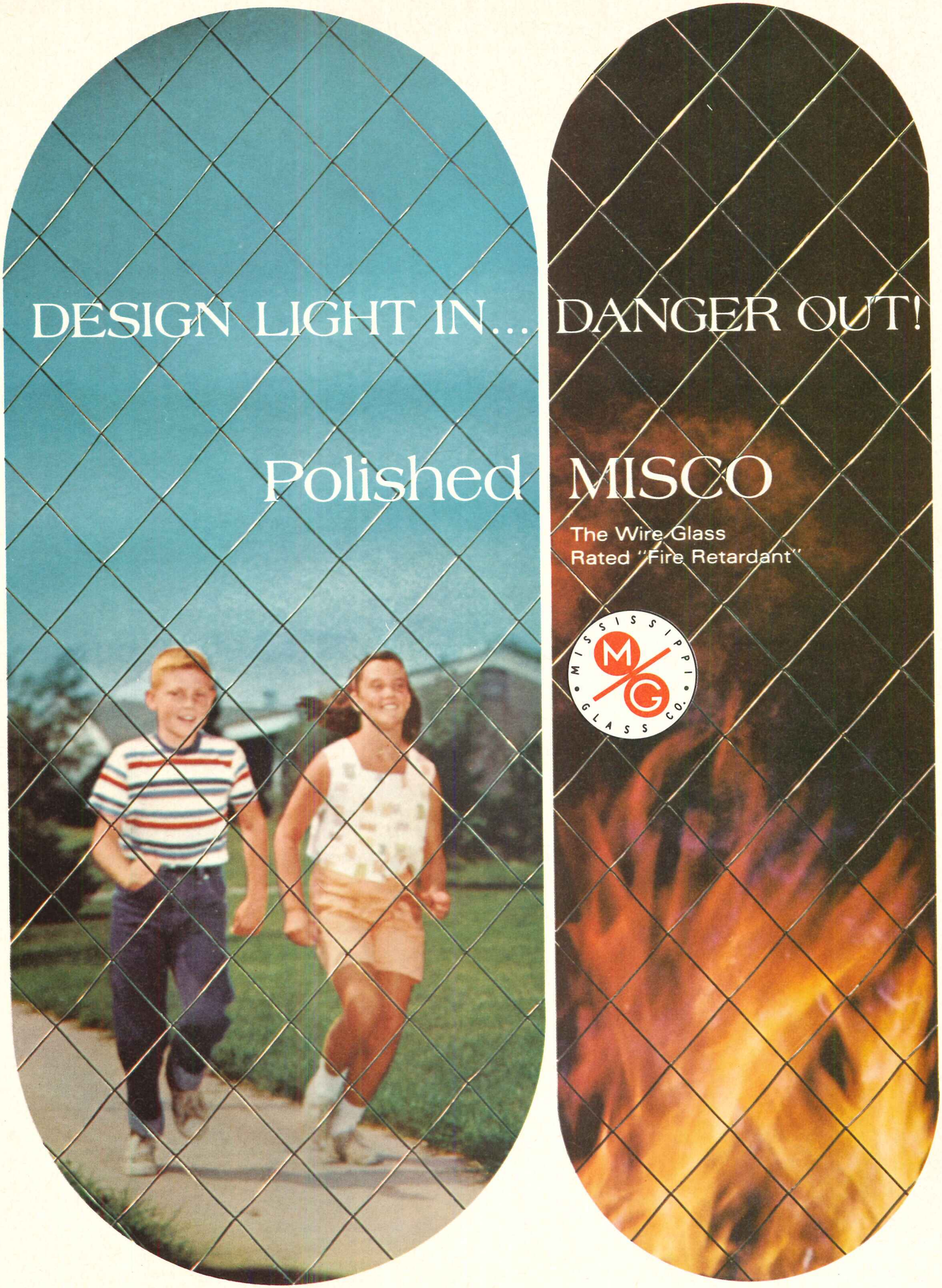
Reverberation time was cut by more than 200 per cent using a combination of unpainted linear glass-cloth-faced board and vinyl-faced acoustical tile. The reverberation time now averages 2.0 seconds at mid-frequencies, compared with 9.0 seconds before treatment.

The acoustical consultants, Bolt Beranek and Newman, Inc. reported: "The new acoustical characteristics of the arena should eliminate any problems in providing high intelligibility either from the sound system as it is now or may be modified in the future."

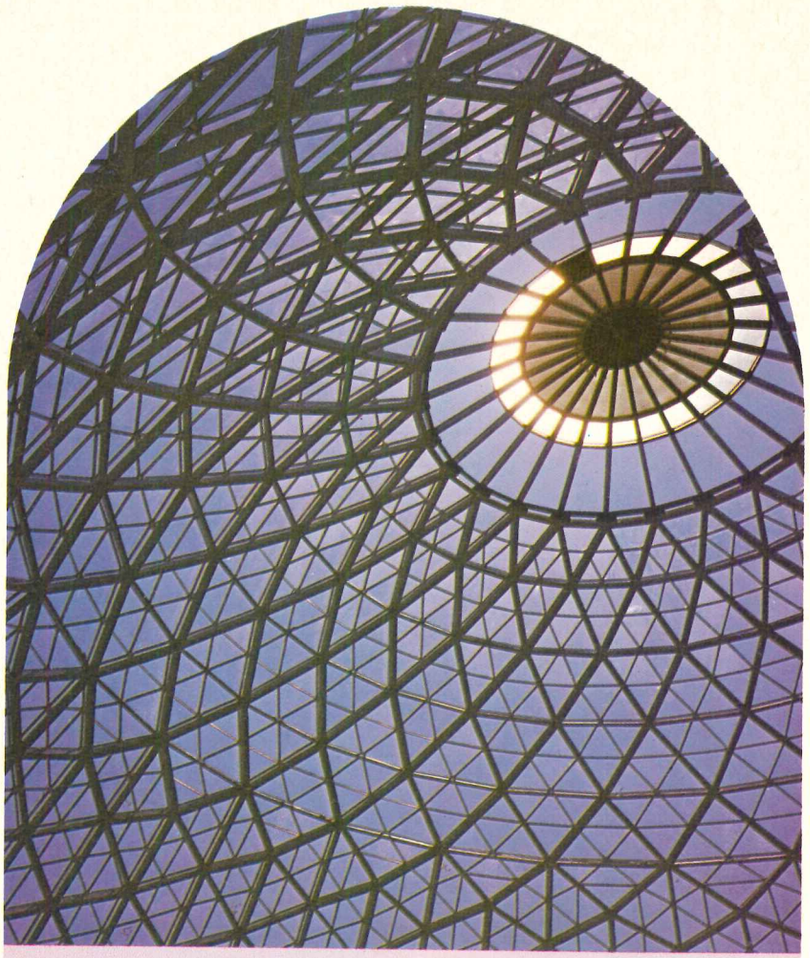
Built in 1950 for sports events, the Milwaukee Arena with its 106-ft-high arched roof, exposed structure, wooden seats and concrete wall surfaces reflected sound and made speech difficult to understand. Architects Daverman Associates of Milwaukee specified linear board faced with fiberglass cloth for its high noise reduction coefficient. The backs of the wooden seats were covered with upholstery to further reduce reverberation time.

More than 75,000 sq ft of cloth board were used to cover the ceiling and concrete block walls. Cloth board is held away from the wall surface with extruded aluminum channels. In the ceiling, steel trusses remain exposed. Between them the cloth-faced panels are laid into a conventional tee-type suspension system. Where there are no trusses at the exposed perimeter ends of the deck, 20,000 sq ft of standard 12- by 12-in. paste-up tile were attached directly to the underside of the ceiling.





For more data, circle 53 on inquiry card



POLISHED MISCO

for clear vision with fire protection

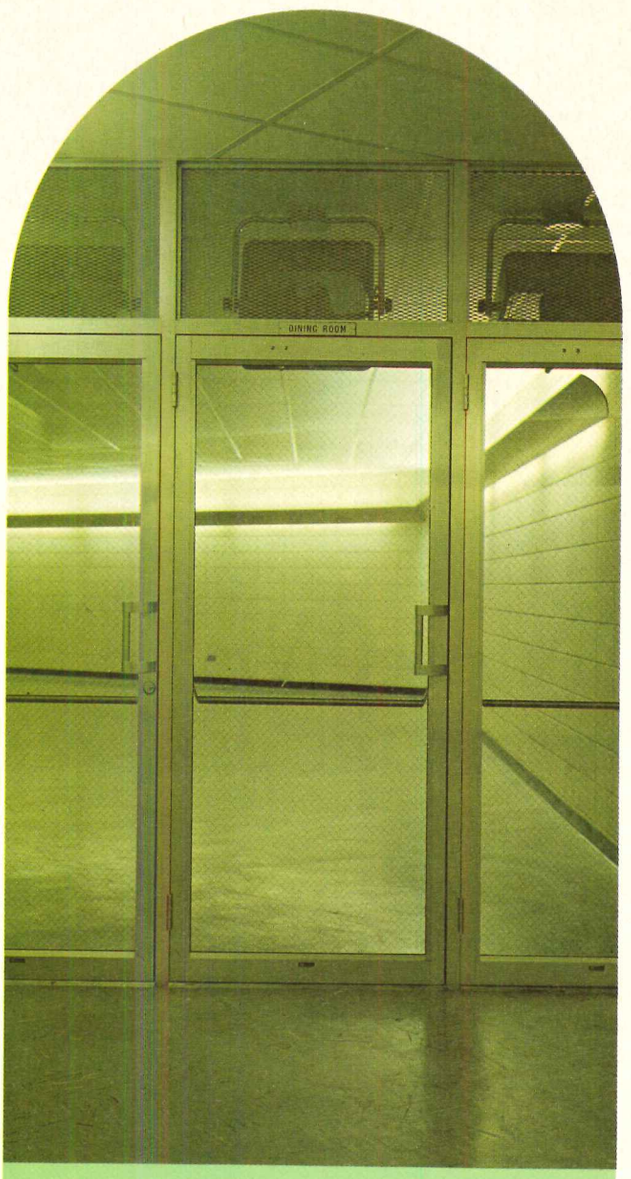
Wherever fire control is part of built-in safety . . . in windows, doorways, walls, skylights . . . wire glass finds growing use in regular specifications. Yet, not all wire glass is listed by Underwriters' Laboratories, Inc. as fire retardant*. Mississippi Glass is one of only two sources for wire glass so listed.

When you design with fire control in mind, specify with confidence in the proved protection of Polished MISCO Wire Glass. It permits full vision and maximum light transmittance. The diamond-shaped netting is inconspicuous, yet protectively visible to alert floor traffic and avert danger from human impact.

*To qualify for this "Fire Retardant" listing, Mississippi Wire Glass had to withstand the furnace test given by Underwriters' Laboratories, Inc., Wire glass windows in a removable wall are placed in a gas-fired furnace. Temperature is raised to 1600° F. in 45 minutes and held at this point for 15 minutes. The wall is then removed and the glass is subjected to a 1⅛" stream from a fire hose at 35 to 40 lbs. of pressure. The glass must remain in the sash, substantially unchanged except for any cracking due to thermal shock. Actual test scenes are shown in our 30 minute film "Rolled Glass by Mississippi."

Underwriters Laboratories, Inc.®
INSPECTED
GLAZING FOR
FIRE WINDOWS AND DOORS
ISSUE NO. 101
MISSISSIPPI GLASS CO.
MADE IN U.S.A.

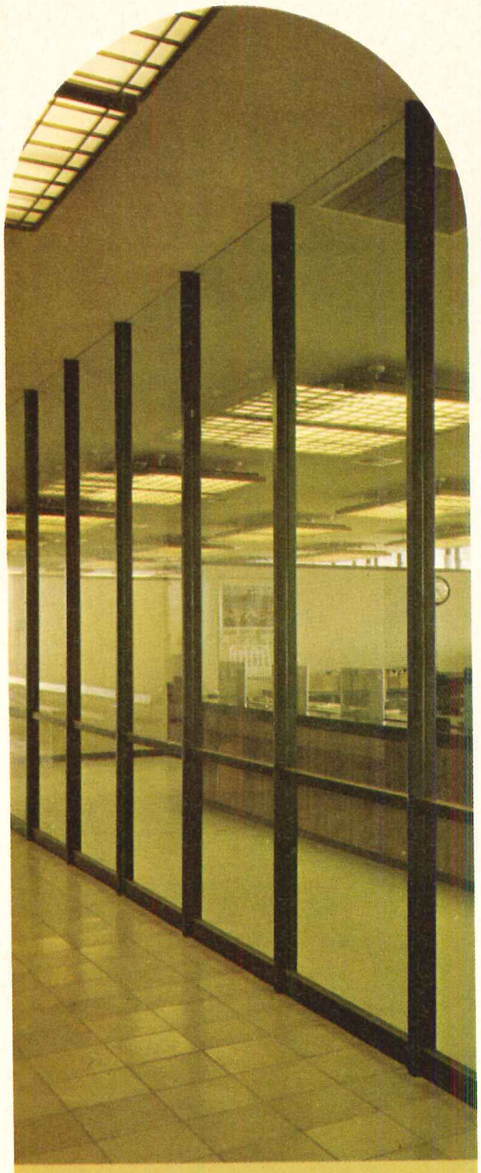
MISSISSIPPI GLASS CO.



FULL-VIEW DOORS

with fire retardant glass

Polished MISCO gives clear vision, so important to safety at busy doorways. It can take abuse and still stand by, ready to fulfill its complete fire retardant function. The way it holds against intense heat seals the doorway against drafts that speed through any openings and spread the smoke and flame. The wire webbing is unobtrusive yet it subtly blends with entrance areas so the glazing adds an interesting design feature as well as a safety function.



ATTRACTIVE WALL SECTIONS

with full-vision range

Give the "open" feel to interiors through walls that make full use of natural light. The smooth surface of Polished MISCO makes attractive wall sections that are easy to keep that way. The diamond-shaped mesh is inconspicuous . . . just visible enough to ward off floor traffic accidents from unawareness of glazed openings. Its basic fire retardant ability checks smoke and flame. The sturdy steel webbing holds glazing fast in its frame under prolonged heat exposure.

PROTECTIVE WINDOWS

that give clear view

Transmit natural daylight through windows that are glazed sentinels against fire, breakage, vandalism, and forced entry. Polished MISCO provides window areas with fire retardant protection, while maintaining clear vision and the sense of spaciousness that comes from greater light transmittance. Mississippi Wire Glass has been looked to by architects and engineers as the approved fire retardant glazing through more than 60 years.

SKYLIGHT GLAZING

dramatic and functional

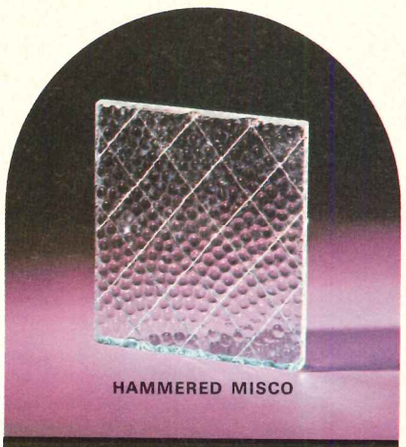
No need for protective screening above and below. MISCO's strong steel diamond-shaped webbing is already fused in where it not only protects against impact from above or below but also prevents shattering that releases ordinary glass for dangerous fall out. Listed "Fire Retardant" by Underwriters' Laboratories, Inc., Polished MISCO holds fast against fire spread under intense heat. Bring more light in from above safely, with fire retardant Polished MISCO.

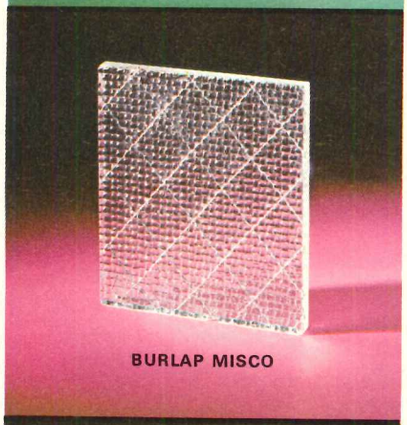
For more data, circle 53 on inquiry card

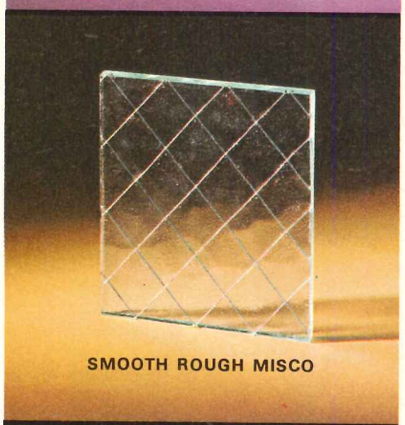
Patterned MISCO

Protection plus diffusion for controlled light direction and obscurity for varying degrees of privacy and heat absorption where required.


FACTROLITE MISCO

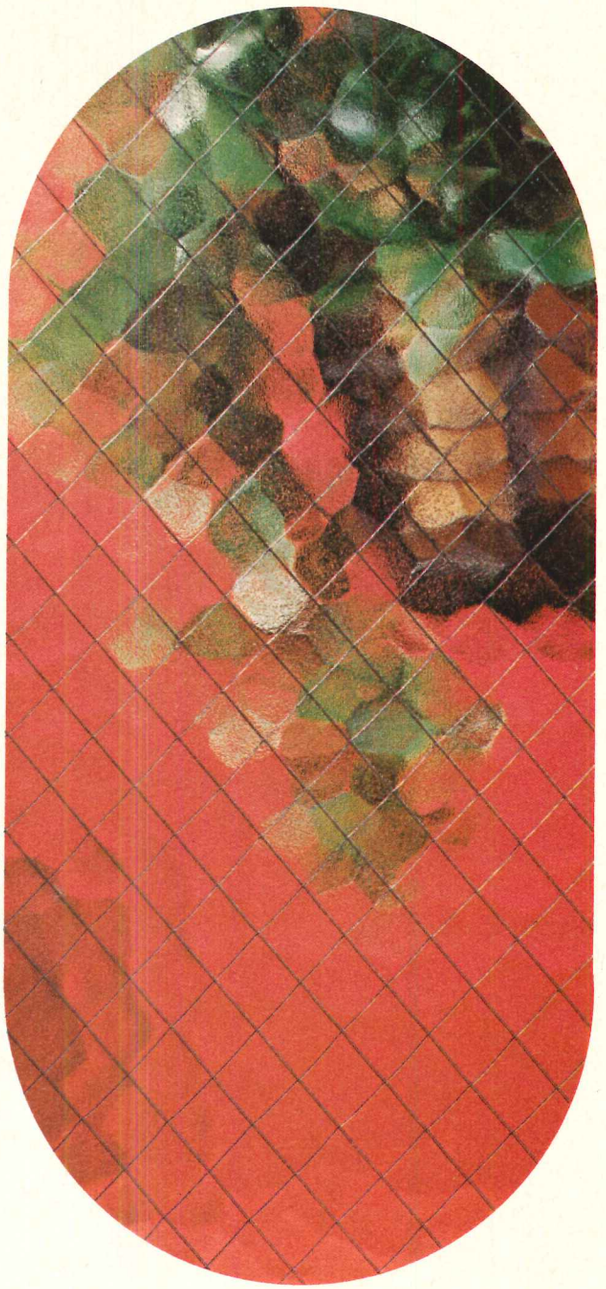

HAMMERED MISCO


BURLAP MISCO


SMOOTH ROUGH MISCO


SYENITE MISCO


COOLITE MISCO



All ¼" MISCO Patterned Wire Glass is listed by Underwriters' Laboratories, Inc.

Underwriters' Laboratories, Inc.®
INSPECTED
GLAZING FOR
FIRE WINDOWS AND DOORS
ISSUE NO. 101
MISSISSIPPI GLASS CO.
MADE IN U.S.A.

Because of its long history in the manufacture of wire glass that has always met Underwriters' requirements, Mississippi Glass is a natural source for technical information on various requirements in glazing applications. Architects and engineers are urged to consult with our specialists for possibilities in dramatic use of glass and particularly on safety requirements. Mississippi Glass is available from most leading distributors of quality glass in the principal cities of the United States and in Canada from Canadian Pittsburgh Industries, Ltd., Glass Division.

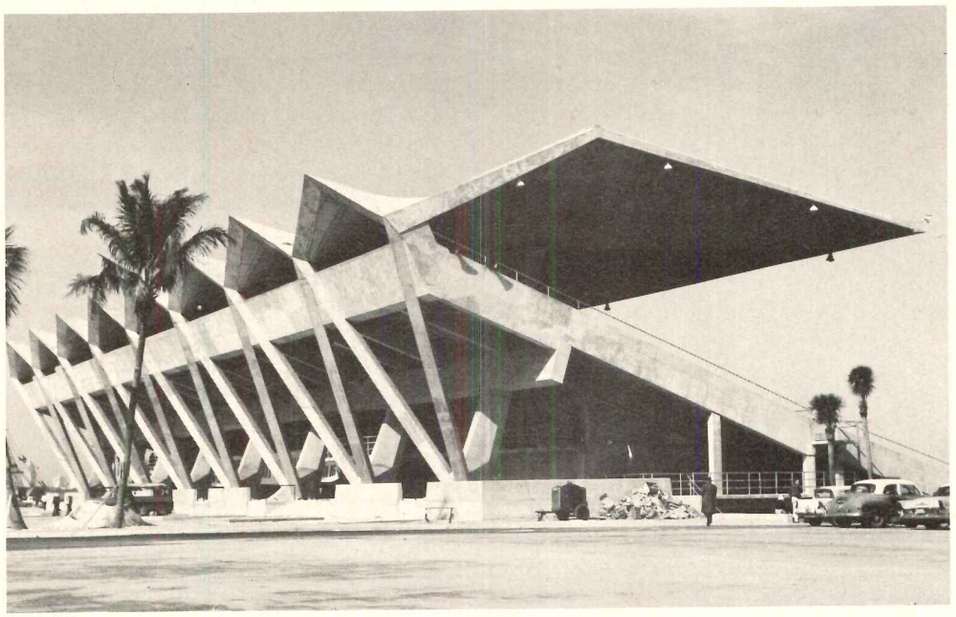
See our catalog in Sweet's (S)

MISSISSIPPI GLASS COMPANY
88 Angelica Street • St. Louis, Missouri 63147
NEW YORK • CHICAGO • ATLANTA • DALLAS • SAN FRANCISCO • FULLERTON, CALIF.
Largest Domestic Manufacturer of Rolled, Figured and Wired Glass

For more data, circle 53 on inquiry card

Concrete admixtures: updating specification background knowledge

by John J. Gilleran, Market Program Manager, Union Carbide Corporation



Admixtures provided several quality-control functions in the use of concrete for the Commodore Ralph Munroe Marine Stadium in Key Biscayne, Florida: 1) to improve mobility and consolidation of low-slump concrete, 2) to give maximum water reduction, 3) to extend setting time facilitating placement.

The Romans did more than invent concrete. They developed its use and manufacture into a highly skilled art, even to the extent of using admixtures for reducing water content and improving placeability.

Unfortunately, much of this knowledge was lost during the Middle Ages, and it wasn't until the 18th century that hydraulic cement was rediscovered. Few learned of this until the middle of the 19th, and it was not until well into the present century that the use of admixtures was again reintroduced.

It was not until 1944 that the American Concrete Institute issued its first admixture report. In its most recent report (1963) the Journal classifies admixtures into 15 groups, and lists the more important purposes for which they are used. And it was only seven years ago that the American Society for Testing and Materials issued a general specification covering admixtures. Its most recent general specification (1968) C494 applies to the majority of admixture types commonly used today.

If we define admixtures as the chemicals added to the mix to improve the quality and the placeability of concrete, we can include most of them in four basic product types: (1) air-entraining agents, (2) retarders, (3) reducers, (4) accelerators. (For characteristics, see table, following page.)

An excellent example of what can be done with concrete that has been thus treated is Miami's Commodore Ralph Munroe Stadium. Architectural design consultants: Par.coast, Ferendino, Grafton, Skeels & Burnham; consulting engineer: Dignum Associates; general contractor: Millman Construction Company.

At this Miami stadium the admixtures were specified to improve the mobility and the consolidation of the low-slump concrete. They were used to give maximum water reduction with an associated reduction in shrinkage and potential cracking. And they were used to control setting time, extending the period of placement and finishing while eliminating potential cold joints.

Thus, while concrete was once considered the result of a simple mixing of coarse aggregate, sand, cement, and water, and more often than not mixed and placed in haphazard manner, the modern concept is a carefully controlled mix combining admixtures and aggregates as needed to obtain the optimum in quality and economy.

Much of the technology of the modern mix is of too recent an origin to be universally accepted. It is not too long ago that concrete was placed almost dry. Then wet mixes, the wetter the better, became popular. Out of this confusion a rule for water-cement ratio was worked out. It demonstrated the importance of restricting the ratio to the lowest value consistent with the required workability of the concrete for a particular use. Vibration theories for consolidating concrete were investigated and then translated into practice, and the technology had taken another step forward.

The separation of coarse aggregates into two or more sizes represented another improvement, minimizing segregation during handling and ensuring better concrete quality.

Finally, admixtures, discovered by the Romans more than 2,000 years ago, were reintroduced (about 1938), and the technology had come full circle.

They are being used to achieve greater freedom of application with concrete, to enhance its desirable qualities, overcome its deficiencies, and assist in combatting many detrimental environmental conditions.

For example: The general practice of using calcium or sodium chlorides, and chemicals generally, to melt ice on streets creates a need to protect from surface scaling. This scaling is caused by the accelerated thawing action of the chemicals. To prevent scaling, an air-entraining admixture is added during the mix stage.

Air-entraining admixtures do much more than prevent scaling. Experience gained both in the laboratories and in the field has conclusively demonstrated that durability and other properties of concrete are materially improved by the purposeful entrainment of 2 to 6 per cent air.

Air entraining agents: how they aid workability

Purposeful air-entrainment in concrete re-

sults in the dispersion throughout the mix of noncoalescing spheroids of air having diameters of .003 to .050 inches. Current investigation indicates that the most desirable quality of concrete is obtained with small, closely-spaced air bubbles, obtainable with most of the commercial air-entraining agents in common use today.

Workability is increased by such stable bubbles to the extent that harsh, unworkable mixes become highly "plastic." Deficiencies in fine aggregate gradation can be overcome. In effect, the bubbles act as ball-bearings for lubrication purposes.

Unlike accidental entrapped-air voids, these bubbles are unconnected. Yet as many as 500 billion may be present in a cubic yard of concrete. Fresh concrete containing them is cohesive and looks and feels "fatty."

The entrained air reduces segregation and bleeding in the fresh mix. It significantly improves the concrete's resistance to freezing and thawing. It also improves sulfate resistance.

Concrete made with entrained air, a low water cement ratio, and a cement of low tricalcium aluminate content will be resistant to attack from sulfate soil waters and from seawater. Its water-tightness, too, will be superior to that of non-air-entrained concrete. Because of this, air-entrained concrete should be used wherever watertightness is desired.

There are various methods for determining the air content of fresh concrete. Three have been standardized by ASTM:

1) Pressure method (ASTM 0231) is practical for field testing of all concretes except those made with highly porous and lightweight aggregates.

2) Volumetric method (ATSM C173) is practical for field testing of all concretes, but is particularly useful for concretes made with lightweight and porous aggregates.

