THE NEW ARCHITECTURE OF FLORENCE: OFFICE BUILDING BY EDOARDO DETTI

MURDOUGH CENTER AT DARTMOUTH COLLEGE BY CAMPBELL, ALDRICH AND NULTY

A TRADITIONAL IMAGE FOR OLIVETTI

BUILDING TYPES STUDY: INDUSTRIAL BUILDINGS

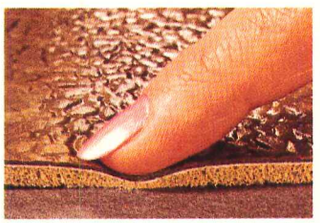
FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

FEBRUARY 1974 **2** A McGRAW-HILL PUBLICATION THREE DOLLARS PER COPY

Imagine the ideal flooring—the one that combines underfoot comfort with all of the advantages of vinyl. You're thinking of Quiet Zone Vinyl Corlon® from Armstrong.

As you can see from the insert, Quiet Zone has a thick backing of Cushioncord® vinyl foam. So, as its name implies, it cushions footsteps. It makes standing and walking on Quiet Zone a pleasure. At the same time, it muffles the noise of dropped objects and foot traffic, giving you the double benefit of quiet and comfort.



Naturally, Quiet Zone's sheet vinyl wear layer offers excellent resistance to stains and scuffing, and provides all of vinyl's proven maintenance advantages.

A bonus is its design—not only does Quiet Zone come in two handsome patterns—but it is richly textured to help disguise traffic marks as well as subfloor irregularities. Install Quiet Zone in your next open plan office. Then just sit back and listen to Quiet Zone at work.

For more information, clip this coupon, fill it out, and mail it to Armstrong, 4202 Rock St., Lancaster, Pa. 17604.

Shh. Quiet Zone™ at work. You know it's vinyl, but you might think it's carpet.

83020 Brown | 83021 White | 83022 Beige

83023 Gold | 83024 Green | 83025 Gray-Beige

The Quiet Zone pattern illustrated here is called Grand Central.

Please send me more information about Armstrong Quiet Zone Vinyl Corlon.

Name_____

Company_____

Address_____

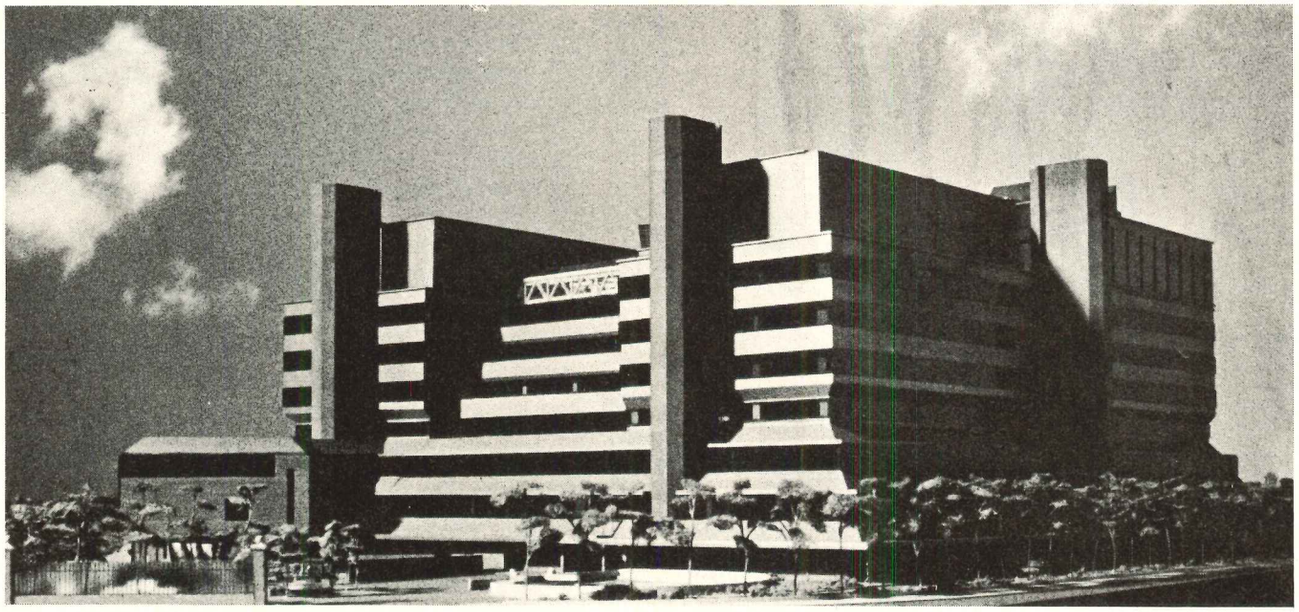
City_____ State_____ Zip_____

FROM THE INDOOR WORLD® OF

Armstrong

For more data, circle 1 on inquiry card

50,000 EPICORE® hangers were installed at Children's Hospital of Philadelphia. 50,000 reasons why you should consider the EPICORE Composite Floor System for your next project.



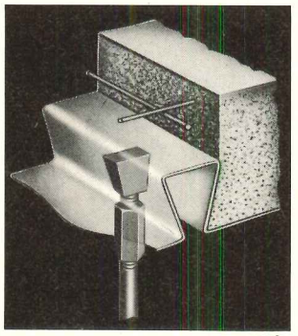
Architects: Harbeson Hough Livingston & Larson
William A. Amenta
Associated Architects

Structural Engineer: A. W. Lookup Company
Contractor: Baltimore Contractors, Inc.

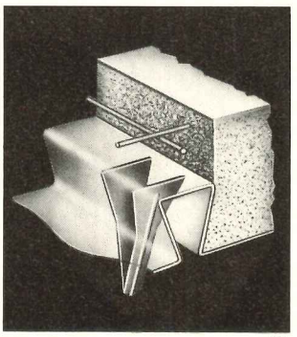
Arthur W. Lookup, P.E., the hospital's structural engineer, agrees:

"With EPICORE's hanging system, pipes, ducts, and other mechanical and electrical apparatus could be installed in record time. This lowered construction costs, and it will substantially reduce the hospital's maintenance costs in the future. When utility or medical support equipment needs to be moved or repaired, the EPICORE standard and wedge bolt hangers can be inserted easily wherever there is EPICORE Composite Deck, and we've used it in all finished areas. Mechanically and medically, the facility will always keep up with the hospital's needs."

If 50,000 reasons aren't enough for you to specify the EPICORE Composite Floor System, please call us. We'll give you 50,000 more!



A.



B.

A. Wedge bolt hanger
Safe load capacity per hanger = 1000 pounds, providing the floor system is designed to carry this load.
B. Standard hanger
Safe load capacity per hanger = 200 pounds.

EPIC
METALS CORPORATION

Eleven Talbot Avenue
Rankin (Pittsburgh), Pa. 15104
(412) 351-3913

For more data, circle 2 on inquiry card

Letter to a reader

If you're an "average" architect subscriber to Architectural Record you have been reading it for 17.0 years; or an "average" engineer subscriber, 8.4 years. (And if you're one of our most "above average" subscribers, as long ago as 1927 you were following the renewal of Frank Lloyd Wright's famous series of articles for the Record begun in 1908 entitled: "In the Cause of Architecture.")

I know all this because of CRR (Continuing Readership Research), a long-time survey of subscribers conducted by our editors for over two decades. Chances are that somewhere along the line you have received a letter from Joseph B. Mason, John Knox Shear, Emerson Goble (former chief editors of the Record) or Walter Wagner, our reigning editor, that started something like this:

"May we have your own opinion of Architectural Record?

"Our constant aim is to provide you with a magazine that is interesting, informative, and, above all, useful in your work.

"But the best-intentioned editors could stray far afield from their purpose if they did not turn constantly to their readers for appraisal and criticism. . . ."

Way back in 1951 as research manager for the Record I helped to devise the original CRR questionnaire which was (and still is) so detailed and time-consuming ("What do you like best about Architectural Record?" and "What don't you like about Architectural Record?", for example) that my credentials were called into question. "You just can't expect busy architects and engineers to take time out to answer such a complicated and time-consuming four-page questionnaire."

Well, over a 20-year period 20,000 have—at the rate of 1,000 a year! And this outpouring of generous help and constructive criticism has served our editors and readers well.

Architectural Record, we are fond of saying, is edited specifically for men who design and specify, whoever they are, wherever they work. Easier said than done. There are 38,000 U.S. architects alone with tremendously diverse needs, interests, concerns and enthusiasms. To assemble and hold such a large and highly sophisticated paid subscriber audience year in and year out our editors must be as closely attuned as possible to *all* its members.

This is not to say that good editors edit by research. Editors must lead as well as follow, generate interest as well as respond to it. And no calculation of means and medians can substitute for an editor's imagination and intuition; nor can questionnaires, even CRR ones, take the place of the steady stream of architect and engineer visitors to our offices (you are always welcome) or the systematic visits by members of our editoral staff to design offices in all major regions of the U.S.

The alternative to editing specifically for architects and engineers as a whole is editing either for select groups of architects and engineers or to satisfy the predilections of editors. However brilliant the performance it could not hold together and serve effectively the largest architect and engineer paid subscriber audience ever assembled by any magazine—which, forgive my pride bursting forth, is what the Record has done.

But CRR also puts limits on unseemly pride and warns against complacency. You remind us again and again of our many shortcomings. By the way, in response to that question, "What don't you like about Architectural Record?" quite a few of you have replied, "These questionnaires." Not surprising! So let me say a sincere "thanks" for giving us, nevertheless, thoughtful responses over 20,000 times!

Best,
Blake Hughes, publisher

Letters to the editor

Your November editorial on political contributions very well reviewed the status of the subject, and clearly indicated how AIA has been wrestling with it.

I do think, though, that you could have put greater emphasis on the "open" part of AIA's promotion of "open architect and engineer selection processes for government construction projects". Unless there is full publicity on the firms recommended by the selection boards and then on the firm receiving the contract, there can be too many failures to follow the recommendations without proper explanation, as has happened, I understand, under GSA's procedures in more than one case.

Frederick G. Frost, Jr., FAIA
New York Regional Director
The American Institute of Architects

Congratulations on the excellent December issue of Architectural Record.

I have thought about, read about, discussed, researched, and visited new towns. I even have family living in one. Frankly my enthusiasm for new towns has waned but your lively comparative survey recaptured my attention. The visual documentation is especially well done.

My skepticism about new towns as an alternative for any significant number of Americans, especially the poor, remains, but Record reminded me of their potential importance as innovative models for planning new communities in old cities.

And how about a comparative survey of revitalized neighborhoods at community planning scale . . ."

Lois A. Craig, Staff Director
Guiding Principles
for Federal Architecture

Calendar

FEBRUARY

11-12 Architect as Builder-Developer seminar, Hyatt Regency O'Hare, Chicago. Sponsored by Architectural Record. Contact MCI, 505 Park Avenue, New York, New York 10022. Phone (212) 759-5830.

12-13 Contract Marketplace-New York, an exhibit of contract furnishings. Panel discussion on architect and interior designer approaches, special presentation of Record Interiors awards given by Architectural Record. Contact Samuel L. Greenspan Incorporated, 52 Vanderbilt Avenue, New York, N.Y. 10017. Phone (212) 725-5130.

21 Seminar on How to Get the Most Out of Your Energy Dollars in New and Existing Office Buildings, Sheraton-Northlake Inn, Atlanta. Sponsored by the Energy Conservation and Controls Institute. Contact Executive Enterprises, Inc., Suite 2310, 10 Columbus Circle, New York, New York 10019. Phone (212) 489-8723.

21-22 Seminar on How to Market Professional Design Services, Washington, D. C.. sponsored by Architectural Record. Contact Building Industry Development Services, 1914 Sunderland Place, N.W., Washington, D.C. 20036.

25-27 Second Annual Joint Engineering Legislative Forum, Sheraton Park Hotel, Washington, D.C. Contact NSPE, 2029 K Street, N.W., Washington, D.C. 20006.

27 Fire Safety Seminar, sponsored by the New York Chapter, Society of Fire Protection Engineers, Statler Hilton Hotel, New York City. Report of the President's Commission of Fire Prevention and Control will be discussed. Contact N. E. Carlson, ADT Security Systems, 155 Avenue of the Americas, New York, New York 10013. Phone (212) 741-6776.

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Armstrong introduces the bold textured lay-in ceiling panel.

Boldface.™

Easy-to-install, economical, and, above all, good-looking—those were the criteria that the Armstrong designers had to meet for our latest lay-in ceiling panel.

What they gave us was a panel with an exciting, bold, rough texture. We called it Boldface, and we think it's a beauty.

Its design is nondirectional with a white paint finish, making Boldface the ideal ceiling for any interior space.

Boldface is available in 24″ x 24″ or 24″ x 48″ lay-in panels and 24″ x 48″ Tegular lay-in panels which rest on a standard exposed-grid suspension system. Installation is simple and economical.

Its specifications rank Boldface well. It has an NRC of .60–.70; flame-spread rating of Class 25; good light reflectance—70–74%. And it has an average C factor of .52 at ¾″.

Boldface. It met all of our specifications and more. We're sure it will exceed yours, too.

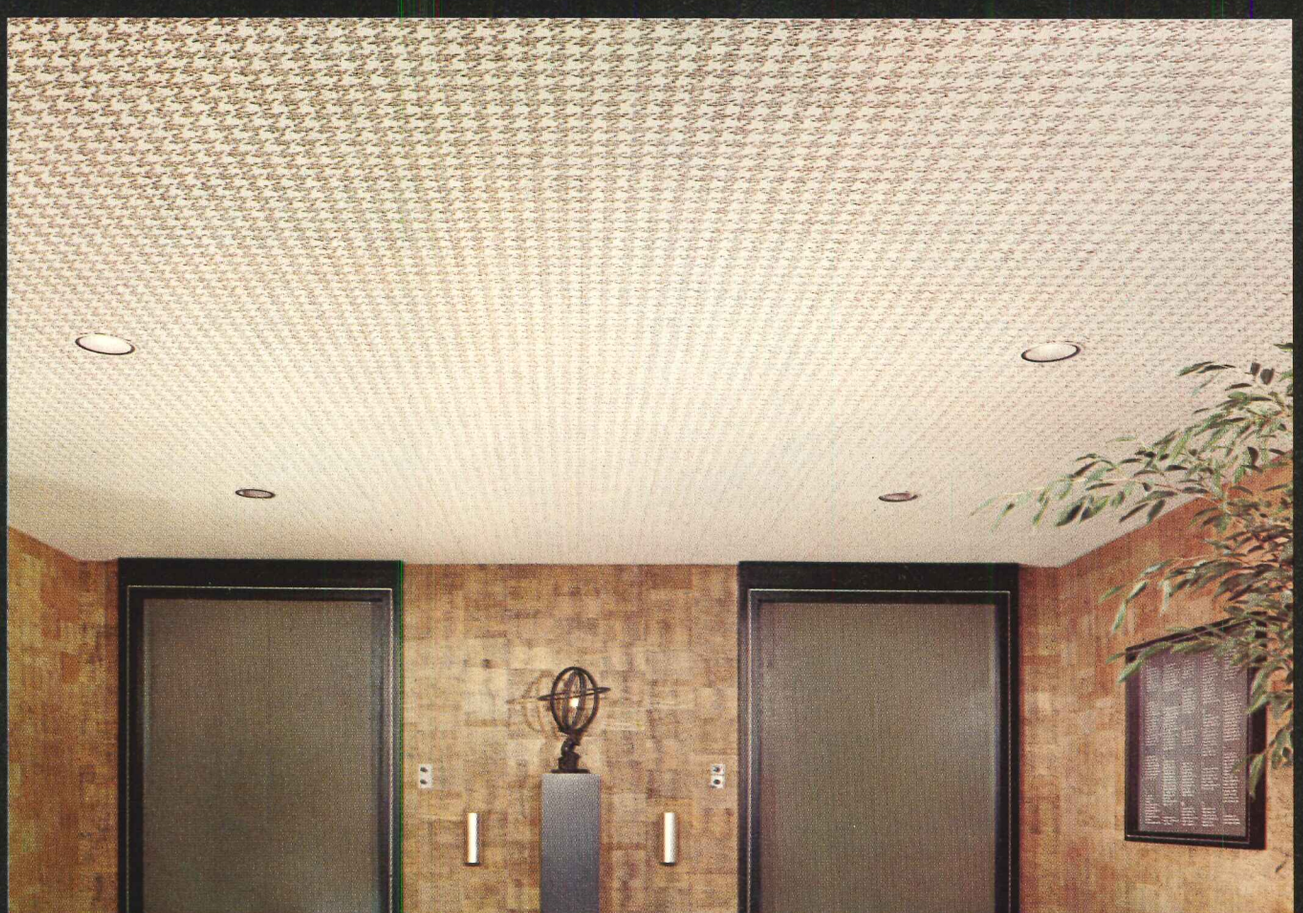
For more information, write Armstrong, 4201-3 Rock Street, Lancaster, Pa. 17604.

FROM THE INDOOR WORLD® OF

Armstrong

For more data, circle 3 on inquiry card

Armstrong introduces a grand new look in ceiling tiles. Grandshire.



The look is houndstooth check, and its appearance is unbroken across an expanse of ceiling.

It's Grandshire, a 12″ x 12″ tile.

Grandshire is the newest addition to the Travertone™ ceiling line and offers a distinctively different monolithic look.

You can achieve this look two ways: by cementing the tiles directly to a sound, existing ceiling or by suspending the tiles from a concealed-grid system. Either way, it's an exciting seamless look.

Grandshire is an acoustically efficient, mineral fiber tile, with a Class 25 Flame Spread Index and an NRC of .60–.70.

For more information on Grandshire, write Armstrong, 4201-2 Rock Street, Lancaster, Pa. 17604.

You'll agree, it's a grand new look.

FROM THE INDOOR WORLD® OF

Armstrong

For more data, circle 4 on inquiry card

The Total Performance Pocket Slide Rule Computer!

Solves advanced scientific/engineering problems with split-second accuracy.

Forget everything you've read or heard about previous calculators. This phenomenal multi-function instrument from Lloyd's does more than just add, subtract, multiply and divide. Its built-in capacity also includes almost *every conceivable slide rule function*—plus a few that ordinary slide rules can't perform at all! It's really the ultimate calculator value for the scientist, engineer, mathematician, accountant, teacher, or any math-using professional.

Just look at the versatile capabilities that this remarkable computer puts in the palm of your hand:

TRIGONOMETRIC FUNCTIONS IN DEGREES OR RADIANS

The Accumatic™ 999 can instantly give you the sine, cosine, or tangent of any angle, as well as the inverse of any of these functions. (i.e. arc sine, etc.) And an exclusive degree/radian conversion switch allows you to compute in radians as well as degrees—a feature unavailable on most other slide rule calculators.

EXPONENTIAL FUNCTIONS

Natural logarithms (ln x), natural antilogarithms (e^x), common logarithms (log x), common antilogarithms (10^x), square roots ($\sqrt{x}$), reciprocals ($\frac{1}{x}$), and powers of numbers (x^y) are all easily computed on the Accumatic 999 at the touch of a button.

FULLY ADDRESSABLE MEMORY BANK

In addition to its "display" register and its separate "constant" register, the Accumatic 999 has a fully addressable memory bank that is the most advanced available to date. An ($m+x^2$) key automatically squares a number and enters it into memory—very handy for finding the hypotenuse of a right triangle when the other 2 sides are known. It also has 5 additional memory keys to perform other memory functions.

WIDEST VERSATILITY

With: Pi (π) key; multi-purpose clear (C) key; data recovery key (DR); change sign key (+/−); eight digit Digitron® display (superior in legibility to LED'S); overflow and negative number indicators; wrap-around decimal; and more.

AC/DC OPERATION

The Accumatic 999 operates off 4 long-life alkaline rechargeable batteries. And a combination AC adapter and battery charger lets you save the batteries and run the instrument off 120 volt AC house current when you're near an outlet. AC adapter/charger and batteries are included with the unit.

WHO MAKES THE ACCUMATIC 999?

If accuracy and reliability are of critical importance in your professional computations, it should reassure you to know that the Accumatic 999 is manufactured to Lloyd's specifications by one of America's leading aero-space engineering companies: Rockwell International. And the Lloyd's one-year warranty on this product is further assurance that your purchase is backed by a leading company in the consumer electronics field.

HOW MUCH DOES IT COST?

If you've been shopping around for a slide rule calculator, you probably know by now that you would have to pay at least $300 for an instrument like the Accumatic 999. But through Lloyd's we are able to offer you this total performance calculator at a remarkably low price.

ONLY

$199.95

Batteries, AC adapter/charger, comprehensive instruction manual, and a handsome padded carrying case are all included in the total purchase price.

Size:
3¾" × 5¾" × 1"

Order Today For Prompt Delivery! AR

Please rush me____ Lloyd's Accumatic™ 999 calculators @ $199.95 each, complete with batteries, AC adapter, and case. I enclose full payment of $_____. (Add $2.75 for handling and shipping. N.J. residents add 5% tax.) I understand that if I am not absolutely satisfied, I may return my purchase within 15 days for an immediate FULL REFUND. Make check or money order payable to: Austin-Whyte Co. Allow 2 weeks for delivery.

Name_____

Address_____

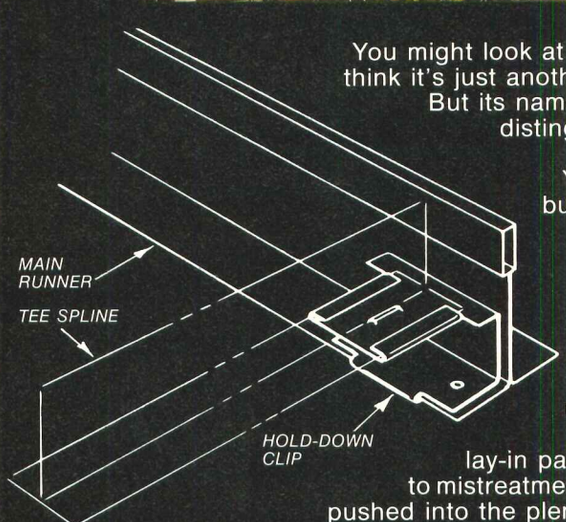
City & State_____ Zip_____

Mail to: Austin-Whyte Co.
224 Midland Avenue Saddle Brook, N.J. 07662 201-478-4300

For more data, circle 5 on inquiry card

Armstrong introduces a suspended ceiling panel tough enough to take abuse.

Armatuff™*



You might look at this ceiling and think it's just another 2′ x 4′ lay-in. But its name gives away its distinguishing feature —toughness.

You can't see it, but Armstrong has coated these lay-in panels with a thick, tough mineral material that allows Armatuff to stand up to repeated abuse.

But, if these lay-in panels are subject to mistreatment, can't they be pushed into the plenum? If Armatuff were an ordinary ceiling, the answer would be yes. But Armstrong has developed an impact clip that firmly anchors Armatuff to the suspended grid.

This combination makes Armatuff the ideal ceiling system for schools or anywhere else where a ceiling could possibly be damaged. And Armatuff can easily blend in with any decor, because its surface design is a nondirectional, rough natural texture, with a factory-applied white vinyl latex paint finish.

For more information, write to Armstrong, 4201-1 Rock Street, Lancaster, Pa. 17604.

You'll agree: Armatuff presents a good, tough case for itself.

FROM THE INDOOR WORLD® OF

Armstrong

*Process patent pending

For more data, circle 6 on inquiry card

some important reasons why Game Time® is your best buy in playground and park equipment...

DURABILITY — Our customers consistently tell us that they buy Game Time park and playground equipment because it has great durability. And we agree that it has. We believe Game Time builds the most durable equipment on the market. We first "Imagineer" our products to be structurally sound, and then we construct them from the finest materials available. For example, we use large diameter galvanized steel pipe, strong zinc grip steel tubing, and stainless steel throughout our line. Our Saddle Mate* animals-on-a-spring feature a special extra-tough aluminum alloy. We use cast aluminum and malleable iron fittings for extra strength, and heavy gauge steels for safety and low maintenance. Our exclusive new Permacryl* finish is a major breakthrough in long-lasting paint for outdoor use. We build our equipment to last . . . to take the rough and tumble abuse kids dish out day after day. Our quality control and testing people subject our equipment to rigid tests to insure products that give long, worry-free service, and reduce your equipment costs.

SAFETY — In July, 1973, a set of voluntary safety standards for heavy duty playground equipment was proposed to the Consumer Product Safety Commission. Later in 1973 Game Time asked a leading independent testing laboratory to examine its product line for compliance to these standards. The testing laboratory upgraded the standards extensively and then applied them to Game Time's equipment. Finally, the Nationwide Consumer Testing Institute, Inc., certified all Game Time playground equipment to meet these more stringent safety requirements.

INSTALLATION — We know how much work and worry can be involved in the installation of park and playground equipment. This is why we include easy-to-read, easy-to-understand, illustrated installation instructions with every item we ship. This takes away the guesswork and saves you time and money. If problems should arise, your area Game Time sales representative is only a phone call away. He is always willing to give you on-the-scene assistance.

DELIVERY — When you buy Game Time you receive your shipment where you want it, when you want it. Our complete fleet of 20 diesel tractors and 40 forty-foot trailers is rolling nationwide to give our customers prompt delivery. This is an important Game Time exclusive that means better service for you.

SALES REPRESENTATIVES — Game Time's force of more than 50 independent professional sales representatives and their associates exists solely to help you. Our sales representatives are always available to advise you in planning your park or playground, to recommend equipment, to help solve problems, or to aid in equipment installation. These men know the park and recreation business. Get to know the sales representative in your area . . . he could become the best friend you ever had.

PRODUCT SELECTION — A look at the Game Time catalog will verify that we have the widest selection of park and recreation products available today. Our product line ranges from slides, swings, and climbers to mobile recreation units, wood park shelters, boat docks, mall furniture, park benches, sports equipment, and pedal boats. We're really the one source for virtually all your park and recreation purchases. Write or call Game Time and ask for our colorful, product filled, 92 page catalog.

*Exclusive trademark of Game Time, Inc.

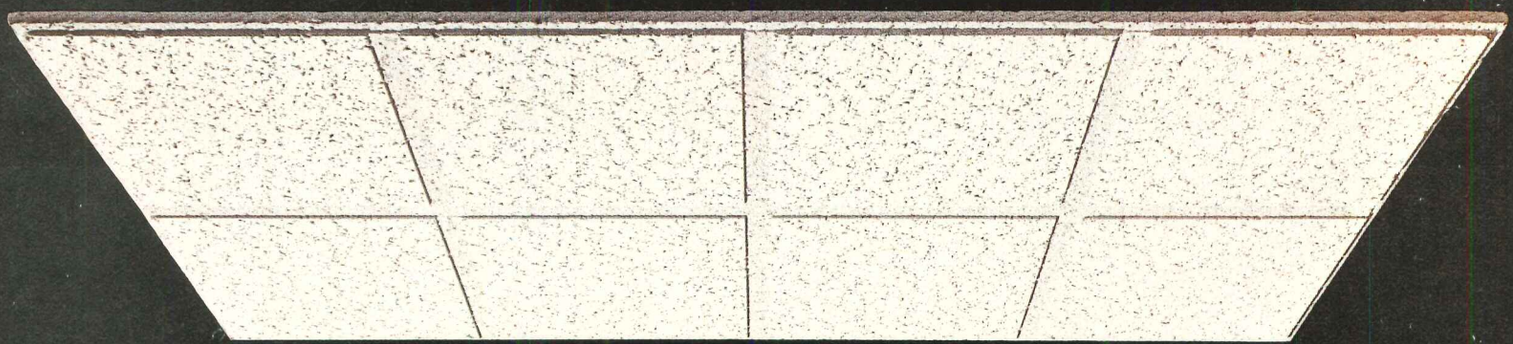
Game Time by TORO

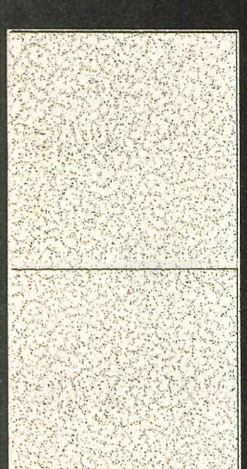
903 Anderson Road • Litchfield, Michigan 49252

For more data, circle 7 on inquiry card

Take a second look. Those ceiling tiles are really lay-in panels.

Introducing the Second Look™* ceilings by Armstrong.





Second Look II ceiling panel

You really have to look twice. These are not 12″ x 12″ or 24″ x 24″ ceiling tiles, they are 2′ x 4′ lay-in panels.

That's why we call our new lay-in panels Second Look. They're designed to give ceilings the look of tile but with the economy of lay-in panels. What your client gets is a good-looking bargain. And the ceiling gets a lot of second looks.

We created this effect by scoring the panels to simulate 12″ x 12″ or 24″ x 24″ tiles—and we matched the exposed grid to the board finish in a speckled or low-gloss design.

Installation is the standard, economical suspended grid system. Just as soon as the panels are suspended, the total effect is achieved, because the grid and the ceiling panels visually blend to give an overall appearance of more expensive tile.

Find out more about these unique Second Look lay-in ceiling panels. Write Armstrong, 4201-4 Rock Street, Lancaster, Pa. 17604.

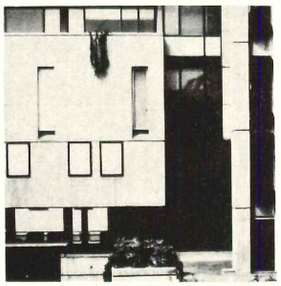
Then you can take a good long second look at our Second Look.

*Second Look Ceiling Systems I and II patent pending

FROM THE INDOOR WORLD® OF

Armstrong

For more data, circle 8 on inquiry card



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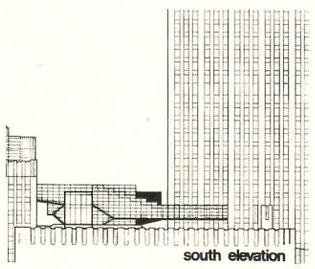
Architect: Edoardo Detti

THE RECORD REPORTS



ARCHITECTURAL BUSINESS

FEBRUARY 1974 ARCHITECTURAL RECORD

FEATURES

BUILDING TYPES STUDY 457

ARCHITECTURAL ENGINEERING

NEXT MONTH IN RECORD

Building Types Study 458: High-Rise Office Buildings
Technology of the high-rise office building has become substantially codified and pretty well understood, while programming has become more and more standardized and the constraints of economics and ownership remain powerful influences over design. So the March Building Types Study will focus less on the building itself than on the outdoor public spaces these buildings create. New York City will be the main scene for these considerations, with special reference to Rockefeller Center, the World Trade Center and the Chubb building with its covered pedestrian space and other zoning bonuses.

Some Housing in Europe
An architect's tour of housing in Germany and France generates the impression that there seem to be more options and more inventiveness that actually gets built.

Harvard University's New Science Center
Sert, Jackson and Associates have done it again in a new multi-discipline facility of labs, library, teaching theaters and offices using technical, functional, spatial and symbolic sophistication.

the new washroom:

How do you meet the demands of space, traffic flow, maintenance and budget in today's new washroom?

Bobrick helps with a "Total Design Concept" of coordinated stainless steel washroom accessories and laminated plastic toilet compartments for every type of building.

In this washroom, Bobrick recessed multi-purpose units combine large capacity soap and towel dispensers with two soap valves, serving two lavatories. Large capacity stainless steel waste receptacles reduce maintenance time. Bobrick "flush-front" laminated plastic toilet compartments and matching counter tops complete this up-to-date washroom.

To help you plan today's new washroom, send for our Planning Guides and Catalogs. Bobrick, Architectural Service Dept., 101 Park Ave., New York 10017. Bobrick products are available internationally.

bobrick

SINCE 1906

For more data, circle 9 on inquiry card

The more we know about housing shortages, the worse it gets

. . . and the newest intelligence, from what appears to be an impeccably researched study by the M.I.T.-Harvard Joint Center for Urban Studies, makes it not just look bad (we already knew that) but an incredibly complex and convoluted problem.

Until this new study, we've been measuring the real problem of "creating a decent home and suitable living environment for every American family" against the mystical 26 million figure. That projected need for the 1970s, you'll remember, came from the Kaiser report which recommended that 26 million units be built or substantially rehabilitated. That report, done in 1968 and therefore based on 1960 Census figures, placed almost total reliance on new units as the primary way to meet the demands—and thus emphasized government action in the direction of subsidy for housing production. There was little emphasis—because of or despite the fact that the Kaiser study estimated six to eight million substandard units—on rehabilitation.

The new study sees bigger numbers, a more complex picture, and a need for local goals

Here are some of the specifics:

- The Joint Center's study, based on 1970 Census, concludes that 23 million new housing units are likely to be needed between 1970 and 1980 "to satisfy population growth, mobility, and changes in life style." That figure exceeds earlier projections by 20 per cent.
- Even more importantly and more shocking, the Joint Center study estimates that 13 million American households were "housing deprived" in 1970—a figure that, while it is not directly comparable (as will be explained) to the Kaiser Report six to eight million figure, clearly indicates that the problem is far more extensive than we had previously been led to believe.

The new study defines "housing deprivation" in an exceedingly interesting and meaningful way: it includes not just 6.9 million physically unsound units (those that can be directly compared with the Kaiser conclusions), but also 0.7 million units which are physically sound but overcrowded, and 5.5 million units which are "physically sound, not overcrowded, but too expensive for the family living there." And, when you think about it (and clearly we have not thought about it much, at least statistically) a family which is overcrowded or paying an excessive amount of its income in rent is just as deprived as the family in a sub-standard unit—it is just deprived differently—and needs help just as much.

- Dr. Bernard Frieden, director of the Joint Center, cautioned against adding the two figures—23 million new units and the estimate of 13 million housing-deprived households—to arrive at a new housing production goal: "They represent two very different concepts. Twenty-three million new units will provide living space for people who can pay their own way into the housing market. This volume . . . is within the capacity of the nation's housing industry if it continues to receive the indirect mortgage aids and tax treatment the Federal government now provides. The 13 million figure is not a count of housing units that need to be replaced. It is our estimate of the number of low- and moderate-income families who had a housing problem as of 1970. Some of these families—we do not know how many—will be able to improve their housing by moving into vacancies created by the construction of 23 million new units. Others are already living in good housing, but at too high a price. They need more income, or direct housing allowances, to solve their problems. Other families could be housed adequately if we had effective programs to make better use of existing housing and keep up the quality of older neighborhoods. Some additional new housing will be needed for the poor. The 13 million deprived households present a separate challenge. . . ."
- Another major conclusion: housing growth rate for different parts of the country will vary widely: from a high of 28.4 per cent (4.3 million units) in the South Atlantic states of 17.4 per cent (1.1 million) in New England.

The new numbers are timely for setting the President's new goals

Dr. Frieden and his fellow researchers are reluctant to draw any conclusions from their research, which is only the first phase of a giant study financed by HUD and 22 private corporations in the industry. But surely, even if it is premature, one can conjecture that any new Federal housing policy should include a broader diversity of program than in the past—some production subsidies and a boost in the experimental cash assistance program; much more attention to conservation of older neighborhoods. And there is a clear indication that program needs vary widely in various regions—a fact that clearly needs to be made an important part of program administration.

Perhaps, to professionals in the industry, this new study is not surprising, not "news"—but surely it is new food for thought.

—Walter F. Wagner Jr.

Opportunity for minority architects: one firm offers hand up, not hand-out

On a recent trip to Cleveland, I was once more reminded of the wide ranging accomplishments of architects—who often provide some of the profession's finer moments away from the built environment we look to traditionally.

As I made my way to Cleveland the week before Christmas, a dozen of the top administrators from the nation's leading black colleges were also en route there, all of us at the invitation of architects Dalton Dalton Little Newport. The occasion was a two-day seminar on "Professional Careers for Black Students in Architecture, Engineering and Planning" sponsored by DDLN as part of its five-year-old affirmative action program. The consensus at the meeting was this: a vigorous joint effort by the nation's black colleges and the design professions must be mounted at once to correct the scarcity of black professionals in architecture, engineering and planning.

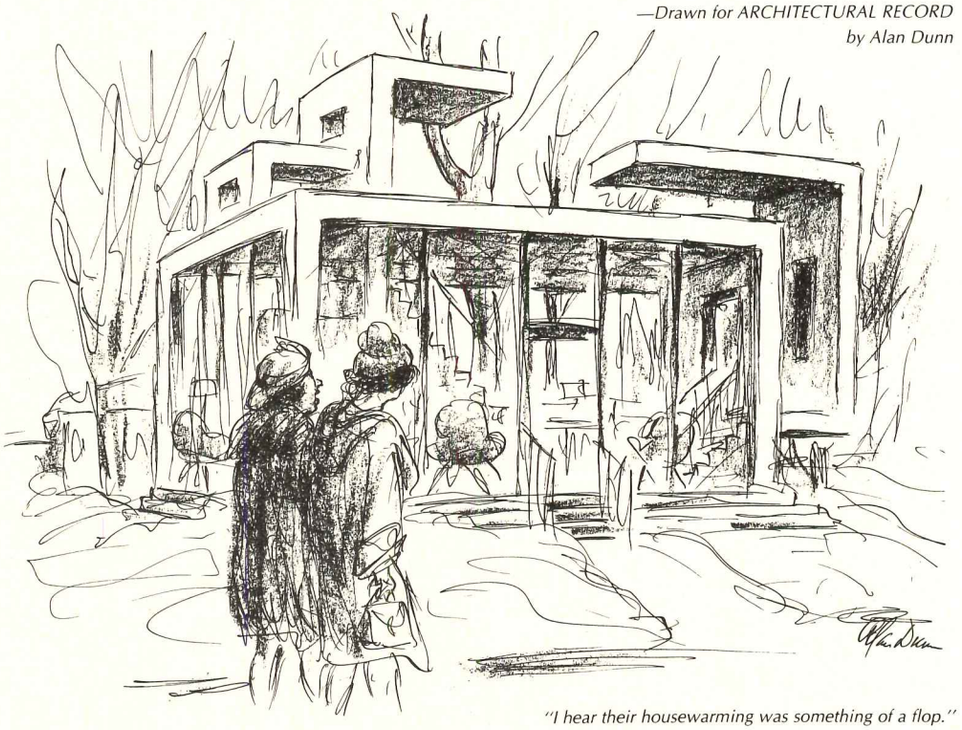
At this point, one might ask two questions. Why would black educators want more black design professionals, as opposed to, say, more doctors, lawyers, teachers? And why would a large architectural firm spend nearly $120,000 annually on a program to get more minority representation in the profession, in addition to maintaining hiring practices that exceed Federal requirements?

Part of the answer to the first question, may be best summed up by one of the seminar participants, John H. Spencer, AIA, ASLA, and chairman of the Department of Architecture, Hampton Institute: "Often nothing is said to black youths in high schools by their counselors about the opportunities in architecture, engineering and planning. Their parents, many of whom are uninformed and conditioned by years of limited opportunities, prompt their children (if they can afford to send them to college) to prepare for the 'safe professions' of teaching, preaching or social work. We, the black colleges and the design professions, must do something to break that circle as a matter of survival."

Creating awareness of the profession among students who might not even know what an architect *is* appears to be matter of survival for those black colleges that offer professional degrees.

For the architectural firm, black participation in the profession is a matter of good business policy as well as a moral and legal obligation, according to Calvin B. Dalton, DDLN president: "We're afraid there's a lot of talent that's locked away somewhere that we're not getting our hands on." He went on to point out that contrary to the trend in black colleges to increased enrollment in technical courses, white college enrollment in this area is dropping.

In addition to substantial budget allocations at DDLN for affirmative action, Mr. Dalton spends generously the firm's time, making the development of minority professionals a daily DDLN activity. Responding to requests for still more money, Mr. Dalton is more apt to offer himself, his staff and their ideas. "The easiest thing we could give—and the thing you're least likely to get—is our money. We want relevance too. We don't want to just send money to some school that's doing a great job. What does that mean to us? What are we going to get out of that?"



—Drawn for ARCHITECTURAL RECORD by Alan Dunn

"I hear their housewarming was something of a flop."

DDLN needs qualified people, black and white, and according to the firm's director of design Robert A. Little, there are never enough qualified job applicants. When asked what he hoped would come of the meeting with black college presidents, he replied "I would like to see in about three years from now about ten able black young professionals in our organization for their sakes and our sakes, and society's sake."

Already Dalton Dalton Little Newport employs 47 non-whites—37 of them in technical, professional and managerial positions—of a total employment of 340 people.

One estimate puts the number of blacks practicing architecture in the country today at 200. Mr. Little would like to see more blacks in architecture—but only those who want to be there and who have the ability. "Our problem has been that we have not found them and they have not found us," he said.

Bridging the gap is the exclusive goal of the DDLN affirmative action program

The program at DDLN, by definition, is designed to foster affirmative action based on merit and qualifications for the employment of women, non-whites and poor whites, at all levels. Six specific actions are being taken toward effecting this goal:

- Dalton Dalton Little Newport currently has 15 non-white employees in on-the-job training and is paying tuition for 13 of these. Jobs will be offered to those who complete their studies. The firm recruits trainees from various institutions, and allocates $60,000 for tuitions, supervision and administration.
- High school counseling, much criticized at the conference by black college presidents, is part of the DDLN program; developed with the Cleveland Board of Education, DDLN provides seminars for high school guidance counselors, and employs two non-white high school graduates for the summer.
- The firm is at present designing and sponsoring a program through the United Negro College Fund to enable college guidance counselors to better encourage students to pursue one of the design professions.
- The firm further recognizes the importance of providing returning non-white veterans with employment, so part of the affirmative action budget has been allocated to research and propose government programs to this effect.
- In-house evaluation helps assure that all employees continue to receive equal consideration when advancement opportunities arise. For instance, when it was recognized that upper management levels did not include non-whites and women, steps were taken. Four minority persons are now project manager or higher in the firm.
- Finally, the firm conducts in-house seminars at all offices on a quarterly basis to cover such areas as moral and legal responsibilities, implications and the "do's and don'ts" of affirmative action and equal employment.

The firm also employs the services of urban affairs consultant Gerard A. Anderson, Jr., of Cleveland. Mr. Anderson, a black, originally guided the company in its early recruitment of blacks.

In all, $119,500 is the annual cost of one firm's efforts to help get those minority individuals who want it, a position in the design professions. It does take money, especially for scholarships, as the college presidents insisted. But, there is also encouragement needed for young black students who are only too aware that they have to demonstrate their competency in a predominately white profession.—*Charles E. Hamlin*

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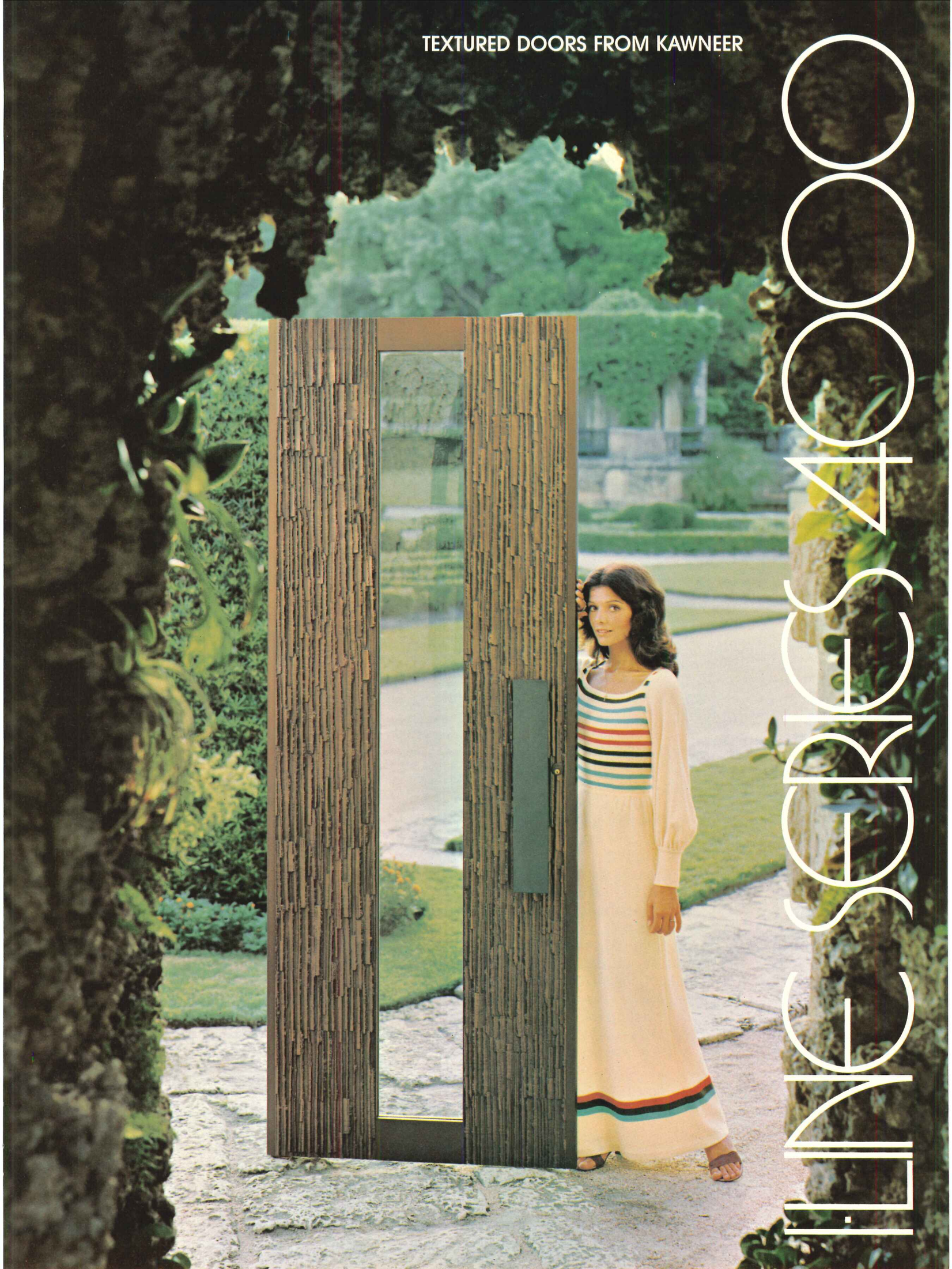

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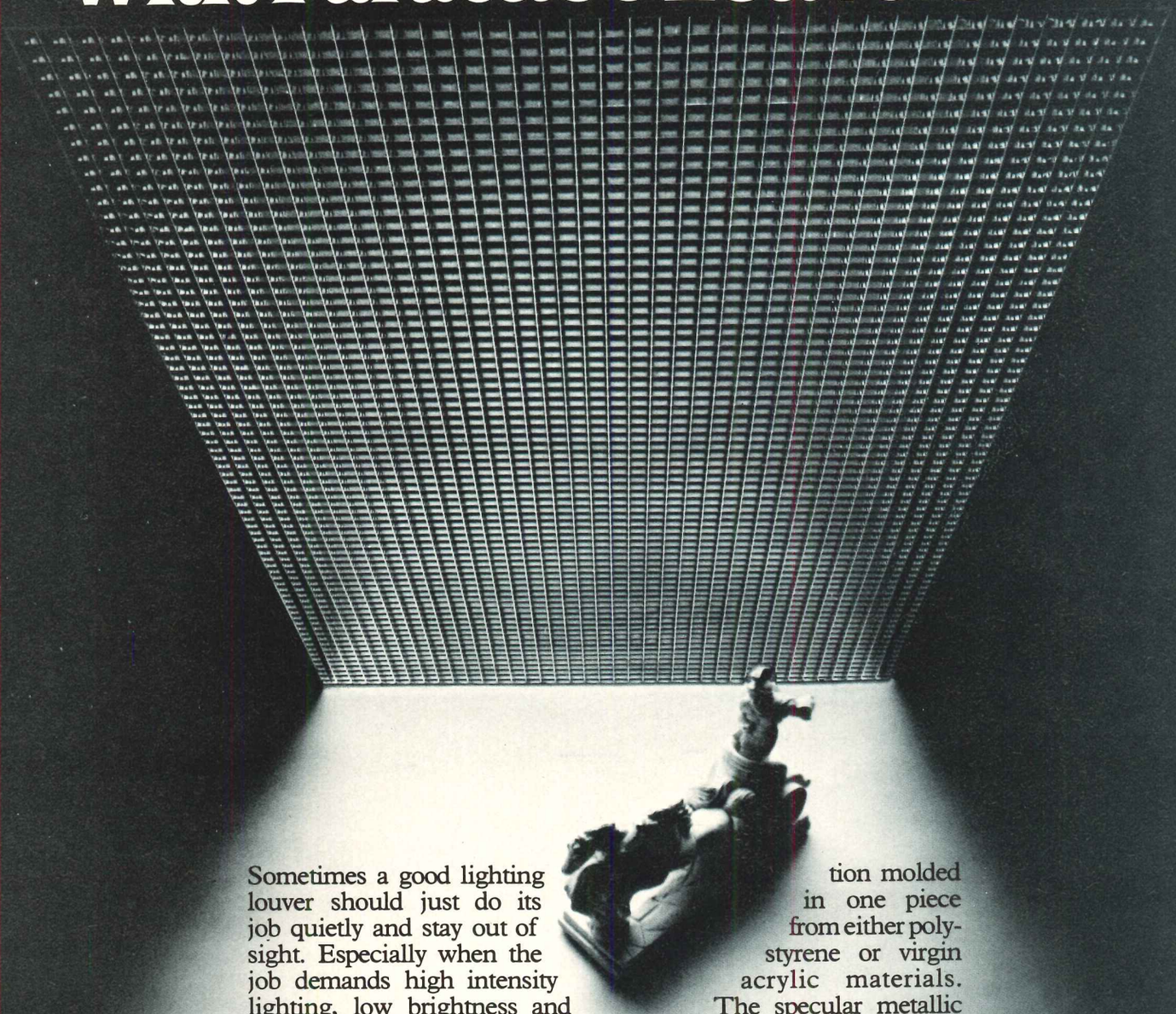

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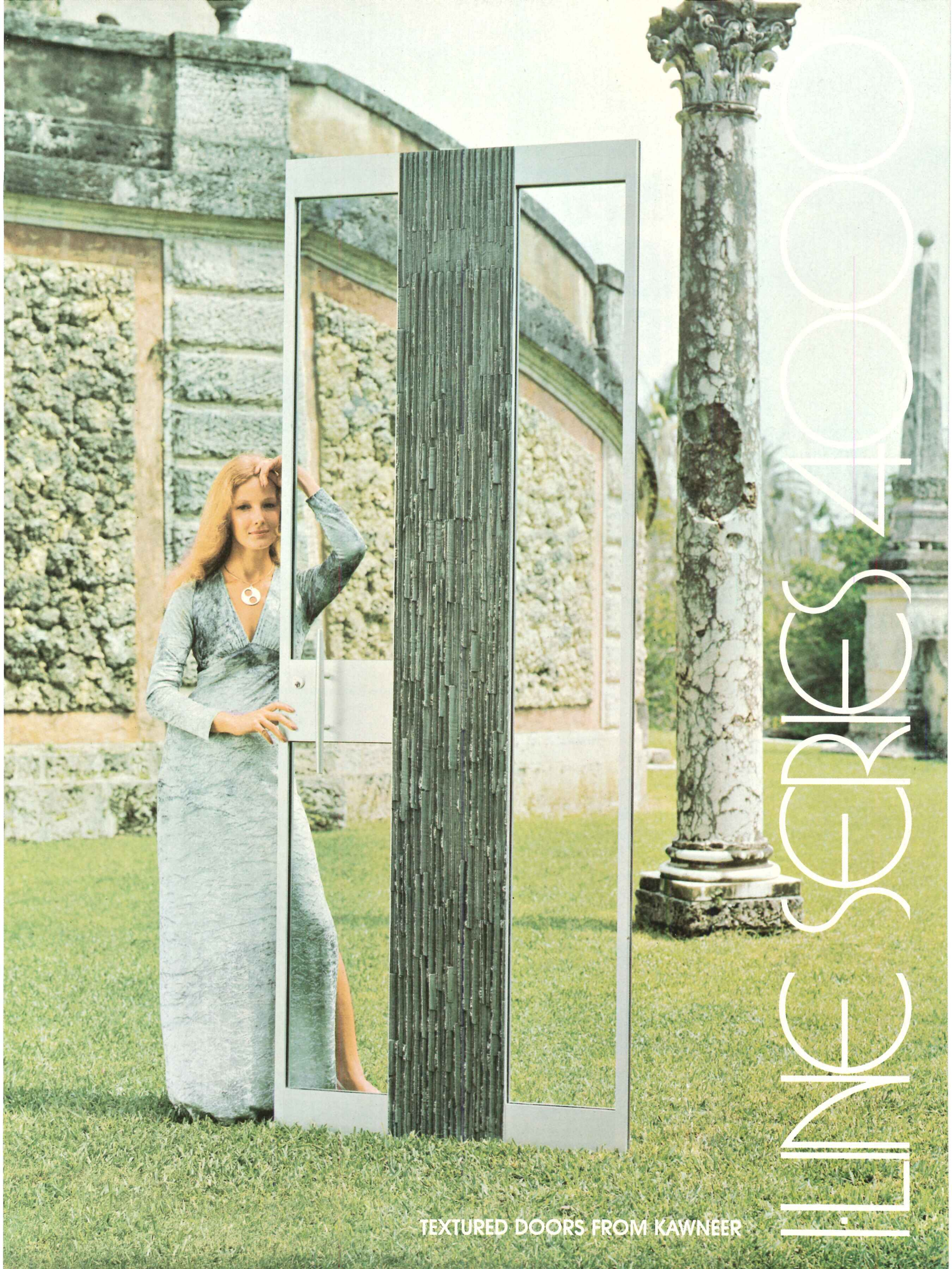
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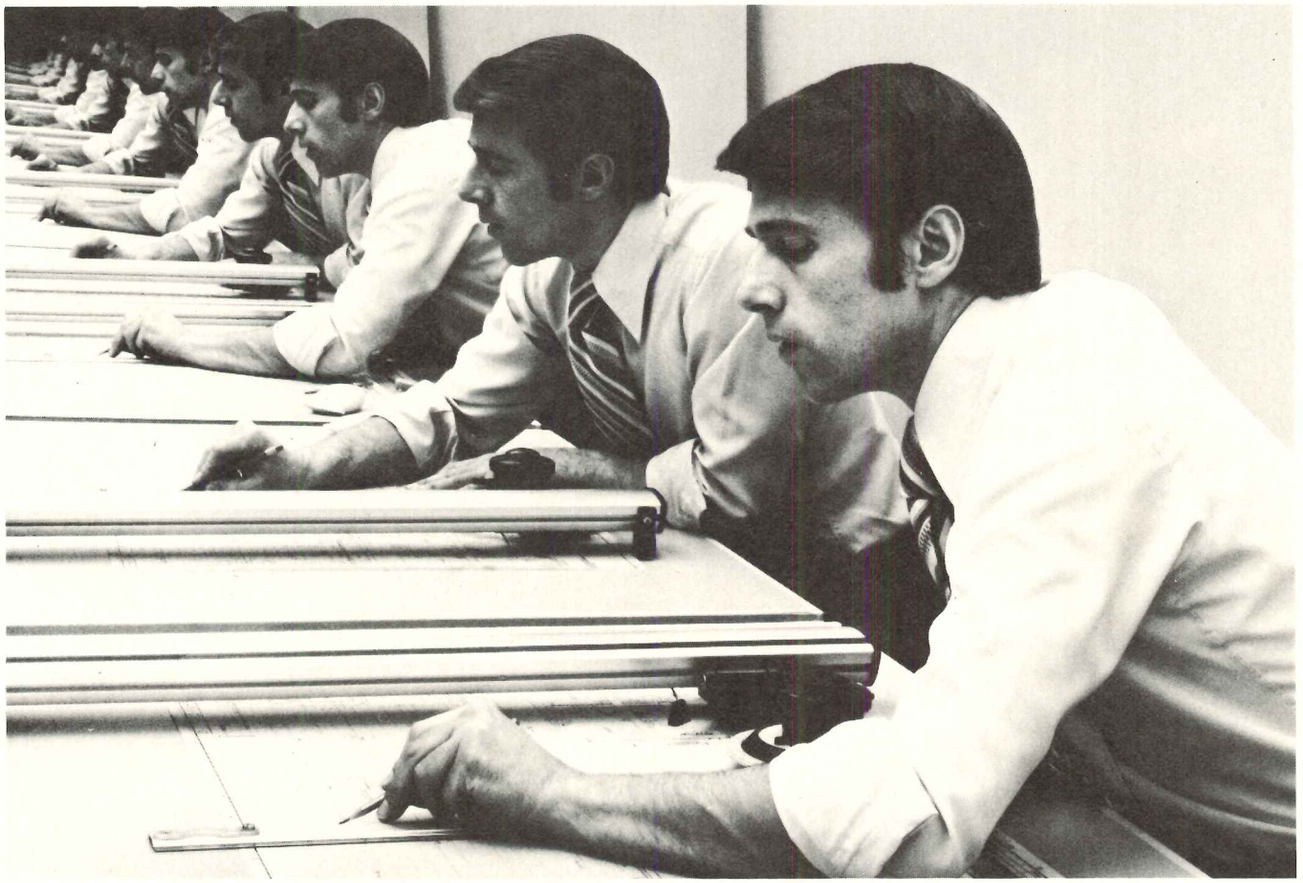

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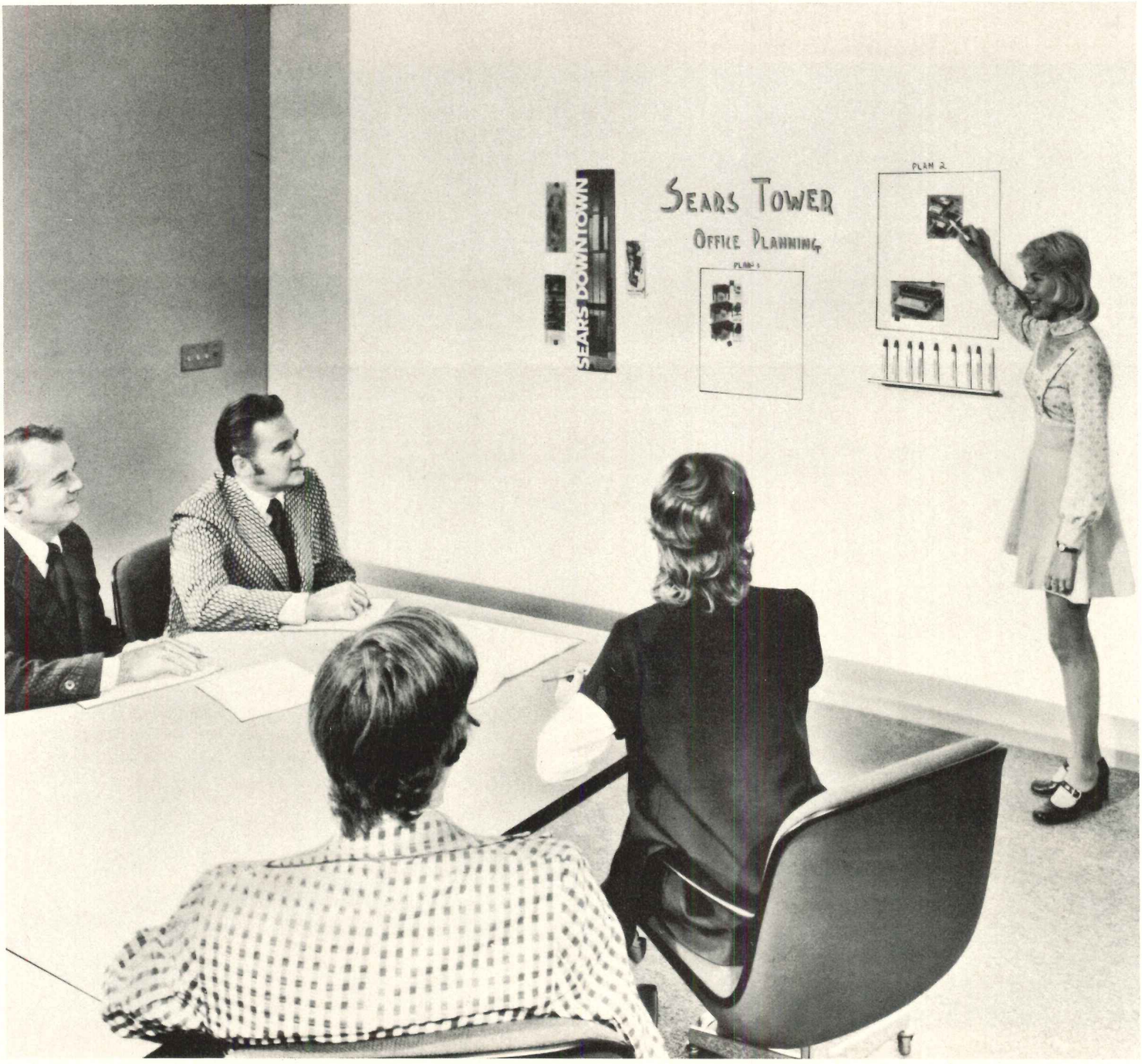

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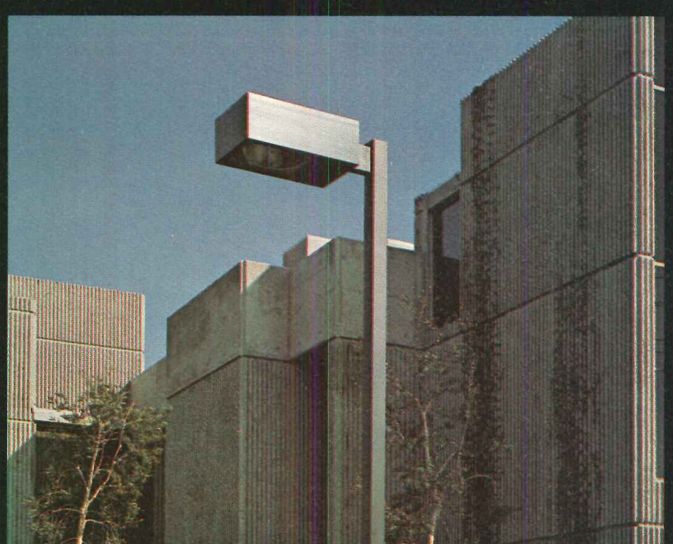

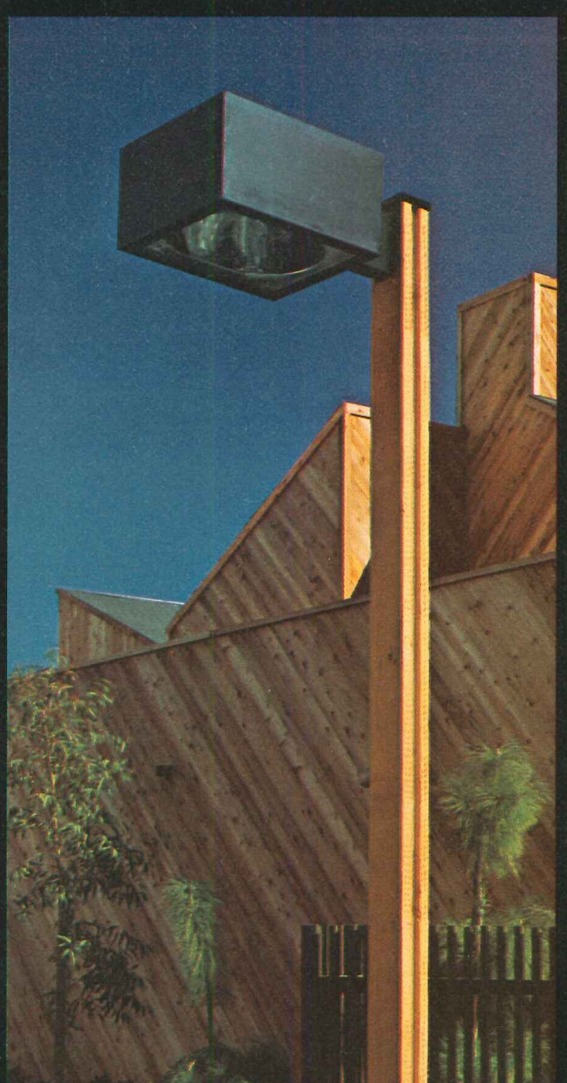

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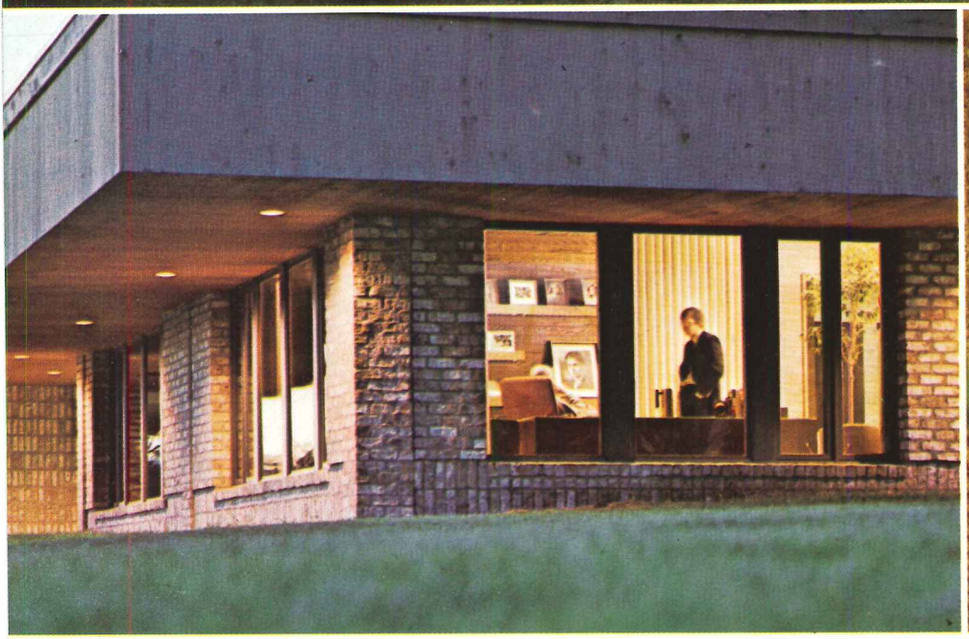

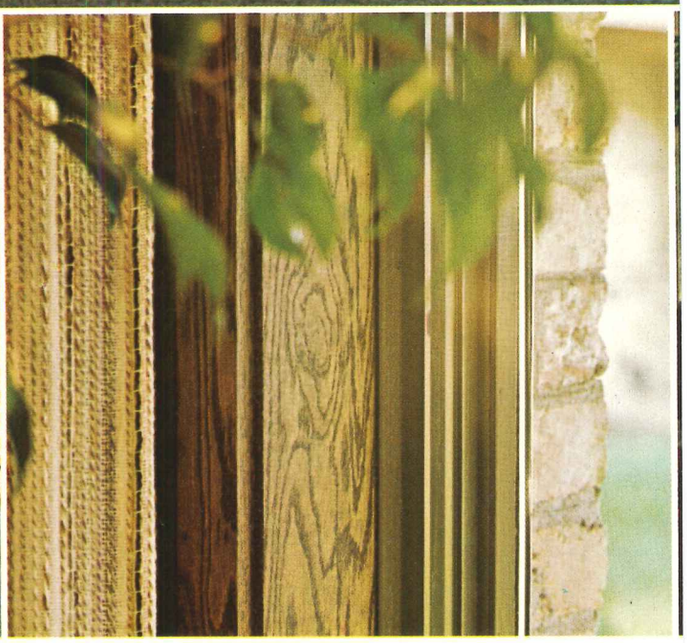

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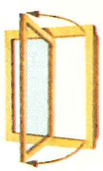

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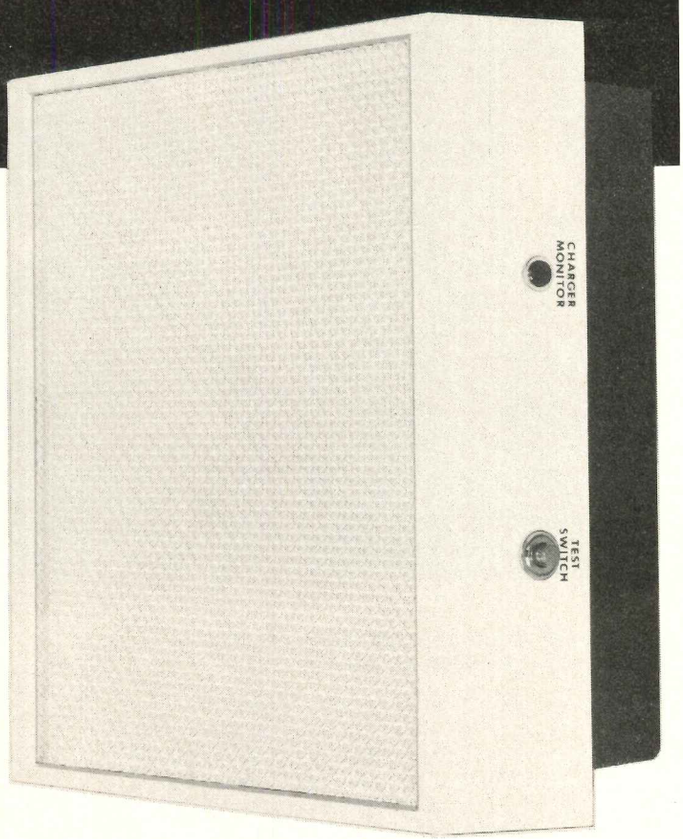

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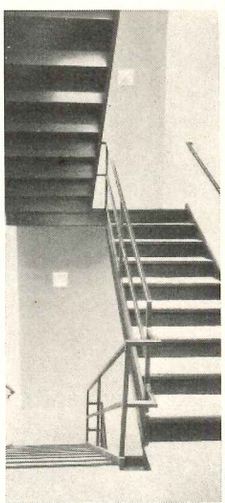

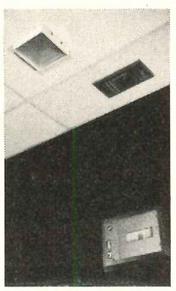

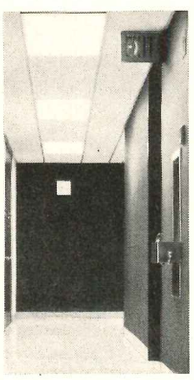

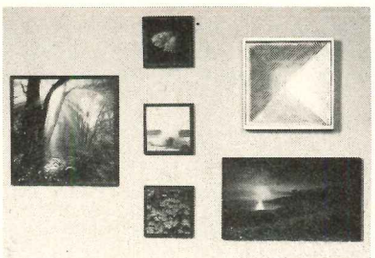

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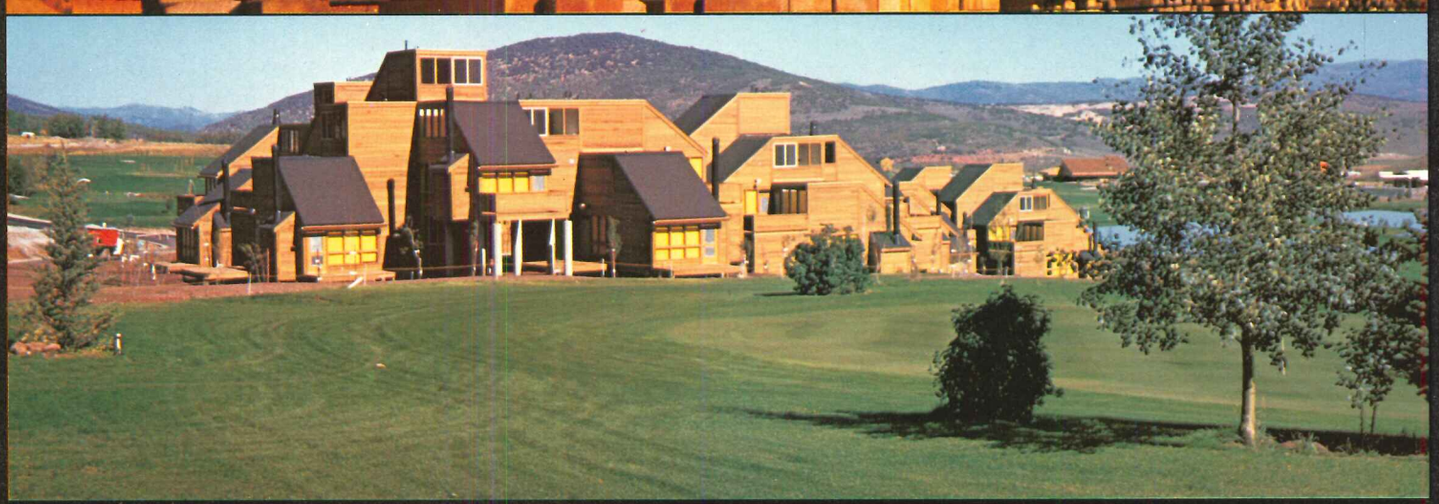

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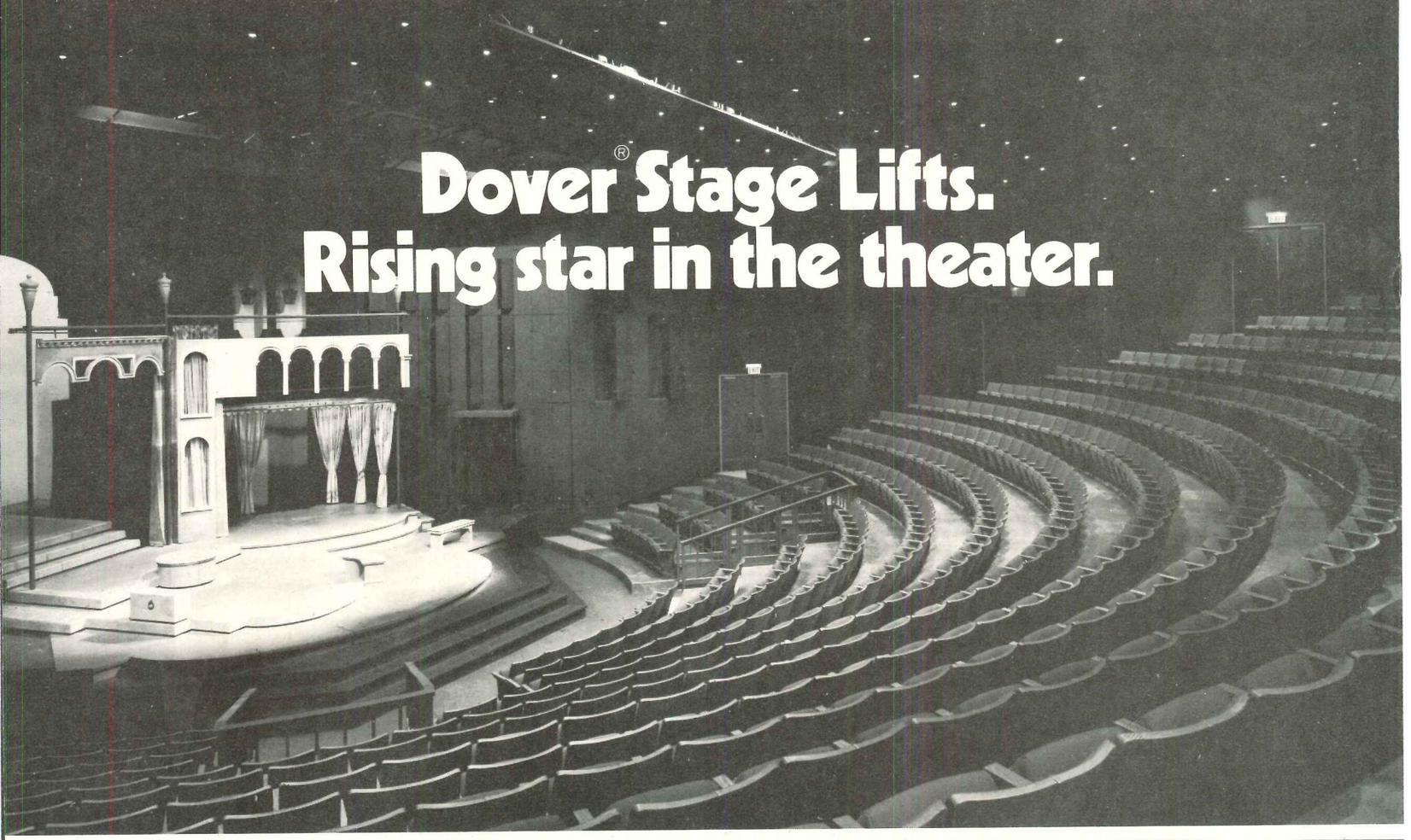

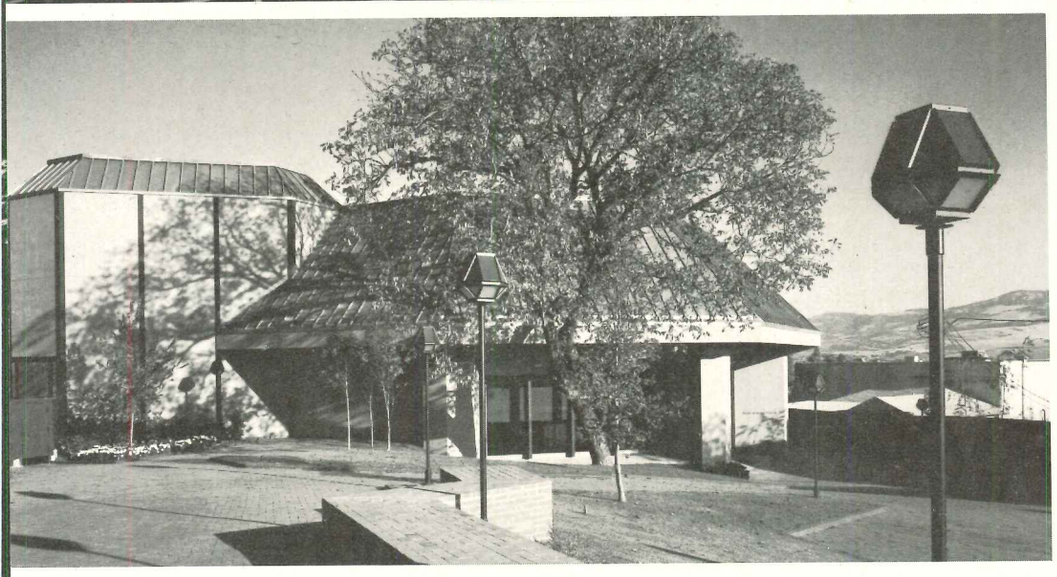

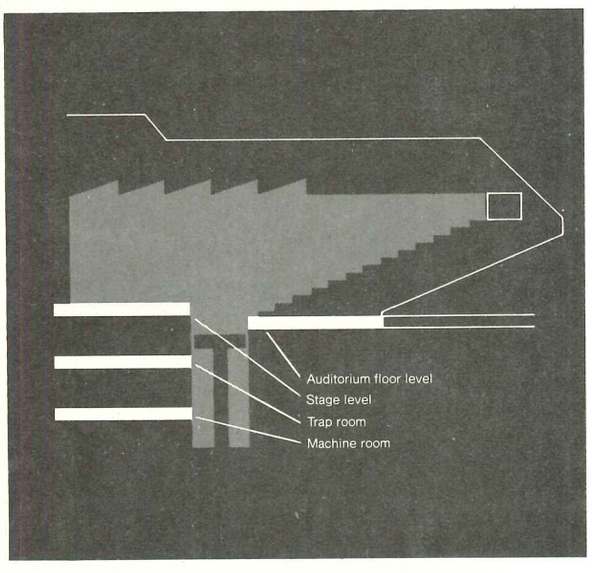

A good actor must adapt himself to a wide variety of roles and styles of interpretation. So must a good stage.

The designers of the Oregon Shakespearean Festival's Angus Bowmer Theater, Ashland, Oregon, recognized this and utilized a Dover Stage Lift as the heart of their new 600-seat playhouse.

This 28′ x 8′6″ lift is truly a versatile performer. It travels 21′ and serves four levels: machine room, trap room, auditorium floor, and stage. In various positions it becomes part of the stage, part of the auditorium, and an easy way to move heavy, awkward scenery between floors.

Dover Lifts can be found in the Metropolitan Opera House and the Juilliard School, New York; in Harvard's Loeb Drama Center, the Santa Fe Opera House, and the Stardust Hotel, Las Vegas.

The same Dover skill that designed and built these lifts can be applied to your stage lift project, regardless of size or special requirements.

For more information, see our catalog in Sweet's Files, or write Dover Corporation, Elevator Division, Dept. A–2, P. O. Box 2177, Memphis, Tenn. 38101. In Canada: Dover/Turnbull.

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Architects: Kirk, Wallace, McKinley, A.I.A. & Associates, Seattle, Wash.
Theater Consultants: Landry, Hunt & Bogan, Palo Alto, Calif.
General Contractor: Robert D. Morrow, Inc., Salem, Ore.
Stage Lift installed by Dover Elevator Co., Oakland, Calif.

DOVER Stage Lifts

For more data, circle 27 on inquiry card

A study by the MIT-Harvard Joint Center for Urban Studies states 13 million U.S. families are housing-deprived, and 23 million new housing units are likely to be built in this decade. (See Editorial, page 9.) Both figures are substantially higher than previous housing statistics. The report also favors cash subsidies to low-income families over construction subsidies, and reports a need for regional housing policies rather than national policies. Details on page 37.

President Nixon has impounded $3 billion authorized by Congress for waste treatment plant construction, setting Environmental Protection Agency plans for clean water back two years, according to EPA spokesmen, who estimate $60 billion is currently needed for treatment facilities. Details on page 36.

Competitive bidding by engineers has been endorsed by the majority of Maryland task force members appointed to study that state's engineering contract procedures. The task force report was termed a "severe disappointment" by the National Society of Professional Engineers. It was not understood why competitive bidding was acceptable, since the body of the task force report states that competitive bidding for engineering and architectural services is *not* in the public interest and *not* practical. The 31-page report is available from NSPE headquarters, 2029 K Street, N.W., Washington, D.C. 20006.

In the last minute rush, Congress failed to pass proposed guidelines on efficient use of energy in buildings, which would have directed the General Services Administration to develop architectural and engineering design guidelines for residential, commercial, industrial and institutional buildings, new and existing. Congress will, however, take the measure up again this session in similar legislation.

The Senate is considering a housing bill that would direct HUD money toward the new towns program. The money would be in the form of housing subsidies and community development funds. The Senate Banking Committee hopes to report the bill to the Senate by mid-month.

Increased export of American engineering and construction services is being sought by the U.S. Department of Commerce and the National Constructors Association, who have launched a combined effort. The idea grew out of an American task force visit to Indonesia and Taiwan where proposals for hundreds of millions of dollars worth of industrial plants were discussed. U.S. firms are being considered for those jobs, it was reported. (See item on Indonesian bank on page 39.)

One million home builder employees will be out of work if economic and fuel policies are not changed, stated George Martin, ex-president, National Association of Home Builders, at a recent meeting with Roy Ash, director of the Federal Office of Management and Budget. Already, he said, there is a 10 per cent unemployment rate in construction, and Mr. Martin blamed the White House for failing to discourage rate increases, in addition to the housing program moratorium. Meanwhile the Senate Banking Committee continues to mark-up the omnibus housing bill, and no legislation is expected before the end of this year.

Under a recently signed agreement, Charles Luckman Associates will be reacquired by the Luckman family. The architectural business of the firm was acquired by the Ogden Corporation in 1968 in connection with its entry into the real estate field, but unspecified changes in the development field had led Ogden to conclude that it no longer has need for an architectural capability. According to Charles Luckman, the reacquisition contract also makes provision for the establishment of a Luckman-owned real estate development company.

A 36-month international comparative land use study will examine the laws and practices of ten countries, through a $500,000 grant from the German Marshall Fund of the United States. The Fund, a memorial to the Marshall Plan, is a U.S. private foundation located in Washington. The land use study with the Conservation Foundation of Washington will deal with North America, Europe, the Middle East and Asia for possible applicability to evolving U.S. land use processes. Also announced was the appointment of William D. Ruckelshaus, former Administrator of the Environmental Protection Agency, to assist the Fund in determining the feasibility of creating an international private environmental trust fund to extend the capabilities of the new United Nations Environment Program.

Los Angeles Mayor Thomas Bradley will be the keynote speaker at the 1974 AIA Convention in Washington, D.C., May 19-24. The opening sessions, having the theme "A Humane Architecture," will be at DAR Constitution Hall.

Deadline for receipt of nominations for AIA president-elect in 1975 is April 10, 1974. Petitions supporting the nomination of Louis de Moll of Philadelphia have been received at AIA headquarters. Three vice presidents and a secretary are also to be elected at the 1974 Convention.

Eight Fellowships carrying a $4000 stipend for 12 months are available to persons of Cuban lineage, residing outside Cuba. Offered in the fields of architecture, painting, sculpture and other arts, the Fellowships are given by The Cintas Foundation, Institute of International Education, 809 United Nations Plaza, New York, New York 10017. Deadline for applications is April 1, 1974.

Impounded funds means clean water setbacks

New cost estimates from the Environmental Protection Agency place at just over $60 billion the cost of currently needed, publicly owned waste-water treatment facilities.

Much of the money in this program has been impounded, and President Nixon has just impounded another $3 billion authorized by Congress. This action, according to EPA spokesmen, will set the agency's clean waters program back about two years. Over the past two years, Mr. Nixon has allowed only $5 billion of the $11 billion authorized to be allocated.

A recent EPA survey indicates that states feel $16.6 billion of the $60 billion must be spent on improving treatment plants and lesser but still substantial amounts are needed to achieve more stringent treatment levels, correction of infiltration in-flow conditions, new interceptor force mains, pumping stations and collectors.

The cost estimates are for facilities which would be designed to serve no more than the 1990 population. And the costs reported for two categories—improved treatment and achievement of more stringent levels—do not reflect any expenditures for additional treatment which EPA says will have to be provided in many river basins after all states complete revisions to the water quality standards now underway.

The EPA has also issued proposed new regulations for procurement of engineering, architectural, planning, accounting, fiscal, legal and related services in connection with the program. The regulations are expected to be in keeping with AIA policy.

House unit considers urban growth policy

If its chairman has his way, the House Public Works Committee, the powerful Congressional panel that has jurisdiction in the field of water resources, highways and similar large-scale projects, will initiate and help implement a new national policy on urban growth.

John A. Blatnik (D-Minn.), who heads this important House unit made the pledge as a sub-group on economic development opened hearings aimed at development of a national public works investment policy. Establishing such a policy could ensure that the nation realizes the full benefit of its massive investment in public projects.

The first witness, Warren T. Lindquist, personal assistant to David Rockefeller for development and public affairs, called for a new $2 billion revolving fund, administered by the Community Development Corporation of HUD, to support loans to cooperating jurisdictions for land acquisition and other recoverable expenditures.

It is the current lack of adequate financing for land acquisition and development that is inhibiting new community development on the scale that is necessary, the Rockefeller spokesman said.

The witness said he didn't mean to be critical of HUD but that a look at Title VII requirements for paper work on new communities indicates discouraging costs and delays. He submitted to the subcommittee a copy of a draft bill proposing creation of a private investment bank which would lend at market rates or better. Terms and continuity—rather than rate—govern the success of any new community loan, and any viable new project should be able to support the going rates.

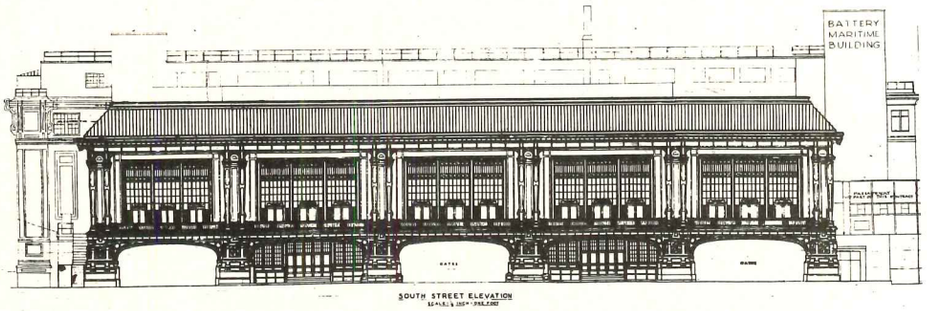
Atlanta rapid transit selects designers

The Metropolitan Atlanta Rapid Transit Authority (MARTA) has announced the names of the first design consultants for its rail rapid transit system. Seven design teams were selected by MARTA's general engineering consultant, Parsons Brinckerhoff-Tudor-Bechtel and approved by MARTA.

Each team will execute one contract of the 50 programmed for the MARTA system. Twenty-four additional contracts are expected to be awarded by September.

The selected firms are: 1) Lindsey, Tucker & Ritter, Inc.; Sanders & Thomas, Inc.; Turner Associates, P. C.; 2) Dalton Dalton Little Newport; J. W. Robinson Associates, Inc.; Keck & Wood, Inc.; 3) Finch-Heery; Blakely-Daniels & Associates; J. W. Austin & Associates, Inc.; 4) Prybylowski & Gravino, Inc.; Barrett & Associates Architects, Inc.; Edwards & Rosser, Inc.; 5) Mayes, Sudderth, Etheredge, Inc.; Connell Associates, Inc.; 6) Howard, Needles, Tammen & Bergendoff; William S. McDuffie Architects & Associates; Robert and Company Associates; 7) Edwards & Kelcey, Inc.; Stevens & Wilkinson Architects-Engineers-Planners.

The total value of the construction work represented by these contracts ranges between $110 million and $140 million.



Landmark ferry terminal in New York part of student planning project

An interdisciplinary project for students from several New York City colleges and universities is being conducted under the auspices of the Student Education Committee composed of student members from design schools in the metropolitan area. The S.E.C. is sponsored by the New York chapters of the American Institute of Architects, American Institute of Interior Designers, American Institute of Planners, Institute of Business Designers, and the National Society of Industrial Designers.

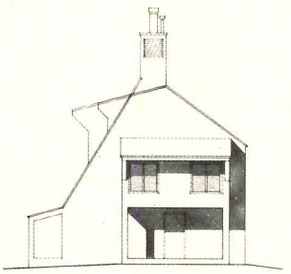
The S.E.C. is currently engaged in a comprehensive urban design project for the southern tip of Manhattan from Battery Park eastward to Manhattan Landing. The site has extensive historic and geographic importance as the apex of the world's largest financial district. It is presently underutilized by an old ferry terminal building (drawing), the reconstructed Staten Island Ferry Building and piers for the Coast Guard's use.

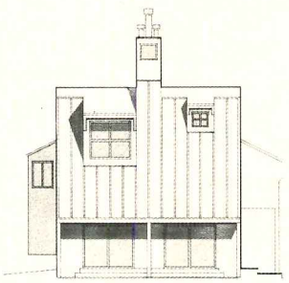
Market research to date indicates that the following facilities are needed: 1) A major transportation node for helicopters, ferry boats, subways, Coast Guard cutters, automobiles, and pedestrians, 2) regional recreational facilities, 3) hotel accommodations, and 4) offices for the Port's Terminals Department.

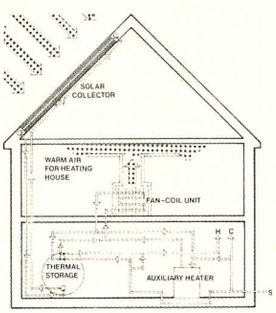
This project represents a move from interdisciplinary conferences, such as last spring's S.E.C. sponsored "Survival of the City" conference. Students have often expressed, according to S.E.C., their frustration in brief many-faceted conferences in which resource persons have only a few minutes to reflect the complex nature of their work—or to develop small group discussion. Although a precedent exists in defense of interdisciplinary student-to-student conferences (the annual Student Forum of the Association of Student Chapters–AIA brought together students from several design professions for the first time in Tucson, Arizona in November 1972), students of S.E.C. and professionals alike have reached the conclusion that an actual, nine-month-long dialogue—such as the Lower Manhattan project—would be more effective.

The final month, this spring, will be spent in producing a package which can be presented as preliminary design to interested parties.

Architect and owner develop solar energy systems for new home







In this 1300-square-foot house for the family of Professor Everett Barber of Yale University, Charles W. Moore Associates has, with Professor Barber's help, attempted to make the best of insulation and natural solar heating in combination with a new flat-plate solar collector system designed by Professor Barber. Cost of the house is estimated at $43,000.

The roof faces south at a 57 degree angle from the horizontal and has about 450 square feet of usable collector area. Solar heat will be stored in a tank 5 feet in diameter and 12 feet high located inside the house. Solar energy is to provide an estimated 60 per cent of annual heating requirements. The heat distribution system is designed to permit gravity circulation of hot water in a storage tank to heat the upstairs of the house in the event of a power failure.

A belvedere on top of the house will be used during hot weather to vent warm air in a chimney effect. Warm air leaving through the louvers will make way for cooler air to enter through open windows at the ground floor.

Two 10-foot diameter windmills will be used without storage to augment the local utility company power by providing about 80 per cent of the electric power requirements.

The house will have less glass area than many contemporary homes, and all glass used will be double-thick insulating glass, most of it located on the south exposure where the most solar heating and natural light benefits can be gained.

The outsides of concrete block walls are to be insulated with 3 inches of sprayed on polyurethane foam. Insulation on the exterior of masonry construction has been shown to reduce the temperature extremes felt inside the house from those occurring outside, in comparison with similar construction having the same thickness insulation used inside.

At this point no claims are made as to how much energy this house will save annually over a comparably sized house of conventional design. It will not be until the house has been metered and studied for at least a year that some idea of its energy needs, and its general habitability will be known for sure. Completion is planned for this June.

Energy crisis may revive cities

Hastening the revival of the center city may be one of the "benefits" of the energy crisis, according to George W. DeFranceaux, chairman of the Washington-based National Corporation for Housing Partnerships. He states that brokers, appraisers, mortgage bankers, builders and other experts are pointing out that developments far from employment centers, and recreation properties far from major metropolitan areas, will probably be the first to feel the gasoline shortage.

"Multi-family housing will increase to at least 60 per cent of all starts and emphasis will be placed on urban development and convenience to public transportation. Industry, to a limited degree may curtail its flight to suburban areas," Mr. DeFranceaux said.

These opinions are corroborated to an extent by a report recently released by the Regional Plan Association of the New York–New Jersey–Connecticut metropolitan area. In the report, a detailed inventory of energy use in the region, lower energy use per capita over the rest of the nation was found, primarily because of the tri-state's density. With 9.7 per cent of the nation's population, the region consumes only 6.4 per cent of the nation's energy, indicating that dense development can achieve energy economies, with the consumption per resident of New York City slightly over half the national average, and its environs, about three-quarters.

To reduce energy demands, the report advocates government action to check "Spread City" or the type of development that permits free-standing shopping centers, strip highway development, isolated office campuses, etc. Cluster development is recommended in a logical fashion, rather than wherever a crack can be found in a community's zoning.

Third AIA growth report released

The American Institute of Architects' recently released third report on national policy deals with an expanded philosophy for meeting urban growth problems likely to face the nation in the next three decades; at the same time it begins a discussion of implementation of the policy and leaves it to the several AIA task forces and committees involved to actually implement the detailed proposals.

Main areas to be covered include energy conservation, rebuilding the city, creative economics, national housing policy, design through reconstituted public institutions, and design criteria for new and renewed neighborhoods. The last named—new and renewed neighborhoods—encompasses the proposed growth unit concept, a vital part of the over-all plan. The growth unit would have no fixed dimensions, the AIA has explained, but could range in residential terms from 500 to 3,000 units.

Taking a look at the immediate future, the third report suggests there might be a new market emerging where consumers may value mobility over property, and the luxury of personalized goods, in miniaturized retail outlets, over the economy of mass production.

In a larger sense, AIA says that "In this tomorrow, we may demonstrate what a multi-minority world society might become as a model for other nations moving into the post-industrial age and facing the problems of environmental degradation and social dislocation. In the process, we might also discover our first Golden Age."

Profession mourns Robert F. Hastings

"There still is no substitute for an informed conscience, a concern and a personal sense of right and wrong, that can be applied to our hard choices."—Robert F. Hastings, FAIA, PE.

Few architects or engineers gain the recognition that Robert Hastings did in his lifetime. He brought innovations to the environmental science and design profession, as he called it, and he contributed endless vigor to spheres of activity outside his profession. It's a safe bet that Bob Hastings worked longer and harder toward realizing his ideas than any planner or builder in recent history.

In an uncharacteristic burst of emotion, he once told a business associate, "I've got to work until I die." On the street outside his office Bob Hastings died of heart failure December 21, 1973, at the age of 59 (RECORD, January, page 33).

"He had an extremely strong personal commitment to do something meaningful with his life," observes Smith, Hinchman & Grylls' president Philip J. Meathe.

"Bob Hastings was a most dedicated and thorough kind of person," recalls Rex Allen. "He had a great concept of where the profession was going and spent much of his time trying to move it along." It was Allen who stepped down in 1971 when Hastings assumed the post of AIA president.

Bob Hastings believed the future would demand greater integration among building specialists.

Toward a unified profession, Mr. Hastings advocated the establishment of schools of Environmental Science and Design. A common academic base for architects and engineers would be followed by programs of specialization.

Certain that America's troubled cities will become the architectural mecca of tomorrow, Hastings got involved in his home city, Detroit. As chairman of the Metropolitan Chamber of Commerce and a board member of New Detroit Incorporated (a social action organization prompted by the city's 1967 racial riots), he worked toward a revitalization of all major cities. Detroit would become a model. He urged reordering of economic incentives that lure builders to the suburbs.

Notes Robert McCabe, president of Detroit Renaissance Incorporated, a nonprofit organization dedicated to the rejuvenation of Detroit, "Bob Hastings took the lead, pulling people together into common projects. His work on downtown Detroit's Civic Center Plaza (which includes Renaissance Center, Dodge Fountain, other buildings and condominiums, etc.) was a significant leadership and planning achievement."

Says Detroit's newly inaugurated mayor, Coleman A. Young, "Robert Hastings was a dreamer. He dreamed of a united Detroit. He saw this city rising again, starting at the river." Had Hastings lived twenty years longer, he might have turned the key. "He made a great wedding between theory and practice," comments University of Detroit president Malcolm Carron, S. J.

Vernacular architecture studied in Virginia

Vernacular structures designed and built by Virginia's anonymous pioneers are the subject of a University of Virginia survey of approximately 1,500 buildings in nine counties.

"As a guide to what is worthy of preservation and restoration the survey may be useful in determining locations for industry and highways, to ensure the preservation of significant buildings," says K. Edward Lay, associate professor of architecture at the University, who conducted the survey.

Lay's study, begun last spring with a grant from the University, maps the location and lists the dates, conditions and points of interest in the buildings, many of which he photographed.

Shown is the octagonal Zion church in Albemarle County, one of many octagonal structures built after the mid-19th century. The church is now abandoned and in danger of destruction.

The work was complemented by a number of student studies, each documenting a particular structure in its architectural and historical context and with photographs.

Housing-deprived households total 13 million

According to a recently-announced study of U. S. housing (see Editorial), 13 million American households were "housing-deprived" in 1970, more than double previous estimates.

This finding was one of the results of a two-year research program conducted by the Joint Center for Urban Studies of MIT and Harvard University. Further findings also suggest that 23 million new housing units are likely to be built in the 1970's, to satisfy population growth.

The estimate of 13 million deprived households involves housing that is physically unsound, overcrowded, or excessively expensive relative to income.

Dr. Bernard J. Frieden, director of the MIT-Harvard Joint Center, cautioned against adding the two figures—13 million and 23 million—to arrive at a housing production goal. "Twenty-three million units will provide living space for people who can pay their own way in the housing market. This volume of production is within the capacity of the nation's housing industry, if it continues to receive indirect mortgage aids and tax treatment the Federal government now provides. The 13 million figure is not a count of housing units that need to be replaced. It is our estimate of the number of low- and moderate-income families who had a housing problem as of 1970."

In talking of housing deprivation, researcher David Birch said, "By these conservative standards, roughly 21 per cent of the 63.4 million U. S. households are classified as deprived." Most of the deprivation falls in the physically inadequate category, or 53 per cent of all deprived households. This represents a significant shift since 1960, when over 71 per cent of deprived households were living in physically inadequate units, and 24 per cent were burdened by excessive rent payments.

Dr. Frieden pointed out that if a consumer survey in Boston and Kansas City, can be considered typical of the nation's attitudes, then a large percentage of middle-income families who still live in older central-city neighborhoods are dissatisfied with their housing, especially its setting.

Among the major conclusions of the study are recommendations for housing policies that are determined regionally rather than nationally, because of local housing conditions. The study also implies that direct cash housing allowances to the poor are needed over new construction.

"Ticket-Operated Maytags give us better laundry room security and tight money control at Channelwood Village," reports Mr. Reeves.

These washers and dryers minimize coin-box problems. Instead of coins they use an Electronic Ticket that is invalidated on insertion.

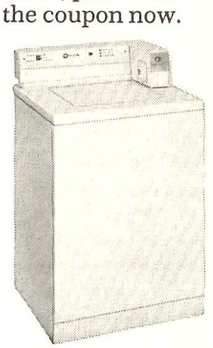
Channelwood Village is a new community in Opportunity Park, Akron's 400-acre urban renewal area. Conceived by the Akron Chapter of Alpha Phi Alpha and federally financed, it was built by Forest City/Dillon, Inc.

Channelwood's 551 units include high-rise apartments, garden apartments and town houses. The complex's laundry rooms have Ticket-Operated Maytags, 32 washers and 32 dryers. These use an exclusive Electronic Ticket instead of coins.

"It was natural for us to pick Ticket-Operated Maytags because we've had years of experience with them," says Mr. Gerald C. Reeves, Forest City/Dillon's Property Management Coordinator. "They give us better security and money control, because tickets are sold in the office. In addition, we have found Maytags work dependably and residents like using them.

"The combination of Maytag and Coin Rentals, Inc., the local Maytag Route Operator, has made our laundry operation run smoothly," concludes Mr. Reeves.

Naturally, we don't say your experience will be exactly like that at Channelwood Village, or that Ticket-Operated Maytags will eliminate all security problems. But if you want a significant improvement over coin-operated equipment, plus famous Maytag dependability, mail the coupon now.



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Mr. Reeves with Mr. James R. Williams, Chairman of the Board of Alpha Phi Alpha Homes, Inc.