3) Gravimetric method (ATSM C138) requires accurate knowledge of specific gravities and absolute volumes of concrete ingredients. It is impractical as a field test method but is satisfactory in the laboratory.

A simple field test for checking possible changes in air content or mix properties is the unit weight test. The only equipment needed is a sturdy container of known volume, preferably ¼ or ½ cubic feet and an accurate balance. Changes in air content generally result in changes in the unit weight of concrete from one batch to another.

Retarders and reducers contribute improved properties

One of the most important attributes of portland cement concrete is its ability to be shaped at the job site. This ability becomes somewhat limited unless proper consideration is given to the necessity for retention and integrity of the shape after the concrete has hardened.

Most retarder and water-reducing admixtures permit greater accomplishments with concrete because less water and better workability mean improved properties in both the plastic and the hardened states. A water-reducing admixture can satisfy the workman's demand for "more water" and yet "hold the line" on strength.

Most retarder and water-reducing admixtures are of two types: lignosulfonates and hydroxylated carboxylic acids. They are used principally to delay the set, to reduce the effect of temperature during hot-weather operations, and to reduce the tendency for false set. They permit monolithic placements in mass concrete.

These improvements are not entirely dependent on water reduction, however, and water reducers should not be judged solely by their water-reducing capacity. Many of the retarding admixtures also reduce the water requirement (for the same slump or consistency), and some entrain a small amount of air.

Modification of the material during the manufacturing process permits the producer to make an admixture that will feature either the retarding or the water-reducing property.

Both products provide the invaluable benefits of narrowing strength variability (coefficient of variation), reducing the risk of below-specification test results even when placing crews succeed in their demands for high-slump material.

Evaluation of the efficiency of retarders should be accomplished by the method prescribed in ASTM C 403-67T. When a retarder is used, trial mixes should be made in the field, with the equipment that will be used for mixing on the job. Small laboratory batches may not give the same results as job batches, and often require retardation times up to twice as long as those later found in the field.

Accelerators are important for cold-weather concreting

Accelerators, by shortening the cure, increase early strength. This affords better protection against damage to the concrete in cold weather. It also permits the early removal of forms and the early loading of anchoring devices.

Calcium chloride is the most commonly used concrete accelerator. It acts to speed concrete setting and strength gain up to 28 days. Its use is of particular value during the spring and fall to expedite finishing and curing steps that would otherwise be slowed down by the cooler weather.

In the winter season, many contractors prefer to use heated water and/or heated aggregates instead of a chemical admixture to achieve this same effect. In this way they can avoid any risk of increased shrinkage, reduced sulfate resistance, or corrosion problems. Approached with caution, the use of calcium chloride can provide important job-speeding benefits when no other alternative exists.

With the increased use of chemical admixtures for concrete and the availability of relatively recent ASTM general specification C494, the producer is more frequently being required to furnish proof that successive shipments are identical in composition.

One approach has been a request for a product's "standard" infrared spectrum. The Massachusetts Department of Public Works, for example, has already begun to compile a book on standard spectra for all products being used or considered for use in its construction projects.

The time required for an infrared analysis is only 20 to 30 minutes, compared to a week or more by conventional methods of chemical analysis. In addition it offers the most promising method of clearly identifying and classifying retarder materials.

This technique, by obtaining recorded spectral curves "fingerprints" the unique and distinctive characteristics of each admixture. It could be another step forward in the developing art of concrete manufacture and placement.

Principal Types of Concrete Admixtures

Admixtures	Types	Principal benefits	Precautions
Air-entraining agents	Vinsol resins Petroleum residues	Improves resistance to freeze-thaw scaling and de-icing salt attack.	Excess air decreases strength.
Retarders	Lignosulfonates Hydroxylated, carboxylic acids	Extends working time in hot weather. Permits larger monolithic placements in mass concrete and bridge docks.	Optimum dosage will change with temperature. Accidental overdosage can cause prolonged retardation.
Water reducers	Modified lignosulfonates Modified hydroxylated, carboxylic acids	Improves workability and ease of placement. Assures durability.	Best use requires careful mix design. Arbitrary cement reductions can detract from desired concrete properties.
Accelerators	Calcium chloride	Speeds cold weather finishing. Shortens curing and winter protection time requirements.	Chlorides aggravate shrinkage problems, decrease resistance to sulfate attack and to alkali-aggregate reactions.

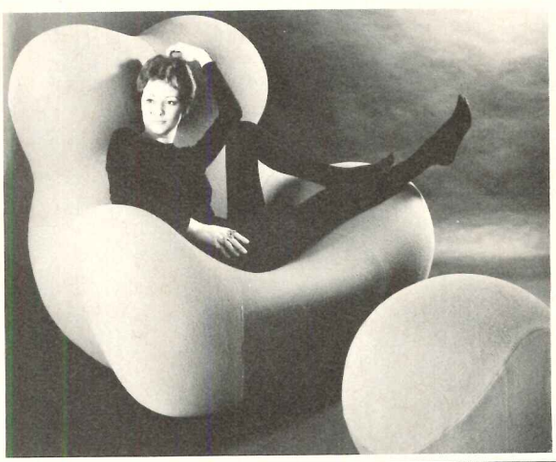
For more information circle selected item numbers on Readers Service Inquiry Card, pages 223-224

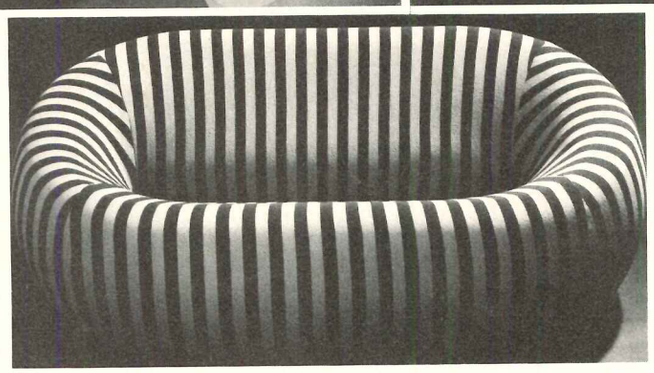
Expandables and inflatables: a great look in furniture that's proud to be plastic

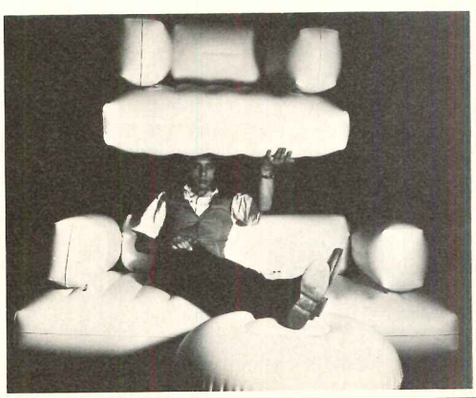
This expandable furniture from the *Up* series is shipped from the manufacturer compressed into a pancake-shaped package like those on which the model is sitting in the photo at right. The *Up* series was developed at the Cesare Cassina Design Center in Milan, where the favorable characteristics of polyurethane as an upholstery foam have been recognized for some time: It is a closed cell material that can be produced in a variety of densities and can assume an infinite number of physical forms; it can be as rigid as wood or as soft as a feather pillow. The furniture is produced by mixing several plastic liquids in a mold that allows them to expand and take its shape.

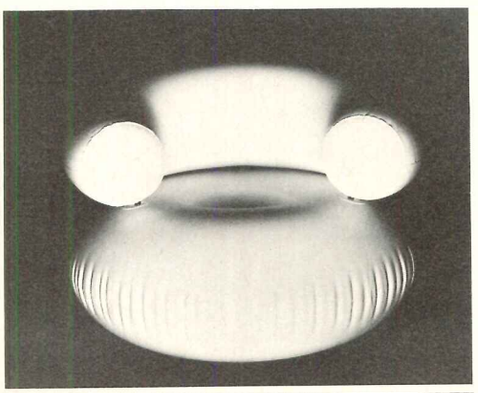
But, said architect James E. Rappoport, president of the U.S. company handling the line, "We realized long ago that it did not make sense to ship a lot of Milan air around the world." So finished pieces of the *Up* series, manufactured with no internal rigid structure, are placed in a vacuum and compressed into a package. When the package is cut, air causes the piece to reach its designed density within 45 minutes. ▪ Atelier International, Ltd., New York City.

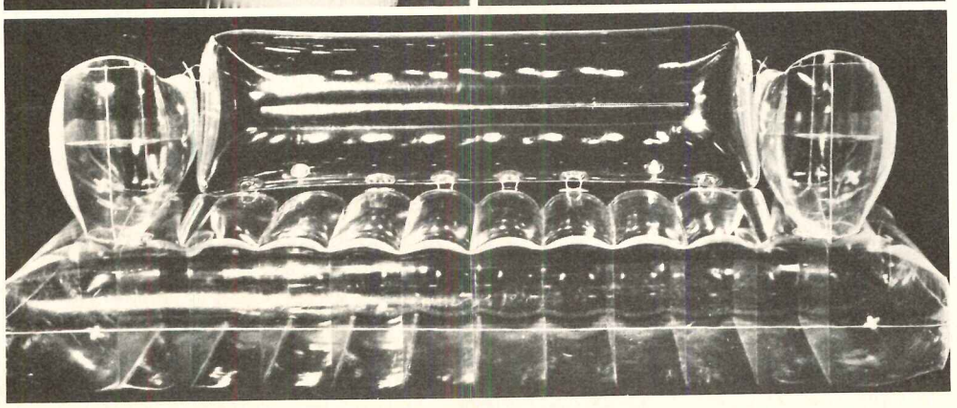
Circle 300 on inquiry card











Quasar Inflatables, designed by Quasar Khanh and introduced in France two years ago, are inflated by a simple pump or vacuum cleaner. Unlike expandables, they can be deflated, and repeated inflating and deflating is not damaging to the furniture. The line includes tables, lamps, chairs, sofas, and wall panels for all areas of the home and for commercial installations.

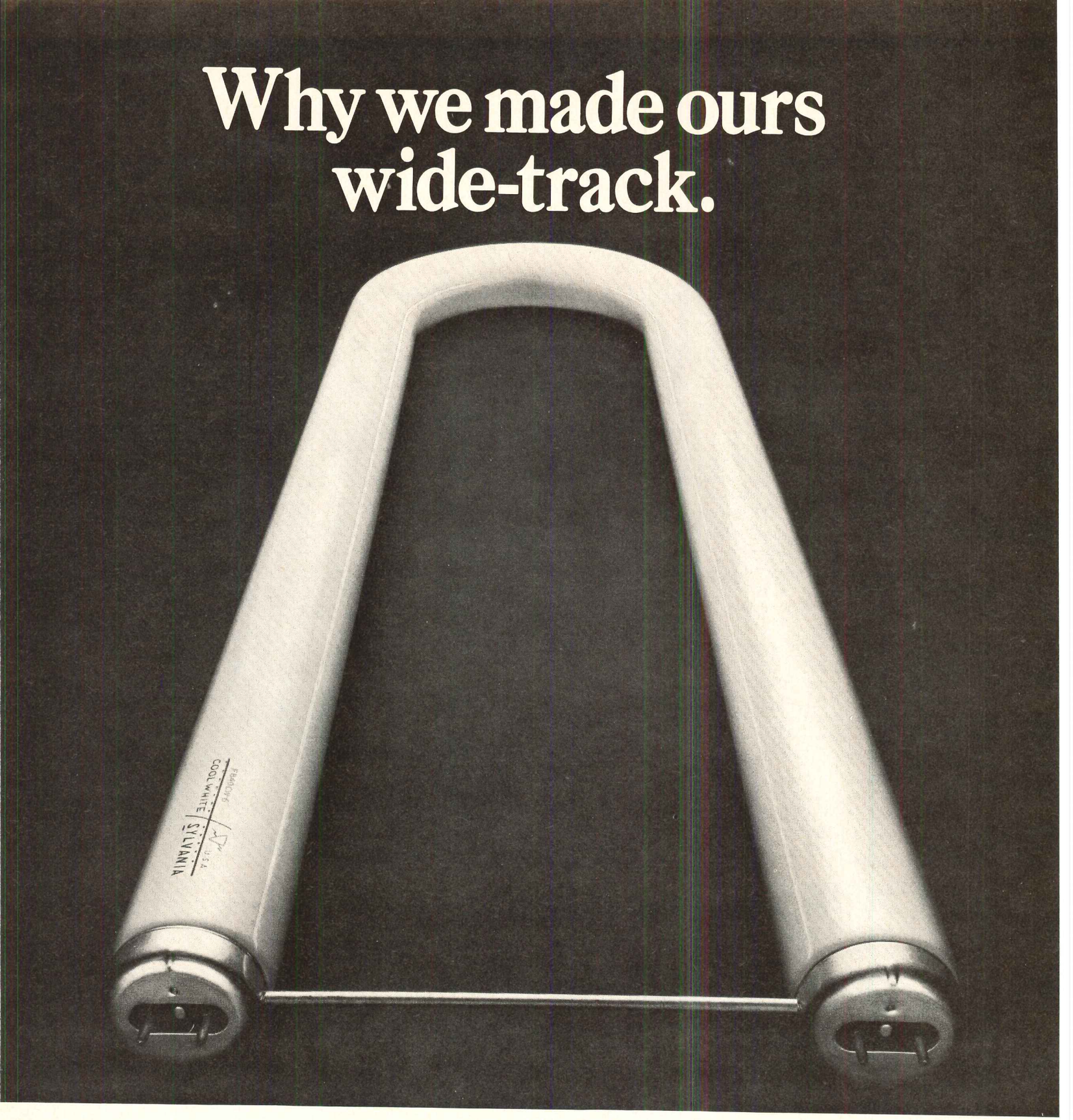
Quasar Inflatables are made of high-quality heavy gauge polyvinyl chloride which has been specially treated to prevent sticking to the skin. It is impervious to most chemicals, does not support combustion and can be used in the hot sun, extreme cold and near salt water, since the metal parts are corrosive resistant. Seams are guaranteed permanently heat sealed. Accidental punctures can be repaired with a kit containing cement and matching patches.

This line is being handled in this country by selected retail outlets, and arrangements are being made to make them available through interior designers and architects. ▪ Bedell & Palitz, New York City.

Circle 301 on inquiry card

more products on page 166

Why we made ours wide-track.



We set the legs of our 40-watt Curvalume bent fluorescent a full six inches apart.

Because when they're this far apart, the legs of two lamps can be nicely spaced out inside a standard 2-by-2-foot lighting fixture.

But if you think about it—it's possible to stuff three bent lamps into a fixture this size if you just bend the legs closer together.

Our engineers thought about it. And turned thumbs down on the idea.

But others rushed in and made a narrow-gauge lamp with smaller leg spacing. With the following results:

The tighter bend calls for thicker glass. Their lamp is twice as heavy as ours.

It costs you a whole dollar more than ours.

And it puts out 15% less light than ours.

So when you jam three of these lamps into a fixture, you're jamming in a lot more dollars. And short-changing yourself on light.

Which makes us glad we didn't go on a bending bender.

For details, write to: Sylvania Lighting Center, Curvalume Fluorescents, Danvers, Mass. 01923.

SYLVANIA
GENERAL TELEPHONE & ELECTRONICS

For more data, circle 54 on inquiry card

UNMISTAKABLE VALUE. A rare and beautiful Stradivarius violin crafted many years ago in Cremona, Italy. There's a history of value behind every new Jamison door, too . . . in quality construction, performance, and Jamison service.

Architects who value Value specify Jamison every time

Whenever you select a Jamison cold storage door you get the extra value and extra benefit of Jamison's published technical information and engineering services. Comprehensive reference material such as Architects' Data Sheets and a unique publication, "How to Select and Specify Doors for Cold Storage Warehouses and Food Processing Plants" give you useful, practical data covering every aspect of cold storage door construction, insulation, installation, and operation. Remember those special services when you want to save valuable time in solving a cold storage door problem, or when you need dependable assistance in writing specifications.

Look to Jamison for finest quality, the most complete line of doors, the most modern designs. That's why Jamison *means* value . . . through and through, year after year. Call your nearby Jamison service office for a free copy of "How to Select . . . " or write to Jamison Door Company, Hagerstown, Md. 21740.

COLD STORAGE DOORS BY

JAMISON

JAMISON DOOR COMPANY • HAGERSTOWN, MD.

For more data, circle 55 on inquiry card

Housing: progress report

- Congress is expected to pass a multi-billion dollar bill for new housing. House and Senate passed preliminary versions making major changes in urban renewal programs to help preserve existing neighborhoods and rent levels. The Senate bill includes a provision for Federal rent subsidies for tenants of public housing to keep rents down to 25 per cent of their income. Up to now, Federal rent subsidies have been available only to poor families in private housing. Both bills include $2 billion for urban renewal and $300 million in additional Federal funds for urban transit.
- California has passed a prefab housing law. Houses will be made in factories and shipped to all parts of the state regardless of local building codes. Structural designs, lumber dimensions, plumbing and electrical work will all be inspected and ruled on in the factory. There have been few union objections, as the factories are expected to be unionized, and will involve building crafts.
- "At levels now programmed by the government it will take 40 years to build or rehabilitate the 7 million homes needed to properly house low-income families in the next decade," according to the Rural Housing Alliance, a private, non-profit organization, supported by the Ford Foundation and the Office of Economic Opportunity. In a report titled "People Have a Right," the Alliance calls for the creation of a rural development bank, creation of non-profit housing development corporations eventually to be owned and managed by project occupants, and more Federal help for rural housing in the form of increased funding and of loans with easy terms.
- Chrysler, Ford and Westinghouse are among the major companies going into housing construction on a big scale. Ford recently purchased a 30 per cent interest in Concept Environment, Inc., a prefab building company.

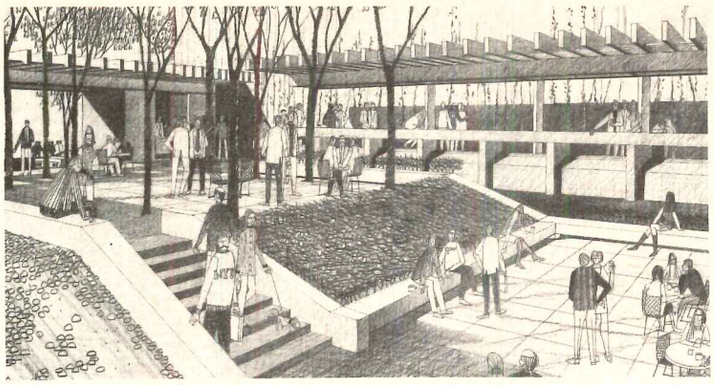
Ralph Walker named A.I.A. "Member Emeritus" and reaches 80th birthday

Last month, Ralph Walker celebrated not only his own 80th birthday, but also the 50th anniversary of his entry into the New York firm of McKenzie, Voorhees and Gmelin, now Haines, Lundberg and Waehler, where he became a partner in 1926. Mr. Walker received the "Member Emeritus" citation from American Institute of Architects President Rex Allen, at a dinner in his honor in New York City.

Ralph Walker was the first Chancellor of the College of Fellows of the A.I.A., and as A.I.A. president, he instituted the first major survey of the profession, "The Architect at Mid-century." He received the A.I.A. Centennial Medal of Honor in 1956, and his other honors include Chevalier of the Legion of Honor of France and membership in the National Institute of Arts and Letters.

In his very active retirement, Mr. Walker is working on several articles and more than one book; he lectures on architecture at Syracuse University, and maintains an office at Haines, Lundberg and Waehler, where he continues as a consultant.

Mr. Walker has a good deal of sympathy for current student dissatisfactions. In an interview with the RECORD, he revealed he dropped out of the Massachusetts Institute of Technology in protest several weeks before he was to have graduated. The school had awarded first place in a theater design competition in which he participated to an exact reproduction of the Paris Opera. He feels much of today's student protest is in the same spirit.



Much-needed mini-park for Manhattan

A "mini-park" is being built in the middle of Manhattan's expensive concrete, inspired by the tiny Paley Park (Zion and Breen, 1966). It was designed by Hideo Sasaki, of the Watertown, Massachusetts firm, Sasaki, Dawson, DeMay Associates, in consultation with Harmon H. Goldstone, of Goldstone and Dearborn (New York) who is also chairman of the New York City Landmarks Preservation Commission. The park was the idea of Mrs. Jean Mauze, née Rockefeller, who assembled and donated the million-dollar site. It will contain trees, trellises, a water garden, two fountains and a heated restaurant terrace, all on a 60 by 100-foot site.

Battery Park City approved for Manhattan; $1-billion project

Battery Park City, billed as the largest urban development project in United States history, is now under way in Manhattan. The project, to be developed on filled land in the Hudson River, will be created exactly as reported in the RECORD (June 1969, pages 145-150), except that the proportion of low- and middle-income housing to "luxury" housing has been increased. Housing will now consist of 19,000 new apartment units, one-third of them conventionally financed "luxury" apartments, one-third of them subsidized for middle-income occupancy, and one-third of them low-income units. The city's yearly tax revenues will be reduced only slightly by this emphasis on subsidized housing. Since approval of Battery Park City by New York's Board of Estimate in late October, engineering studies on the site have begun, and will continue for one year. Land-fill operations have been under way on the site for some time now, and will be complete by the end of 1971. Construction on the 5-million square feet of office space will begin at the end of 1970 and will be complete in 1974. Beginning that year, approximately 1,800 apartments per year will be completed and available on the Manhattan market, now the tightest in the nation. Architects for Battery Park City are Harrison & Abramovitz, Johnson & Burgee and Conklin and Rossant.

Carona Martin defeats Vago for U.I.A. Presidency

Ramon Carona Martin, of Mexico, defeated long-time Secretary General Pierre Vago of France in a close contest for the presidency of the International Union of Architects at its Tenth World Congress in Buenos Aires. The new Secretary General is Henri Edde, of Lebanon. Daniel Schwartzman, F.A.I.A. of New York was elected Vice President for the Western Hemisphere.

The Congress, whose subject was housing, included numerous seminars and exhibits. But it suffered from communications problems which got to be so bad at one session the translators walked out.

The seven U.S. delegates were Rex W. Allen, Daniel Schwartzman, Mario C. Celli, Dean F. Hilfinger, George V. Russell, Roger C. Mellem, and Maurice Payne.

The U.I.A. will meet every three years rather than every two, and its next Congress will be in Bulgaria in 1972.

Automation savings aren't just for skyscrapers . . . with Honeywell's standardized systems.

You might think automation is practical only in the biggest buildings. Not so. Take the Honeywell System 2, for example. It's an inexpensive little automation package made up of standardized components. And it can grow as your client's building grows, just by adding another off-the-shelf module.

Basic System 2 control panel is a mini-automation center, little over 5 feet high and about half that in width and depth. Yet, it can start and stop equipment, detect equipment failures, monitor temperatures, monitor all kinds of alarms. And save enough in operating costs to pay for itself in 3 years!

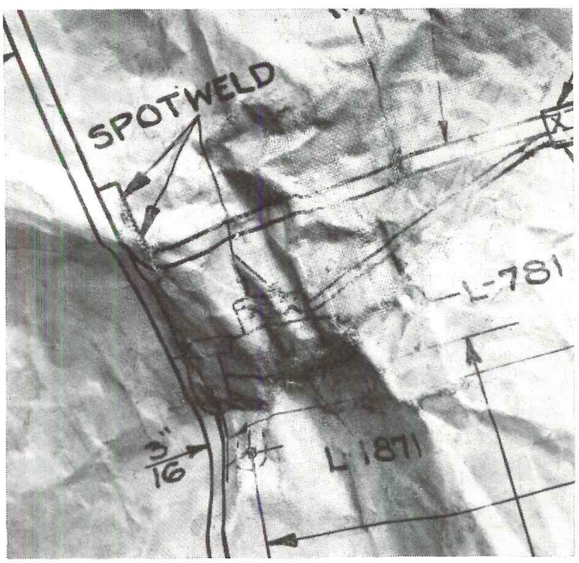
The 3-year payoff, of course, is the most important feature of a Honeywell Automation Center of *any* size. That's a fact, based on 18 years of Honeywell experience in automating over 4,000 other buildings.

Want building automation help? Send for our planning guides: Honeywell, Commercial Division, G2118, Minneapolis, Minnesota 55408.

For more data, circle 58 on inquiry card

Honeywell
AUTOMATION

DIRTY LINEN



Keep that original safe. Make a second original on KODAGRAPH Wash-Off Film.

This old battered drawing on cloth was once a thing of beauty—the culmination of weeks of design and many hours on the drafting board. Yet pretty soon, with handling, staining, smudging, and flaking, it can look like this.

That's why it really pays to have your blueprinter make a second original on KODAGRAPH Wash-Off Film, ESTAR Base. Preserve the cloth master and drop the second original into your active file. It won't crack or yellow. Stains and fingerprints will wipe right off. You'll still be getting great white prints years from now.

Revisions are easy. You get rid of unwanted photographic lines on KODAGRAPH Wash-Off Film, ESTAR Base, with a drop of water and a touch or two of your eraser. Its matte drafting surface permits twice the erasures, yet accepts and holds pen-and-ink corrections smoothly.

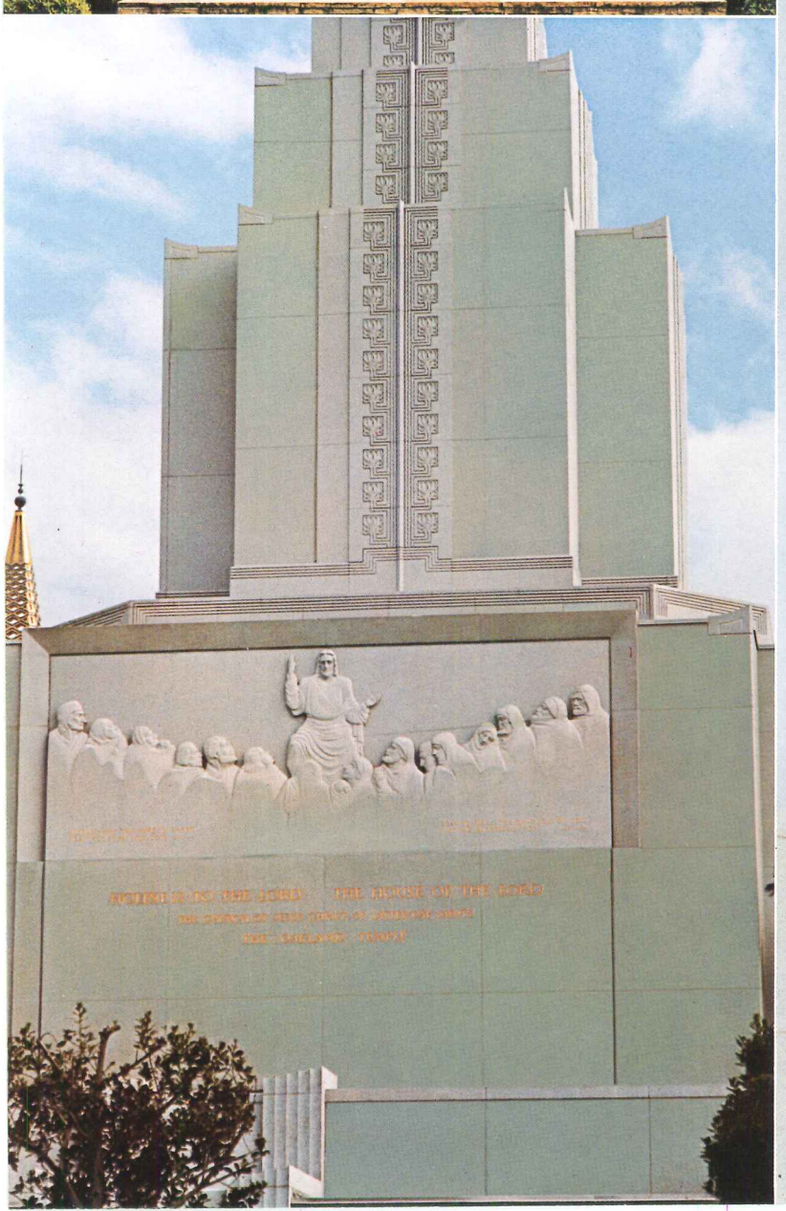
More details? Just contact your local Kodak Technical Sales Representative for a no-obligation, certified survey of your present operation... and a look at all the smart KODAGRAPH Products available now. Or write us: Eastman Kodak Company, Business Systems Markets Division, Rochester, New York 14650.

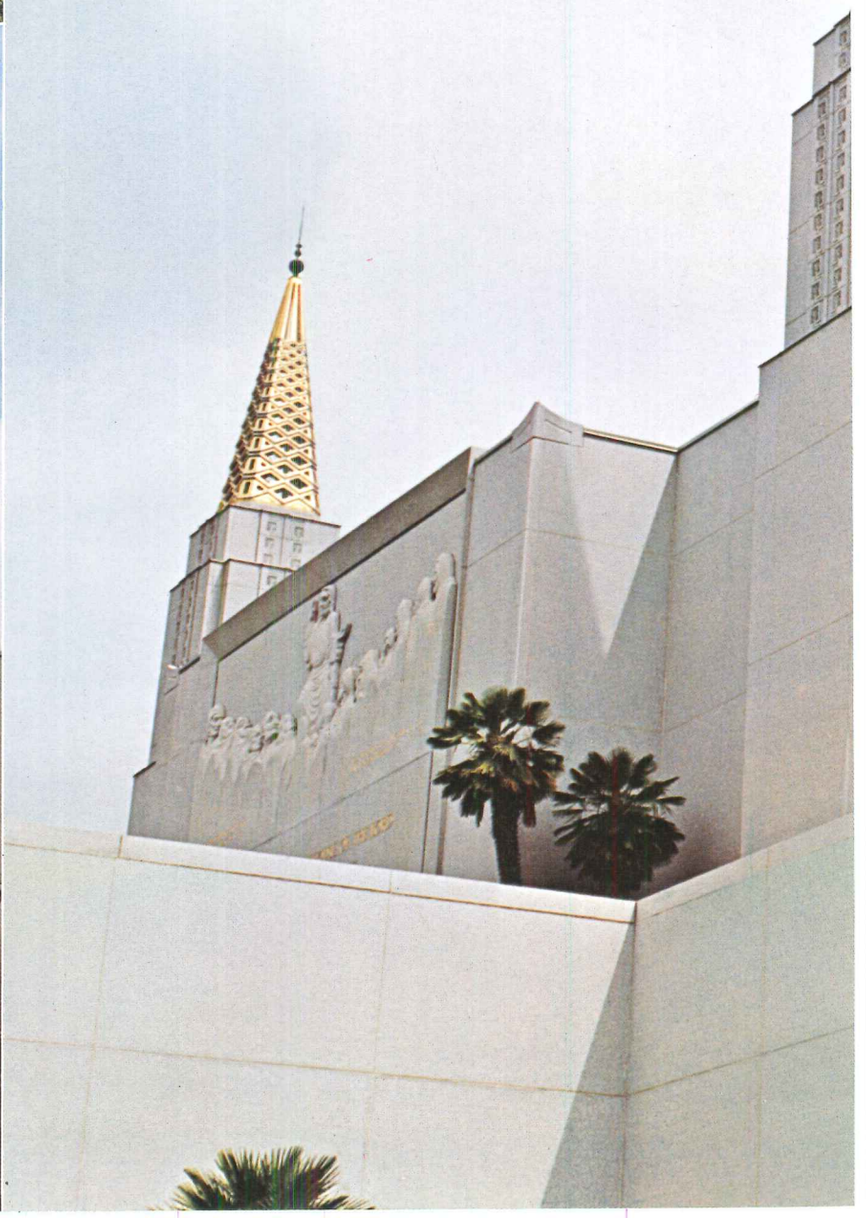
Kodak

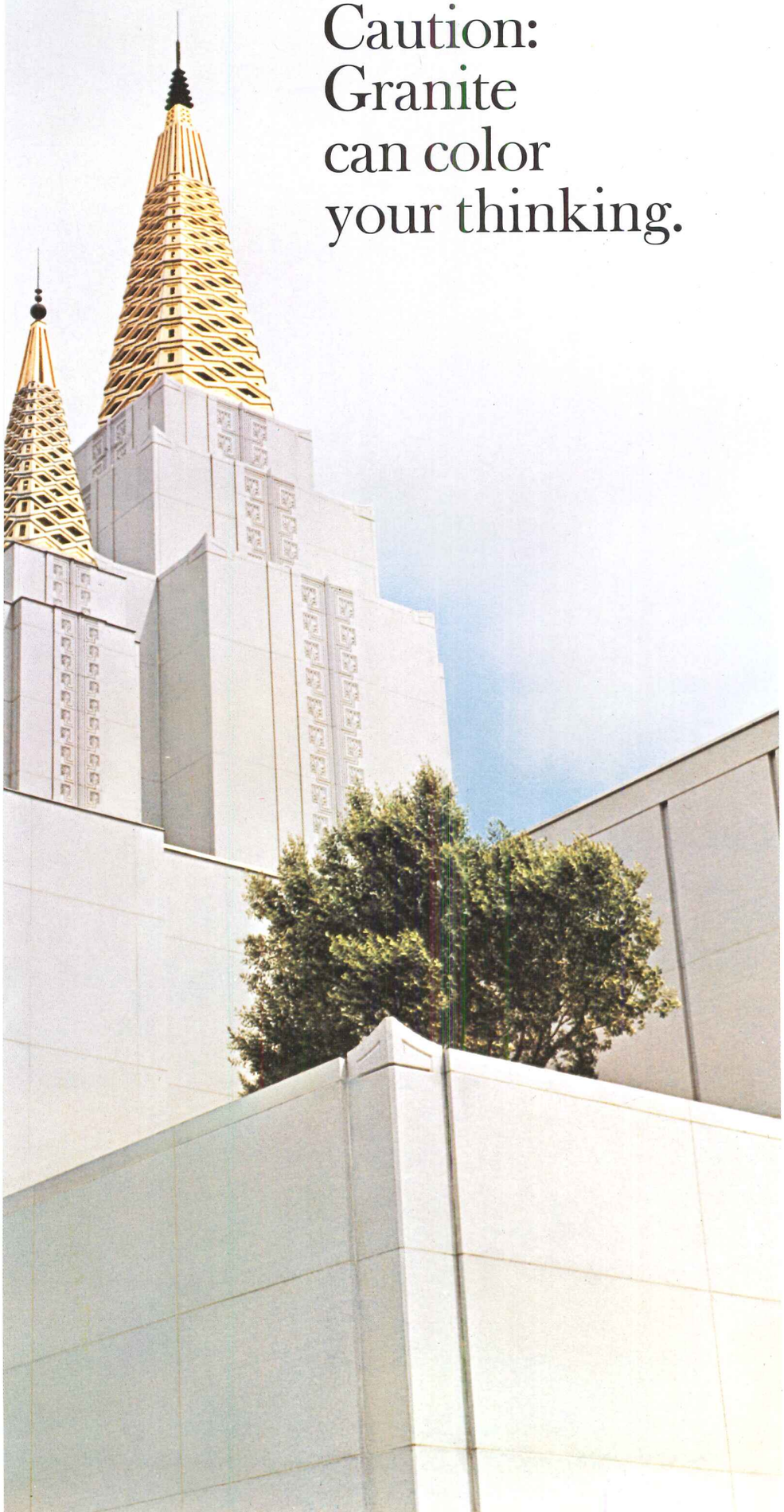
DRAWING REPRODUCTION SYSTEMS BY KODAK

For more data, circle 59 on inquiry card

For more data, circle 60 on inquiry card


HOUSE OF THE LORD





Caution: Granite can color your thinking.

Oakland Temple, Church of Jesus Christ of Latter Day Saints, Oakland, California
Architect: Harold W. Burton
General Contractor: Wheatly Brothers
Sculptor: Merle Gage
Granite: Sierra White, thermal finish and hand carved

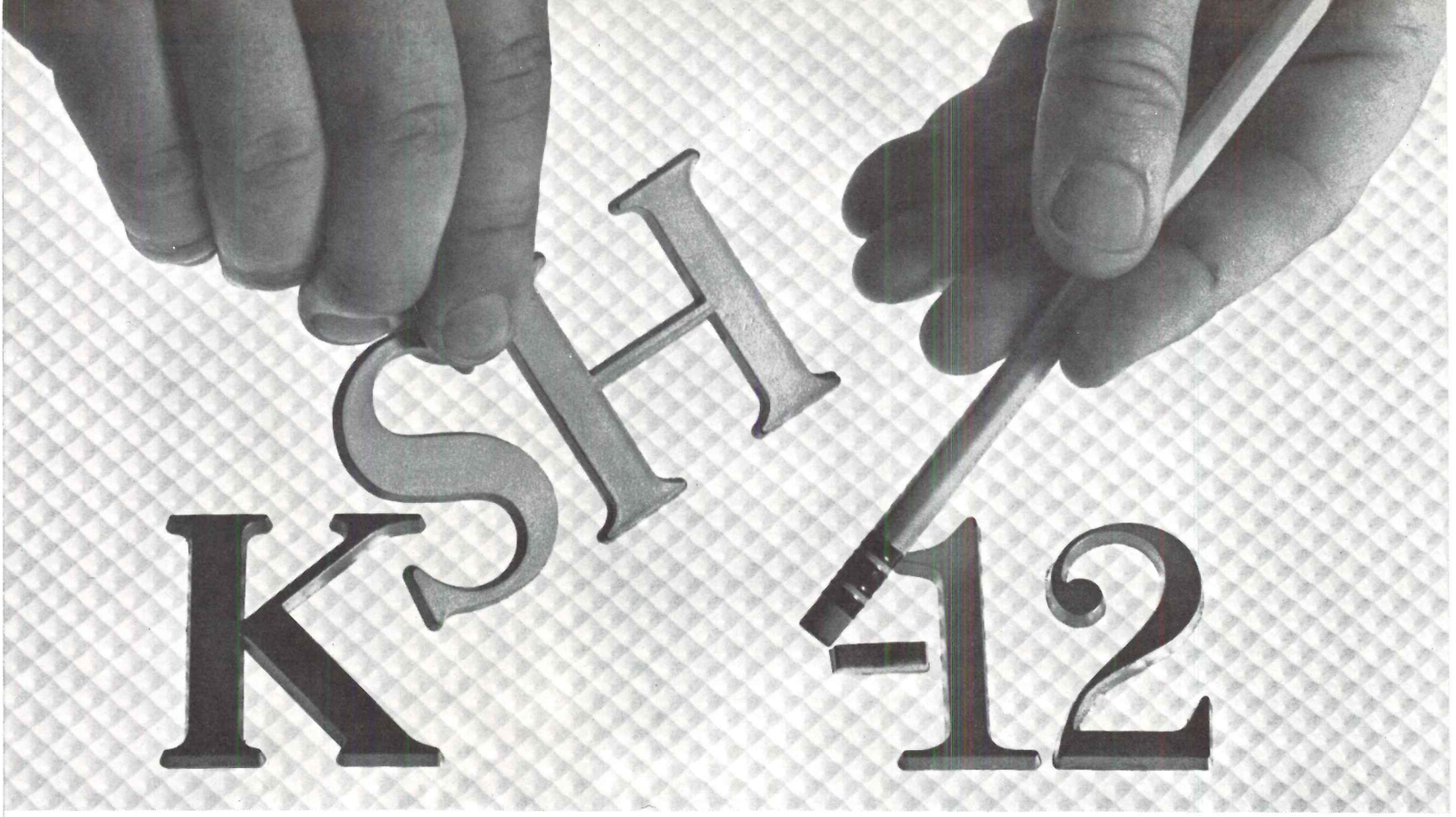
Cold Spring Granite Company

Cold Spring, Minnesota

subsidiaries:
Lake Placid Granite Company
Jay, New York
Texas Granite Corporation
Marble Falls, Texas
Raymond Granite Company
Raymond, California
Cold Spring Granite (Canada) Ltd.
Lac Du Bonnet, Manitoba

over 20 producing quarries

See us in Sweets, File No. $\frac{6a}{Co}$, or write.



NOTICE TO LIGHTING PANEL SPECIFIERS—For your protection, we've given our K-Lite Lighting Panels new designations. K-5 becomes KSH-5, K-12 becomes KSH-12, K-15 becomes KSH-15 and so on for all the original "K" number products.

Why the change? K-S-H originated all the "K" number specification quality lighting panels. We believe you specified them because you wanted the performance and quality they assure and will continue to specify them for these reasons.

The problem: Other panel manufacturers have produced "cheap" versions of the "K" panels. They've lowered the standards, compromised on performance, cheated on material thickness... even given their panels similar numbers so they can be slipped in on your specifications.

The solution: Specify KSH-12, etc. Remember, KSH stands for the original with the performance, the quality, the satisfaction you expect and trust. "K" could stand for "KOPY" from some fixture manufacturers who don't think you care. Ask if they intend to furnish KSH or "KOPY" from an unknown source. Your client won't know the difference until he turns on the lights.

K-LITE®

On any job where a specifier has specified "K" number panels and is disappointed in the results or feels he has been furnished "KOPY" panels, K-S-H will be happy to investigate the problem and assist in the solution of it. Please contact us.

KSH and K-Lite are registered trademarks.

K-S-H, INC. • 10091 MANCHESTER • ST. LOUIS, MISSOURI 63122

For more data, circle 61 on inquiry card

For more data, circle 60 on inquiry card

For more data, circle 62 on inquiry card

Introducing the gas razor.

The switch to Gas Total Energy is on.

Just before breakfast, Linda Nelson stepped up to the vanity in her hotel room and plugged her razor into the gas company. So did a lot of other women in hotels and motels all over the Northern Plains.

Explanation? Gas total energy. The use of natural gas prime movers to produce electric power on-site, right where it's used for lights, TVs, motors and, you guessed it, razors. But that's just the beginning. While the engine/generator sets turn out the power, engine heat is recovered to heat or cool the building, to heat water and maybe for processing.

It all sounds pretty good. But the real clincher comes in two parts: (1.) cost economies not possible ten years ago, but practical now due to the high operating efficiency of gas total energy systems, (2.) the self-sufficiency of a total energy system—it acts as its own power standby.

Sold? If not, you soon will be. For complete information, contact your local gas company or Bob McChane Sales Promotion Department Northern Natural Gas Company 2223 Dodge Street, Omaha, Nebraska 68102

Northern Natural Gas Company
Home Office: Omaha, Nebraska

For more data, circle 63 on inquiry card

For more data, circle 62 on inquiry card

TCS

Why coat stainless steel?

. . . because proper soldering of stainless steel requires an extra step of pretinning or use of corrosive fluxes. These fluxes must be removed after soldering to prevent attack on the stainless.

TCS solders perfectly using a non-corrosive rosin flux. Pretinning is unnecessary.

. . . because architectural metals are subject to corrosive attack in severe chemical, industrial or marine environments.

TCS enhances the proven ability of stainless steel to resist corrosive attack under these conditions.

. . . because the reflective surface of stainless steel may sometimes be undesirable in architectural applications.

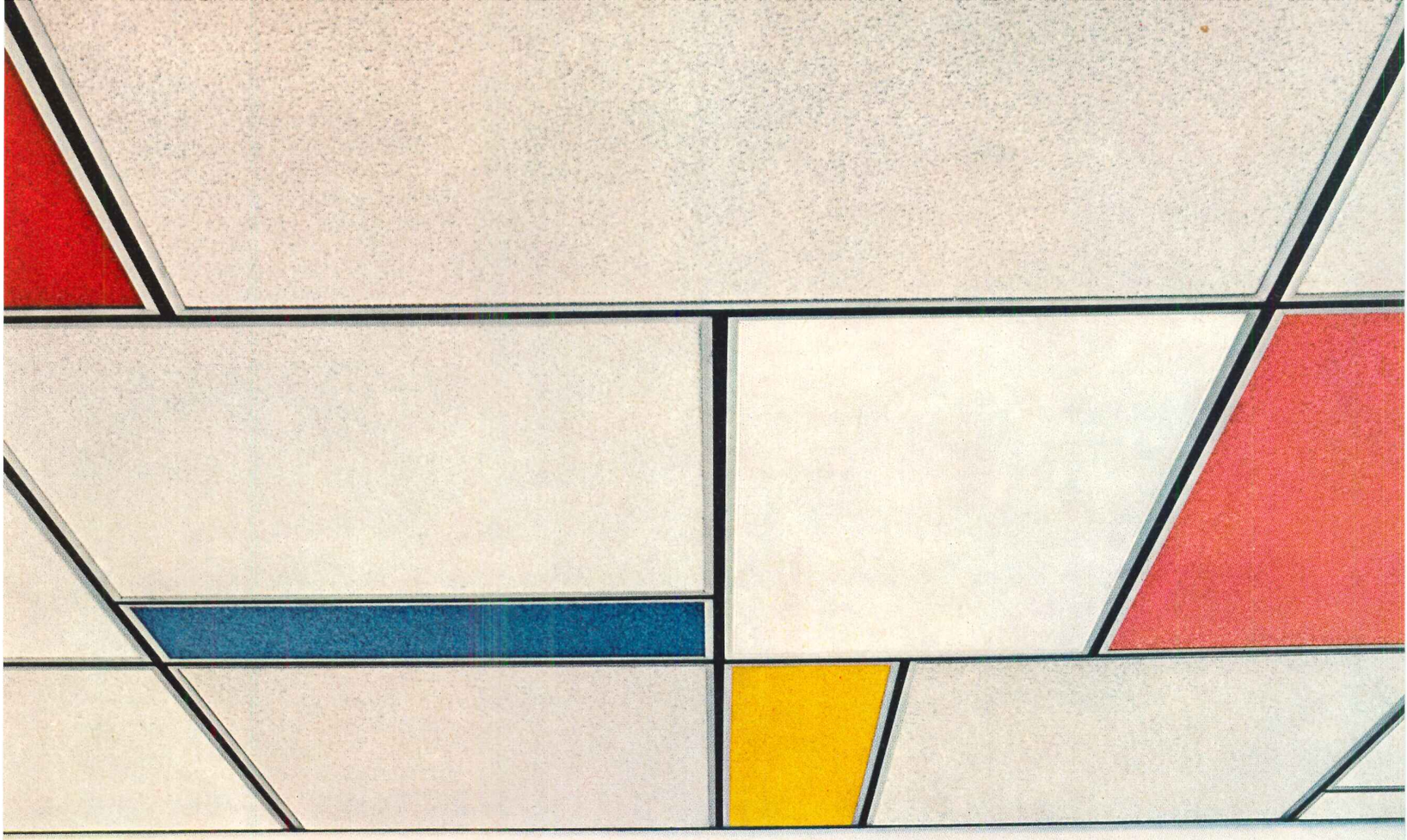
TCS weathers naturally to a predictable, uniform and attractive dark gray. If color is desired, it can also be painted.

TCS, Terne-Coated Stainless Steel, is 304 nickel-chrome stainless steel covered on both sides with terne alloy (80% lead, 20% tin). It is a product of Follansbee Steel Corporation, Follansbee, West Virginia.

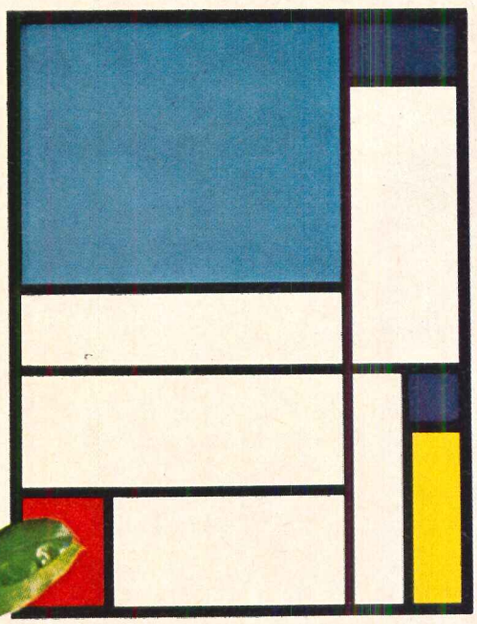
FOLLANSBEE

FOLLANSBEE STEEL CORPORATION • FOLLANSBEE, WEST VIRGINIA

For more data, circle 64 on inquiry card



Introducing: Fiberglas Mondrian Ceiling System

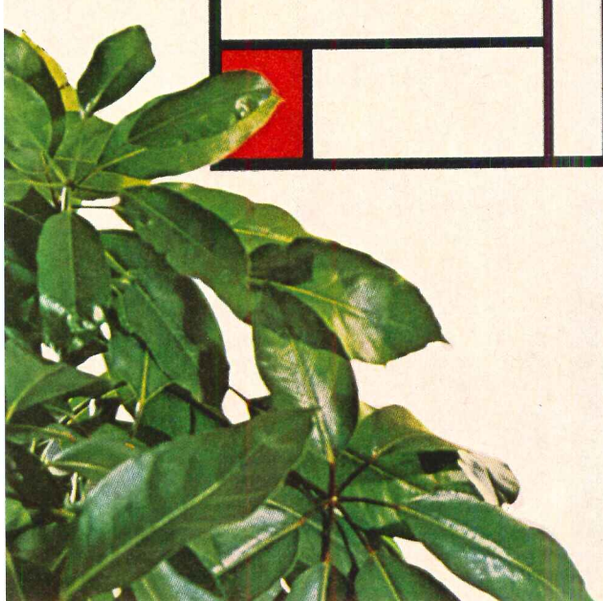


Sound control, beauty and light unified in a new ceiling design concept.

New Fiberglas* Mondrian† combines sound control and lighting in a dramatic new acoustical ceiling which uses the suspension system as a design element. Both acoustical panels and integral lighting modules have frames of identical design and appearance. The result is a functional, uncluttered, luxurious ceiling with a Mondrian design.

The acoustical panels are available in 4′ x 4′ and 4′ x 8′ sizes, with a choice of two white surface finishes: Nubby or Textured Glass Cloth. Nubby is a rough surface with a warm, rich appearance. Textured is smooth with a subtle cloth-weave surface. Sizes and colors (as seen above) further emphasize the Mondrian effect, and can be achieved by cutting and painting panels on the job.

The system is easy to install, and panels may be quickly and easily lifted out for maintenance purposes. For booklet giving more details, *write on your letterhead to:* Owens-Corning Fiberglas Corporation, Attn: M. C. Meeks, Box 901, Toledo, Ohio 43601.



OWENS/CORNING FIBERGLAS TRADEMARK ®

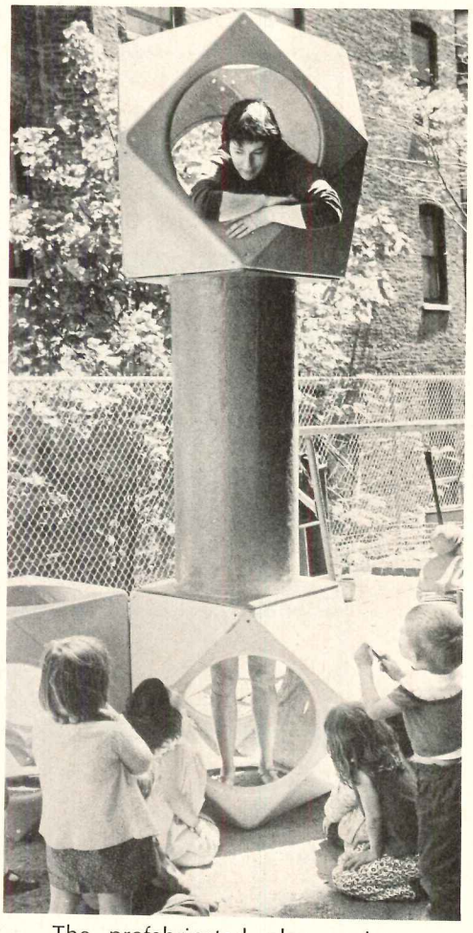
*† Trademark Registered Owens-Corning Fiberglas Corporation

For more data, circle 65 on inquiry card

continued from page 145

INSTANT PLAYGROUND / Architect Richard Dattner has designed *PlayCubes,* colorful, multi-holed units of Fiberglas cubes that look like honeycomb clusters. Children can explore through interconnecting tunnels, up ladders and down slides. Research is reported to have shown that 95 per cent of all playground accidents are caused by moving parts—and there are no moving parts in *PlayCubes.*

Individual units, which are hollowed cuboctahedrons of great strength and durability, can be arranged in various play configurations designed to stimulate children.

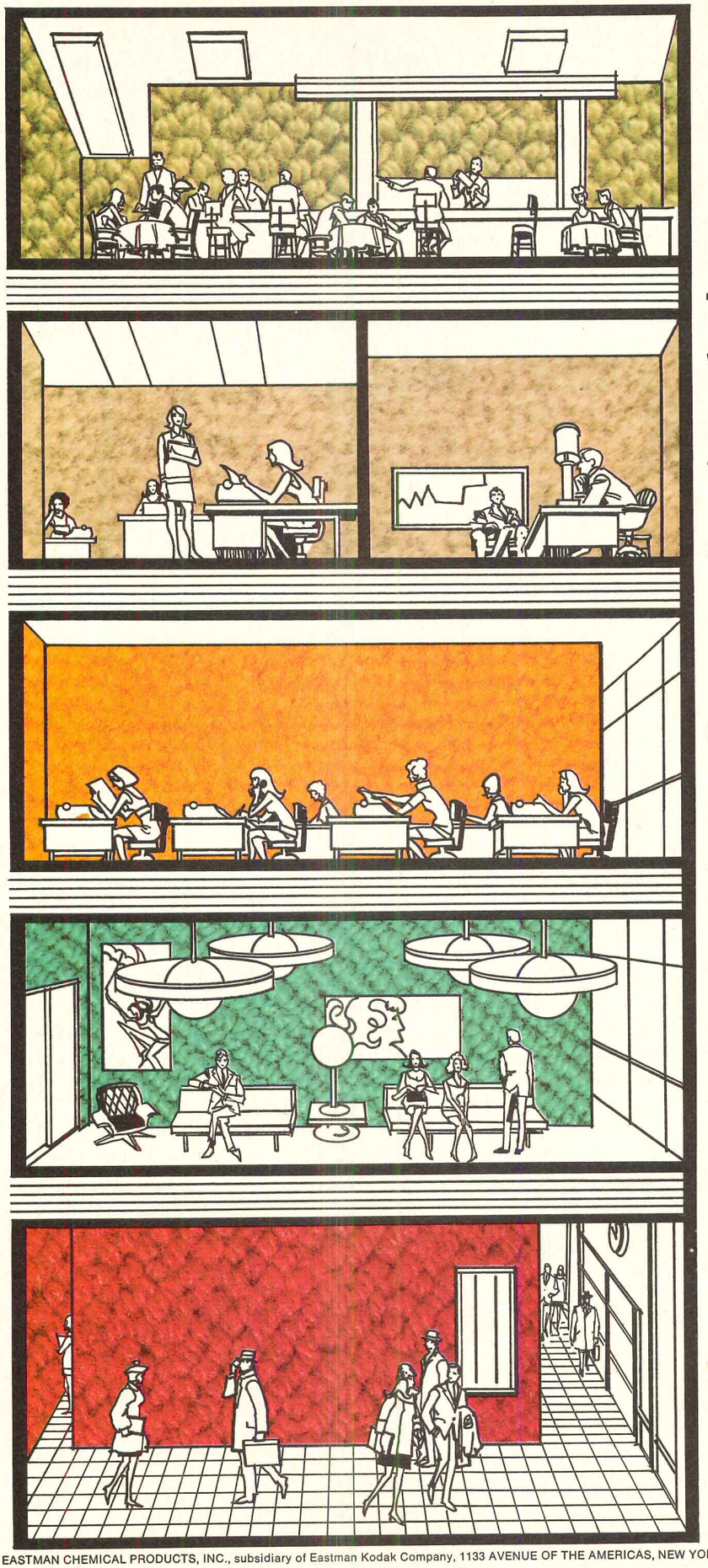


The prefabricated play environment was developed for easy setup in cramped areas, but the equipment will be sold for municipalities and schools as well as motels, shopping centers and other commercial and civic institutions. ▪ Playstreet, Inc., New York City.