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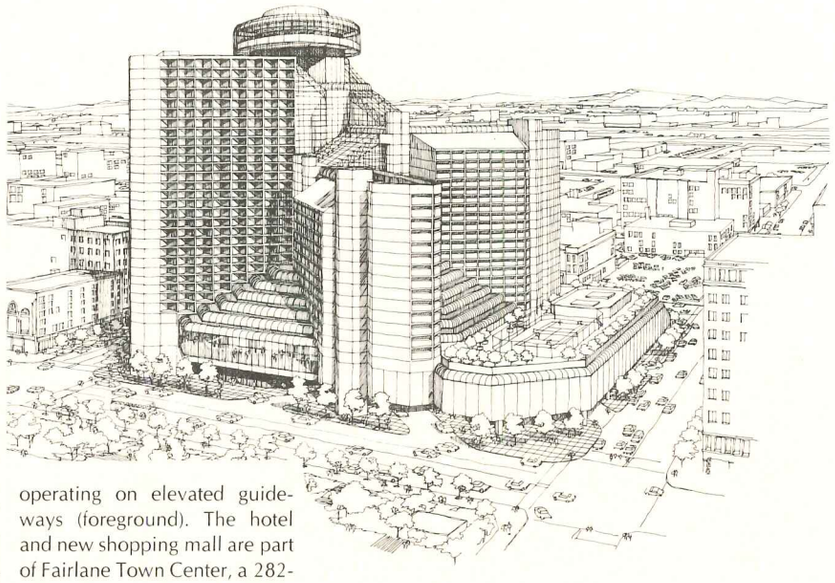
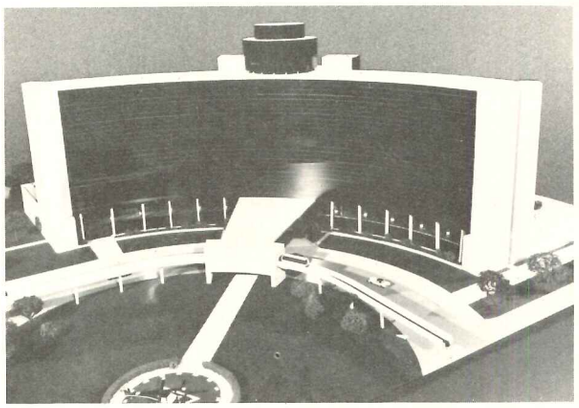
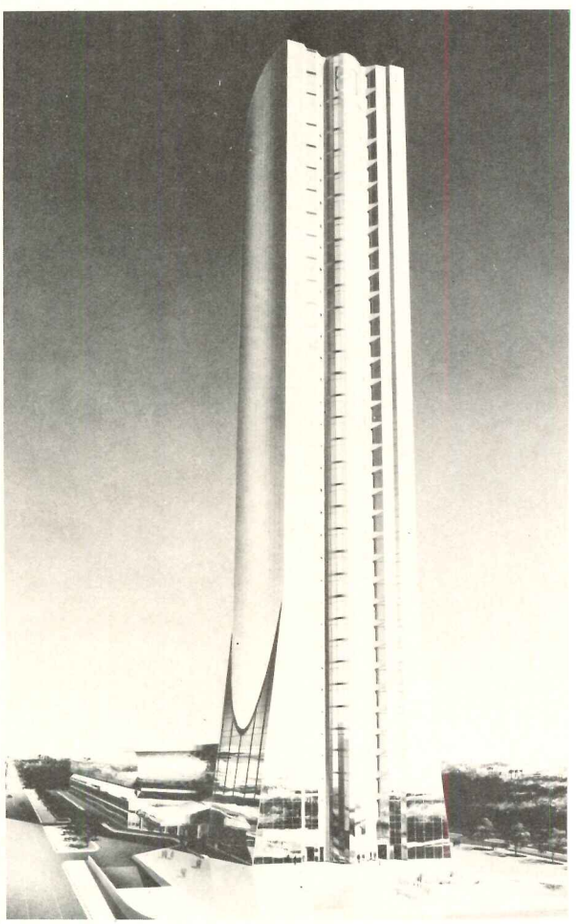
Hyatt chain will build hotels in Michigan, Missouri and Arizona

Soon to be a part of the growing Hyatt chain of more than 30 hotels, the three shown here are slated for construction in Phoenix; Dearborn, Michigan; and Kansas City, Missouri. The latter (right), a $50 million project with 1000 rooms is the design of Welton Becket and Associates, with associate architects Horner & Blessing. Construction of the 750-room first phase will start in the fall, with completion planned for July 4, 1976. The building is designed as four interconnected towers with stepped roofs—15-to-17, 19-to-21, 23-to-25, and 27-to-29 stories—winding around a 290-foot-high central atrium. The pinwheel is topped with the characteristic revolving restaurant. Horizontal concrete sunshades protecting wide floor-to-ceiling windows will delineate each of the towers' guest rooms. Due to the pyramidal shape of the lower levels, elevators will start inside the building, rise through the atrium space, pierce the roof and continue upward along the sides of the towers. In Dearborn, the 14-story Hyatt Regency (below) is scheduled for completion in the fall of 1975. Designed by Charles Luckman Associates, the cresent-shaped building is to be enclosed in tinted reflective glass and will feature a unique transportation link to a shopping mall a half mile away. The Ford Company's automatic transit system, featuring driverless vehicles will be used, controlled by computer and operating on elevated guideways (foreground). The hotel and new shopping mall are part of Fairlane Town Center, a 282-acre complex of offices, shopping and entertainment being developed by the Ford Motor Land Development Corporation. The $36 million Phoenix Hyatt (bottom photo) presently under construction, a 704-room 20-story design also by Charles Luckman Associates, is scheduled for a fall 1975 completion. It is meant to complement the city's Luckman-designed Civic Plaza, containing the Convention Center and Symphony Hall. An eight-story atrium surrounded by rooms will be connected to the tower.

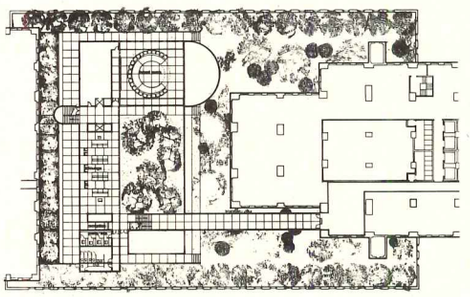




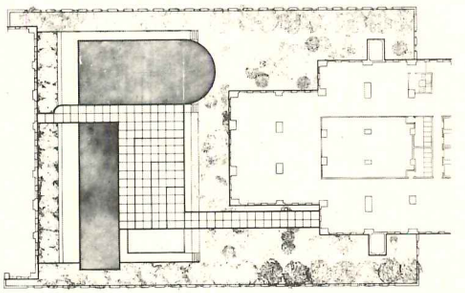


Indonesian bank design by U.S. firm

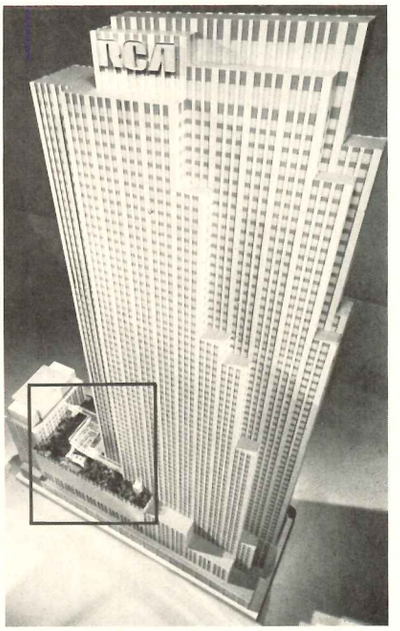
Construction is scheduled early this year for this 35-story, $40 million headquarters building for Jakarta, Indonesia's national bank, which will be the country's largest structure. It is to be sheathed in reflective glass and face a three-acre landscaped plaza on Embassy Row. The building was designed by Daniel, Mann, Johnson & Mendenhall, and is a joint venture with P. T. Perentjana Daja.



lower level plan

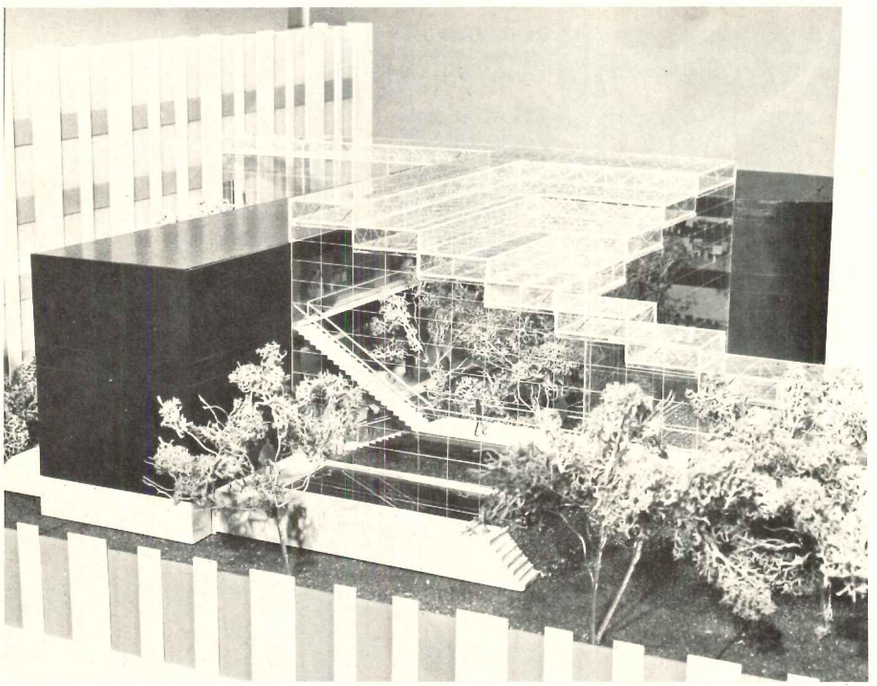


roof plan

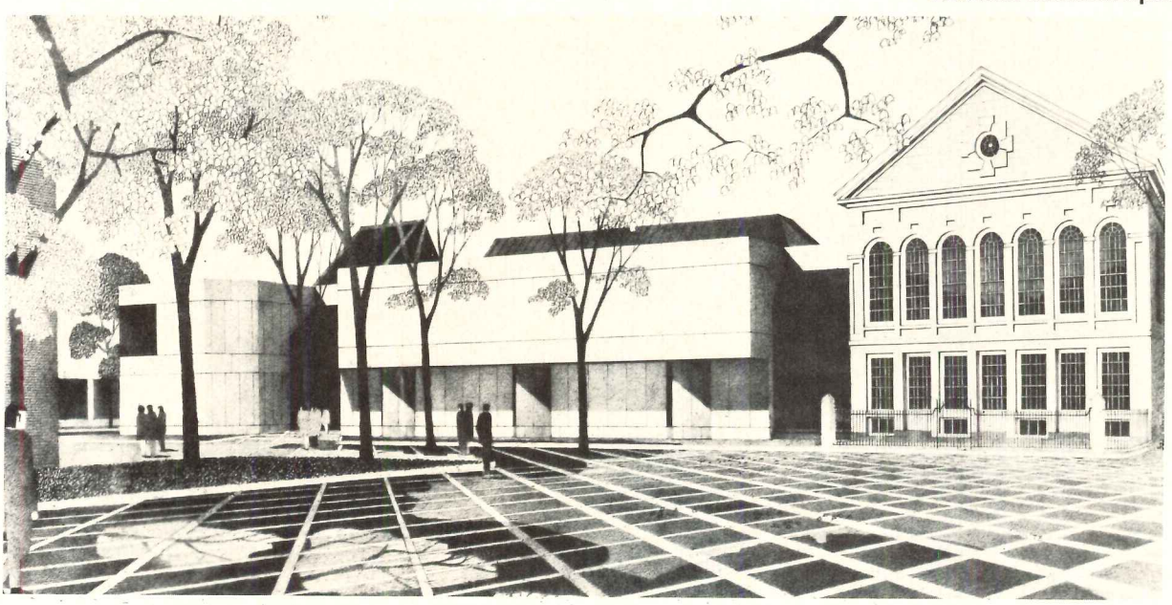


Rockefeller Center plans RCA Building addition

Rockefeller Center in New York City recently announced an addition to the famed 70-story RCA Building which opened in 1933. The new structure, to be started in one year, will house the RCA Management Conference Center and is said to be the first commerical structure in New York—and one of the first in the U.S.—to use solar energy for heating. Because of its location in what is now a garden on the twelfth floor setback, designers Ford & Earl chose to retain the existing natural advantages of sun, trees, grass and water with a glass structure, using lightweight prefabricated modular elements. Since maximum energy conservation is a major program requirement, the designers are working with engineers Syska & Hennessy in using new materials and novel arrangements of building surfaces. This is to be considered a pilot project in energy technology. RCA chose this method of acquiring more space over relocating some business in suburbs. Asked if the project would set a precedent for further development of Rockefeller Center's open spaces for prime tenants, Center spokesmen said that everything will be done to make the famed complex an economic success, without corrupting its integrity.



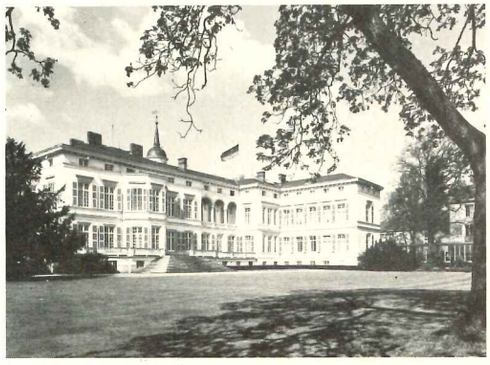
Museum addition updates without upstaging past

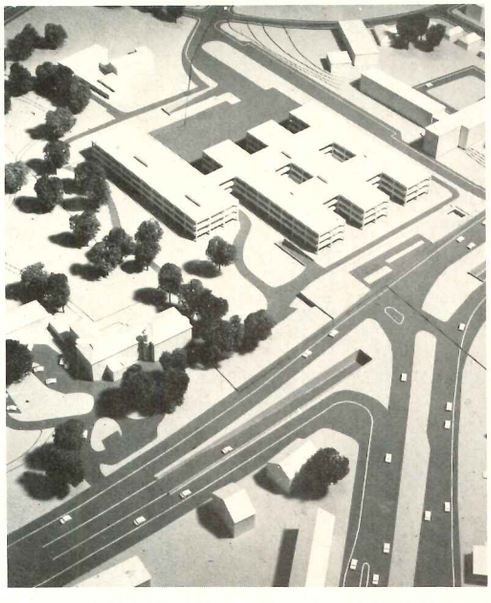


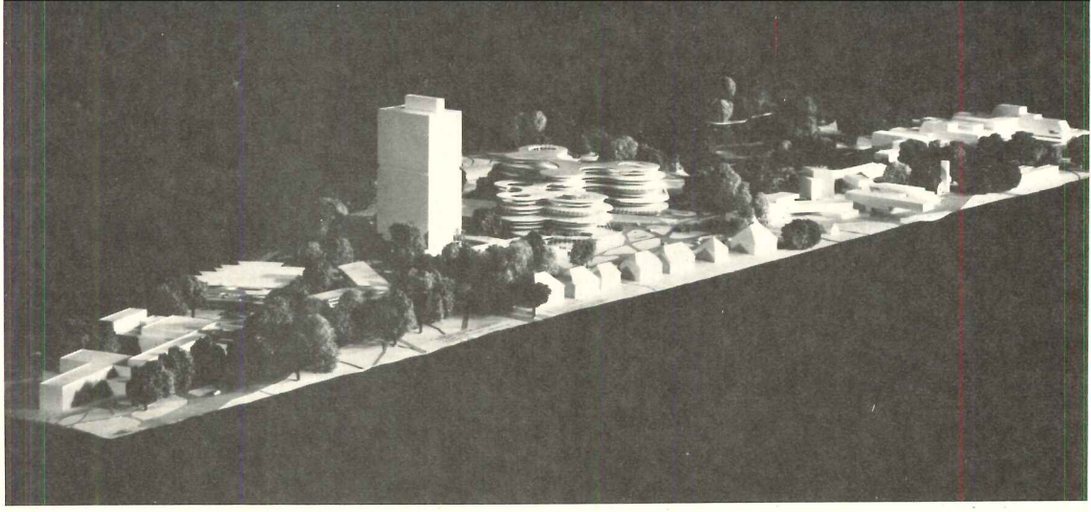
A $2 million project is slated to add 46,000 square feet to the Peabody Museum in Salem, Massachusetts, increasing the capacity by two-thirds. Architects for the granite exhibition hall are Philip W. Bourne; F. A. Stahl & Associates; and Bernard J. Harrison. The new wing is meant to offer no competition to the national landmark East India Marine Hall adjacent, designed in 1824 by Alexander Paris, and the architects were careful to design with respect to the scale, texture and neighborhood of historic Salem. Completion is planned for summer of 1975.

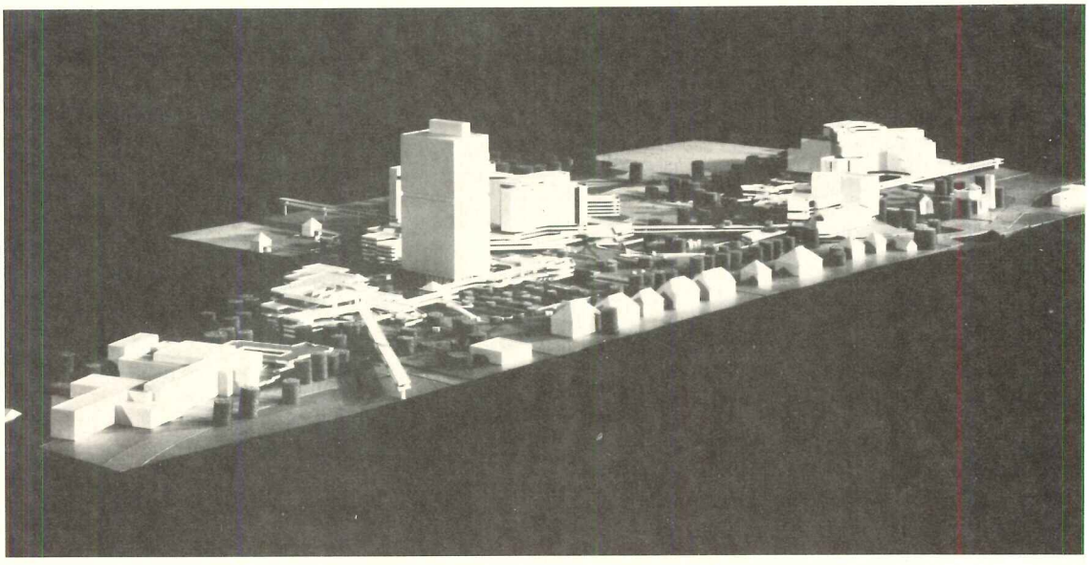
West German government rebuilding capital

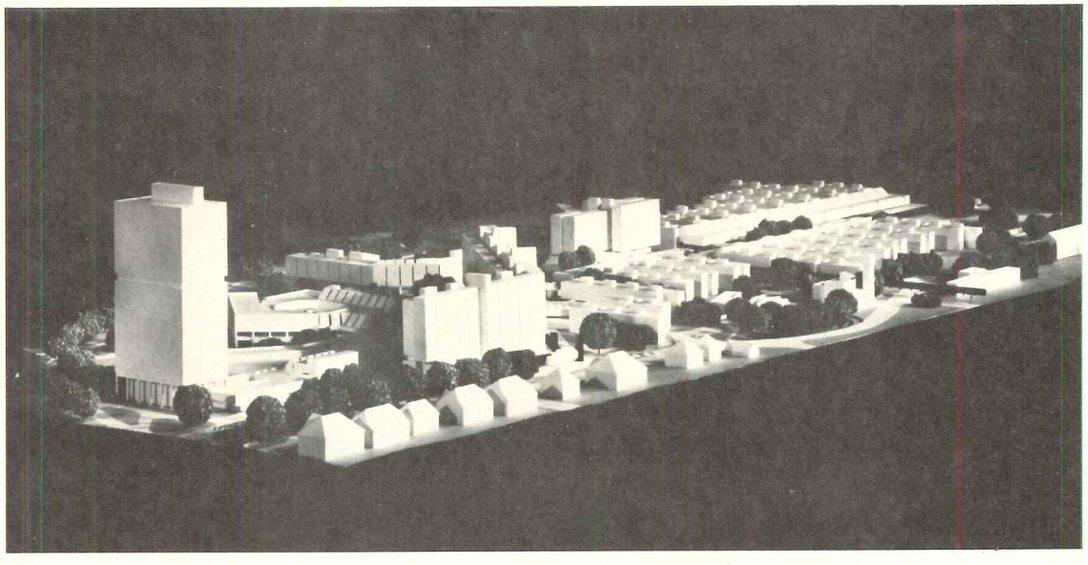
Long accustomed to make-shift quarters, the government of West Germany has recently announced plans to construct a new chancellory and parliament buildings in Bonn. Construction has already begun on the low-profile chancellory (bottom) which will house the office of chancellor, the federal cabinet and an additional 350 persons. A group of five architects—Adams, Hornschuh, Glatzer, Pollich and Türler—designed the steel-framed structure as four three-story rectangles, ringed by balconies and connected by corridor bridges. It is adjacent to the Palais Schaumburg (below), a 19th century villa which has served as a provisional chancellory since 1949. The new building, chosen from 36 design entries, will be completed in 1976. The jury is expected to make a decision on the design for the upper and lower houses of parliament this year. Four finalists, shown here, include designs shown from top to bottom by: Behnisch and Partner; W.&F. von Wolff and Schneble; Brunert Mory, Osterwalder, Vielmo; and Hecker, Wolf, Grupe, Poppe, Rudel.

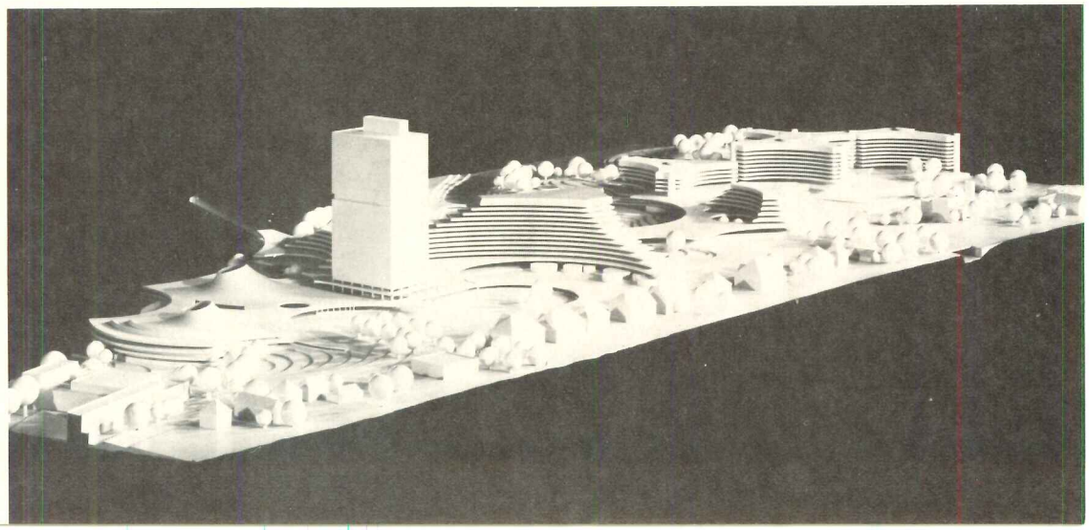












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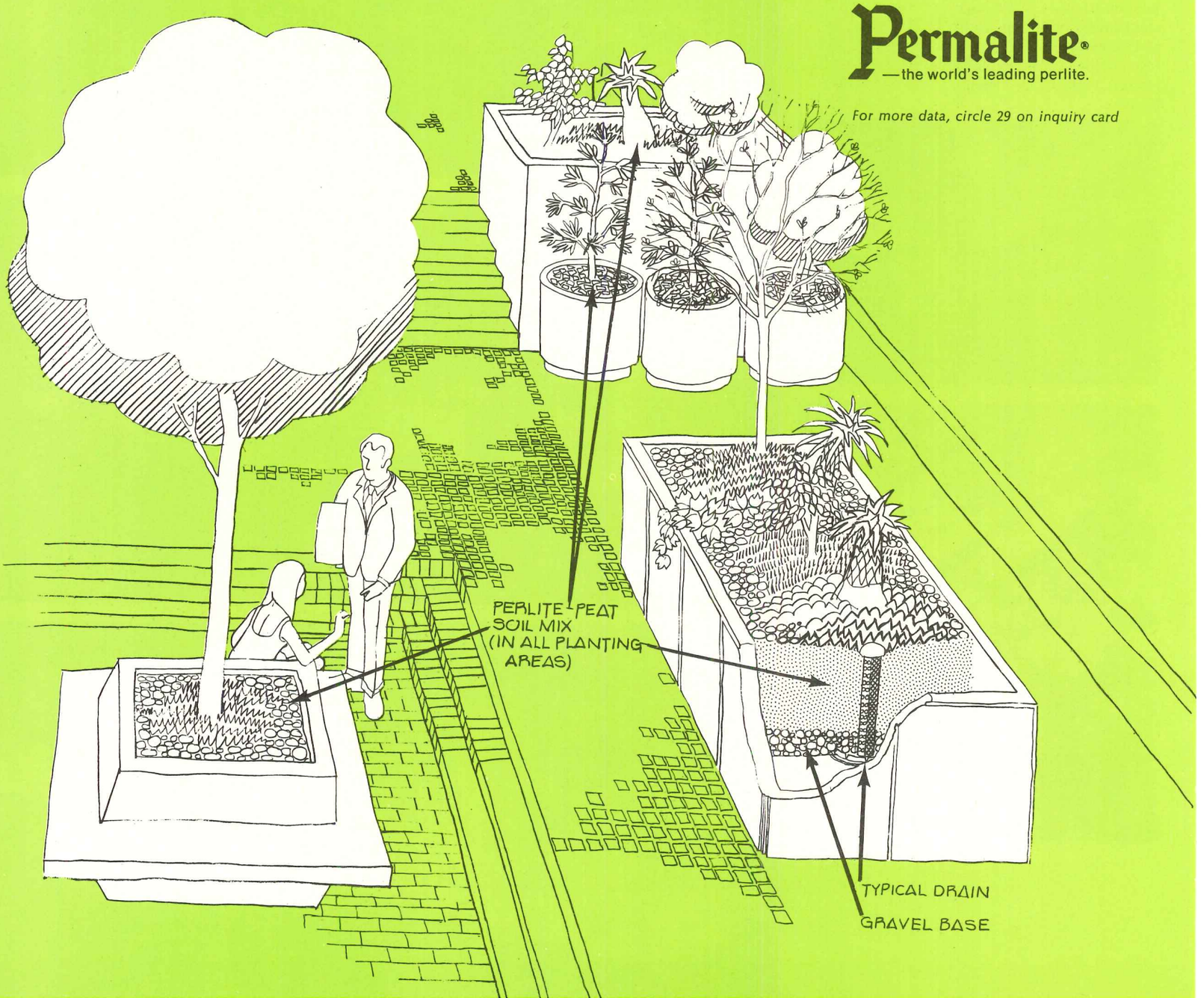

American Space

AMERICAN SPACE: *The Centennial Years: 1865-1876, by John Brinckerhoff Jackson; W.W. Norton & Company, New York, 1972, 254 pages, illus., $7.95.*

It was more than 40 years ago that Lewis Mumford in his book *The Brown Decades* called attention to the cultural changes that took place in this country during the post-Civil War period. This was an era that had generally been neglected by social and art historians alike, and it was by Mumford's unusually comprehensive outlook and learned perception that the relationships between architectural tastes and social manners were, for perhaps the first time, closely related to the political and economic developments of those "brown" decades during which more notable changes and growth occurred in the United States than in any other previous period of our history. Since the appearance of Mumford's book there has, of course, been much research and writing on the social, economic as well as political history of that era, but it has only been lately that the arts, and particularly the architecture, of the mid- and late-Victorian era have come into their own as subjects of review by art and architecture historians. We now see so definite an appreciation of the good things that were done in that period (as well as, admittedly, a good deal of camp and chic attention to some questionable examples of "Victorian style") that Mumford's original thesis has presumably borne considerable and valuable fruit.

It is most interesting, therefore, to take note of another book of equally comprehensive viewpoint appearing at this time. It treats of basically the same era—although it is theoretically limited to a shorter period—and recounts the effects created by the forces set loose during and at the conclusion of the Civil War on the *spaces* of America, more than on its buildings, which so radically changed the face of the land. And it approaches this from the viewpoint of a writer who is not so much an art historian as an environmentalist. John Brinckerhoff Jackson—perhaps more commonly known to readers in the field of design principles as "J. B. Jackson," long-time publisher and editor of that extraordinarily valuable quarterly,*Landscape* (not to be confused with *Landscape Quarterly*, the official publication of the ASLA)—has come up with a work of shrewd perception, written with a great skill and liveliness of style that makes his new book the most engaging sort of reading.

He provides at the same time a running record that is especially useful for those of us who may not have realized the interaction of those forces in the post-Civil War era that produced not only economic and political changes, but also architectural and environmental developments in the general appearance of the whole continent.

The book traces, first, the industrial expansion in the well-settled East, resulting in the growth of towns and cities at the expense of the farms and villages. Then came the rapid development of the Midwest as newly opened by the steamboat and a rudimentary road system to discouraged farmers abandoning the rocky hillsides of New England and upstate New York and to the newly arriving peasants fleeing to the "New World" from oppressed conditions abroad. These movements were quickly enlivened by the building of the railroads across the vast reaches of the prairies to the Rockies and, eventually spurred by the Homestead Act and the after-effects of the "gold rush" days, eventually to California and the Northwest.

All these migrations left their physical marks on the land and its buildings. The effect of other forces in the South, including the downfall of the plantation system and the coming of the "carpetbaggers," is traced in the emergence of a new economic and social order, reflected, in turn, in the buildings, landscape and topography of the former Confederate States. The territories of the Great Plains and the Southwest, which began to develop from practically nothing during this period, were also significantly affected by the political and economic forces set loose during the post-Civil War decades and, as the public has recently been called on to remember, by the aftermath of the military struggles which resulted in the ruthless decimation and imprisonment on "reservations" of the American Indians, whose "primitive" and more natural use of the land had been so markedly different from what the "white" man subsequently imposed on their forests and fields.

This is the story that Jackson tells us. His brilliant analysis not only brings to light the political, social and economic after-effects of the Civil War, but also reviews the accomplishments of various personalities—progressive thinkers, writers and doers who flourished during the period. This reviewer was enlightened by some historical background he confesses to have been quite ignorant of, with respect to the early stirrings of not only the city planning movement but also the idea of new towns—i.e. other than those that had already been established, or on their way, by religious groups such as the Owenites, the Shakers, and the Mormons. Jackson recounts the work and writings of almost forgotten 19th-century journalists, engineers and landscape architects who were active in the 1860's and 70's, followers, to a considerable extent of the work and efforts of their more renowned contemporary, Frederick Law Olmsted, as well as of his own preceptor Andrew Jackson Downing.

The stories about men like Robert Morris Copeland, Nathaniel Southgate Shaler, and Horace W. S. Cleveland, bring to the reader belated recognition of the efforts made in this period to explain to the public the need not only for comprehensive planning of cities—with health and social objectives in view as much as the practical aims of commerce and newly burgeoning industry—but also of concern for the natural environment of city, suburb and new land resources, and, most significantly, for the necessity of planning new towns along the lines that we are still working on, as opposed to the purely commercial, "grid-iron" layouts cropping up all over in the wake of the expansion of the railroads and their Federally-subsidized land grants.

It was actually Copeland who first used the term "city planning," which had not appeared in any writing up to that time, when he proposed what we would now call a master plan for Boston in the 1870's, following the great fire that devastated much of the downtown area and which could have led, had Copeland's specific suggestions been followed, to inner city urban renewal such as did not actually take place until the days of Ed Logue, almost a hundred years later. It was Cleveland (by that time a successful landscape architect in Chicago) who wrote an essay in 1873 in which he criticized the grid system of the new towns that were being built on the Great Plains, and suggested, in terms almost identical to those used by today's planners, the development of new towns well balanced between residences, commerce and industry, yet fully related to the surrounding environment, enhancing it by planting trees and preserving existing waterways and other natural features. That the well-reasoned proposals by men like Copeland and Cleveland were not carried out in the days of post-Civil War commercialism is not altogether surprising, considering the difficulties such ideas are still encountering today.

Not only students of our history as a whole, and of our architecture in particular, but any one who enjoys a well-written book on this fascinating period will get a lot of pleasure out of reading J.B. Jackson's *American Space.*

—Robert Weinberg.

Mr. Weinberg is Adjunct Professor of Urban Planning at New York University and "Critic-at-large" in architecture and planning for WNYC radio.

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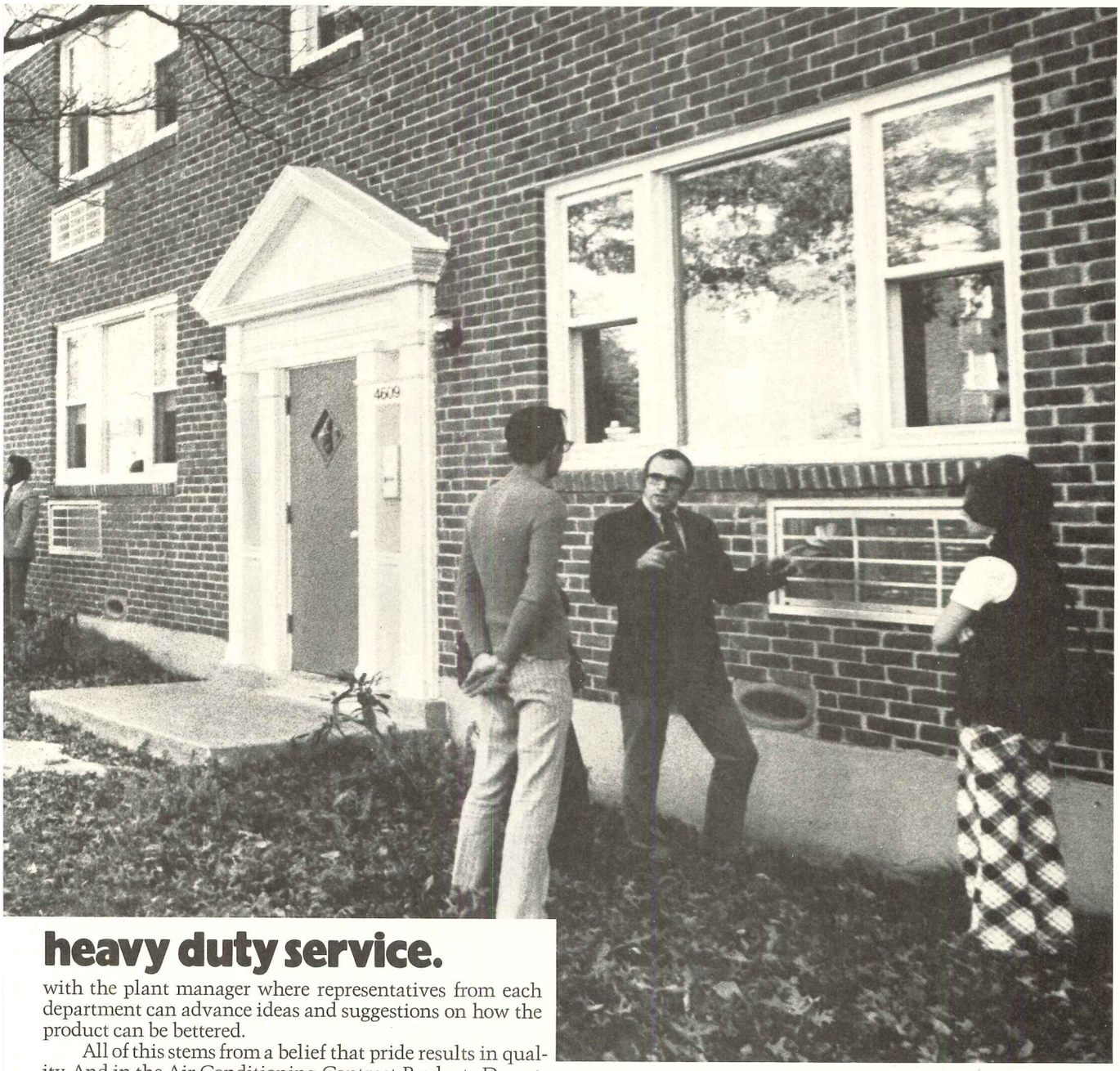

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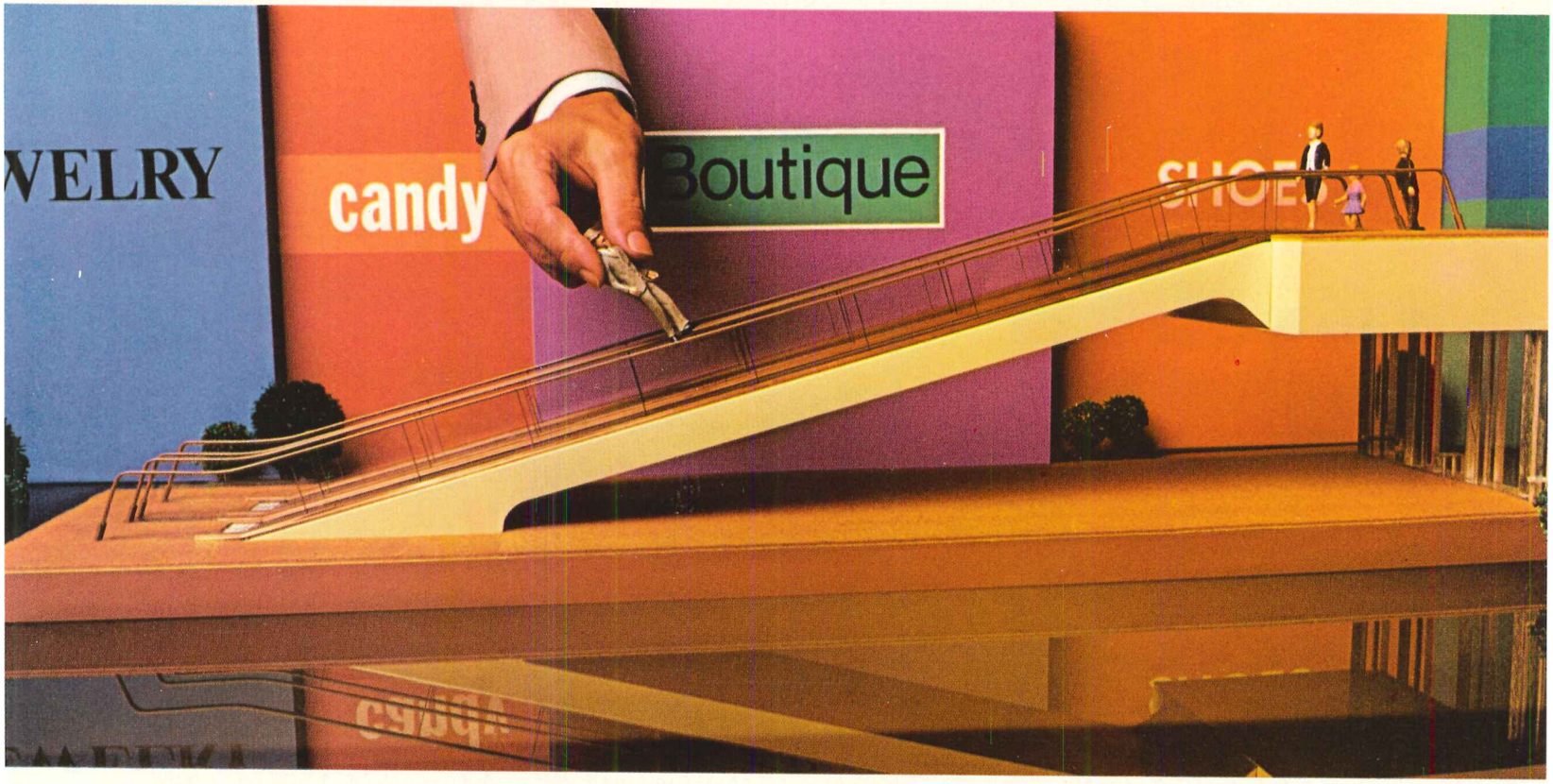

The new Speedramp® passenger conveyor system with glass balustrade (shown here in exact scale model) is a logical part of the new light, airy concept of interior design and merchandising.

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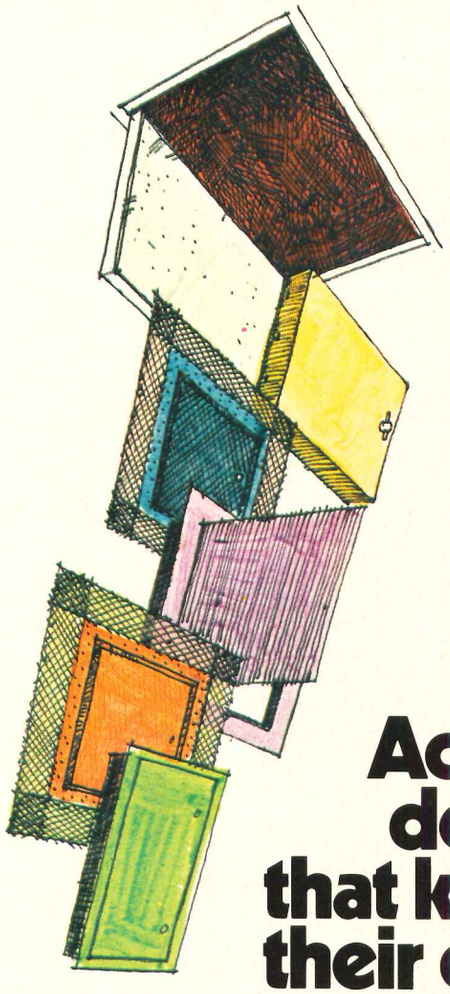
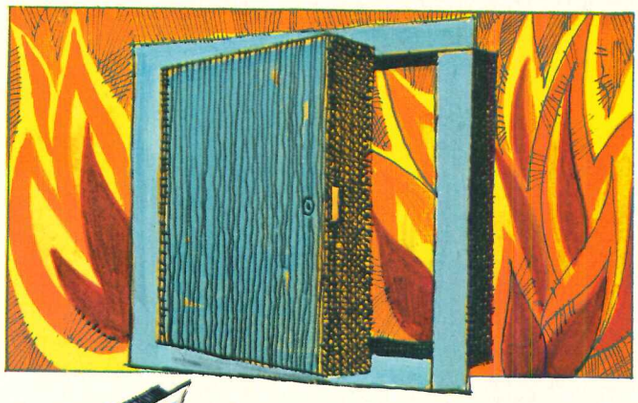


Access doors that keep their cool.



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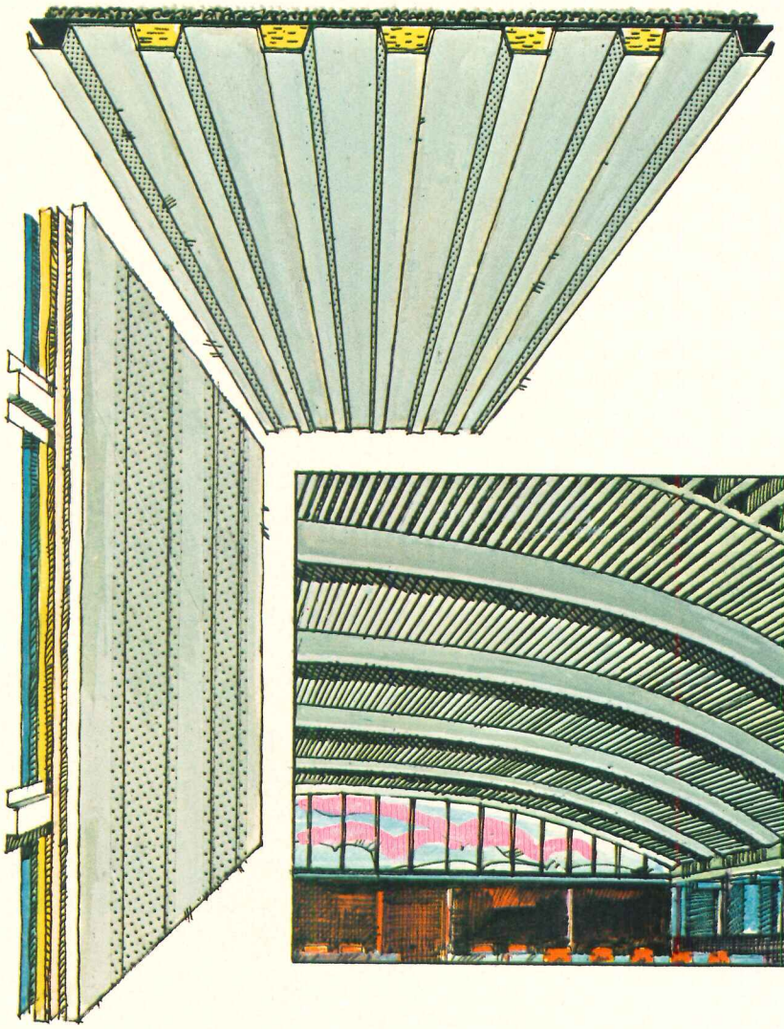

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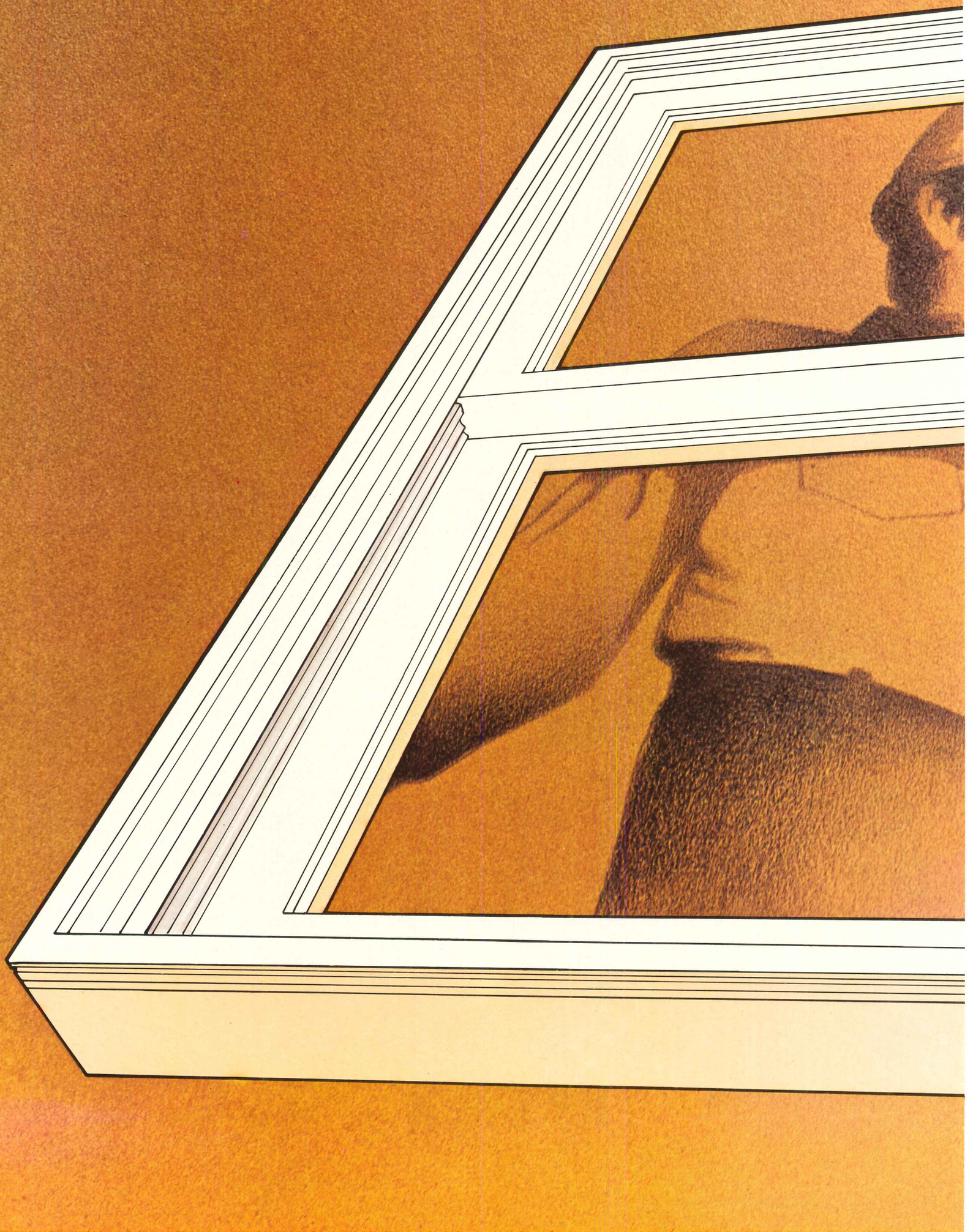

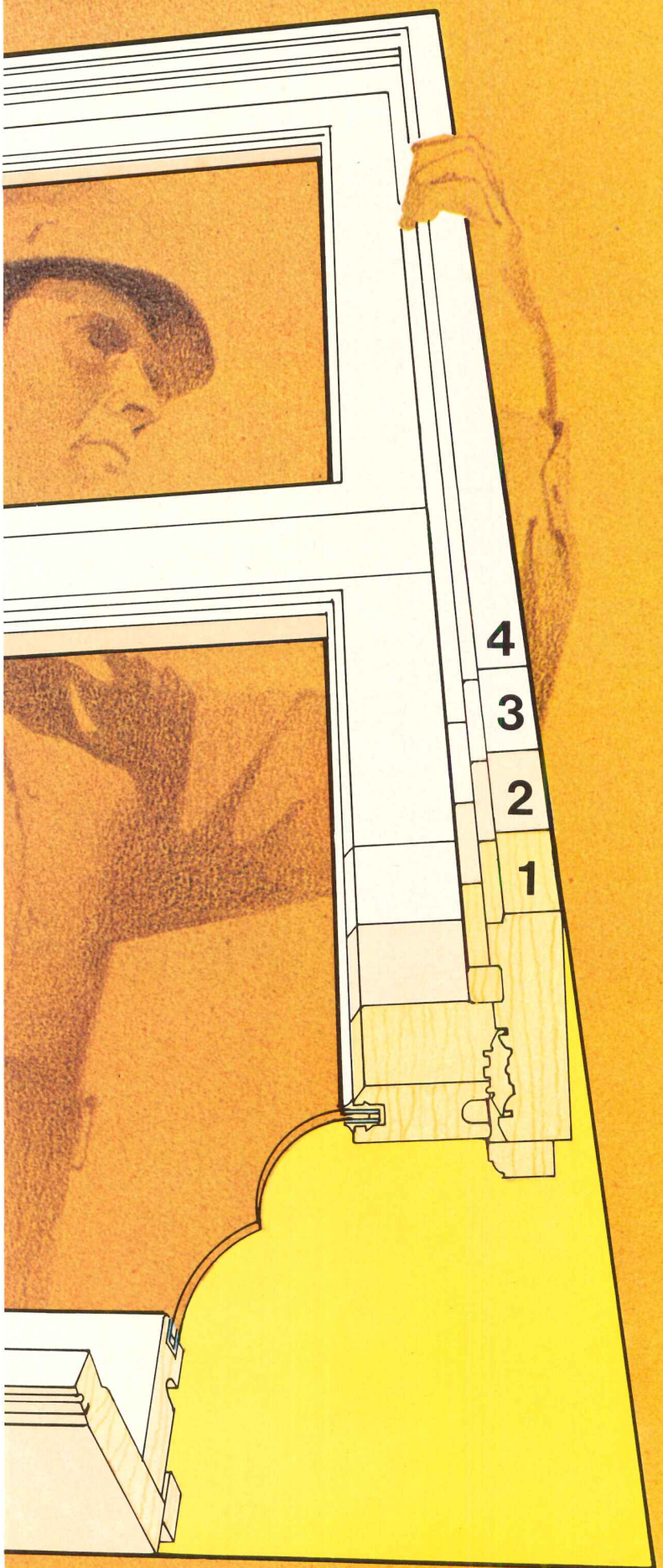

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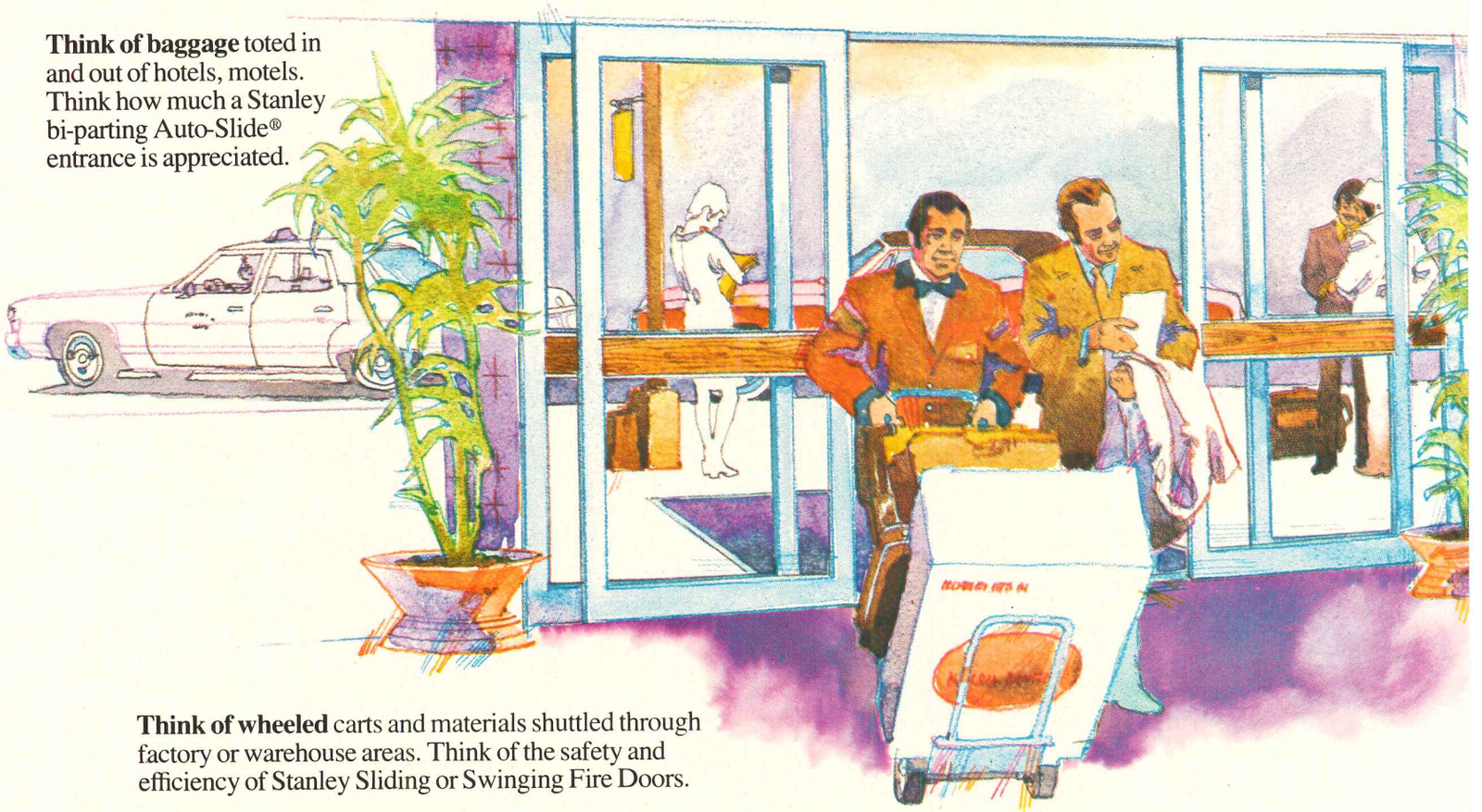
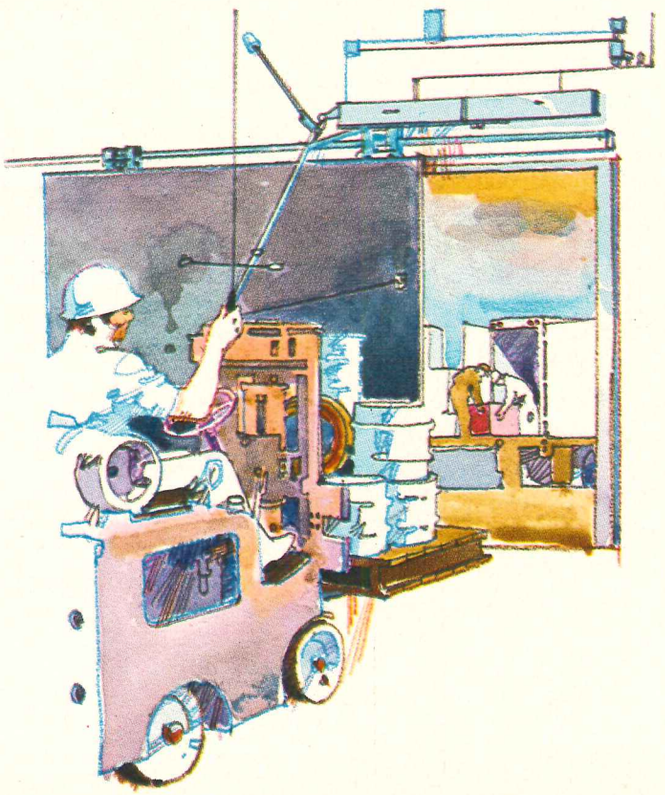
No one knows entrances

Think of baggage toted in and out of hotels, motels. Think how much a Stanley bi-parting Auto-Slide® entrance is appreciated.