Circle 302 on inquiry card

more products on page 186

For more data, circle 66 on inquiry card



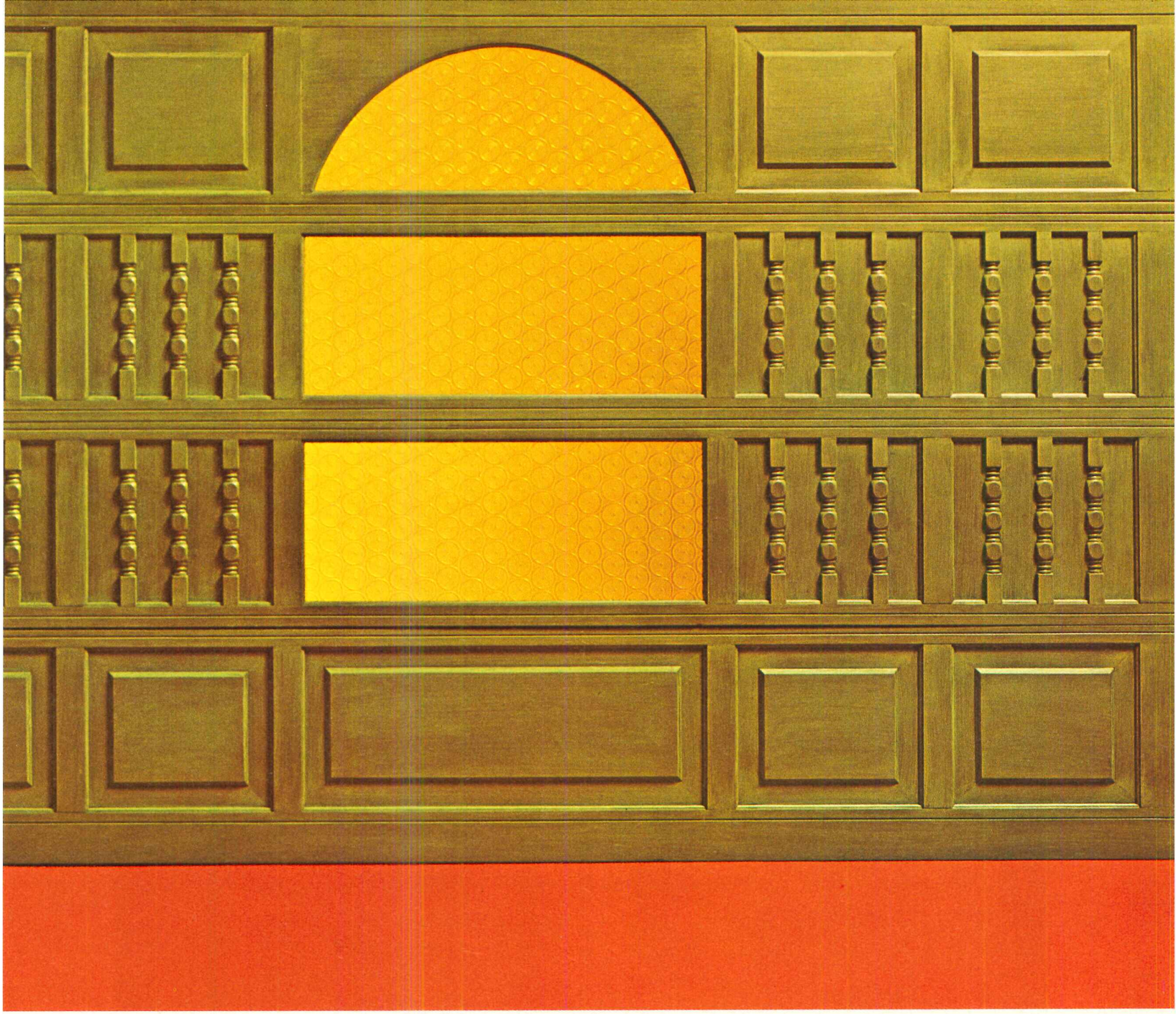
Hush up the walls with Burlington Wallscaping™ of Verel®

Noise. Is any modern building without it? Now Burlington does something beautifully constructive to muffle it. Wallscaping is a new, pile-textured wall surfacing of 100% Verel modacrylic. It absorbs much of the distracting din in an office, theatre lobby or museum. It's luxurious looking, too, so you can cover walls with imaginative textures and colors. Even hang pictures without leaving marks. Cleaning? Just vacuum it right on the walls. And because Verel is flame-resistant, Wallscaping offers important safety benefits. Check Wallscaping at Lees Carpets Division of Burlington Industries, Inc., Valley Forge Industrial Park, Norristown, Penna. 19401.

Kodak Eastman Fibers

EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, 1133 AVENUE OF THE AMERICAS, NEW YORK, N.Y. 10036. Verel is the trademark for Eastman modacrylic fiber.

For more data, circle 67 on inquiry card



that's truly a part of the home.

look any way you want it to look. Imposing or unobtrusive. Dynamic or serene. Colorful or quiet. It just depends on how you want the house to look.

We also market electric operators to go with our doors. Fingertip garage door control provides unprecedented convenience to homeowners. Particularly when you consider that the garage door is the largest moving part of the house.

If you want a garage door that doesn't look like a garage door, see your nearby Overhead Door distributor. He's only minutes away if you live in America.

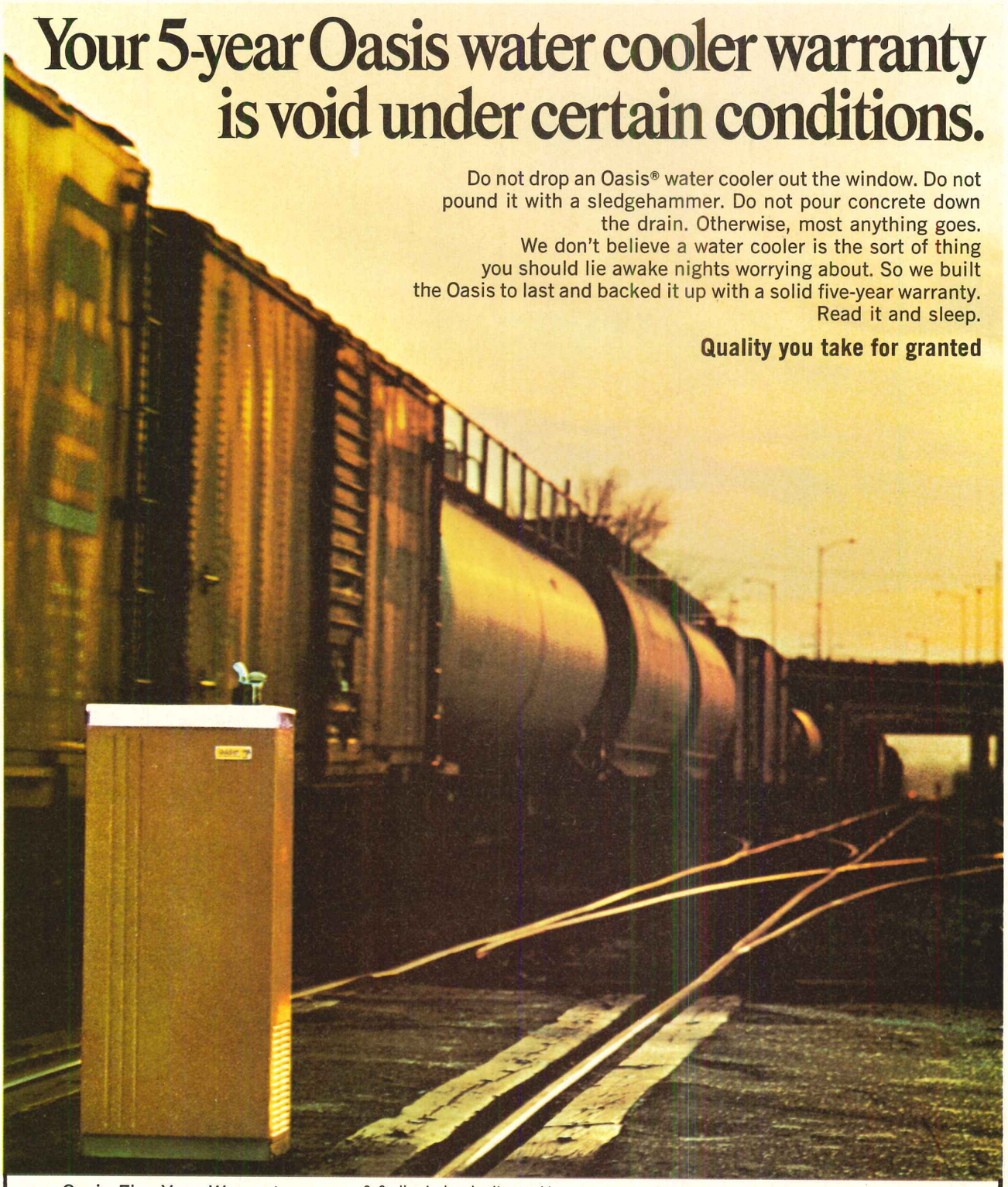
Nationwide
Sales • Installation • Service

THE OVERHEAD DOOR
TRADE MARK
SINCE *the original* 1921

OVERHEAD DOOR CORPORATION
General Offices: Dallas, Texas 75240
Manufacturers of The "OVERHEAD DOOR" and electric operators for residential and commercial buildings

For more data, circle 68 on inquiry card

Your 5-year Oasis water cooler warranty is void under certain conditions.



Do not drop an Oasis® water cooler out the window. Do not pound it with a sledgehammer. Do not pour concrete down the drain. Otherwise, most anything goes.
We don't believe a water cooler is the sort of thing you should lie awake nights worrying about. So we built the Oasis to last and backed it up with a solid five-year warranty. Read it and sleep.

Quality you take for granted

Oasis Five-Year Warranty

EBCO MANUFACTURING COMPANY warrants this entire water cooler to be free from defects in material and workmanship under normal use and service for a period of FIVE YEARS from date of original installation. Ebco's obligation shall be limited to repairing or replacing any defective part which Ebco's examination discloses to be defective in material and workmanship and under the conditions as hereafter stated.

The complete water cooler should be returned to the factory, if any of the following parts fail:

1. Any part of the hermetically sealed refrigeration system.
2. Cooling tank and coil assembly.
3. Precooler assembly.
4. Any water leak in the insulated upper half of the cabinet.

A complete water cooler should NOT be returned to the factory for the repair of a water leak at one of the top plumbing fittings.

Any of the replaceable parts that fail during warranty, should be removed and returned separately to the factory. Examples of these parts are as follows:

Cold control, fan motor assembly, starting relay, overload, hot or cold faucet, water regulating valve, bubbler valve body assembly and any other removable parts. A bubbler valve body assembly may NOT be returned to the factory for replacement under this warranty due to stoppage, limed up condition or leaking due to improper adjustment. This warranty does NOT apply to any part which has been subjected to accident, alteration, abuse or misuse, nor does it provide for service calls to make adjustments, remove water stoppages, delime Hot or Cold models or other attention required by the water cooler, except as herein stated.

This Five-Year Warranty includes freight or postage (not express) within the continental limits of the United States of America and Canada and is in lieu of all other warranties and obligations.

OASIS® WATER COOLERS • HUMIDIFIERS • DEHUMIDIFIERS

See Sweet's, or write
Dept. AR-22, 265 North Hamilton Rd.
Columbus, Ohio 43213

For more data, circle 69 on inquiry card

Half the carpet you specify goes to waste.

(In fact, more than half!)

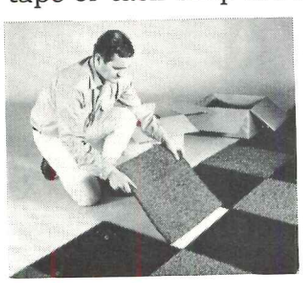
That's because 80% of the wear (and soil!) in an average carpet installation occurs on 30% of the area. The rest, the other 70%, *more than half the total area,* goes virtually to waste!

Now you can specify carpet that completely eliminates premature traffic wear patterns.

This revolutionary new carpet, proved in 33 countries, is Heugatile. The world's first truly modular carpet.

No adhesive needed. Interchangeable Heugatile carpet squares give at least three times the wear of conventional carpeting for two reasons. Because they are longer wearing than most carpets to begin with. Because they can be rotated like the tires on your car to equalize wear and eliminate traffic lanes.

Heugatile carpet squares are set snugly in place and locked to the floor simply by the vacuum they create. No glue, tape or tack-strip are required.



Installation costs go way down. You actually save 75% of installation labor cost (and headaches), to say nothing of savings in maintenance. Heugatile's special construction hides soil. Cleans easier. A damp cloth with a little mild detergent lifts off most stains instantly. Vacuum or shampoo them like conventional carpets.

There are even Heugatile carpet squares that resist cigarette burns. They brush off without a trace of scorch.

In the event of serious damage (as by acid) — just move the square to a less visible spot — or replace it altogether.

Trench header ducts and suspended floors present no problem. Neither do stairs. And with Heugatile there is no static build-up.

Send the coupon for more information on the carpet of tomorrow.

Today.

HEUGATILE®

HEUGATILE CORPORATION
185 Sumner Avenue
Kenilworth, New Jersey 07033
Dept. AR-12

Please send catalog and specs on vacuum-set Heugatile carpet squares.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

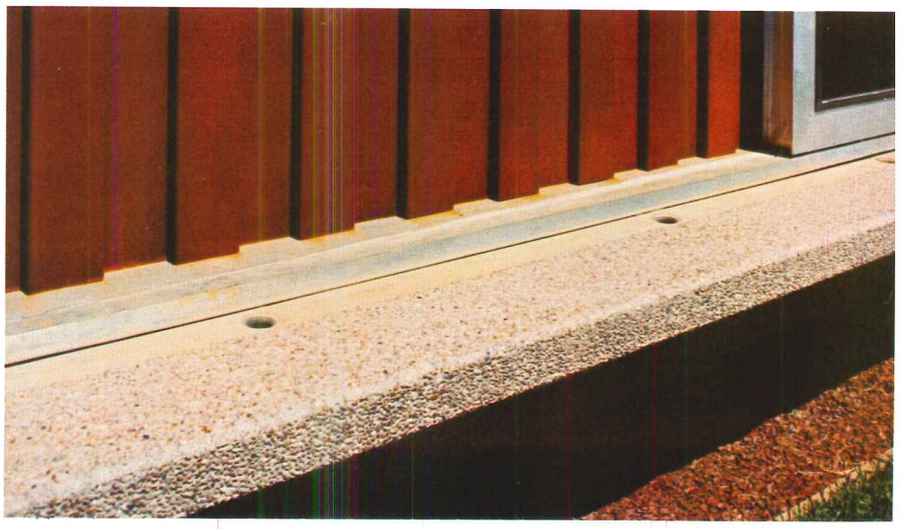
CITY _____ STATE _____ ZONE _____

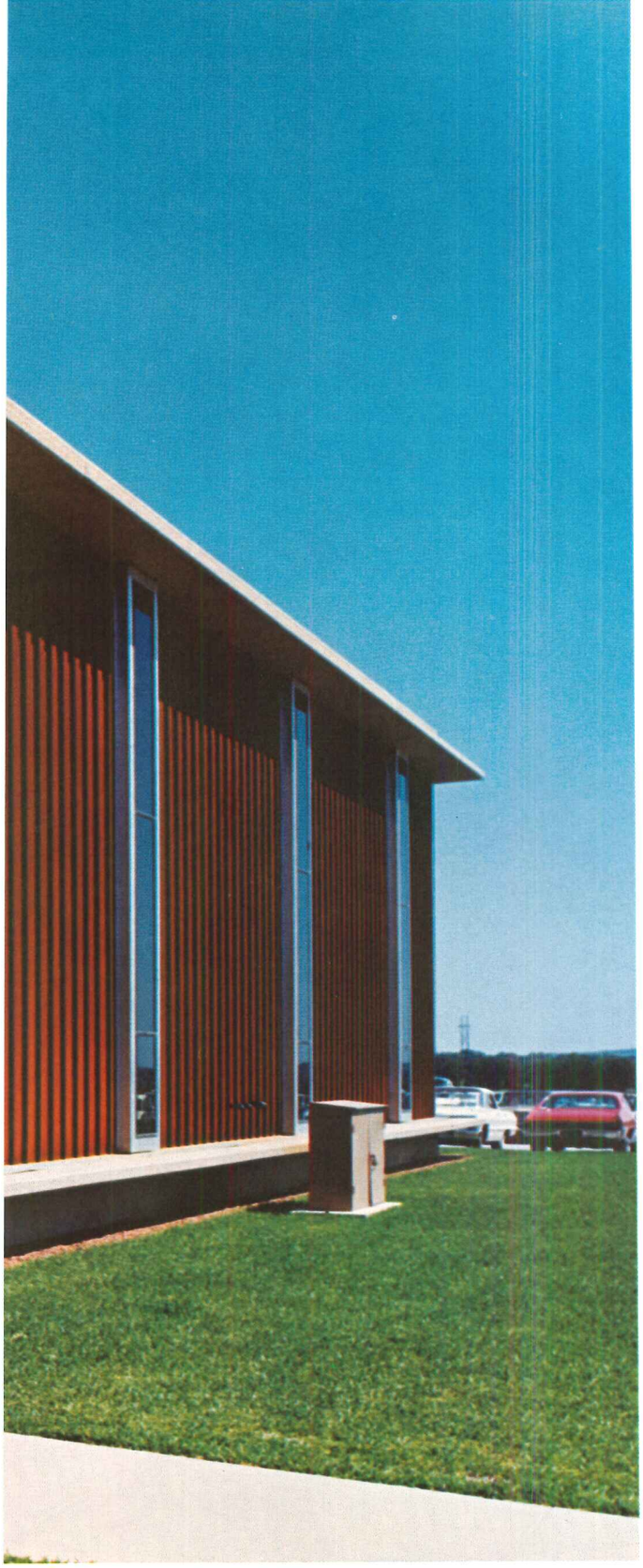
HEUGATILE. THE FIRST TRULY MODULAR CARPET

For more data, circle 70 on inquiry card

The IBM manufacturing, engineering, and office building in Austin, Texas, was designed by Page, Southerland, Page, architects. Steel fabricator: Alamo Steel and Machine Works; engineer and builder: H. F. Campbell Company. Mayari R siding by R. C. Mahon Co.

The gutter with drain holes built below the Weathering Steel siding is a straightforward and attractive solution to the staining often associated with Weathering Steel.





Weathering Steel wraps IBM® Building in natural, protective coating

This one-story manufacturing and office building built for IBM in Austin, Texas, combines the use of Weathering Steel (Bethlehem Mayari R) with precast concrete having exposed aggregate. This type of construction offers a truly distinctive alternative to conventional masonry for industrial buildings. The Weathering Steel is insulated on the interior, and there is virtually no maintenance on the outside. Weathering Steel ages into a rich, deep-brown oxide coating, closely grained, acting as a barrier to oxygen and moisture. The light red-brown color shown in these photographs is typical for Mayari R after approximately six months of weathering.

The building was hardly completed before additions were being made. The first phase of 200,000 sq ft is now being augmented with a 100,000 sq ft addition, and a new wing of 150,000 sq ft is under construction. The entire building will feature a Weathering Steel exterior. Because the building is steel-framed, there is flexibility in making these additions; simply remove the exterior and add on. And the contractor reports that the speed of steel erection lets him stay well ahead of schedule.

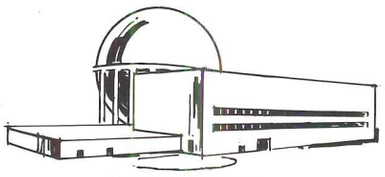
Our new booklet discusses Weathering Steel in detail, both as to its design potentials and its properties. Write for your copy . . . Bethlehem Steel Corporation, Bethlehem, PA 18016 . . . or get in touch with the nearest Bethlehem sales office.

BETHLEHEM STEEL

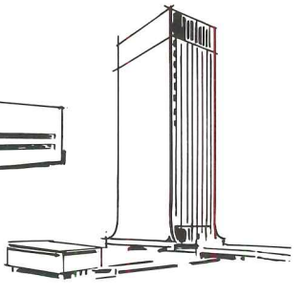
Steel-framed structures are easily expanded, as shown by this addition of a new wing to the original building.

Chemical Plants

Aerofin has all kinds of problem solvers



Nuclear Reactors



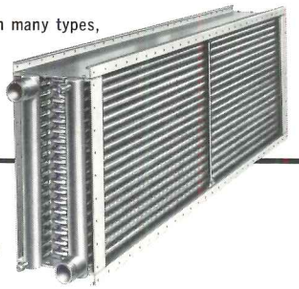
Office Buildings

Industrial Plants

Aerofin extended surface coils have proven high-performance records for a wide variety of heat transfer requirements. Special coils to heat air/gas . . . cool air/gas . . . condense water vapors from air, chemical vapors from air or gasses and recover solvents . . . coils to preheat or reheat . . . coils to absorb contraction and expansion.

Select from standard or custom coil sizes, arrangements, headers and tube materials. Specify your coil application problem, whether multiple coils for job-site-assembly or a single replacement. You'll get what you want, when you want it, without compromise —whether it's for industry, commerce, institutional or energy system design.

Aerofin coils come in many types, many configurations



AEROFIN CORPORATION

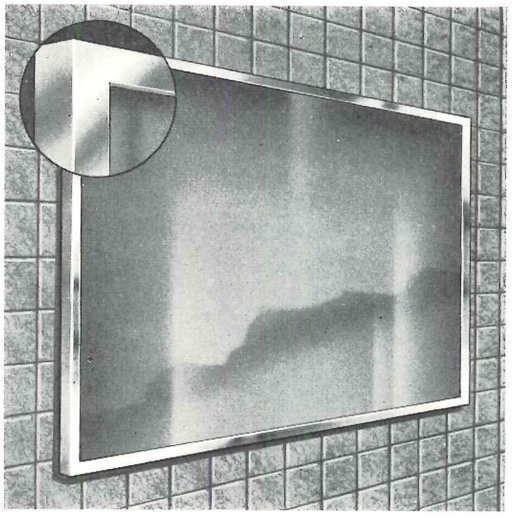
Lynchburg, Virginia 24505

Aerofin is sold only by manufacturers of fan system apparatus. List on request.

AEROFIN OFFICES: Atlanta · Boston · Chicago · Cleveland · Dallas · New York · Philadelphia · San Francisco

Aerofin Corporation Ltd., Gananoque, Ontario — Offices: Toronto • Montreal

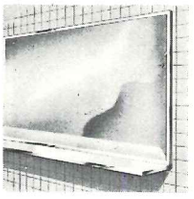
---



NEW! #135 stainless steel mirror frame with no exposed corners

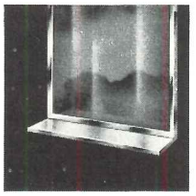
EPCO®

Mitered joints at the corners are eliminated to make this frame the ultimate in good appearance and sturdiness. It has a narrow 5/8" face and 7/8" deep. Finishes are grain line or high polish. There are no exposed screws or fasteners — locks in position when mounted and is tamper-proof. Available with either of two shelves shown.



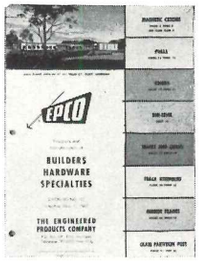
#131 STAINLESS STEEL SHELF
Welded one-piece construction available as separate unit or as integral part of #135 mirror.

#132 STAINLESS STEEL SELF SUPPORTING SHELF UNIT
One-piece formed unit for heavy duty application. Mounts below #135 mirror frame.



ALL ASSEMBLED MIRROR FRAMES AVAILABLE GLAZED

THE ENGINEERED PRODUCTS CO. P.O. BOX 108 FLINT, MICH. 48501 PHONE AREA 313 967-2050



FREE 42-PAGE CATALOG
The complete EPCO line of sliding door hardware, mirror frames, pulls and knobs, and magnetic catches will be sent on request.

SEE SWEET'S CATALOG
Mirror frames in Arch. file 25e-En and Light Const. file 12d-En. Track and hardware under Arch. file 16e-En and Light Const. file 7b-En.

AR1269

ENGINEERED PRODUCTS CO. P.O. BOX 108 FLINT, MICH. 48501

☐ Please send catalog ☐ Have representative call

NAME _____

FIRM _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

For more data, circle 116 on inquiry card

For more data, circle 73 on inquiry card

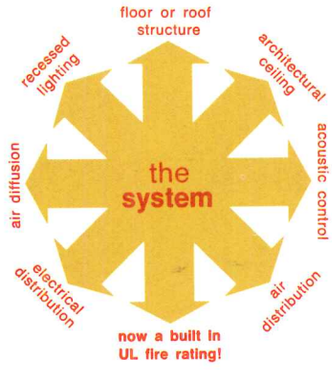
You can't beat the system!

Only the Robertson long span construction problems with a

■ floor or roof structure ■ architectural ceiling ■ acoustic control
■ air diffusion ■ air distribution ■ electrical distribution
■ recessed lighting ■ **now a built in UL fire rating!**

system solves eight major single contract

All from Robertson under one contract! We're the largest in the industry, and our total capability put us there. From start to finish, every contractual responsibility is ours. Robertson's!



send for free booklet

H. H. ROBERTSON COMPANY, TWO GATEWAY CENTER, ROOM 1102, PITTSBURGH, PA. 15222

I would like to have more information on Long Span Composite Deck. Please send your new 8-page technical brochure.