Think of wheeled carts and materials shuttled through factory or warehouse areas. Think of the safety and efficiency of Stanley Sliding or Swinging Fire Doors.



Think of problem entrances for the handicapped. Think how Stanley Auto-Swing doors can help. Used within, the doors also create areas of quiet, help control temperatures, save energy.

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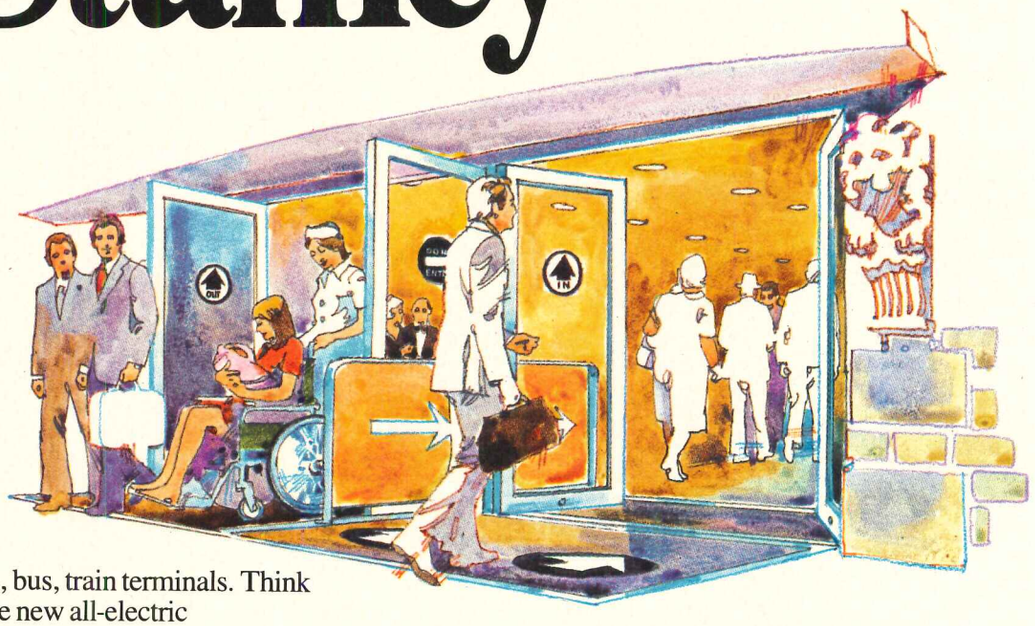

Think of jam-ups at hospital and other building entrances. Think how Stanley Auto-Swing® doors help take the hassle out of pedestrian traffic.

Think of slow-downs into airline, bus, train terminals. Think how Stanley sliding doors with the new all-electric Magic-Slide® operation help hurry people and luggage through.

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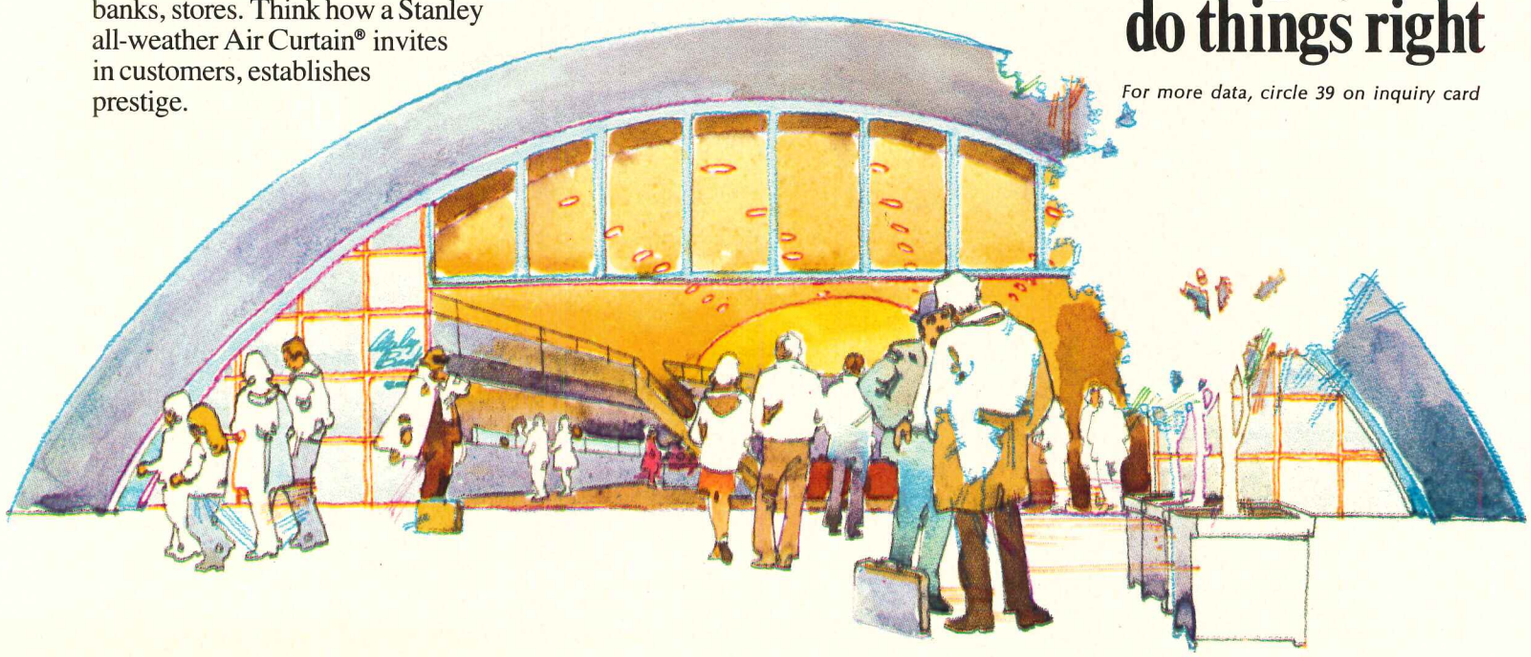
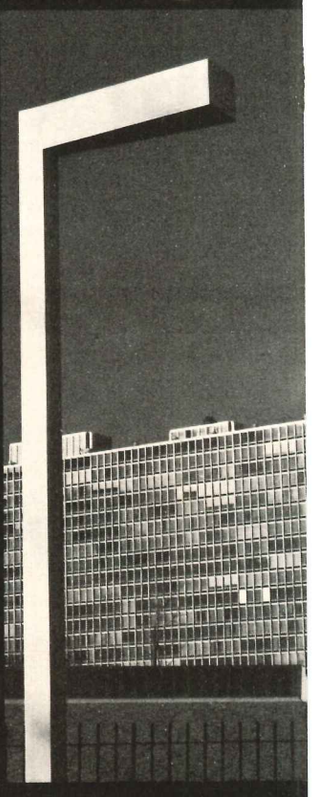


Some Hard Facts about outdoor lighting, visibility

Energy can be conserved without sacrificing aesthetic values and safety in our night time environment.



The first step is to understand that the purpose of outdoor lighting is to provide good visibility. The next step is to use luminaries which provide good visibility without wasting light (energy) in blinding glare and misdirected illumination. To reach the ultimate of effective visibility at minimum energy consumption we must examine some old myths regarding "lighting efficiencies."

Myth No.1 *"The more light you get out of the luminaire the better the lighting."*

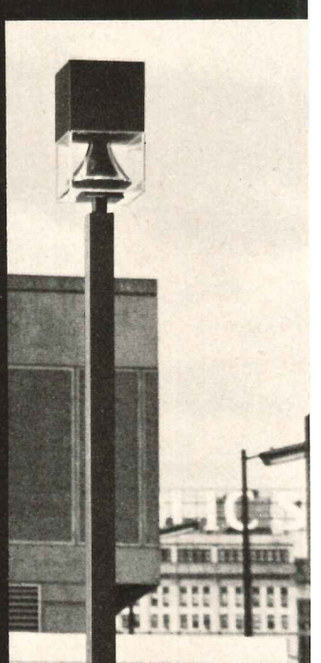
Fact! The only light that does any good is that which is properly directed, towards the ground. Light directed into a viewer's eyes does more harm than good. This is glare, and nothing is more destructive to vision or more distracting to the observer. Since visibility is sharply reduced by glare, lighting levels must be increased to compensate for this loss of visibility. This means more units and more energy consumed.

Myth No.2 *Lighting effectiveness can best be measured by the "average footcandles" in an area.*

Fact! This literally means a 10 sq. ft. hot spot of light directly below a luminaire reading 15 footcandles surrounded by 90 sq. ft. of darkness, results in an average of 1.5 footcandles for 100 sq. ft. This has to be a poor concept. The only proper way of measuring the effectiveness of illumination is by the lighting provided at the least illuminated point between poles and the uniformity of lighting throughout the area.

Myth No.3 *The architects and engineers have an "either or choice" between efficient lighting without good looks or aesthetic lighting without efficient performance.*

Fact! You can have both aesthetic values and good performance. Let's examine only two of the many handsome units in the Moldcast line that provide truly exceptional performance, the Sans-Serif and the Pericline Contemporary.



Although entirely different in appearance both do an excellent job of eliminating harmful glare and spread effective illumination over remarkably broad areas.

The San-Serif, with its highly sophisticated reflector system, allows pole spacing up to 5¾ times the mounting height with good uniformity of illumination. Yet it is completely free of glare from normal viewing angles. More than this, from most angles it virtually eliminates the appearance of all light at the top of the pole. The results of this unique capability is shown in the comparison photographs of the Sans-Serif on the left and a typical roadway luminaire on the right.

The visual confusion caused by the high glare of the typical unit is evident. Compare this with the complete focusing of light on the roadway produced by the Sans-Serif without any waste or harmful glare. The message, in terms of energy consumption, is clear. The excellent lighting qualities of the Sans-Serif allows the reduction of wattage (power consumption) without sacrificing good visibility.

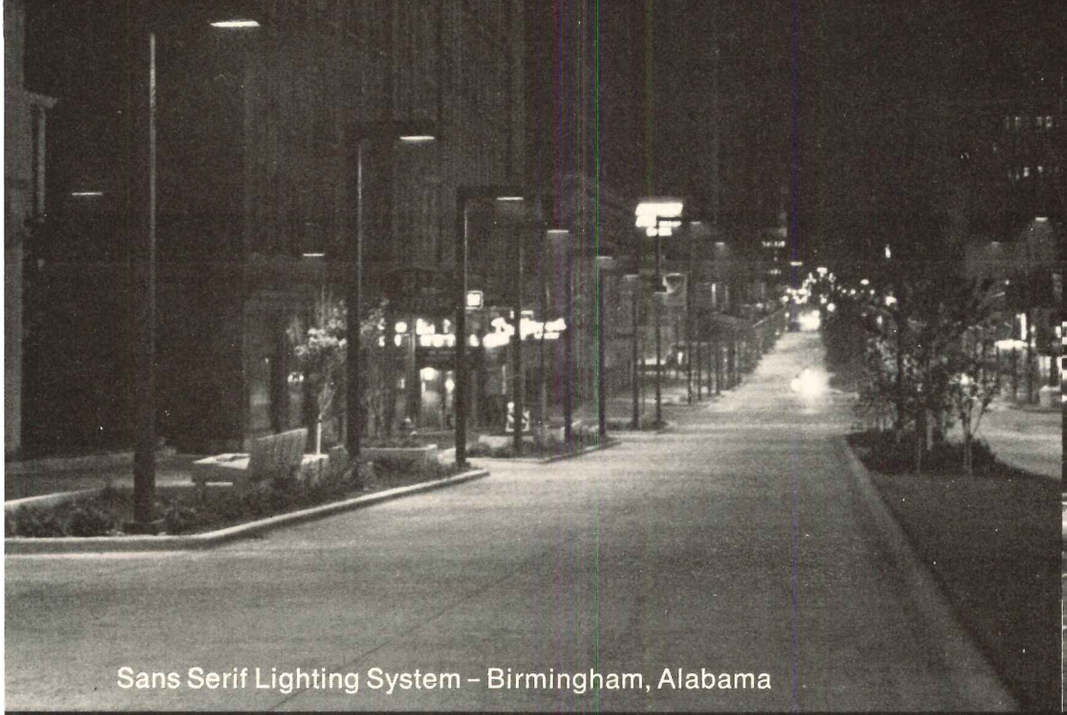
The Pericline Contemporary is definitely a decorative unit and yet is also probably the most efficient area lighting luminaire ever designed. The 400 Watt High Pressure Sodium model provides an excellent .6 foot candles at the furthest point between units spaced 140′ x 130′.

Fact: That's only one watt of energy for each 45 square feet of ground surface without a bit of glare. Only a soft luminosity appears within the luminaire defining its shape at night.

The photograph at the right shows two of the smaller Pericline Contemporaries creating a glare-free environment with uniform level of illumination spread across a broad area.

We hope we have increased your understanding of the relationship between outdoor lighting, visibility and energy consumption. You can still provide architecturally distinctive lighting fixtures without sacrificing perfect visibility or comfort and achieve at the same time an economical use of energy. Write us for more detailed information on the subject.

and energy consumption.

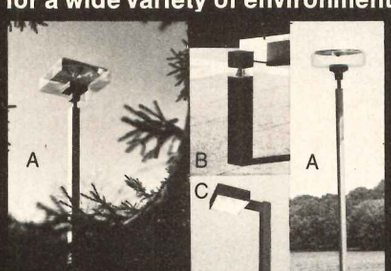


Sans Serif Lighting System – Birmingham, Alabama

Typical Street Lighting Luminaires

Pericline Contemporary Lighting System

Other high performance lighting products are also available for a wide variety of environments.



A. Round and Square Landscape Chandeliers
B. Bollard Pericline – 3½ feet tall
C. Site Modulex

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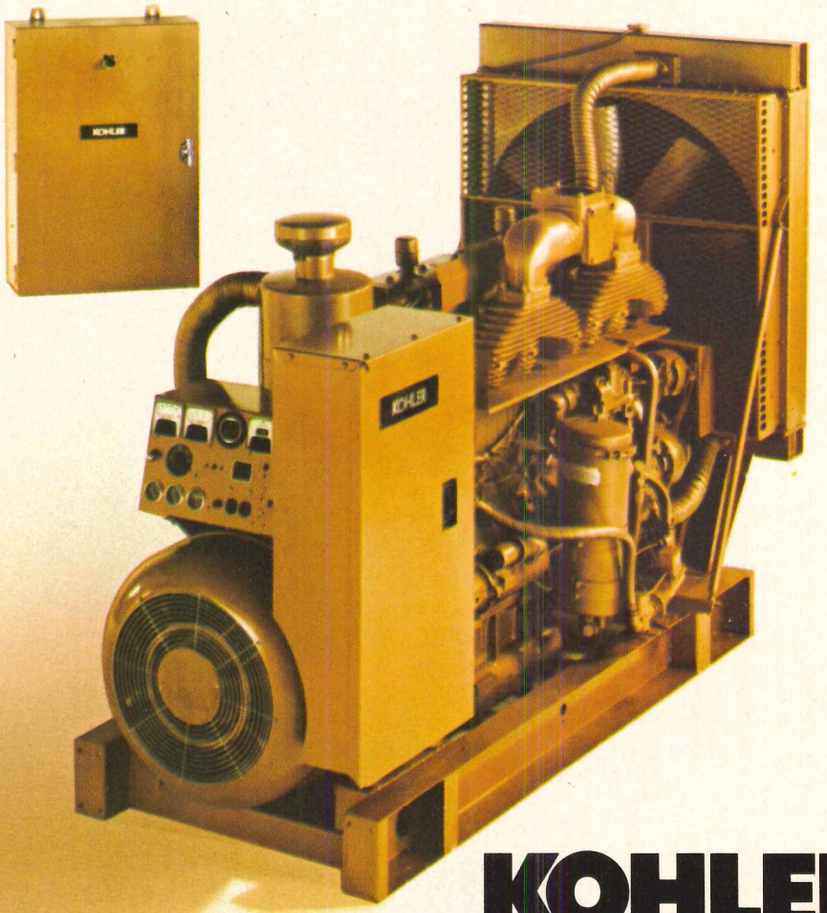
depend on Kohler "gold" standby power systems



KOHLER

A 4-page guide to the conservation of natural resources. 1. ENERGY

Avco Financial Center, Newport Beach, California • Owner: Balboa Insurance Company • Architects: Welton Becket and Associates • Consulting Mechanical Engineers: James A. Knowles & Associates, Inc., Los Angeles • Glazing Contractor: Golden State Glass Company, Los Angeles

"WINNING THAT ENERGY CONSERVATION AWARD WAS A VERY SATISFYING SURPRISE."

Ray Boring said that.

He's the building manager of the Avco Financial Center, Newport Beach, California. This is the tower that won the 1972 Utilization of Energy Award in Southern California.

That, indeed, is a welcome tribute to sound design and materials selection. But that's only part of the profile.

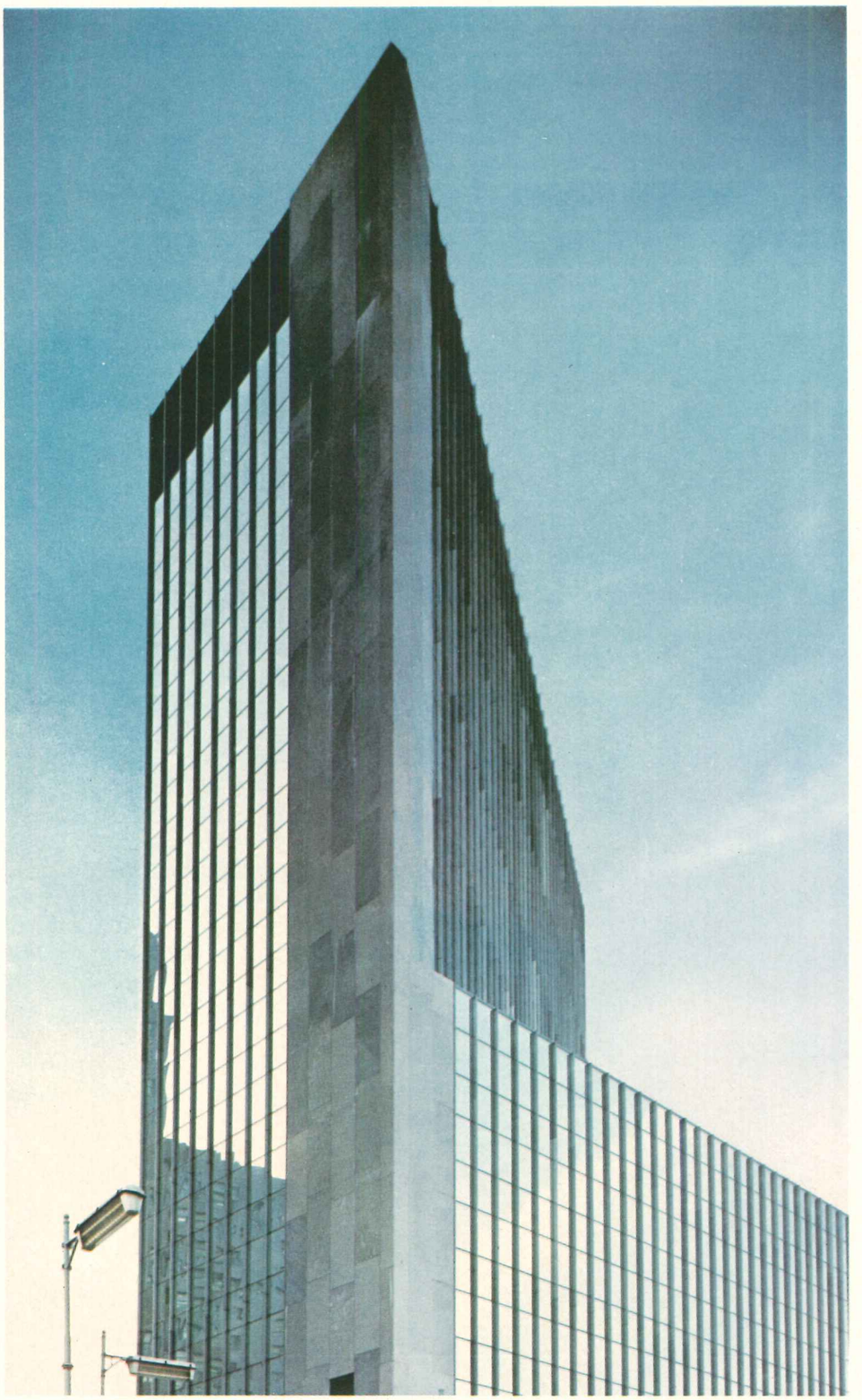
James A. Knowles of James A. Knowles & Associates, the engineering consultants, stated, "We knew we'd cut owning and operating costs with LOF glass." In fact the prediction is that the use of Thermopane® insulating units made with Vari-Tran® coated glass would save Avco almost $20,000 annually in owning and operating costs when compared to conventional bronze plate glass.

Further, with LOF reflective glass, the owner was able to install smaller fan-coil machinery on the upper 15 floors. This provided a gain of more than 6,000 square feet of rental area.

Ah yes, space, that's another whole story you'll find on the next page.

LOF

2. SPACE



Edison Plaza Building • Owners: Toledo Edison Company • Engineers, Architects, Planners: Samborn, Steketee, Otis and Evans, Toledo, Ohio

"THE KEY TO GOOD OPERATING EFFICIENCIES IS THE PROPER SELECTION OF AIR SYSTEMS, HEAT RECLAIMING DEVICES AND BUILDING GLASS, LIKE VARI-TRAN."

LOF glass, according to the designers, saved over $123,000 in initial construction costs by reducing the size of heating and cooling equipment needed for the ¼" clear glass.

The building of course is Edison Plaza Building, Toledo, Ohio. The statement quoted above was made by James R. Watt, P.E., Technical Services Manager, Toledo Edison Company.

Mr. Watt went on to say, "To make a building less expensive to own and operate, you sometimes have to use more expensive materials."

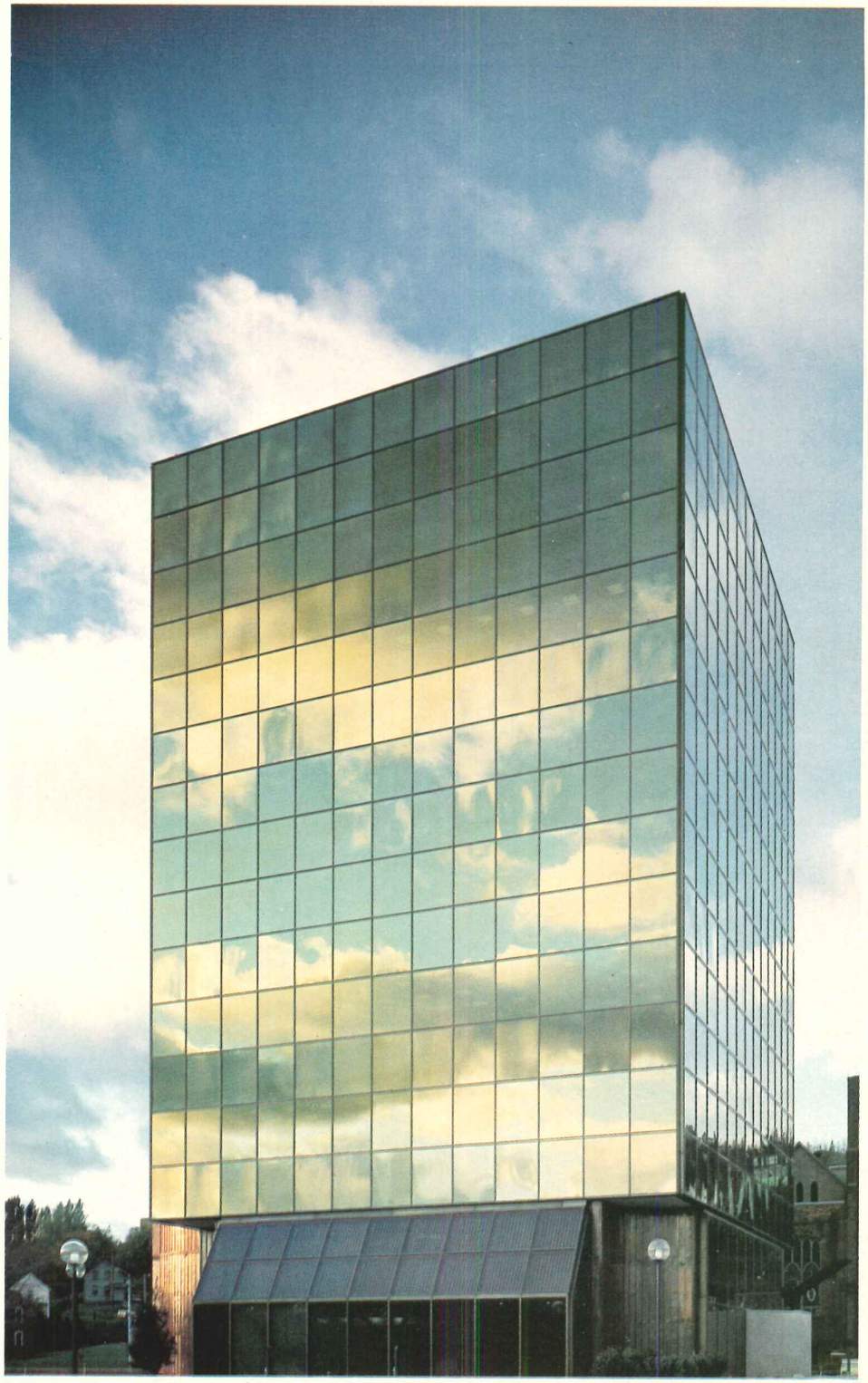
Agreed: the 50,000 square feet of Thermopane insulating units made with Vari-Tran coating is not inexpensive glass. But with it the architects incorporated in the design a heat reclaiming variable air volume system that uses heat generated from the interior lighting to heat the structure.

At Edison Plaza, the 8000-plus light fixtures generate more than 5 million BTU per hour—enough to heat 75 average homes. It was found that with proper distribution of this energy, little, if any, auxiliary heat would be needed.

Vari-Tran conserves space.

Vari-Tran conserves energy.

3. AESTHETICS



Owners: Detroit & Northern Savings & Loan Association, Hancock, Michigan • Architect: Maurice B. Allen, Jr., A.I.A., Tarapata-MacMahan-Paulsen Corporation, Bloomfield Hills, Michigan • General Contractor: Herman Gundlach, Inc., Houghton, Michigan • Glazing Contractor: Cupples Products Div., H. H. Robertson Company, St. Louis, Mo.

"WE LIKE THE IDEA THAT A BUILDING DOESN'T HAVE TO SEPARATE PEOPLE FROM NATURE TO PROTECT THEM FROM IT."

The area around the Detroit & Northern Savings & Loan Building, Hancock, Michigan, is known as "Copper Country."

Detroit & Northern President, Kenneth Seaton, also stated that they wanted the building to reflect the company's long and close involvement with that area's people and industry. And, "The exterior of the building features copper tones, set off by reflective glass with a golden Vari-Tran coating."

Hancock weather delivers extreme temperatures ranging from 92° down to minus thirty. This demands something special in the way of insulation. And that something special is LOF Thermopane insulating units made with Vari-Tran coated glass.

For not only does this LOF glass insulate against the icy wind of Northern Michigan winters, but it also reduces air conditioning requirements during the summer by cutting down on solar heat gain.

Thermopane with Vari-Tran cuts building operating costs.

Naturally, beautifully.

LOF

4. VARI-TRAN®

1" THERMOPANE INSULATING GLASS WITH VARI-TRAN

DESIGNATION		DAYLIGHT TRANSMITTANCE		DAYLIGHT REFLECTANCE		TOTAL SOLAR TRANS.	U VALUE BTUH/ SQ FT/F	SHADING COEFFICIENTS					
								NO	VENETIAN BLINDS		DRAPERIES (Semi-Open Weave)		
COLOR	GLASS	%	TOLERANCE	%	TOLERANCE	%		SHADING	LIGHT	MEDIUM	LIGHT	MEDIUM	DARK
SILVER	1-108	7	±1.5	44	±3.0	7	.50	.17	.16	.16	.15	.15	.15
SILVER	1-114	13	±2.0	33	±3.0	14	.50	.26	.23	.23	.22	.22	.23
SILVER	1-120	18	±2.5	27	±3.0	16	.50	.30	.26	.27	.26	.26	.27
GOLDEN	1-208	7	±1.5	28	±3.0	7	.50	.18	.17	.17	.16	.16	.16
GOLDEN	1-214	13	±2.0	26	±3.0	12	.50	.24	.21	.22	.21	.21	.22
GOLDEN	1-220	18	±2.5	24	±3.0	17	.50	.31	.27	.28	.27	.27	.28
BLUE	2-350	45	±5.0	20	±3.0	28	.55	.45	.38	.39	.36	.38	.41
BLUE*	2-350-2	38	±5.0	20	±3.0	20	.55	.44	.37	.38	.35	.37	.40
GREY**	3-108	7	±1.5	11	±2.0	9	.50	.23	.20	.21	.20	.20	.21
GREY**	3-114	13	±2.0	9	±2.0	14	.50	.29	.25	.26	.25	.25	.26
GREY**	3-120	18	±2.5	7	±2.0	20	.55	.34	.29	.30	.28	.29	.31
GREY	3-134	30	±4.0	7	±2.0	29	.55	.47	.39	.41	.38	.40	.43
BRONZE**	4-108	7	±1.5	14	±2.0	7	.50	.21	.19	.20	.18	.18	.19
BRONZE**	4-114	13	±2.0	11	±2.0	11	.50	.27	.24	.24	.23	.23	.24
BRONZE**	4-120	18	±2.5	9	±2.0	15	.55	.31	.27	.28	.27	.27	.28
BRONZE	4-134	30	±4.0	7	±2.0	25	.55	.43	.36	.37	.35	.37	.40

MAXIMUM DIMENSIONS:
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—1/16"	—1/16"

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**Outboard light must be tempered.

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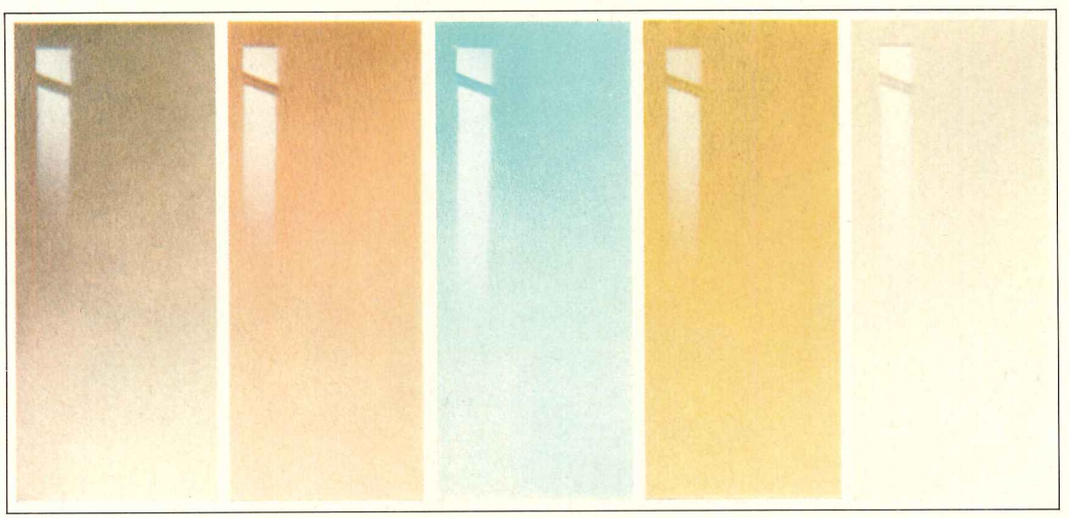

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There's also a geographical guide that lists more than 70 buildings across the country where Vari-Tran is in use, with pictures of many of them.

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Consider it your own guide to the conservation of natural resources.

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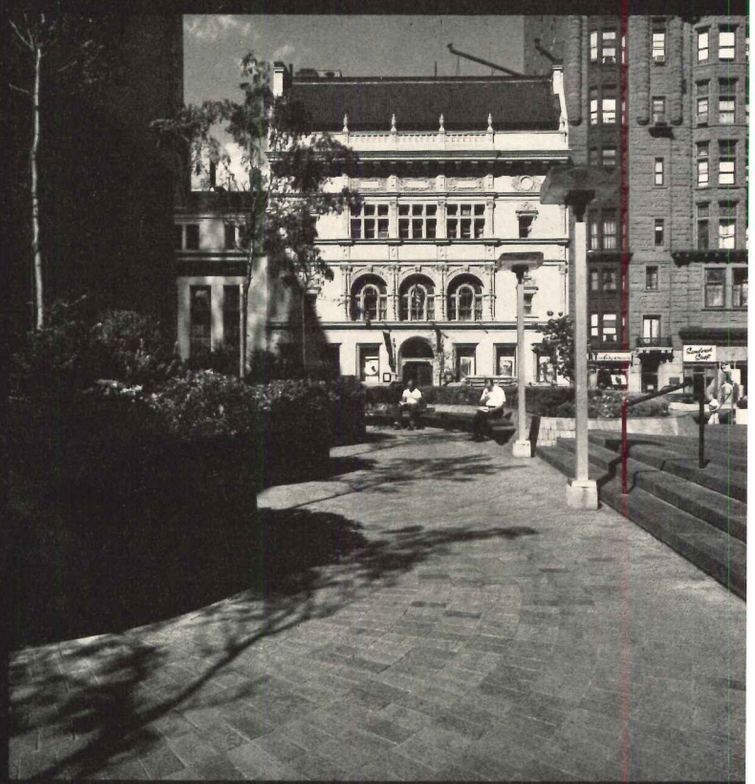

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Environmental impact analysis: tool for better design?

For the following discussions of the state of the art of environmental impact analysis, Paul Buckhurst and Bradford Perkins, principals in the planning firm of Llewelyn-Davies Associates, drew on their own New York-based firm's experience as well as that of their English counterpart organization and their affiliate firm of Nicholas Quennell, environmental planners who have specialized in this area.

A variation on the traditional biblical account of Exodus currently popular in planning circles goes as follows: Moses (barred by the Red Sea and with the Egyptian chariots in close pursuit) looks to the heavens and cries "Oh, Lord, what shall we do?" The Lord replies: "Moses, I have good news and bad news. First for the good news. If thou pointest thy staff at the Sea, the waters will part in front of thee and the Children of Israel can cross to the Promised Land. Now for the bad news. Before thou doest this, thou must file an environmental impact statement."

Underlying this probably apocryphal story is the widespread attitude that the environmental impact statement is another barrier to project progress. This attitude is both unfortunate and ill founded, for environmental analysis and approvals will almost certainly play an increasingly important role in the project development process.

Why does this attitude exist? In part, the answers lie in complexity of the analysis. The Federal government, a growing number of states, and an even more rapidly growing number of localities are insisting on reports assessing a project's environmental impact. Although there is no generally accepted format or scope, a typical comprehensive outline for one of these analyses would include the following:

1. Design of project
2. Description of environmental setting
3. Probable environmental effect (both the short and long term) of the proposed project in terms of impact on:
   a. Areas of historic, scientific or archaeological significance;
   b. Impact on natural, ecological, recreational or scenic resources;
   c. Impact on vegetation, soils, slopes, wildlife and other existing site features;
   d. Increased congestion (traffic, recreational, etc.);
   e. Impact on esthetic or visual quality;
   f. Impact on air quality, water quality, or noise level;
   g. Fire, flooding, erosion, earthquakes or other natural hazard considerations;
   h. Consistency with community environmental, growth and other plans and goals;
   i. Displacement of people, businesses, etc.;
   j. Growth-inducing impact.
4. Impact minimization measures
5. Other data: our studies often include analyses of the level of local concern, the nature of the approval process, cost analyses of minimization measures
6. The alternatives to the project or proposed action
7. Summary and conclusion

On a large, complex project, finding the answers to fill in this outline can be a difficult, expensive, and time-consuming task. Since the great potential value of this analysis is often ignored, most owners and design teams have tended to regard this as just another paperwork barrier. This is a mistake. Any good plan or design is a creative response to a set of constraints. Our experience, as both the client and consultant for environmental analysis, indicates that the project environment is not only one of the most important of these constraints but also a major stimulus for better design.

The environment is, of course, not the only basis for design definition. On some of our projects an environmental analysis has helped justify a complete reshaping of the project environment. However, it is more often an excellent tool to shape design themes. As a structuring element, it is far more effective than roads or other man-made project components. It is particularly useful in helping to integrate a new project into an existing area. How this can happen can be illustrated in a few examples from our recent projects.

At the simplest end of the spectrum is the project where an environmental analysis reveals a natural ordering system. In the development proposal for a new community near Atlanta, the floodplains surrounding the streams on the site provided the most logical definition of the open-space system for the project (Figures 1 and 2). This in turn described the layout of the major road network to service the community, as discussed later.

At times the search for this ordering element can be more difficult than the now common consideration of floodplain boundaries. At Rancho San Diego, a large-scale project in Southern California, a cursory analysis would probably have led to a plan that followed the land use logic of most other developments in the region. The environmental impact analysis, however, identified a number of factors which together provided a strong structuring element for the total design. Recognition of the hazard of brush fire, which is endemic to the region, and a concern for protecting native wildlife habitats, as well as the need to conserve water used for irrigating non-indigenous landscaping all supported the creation of an open space network which would remain in native vegetation but managed so as to eliminate any risk of fire. Such a network would require a minimum of irrigation and would double as a fire-break between housing areas and the brush covered hills beyond the site boundaries.

In addition, a careful analysis of the site's

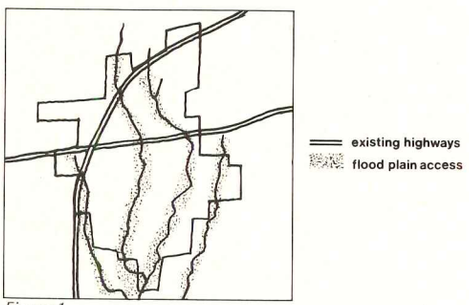

Figure 1

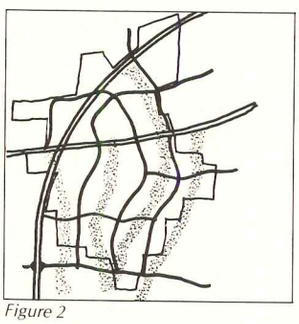
Figure 2

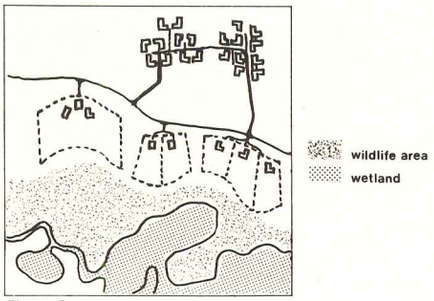

Figure 3

Figure 4

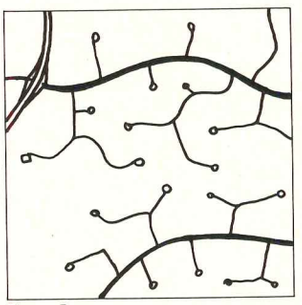

Figure 5

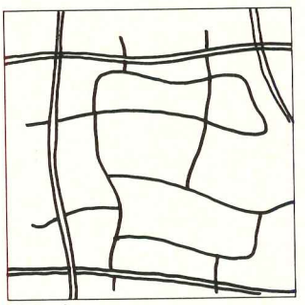

Figure 6

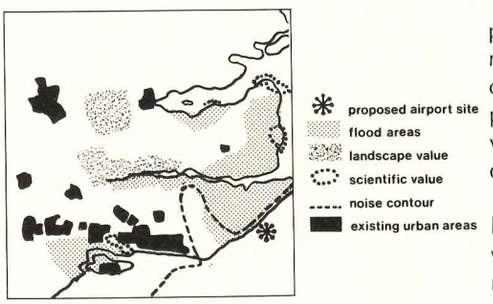

Figure 7

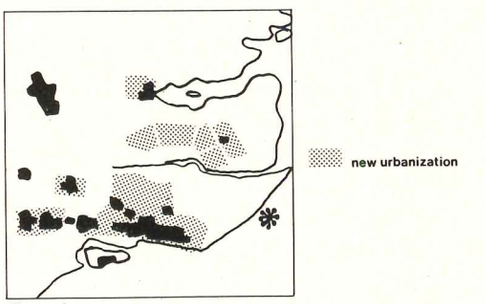

Figure 8

microclimate produced a set of guidelines for the design and orientation of pedestrian pathways and buildings so as to provide an extensive, comfortable, walking environment and to minimize the need for air conditioning in dwellings.

Not only did these proposals help solve serious environmental impact problems, they also contributed to the shape and texture of the development and offered the potential of an uniquely designed community with enhanced marketability.

This same barrier concept was taken one step further on a large recreational property on Long Island. Land price and zoning dictated a density which could have led to a one-acre lot development throughout the site. The environmental impact analysis, however, identified the need to preserve several unique wildlife and wetland areas from both direct development and high density neighboring areas. This dictated stepped-density development with an extremely low density barrier (consisting of very large private residential lots) acting as a buffer between higher density housing clusters and the wildlife preserves (Figure 3). This buffer area is being developed as a unique residential club, and in many cases housing units will be grouped to further reduce impact on the wildlife areas (Figure 4). Again this environmental constraint not only dictated a different planning strategy but also led to a new and potentially far more successful marketing approach.

Not all project environmental constraints, however, can be dealt with by rethinking land-use problems. Most are more complex, for they involve multidisciplinary responses to the environmental impact problems. Large projects can involve sanitary engineers, ecologists, landscape architects, cost consultants, social planners, traffic engineers, and many others.

It is these more complex projects which present the greatest challenge for environmental analysts. Some of our recent projects can again illustrate the scope of this multidisciplinary environmental impact challenge as well as its potential for upgrading the quality of development.

At the simplest end of the spectrum is the location of the storm and sanitary sewer network in a large project. Here, the environmental analyst, civil engineer, cost consultant, planner and developer have sought the optimum balance between environmental protection, housing location, and cost minimization for the location of the storm and sanitary sewers. On several projects this has resulted in the maximum use of existing slopes, drainage, and natural features instead of extensive trenching and other site-disrupting approaches.

The sanitary issue has, of course, been the most severe problem in several of the states with the most restrictive environmental laws. Florida, Vermont and others have placed occasional moratoriums on new construction because of limitations of sewage treatment capacity. It is probable that the estimated energy load created by a project will soon become another significant approval problem. As a result, an increasingly important aspect of an environmental analysis is a realistic appraisal of how to minimize these projected loads, and how to obtain timely approvals on the necessary utility connections for creative and economical designs for alternative service sources (i.e. total energy, a package treatment plant, etc.).

Another multidisciplinary problem area, which has received somewhat less attention and fewer constructive analyses, is the impact of traffic congestion and its attendant air and noise pollution. Traditional traffic planning theory often dictates a grid of collector roads drawing from local cul de sac streets and emptying onto a highway system with multi level intersections.

On several of our projects (including the Atlanta one discussed earlier), however, our analysis dictated a network of major roads spaced at between one half and one mile intervals. This spacing reduces the scale of the major highways; intersections can be at grade and collector roads can be omitted given a carefully designed local street system which avoids lengthy cul de sacs (see Figures 5 and 6 for a typical network and a revised road system). These ideas eliminate the major noise, congestion and safety problems associated with the collector roads. At the same time the average traffic loads on the local streets are light enough to permit safe crossing for children and results in only minimal congestion at peak travel periods.

Larger highway networks are requiring even more rethinking of traditional planning and design solutions as a result of the serious impact problems caused by previous projects.

One client, a state highway department, has commissioned a major study to analyze the full range of potentially significant repercussions of highway proximity. This includes—but is not limited to—environmental, economic, socio-psychological, visual, and several other major impact parameters.

Probably the ultimate in complexity is a major jetport. One such example is our London office's recent analysis of the impact of a third London airport and outline of the most desirable pattern for the resulting urbanization. A project such as this can generate a surrounding population of over 300,000. In the past, economic and transportation factors have been the primary determinants of the location and structure of surrounding developments. This study, however, had to weigh noise, landscape, land with scientific value, population congestion, floodplains, wetlands, soil condition, safety and topography as well as the all-important economic, traffic and transportation issues. The result was a recommended pattern of urbanization which was very different than would occur without consideration of environmental impact constraints (Figures 7 and 8).

Because of the growing need to analyze an ever broader series of constraints, environmental impact statements are becoming increasingly complex. Needless to say, the above examples could also illustrate the range of fees. In the simplest cases—the quick analysis for typical real estate projects in areas with minimal approval requirements—the analysis can be completed in a few weeks and the fee can be as little as $2,000 to $8,000. On a large, complex project such as a major airport, nuclear power plant or urban expressway, however, the fee can easily exceed $100,000 for a study extending over several months.