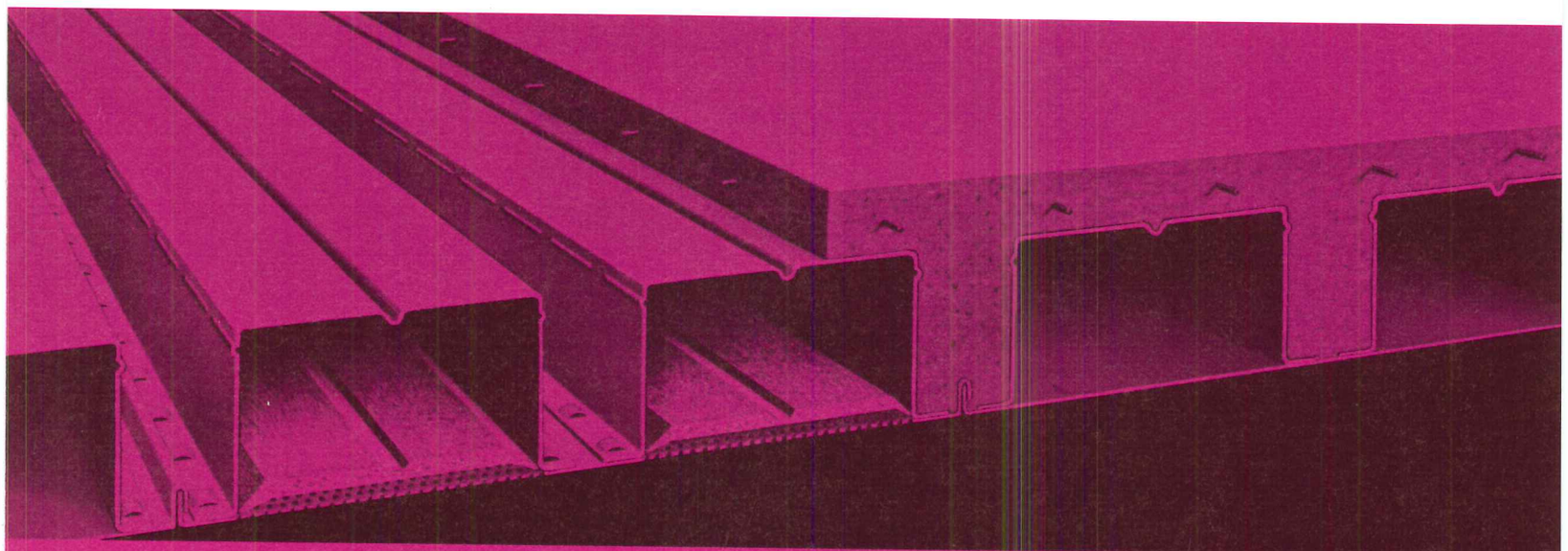
Name_____

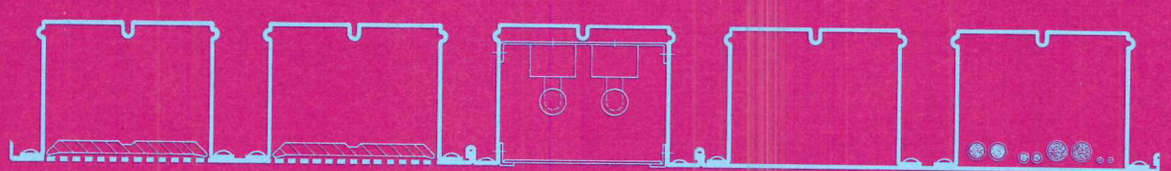
Title_____

Company_____

Address_____

City_____ State_____ Zip_____





■ air diffusion ■ acoustic control ■ recessed lighting ■ air distribution ■ electrical distribution
■ floor or roof structure ■ architectural ceiling

now a built in UL fire rating!

Robertson long span floor/ceiling system

makes long span floors possible up to 30 feet . . . roofs span up to 36 feet, with minimum depths of floor and roof cavities. Neatly and efficiently, mechanical services disappear into the **system,** providing new design freedom and economy. Ideal for schools, dormitories, gymnasiums, low rise office buildings, and hospitals. Send for free detailed booklet.

You can't beat the system... be a part of it!

Robertson

TWO GATEWAY CENTER PITTSBURGH, PA.

Send for the new, easy-to-use AAMA Selection Guide for aluminum windows and sliding glass doors.

ARCHITECTURAL ALUMINUM MANUFACTURERS ASSOCIATION
One East Wacker Drive • Chicago, Illinois 60601
DEPT. C-129

Gentlemen:

Please send me the AAMA Short Form Selection Guide for aluminum windows and sliding glass doors. I understand that with the tables and charts available, I can easily determine which windows and sliding glass doors meet local code requirements for wind loads, water leakage and air infiltration.

So send the guide. I thank you.

NAME _____

TITLE _____

FIRM _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

AAMA

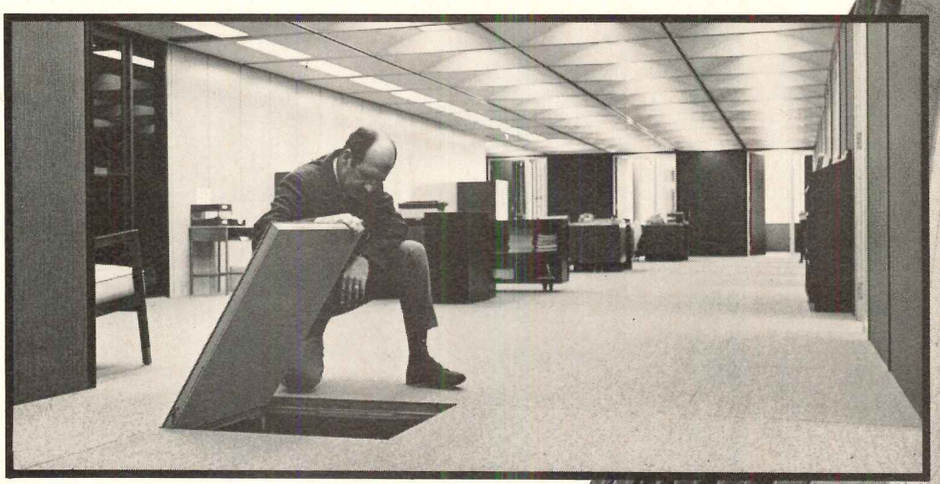
Architectural Aluminum Manufacturers Association
One East Wacker Drive • Chicago, Illinois 60601

architectural aluminum

For more data, circle 78 on inquiry card

chicago high-rise shapes trend to access floors

A new concept comes of age, as more and more architects cease to think of access flooring solely in terms of special-purpose applications.



Typical of the growing trend toward access floor systems in general construction is this new office building designed for the American Hospital Association by Chicago architect, Richard O. Evans of Schmidt, Garden & Erikson.

The building is planned for nineteen stories, of which twelve are now completed and occupied. So far, a total of 128,300 square feet of free-access Weberfloor has been used in the first twelve stories, and about 90% of this is carpeted. Installed cost of the floor was less than $2.00 per square foot (not including floor covering) but it was felt the cost was easily justified by direct savings in construction and by future savings in the building's maintenance and use.

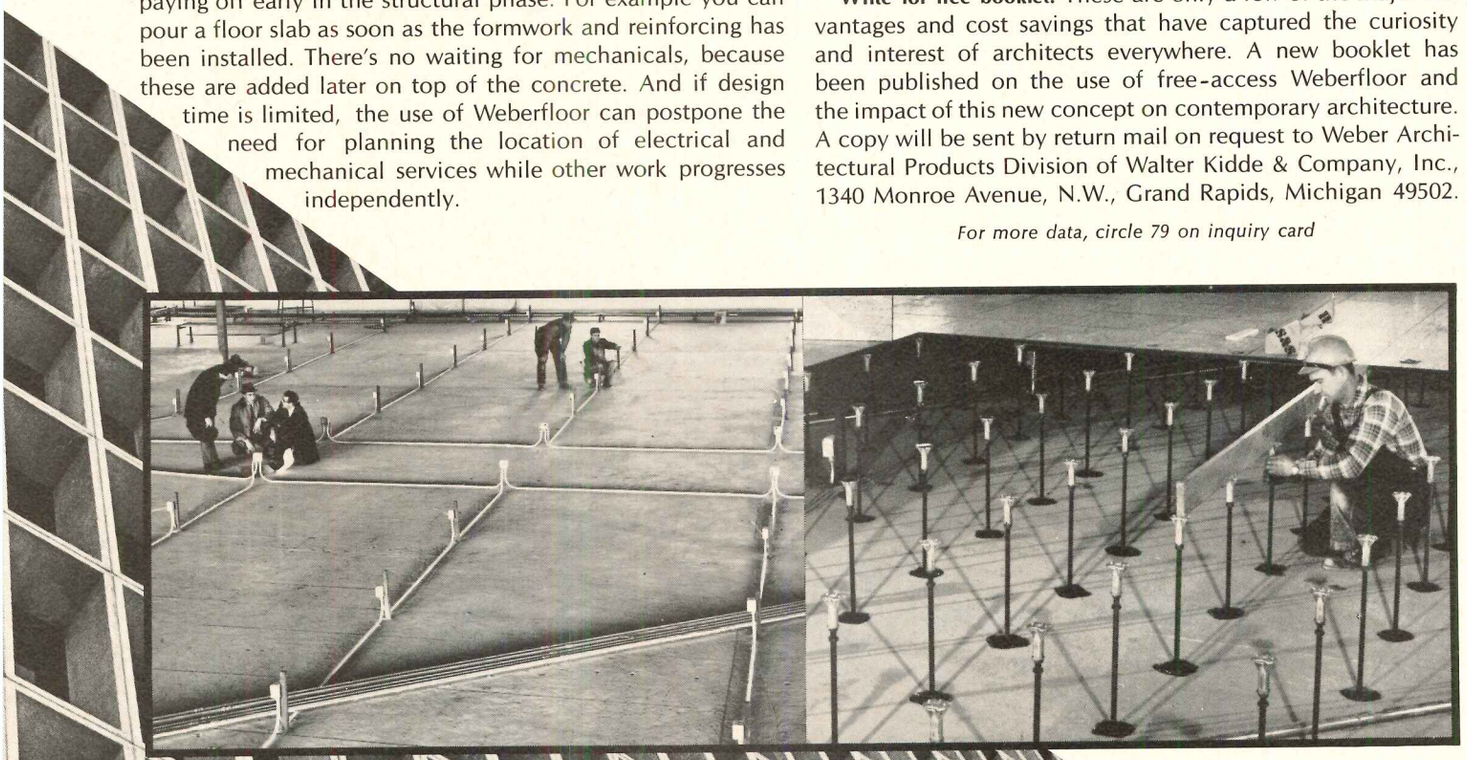
Generally the decision to use an access floor system begins paying off early in the structural phase. For example you can pour a floor slab as soon as the formwork and reinforcing has been installed. There's no waiting for mechanicals, because these are added later on top of the concrete. And if design time is limited, the use of Weberfloor can postpone the need for planning the location of electrical and mechanical services while other work progresses independently.

Notice too that no raceways or headers are required, and since the floor pedestals are readily adjustable for height, power troweling and other floor finishing costs are often eliminated altogether. In many areas, where local codes permit the use of the underfloor cavity as an active air plenum, Weberfloor can affect dramatic savings in the elimination of air distribution ducts.

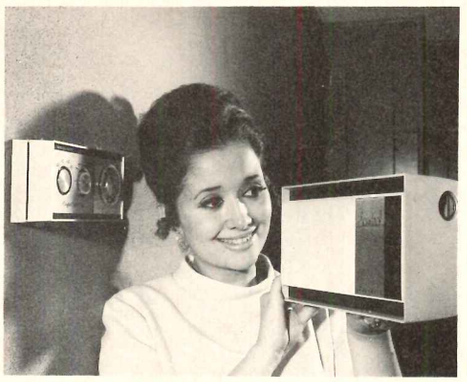
But perhaps the single reason most often cited for adopting the Weberfloor concept is unlimited freedom to meet changing requirements with maximum ease and economy. New service outlets can be quickly tapped in virtually anywhere in the building without digging costly trenches or making core drillings in the concrete.

Write for free booklet. These are only a few of the major advantages and cost savings that have captured the curiosity and interest of architects everywhere. A new booklet has been published on the use of free-access Weberfloor and the impact of this new concept on contemporary architecture. A copy will be sent by return mail on request to Weber Architectural Products Division of Walter Kidde & Company, Inc., 1340 Monroe Avenue, N.W., Grand Rapids, Michigan 49502.

For more data, circle 79 on inquiry card



continued from page 166



COMFORT CONTROL CENTER / A system for "the control of objectionable household odors" (right) has been incorporated in a comfort control center (left) that also includes: heating control and temperature indication; cooling control and system switching; humidity control and indication; and electronic air cleaner status lights. The center measures 7¼ in. by 3½ in. by 2⅛ in. The *Scentrol* system disperses an odor counteractant that "combines chemically with odor particles and renders them odorless before they can annoy." The counteractant will leave a slight trace of fragrance. *Scentrol* can be installed in the ductwork of a central heating unit or mounted on the wall. A 4-oz. bottle of counteractant—enough to last approximately three months— will cost $6. ▪ Honeywell, Minneapolis.

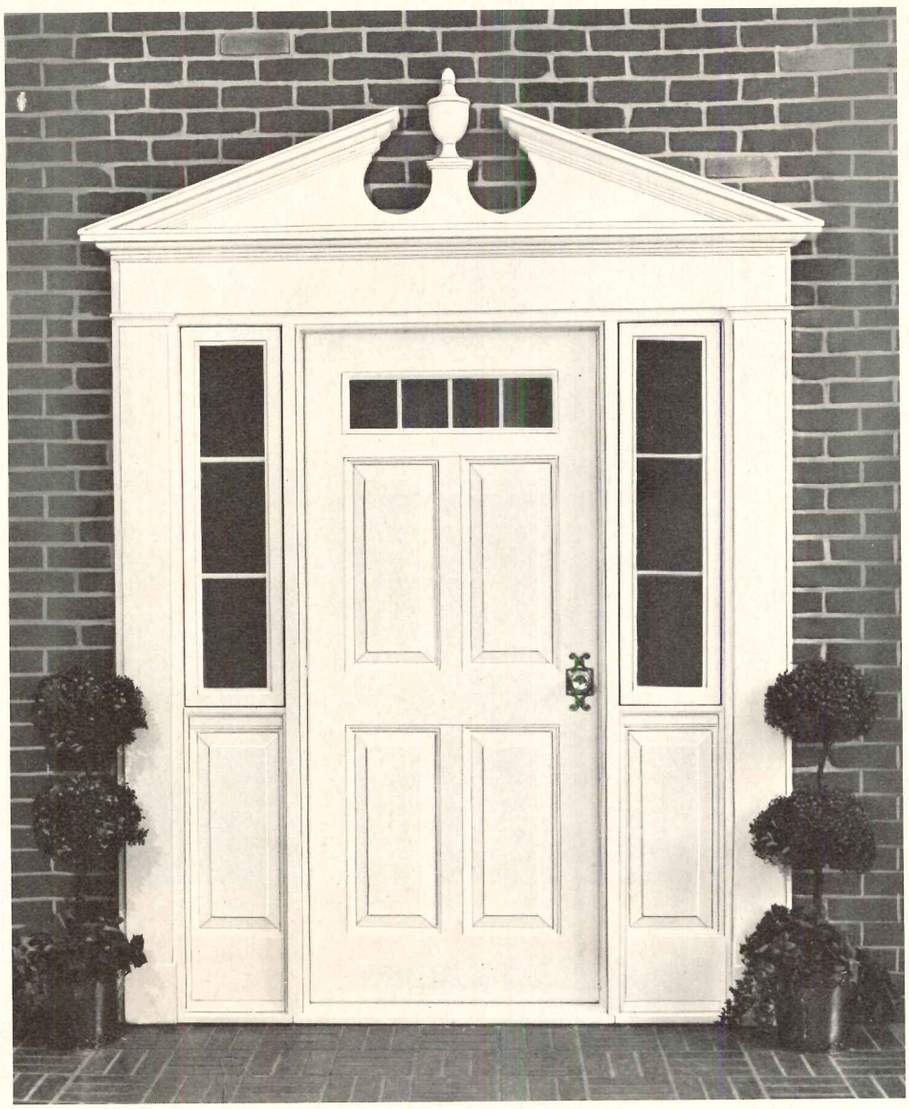
Circle 303 on inquiry card

COMPUTER FOR THE HOME / Advertised as "truly the gift for the housewife who has almost everything," this mini-computer is featured in the 1969 Neiman-Marcus Christmas catalog. The computer, which costs $10,600, including a two-week course in programing know-how, will help the housewife to keep track of her household accounts, plan a menu and retrieve recipes, and perform "a host of other household tasks." ▪ Honeywell, Framingham, Mass.

Circle 304 on inquiry card

more products on page 190

The power of attraction .....



CARADCO Doorways

the Entrance with the Insulated Door

The only traditional things about a CARADCO Doorway are its air of authenticity and its elegant good looks. No sense of counterfeit from these doors: High-rise panels, a full 1¾" thick, produce shadow magic that re-creates the sculptured look of true colonials . . . the impression of hand craftsmanship. Entrance proportions are scaled with an eye to the past, so that the entrance has all the grace and charm of its prototype, with many design variations possible.

But jet-age technology takes it from there and adds: insulated construction—door panels with polyurethane foamed-in-place between fiberglass faces; insulating glass with glass area division bars sealed inside where they won't obstruct cleaning; factory priming; thermal barrier sill; and waterproof glue.

Result? A lot of thoughtful architects put CARADCO out in front.

CARADCO®

E50-02-P E59-11P E56-01F E61L-21

Ventilating sidelight swings easily and closes securely with top quality lever operator. The operating section of the sidelight has insulating glass, double weatherstripping and a screen for all-weather comfort. The non-operative panel portion is fully insulated. Thus, storm and screen doors, which add to cost and detract from appearance, are unnecessary.

Caradco Windows and Patio Door products are further detailed in Sweets Light Construction 6B/Ca, Arch. File 19c/Ca | or write direct to factory

CARADCO DIVISION **SCOVILL**

DUBUQUE, IOWA 52001

EASTERN ASSEMBLY PLANT
Pemberton, New Jersey

For more data, circle 81 on inquiry card

CURLEW LOW BACK CHAIR

Designed by Ernest Race. Also available as settee and sofa. Part of the JG/Race Academic Collection. Send for brochure: JG Furniture Co., Inc., Quakertown, Pa., 18951.

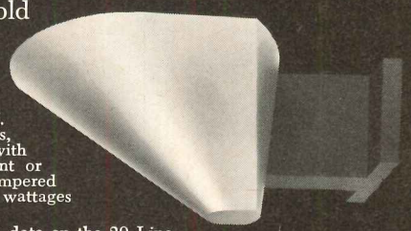
JG

For more data, circle 82 on inquiry card

accentuate

the positive...when you design with light the mcPhilben way...

Accentuate the positive values of straight and curved surfaces with this exciting new non-geometric form. Available as a downlight or uplight. The addition of the 29 Line to mcPhilben's concept of lighting continuity gives you the most provocative luminaire in surface lighting. Unitized cast aluminum construction, unique to mcPhilben, and a triple ground anodized satin finish combine to give you a fixture that will last the life of your building. . . . So make your statement in bold accents. Design with light the mcPhilben way.



29 Line Luminaires are weather-proof. Available in a Mercury Vapor series, using an asymmetric prismatic lens with up to 175W lamps. The Incandescent or Quartz Halogen series, using a clear tempered glass, provides an additional range of wattages and light distributions.

Let us send you complete specification data on the 29 Line.

make your statement specific, make it... **mcPhilben®**

mc PHILBEN LIGHTING
EMERSON ELECTRIC CO., INC.
270 LONG ISLAND EXPRESSWAY/MELVILLE, NEW YORK 11746
Canada: 2275 Midland Ave., Scarborough, Ontario

EMERSON

For more data, circle 83 on inquiry card

Is it really just as good as

Jennite J-16®

protective coating for asphalt pavements?

More architects and engineers specify Jennite J-16 than all other pavement sealers combined.

The reason? Since 1938, field experience has proved you can depend on Jennite J-16 to provide longer-lasting, better-looking pavements.

Jennite J-16 offers more weather resistance. More resistance to oil and gasoline. More resistance to wear. More consistent product performance.

Proof? We'll send you complete technical and performance data.

Authorized bulk distributors in principal cities have personnel trained in modern application procedures to meet your individual needs, plus specially-designed equipment for economical Jenniting service. 9279-A

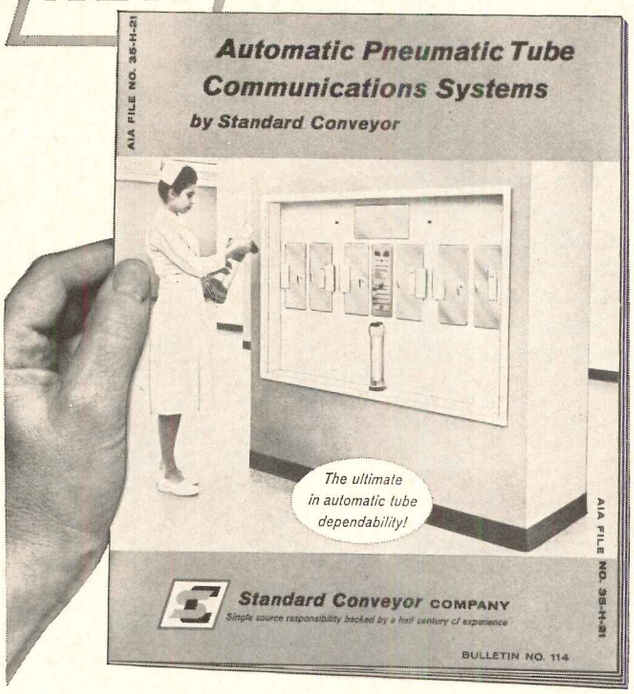
Performance Products

MAINTENANCE® INC.
WOOSTER, OHIO 44691

See our Catalog in Sweets.
Write for Bulletin 6488-L, specifications, application data.

For more data, circle 84 on inquiry card

NEW ***All you need to know about***



Get your free copy! Describes, illustrates new type automatic tube systems featuring greater dependability, quieter operation. 12 pages. ***Standard Conveyor Co., 312-D Second St., North St. Paul, Minn. 55109.***

For more data, circle 85 on inquiry card

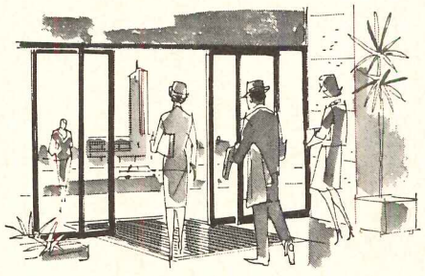
CURLEW HIGH BACK CHAIR

Designed by Ernest Race. Also available as settee and sofa. Part of the JG/Race Academic Collection. Send for brochure: JG Furniture Co., Inc., Quakertown, Pa., 18951.

Jg

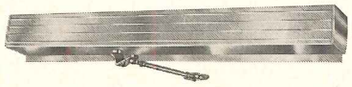
For more data, circle 82 on inquiry card

3 beautiful ways to SPEED TRAFFIC



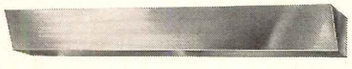
WITH NORTON® AUTOMATIC OPERATORS

Automated doors offer you many advantages in the control and general improvement of high traffic flow. Regardless of the type of building and its unique traffic problems, there's a choice of Norton automatic operator with a full variety of controls to solve these problems.



SURFACE MOUNTED

for easy installation on existing or standard doors. Just mount operator on the header and attach arm to the door, install controls and plug into a standard outlet. Makes an attractive installation.



OVERHEAD CONCEALED

for new construction or major remodeling. Operator completely concealed in the overhead header in an attractive package.

SLIDEAWAY OPERATOR

Surface or concealed mounting, for a saving in space, with no door swing. And the added precaution of doors sliding sideways out of the way of traffic. For new construction, major remodeling or possibly use with existing doors.

SEE YOUR NORTON AUTOMATIC REPRESENTATIVE

1180 R

ON THE NEXT JOB YOU SPECIFY OR QUOTE DON'T OVERLOOK THE EXTRA PROFITS ON AUTOMATIC OPERATORS

EATON YALE & TOWNE INC.

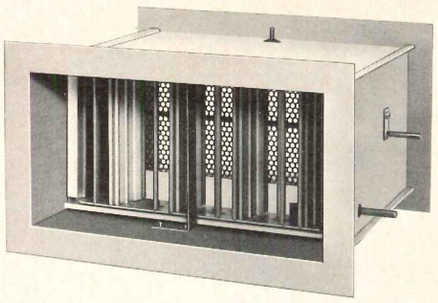
NORTON *Automatic* DOOR OPERATORS

NORTON DOOR CLOSER DIVISION

372 Meyer Road, Bensenville, Illinois, 60106

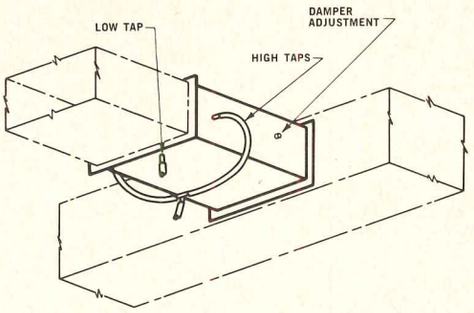
For more data, circle 86 on inquiry card

continued from page 186



Q STATIONS / A positive and efficient means of measuring and balancing the air-flow rate in HVAC duct systems is now available through newly-developed measuring and balancing units. The Q Station here is a 21-in.-long air-flow measuring and balancing unit with a damper and a factory-calibrated orifice plate. With an accuracy of 90 per cent in air-flow controls, the Q Stations provide an easy-to-verify method of zone measuring and balancing which greatly reduces the time and cost formerly required for engineers, contractors and specialists in the field to perform those tasks.

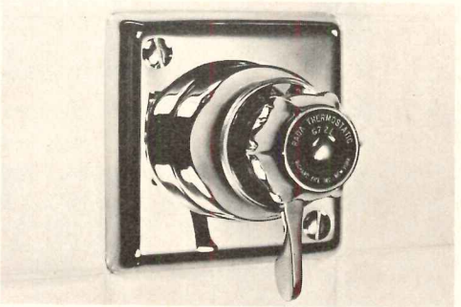
Two Q Stations models are available, the Q-7 and the Q-PRV. Both are designed for use in single-duct systems and are especially applicable in multi-zone duct systems or central-station, single-duct systems. They may be located in zone duct branches in equipment rooms, or spaced out along the duct run in branch take-offs.



In addition, they can be used in the open ends of return stub ducts located in ceiling plenums, and in duct runs exhausting specific zones or rooms.

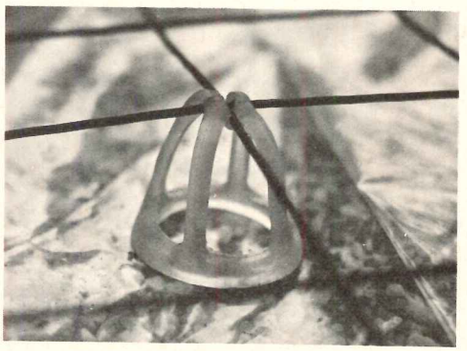
The Q-7 is recommended for use in low-pressure systems covering air volumes ranging from 100 to 8000 cfm. Static pressure limits of the Q-7 are .05 to .50 in. water with duct velocity limits of 450 to 1500 fpm. ▪ Tuttle & Bailey, New Britain, Conn.

Circle 305 on inquiry card



SHOWER VALVE / The *Rada Thermostatic Valve* for shower and tub features built-in, but entirely separate, temperature and flow controls. Thus the user can adjust one without changing the other. ▪ Richard Fife Inc., New York City.

Circle 306 on inquiry card



MESH SUPPORT / A flexible support helps assure that reinforcing mesh will remain in place during the pouring of concrete slab. The support keeps the mesh off the ground; resists being pressed into sub-surface because of the large base ring; will not break or punch holes in plastic vapor barrier; reduces membrane puncture from sharp wire ends and reduces supervision. ▪ Meshups, Baton Rouge.

Circle 307 on inquiry card

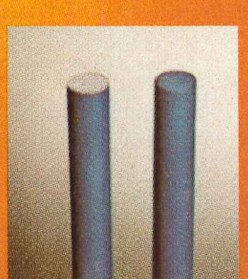
more products on page 202

THE NOONDAY SUN. IT CAN KILL A CARPET.

Standing up to the sun means more than just not fading under it. Because sunlight breaks most fibers down. Causes them to disintegrate. Lose their strength.

But there's one fiber that can take it—the sun and all the rest of Nature's forces. (Along with most man-made problems.) It's Acrilan 2000+®.

This carpet starts with a fiber—Acrilan® acrylic—that's chemically resistant to the sun's ultraviolet rays. And then because there's no dye good enough, we use color pigments. And we add them while it's still a solution. (Before the fiber is a fiber.) That way the color is actually a part of the fiber.



Solution dyed—color all the way through. Others—color only on surface.

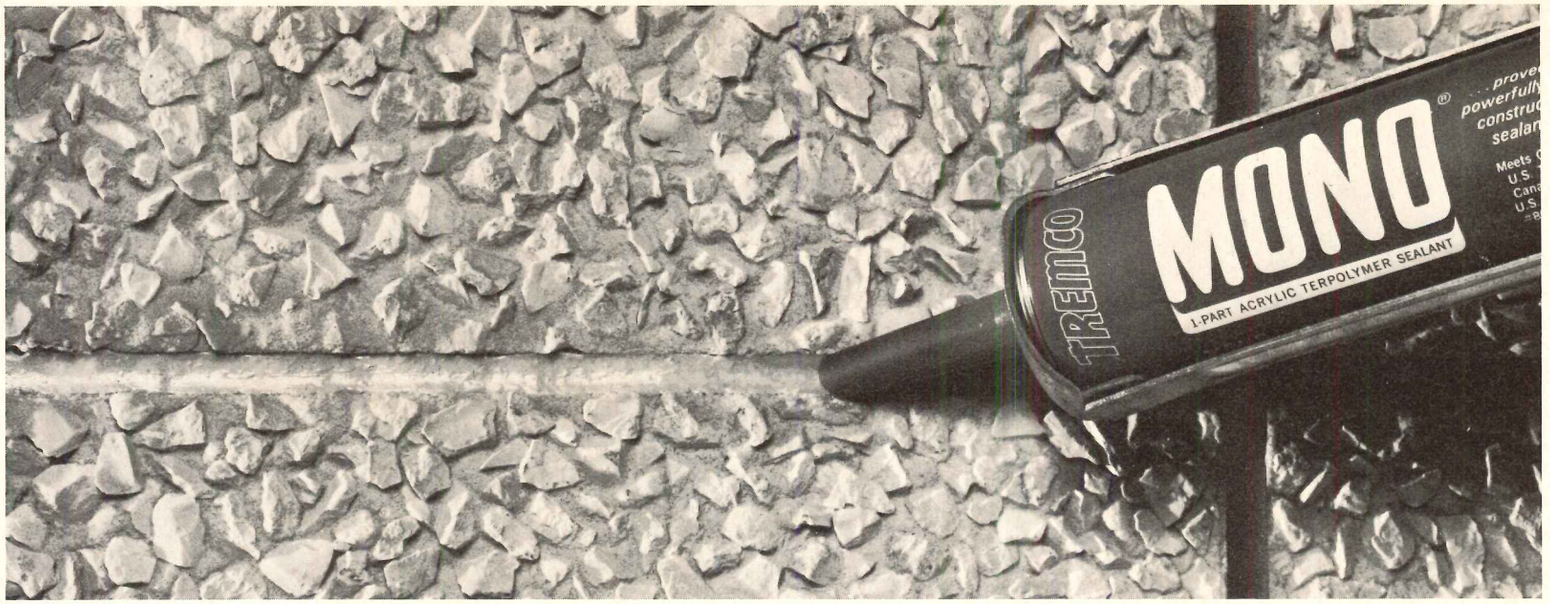
So much so, Monsanto has set 2000 as the minimum rating acceptable on the wet weather-ometer test. So no matter how much wear it gets, the color won't wear off.

And even the strongest cleaning agents can't bleach the color out.

Acrilan 2000+. It deserves a place in the sun.

ACRILAN® acrylic fiber by Monsanto 2000+

For more data, circle 88 on inquiry card

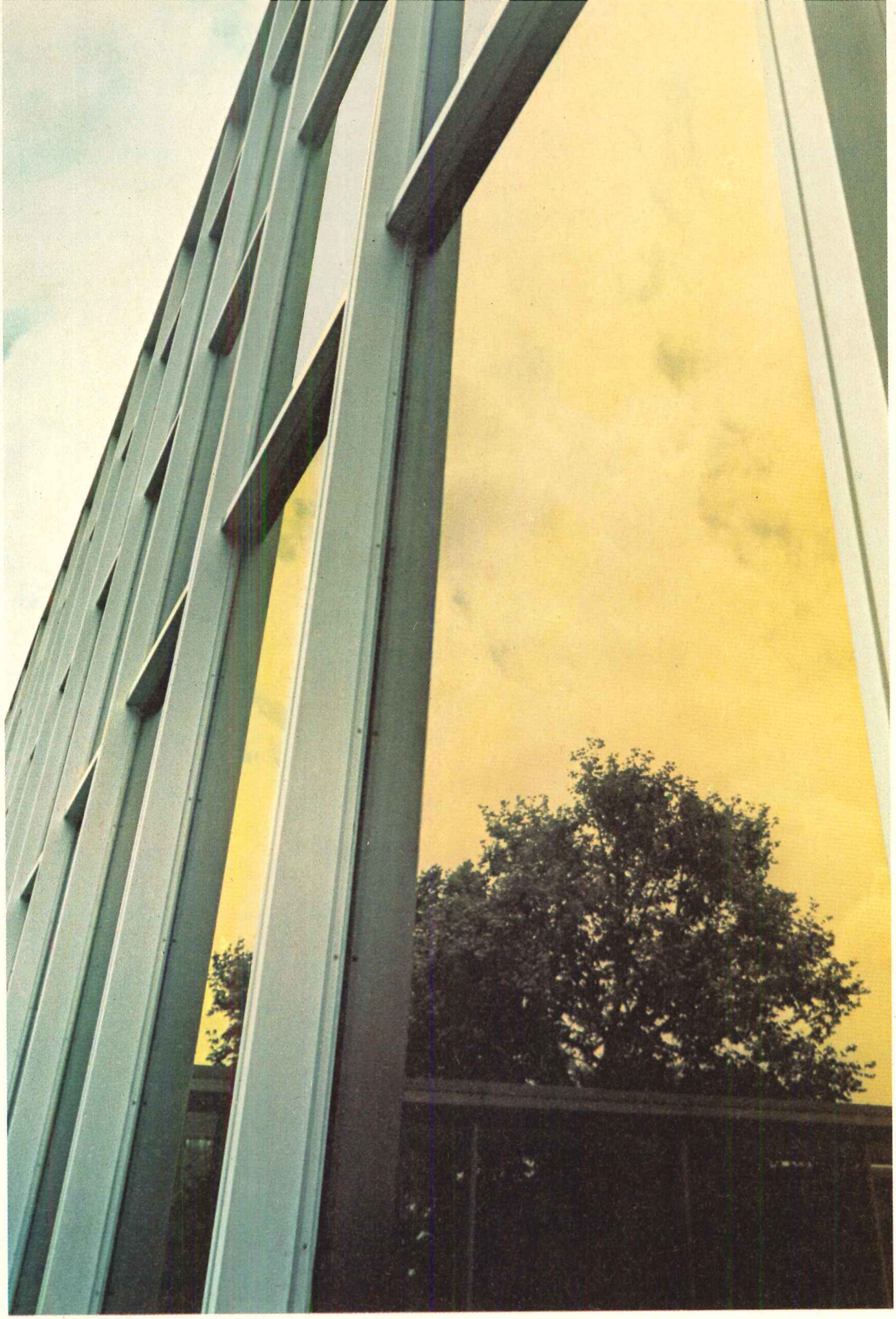


Nine times out of ten, MONO fills the sealant gap.

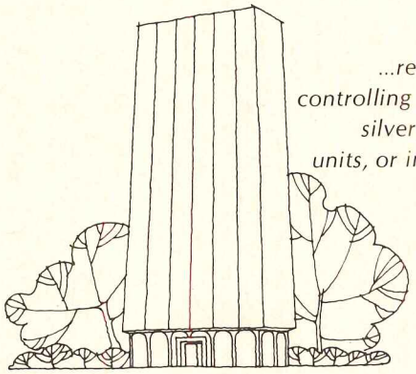
When it can't, he can.

We know you'd like an all-purpose trouble-free construction joint sealant. □ So would we. But right now, MONO's as close as we can come . . . and it won't do everything, any more than any other types and brands we've tested. □ Sure, MONO's good and works so well under the kind of adverse conditions (dust and moisture) that are common to the job site, that we suspect many construction people actually look on it as an all-purpose sealant. □ But actually Tremco's business isn't based on selling *any* all-purpose sealant. Instead we're a single-purpose company. We're The Water Stoppers and we want to give you leakproof security in every joint on the job. □ So we make not one, but fourteen other sealants besides MONO, like a very good polysulfide (Lasto-Meric), a highly-regarded preformed tape (440) as well as a dozen others with special purposes. □ The only all-purpose item in our catalog is the Tremco Representative. He has been thoroughly trained to provide you the proper sealant for each application and is ready to give job-site assistance before, during and after each project. □ Why not give him a call next time you run into the sealant gap? He'll get you across every time. □ The Tremco Manufacturing Company, Cleveland, Ohio 44104; Toronto 17, Ont.

TREMCO
The water stoppers



new Vari-Tran™/Golden

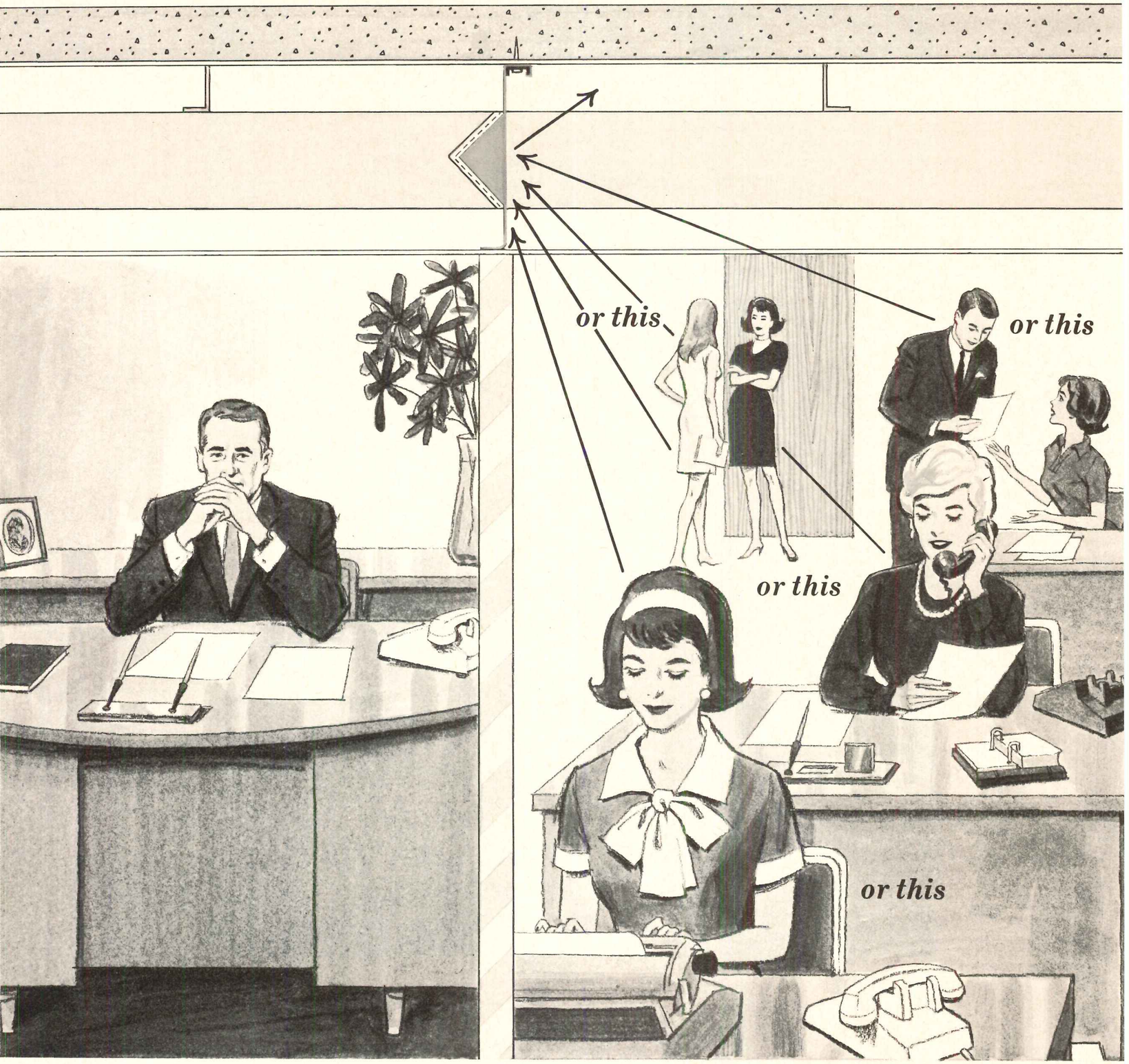


...reflective glass. A beautiful new way to achieve aesthetic effects while effectively controlling solar radiation. Get the data on Vari-Tran, now in three golden as well as three silvery reflective coatings. It is available fabricated into Thermopane® insulating glass units, or in laminated form, for better solar heat and daylight control. Write Architectural Construction Department, Libbey-Owens-Ford Company, Toledo, Ohio 43624

L-O-F HI-PERFORMANCE GLASS

For more data, circle 90 on inquiry card

Now **don't** hear this!



Soundproof plenums with ACOUSTILEAD

Most of today's office walls are all right, as far as they go. But they don't go far enough. Because they reach only from the floor to a hung ceiling, they allow sound waves to pass through the plenum areas above partitions and to travel from one office to the next.

But hang an Acoustilead plenum sound barrier from the slab above to the top of a wall or partition and you block noise effectively. Acoustilead also ensures the STC values of sound-rated partitions.

Where dry walls are extended to the floor slab above, sound leakage around ducts, pipes and wiring makes them ineffective. These leaks can be stopped by crimping Acoustilead around the obstacles to create a sound-tight seal.

Acoustilead is sheet lead 1/64" thin. It has excellent noise-reduction qualities and can be installed easily and inexpensively. Weighing only one pound per square foot, it can be cut with scissors or knife and fits tightly around ducts and vents. Acoustilead comes in handy 4' x 25' rolls.

For information on Acoustilead, write to the Sound Attenuation Dept. of Asarco.

Federated Metals Division
AMERICAN SMELTING AND REFINING COMPANY
120 BROADWAY, NEW YORK, N.Y. 10005

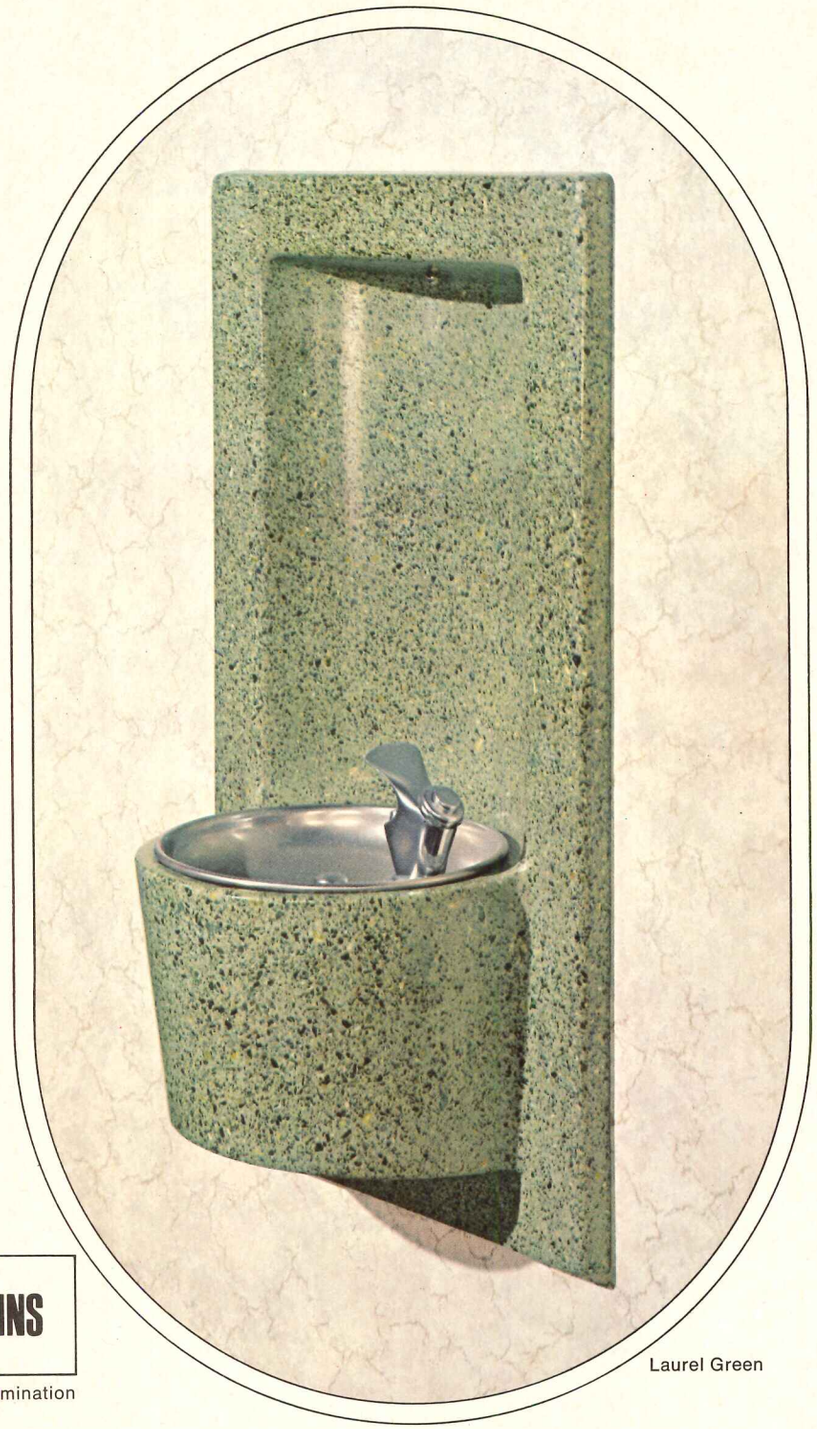
ASARCO

For more data, circle 91 on inquiry card

Blend one with your next idea

Only Haws has precast stone drinking fountains—in five colors to match your ideas. Ask your Haws representative to show you a color sample kit and specifications today, or write: Haws Drinking Faucet Company, 1441 Fourth Street, Berkeley, California 94710

Model 90-C at right, 50-C below, available in all five colors. Ask about Haws remote chillers for hidden cold-water source.



Laurel Green

HAWS® DRINKING FOUNTAINS

drinking fountains and faucets, emergency decontamination units and water coolers

Smoke Onyx

Silvertone Gray

Terra Cotta Beige

Antique White

For more data, circle 92 on inquiry card

The longest lasting carpets start with Typar.®

The more tufts per square inch, the longer the wear. And "Typar" primary backing makes the tightest gauge carpets—1/10" to 5/64"—possible. That's because its random structure of continuous filament fibers lets a mill turn out any number of tufts per square inch desired. And carpet strength increases as tufts per square inch increase.

"Typar" holds each tuft tighter, too, because it forms a reinforcing collar around each tuft. Each tuft stays where it's put. Pattern definition is sharper. Tuft uniformity is better. Tuft rows are straighter. Geometrics and printed patterns stay precise.

Typar* spunbonded polypropylene. Uniform. Non-raveling. Isotropic. Man-made. Available. And it's the start of some very lasting carpets.

For a free booklet on "Typar", write: Du Pont, Textile Fibers Department, Room "T", 308 E. Lancaster Ave., Wynnewood, Pa. 19096.

"Typar"—the preferred primary backing.

DU PONT
REG. U. S. PAT. OFF.

Better things for better living
...through chemistry

For more data, circle 93 on inquiry card

*Du Pont registered trademark.

Another first from SIMPSON

12"x12"x½" Self leveling tile for metal suspension systems, staple or adhesive application.

12"x12"x¾" for concealed type systems or adhesive application.

Now there's a new way to achieve a completely monolithic appearance with Pyrotect Non-directional Fissured ceiling tile.

Simpson introduces two new square edge acoustical products:

1 • **½" square edge tile with self leveling tongue and groove, flange joint.** Can be installed in T&G type concealed system, stapled to furring strips or solid backing, or applied with adhesive.

2 • **¾" square edge tile with kerfed and rabbeted joint.** Can be installed in concealed type systems or applied with adhesive.

Edges are machined to close tolerances so joints do not detract from the monolithic appearance.

Along with the added convenience of these new edge details, you still get the top performance and superior appearance you've come to expect from Simpson ceiling products. Specify Simpson and get the best.

For more information, write or call: Simpson Timber Company; 2000 Washington Building; Seattle, Washington 98101. Phone 206-682-2828.

Simpson

Ceiling products designed for better living

For more data, circle 94 on inquiry card

TOUGH. HARD-NOSED.

The Security Door: we couldn't think of a more appropriate name.

Designed for the building with an entrance in a darkened alley, for the building in an isolated area that cannot be frequently patrolled, for the building in areas threatened by riots or troubled by vandalism.

Outside: a massive, solid front. Imposing and almost totally impenetrable. Rocks, bottles and bricks leave only a "scar" at the very most. Super-ply sandwich construction makes it that way. Keeps it that way.

Inside: continuous extra heavy gauge inclined steel track, welded to a continuous reverse angle jamb mounting. Double end hinges. Three-inch solid steel tire rollers with specially temper-hardened shafts. Tamper-proof lock that will open only with a key — and only from the *inside.*

In short . . . maximum protection at minimum cost.

Your local Crawford distributor has the full story. He can also tell you about other Crawford innovations that will help you precisely match every uprising door you specify to the job it must do.

Crawford Door Company, 4270 High Street, Ecorse, Michigan 48229. Manufacturers of uprising sectional doors, rolling doors, grilles, shutters and sliding doors. A subsidiary of the Jim Walter Corporation.

CRAWFORD

The Crawford Security Door stops vandalism stone cold.

FORMICA® movable walls for the changing environment.

In colors and patterns that work wonders in any location, executive or clerical.

Wear takers and maintenance minimizers, FORMICA® movable walls go in—and out—of storage as fresh as their first day up on the job.

Designed for both progressive and non-progressive wall systems down to hardware and electrical detail.

Years from now, you'll be happy your movables came from Formica.

AR 129

Want to discuss surfacing? We make a strong case for seeing your Formica man.

FORMICA BRAND products

Leadership by design

FORMICA® BRAND movable walls

For more data, circle 96 on inquiry card

For more data, circle 95 on inquiry card

"1660 L" Office Building, Washington, D.C.
Cafritz Construction Company, builders, owners, managers
Custom Cecoclad Curtainwall Construction

Ceco curtainwall experience

creates a formal personality in black

A curtainwall can help create an elegant "personality" for a building. As a case in point, it conveys a formal image, dramatizes a mood, and brings life to an original design concept for the "1660 L" office building in Washington, D.C.

Comprehensive research by the owner-builder provided the direction; Ceco's curtainwall engineers executed the finished design. Prerequisites were color for personality, vertical sightlines for individuality, low original costs and low maintenance costs. The solution: Ceco's inventive use of 12″ wide-flange beam mullions—extra deep by most standards—and finally a formal matte-black polyvinyl chloride Cecoclad finish applied over all steel components. Cecoclad eliminated field painting—and future maintenance.

Direct and reflected sunlight on the Cecoclad finish produces colorful visual effects constantly. They change throughout the day—from formal black through grays and even whites. The curtainwall's flush surface and tinted glass also reflect the shades and shadows cast by the vertical mullions. And a pleasing saw-tooth effect is produced at the building's top, where mullions end.

Ceco's knowledge of custom curtainwall construction is always available through 40 sales offices coast to coast. For problem-solving help, call on Ceco early to get the most benefit from Ceco's Curtainwall Experience. The Ceco Corporation, general offices: 5601 West 26th Street, Chicago, Illinois 60650.

CECO

For more data, circle 97 on inquiry card

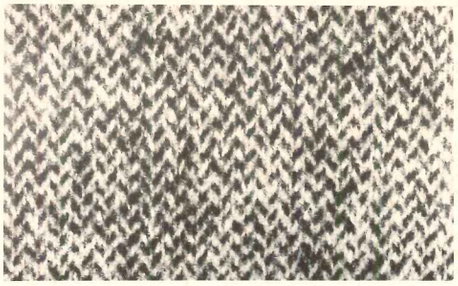
Series 4000

An office should be a place of beauty and comfort, as well as efficiency. The executive sees more of it than he does of his own home. Don't condemn anyone to days of drabness if you can help it—and you can. Only a man's signature says more about him than his office.

alma

See the Alma Series 4000 in our showrooms in High Point and Chicago (Space 1140, Merchandise Mart). For a full-color brochure illustrating this and several other Alma Series, write Alma Desk Company, Dept. AR-96, Box 271, High Point, N.C. 27261.

continued from page 190



HERRINGBONE CARPETING / *Texama* carpeting is 100 per cent nylon heavy-duty commercial carpet "especially engineered for contract use. The nylon fiber is tightly spun and twisted into yarn and is densely "centric-knitted" into low-profile pile "so that it is literally packed into a solid mass of color." ▪ Glenoit Mills, Inc., New York City.

Circle 308 on inquiry card

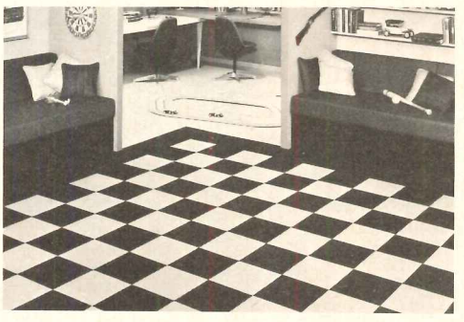
HOSPITAL CARPET / A new large wing in St. Luke's Hospital, Duluth, Minn., has been carpeted in over 8,000 sq yds of conventional jute-backed commercial carpet, glued directly to subflooring without separate underlayment or attached foam, rubber, vinyl or sponge padding. Carpeting in all patient rooms, nursing stations, corridors, lounges and reception areas of the new wing was decided on "because exhaustive testing proved no significant bacteria build-up, with impressive savings on maintenance." The carpet selected is a heavy-duty level-loop

tufted grade made by Stevens-Gulistan with 45-oz acrylic pile and jute primary and secondary backings. ▪ Jute Carpet Backing Council, Inc., New York City.