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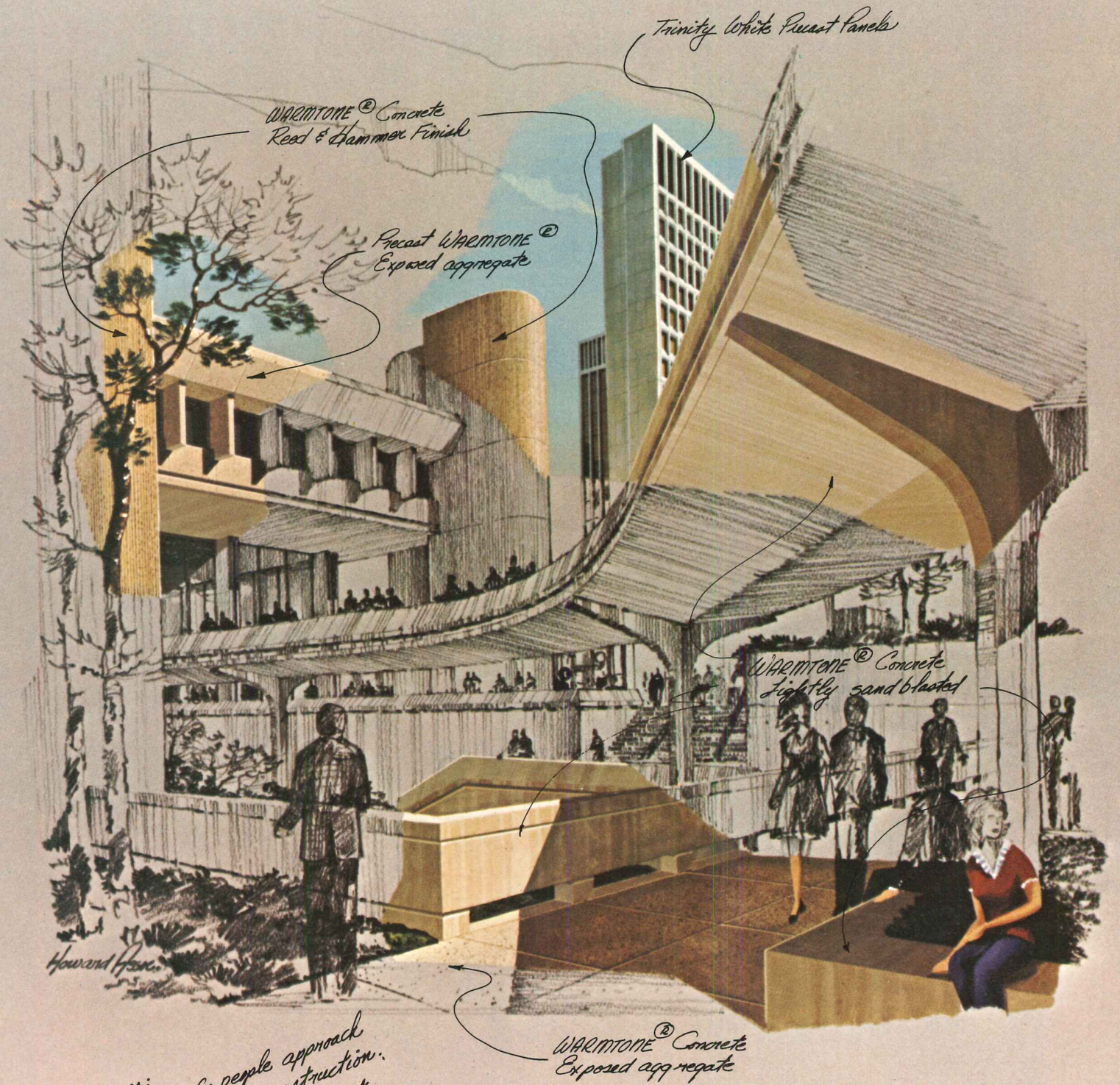

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Budgeting method: key to top building value

The budgeting process starts with a huge body of data and evolves through progressive refinements into a precision tool for optimum design in the real world of client needs and resources. So says Corwin P. Vansant, vice president of CM Associates in this second part of an intermittent series by members of that firm. Part one, an overview of cost management, appeared in RECORD September 1973.

Budgeting is the first and most obvious step in controlling building design and construction costs. It is necessary because owner's needs and desires typically exceed their bank accounts. Architects just as typically seek innovative and ambitious designs—positive attitudes, characteristic of the responsibilities involved, yet inevitably in need of price considerations.

Most clients have a limit on the amount of money they can spend on their project. The purpose of the budget is to allocate that money so that the client's requirements are met within his financial ceiling—in other words, to program general expectations, needs, and design solutions into a compatible package.

The budget won't be, nor should it try to be, the last word in costs, but it can establish the necessary guidelines to put the project into a manageable position. Instead of specifying to the penny, it should set up dollar ranges for the various building requirements. Then, if changes are made or emphasis shifts, undue stress won't be thrown on the project. Once the budget is established, the cost control process will proceed within its framework as value engineering, estimating, purchasing, and project accounting react to it, perhaps generating shifts in allocation or even changes in scope.

The budgeting method is an orderly process

In essence, budgeting is some kind of containment policy that establishes very firm outer boundaries within which lie some elastic alternatives that allow for all kinds of adjustments.

The responsibility for planning the budget lies with the owner, the architect and the construction manager. The construction manager has the greatest amount of homework to do, since he must put the price tags on the project and evaluate possible alternatives. But the load is no lighter for the architect and owner for they must respond to the cost information given them.

At CM Associates, budgeting makes use of a combination of historical precedent and predesign analysis. A preliminary budget based primarily on data from comparable previous projects is arrived at first. From this initial input, a cost model is developed that reflects more detailed design assumptions—height, function, general order of finishes, building systems, and so on. Added to these data are costs for fixed equipment, site development, professional fees, movable equipment (furnishings), client's administration and contingency, as well as any other costs the owner or architect feels should be accounted for (for example, land costs and interim financing). Computers are used to retrieve cost data and speed up the calculating and processing of information and evaluation of alternatives.

Step one: evaluation of historical precedents

The opening move in planning any budget is to find out how costs on similar projects have been running and from them arrive at a cost per square foot for the present job. CM accomplishes this with a computerized collection of building cost data that lists projects by category (for instance, education), classification (college), and building type (chemistry lab). The cost file gives an over-all cost per square foot along with architectural, structural, mechanical, electrical, plumbing, and conveying discipline percentages and the AIA equivalent area. Percentage costs for fixed equipment and site development are broken out (although they aren't computed into the total per square foot costs), usually as a percentage of the building costs. At the bottom of each subdivision, average costs for jobs over 100,000 square feet and jobs less than 100,000 square feet are shown. So too are average costs for all jobs. Additionally, jobs that fall into a low range (minus 10 per cent from the average) and a high range (plus 10 per cent) are averaged. These data permit building owners, architects and construction managers to aim their planning at ranges relating to the owner's high or low financial status.

In order to make the figures from the various projects comparable, adjustment factors are applied to historical costs relating them to a specific time and location with respect to national and regional averages. And since such factors tend to produce erratic results when applied to data more than 10 years old, a decade is the cut-off point for the historical material.

Ultimately, in developing a budget, it is necessary to know building type, location, approximate size and construction target date. Projected market conditions and the client's qualitative objectives should also be at least basically understood. (If he's building his corporate headquarters, he may be more demanding than if he's building a speculative office building.) But it isn't necessary to have all of this input to arrive at a preliminary budget—*provided there is access to a well-organized file of historical data.* Simply by knowing the kind of building planned, a reasonable building cost can be determined and the building team can know almost from the first moment whether it's headed in the right direction.

The construction manager should deal with averages in budgeting and anticipate that contractors will make reasonable profits. (Regarding the latter point, there can always be an exceptionally low bid through either distress or error. But it can't necessarily be counted on, and prudent management should realize that such a bidder may or may not survive the job.) Instead of a budget based on low figures, the client should be provided a budget range. Historical data won't indicate whether a precise building can or can't be built, but it will establish a reasonable bandwidth. Looking at the data, the construction manager can ask—and answer—some pertinent questions: What's the bottom building price; what's the top? What are the bottom, average, and top expenditures within the architectural, structural, mechanical, and other disciplines? This latter point is especially important because it enables the architect to place design emphasis where he thinks it will best accomplish client needs.

Let's assume a hospital administrator wants to build a hospital for which he has indicated a size and budget that average out to $38 per square foot. Cost data may show that the adjusted average per-square-foot price for hospitals has been $41 but that the range has been from $35 to $47. So it's apparent the administrator *can* build a $38-per-square-foot facility. Once the construction manager begins unraveling the client's qualitative desires, however, he may discover that more is wanted than went into the $38-per-square-foot hospital, and further, that the difference can't be made up by trimming certain disciplines. If that's the case, then something is going to have to give—either project scope or budget. But better that it give during the budgeting stage than well into the design stage, when considerable time, effort and expense, not to mention emotion, have been expended.

What the historical data produce is a ballpark figure that gives the building team a target

at which to aim its initial programming. The figure is a reasonable prediction of probable building cost based on precedent. If the average cost (factored for time and location) for 30 hospitals has been $41 per square foot, there is no reason $41 won't apply to hospital number 31. By the same token, since it is an average, it can be adjusted up or down, as more information becomes available.

To the construction costs (architectural, structural, mechanical, electrical, plumbing, any conveying disciplines, fixed equipment, and site development) must be added professional fees, contingency, movable equipment, and owner's administrative expenses for the budget to be complete.

Professional fees are easy since they're generally known from the start—although the hiring of consultants can increase the figure and needs to be anticipated. Unless the contingency is specified by law, as in the case of Federal projects, an eight per cent allowance of construction costs usually is realistic: five per cent as a bidding reserve; three as a construction reserve—the latter primarily insurance against change orders.

Movable equipment is initially determined by building type and can be figured as a percentage of building cost. Hospital furnishings, given their more technical nature, will run considerably more than furnishings for an office building (especially a speculative office building). Historically, the former have averaged about 17 per cent and the latter five per cent, with educational facilities in between at about eight or nine per cent. The client's administrative expenses will vary according to the complexity and frequency of such activities as testing programs, soil borings and surveys, and legal costs. But again, they are best arrived at historically, and historically they've run about one per cent of construction cost.

At this point, the team possesses a preliminary bottom-line figure and can move toward a final budget.

Step two: pre-design analysis looks at proposed shapes and materials

With a preliminary price structure, the client, architect, and construction manager can begin to tie down the basic design concept. And that means conducting a pre-design analysis—specifically, determining an over-all building geometry and selecting basic building materials, then testing their costs against the historical data. This analytical phase of budgeting should concern itself with real costs for real building systems, fixed equipment, and site development, with building costs getting the lion's share of attention. In other words, instead of looking to historical costs that reflect averages of lots of different systems built at a hypothetical location at a hypothetical time, the team must look at specific systems (still basic ones, however—it's not yet time to select the final bolt) and place them in their planned location at a definite future date.

Accordingly, the team must sit down and hypothesize the building (or buildings). What shape will it be? How many stories will it have? What will the general systems, such as exterior wall, interior partitions, ceiling, roof, floor, sub-structure, vertical and horizontal framing, and HVAC, be: steel or concrete; pre-cast or insulated panels; multi-zone or double duct, and so on.

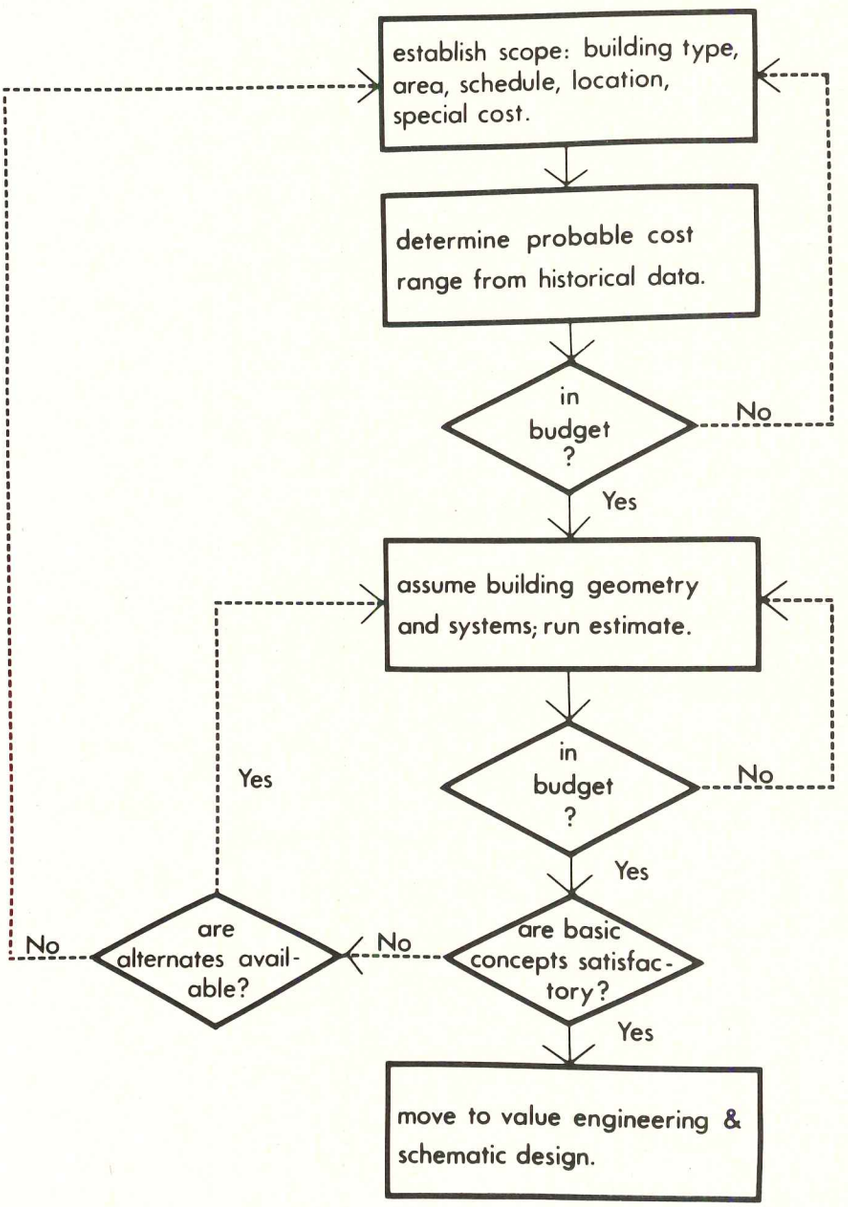
It then becomes a matter of determining quantities—and that can be done without a detailed quantity take off. There are tested basic parameters that will permit calculation of the necessary quantities: 1) number of building stories, 2) building area, 3) perimeter-to-floor area ratio, 4) percentage of exterior skin transparency, 5) partition-to-floor area ratio, 6) floor-to-floor dimensions.

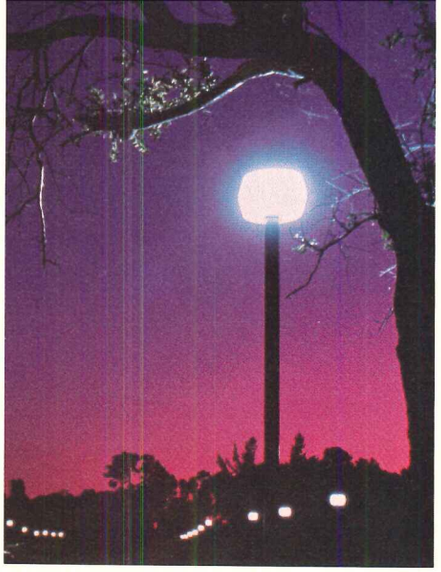
With the aid of a computer to speed retrieval and manipulation of these data, along with unit prices and factors, a discipline and systems estimate and total project cost can be arrived at easily. The speed factor provided by a computer is important because if the bottom line is out of line, the building geometry and system selections can be juggled and an estimate rerun quickly. And even if the bottom line is on target, the team can still go back and test other systems, should it not be entirely satisfied with those chosen.

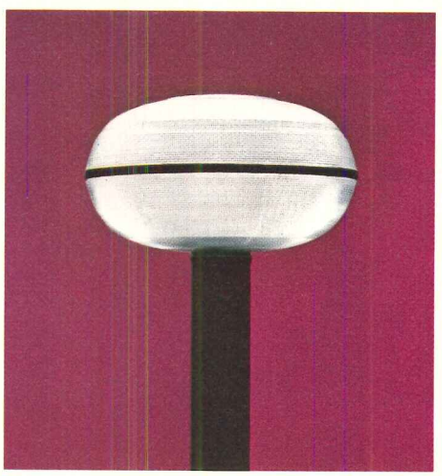
The importance of pre-design analysis lies not so much in selecting the right or wrong materials but rather in the fact that something has been selected, thereby giving the client and architect something to respond to—both in cost and tangible material—and to adjust where necessary. The building team can create castles in the sky all day without wasting the architect's or client's time and money programming detailed solutions that may or may not be within the client's bank account. In the meantime, the client's desires will become more apparent and the architect will discover where his choices lie—and all *before* the design become frozen.

Budgeting, to be sure, is not an exercise in exactness. The fund allocations will seldom prove out to the penny. No matter. Budgeting does put a project into terms of known quantities, permitting adjustment later in the game without drastic changes. By getting a reading on the masses and the engineering systems, the building team learns whether it's being realistic or dancing around somewhere in the clouds.

Once the team members discover that they're off track but can correct for it—confidence will take hold and with it the project.







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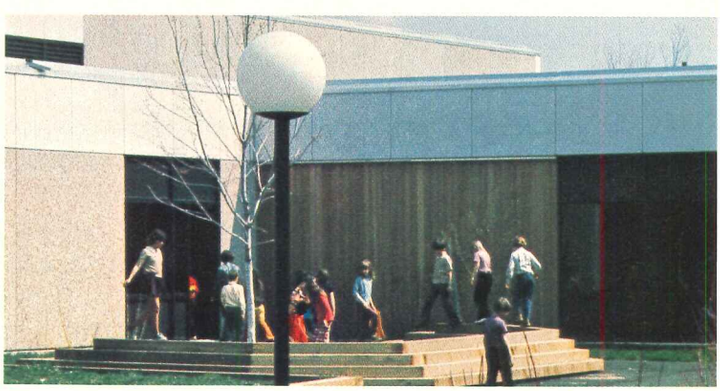

Top left: Jewish Hospital, Cincinnati; George F. Roth & Partners, Architects; Turner Construction Co., Contractor.

Bottom left: L.A. International Airport Satellite; Haas & Greenfield Assoc., Architects; Columbia Showcase, Fabricator.

Top right: Opthalmic Surgery Suite; Brooklyn Eye & Ear Hospital, New York.

Bottom right: 9th Federal Savings Bank, Nanuet, N.Y.; Donald Freed, Architect; Woodwork Corp. of America, Fabricator.

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For additional information, please refer to Sweet's Files 8.3/Fo, 9.12/Fo and 6.14/Fo.

Special costs for diagnostic centers

In recent years, groups of doctors have banded together and, rather than construct office space, have built medical diagnostic centers. These centers provide the doctor with not only office space but also the facilities to conduct tests, examinations and even small operations under one roof.

Incidental to the costs of these buildings are laboratory fixtures, X-ray machinery with lead screening and operating room equipment. Generally the fixtures, furniture and finishes are comparable to a high quality office building. To that level of cost, the following special items should be added.

Operating room fixtures average $3,800 per operating table and include a high intensity light, instrument sterilizer, operating table and supply cabinets and instruments.

Laboratory cabinets, sinks and scales to accommodate two technicians average $2,300.

An X-ray and fluoroscope unit, electrocardiograph and basal metabolism apparatus of good quality would cost $7,500.

The costs in dollars per square foot of material for X-ray protection are as follows:

Sheet lead $^1/_{32}$ inch thick	— .85
$^1/_{16}$	— 1.70
$^1/_8$	— 3.40
X-ray glass ¼ inch thick	—36.00
Lead-lined gypsum bd. $^1/_{16}$ inch thick	— 2.25
Lead door (21 sq. ft. minimum)	— 8.00

John H. Farley, senior editor
Dodge Building Cost Services

INDEXES: February 1974 — 1941=100.00 (except as noted)

Metropolitan area	Cost differential	Current Indexes non-res.	residential	masonry	steel	% change last 12 months
U.S. Average	8.1	439.2	412.5	429.8	419.6	+11.92
Atlanta	7.5	552.9	521.3	541.0	529.2	+ 9.53
Baltimore	8.1	485.0	456.1	472.9	459.6	+13.18
Birmingham	7.3	408.7	389.2	394.4	390.0	+12.32
Boston	8.8	444.9	420.5	438.7	427.9	+11.09
Buffalo	8.7	478.0	449.0	470.1	456.6	+10.64
Chicago	8.4	517.2	491.8	498.7	492.5	+14.54
Cincinnati	8.5	469.9	442.2	456.8	445.8	+12.67
Cleveland	8.7	470.1	442.4	459.2	448.8	+ 7.75
Columbus, Ohio	7.9	453.2	425.6	440.9	431.9	+ 9.73
Dallas	7.5	441.8	427.8	431.2	422.9	+12.96
Denver	7.9	467.5	439.9	459.4	444.9	+11.06
Detroit	9.5	507.5	484.0	510.9	491.3	+15.75
Houston	7.0	397.4	373.3	386.8	380.4	+ 7.23
Indianapolis	7.5	397.9	373.7	388.7	380.5	+ 9.07
Kansas City	7.9	412.5	389.8	403.1	392.8	+10.66
Los Angeles	8.4	516.8	472.5	501.2	490.8	+18.84
Louisville	7.4	437.1	410.6	426.6	417.5	+11.78
Memphis	7.7	433.7	407.7	416.9	411.2	+17.01
Miami	7.7	454.0	432.6	440.2	431.3	+10.12
Milwaukee	7.9	479.4	450.2	469.4	455.7	+ 8.67
Minneapolis	8.5	462.6	435.3	454.2	444.2	+10.54
Newark	8.4	420.3	394.7	412.7	404.8	+10.01
New Orleans	7.3	427.4	403.5	421.1	411.4	+13.83
New York	10.0	497.9	463.1	485.8	428.3	+14.77
Philadelphia	9.0	491.9	468.7	487.3	474.1	+15.71
Phoenix (1947 = 100)	7.7	251.7	236.4	243.6	239.5	+12.37
Pittsburgh	8.5	430.5	405.1	425.4	412.4	+11.68
St. Louis	8.4	451.4	426.1	444.0	433.9	+10.44
San Antonio (1960 = 100)	6.9	161.3	151.5	155.0	152.9	+ 6.22
San Diego (1960 = 100)	8.0	181.5	170.5	177.5	173.9	+17.63
San Francisco	9.2	647.8	592.3	641.4	622.1	+12.68
Seattle	8.4	436.8	391.1	431.9	415.9	+14.32
Washington, D.C.	7.5	407.1	382.3	394.9	386.4	+ 8.70

Cost differentials compare current local costs, not indexes.

Tables compiled by Dodge Building Cost Services, McGraw-Hill Information Systems Company

HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL NON-RESIDENTIAL BUILDING TYPES, 21 CITIES — 1941 average for each city = 100.00

Metropolitan area	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Quarterly) 1st	2nd	3rd	4th	1973 (Quarterly) 1st	2nd	3rd	4th
Atlanta	306.7	313.7	321.5	329.8	335.7	353.1	384.0	422.4	459.2	472.5	473.7	496.1	497.7	516.4	518.0	543.8	544.8
Baltimore	275.5	280.6	285.7	280.9	295.8	308.7	322.8	348.8	381.7	388.1	389.3	418.8	420.4	441.8	443.6	474.5	475.5
Birmingham	256.3	260.9	265.9	270.7	274.7	284.3	303.4	309.3	331.6	340.4	341.6	356.7	358.3	371.7	373.2	401.1	402.1
Boston	244.1	252.1	257.8	262.0	265.7	277.1	295.0	328.6	362.0	377.3	378.5	392.8	394.4	414.0	415.6	436.8	437.8
Chicago	301.0	306.6	311.7	320.4	328.4	339.5	356.1	386.1	418.8	422.8	424.0	442.7	444.3	465.3	466.9	507.6	508.6
Cincinnati	263.9	269.5	274.0	278.3	288.2	302.6	325.8	348.5	386.1	399.9	401.1	400.1	410.7	430.4	432.0	461.4	462.4
Cleveland	275.8	283.0	292.3	300.7	303.7	331.5	358.3	380.1	415.6	415.2	416.4	427.7	429.3	436.7	438.3	461.2	462.2
Dallas	253.0	256.4	260.8	266.9	270.4	281.7	308.6	327.1	357.9	364.9	366.1	385.0	386.6	407.3	408.9	435.4	436.4
Denver	282.5	287.3	294.0	297.5	305.1	312.5	339.0	368.1	392.9	398.3	399.5	413.8	415.4	429.5	431.1	460.0	461.0
Detroit	272.2	277.7	284.7	296.9	301.2	316.4	352.9	377.4	409.7	416.9	418.1	431.5	433.1	463.4	465.0	500.0	501.0
Kansas City	247.8	250.5	256.4	261.0	264.3	278.0	295.5	315.3	344.7	348.7	349.9	365.4	367.0	387.7	389.3	404.8	405.8
Los Angeles	282.5	288.2	297.1	302.7	310.1	320.1	344.1	361.9	400.9	407.8	409.0	422.9	424.5	453.3	454.9	503.2	504.2
Miami	269.3	274.4	277.5	284.0	286.1	305.3	392.3	353.2	384.7	391.5	392.7	404.8	406.4	419.0	420.6	446.2	447.2
Minneapolis	275.3	282.4	285.0	289.4	300.2	309.4	331.2	361.1	417.1	401.7	402.9	411.3	412.9	430.6	432.2	455.1	456.1
New Orleans	284.3	240.9	256.3	259.8	267.6	274.2	297.5	318.9	341.8	350.9	352.1	368.1	369.7	382.1	383.7	419.5	420.5
New York	282.3	289.4	297.1	304.0	313.6	321.4	344.5	366.0	395.6	406.5	407.7	421.5	423.1	453.5	455.1	484.3	485.3
Philadelphia	271.2	275.2	280.8	286.6	293.7	301.7	321.0	346.5	374.9	394.2	395.4	417.9	419.5	459.3	460.9	484.1	485.1
Pittsburgh	258.2	263.8	267.0	271.1	275.0	293.8	311.0	327.2	362.1	364.5	365.7	378.7	380.3	406.3	407.9	423.4	424.4
St. Louis	263.4	272.1	280.9	288.3	293.2	304.4	324.7	344.4	375.5	385.5	386.7	400.9	402.5	427.8	429.4	443.2	444.2
San Francisco	352.4	365.4	368.6	386.0	390.8	402.9	441.1	465.1	512.3	535.3	536.5	559.4	561.0	606.4	608.0	631.3	632.3
Seattle	260.6	266.6	268.9	275.0	283.5	292.2	317.8	341.8	358.4	363.0	364.5	369.9	371.5	388.4	390.0	423.4	424.4

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.

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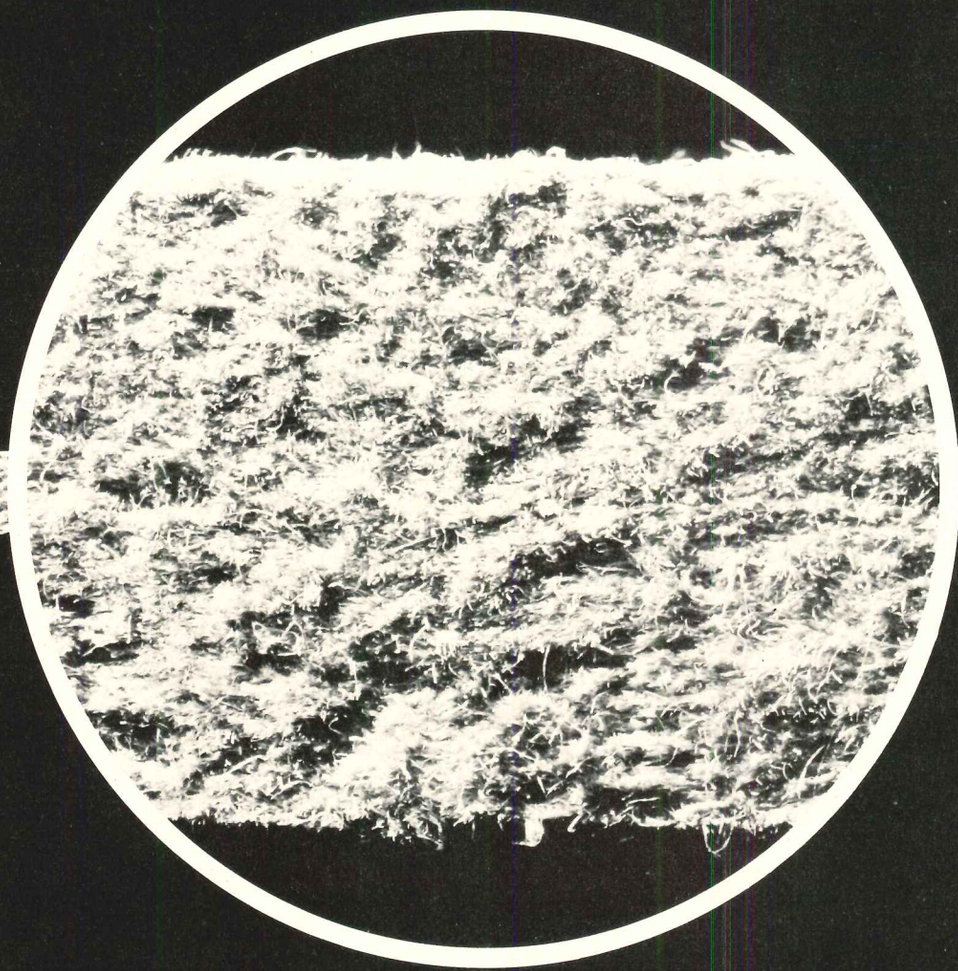

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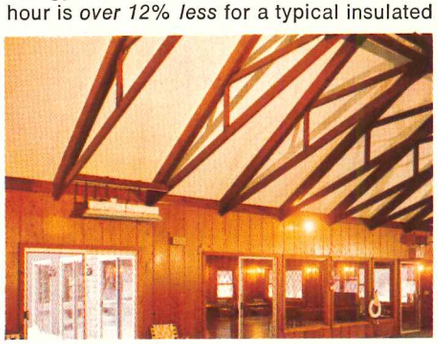

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Where we've been: 1973 in review

- Contract awards for new construction in the United States rounded out to be an even $100 billion in the year just ended.
- This makes 1973 the third consecutive year in which construction contract awards increased by 10 per cent or better.
- By the end of 1973, the nation's construction industry was nearly one-and-a-half times larger than it had been when the decade began.

This brilliant three-year track record is unmatched in the post World War II history of the industry. Housing did nearly all of the job in 1971 and 1972, surging more than 80 per cent over the two-year span. But, last year's construction markets saw a shift in the mix, with nonresidential and nonbuilding structures accounting for most of the growth.

Let's go back and examine 1973 to see if the patterns of the past provide any basis for an understanding of where we're going and why in the energy-short future.

Residential building, the star performer of the 1971 and 1972 construction scene, ended 1973 with a gain, but not a very large one. (Less than five per cent.) And, most of it was in the form of cost increases, rather than real growth. After a strong first quarter, the Index of residential building contracts trended steadily downhill, dropping below 1972's average level after mid-year (see chart 1).

Housing's decline was anticipated by most construction analysts, and for most of the same reasons. Credit stringency, localized overbuilding, and the housing subsidy freeze were the three big items on everybody's list of obstacles to housing growth in 1973. They also loom as problem areas in the months immediately ahead; although a fourth item, "the energy scarcity question," is now finding a place in more and more people's analyses.

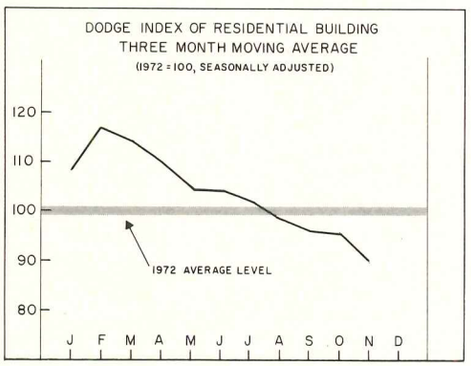
Nonresidential building wound up 1973 ahead nearly 20 per cent in contracting dollars—a sharp departure from the five and six per cent annual gains recorded in 1971 and 1972, respectively. As expected, in a year of generally strong economic growth, the business-related components of the nonresidential total piled up the largest increases. And, of the business-related components, industrial building, half-again as large as the 1972 figure, set the pace. Because of the slow, halting recovery from the 1970 recession, this component was down nearly 30 per cent in 1971. It gathered strength in 1972 with a 15 per cent push, though, that set the stage for last year's surge. In terms of percentage gains it's pretty certain that 1974 is not going to match 1973's performance, but with businessmen reaffirming their plans to invest significantly more (over 10 per cent) in new plant and equipment this year than they did in 1973, another increase in industrial contracts seems assured. And, within the total, expect to see the paper, nonferrous metals and petroleum processing industries out there among the biggest spenders.

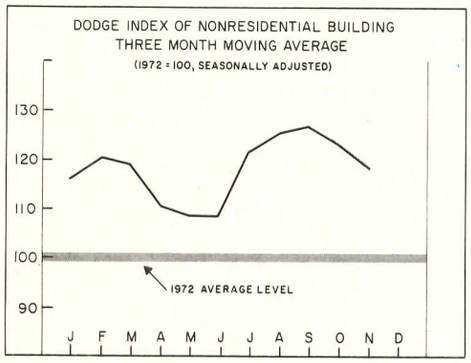
Store building, ahead some 20 per cent at year end, was another major contributor to the nonresidential category's buoyant 1973 gains. Contracting for stores and other mercantile structures is affected, both, by periods of general economic prosperity and the housing cycle. Store contracting responds to new residential building, but with a lag of from six months to a year. This explains why the store component was strong all through 1973, despite a weakening housing market. On the other hand, it's also a reason why the prospect for further growth in 1974 is not bright.

Office building logged another strong year, with contracting gains exceeding 10 per cent. Again, it was the South, with a 20 per cent increase that paced the U.S. total. The Northeast, historically the key office building region, managed a five per cent contracting gain. This is roughly the same amount by which its 1972 performance exceeded 1971.

Schools and hospitals, with a combined 1973 value just about even with the 1972 amount, were the poorest performers in the nonresidential category's stable of building types last year. Due to abnormally weak second and third quarter levels, they're also the two components responsible for the dip in the nonresidential index at mid-year (see chart 2). The President's decision to kill the Hill-Burton hospital construction program doomed chances for any gains in the hospital component early in the ball game. Efforts to resurrect portions of the program came too late to affect 1973's outcome. And, Federal fund impoundments, high interest rates, and a generally low level of demand limited the growth in the educational building figure, despite higher-than-normal levels of voted approved bond proposals last year.

1973 saw public building surge ahead some 40 per cent, as states and municipalities applied a large portion of their revenue sharing funds toward capital improvements. A significant portion of the 25 per cent gains recorded in the recreational and miscellaneous components can be attributed to revenue-sharing





also. Revenue-sharing wasn't the only source of public building's strength last year, though. The quasi-public Postal Service, no longer hamstrung by Federal budget constraints, began work on a number of new post offices and related facilities in 1973.

Nonbuilding construction provided the industry with a mirror-image of housing performance. After a weak first quarter, this construction category gathered momentum as the year wore on, ending it in a surge of electrical utility contracts. Contracting for sewer and water facilities showed fairly consistent strength all through 1973, while highway contracting, after a strong first half faded in the fourth quarter.

The opening months of 1974 should see a continuation of the trends outlined above. Housing has probably got a little further to go before the bottom is reached. Nonresidential building will continue strong for a while yet; but where it will ultimately settle is primarily dependent upon what the energy situation does to the economy in general. The only apparent beneficiary of our current problems with energy will be utilities, pipelines and dock facilities.

James E. Carlson, Manager, Economic Research
McGraw-Hill Information Systems Company

Andersen Perma-Shield® Windows help a parochial school prove a point.

St. Mark's High School, Wilmington, Delaware, is proving that private Catholic education has not been outdated.

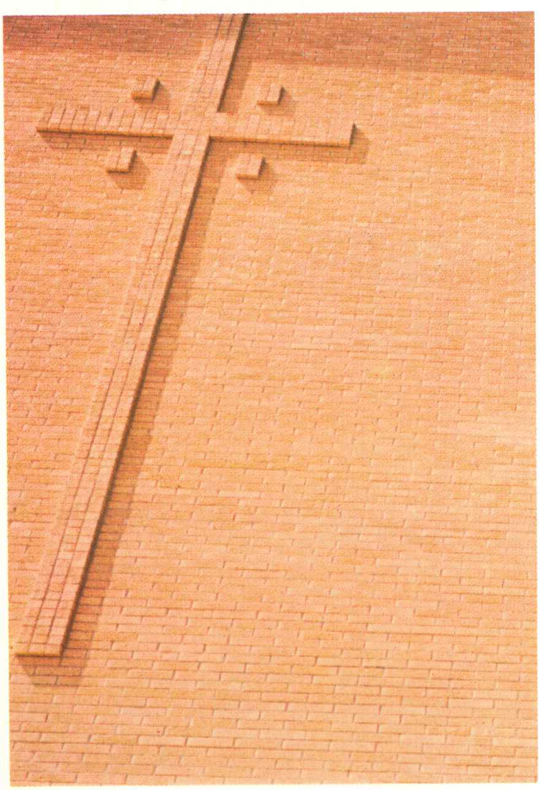
Constructed in the face of financial problems beleaguering Catholic education nationwide, the school's utilitarian design has been a significant factor in St. Mark's early success.

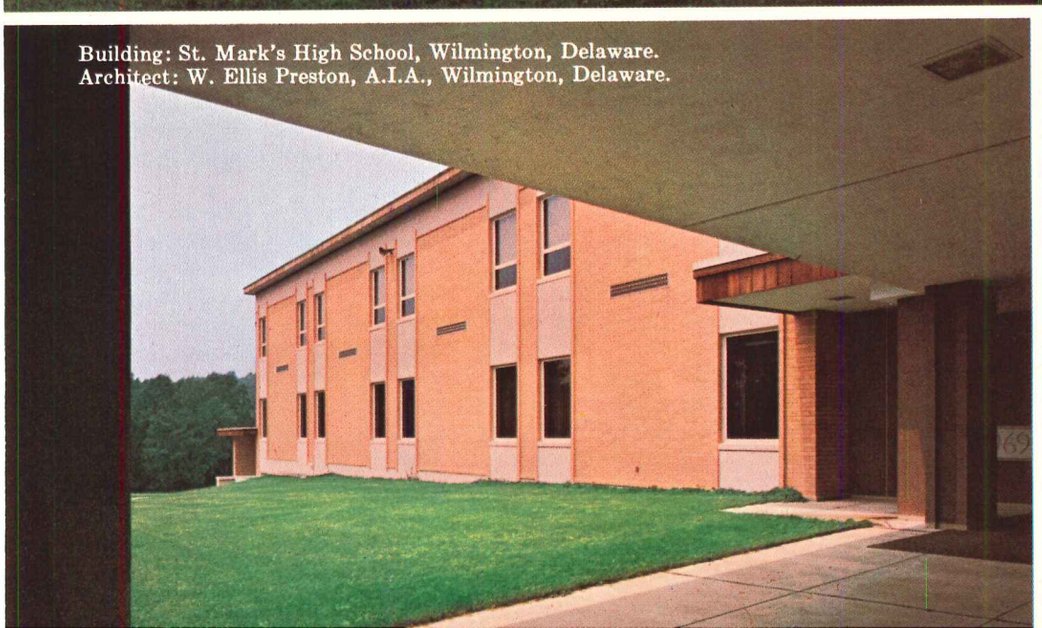
Because the architect designed the school for low maintenance costs, ease of maintenance and long life, Andersen Perma-Shield® Awning Style Windows were a natural choice.

All the exposed portions of Perma-Shield Windows are enclosed in a tough, durable vinyl sheath that will not rust, pit or corrode and won't need painting . . . keeping maintenance costs at a minimum.

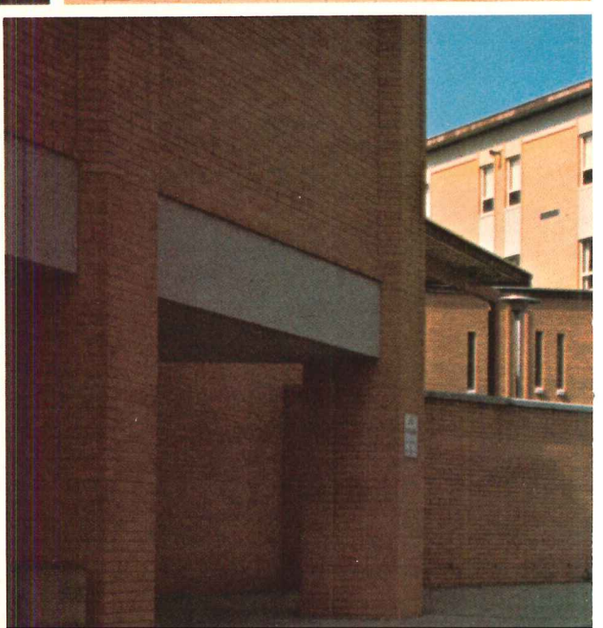
And Perma-Shield's stabilized wood construction, welded insulating glass and close-fitting tolerances keep the school's heating and cooling costs at a minimum, too.

Inside the school, Perma-Shield Windows help establish a relaxed,





Building: St. Mark's High School, Wilmington, Delaware.
Architect: W. Ellis Preston, A.I.A., Wilmington, Delaware.



quiet atmosphere conducive to classroom education. They bring the warmth, beauty and character of wood to trim that can be painted or stained to match any decor.

Operating costs can close a school. But the low maintenance features of Andersen Perma-Shield Awning Style Windows will save money for St. Mark's year after year . . . helping them keep their doors open.

Further information on all Andersen Windows and how they can help your school design is available from your Andersen dealer or distributor. He's in the Yellow Pages under "Windows, Wood". Or see your Sweet's File (Sections 8.16/An. and 8.6 An.) or write us.

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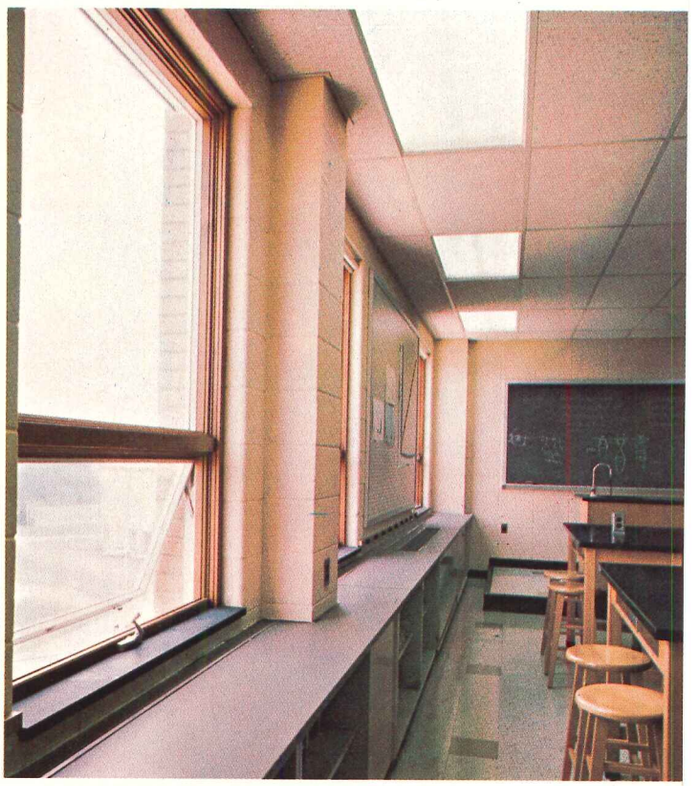

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System 310, shown here, is one of four distinctive **Wilsonwall** systems you can specify. All are available in the full range of **Wilson Art** woodgrains and solids that coordinate perfectly with **Wilson Art** laminated plastic and **Dor-Surf** door facing. In addition to **System 310** with its hidden aluminum moldings you can realize your designs in a standard V-groove system, a reveal system, and a Class-1A fire-hazard system.

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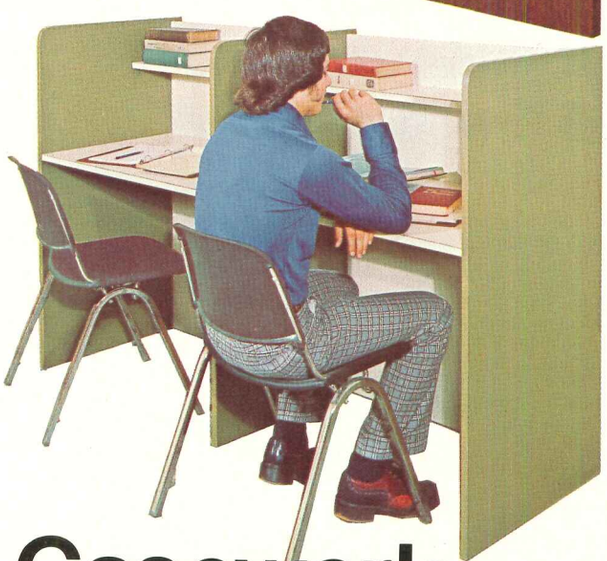
Whatever **Wilsonwall** system you specify, **Dor-Surf** works beautifully with it.



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Casework, furniture and fixtures surfaced with **Wilson Art** laminated plastic help you maintain complete design control. **Wilson Art** variety—in solids, in woodgrains, in surfaces that include true dimensionals — gives you the choice, the widest possible choice, of aesthetic effect—with ideal cost ratios.

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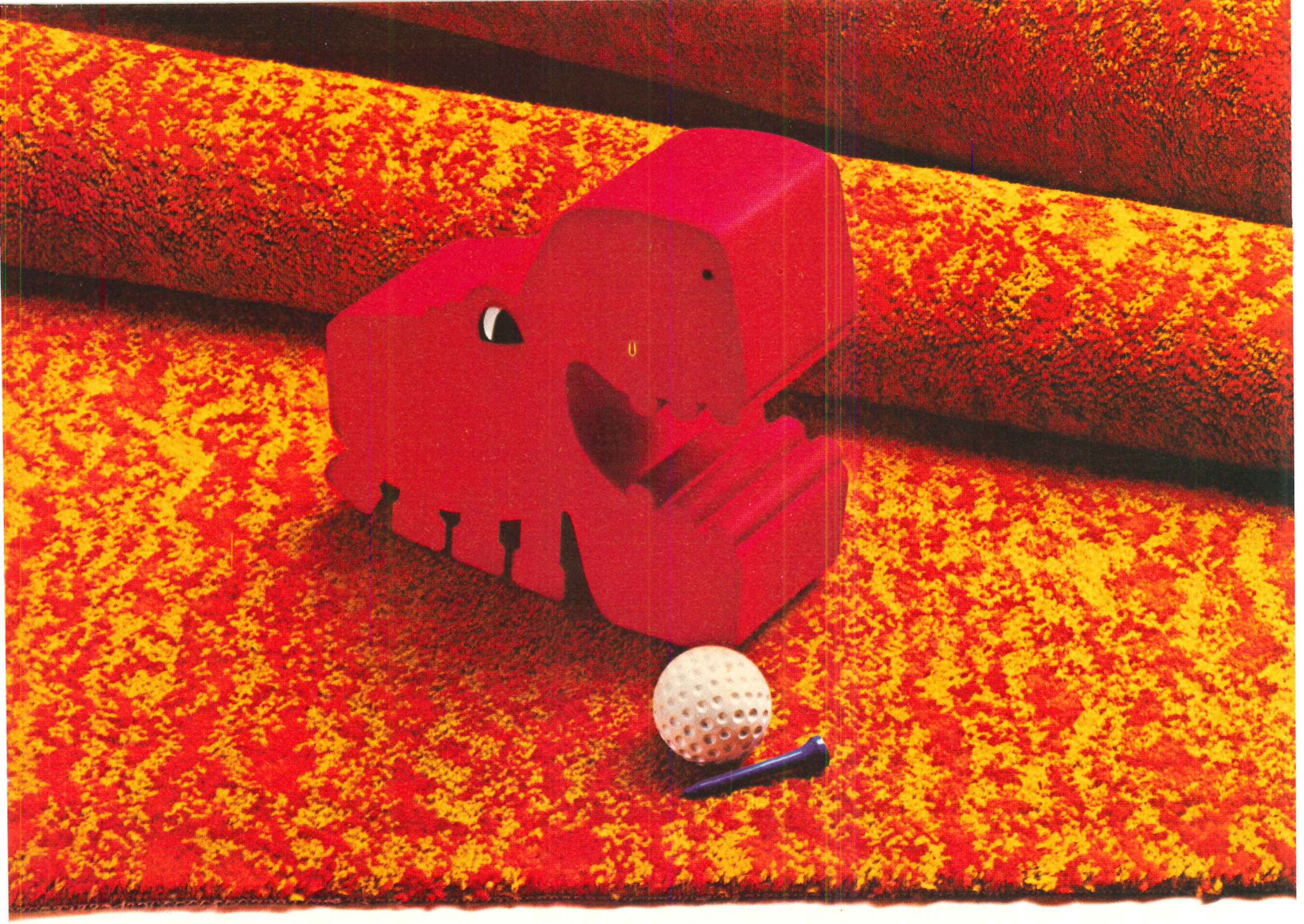

This carpet lived up to it at the PGA National Golf Club and is still going strong. Anso® nylon's five year guarantee.

This carpet is used throughout the public areas and locker rooms of the PGA National Golf Club in Palm Beach Gardens, Florida. And after five years of continuous wear, the carpet still looks great. A performance record characteristic of Anso nylon and backed up by Guaranteeth—the guarantee with teeth. That's Allied Chemical's assurance that the carpet will not wear more than 10% in five years, or we'll replace it, installation included.

Anso nylon is the second-generation, soil-hiding nylon. This carpet's success story has led to sequels. In the five years since installation, it's been specified in hundreds of other PGA clubs throughout the country.

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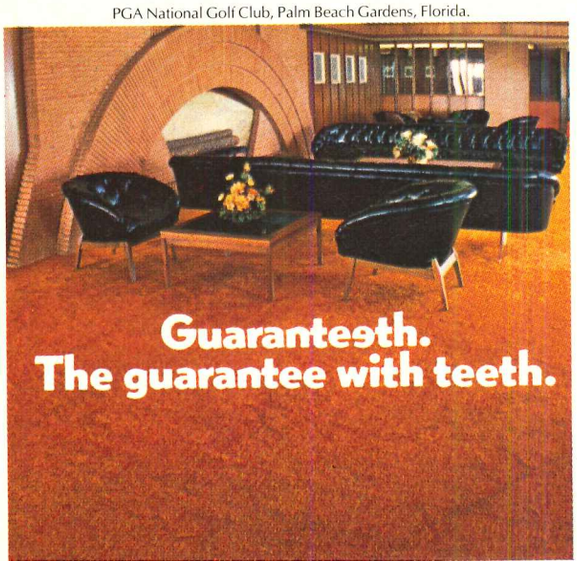
®ANSO Nylon Allied Chemical

PGA National Golf Club, Palm Beach Gardens, Florida.



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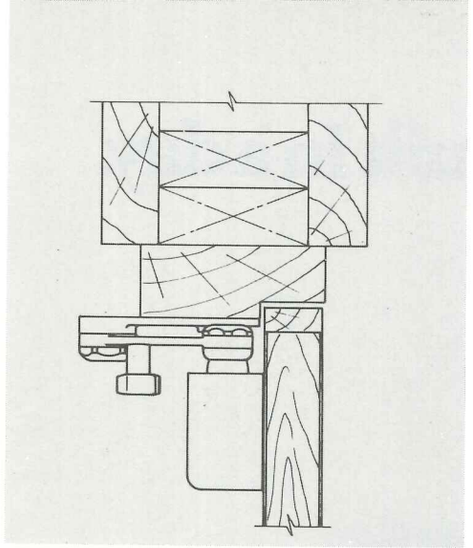

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Fisherman's Cove Restaurant, Atlanta, Georgia
Architects: Romweber-Bornhorst-Edwards-Brimm Associates

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At least on paper.

If they had only had a Xerox duplicator.

Every time the Roman Senate decided on a new number of arches on the Colosseum they wouldn't have had to waste countless hours in tedious redrafting.

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And with a Xerox duplicator they wouldn't have had to sit around, chewing on their styluses, waiting for outside scribe services to deliver copies of their specs.

The Romans had no other choice. But you do.

Contact a Xerox Architecture/Construction/Engineering specialist.

With his information and a Xerox duplicator, Rome might not only have been built faster, but it would have given Nero something else to fiddle with.

XEROX

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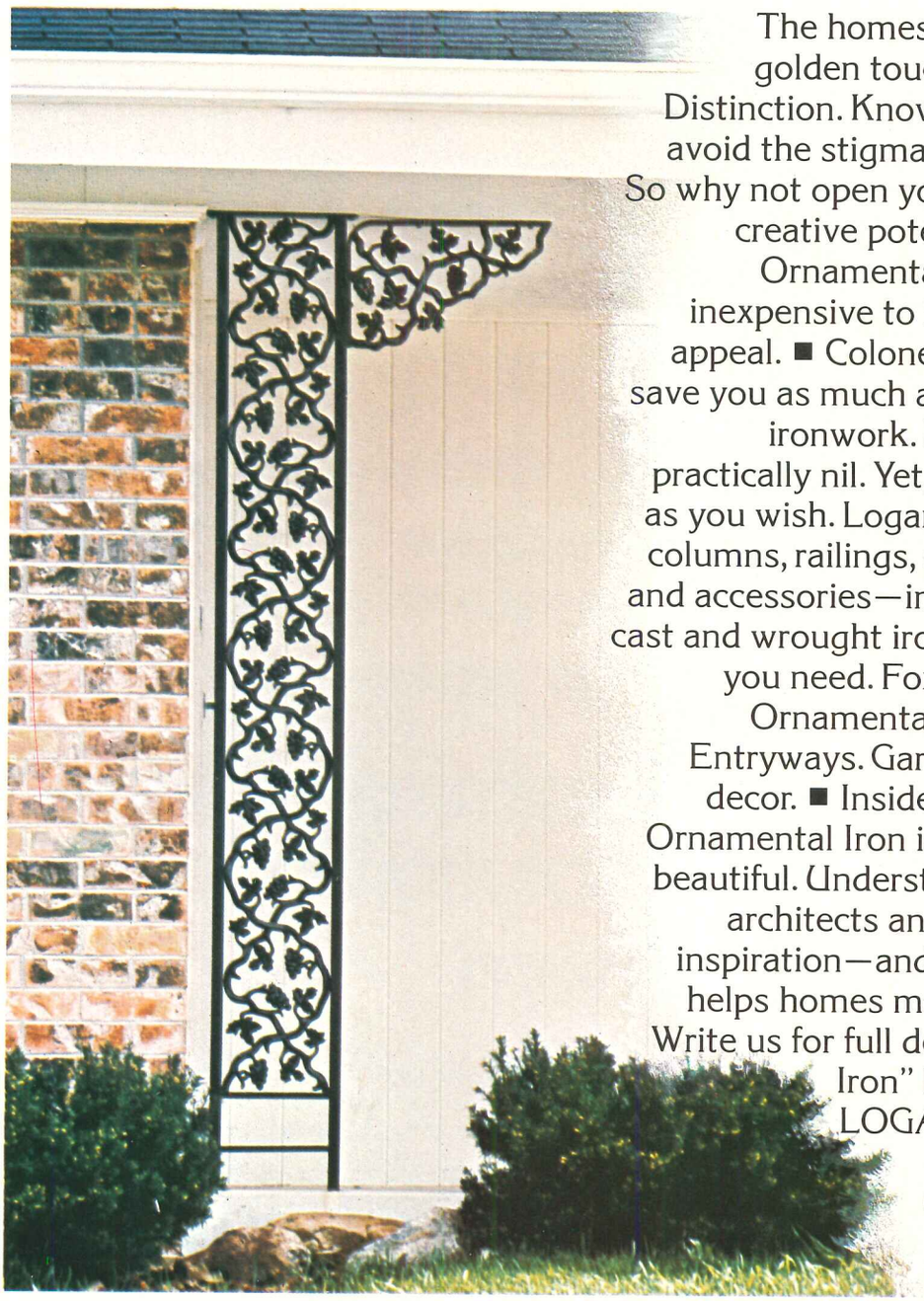
Logan originality: the golden touch in iron.



The homes that sell best have the golden touch of personality. Style. Distinction. Knowing this, you'll want to avoid the stigma of faceless conformity. So why not open yourself to the profitable creative potential of Colonel Logan Ornamental Iron? It's so easy and inexpensive to install this strong sales appeal. ■ Colonel Logan standard sizes save you as much as 1/3 the cost of custom ironwork. Laborious handwork is practically nil. Yet, you can be as creative as you wish. Logan originality brings you columns, railings, shutters, room dividers and accessories—in a wide variety of both cast and wrought iron patterns. Everything you need. For porticos. Balustrades. Ornamental trim. Pool enclosures. Entryways. Garden furniture. Shelving decor. ■ Inside or out, Colonel Logan Ornamental Iron is very versatile, always beautiful. Understandably, many leading architects and builders turn to it for inspiration—and the golden touch that helps homes move. ■ Don't stop now. Write us for full details and our "Ideas in Iron" brochure. A gold mine. LOGAN CO., P.O. Box 6107, Louisville KY 40206. Or 2421-25 Hunter St. Los Angeles CA 90021.

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Old pros, up to something new

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Owner and developer: Three Three Nine Palm Partnership; architect: Barry I. Bernstein, AIA; structural engineer: Brandow and Johnston Associates; fabricator/erector: Bethlehem Steel Corporation.

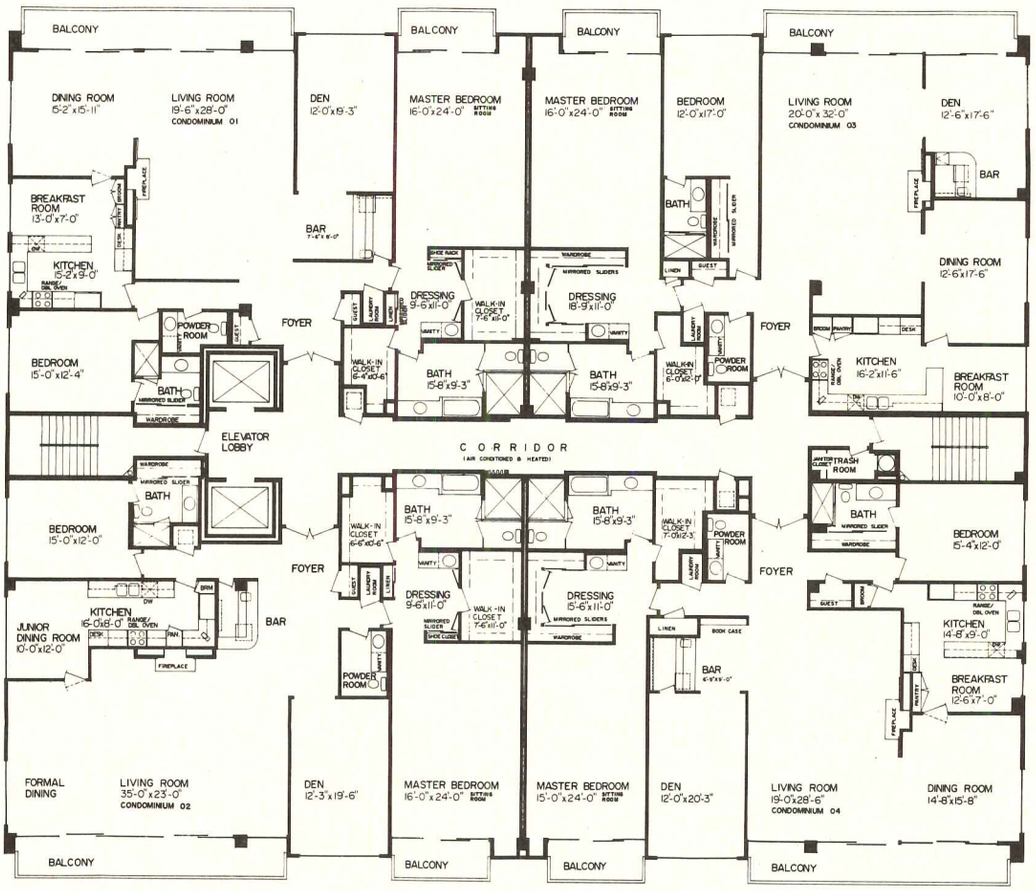
Flexibility of steel framing provides occupancy plan solution in spacious, luxury condominium

A 7-story condominium, Three Three Nine Palm, in Beverly Hills, California, was recently constructed in an unusual residential housing concept which features units of only one size with a substantial living area.

The project includes four apartments on six floors for a total of 24 units. Although there are four spacious floor plans to choose from, each unit is about the same size—approximately 3,000 sq ft. The condominiums will sell in a range from $118,000 to $161,000 depending upon their floor level in the structure.

In this price range, the developers insisted on the highest quality in every aspect of the project. Steel framing, fabricated and erected by Bethlehem Steel, was selected for the condominium. Four-hundred-seventy-five tons of ASTM A36 structural shapes and plates were used.

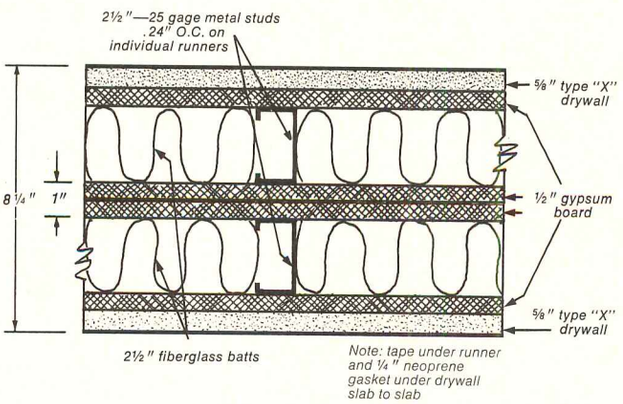
Designers first laid out the floor plans and then fitted the framing to the architectural requirement. Bay sizes vary, but typically they measure approximately 33 by 35 ft or 29 by 33 ft. Spandrel beams are typically W24 sections, girders W21 members, and floor beams W21 and W18 sections. The structure measures approximately 98 by 125 ft and encompasses some 72,000 sq ft. Floor-to-floor height is 11 ft, 2 in. with a floor-to-ceiling height of 8 ft, raised to 8 ft, 8 in. in the living rooms and bedrooms.



Typical floor plans available in the Beverly Hills luxury condominium. Designers first laid out the floor plans and then fitted the framing to the architectural requirements.

Attention to the luxury of quiet

At Three Three Nine Palm, quiet should prevail. A drywall ceiling is suspended 13 in. from the 5-in.-thick reinforced concrete floor slab. In addition to the carpeting, floors are surfaced with 100-oz carpeting pads. In the kitchen and bathroom areas a ½-in. layer of floorboard is covered by a ½-in. layer of plywood topped by floor covering with a ¼-in. foam backing.



The party walls are typically over 8-in.-thick—surfaced with 5/8-in. drywall over ½-in. gypsum board, over 2½-in. fiberglass batting, the layers sandwiching two ½-in. gypsum wall boards. The party wall has an STC rating of about 75 decibels. Both the party wall and ceiling construction should provide excellent sound absorption characteristics.

The party walls are typically over 8-in.-thick—surfaced with 5/8-in. drywall over ½-in. gypsum board, over 2½-in. fiberglass batting, the layers sandwiching two ½-in. gypsum wall boards. The party wall has an STC rating of about 75 decibels. Both the party wall and ceiling construction should provide excellent sound absorption characteristics.

Each housing unit is equipped with primary and secondary balconies.

The light steel framing system was especially advantageous as to foundation requirements. The desire for relatively long spans in the spacious apartments and the large areas of perimeter glass made a steel framing system even more economical.

For luxury or economy, steel framing can often provide a flexible design solution to your construction problems. Why not discuss it with your nearby Bethlehem sales engineer. Or write: Bethlehem Steel Corporation, Bethlehem, PA 18016.

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We helped turn the

Tennis has been moving indoors out of the cold, the wet, the wind, the sun and the night.

But there's still a stumbling block —the lighting. Light shining down on the players gets in their eyes and makes it hard to see the ball.

The Square Lake Racquet Club in Bloomfield Hills, Michigan, solved this problem with uplighting instead of downlighting.

They use 142 Sylvania Metalarc lamps in an indirect lighting system, giving them uniform, glare-free illumination all over their courts.

Thousand-watt Metalarc high-intensity lamps emit a light nearly five times stronger than incandescent lamps of the same wattage. Which means it takes fewer lamps

lighting business upside-down.

and less electricity to light up a court.

The lamps have an average rated life of 10,000 hours. They last about ten times longer than 1000-watt incandescents.

And they're color-balanced to produce a natural effect. It's like bringing the outdoors indoors.

The lamps have been used for years for direct lighting of stores, factories, ball parks, car lots and parking lots.

Now more and more tennis courts are using Metalarc lamps in fixtures pointed up to the ceiling.

Whole new illumination systems have been developed to take advantage of the Metalarc's good points.

So thanks to a lamp with a lot on the ball, things are looking up in the lighting business.

For details, call your GTE Sylvania representative or local distributor (in the Yellow Pages under Lighting) —or write to Sylvania Lighting Center, Danvers, Mass. 01923.

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All Alcoa industrial building products can be finished in any of the 10 attractive colors of Alcoa Super Alumalure® finish, a baked-on, factory-applied, fluoropolymer enamel, rich in beauty and color integrity.

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Aluminum's hidden advantages. Begin with the fact that aluminum takes care of itself *and* your budget. It resists corrosion by forming a protective film of aluminum oxide. So, unpainted aluminum is all some buildings need.

However, if you want color, all the more reason to choose aluminum. It's the substrate that provides additional protection should the coating be scratched. The natural aluminum oxide film that forms, resists corrosion and discourages flaking or adhesion loss, staining or streaking. Aluminum actually *helps* a coating last. It holds a finish beautifully.

And, the Super Alumalure finish is a long-lasting film that won't peel, flake or chip. Its fluoropolymer resin is tough, durable Kynar* that gives a high degree of protection from chemical attack and has a projected service life of more than 20 years, based on exposure and weathering tests.

For complete information on our commercial and industrial building products, see *Sweet's Architectural* or *Industrial* files. Or write Aluminum Company of America, 1056—B Alcoa Building, Pittsburgh, Pa. 15219.

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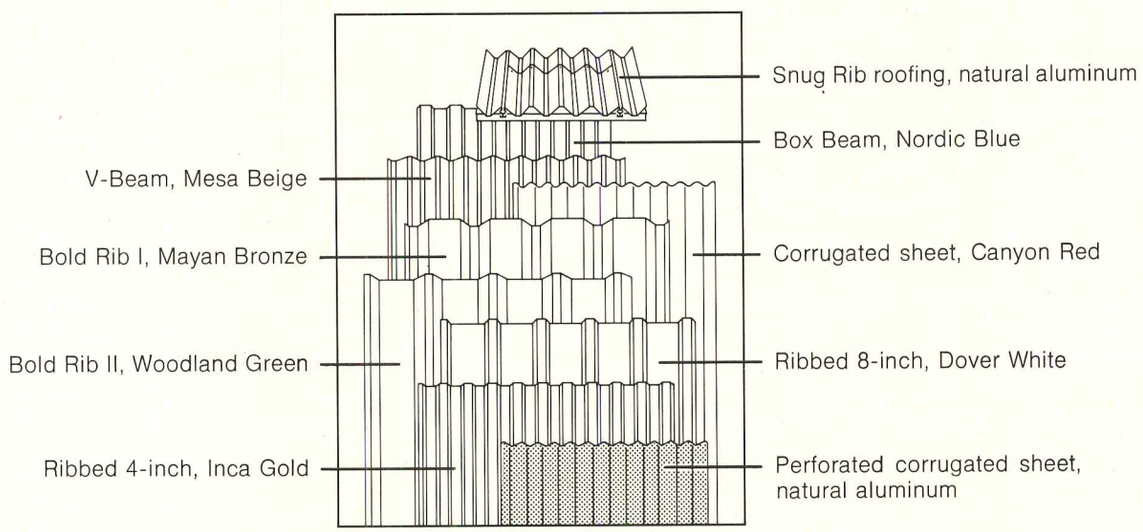

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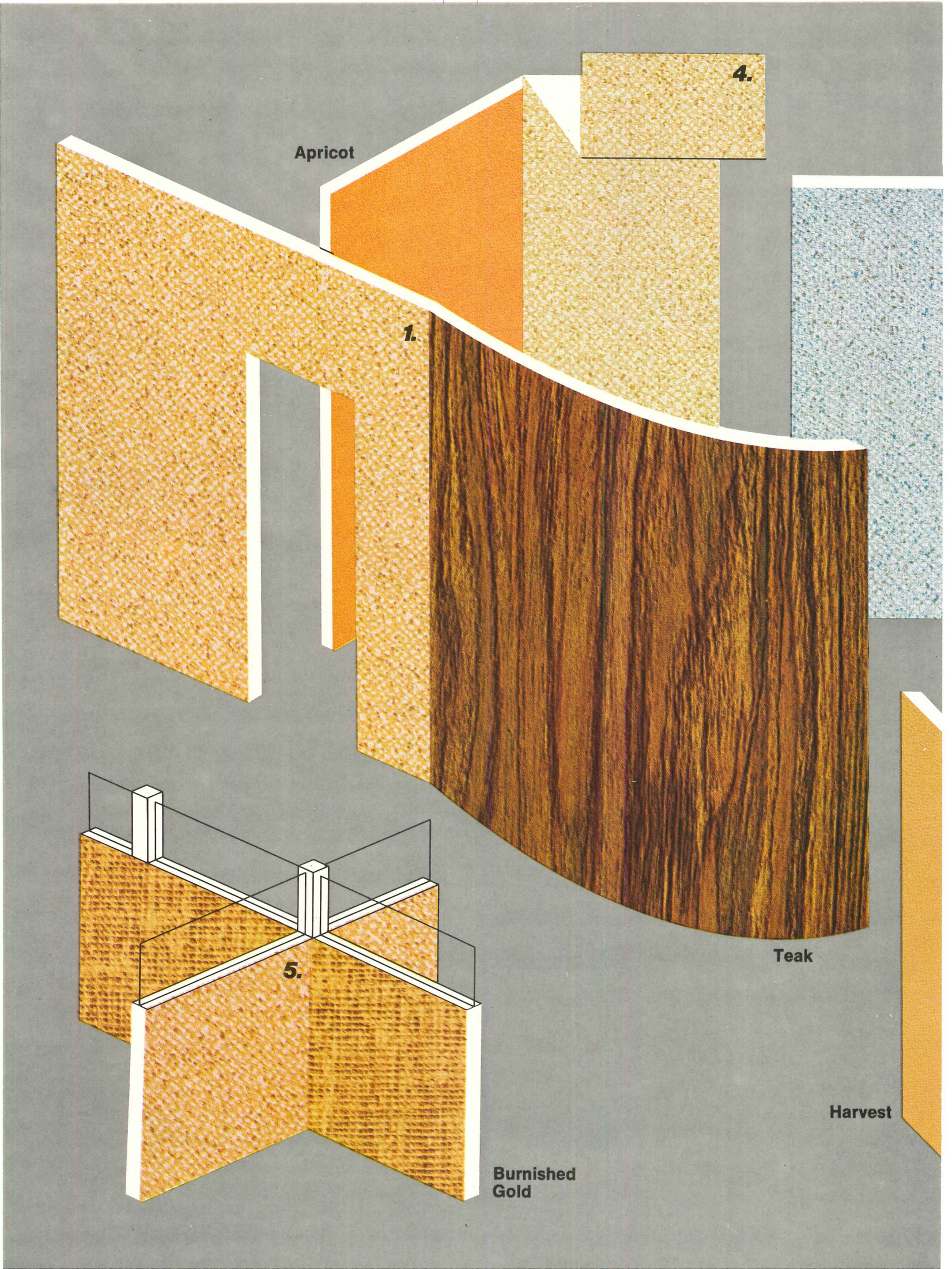
4.
Apricot
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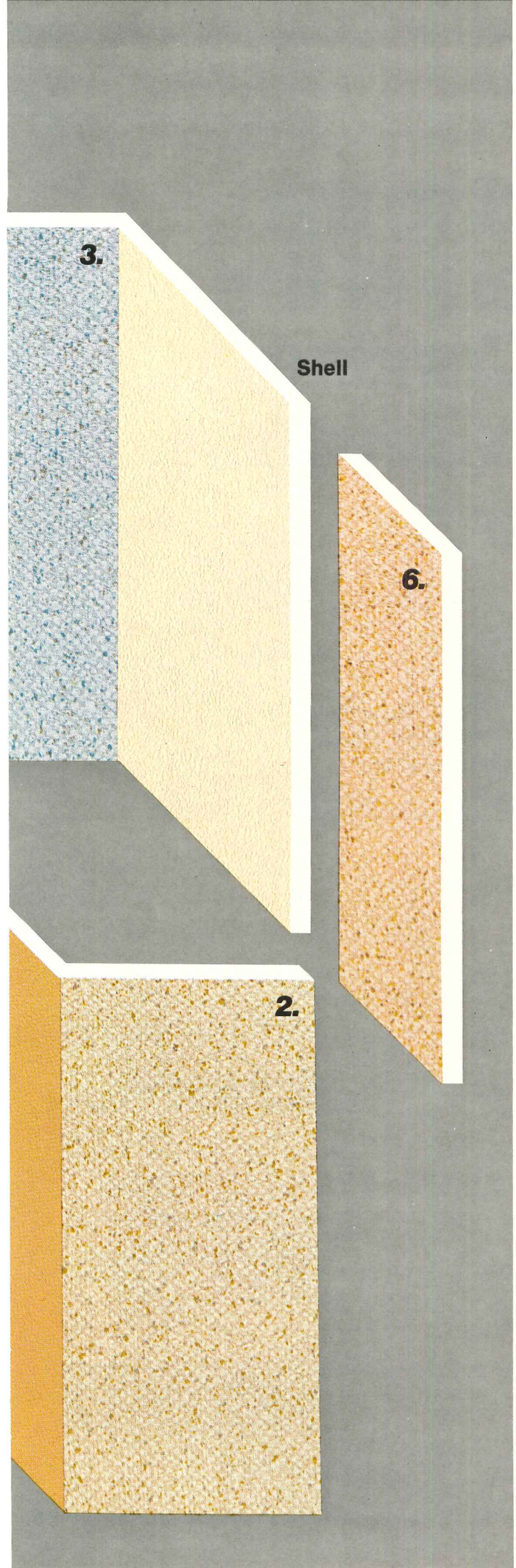

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Now, TEXTONE Decorative Vinyl-faced Gypsum Panels come in new tweeds and solids to spark up interiors. Mix or match them with our collection of 21 other solid or woodgrain colors and textures to create exciting new effects. These are the panels made of tough, wash-and-wear vinyl prelaminated to fire-resistant SHEETROCK® Gypsum Panels. They're designed to work perfectly with U.S.G. wall systems, including USG® Demountable Partitions and Ultrawall® Partitions. And matching moldings are available for that professional finishing touch. See your U.S.G. Representative for a copy of our TEXTONE brochure. Or write to us on your letterhead for sample swatches. 101 S. Wacker Dr., Chicago, Ill. 60606, Dept. AR–24 .

UNITED STATES GYPSUM
BUILDING AMERICA

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Announcing the 1973 winners of the Owens-Corning Energy Conservation Award.

Weyerhaeuser World Headquarters Building, Tacoma, Washington.

Six designs have received the Owens-Corning Energy Conservation Award since we initiated the Award Program in 1971.

These designs won't solve the energy crisis. But we think they're a major step in the right direction.

Look over the latest winners. You may find an idea your company could use to save energy and ease the pinch of rising fuel costs.

Weyerhaeuser World Headquarters Building, Tacoma, Washington.

An all-electric heat-recovery system with heat storage tanks is expected to save 4.37 million KW/hr./yr. in energy over the lifetime of the building.

A specially designed air-troffer system provides 75 FC of light at desk height with only 2.9 watts/sq. ft. of electrical energy. (4-7 watts is not uncommon in many new office buildings.)

Other energy-saving features: Rectangular, low-profile design to reduce energy requirements by 15 percent. Wide overhangs. And extensive use of thermal insulation (U factor of .09 BTU/hr./sq. ft.).

Result: an energy cost of only 21.35¢/sq.ft./yr. versus costs ranging from 23.15¢ to 60.11¢/sq. ft./yr. for other new office buildings in the same area.

Design by Skidmore, Owings & Merrill, San Francisco, California.

Boca Raton Community Hospital, Boca Raton, Florida.

Five rotary, air-to-air energy-recovery exchangers reduce cooling capacity requirements 45 percent. Annual energy saving: $24,230, *plus* a $562,800 first-cost saving on equipment.

There's also a sizeable reduction in heating-boiler horsepower requirements.

*T.M. Reg O.-C.F.

Performance tests on the system—which features a unique "total energy" recovery wheel—show that it is 75.9 percent efficient. So savings should increase as energy costs continue to rise.

Design by The Smith, Korach, Hayet, Haynie Partnership, Miami, Florida, previous winner of an Owens-Corning Energy Conservation Award.

General Electric River Works Program, Lynn, Massachusetts.

Couples a 19.5 megawatt gas turbine electrical power generator with a 190,000 pph heat-recovery system for projected annual savings of about 2 million gallons of fuel oil—about $240,000 a year.

Special note: Both the gas turbine and steam generator burn *residual* (#6) fuel, yet meet all applicable and anticipated pollution statutes within the state. During normal operation, there is no visible plume above the plant stacks.

Design by GE's Construction and Engineering Section in Lynn, Massachusetts.

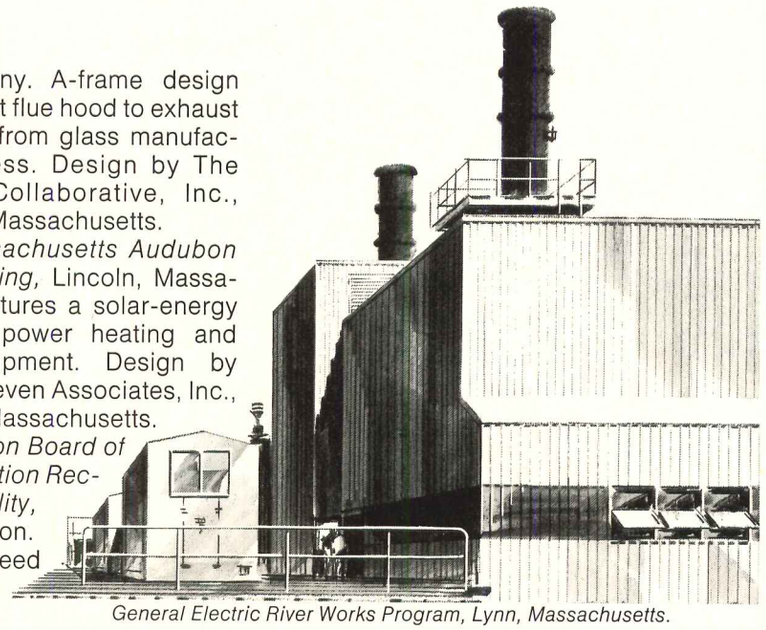
Three Honorable Mention Awards.

The Owens-Corning Energy Conservation Award Jury found three other designs worthy of special attention.

The Thomas Glass Factory, Amberg, Germany. A-frame design acts as a giant flue hood to exhaust intense heat from glass manufacturing process. Design by The Architects Collaborative, Inc., Cambridge, Massachusetts.

The Massachusetts Audubon Society Building, Lincoln, Massachusetts. Features a solar-energy collector to power heating and cooling equipment. Design by Cambridge Seven Associates, Inc., Cambridge, Massachusetts.

The Oregon Board of Higher Education Recreational Facility, Eugene, Oregon. Minimizes need for mechanical ventilation by capitalizing on existing natural phenomena and energy sources. Design by Unthank Seder Poticha, A.I.A., Eugene, Oregon.



General Electric River Works Program, Lynn, Massachusetts.

How the Award Program works.

Owens-Corning offers an Energy Conservation Award in four building design categories:

Institutional—schools and hospitals, for example.

Commercial—office buildings, shopping centers, retail stores and similar structures.

Industrial—including manufacturing plants, research centers, and warehouses.

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Any registered architect or professional engineer in the U.S. is eligible to enter a design. The only requirement is that the design be a *commissioned* building project. (The use of Fiberglas* insulation—although an excellent way to conserve energy—is not a requirement.)

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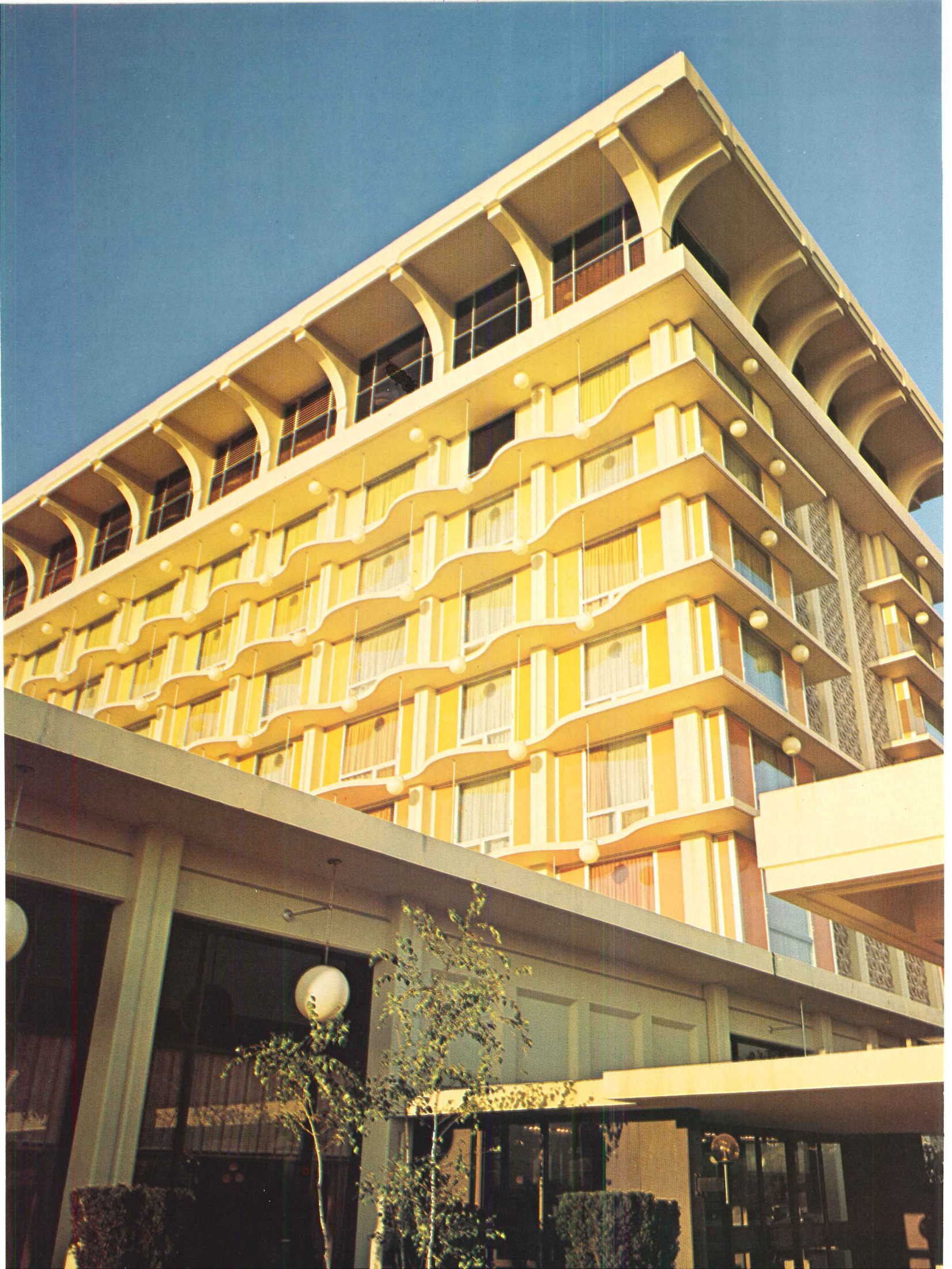

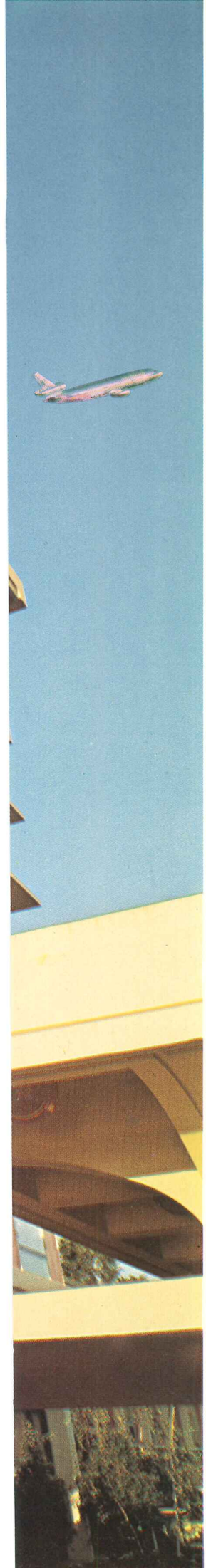

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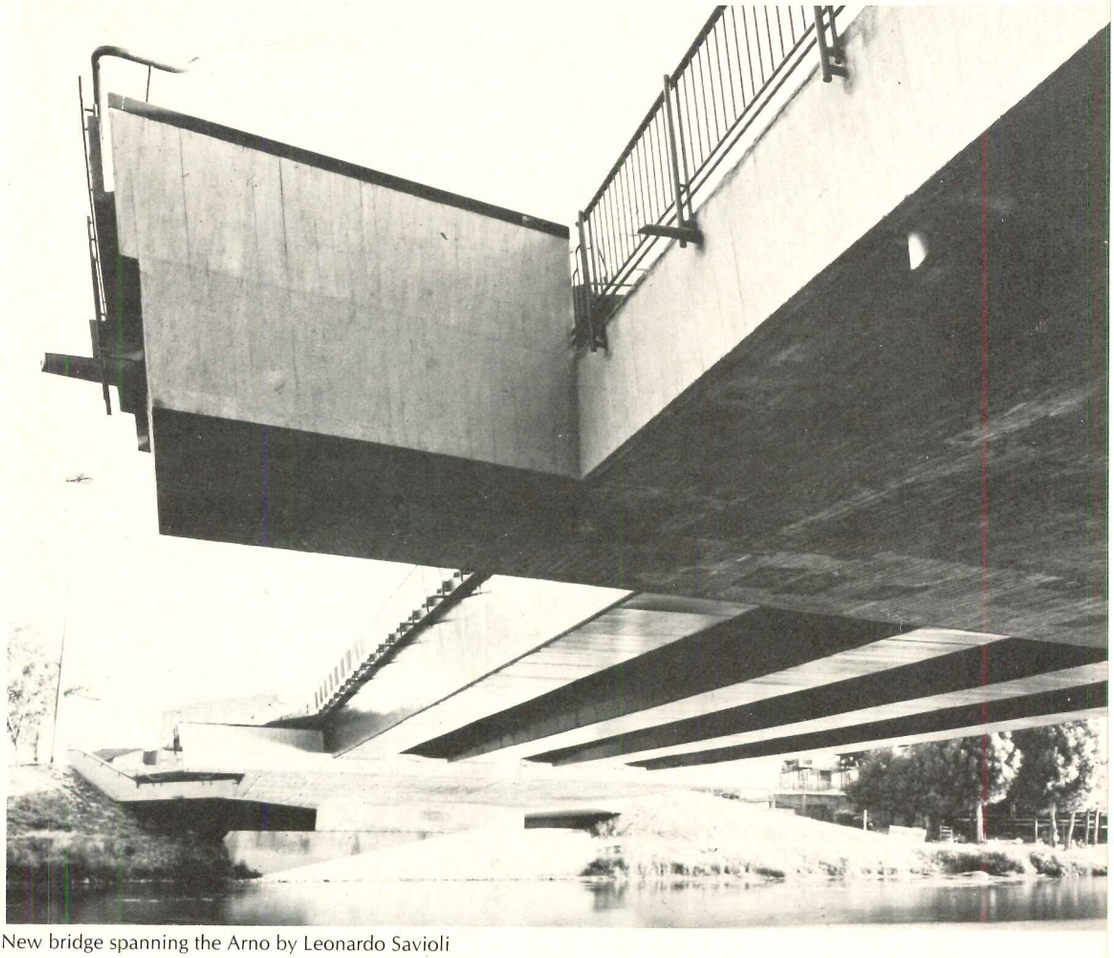
THE NEW ARCHITECTURE OF FLORENCE



New bridge spanning the Arno by Leonardo Savioli

Bettman Archive Inc.

The Ponte Vecchio (1345) by Taddeo Gaddi

There are interesting new buildings in and around Florence, but not many. There are visionary ideas simmering in the studios of groups who still call themselves architects but have names like UFO, Archizoom and Superstudio, and whose ideas in the main are anti-object and anti-design and are therefore anti-architecture in the sense that most of us still use the word today. There is a young generation of architects of which Paolo Riani is a typical member—expatriates with little to do in their native city. There are the mature architects of Florence, among them Detti, Ricci and Savioli, talented and able men now in their fifties, who must still wait their chance. And there is the great Giovanni Michelucci, 83 years old now, who brought the Rationalist Movement to Florence, and designed its great railroad station and the marvelous Church of S. Giovanni, Autostrada del Sole. He is not very busy these days.

On the national level, the Italian political scene is chaotic and the present bureaucracy lacks the competence and commitment to administer large and complex public projects. With the exception of Olivetti and a few other corporations, the private sector has neither initiated nor implemented large-scale architectural work. Due to intensive land speculation, developers have more to gain from buying and selling land than by improving it. And in sum, regardless of what has been happening on the Italian architectural scene as a whole, not much has been going on in Tuscany.

So why pay attention to Florence? Hardly anyone else does. The leading Italian architectural magazines are based in Milan and Rome, and with just a few exceptions follow the curious practice of rooting for the home team. Further, these journals pave the way for the design philosophies their editors believe in and neglect the work which doesn't fit. Sadly for the Florentines, there is more work for architects in Milan because of the rapid industrial growth of the northern region (Florence is at least 15 years behind Milan in the industrial development of its region), and more work for architects in Rome as the seat of government and public administration. Florence has no international airport, and the new autostrada which connects her with Rome and Milan was not finished until the early sixties. Thus Florence is still a provincial backwater architecturally speaking. Why then is the new architecture of Florence so noteworthy?

The art of writing still dwells along untrodden ways and so, surprisingly, does the art of architecture. Architects, like other artists out of the mainstream, may do more significant work than those who are in it. Bypassed, they have more time for politics, more time for theory, a chance to meditate, to look about them, to reach inward and retrieve the images and symbols of their past. Suffering benign neglect they may even master other arts thus strengthening their first vocation. The best new buildings for the city of Florence and its region, whatever their superficial resemblance to current international architectural trends, have the strong personal imprint of the architects who made them. And this is always interesting.

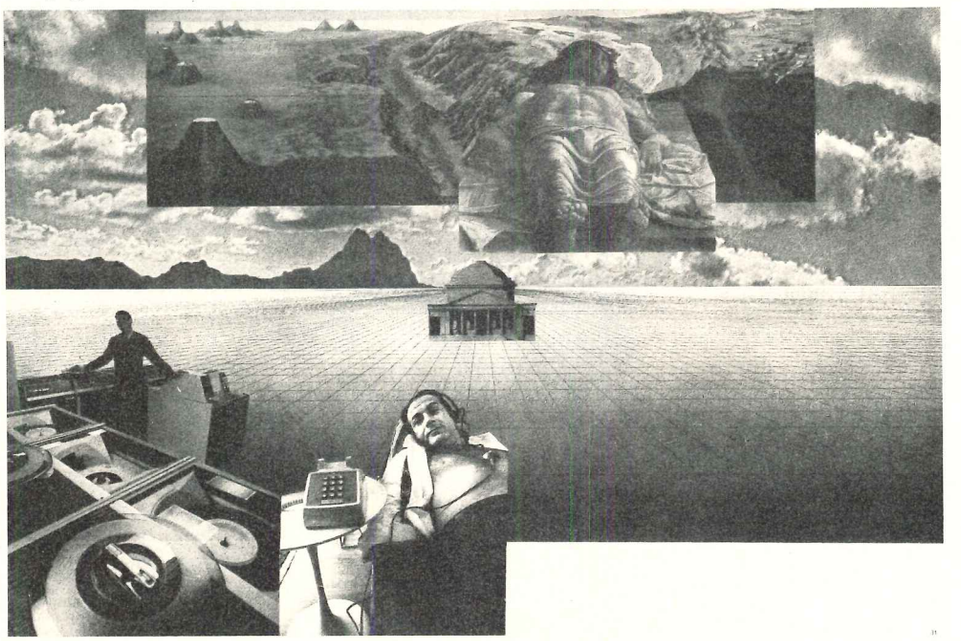
—Mildred F. Schmertz

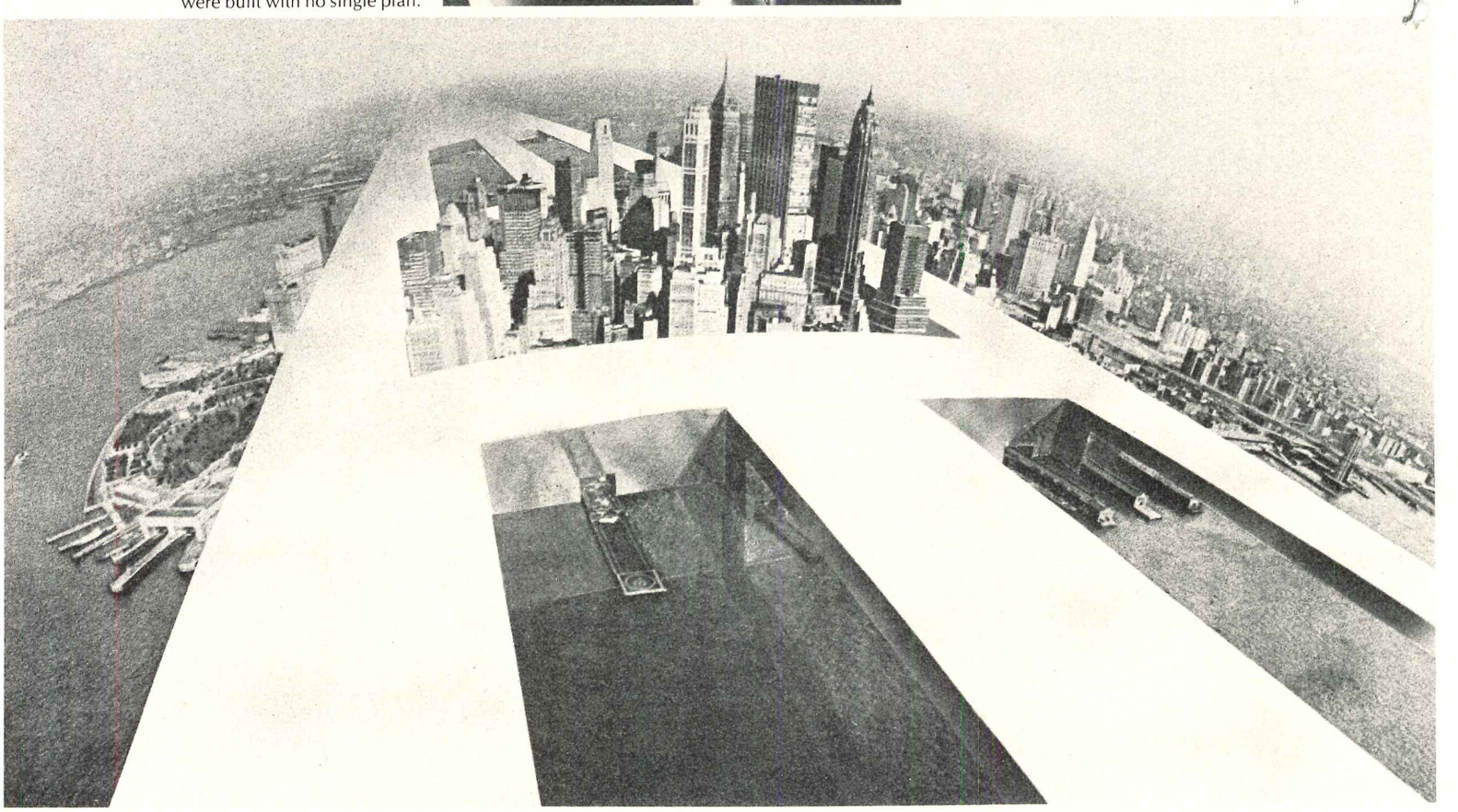
SUPERSTUDIO

Seated from left to right are Cristiano Toraldo di Francia, Alessandro Magris, Roberto Magris, Piero Frassinelli and Adolfo Natalini. These five young architects who form Superstudio range in age from 33 to 39 years. Since founding their firm in 1966 they have achieved international fame—but not for the practical work in architecture, industrial and exhibition design which regularly occupies their time. According to Adolfo Natalini, the firm prefers to promote its theoretical and philosophical ideas, rather than the work which pays the rent, and this policy has its advantages. In the last five years their strange, visionary, graphic utopias have earned them at least one-third more space in the pages of the international architectural press than the work of Riani, Detti, Ricci, Savioli and all the other architects of Tuscany combined. What Mildred Friedman, editor of the Walker Art Center's *Design Quarterly* calls their "sardonic counterimages to the current reality" has brought them to the attention of the gallery-going public of Minneapolis by way of Milan, Paris, Rome, Naples, New York and Tokyo.

Superstudio's utopias call for "the end of specialized and repetitive work, seen as an alienating activity, foreign to the nature of man." Their graphics urge us to abandon our love of objects and begin to treat them as neutral and disposable elements. Design, they assert, is merely an inducement to consume and as such is an operation which will be abandoned. "Our only architecture will be our lives," they claim to believe.

The new cemetery in Modena (right). As described by Superstudio, the new area will be paved with concrete and granulated marble and there will be a permanent ban on any building, except for a perfect copy of the existing Church of San Cataldo. There will also be lateral porticos with tomb niches. The memory of all single individuals will be collected and kept by the most modern audio-visual processes in "memory capsules" available to the deceased's descendants and friends. **New New York** (below). "Architecture," says the Florence Five, "becomes a closed, immobile object that leads nowhere but to itself and the use of reason. New York for example . . . a bunch of ancient skyscrapers, preserved in memory of a time when cities were built with no single plan."

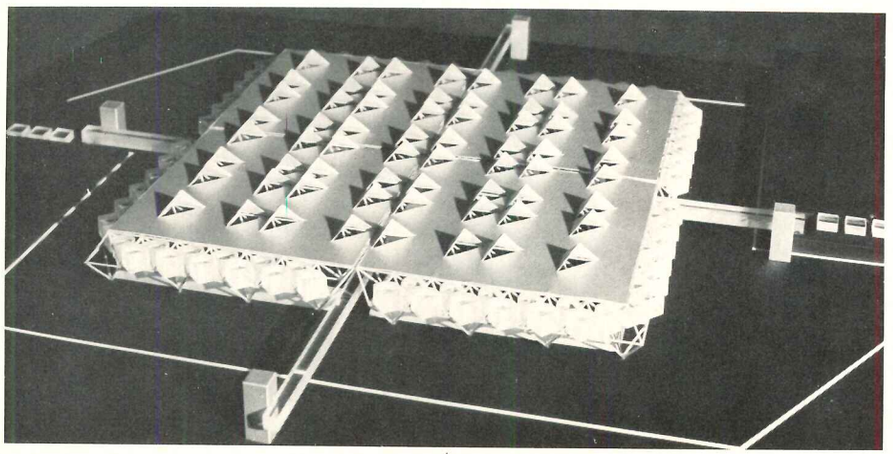


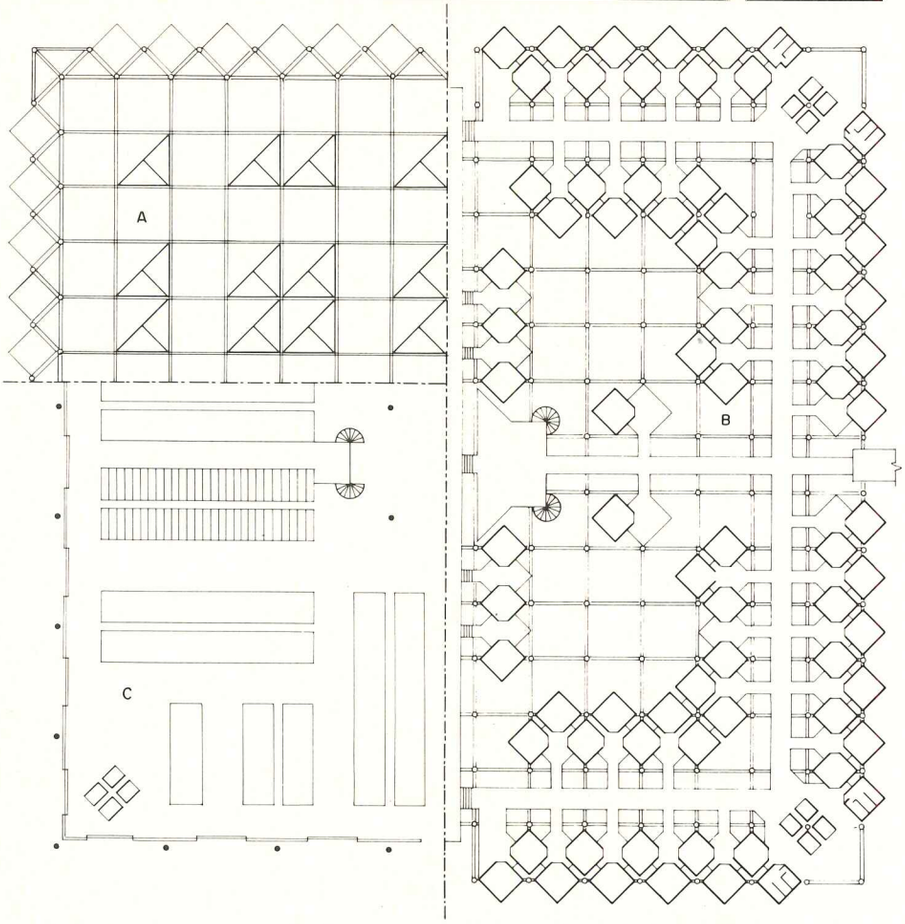


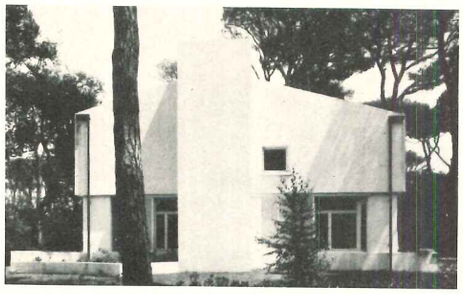
RIANI

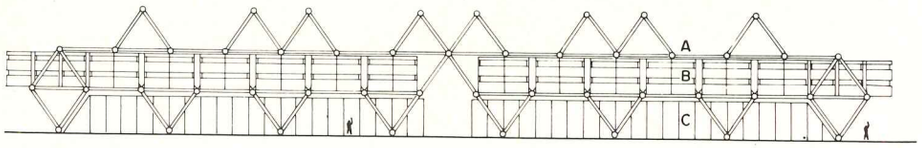
The generation of architects to which Paolo Riani, age 36, and Superstudio belong, matured during Italy's present political, social and economic upheaval. There has been little actual building for this generation to do and therefore much of the energy left over from political activity has been devoted to visionary design and theory. Compared to Superstudio, however, Riani has spent only a little time inventing ironic graphics for negative utopias. He is more pragmatic, and is eager to work with available technologies in the world of the present. He is content to leave "Continuous Monuments" to Superstudio and hopes to build mere buildings in his time. To this end, he has recently opened an office in New York City.