Circle 309 on inquiry card

CARPET FOR MEDICENTERS / Medicenters of America, Inc., a relatively new concept for persons who are convalescing, has chosen *LesCare* carpeting for "virtually all of its locations scattered throughout the U.S." *LesCare,* developed specifically for contract situations, is made of solution-dyed Acrilan acrylic in a 12.8 gauge construction. It is extremely stain resistant resists bacteria, is durable and is available in a wide choice of colors. ▪ Cabin Crafts, West Point Pepperell Carpet and Rug Division, Dalton, Ga.

Circle 310 on inquiry card



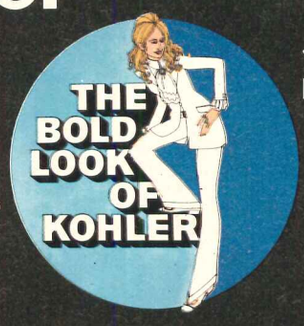
CARPET TILES / The 12-in. *Fashion-Aire Carpet Tiles,* made of polypropylene olefin fiber and backed with a high density foam rubber cushion, may be installed permanently with adhesive or with the *Porta-Tile Installation Method.* The tiles are suggested for residential use and are said to be easy to handle and install and to require minimum maintenance. Because of their decorative and noise-reducing characteristics, they are also recommended for wall applications. The tiles are priced to retail for 49 cents each. ▪ Ozite, Chicago.

Circle 311 on inquiry card

For more data, circle 99 on inquiry card ▸

Kohler presents the rebirth of the blues.

With New Orleans Blue, the bath goes bright, bold...and anything but ho-hum. A new Kohler color... pure as the note from a blues cornet. New Orleans Blue joins the other Kohler blues: Cerulean, a delicate pastel... and Blueberry, a deep accent. It's the rebirth of the blues. Bold shapes, too. The Caribbean, a big (6-foot) luxury tub that installs anywhere: island or peninsula... in a corner... sunken.



You can do anything to its exterior: brick... laminates... paneling... bring carpeting up the sides. Safety features? Grip-rails and a Safeguard® bottom. There's the Lady Fair, too. A shampoo center, baby bath, and lavatory basin for every member of the family... with hose-spray and swing-away spout. Sell Kohler's happy blues ...bright, bold ways to end the ho-hum bath for your customers.

Kohler Co., Kohler, Wisconsin

SOUND CONTROL IS NO PROBLEM HERE

The interior design of 3M Company's new multiple-purpose office building in St. Paul called for office partition flexibility and mobility. Sound transmission is an inherent problem with this kind of partition design. It was easily controlled with the use of lead.

Since the building is designed to house administrative, marketing, sales, purchasing and other personnel, there was a plan to build office partitions that would be easily relocatable as need might dictate. Partition design, in turn, called for a soundproofing system that would prevent noise pollution from office to office or from noise-producing workrooms located in the building.

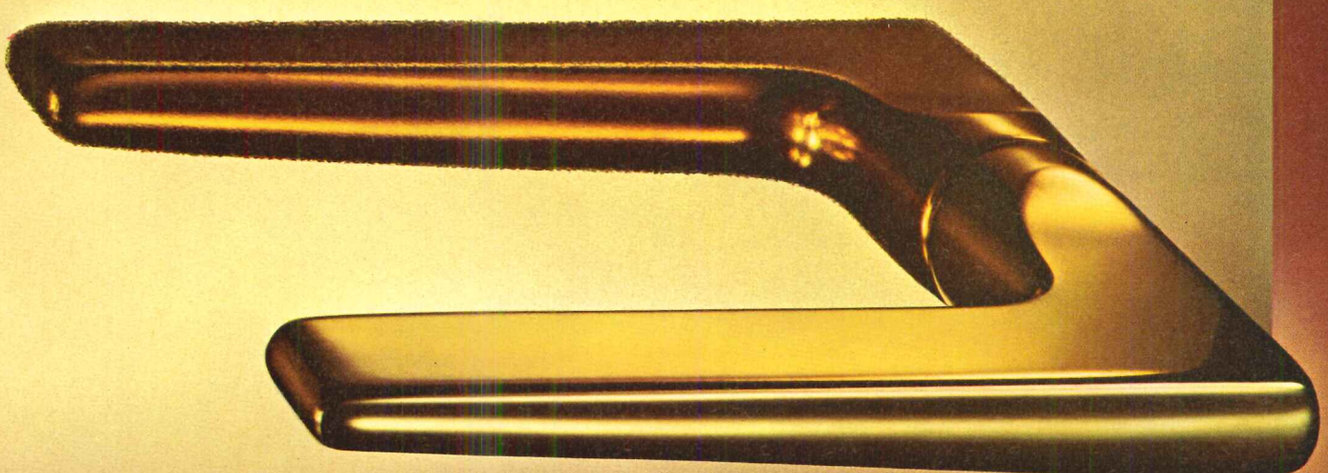
Lead plenum barriers' renowned ability to block sound and their ease of installation, especially around difficult piping, duct and conduit areas, dictated their use. 67,700 square feet of lead sheeting were used to soundproof the building. In addition, the company's own Scotch Brand lead foil tape was used to seal the joints and seams.

Solve your noise problems with lead: metallic sheet, leaded plastics, bulk damping compounds, and other lead products. For more information on the use of lead for the attenuation of airborne noise and a copy of "Acoustical Plenum Barriers and How To Install Them," write Lead Industries Association, Inc., Dept. L12, 292 Madison Avenue, New York, New York 10017.

Lead Industries Association, Inc.

For more data, circle 100 on inquiry card

For more data, circle 101 on inquiry card



SARGENT®

A complete line of advanced architectural hardware, including the Sargent Maximum Security System

New Haven, Connecticut • Ontario, Canada

SMITH METAL WALLS are dramatic...

They are also impressive, attractive, functional, economical. You design Smith Walls to present the image and fulfill the requirements of your specific building project.

Pick any Smith panel. Specify the exterior panel profile most suitable to your design from the wide selection available. Choose the protective coating in the exact color you have in mind. Leave the rest to us.

Smith Walls are custom-engineered to your design and specifications, manufactured, delivered and erected by our own people. We call it the Smith Single Responsibility concept. We do it ourselves so we know it's right. And you know you and your client will be satisfied. Our record of repeat contracts proves it.

Specify Smith Walls in place for your next assignment . . . new building, expansion or remodeling. For full details, write:

General Electric Company Plant, Oklahoma City, Okla.

Architects: Benham-Blair & Affiliates, Oklahoma City, Okla.

General Contractor: Manhattan Construction Company, Oklahoma City, Okla.

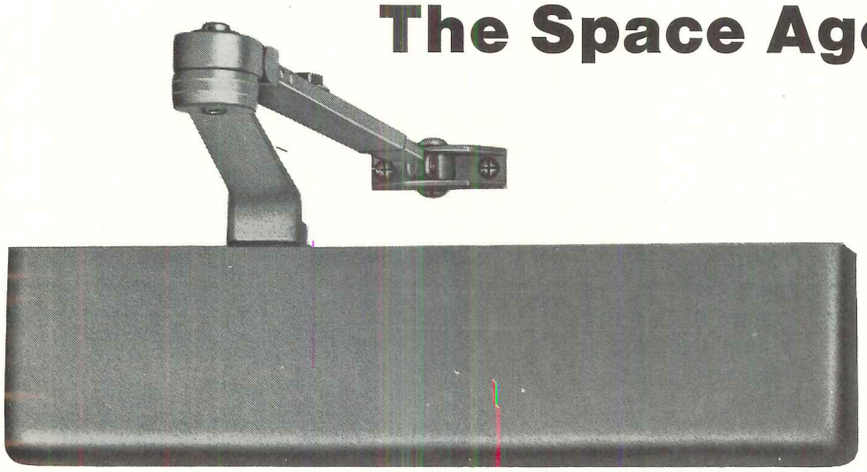
Smith C-Panel, 1½" insulation, aluminum exterior finished in Kynar II. Ribwall profile on fascia. The main wall consists of Contourwall profile panels.

ELWIN G. SMITH & COMPANY, INC. Pittsburgh, Pa. 15202 / Atlanta • Boston
Cincinnati • Chicago • Cleveland • Dallas • Detroit • New York • Philadelphia • Rochester • Toledo

SMITH

For more data, circle 102 on inquiry card

Proven Dependability And Ruggedness ... A Closer Designed For The Space Age



the NEW NORTON® APOLLO

SERIES 7700 CLOSERS

Perhaps too much attention has been paid to the appearance of door closers. Not enough to reliability and dependability. The new Norton Apollo closer combines both. It has the adjustability and ruggedness of the "old work horse," the surface closer. It has the beauty and attractiveness of the narrow projection closer.

To assure the right amount of power for all types of installation, the new Apollo features a plus or minus 25 percent power adjustment. The same power adjustment available in the "old work horse." Now you can adjust the power to it's environment, know the closer will work right.

To offer protection for all types of traffic, all types of mounting, the Norton Apollo features both backcheck selection and backcheck control. Select backcheck for all types of mounting. Also adjust the amount of backcheck to give the right protection for the type and amount of traffic.

To assure even smoother, more reliable control, Norton Engineers working with Eaton Yale & Towne Research and Development produced a new rack-and-pinion design. The gear teeth mesh more smoothly, transfer power more evenly. The Apollo is smoother, more rugged.

For installation flexibility it's non-handed. Can be installed either right or left handed.

For beauty that complements its surrounding, the new Norton Apollo closer is a narrow projection closer with an attractive metal cover. Covers are available in anodized aluminum to match door hardware; in a choice of 67 woodgrains to match the door and room paneling; in all other popular finishes. To provide a simplified installation, the Norton Apollo is available with Unitrol control . . . a combined door closer and door holder.

The new Norton Apollo closer, dependable enough, adjustable enough, to be the new "old work horse"!

EATON YALE & TOWNE INC

NORTON DOOR CLOSER DIVISION
372 Meyer Road, Bensenville, Illinois 60106

1189

For more data, circle 115 on inquiry card

Watch these pages next month for ARCHITECTURAL RECORD's new CLASSIFIED SECTION

Beginning with the January 1970 issue, Architectural Record will publish a classified advertising section featuring:

EMPLOYMENT OPPORTUNITIES
SELLING OPPORTUNITIES
BUSINESS OPPORTUNITIES
FINANCIAL OPPORTUNITIES
PROFESSIONAL SERVICES

This new section is designed to provide our readers with a convenient national marketplace where they can solve their professional and personal needs in the same publication to which they look for latest news and developments in their fields.

For information on placing display advertising, including professional service cards, contact our Classified Section representative at the McGraw-Hill office nearest you. (See listing on page 221).

To insert your own non-display advertisement just fill out the coupon below.

Classified Section Non-Display Order Form

MAIL TO: ARCHITECTURAL RECORD / P.O. BOX 12 / NEW YORK / 10036

Please insert the following advertisement under:

☐ Employment Opportunities ☐ Selling Opportunities
☐ Business Opportunities ☐ Financial Opportunities
☐ Professional Services

Rates: $3 per line, minimum insertion ten lines, six words to a line, box number counts as one additional line.

NAME ADDRESS

CITY STATE ZIP

☐ Payment Enclosed $.... ☐ Bill me Advertisement to appear....time(s)

☐ Use Box Number ☐ Use Name and Address .....
Signature

OFFICE LITERATURE

For more information circle elected item numbers on Reader Service Inquiry Card, pages 223-224.

CONCRETE FORMING / A booklet entitled "Up-Over-Around and Thru" gives a graphic description of custom formwork for architectural and structural concrete construction. ▪ Concrete Accessories Corporation, Zelienople, Pa.

Circle 400 on inquiry card

GALVANIZED STEEL / A 50-page booklet examines the characteristics and qualities of the company's galvanized steels. ▪ Republic Steel Corporation, Cleveland.*

Circle 401 on inquiry card

PREFAB REFRIGERATION / The new, expanded 150-page "1970 Working Data Catalog" includes design and construction changes in the prefabricated refrigeration storage industry in the past three years. The hardcover, loose-leaf binder contains complete technical data, specifications, service instructions, installation drawings and general refrigeration and warehousing information. ▪ Bally Case and Cooler, Inc., Bally, Pa.*

Circle 402 on inquiry card

PULL-UP SHADES / A folder presents sample swatches of the eight colors available in the Continental Shade line. The shade is 80 per cent rayon and 20 per cent cotton. ▪ Joanna Western Mills Company, Chicago.*

Circle 403 on inquiry card

PIPING SYSTEMS / A 16-page catalog of chemical-resistant polyethylene piping systems includes mechanical drawings of pipe and fittings from ½ to six in.; also a full line of traps, laboratory sinks and neutralization tanks. ▪ Nalgene Piping Systems Division, Rochester, N. Y.*

Circle 404 on inquiry card

DRAFTING FURNITURE / A 52-page catalog shows the company's entire line of drafting furniture. Each type of unit is illustrated and described in detail regarding function, design, special features, etc. ▪ Stacor Corporation, Newark, N. J.

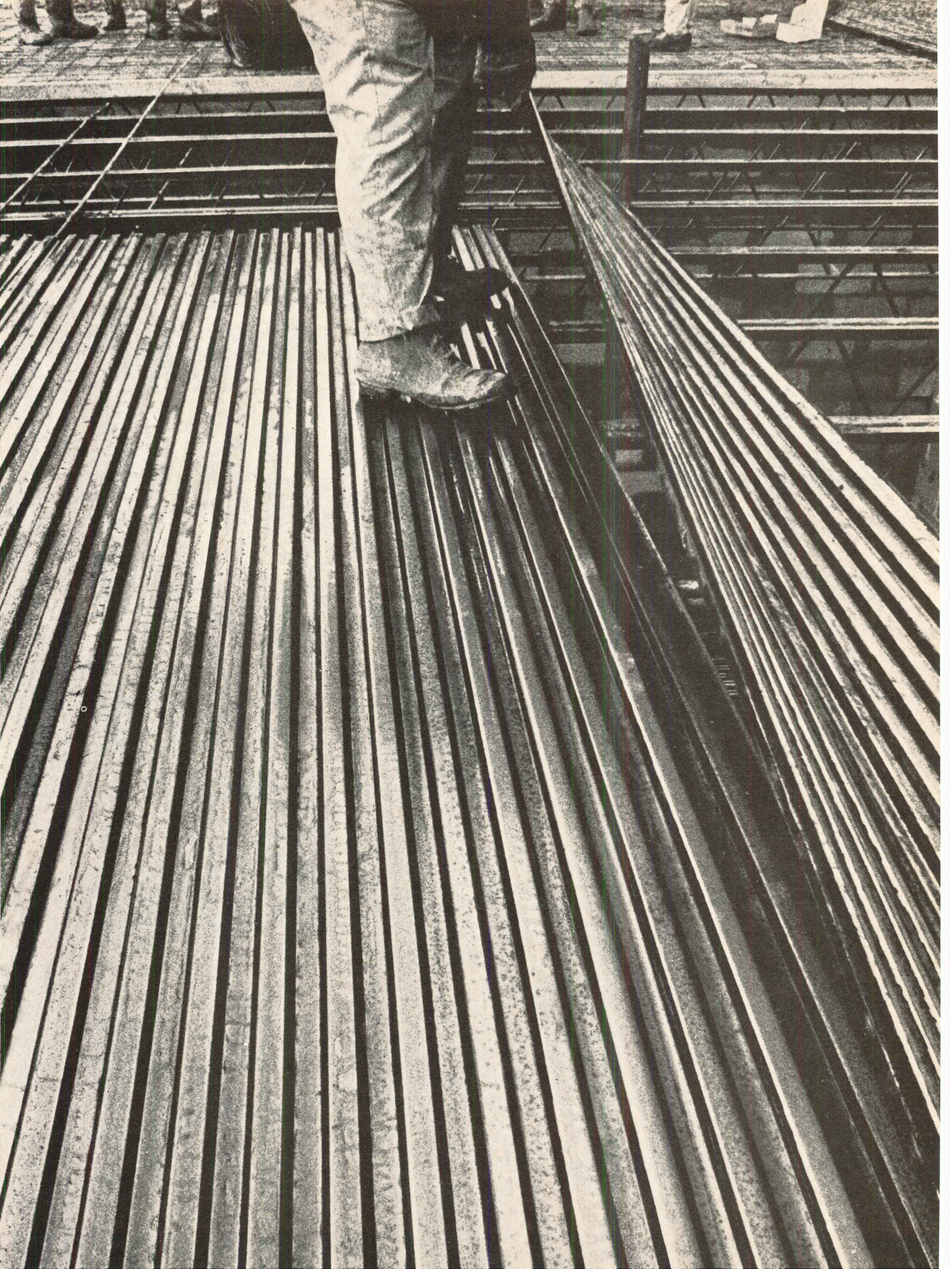
Circle 405 on inquiry card

SEALANT SYSTEM / An architectural package includes CSI data and literature on sealant system and a selector slide chart which, while it mentions the company's own products, places prime emphasis on the generic listing of appropriate sealants for various joints and applications. ▪ Essex Chemical Corporation, BFC Division, Sayreville, N. J.

Circle 406 on inquiry card

* *Additional product information in Sweet's Architectural File*

more literature on page 214



In the past two years one building company, Multiplex Inc., has put down 2½ million square feet of concrete form.

And left it down.

Because the form they used was Tensilform,® Wheeling's permanent steel form for concrete floors.

And what's more, their electricians, plumbers and other tradesmen were able to walk on it before the concrete was poured.

The Nob Hill Apartments in Syracuse, New York is only one of the projects where Multiplex has used Tensilform. Here's what their VP of purchasing and construction coordinator, Mike Stepanovic says about it:

"We first used Tensilform in 1966, and we'll keep on using it because it saves us money. It's easy to handle, quick to install, and it provides a good working platform for other trades."

"And, best of all, it saves us time. It doesn't have to be stripped."

Multiplex has completed 10,484 similar apartment suites, in Ohio, Indiana and New York. They plan to build 5,000 to 6,000 more a year. Mike has the tricky job of keeping the quality high and costs low. Specifications take care of the quality by including things like individually controlled heating and air-conditioning, carpeted hallways, built-in kitchens, high speed elevators.

Wheeling Tensilform helps take care of the costs.

Mike also said something else; "Delivery was good. Tensilform was always here when we needed it."

Maybe that's what helped him to decide to stick with a good thing. For the Nob Hill Project he's using Wheeling Roof Deck, too.

Wheeling Tensilform

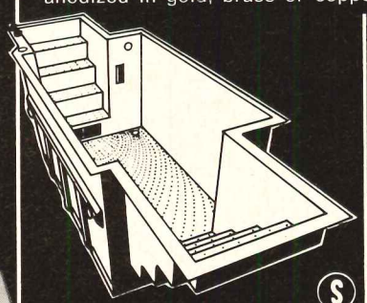
Wheeling Corrugating Co., Div., Wheeling-Pittsburgh Steel Corp., Wheeling, W. Va.

BAPTISTRIES, SPIRES, LIGHTING by *Wiedemann*

BAPTISTRIES Originator of the fiberglass baptistry . . . and leading baptistry specialist. Over 150 shapes and sizes of baptistries available.

SPIRES In unit-molded fiberglass for extra strength and durability.

LIGHTING In five styles to complement any style of architecture. Available in natural aluminum or anodized in gold, brass or coppertone.



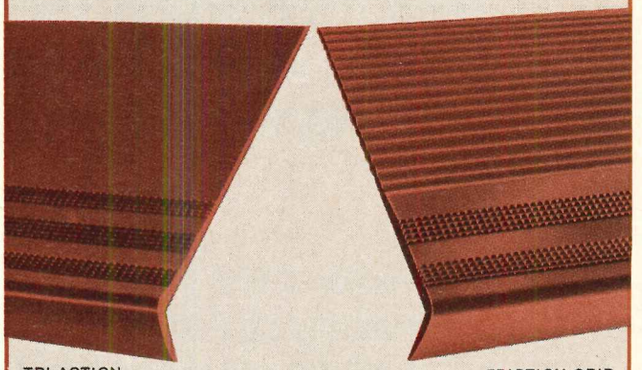
Write for free information kit. See Sweet's Architectural File.

Wiedemann Industries, Inc.

Box 672, Muscatine, Iowa 52761 Ph.: 319-263-6642

For more data, circle 71 on inquiry card

select mercer

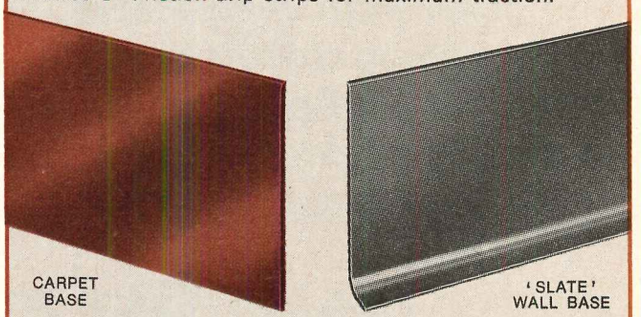


TRI-ACTION FRICTION-GRIP

...the step ahead

Only Mercer **keeps** you ahead with unrivaled Safety Friction-Grip™ and the industry's **quality** line of Vinyl Stair Treads. A type for every installation—commercial, institutional, residential. A full range of sizes and decorator colors. A proved record of easy installation and crack-resistant noses.

Choose from **Standard**...with full-depth corrugation. **Friction-Grip**...with pyramidal gripper design—a Mercer exclusive. Or **Tri-Action**...the heavy-duty tread with three 1" Friction-Grip strips for maximum traction.



CARPET BASE 'SLATE' WALL BASE

...'slate'—the latest look in wall base!

New, from Mercer, a new color concept to replace the tired, harsh look of black. Dark enough to be neutral, Slate casts a slightly reddish tone that adds warmth and softness—blends perfectly with any decor...at the price of black.

And, we've added four pleasing new colors to our wall base line. Cocoanut Tan, Avocado, Shell White, and Bronze. Now, more than ever, Mercer answers all your wall base needs. Choose from 28 colors. With toe. Without toe. 4' sections. 100' rolls. 1½" to 7" heights. And, check **Mirror-Finish**...a Mercer exclusive over-the-counter, residential wall base.

Now, that's what we call a service line.

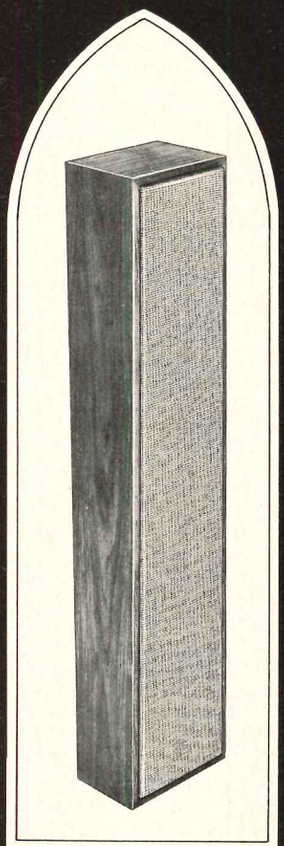
See your local distributor, or write for catalog and specifications of the complete accessory line.

MP mercer

PLASTICS COMPANY, INC.

Main Office & Warehouse: 1 Jabez St., Newark, N.J. 07105
Factory & Warehouse: Eustis, Florida 32726

For more data, circle 72 on inquiry card



Every architect should read our 12-page sermon on sound columns.

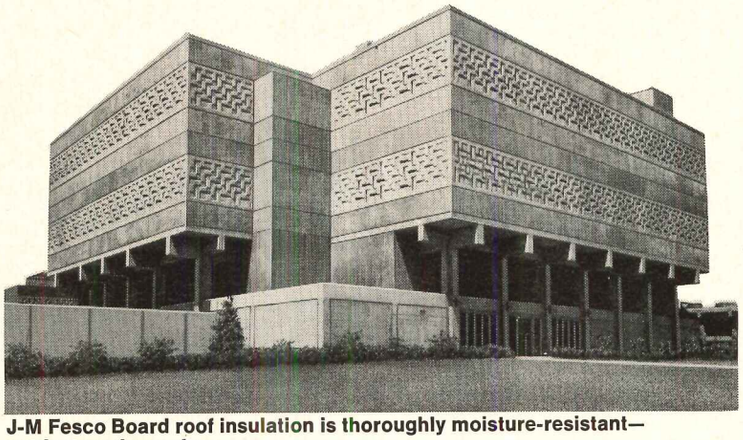
It's an ear opener.

Free illustrated booklet tells all about sound columns . . . how they can increase effective power of sound reproduction by 75% or more . . . even in most difficult structures. Write today!

Argos
PRODUCTS COMPANY
600 So. Sycamore, Genoa, Illinois 60135

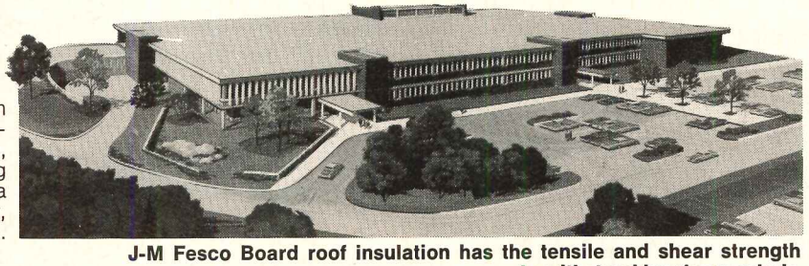
For more data, circle 106 on inquiry card

Three practical reasons for using J-M Fesco® Board Roof Insulation on beautiful buildings.



J-M Fesco Board roof insulation is thoroughly moisture-resistant—not just on the surface.

California. Orange County Jail, Santa Ana—Architects and Engineers: Albert C. Martin and Associates, Los Angeles—Roofing Contractors: H. R. Provin Co., Downey.



J-M Fesco Board roof insulation has the tensile and shear strength to withstand hurricane winds.

Massachusetts. BASF System Inc., Bedford—Architects: Edward J. Tedesco Associates, Winchester—Roofing Contractors: Columbia Cornice Company, Cambridge.

J-M Fesco Board roof insulation is non-combustible and has no flammable backing.

New York. Huntington Library, Suffolk County Community College, Selden—Architects: Dobiecki & Beattie, Brentwood—Roofing Contractors: Triple M Roofing Corp., Islip.