Until now Riani has devoted the largest part of his time to teaching, travel, writing and photography. Since 1966 he has lived for long periods in Japan, where he has worked as an architect, participated in congresses and competitions, and contributed to the experimental projects and research directed by Kenzo Tange at the Urban Engineering Department at Tokyo University. The work of Tange and the Metabolist School has been a strong influence upon Riani, both in his urban scale projects and in his designs for individual structures. For an example, his competition drawings and model for a flower market in Pescia (right) delineate a project similar in concept to Tange's Theme Pavilion for Expo '70 at Osaka (RECORD June 1970). Here is a typical Metabolist space frame spanning a huge uninterrupted space. At Osaka it was possible to walk through the space frame viewing exhibits along the route. Riani's frame was to have flower stalls high above the market floor.

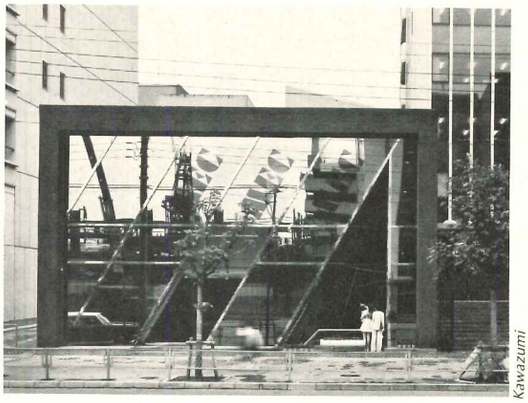








A summer house at Lagomare (above) was Riani's first commission to be built. Small and simple, it has decided character and style. **MEC** (right) combines a showroom for modern furniture and a designers club (RECORD August 1973). Located on a busy Tokyo street, it commands attention as a nonfacade. Consisting entirely of mirrors framed by diagonal mullions, it reflects the vitality of the passing scene. **The project for a flower market in Pescia** (above right) provides for two levels of flower stalls, one on the market floor and the other within the space frame roof. The diagonal juxtaposition of the skylit flower stalls within the grid of the space frame creates a beautiful pathway.

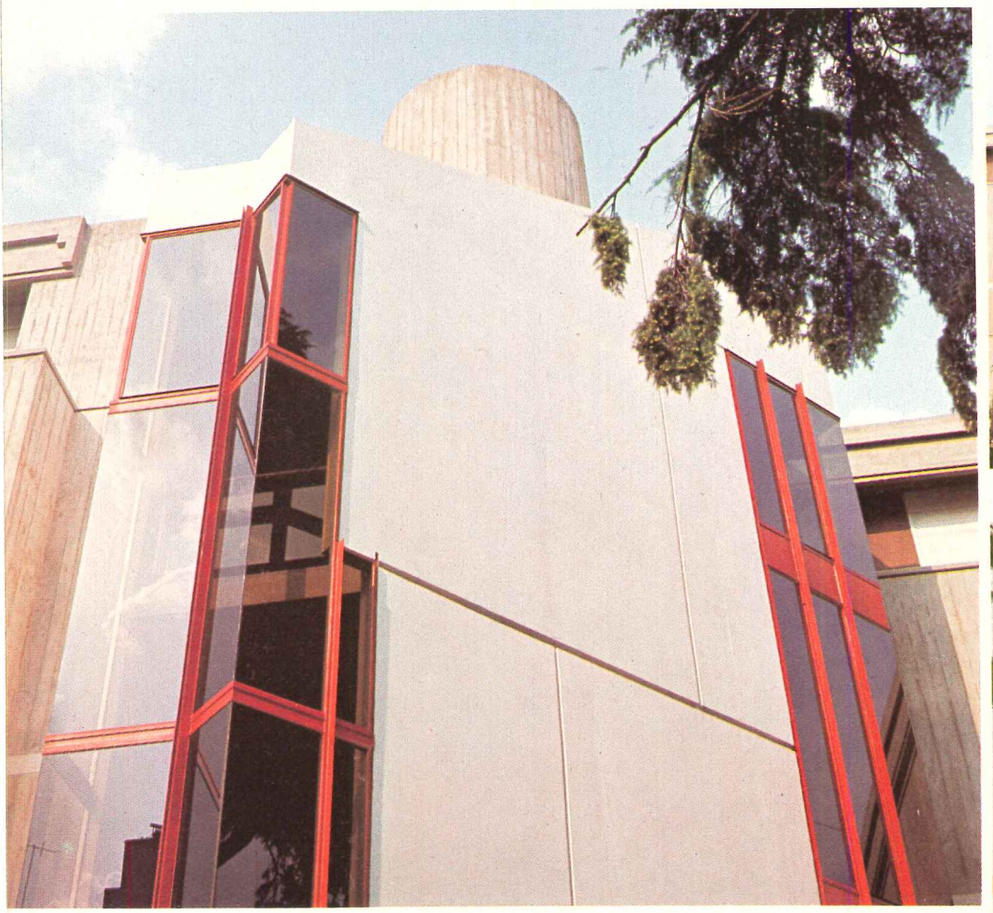


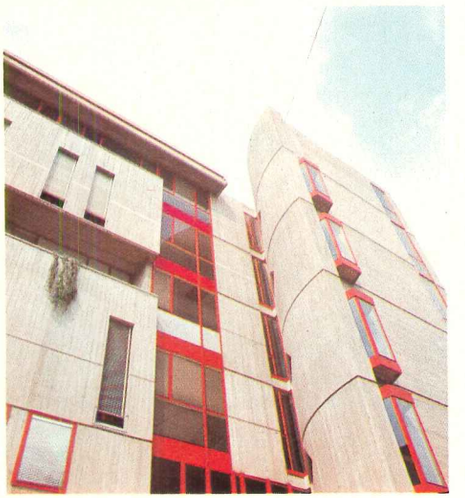
Kawazumi

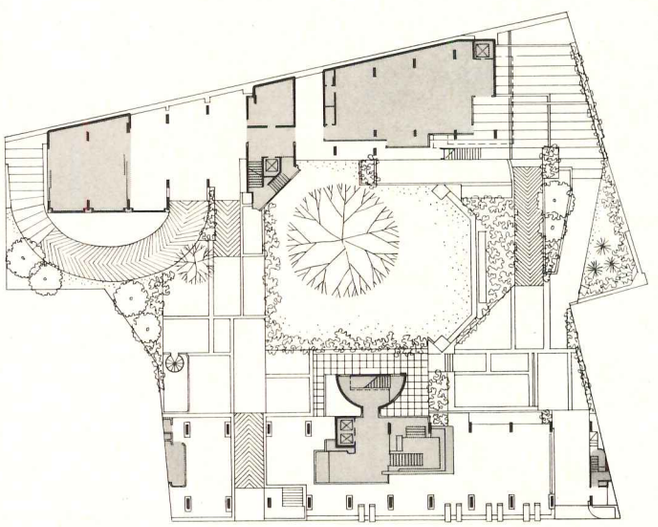
DETTI

Professor, planner and architect Edoardo Detti has been a left-wing political activist since World War II during which he served as a commander of one of the Partisan groups fighting in Tuscany. After the war, while the Socialists were in power, he was appointed chief of city planning for Florence and the surrounding region. Unfortunately, Detti's work as a planner was made exceedingly difficult as a result of political corruption, inefficiency, rampant land speculation and the lack of those administrative mechanisms needed by planners to give them the necessary leverage. Nevertheless, as a planning official, Detti performed an incomparable service to Florence and the world, for it was he who laid the groundwork for the survival of Florence as we know it today. Detti designed no buildings himself during his long service as chief planner. Instead he helped the great Michelucci—out of favor for many years because anti-fascist—make a comeback in the city of his first fame, and gave work to such men as Savioli and Ricci. For the first time in over two centuries, considerations of esthetic quality were ascendant in the planning, construction and reconstruction of this beautiful city.

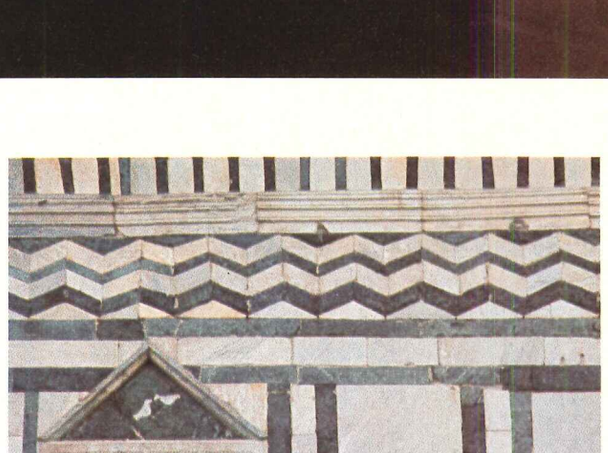
Having lost political power, Detti now has more time for teaching at the School of Architecture at the University of Florence, and continues his fight for enlightened planning concepts as president of the National Planning Institute of Italy and chairman of its planning department. And from time to time he builds a subtle building graced by the harmony of its spatial relationships and details.



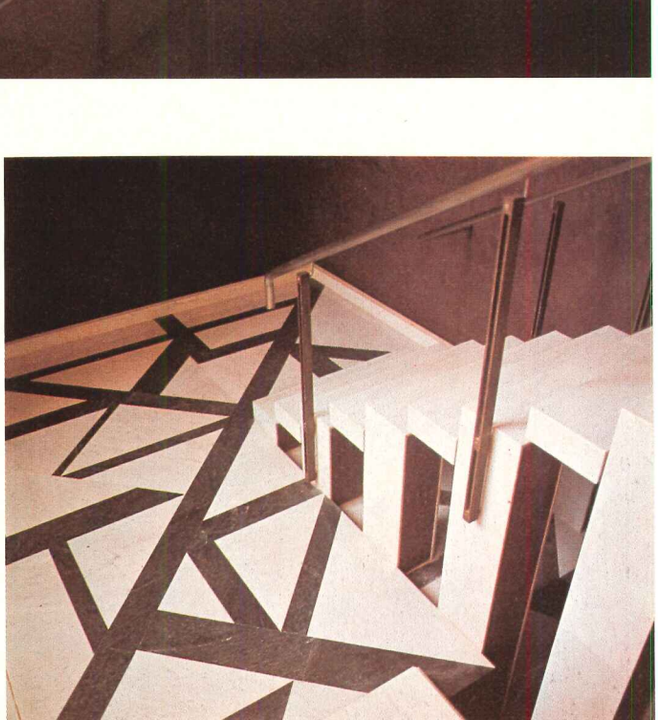




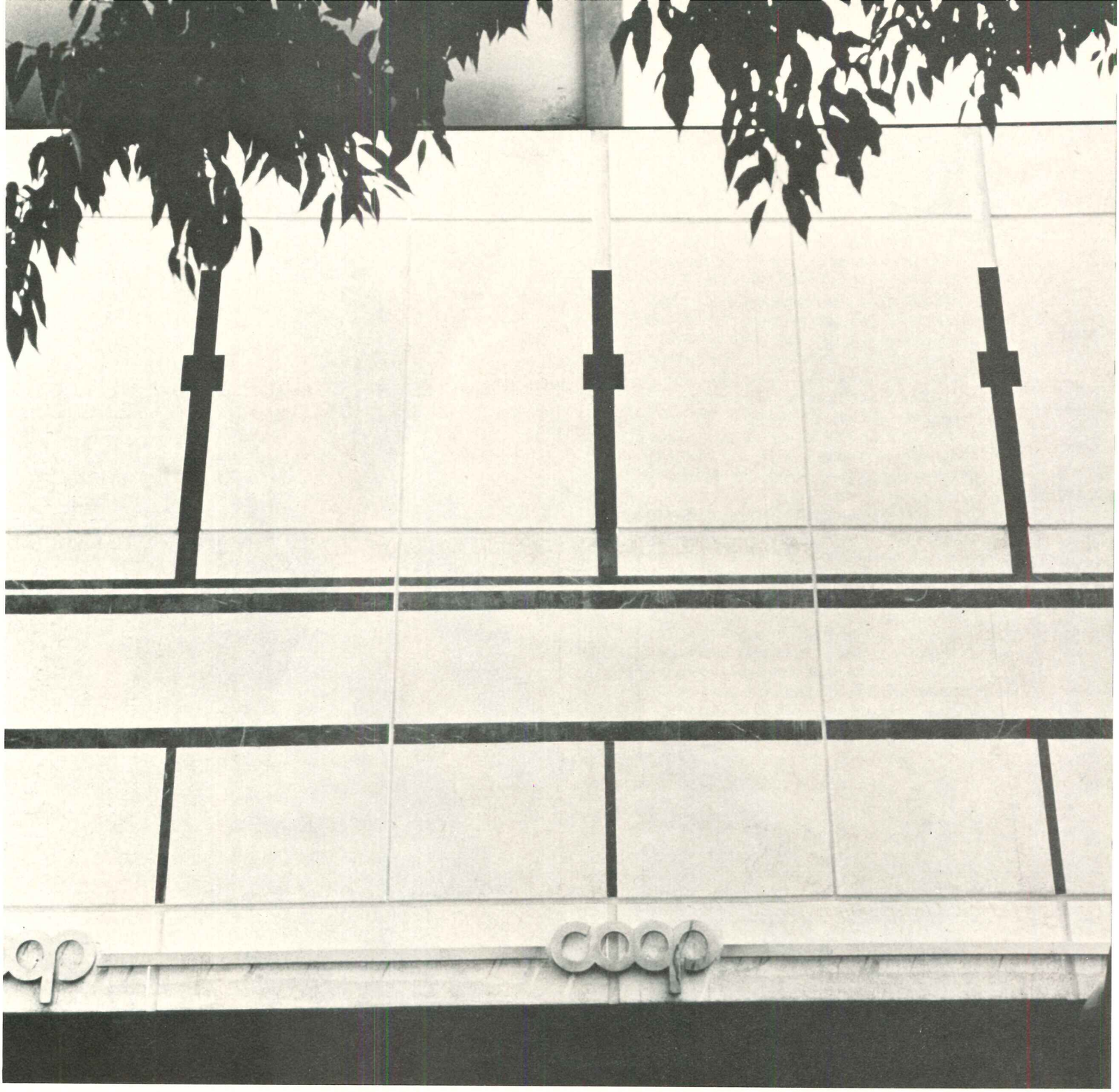
"La Nuova Italia" building (see cover) is a large complex housing the editorial functions of one of Italy's leading publishing enterprises. Designed by Detti with Carlo Scarpa as consultant, it consists of two buildings surrounding a large courtyard and garden (right). The complex has been designed to relate to two huge cedar trees and such elements as doorways, passageways and glass enclosed stair towers have been positioned in a way which enhances the trees. The building's total effect is achieved more by the harmony of the parts and details than by more spectacular architectural gestures. The street facades are quiet to harmonize with the older architecture of the street.



In Detti's work functional details are handled so elegantly as to become the ornamentation, and almost all his ornamentation is functional. Such superb detailing would not be possible were it not for the extremely high level of craftsmanship which still exists in Florence. The main stair of this publisher's building is of two tones of marble and the floor takes its pattern from the facade of San Miniato (left). The steps themselves are ingeniously cantilevered in opposing directions to achieve a beautiful result which could be attained only at prohibitive expense in any city but Florence.



A multi-use complex containing low-cost housing, small shops and a department store, was designed by Detti for Sesto Fiorentino, a town near Florence. The housing is raised above a ground floor of small stores and community areas. Its fenestration and detailing is similar to the facades of *La Nuova Italia* (overleaf). As the photo (left) indicates, Detti has created well-scaled pedestrian passageways throughout the complex. The L-shaped design terminates in an almost windowless department store (right and opposite page) which faces the central plaza of the town. The principal facade of the department store is of stark white concrete, criss-crossed by windows and bands of marble.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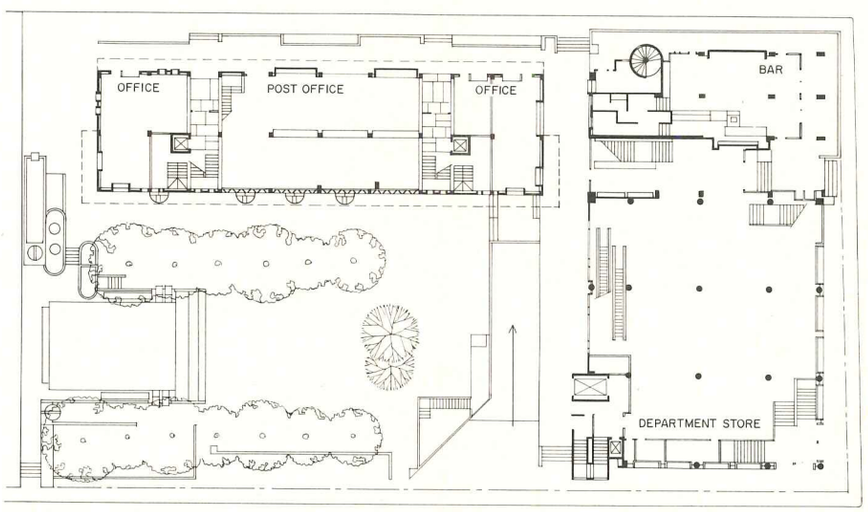
OFFICE
POST OFFICE
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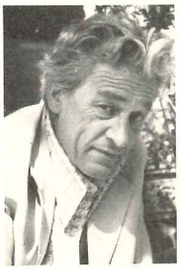
BAR
DEPARTMENT STORE

RICCI

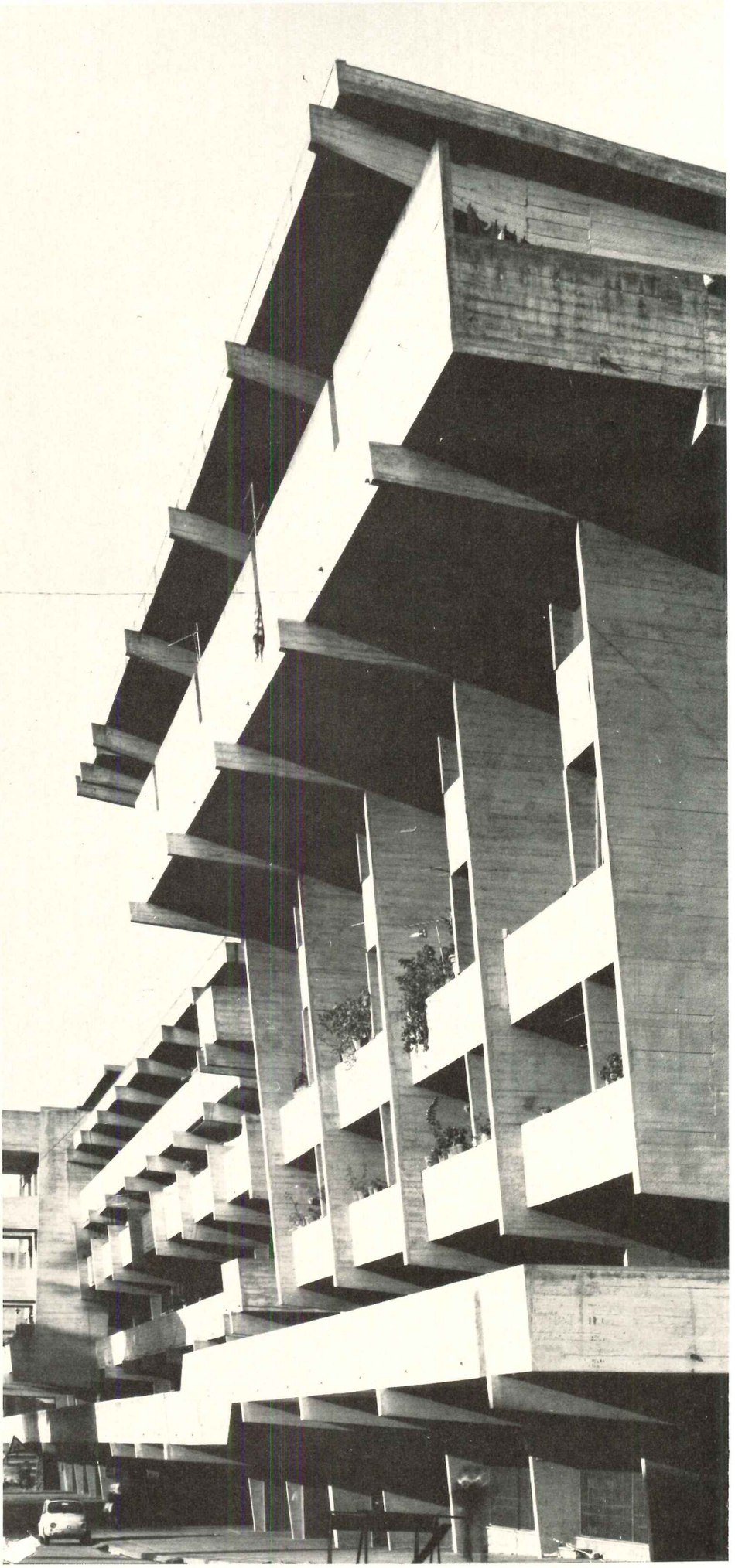


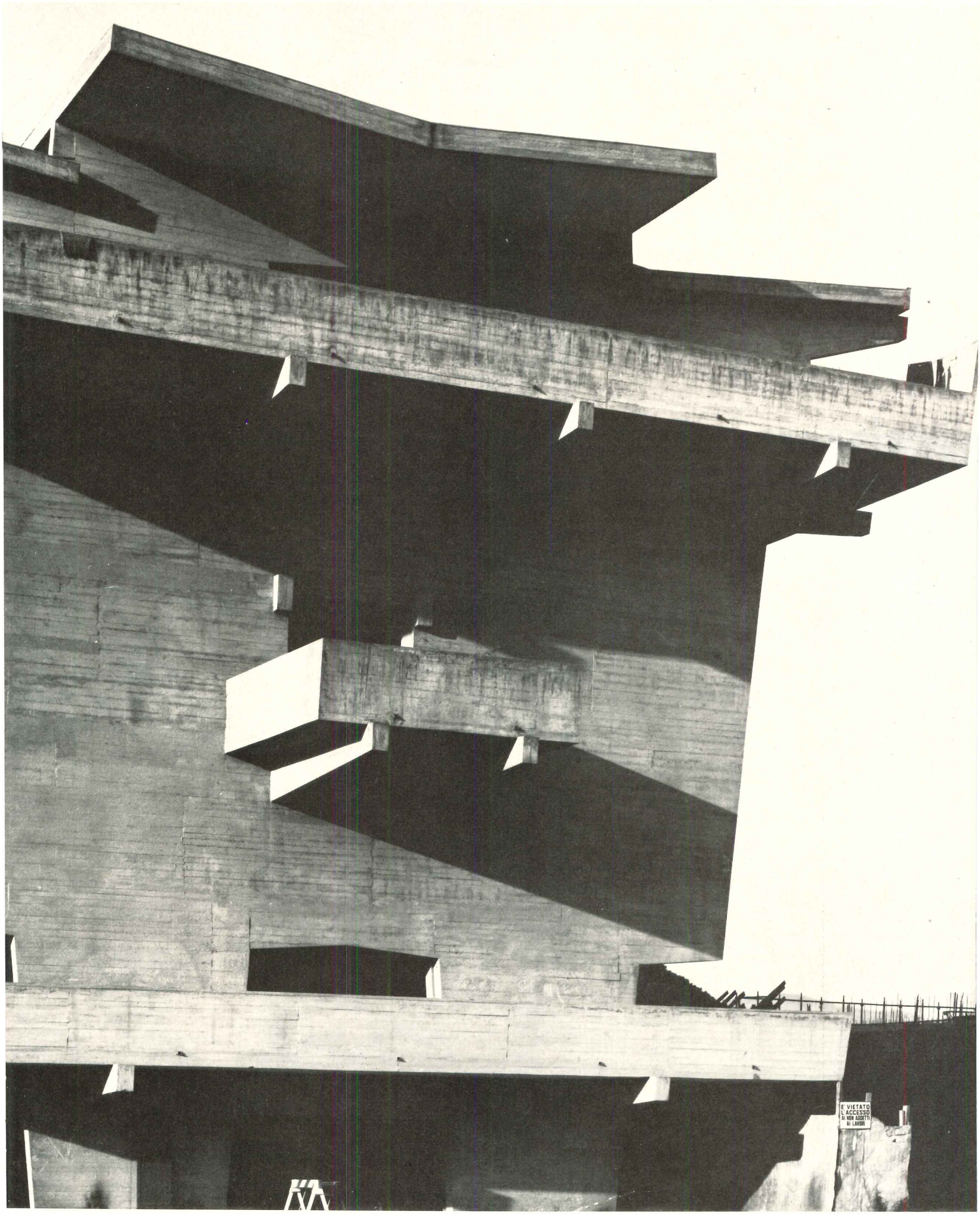
An architect, urban designer, author, painter and teacher who has served as a visiting critic at many leading U.S. architectural schools, including M.I.T. and the University of Florida, Ricci has recently resigned as dean of the Faculty of Architecture at the University of Florence and is now presently at work in the United States. Like Detti, Ricci was actively anti-fascist during the Mussolini regime and like most of the Florentine intelligensia, he is far to the left in his political views. Although the Italian fascists were not consistent in their opposition to the international style of architecture as the Germans were, they nevertheless eventually came to suppress it, and the ban also extended to the influence of Frank Lloyd Wright. The young Ricci and his students and followers studied the work of Wright in secret and even today Ricci's mature work exhibits the influence of this master.

Ricci has created his own peculiarly Florentine Taliesin in the Tuscan hills not far from the city (bottom left). His house is one of a group of private residences designed by him in 1959 as a single terraced complex following the contours of the hill. This housing is characterized by strong horizontal bands of concrete projecting at intervals into bold cantilevers, a form of architectural expression which prefigured all of Ricci's work to come including the housing at Sorgane (below and at right).

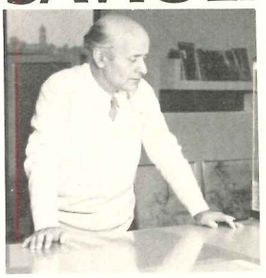
Bencini

Sorgane is a satellite town for the city of Florence and is being built for low-income families. It is considered the post-war Italian government's most outstanding effort to raise planning and architectural standards for low-cost housing. Masterplanned some years ago by Michelucci, Savioli, Ricci and others, new units are still being constructed. The units designed by Ricci (above and right) exhibit not only the all-pervading influence of Wright, but also of Kenzo Tange.




E' VIETATO
L'ACCESSO
AI NON ADDETTI
AI LAVORI

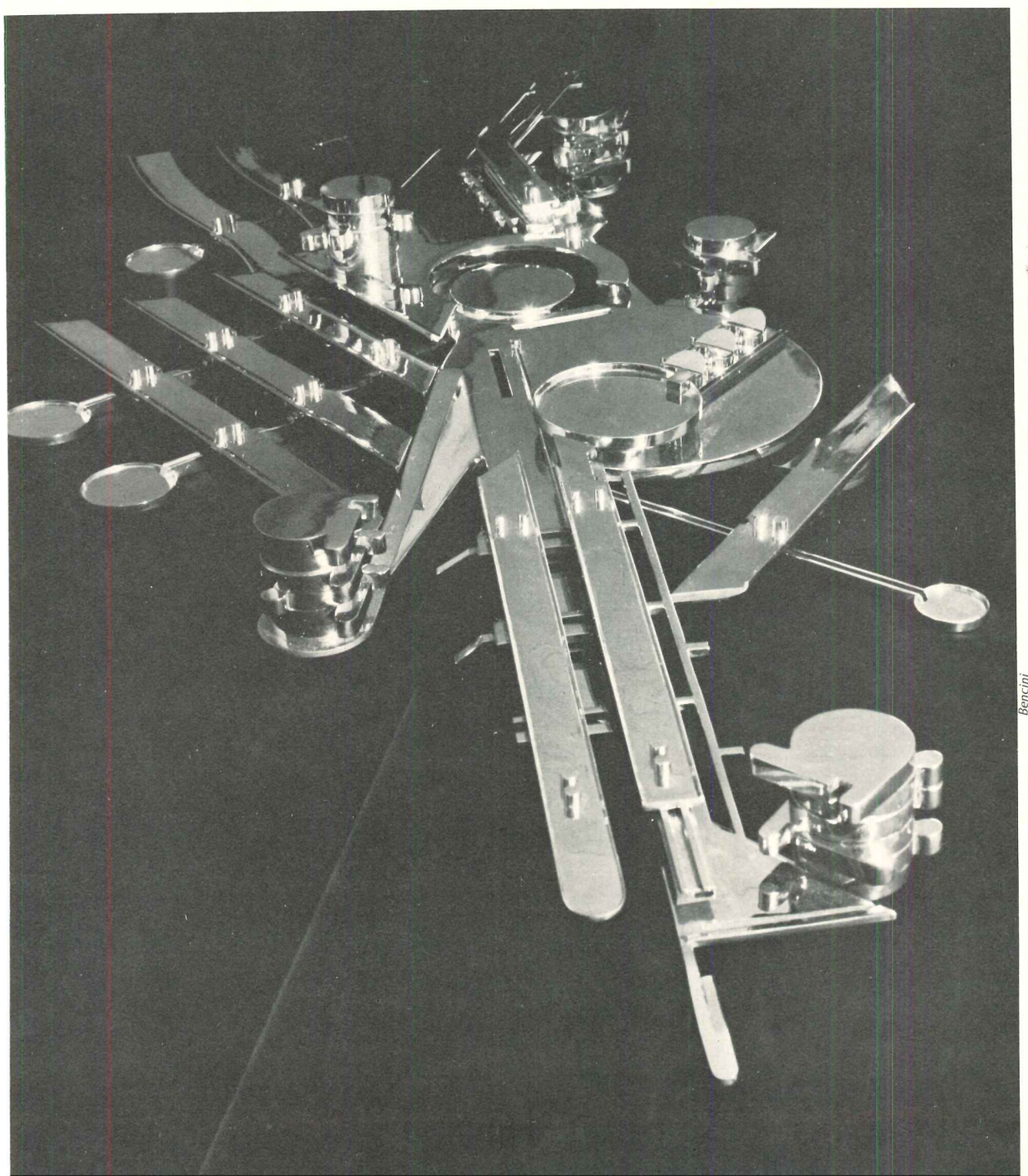
SAVIOLI



Like Detti and Ricci, Leonardo Savioli is a member of the architectural faculty of Florence University. Unlike them, he has not been politically active in recent years and is perhaps more contemplative. He is a complete artist in the Florentine tradition, working steadily as a painter and sculptor as well as an architect and planner. His superb abstract drawings are executed in ink and wash at the rate of one or more a day and prefigure the forms and arrangements which eventually appear in his architecture. The models of his buildings are so reduced to essentials as to be almost abstract, and some are creations of great beauty taking their final form in stainless steel.

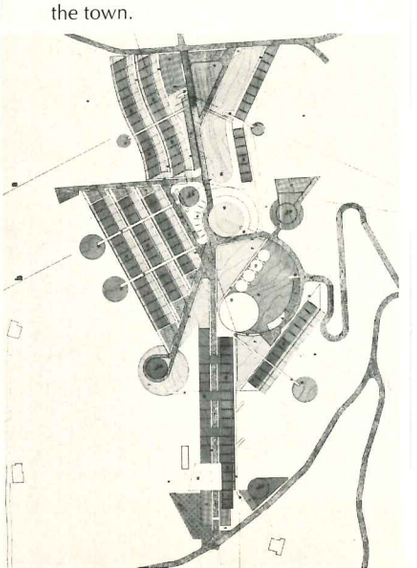
Like the Italian masters of the past he is also an engineer and has spanned the Arno with a beautiful bridge (page 95). One must regret that an architect of such talent has matured at a time when his country is so immersed in chaos as to be unwilling or unable to finance and implement his designs. The Arno bridge makes one long to see his airport built. Essentially a series of suspended and cantilevered bridge-like structures (page 106), the airport, if ever constructed as Savioli designed it, would be one of the most remarkable buildings of the decade.

Savioli's projects, for all their abstract glamour, are by no means visionary. On the contrary, they are part of our current architectural and technological vocabulary, they are realistic and they are needed. Savioli is as much of a tough-minded pragmatist as he is a dreamer, and he misses no chance to build a prototype of a larger idea. The two-family house or duplex at San Gaggio (opposite page) will never be part of the urban structure of a new town, as it sits in a suburb surrounded by permanent villas and flats. Savioli, however, persuaded the owner to accept and pay for a design which is of the type which could be tucked under the continuous roofs of his urban structure for Volterrano (below). His client may think he commissioned and got a duplex. Actually he is living in a determined architect's full-scale mock-up, under an expensive roof.

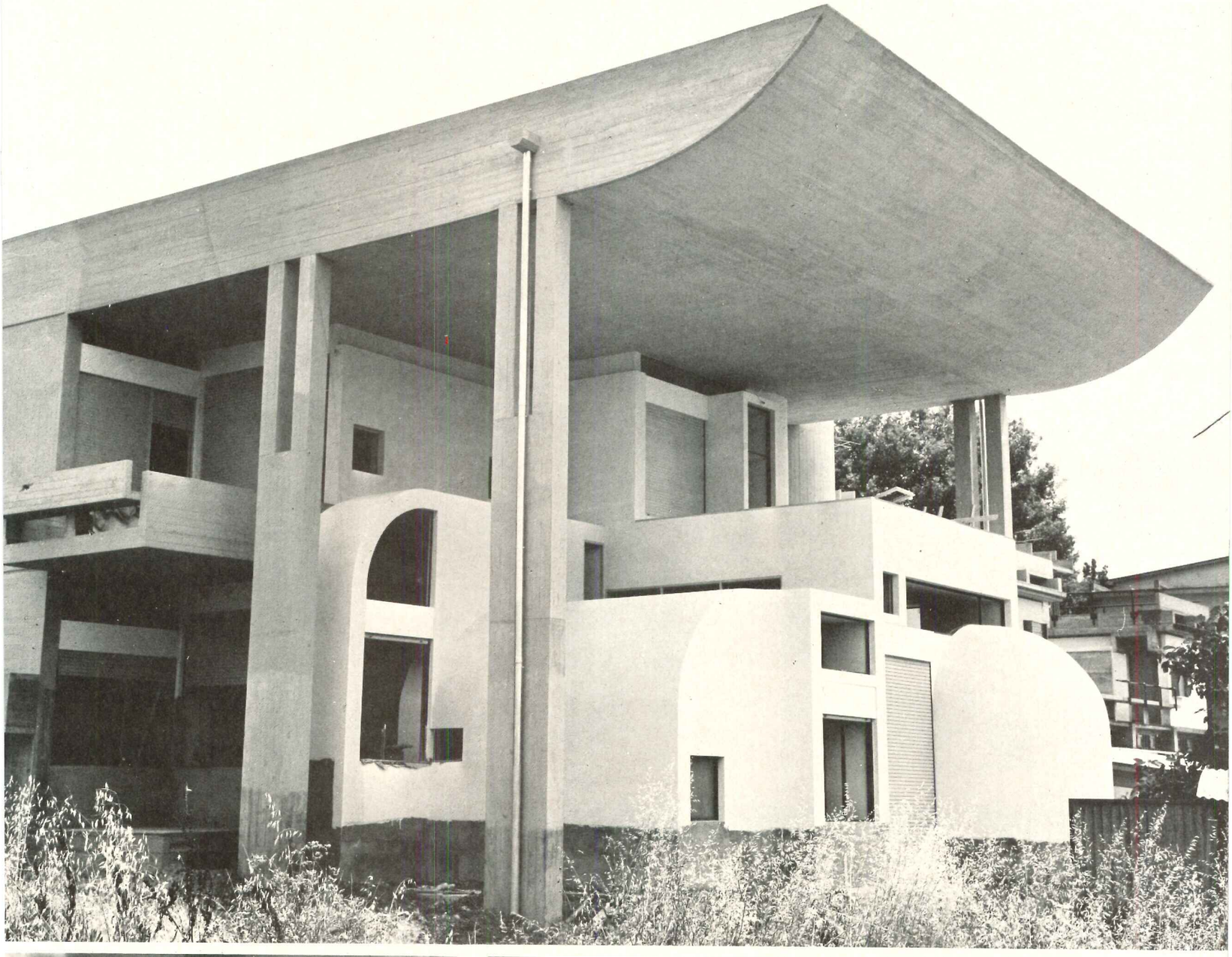


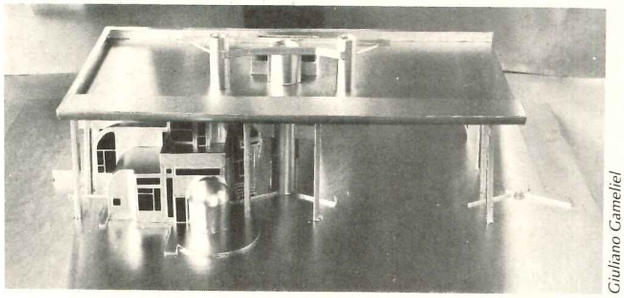
Bencini

An urban structure for Volterrano was designed in 1970 by Savioli and his colleagues D. Santi, G. Corradetti, and S. Giobbi. To be built at the conjunction of three hills, the structure will consist of a series of levels, each continuous, which function as roofs which will carry all the mechanical and electrical ductwork required by the town.

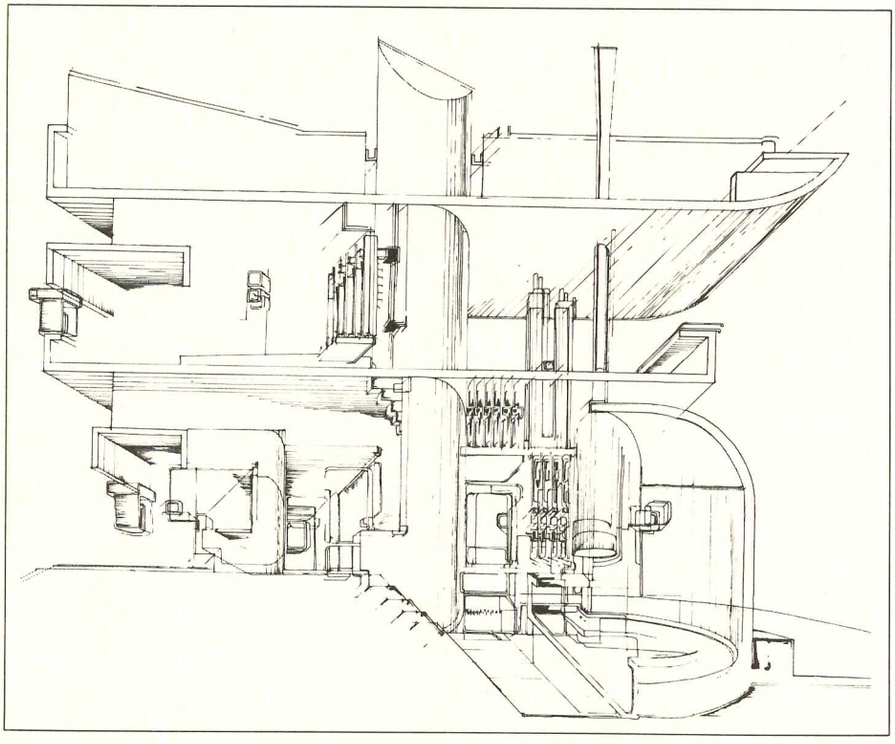


Bencini

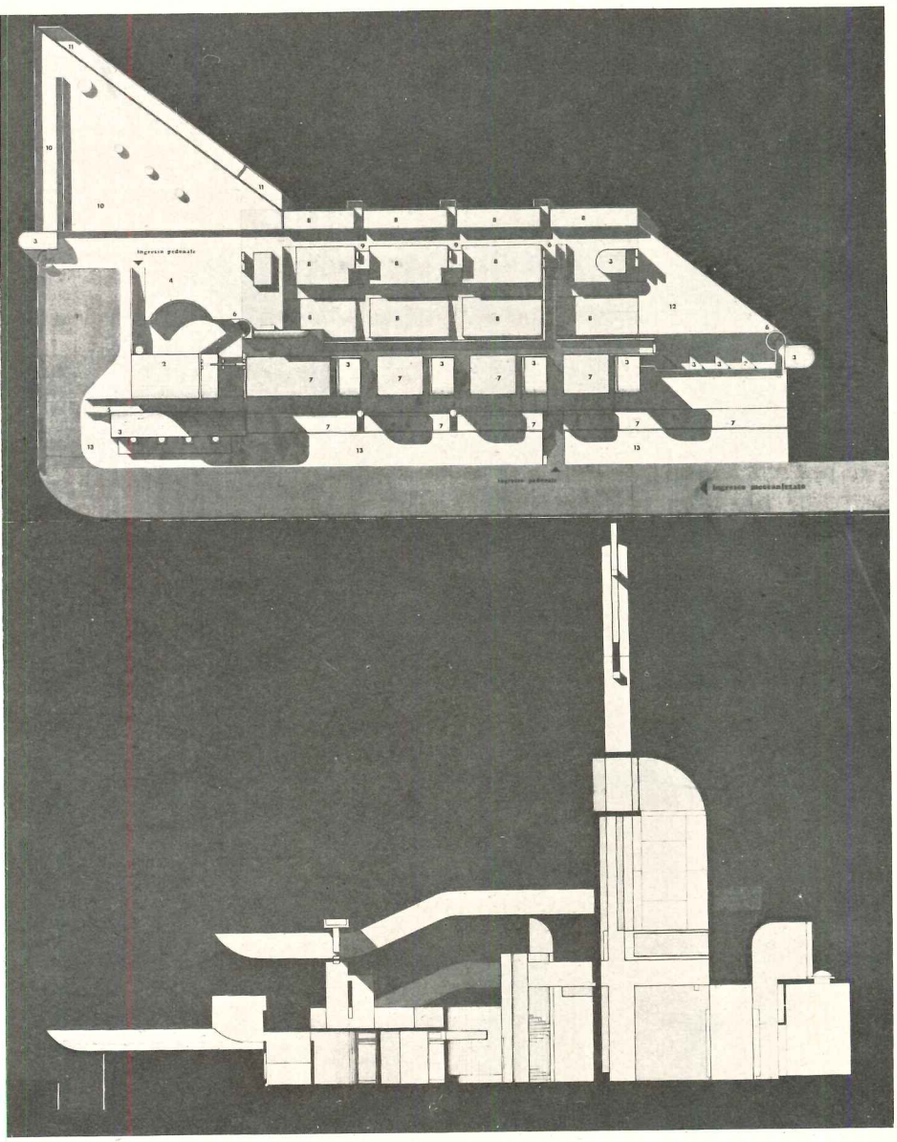




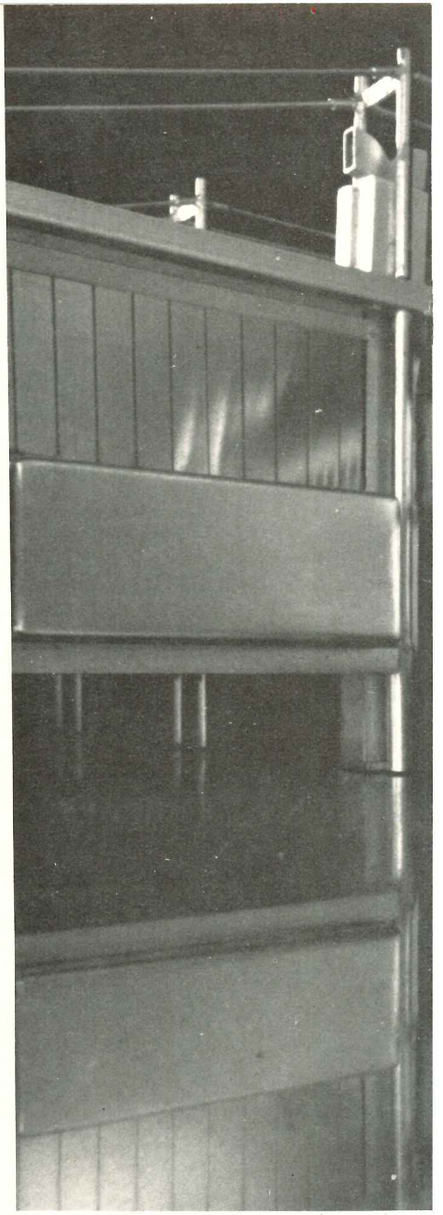
Giuliano Gamelliel

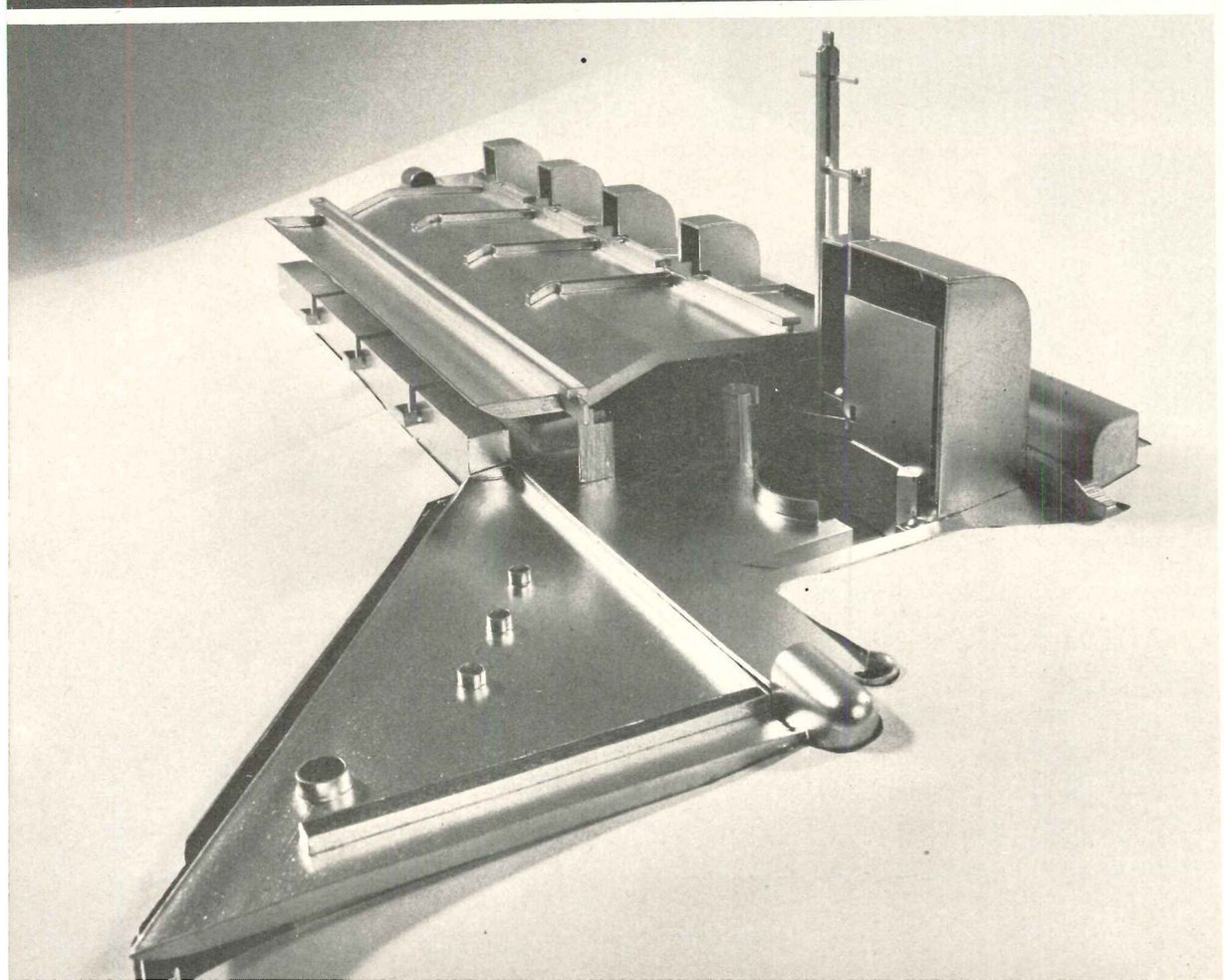


A two-family house at San Gaggio designed by Savioli and D. Santi and recently completed, is the prototype for dwellings to be built under the continuous roofs at Volterrano. The roof of this house is of the thickness and strength which would be required at Volterrano although in this duplex it serves only as a sun deck. The construction sequence planned for the urban structure was followed in building the house. The roof was erected on its own supports allowing the house more free configuration.



The cemetery at Montecatini Alto (left and below) designed by Savioli and D. Santi and the engineer E. Brizzi has been conceived as a place which to Savioli: "will invite meditation on death and heighten the sense of life in the living. There won't be burial plots, marble with names, there will be no sculptures, vases or fences. I have designed a common space built of concrete and reflecting metals. Much of it will be underground. The long thin openings on the roof will bring the meditator into contact with the sky, city and countryside. My images, whether naturalistic, symbolic or geometric have been retrieved, and yet transformed from monuments from my past."