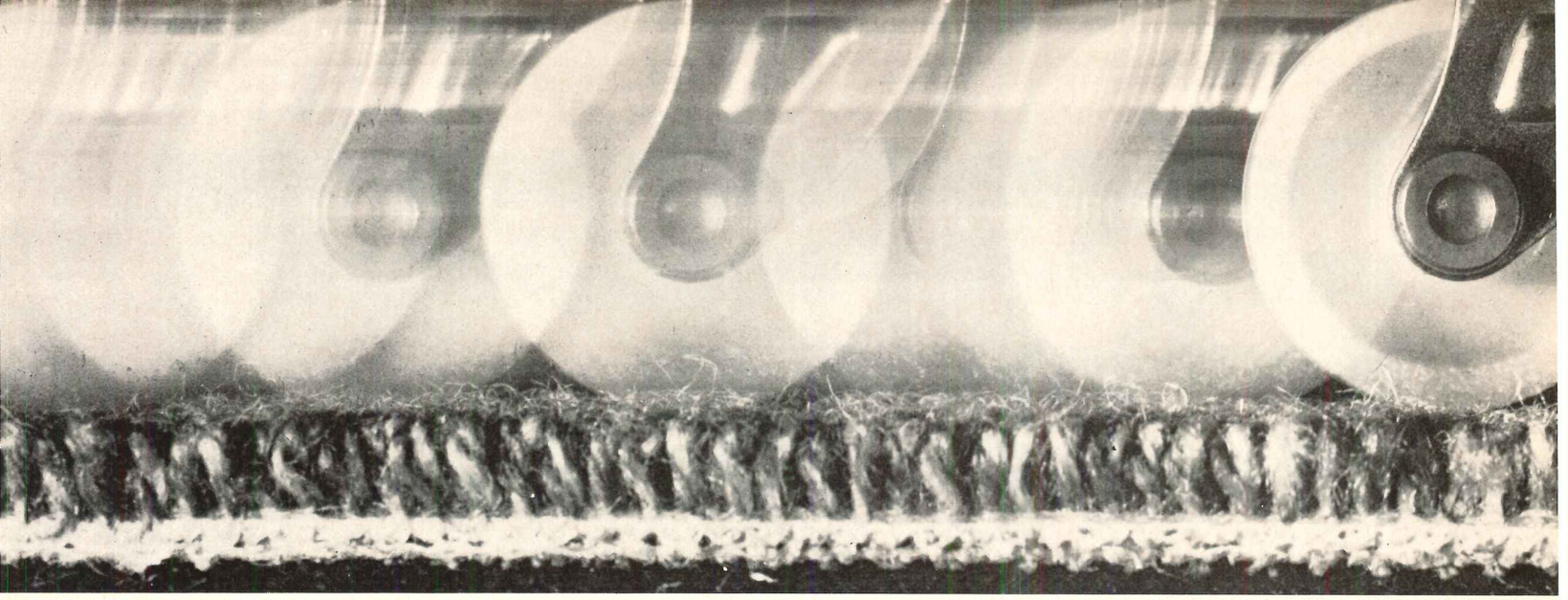
More and more buildings across the nation are benefiting from the superb performance of Fesco Board. Architects, engineers and builders also like its lightweight strength and the easy way it cuts, fits, shapes and applies.

For all the technical information, write Johns-Manville, Box 290-B1, New York, N.Y. 10016. Also available in Canada and overseas. Cable: Johnmanvil.

JM

Johns-Manville

For more data, circle 107 on inquiry card



Now wheels roll easily on carpet... if the carpet is backed by Jute!

Direct glue-down installation does it.

Now—specify carpet where you couldn't specify carpet. Glued directly to the floor, double Jute-backed carpet eliminates mushy cushions or pads that bog down conventional wheels and casters. Bonds securely to any floor, to resist shifting and delamination. But comes up cleanly so the carpet can be reinstalled elsewhere.

And the cost is less. Less than foam-backed carpets with equal pile specifications. Less than equivalent carpets, plus separate underlayment. But still gives all the advantages of carpet. Low maintenance cost. Luxury looks. Good sound absorption. High employee morale. Less heat loss in many cases.

Shouldn't *you* be specifying it? Especially since it works so well in all the general office, computer, cafeteria areas (carpeted in the past 3 years) at Ford Motor Co., Dearborn —and many other demanding installations of a variety of types.

JUTE

Jute Carpet Backing Council, Inc., 25 Broadway, New York, N.Y. 10004

WRITE FOR ARCHITECTURAL GUIDE SPECIFICATION
Prepared by William E. Lunt, Jr., C. S. I.

American Industries, Inc. • BMT Commodity Corp. • Bemis Co., Inc. • C. G. Trading Corp. • D & C Trading Company, Inc. • Delca International Corp. • Dennard & Pritchard Co., Ltd. • A. de Swaan, Inc. • Robert F. Fitzpatrick & Co. • Gillespie & Co. of N.Y., Inc. • Hanson & Orth, Inc. • O. G. Innes Corp. • Jute Industries, Ltd. • Lou Meltzer Co. • Pak-Am Inc. • William E. Peck & Co. of N.Y. Inc. • R. L. Pritchard & Co. • Revonah Spinning Mills • Stein, Hall & Co., Inc. • White Lamb Finlay Inc. • Willcox Enterprises, Inc.

For more data, circle 108 on inquiry card

"We could sell you an electric plant for 18% less.

But we probably couldn't sell you a second one!"

I'm Bud Onan, Chairman of the Onan Division.

We make electric power plants, engines, generators and controls.

And we could make them for a lot less . . . passing along a price "saving" of 18% across the board. With a 1.5-kw plant, for instance, we could do away with the special alloy valves that contribute to 300% longer valve life.

The crankshaft wouldn't have to be as strong as it is. Bearings could be smaller than we make them. We could knock off $14 by using a second-rate oil pump.

This plant could have paper-thin shielding and a two-bit muffler. We could save the money it takes to test and certify performance before shipment.

But we won't. Because we want that second order, and every one after that. And we want to make sure *you get what you pay for.*

That means building all our products a little better than we have to. It means being conservative when we're rating our product's capability. It means giving you an Onan product that delivers every bit of power our nameplate promises.

It means keeping faith with loyal customers who have made us the world's leading builder of electric power plants.

To us at Onan, it means living, day by day, with the certainty that . . .

We build our future into every Onan product

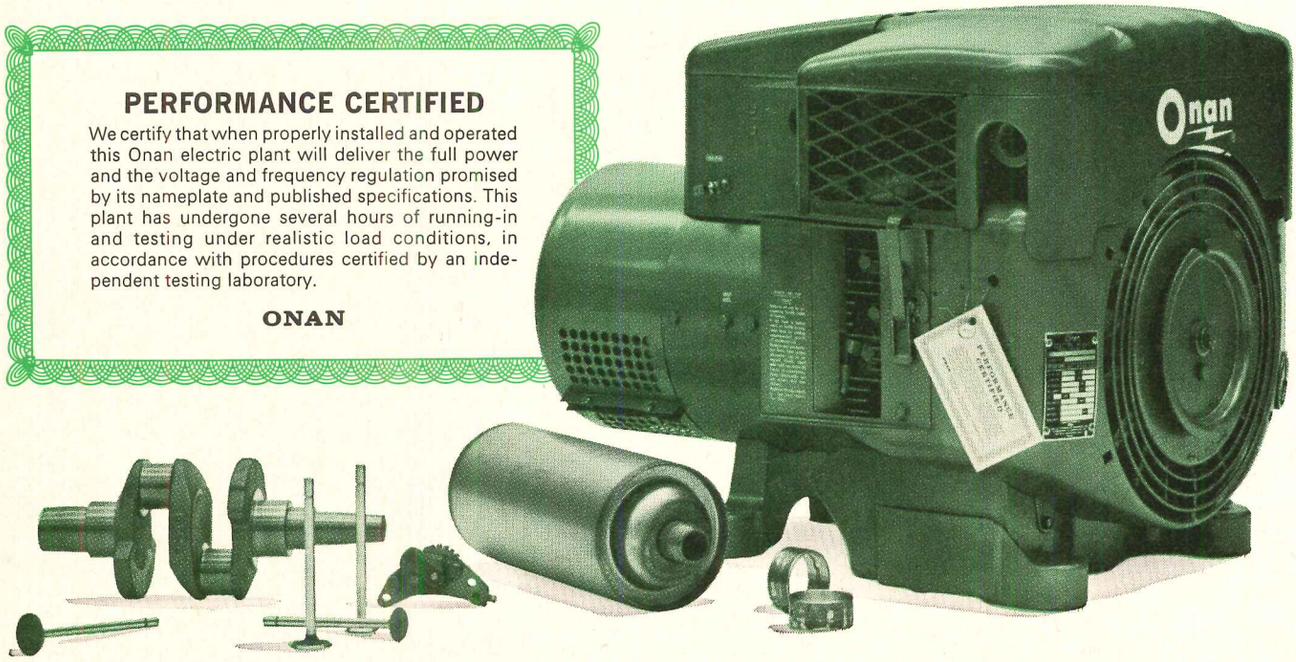
Onan®

1400-73RD AVE. N.E.
MINNEAPOLIS, MINN. 55432
A DIVISION OF STUDEBAKER CORPORATION

PERFORMANCE CERTIFIED

We certify that when properly installed and operated this Onan electric plant will deliver the full power and the voltage and frequency regulation promised by its nameplate and published specifications. This plant has undergone several hours of running-in and testing under realistic load conditions, in accordance with procedures certified by an independent testing laboratory.

ONAN



For more data, circle 109 on inquiry card

continued from page 207

INSTITUTIONAL FURNITURE / A 32-page fall catalog contains the company's complete line of institutional furniture and equipment, including folding chairs and tables, and office and school furniture. ▪ Alfax Manufacturing Corp., New York City.

Circle 407 on inquiry card

ELECTROMAGNETIC SHIELDING / A reprint from the recently revised and updated U. S. Department of Health, Education and Welfare publication deals with the shielding of hospital test and medical research facilities from electromagnetic interference. ▪ Ray Proof Corporation, Norwalk, Conn.*

Circle 408 on inquiry card

FASTENERS / A 60-page catalog has been issued to assist "architects, engineers and designers in choosing fasteners." The publication includes sections on thread standards for machine screws, bolts and nuts, and recommendations for their proper use. ▪ Alcoa, Pittsburgh.*

Circle 409 on inquiry card

FIELD GLUED PLYWOOD / A six-page report explains how field glued plywood floors save time and material. "And not only are reported savings as high as 20 cents a square foot, but builders agree they're getting a better floor." The success is attributed to new elastomeric adhesives "that have taken most of the guesswork out of field gluing." ▪ American Plywood Association, Tacoma, Wash.*

Circle 410 on inquiry card

ORNAMENTAL LANTERNS / A complete line for mercury vapor lighting is described in a 16-page brochure. Included are 39 pole and bracket lanterns, ornamental posts and accessories. The brochure explains the advantages of mercury vapor decorative lanterns for installations where fixture beauty must be combined with good functional lighting. ▪ Hadco Products, Inc., Littlestown, Pa.

Circle 411 on inquiry card

ARCHITECTURAL ALUMINUM / Two special reports are available: "The Benefits of Fenestration," and "Water Leakage of Windows and Walls." The former includes such papers as "Daylighting Benefits" by Prof. James William Griffith, chairman of the Department of Industrial Engineering at Southern Methodist University, and "Fenestration Quality and Building Performance" by George J. Jarik, associate partner, Skidmore, Owings and Merrill. The latter report includes various papers by leaders in the industry. ▪ Architectural Aluminum Manufacturers Association, Chicago.

Circle 412 on inquiry card

* *Additional product information in Sweet's Architectural File*

TRAMMELL CROW, JOHN PORTMAN, DAVID ROCKEFELLER AND ASSOCIATES
Developers

JOHN PORTMAN AND ASSOCIATES
Atlanta and San Francisco
Architects

JONES-ALLEN-DILLINGHAM
J. A. JONES CONSTRUCTION CO., Managing Partner
General Contractors

MORRIS E. HARRISON AND ASSOCIATES
Atlanta
Electrical Engineers

LORD ELECTRIC CO., INC.
Electrical Contractor

Embarcadero Center to transform San Francisco

Embarcadero Center, the largest private building venture in the history of the West Coast, ultimately will include four office skyscrapers, an 800-room hotel, three theaters, an amusement center, and a three-block arcade of shops, galleries and other facilities.

The first building, now under construction and scheduled for completion in 1970, is the 45-story office building shown in the rear center of the above model. It will utilize a steel frame, steel deck floor, and a Square D underfloor duct system to provide the most modern power and telephone service. Other Square D equipment includes power switchboards, lighting panelboards and busway.

Embarcadero Center will be located between the financial district and the Bay. Special care is being taken to tailor the project to the unusual topography of San Francisco. We are proud to be an important part of this exciting new endeavor.

SQUARE D COMPANY
Executive Offices • Park Ridge, Illinois

For more data, circle 111 on inquiry card

ARCHITECTURAL RECORD

Published by McGraw-Hill, Inc., 330 West 42nd Street, New York, New York 10036.

SEMI-ANNUAL INDEX

VOLUME 146
JULY-DECEMBER 1969

Readers using the index will find buildings, with only a few exceptions, entered in three ways: by architect's name, by owner's name, and by building type (apartments, hospitals, schools, etc.). Still other categories cover the special subjects dealt with in the magazine's engineering section (concrete, lighting, prefabrication etc.). ABBREVIATIONS: BTS—Building Types Study; AE—Architectural Engineering; BC—Building Components; AB—Architectural Business.

D

E

F

G

H

I

S

T

V

W

Z

ADVERTISING INDEX

Pre-filed catalogs of the manufacturers listed below are available in the 1969 Sweet's Catalog File as follows.

A Architectural File (green)
I Industrial Construction File (blue)
L Light Construction File (yellow)
D Interior Design File (black)

ARCHITECTURAL RECORD

McGraw-Hill, Inc., 330 West 42nd Street,
New York, New York 10036
Advertising Sales Mgr.: Louis F. Kutscher (212) 971-2838
Eastern Sales Mgr.: Donald T. Lock (212) 971-3583
Central Sales Mgr.: Robert G. Kliesch (215) 568-6161
Production Mgr.: Joseph R. Wunk (212) 971-2793
Marketing Services Mgr.: Elizabeth Hayman
(212) 971-2814

District Offices:

Atlanta 30309 — Edward G. Graves
1375 Peachtree St., N.E., (404) 892-2868

Boston 02116 — Ted Roscoe
607 Boylston St., (617) 262-1160

Chicago 60611 — Robert T. Franden
Edward R. Novak
645 N. Michigan Ave., (312) 664-5800

Cleveland 44113 — Willis W. Ingersoll
55 Public Square, (216) 781-7000

Dallas 75201 — Angus A. Macaulay
1800 Republic National Bank Tower, (214) 747-9721

Denver 80202 — Richard W. Carpenter
1700 Broadway, (303) 266-3863

Detroit 48226 — Tom Brown
2600 Penobscot Bldg., (313) 962-1793

Los Angeles 90017 — Robert L. Clark
1125 W. Sixth St., (213) 482-5450

New York 10036 — Donald T. Lock,
Douglas S. Markhouse,
Ted Roscoe
500 Fifth Ave. (212) 971-3583

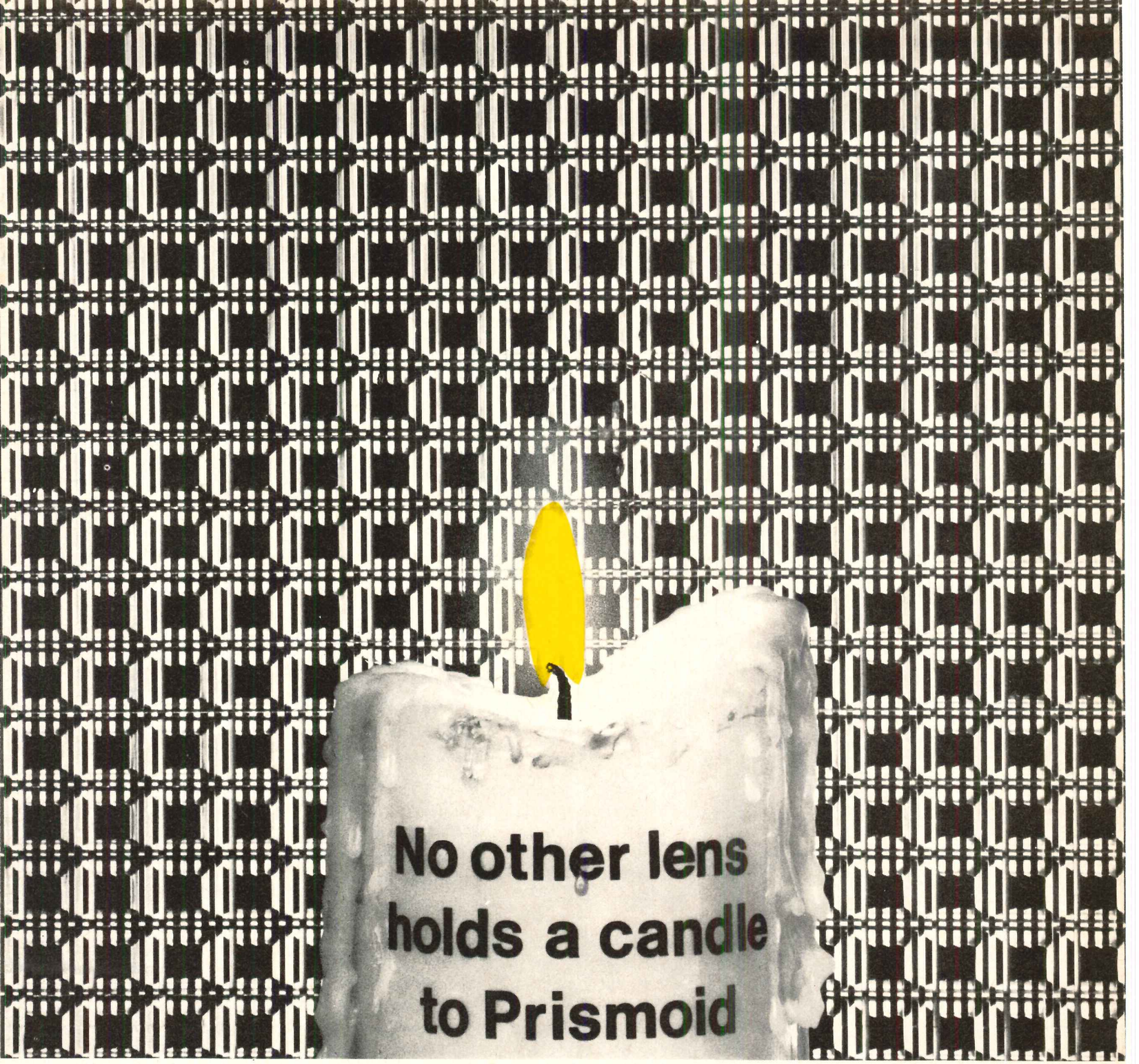
Philadelphia 19103 — Robert G. Kliesch
George T. Broskey
6 Penn Center Plaza, (215) 568-6161

Pittsburgh 15222 — Edward C. Weil
4 Gateway Center, (412) 391-1314

Portland 97204 — Linwood S. Williams
Mohawk Bldg., 222 S.W. Morrison St.,
Suite 218, (503) 223-5118

St. Louis 63105 — Richard Grater
7751 Carondelet Ave., (314) 725-7285

San Francisco 94111 — Robert L. Clark
255 California St., (415) 362-4600



...for "P-Ballast Blackout" protection

Here's the air-breathing louvre-lens from Guth that keeps Ballasts 3° to 10° C. *cooler.* Steady, cooling breezes carry away heat through wide open vents, help protect against bothersome P-ballast blackout. Guth PRISMOID* Lenses stay cleaner, too, cutting maintenance costs in half. You'll get increased ballast-life and full lamp-wattage (10% to 15% more light). All with comfortable brightness, high efficiency, and the sparkling beauty of superbly designed PRISMOID* crystals.

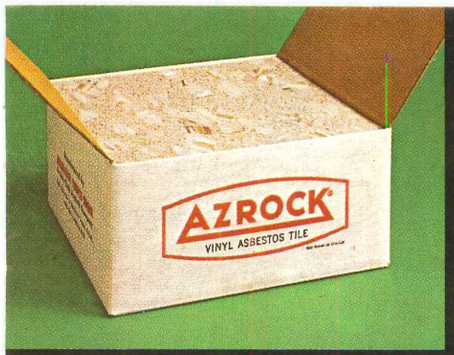
So keep your customers out of the dark. Send today for complete data and a sample of today's coolest lenses.

*Patented: Guth Co.

THE EDWIN F. GUTH COMPANY
2615 Washington Blvd. • Box 7079 • St. Louis, Missouri 63177

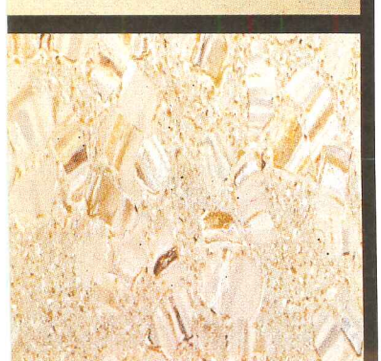
Guth

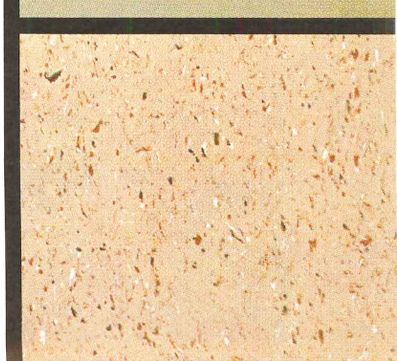
For more data, circle 112 on inquiry card



Carton Full of Miracles

Azrock Vinyl Asbestos Tile. It's what's happening in hospital flooring.

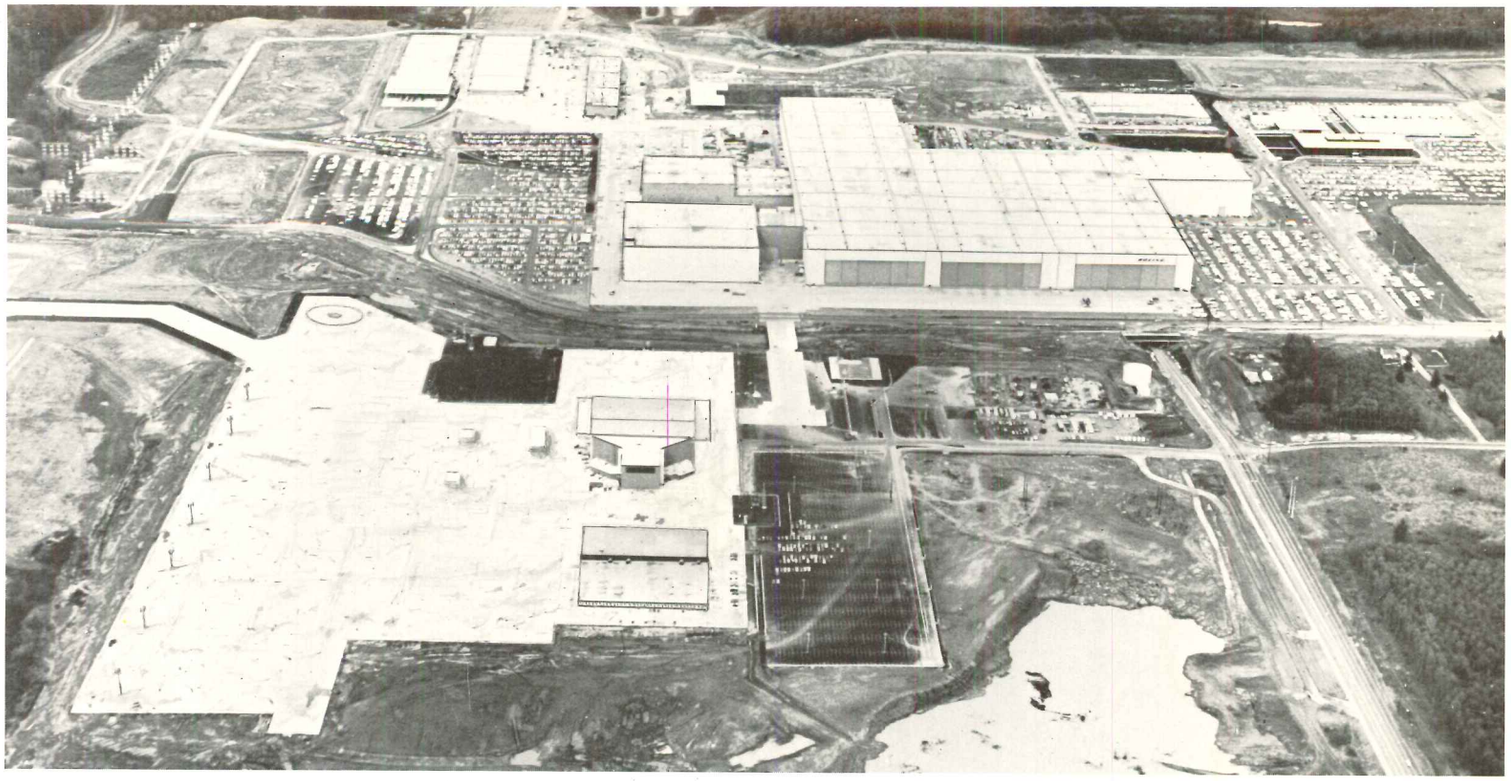




The creative styling of Azrock's vinyl asbestos tile is effectively demonstrated in the scores of outstanding Azrock installations in U. S. hospitals. Azrock floors are ideally suited to the specialized requirements posed by heavy foot and wheel traffic, tracked-in dirt, spilled foods and medications. Azrock makes more than 120 imaginative colors and styles in vinyl asbestos tile . . . makes it easy to plan custom floor design from room to room, from floor to floor. Put Azrock's "Carton Full of Miracles" to work on your next hospital project.

specify AZROCK® with confidence

Consult Sweet's File or write for samples. Azrock Floor Products Division, 521A Frost Building, San Antonio, Texas 78205.



THE AUSTIN COMPANY, *architect, engineer & general contractor* • UNIVERSITY MECHANICAL CONTRACTORS; URBAN, INC.; HASKELL CORP., *mechanical contractors* • CRANE SUPPLY COMPANY, *plumbing wholesaler* • CRANE COMPANY, *fixture manufacturer*

First 747 jet, the world's largest commercial jetliner, on the apron before Everett plant

Boeing 747 Manufacturing Facility

World's largest building— for world's largest commercial jet

■ 205 million cubic feet—the world's largest building by volume—sits next to Paine Field in Everett, Washington, where over 12,500 workers turn out the world's largest jet airliner—The Boeing Company's 747 superjet.

Under one roof is housed space for manufacture, subassembly and final assembly of a jetliner 231 feet 4 inches long, with a wing span of 195 feet 8 inches and a tail 63 feet 6 inches high—taller than an average five-story building. Boeing's main assembly area here is 115 feet high and consists of three bays with 1,365,000 square feet of covered floor area. Adjoining are areas devoted to cleaning, sealing and painting sections of the aircraft before final assembly; areas for full scale mockups, static testing, warehousing, and plant services. Two office buildings and a cafeteria complete the huge complex.

Preparation of the 780-acre site began in Spring 1966. By the time peak production is reached in early 1971, over 17,000 are expected to be employed. Just as this huge complex houses the most modern manufacturing equipment in the aerospace industry, so its personnel facilities are designed for the utmost comfort of workers and visitors. For example, Sloan Flush Valves for the washrooms were selected—assuring quietness, efficiency, reliability and long life with a minimum of maintenance.

Owner, architect, engineer, employee and guest, all intuitively respond to the quality and performance found in Sloan Flush Valves. Your building, too, can share this same Sloan quality. Just specify and insist upon Sloan Flush Valves—most people do.

SLOAN VALVE COMPANY • 4300 WEST LAKE STREET • CHICAGO, ILLINOIS 60624

For more data, circle 114 on inquiry card