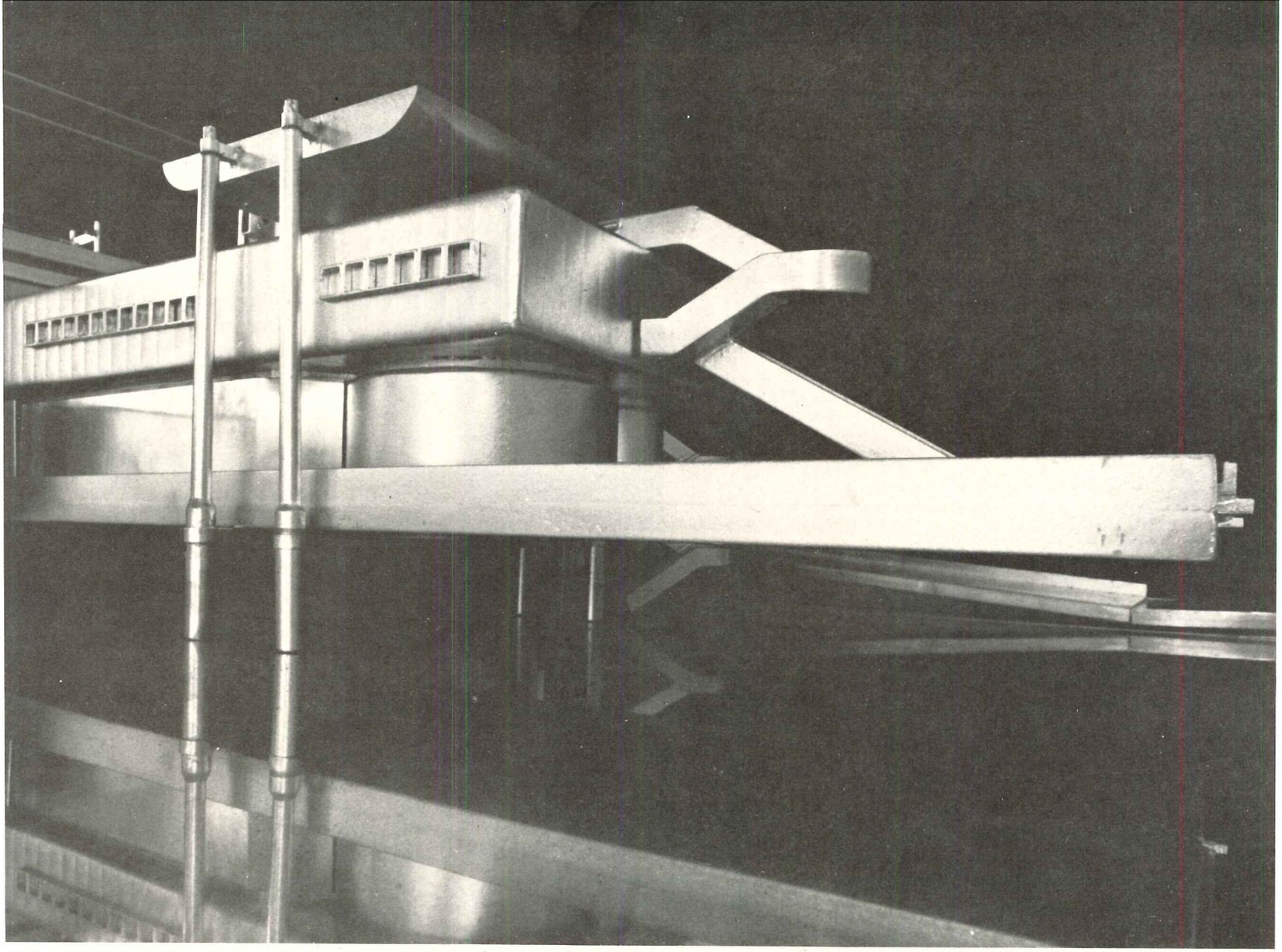


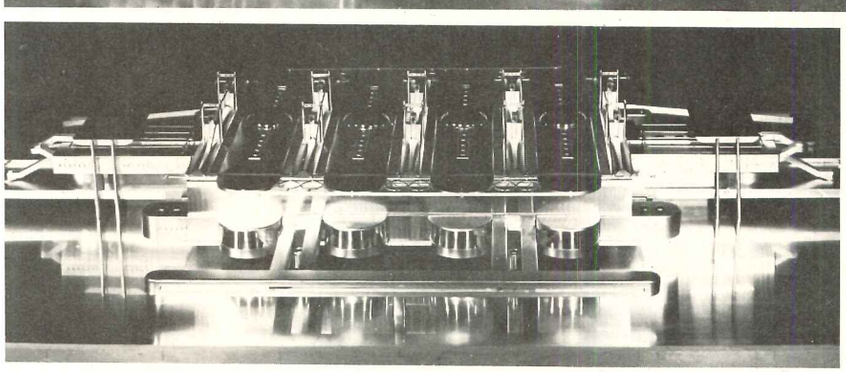


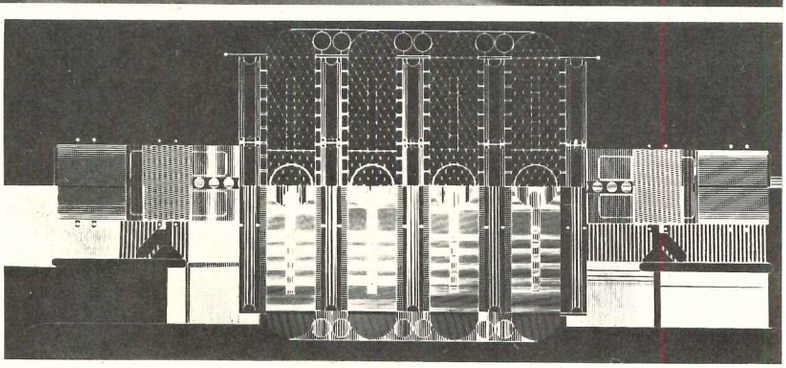
The airport for Catanzaro and Genoa (above and right) has been described by Savioli as "mostly a technical and functional happening. It will be the kind of building which declares its function—like the best bridges, railroad stations and industrial buildings. It will be based upon a modular system using prefabricated industrial parts throughout. It will not, however, be a universal space under a large anonymous cover. This is too simplistic and would give the traveller a sense of disorientation. I have used a modular prefab system not in an exclusive technocratic way, but in a mediated way which will express the human needs of the traveller."

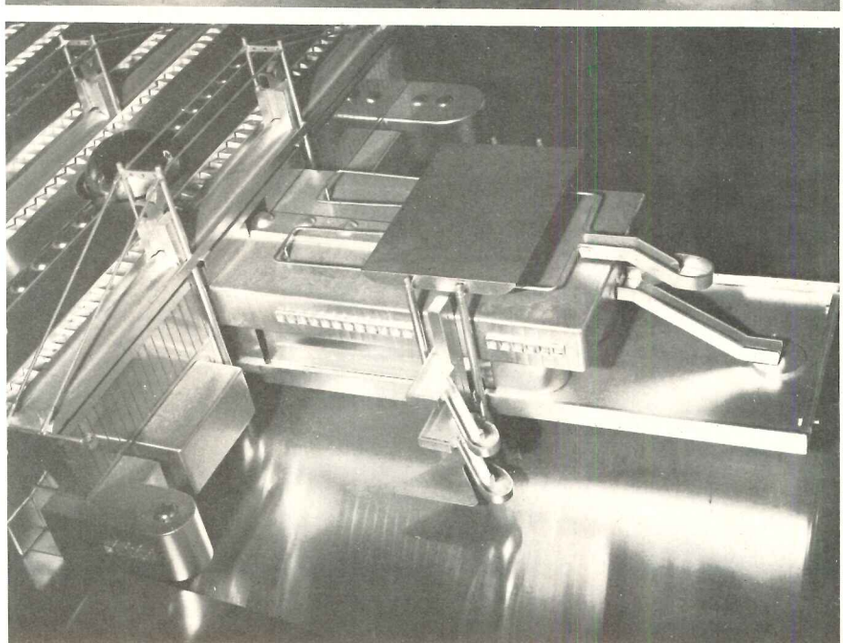
Bazzechi

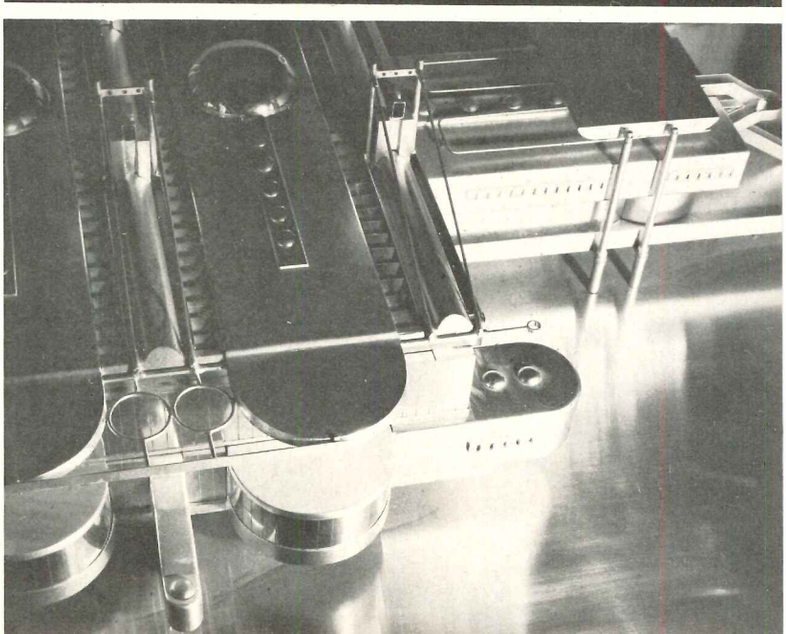
Bencini

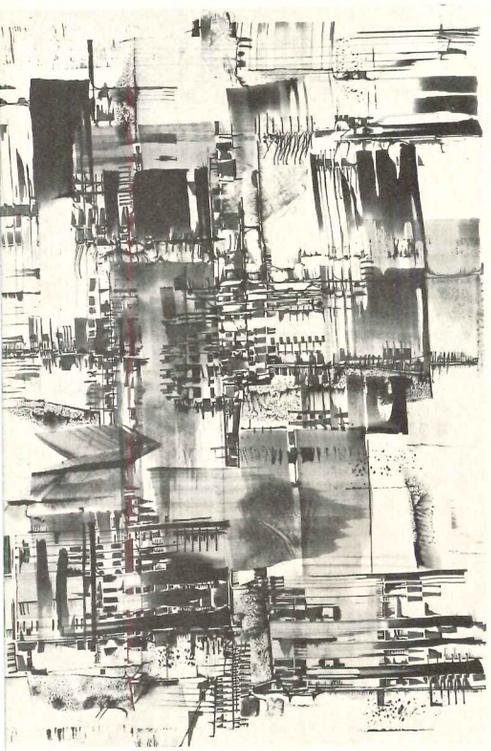




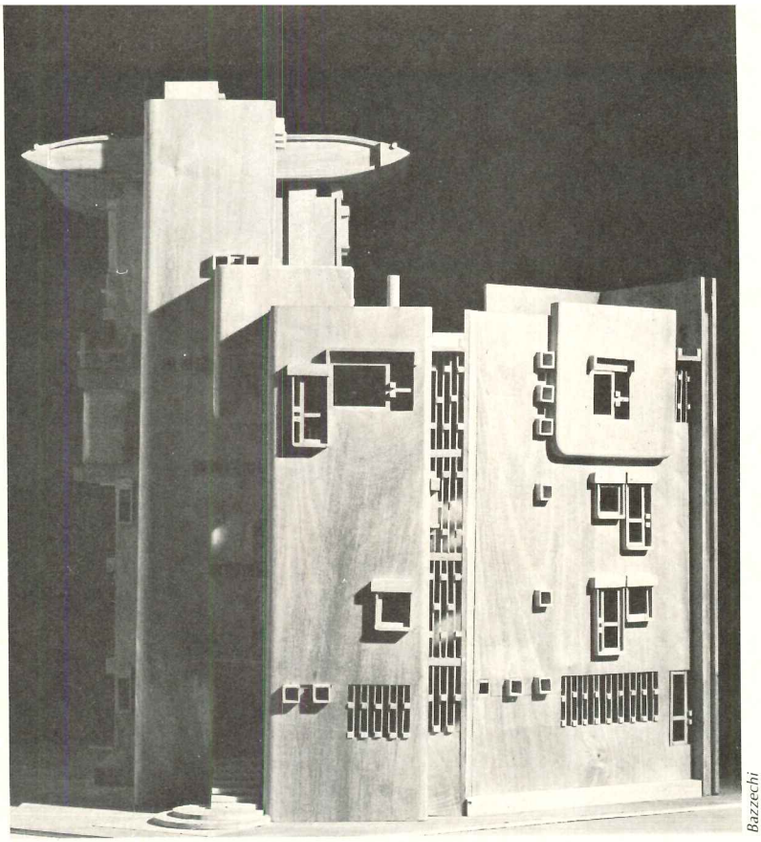








An apartment building in Florence on the Via Piagentina by Savioli and D. Santi was designed in 1964 and represents a rather elaborated approach to the treatment of surfaces which was to appear again later in his design for the duplex at San Gaggio. This building was designed as an intrusion upon its neighborhood, and a rejection of both the current urban and suburban look. Rooted in the contemporary forms is Savioli's nostalgia for the Italian medieval town. Savioli's wash drawing (left) and the model of the apartment building (right) show his interest in the juxtaposition of shapes at many scales.



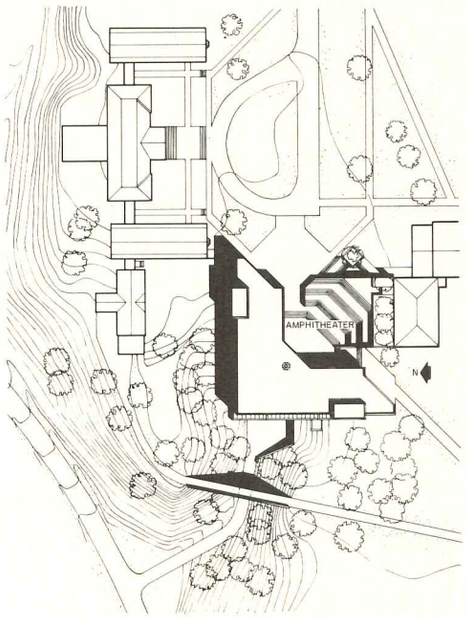
Bazzechi

Giuliano Gamelliel

MURDOUGH CENTER

TWO DISTINGUISHED GRADUATE SCHOOLS AT DARTMOUTH COLLEGE BUILD TOWARD A SHARED EDUCATIONAL FUTURE

Greg Heins photos



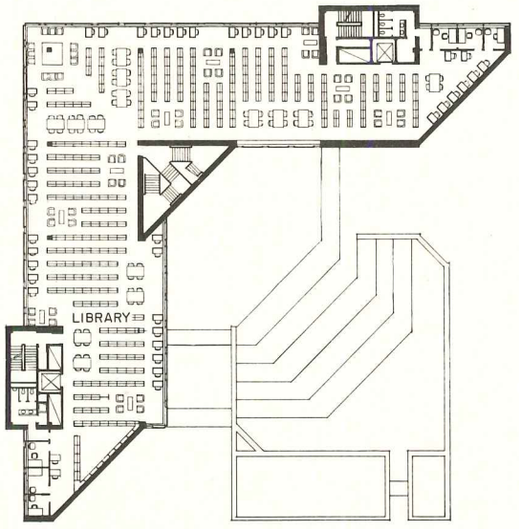
For more than three decades, the Tuck School of Business Administration and the Thayer School of Engineering have been linked academically by cooperative educational programs, often leading candidates to seek concurrent degrees from both schools. But the absence of common facilities has hindered the joint programs and the distance that physically separates the two schools (see site plan) is magnified by bitter New Hampshire winters. Since 1967, faculty, staff and students have worked in committee to refine spatial requirements and programmatic goals for the new center. Designed by Boston architects Campbell, Aldrich and Nulty, and named after Dartmouth alumnus Thomas C. Murdough and his wife, the completed center now stands as a link between the two schools, providing additional library and teaching space for each. Most important, it stands as the embodiment of hopes for even greater cooperation in future.

A reasonably restrained hand was required to site the building sensitively among its small-scale Georgian neighbors in a way that did not seriously interfere with the traditional avenues of campus circulation. Campbell, Aldrich and Nulty were careful to control the building's scale and to sink the windowless classroom level into the hillside so that only three levels are visible from the Tuck Mall. They also matched the brick of the older surrounding structures. By developing an L-shaped plan, they were able to create a plaza, and by splaying the south and east end of the center's upper levels, the diagonal pattern of pedestrian flow to and from the Mall was reinforced.

Murdough Center contains a 20,000 square-foot 70,000-volume library, a 358-seat auditorium and three 75-seat classrooms as well as faculty offices and student study rooms.

In addition to the brick, the center is clad in a curtain wall system of black anodized aluminum and grey, heat-absorbing glass. To offset the bleak hues of winter, the interiors are executed in colors selected from the warm end of the spectrum—predominantly yellow, orange and red.

MURDOUGH CENTER, Dartmouth College, Hanover, New Hampshire. Architects: *Campbell, Aldrich and Nulty—Nelson W. Aldrich, partner-in-charge, Herman F. Woerner, project manager.* Engineers: *Nichols, Norton and Zaldastani* (structural); *Shooshanian Engineering, Inc.* (mechanical/electrical); *H.W. Moore Associates* (site); *Bolt, Beranek and Newman* (acoustical). Contractor: *Trumbell-Nelson Construction Company.*



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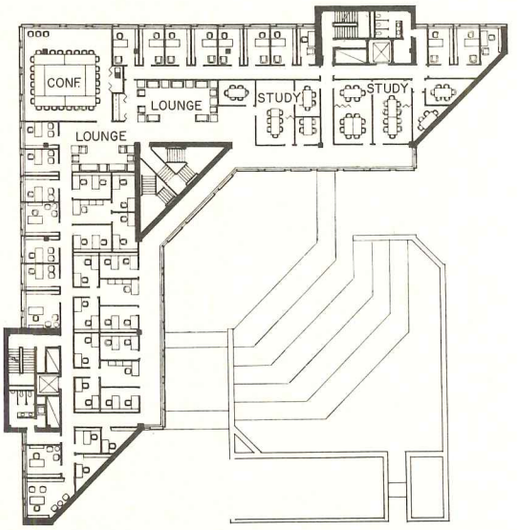

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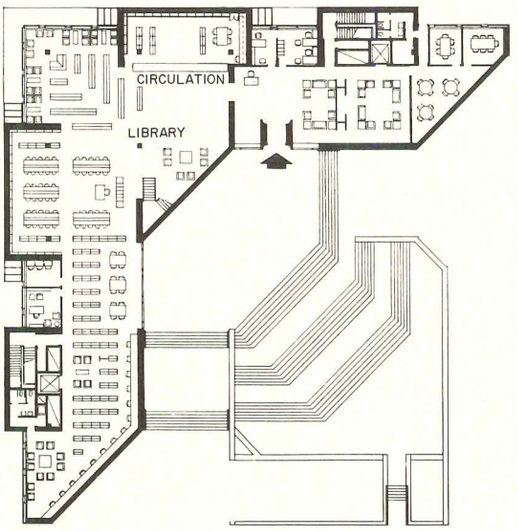

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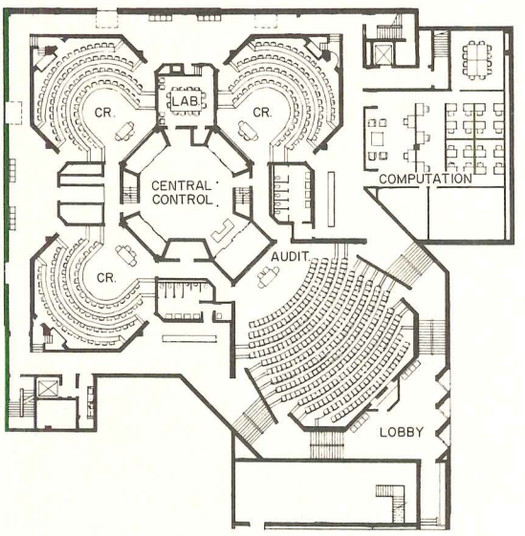

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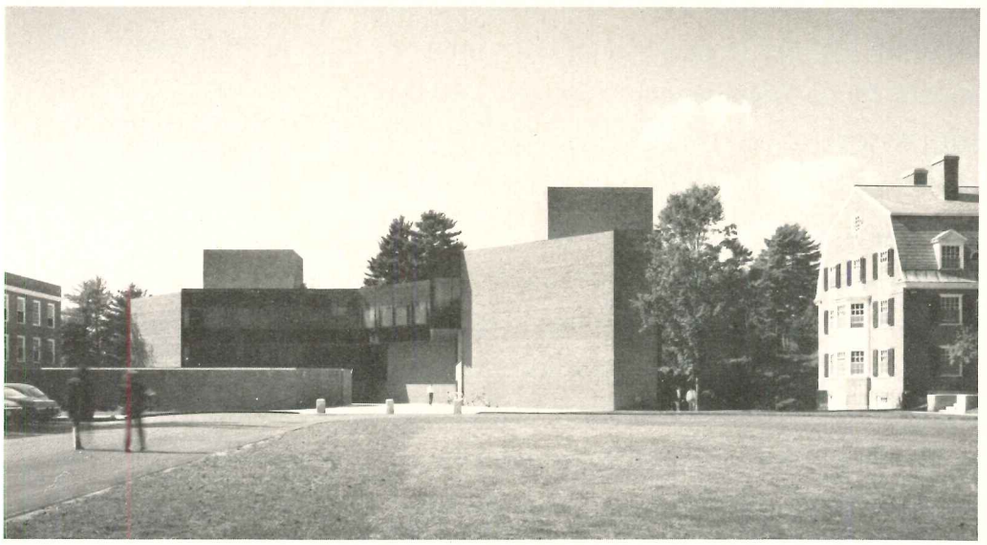
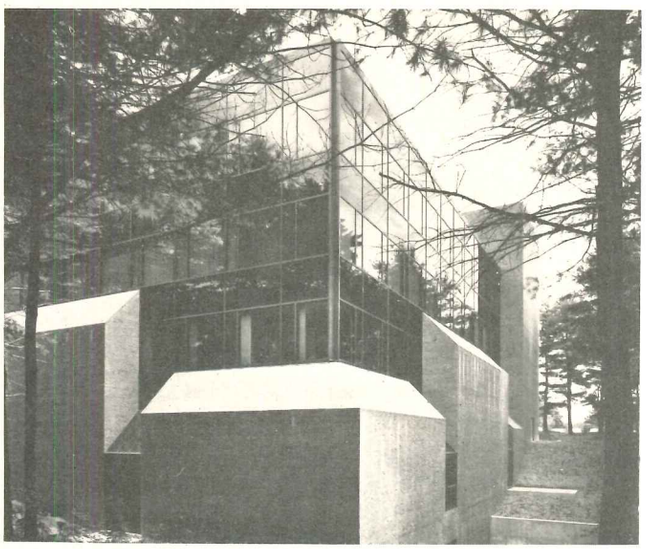
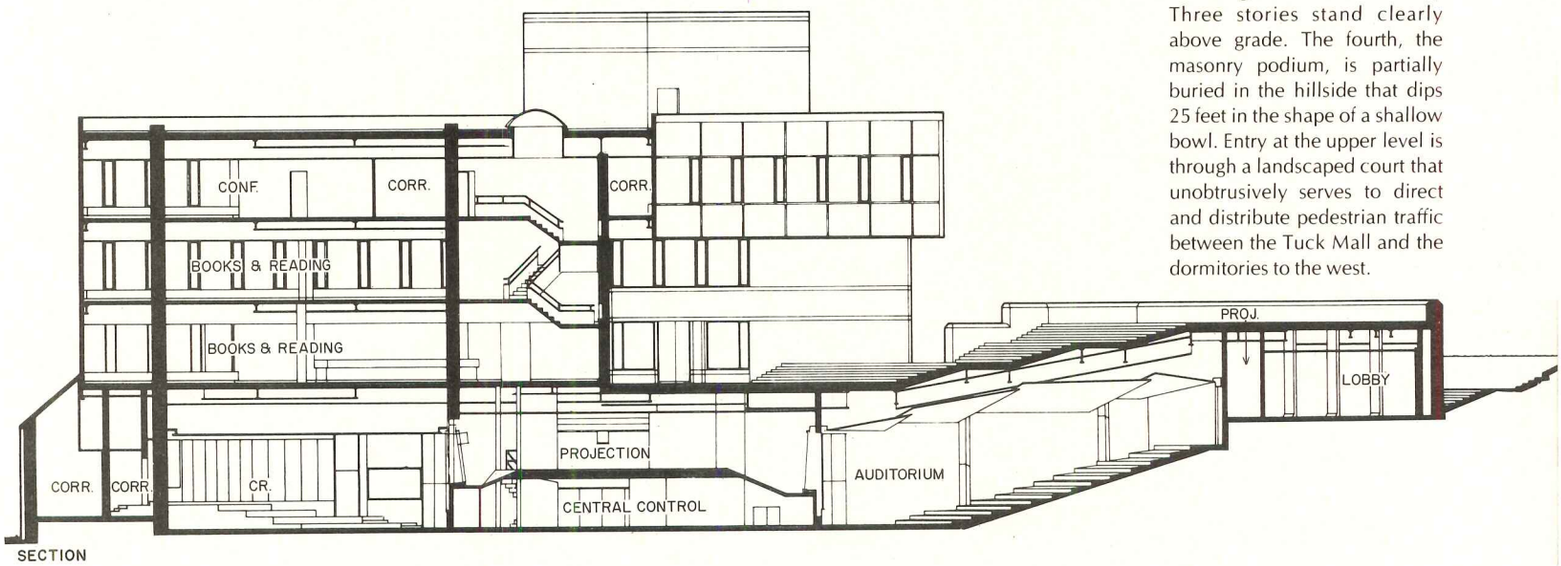


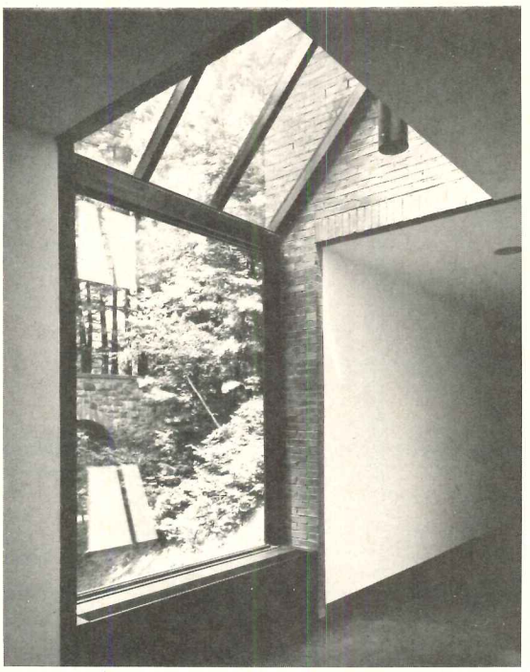


Plans and section reveal the building's careful massing. Three stories stand clearly above grade. The fourth, the masonry podium, is partially buried in the hillside that dips 25 feet in the shape of a shallow bowl. Entry at the upper level is through a landscaped court that unobtrusively serves to direct and distribute pedestrian traffic between the Tuck Mall and the dormitories to the west.



SECTION

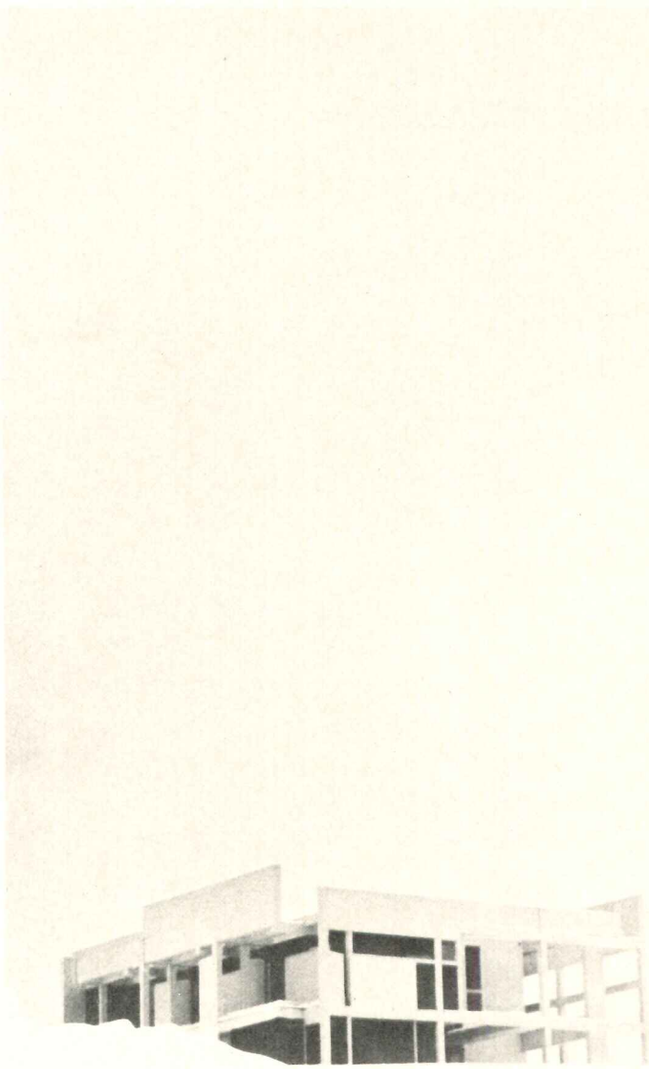
One of four amphitheaters in the building's base, the Cook Auditorium, photo above, provides a long-needed space for the two schools to meet jointly. The auditorium is equipped for multi-media presentation and seats 358 at capacity. The detail, at right, indicates how the lower level corridors were designed to admit light and to join the masonry base to the building's steel and glass superstructure.



Thoughts on some recent polemics in New York, New Haven and Philadelphia, and on their conceivable relevance to architecture in the rest of the world.

Should anyone care about the "New York Five"? ...or about their critics, the "Five on Five"?

by Paul Goldberger
Architecture reporter and critic for *The New York Times*



When John Hedjuk told me that he thought the existence of the Five Architects group gave New York the feeling of a small town, I think he unintentionally caught the essence of the problem. The "Five," as they have come to be called, are Peter Eisenman, Michael Graves, Charles Gwathmey (and his partner Robert Siegel), Richard Meier and Hedjuk himself. They are a group of highly stylized designers practicing in and around New York, and their work is, in spite of its enormous refinement, somewhat parochial. It is an architecture which chooses to cut itself off from much of what architecture is about.

Such is its right, of course. And in the case of Eisenman, the very essence of whose work derives from a separation of cultural values from formal ones, such is its necessity. Buildings like Eisenman's House II in Vermont ignore problems of siting or program to allow complete concentration on the problem of pure form (photo left).

Thus it is argued that this cutting off, this separation, in fact gives the work much of its meaning—that by ignoring certain problems and by working within a limited formal vocabulary (best, although too simply, called neo-Corbusian) then perhaps it is possible to reach more profound solutions. One is reminded of Paul Rudolph's remark that Mies made great buildings "only because he ignores many aspects of a building."

But Eisenman is the only one of the Five who takes this to its logical conclusion. The others continue, in varying degrees, to take into account such traditional considerations as program requirements, siting, materials and so forth; thus their architecture must be evaluated in more traditional terms. This was what was attempted in "Five on Five," the set of essays published in *Architectural Forum* last spring in reply to the book *Five Architects,* published in 1972. That event combined with the publication of the book itself to create the flurry of conversation and debate about the Five around New York this past year.

The essays were written by Robert A. M. Stern, Jaquelin T.

". . . it is not altogether surprising that the debate . . . seemed a lot of Eastern academic claptrap to many architects who practice neither in New York nor along the celebrated Yale-Philadelphia axis."

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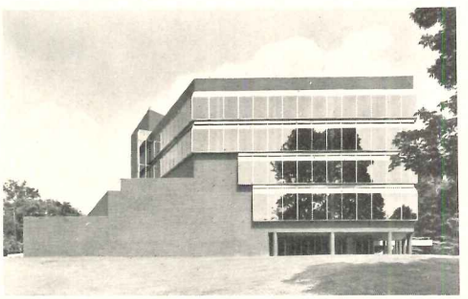

4 Rollin R. LaFrance

2 House in East Hampton, New York, by Richard Meier
3 Design for Merbisc Mart, California City, California, by Venturi & Rauch
4 MDTR Foundation Hall, Bryn Mawr, Pennsylvania, by Mitchell/Giurgola Associates
5 Faculty Club, Santa Barbara, California, by MLTW/Moore-Turnbull
6 Guild House, Philadelphia, by Venturi & Rauch
7 Twin Parks Northeast, New York, by Richard Meier

Robertson, Allan Greenberg, Charles Moore and Romaldo Giurgola—architects whose sympathies generally lie with the philosophical camp which has come to be considered the Five's opposite number: the Yale-Philadelphia axis, the Kahn-Venturi-Scully school, the Inclusivists, to repeat just three of its possible labels. (I tend to prefer the term Inclusivists, coined by Charles Moore and later used by Robert Stern, in large part because its companion term, Exclusivists, used by Moore and Stern to refer to an earlier generation of modernists, is now an appropriate label for the Five.)

The Inclusivist group's major practicing figure is, of course, Robert Venturi. It sees itself as advocating an architecture that is more, not less, responsive to cultural factors, and as such its architects allude freely to various periods of history—not the least of which is the contemporary American vernacular represented by the roadside shed, the tract house, or the Las Vegas strip. Irony is emphasized; some of the major early Inclusivist buildings, like Venturi's Guild House, have strong Pop Art overtones.

So these are clearly not architects working in the puristic mold of the Five. Still, it has been an odd sort of debate going on in New York these days, since, in spite of the obvious (and important) differences between the two sides of the dispute, the "Five on Five" essays and the course of the discussions which preceded and followed them reminded me, at least, that the Inclusivists and the Five also have a fair amount in common.

The groups share, first, a willingness to use historical precedent, and a belief that architecture carries a symbolic meaning. They both work at small scale, carrying out traditional programs such as that of the single-family house, the apartment dwelling, or the school. They share an indifference to megastructures, computer design, and other examples of super technology. They want to make architecture in a fairly traditional way, and in a way in which form is a crucial factor. They are both elitist.

Given all of this, it is not altogether surprising that the debate around the Five all seemed a lot of Eastern academic claptrap to many architects who practice neither in New York nor along the celebrated Yale-Philadelphia axis. It is hard to blame them: while the "Five on Five" essays were stimulating and intelligent discussions of form, they were of an essentially art historical nature, and touched only briefly on the sort of broader questions with which most architects concern themselves. I fear that the unintended result of all this was to leave many people with the impression that the Inclusivists come from a town as small as the Exclusivists, and that their concerns are no less parochial.

I am not, of course, objecting to the concern with form and symbol *per se.* Architecture does not become great merely by worrying about drainpipes and sewage lines, obviously. And there are buildings by architects of both groups which will probably be remembered as major designs of the second half of the twentieth century, and properly so.

But when the history of this period is written, it would be surprising if it did not include architects and firms such as—and here I pick from many more possibilities—Kevin Roche, Hardy Holzman Pfeiffer, Giovanni Pasanella, Cesar Pelli, or Davis, Brody, all of whom are of roughly the same generation as the Five and their opposite camp, yet none of whose work seems to fall neatly into the Inclusivist versus the Five polarity.

The debate has been misleading not only because it has left so much out, and implied too rigid a separation. It has also tended to suggest too coherent a unit within each group as well. For each group is not at all made up of like-minded architects. It is a long way from Peter Eisenman to Richard Meier (Figure 2), not only in terms of formal solution but also, as I have said, in terms of intent. Similarly, it is a long way from Robert Venturi (Figure 3) to Romaldo Giurgola (Figure 4), or to Charles Moore (Figure 5). Indeed, by dealing separately with Eisenman (and, to an extent, Hedjuk) a number of the "Five on Five" essays seemed to be recognizing this immense variation within each group.

Morley Baer 5

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Ezra Stoller© ESTO 7

My point is not at all to minimize the differences between the groups; far from it. They are real and significant. But while appreciating and analyzing these differences we should, I think, be both conscious of the similarities between the groups and aware of the fact that the Inclusive-Exclusive polarity is in itself rather exclusive in that it ignores not only unorthodox developments outside the mainstream but also many talented architects of the same generation of the Five and their opposition whose work does not fit neatly into either camp.

The essential differences between the Inclusivists and these new Exclusivists lies not in the forms themselves, but in the particular symbolism that the forms carry. The architecture of both groups is an attempt to make use of established forms in a new context, but in the case of the Five (with the exception of Eisenman, whose work can honestly be called an attempt to find pure form) the range of the forms chosen is limited to those suggestive of Le Corbusier. Thus their architecture, regardless of intent, becomes read as an attempt to symbolize the earlier style, to evoke it as in a stylistic revival. The cubist forms no longer symbolize the new, as they did in the 1920's; to us today they symbolize the old—they are a kind of historicism. The restricted vocabulary from which the Five draw gives their work a somewhat ideological tone: there is an implication throughout that these forms are somehow correct, and therefore that others are not.

On the whole there is no such implication in the work of the other group, and no such ideology. The inclusivist group casts its net far wider for symbols, encompassing not only the ordinary architecture Venturi so often claims as his inspiration, but also aspects of such diverse architectural traditions as Baroque and the Shingle Style.

Venturi's Guild House of 1963 (Figure 6) is often taken as a typical example of his work, and it makes an interesting comparison with Richard Meier's more recent housing for the Urban Development Corporation at Twin Parks Northeast in the Bronx (Figure 7). Guild House attempts to symbolize the ordinary through its doublehung windows, huge Pop Art sign and television antenna sculpture. Twin Parks Northeast is more frankly refined; its brick forms are elegantly arranged around open spaces, and they relate well to the street and the neighborhood.

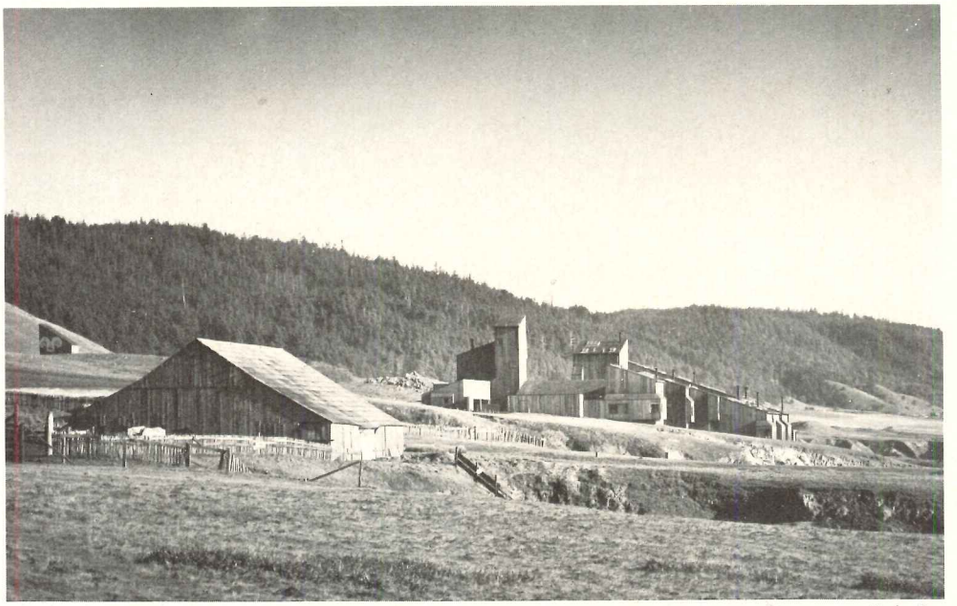
But in truth both buildings are highly refined pieces of design; by no stretch of the imagination is Guild House really like an ordinary 1920's red brick apartment house. Both Guild House and Twin Parks Northeast exist to make an esthetic statement. They do not see their role, as so much housing does, as merely the filling of a social need.

(The fact that Guild House has much better units is, I think, incidental, although it is certainly a tribute to Venturi's ability as a planner. But if the generous size and arrangements of the units were the main feature of the design, we would not be remembering Guild House today, more than ten years after its completion.)

So Guild House and Twin Parks Northeast have a great deal, really, in common; their most significant differences exist largely on a symbolic level. One is a sophisticated pun on the ordinary 1920's red brick apartment house garnished with a few historical allusions; the other, a sophisticated refining of that same 1920's style, with allusions to International Style modernism.

So it is, too, with many of the houses designed by members of these opposing philosophical camps. Moore's Sea Ranch, for example, is essentially an abstract form (Figure 8); although it recalls the wooden shed from which Moore has derived so much inspiration, it was chosen here less for its associative qualities than for its formal ones. How different is this, really, (putting aside obvious program differences) from Gwathmey's beach compound at Amagansett? (Figure 9) Or Moore's Koizim House at Westport (figures 10-11), a large, expansive structure, white like many of the Five's houses. Abstract geometry plays a major role here, too, although Moore tends to be more haphazard about it where Meier, say, is neat and ordered. (Figure 12.)

". . . it is reassuring that architecture in New York can mean an evening of serious debate . . . instead of just a press release."



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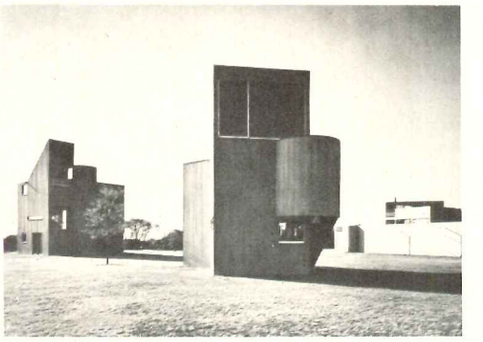
Morley Baer



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8 Condominium, Sea Ranch, California, by Moore, Lyndon, Turnbull and Whitaker
9 Gwathmey Residence and Studio, Amagansett, by Charles Gwathmey
10 Koizim house, Westport, Connecticut, by Charles Moore
11 Koizim house, plan
12 House in East Hampton, New York, plan

The Inclusivist architects argued both implicitly and explicitly in their "Five on Five" essays that their approach, because of its willingness to embrace a wide range of often conflicting symbols, is thus more appropriate to our ironic times. It is a viewpoint first articulated by Venturi in *Complexity and Contradiction in Architecture* and later developed by Vincent Scully, who has often served as the sort of philosophical figure to the Inclusivists that Colin Rowe has been for the Five.

It is an interesting point, and I think it is a valid one. But it would be naive to believe that this "appropriateness" which the Inclusivists claim is any more than the idea that their style is a more logical symbol for our time. It is not a basically different kind of architecture, really, Where a Venturi building serves its users better, as at Guild House, it is largely because of its attentiveness to program, not because of its symbolism. It is important to remember that the Inclusivist approach does not of itself bring success in dealing with program and context, and the approach of the Five does not of itself preclude these things.

There is no question that the existence of the "small town" quality in the architectural community of New York, in spite of the limitations it implies, is also a sign of great intellectual vibrancy. It is reassuring that architecture in New York can mean an evening of serious debate at the Institute for Architecture and Urban Studies or The Architectural League, instead of just a press release. And the debate over the Five and the Five on Five was in itself stimulating, even if it did lead to some unnecessary polarizations. But as we ponder the specific points raised it is important to remember that the entire thing was far removed from the concerns of many architects, and that what was taking place was not an argument across two sides of a central chasm dividing all of American architecture. While the perception many had of it as a debate between two styles which have a great deal more in common than they have differences was not fully correct, it was not all that unreasonable, either.

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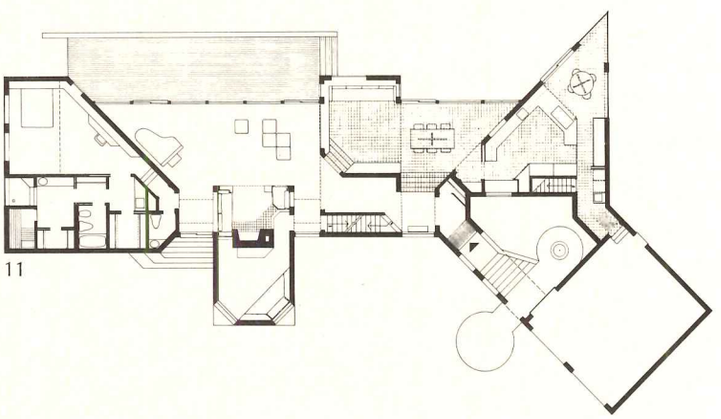

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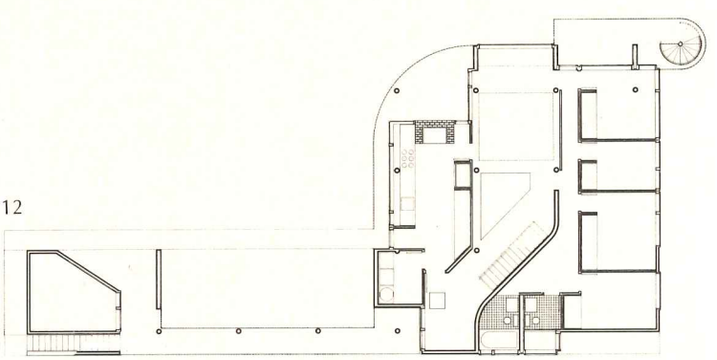

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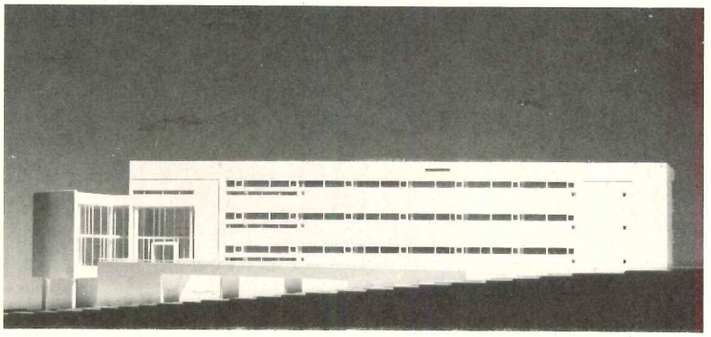

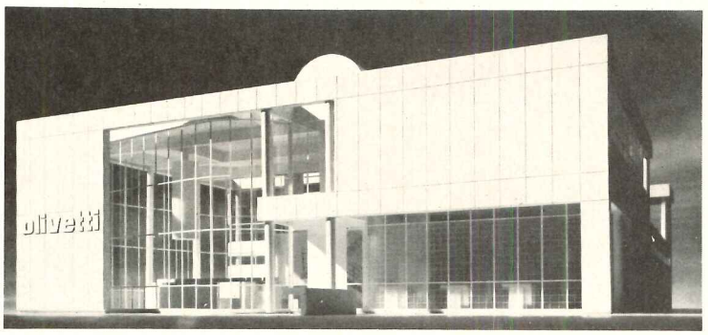

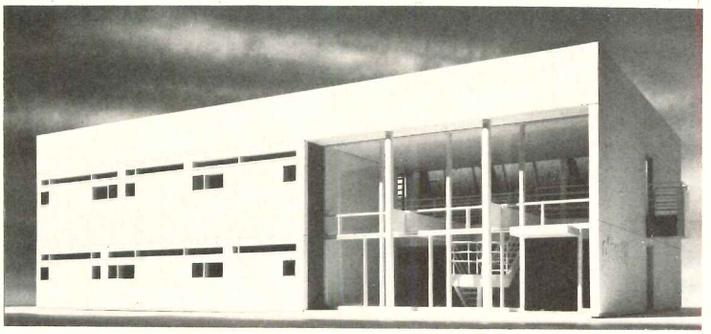

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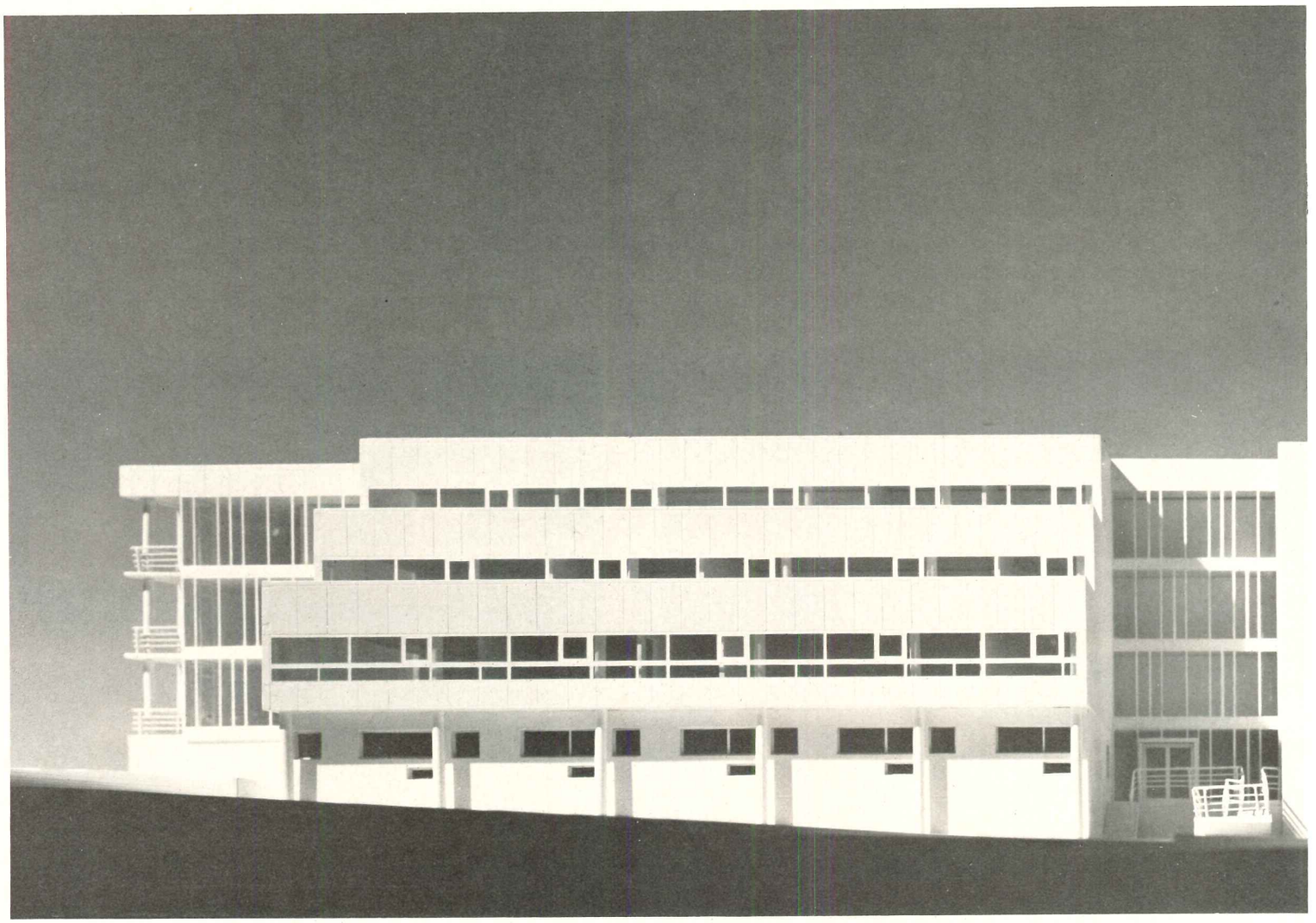
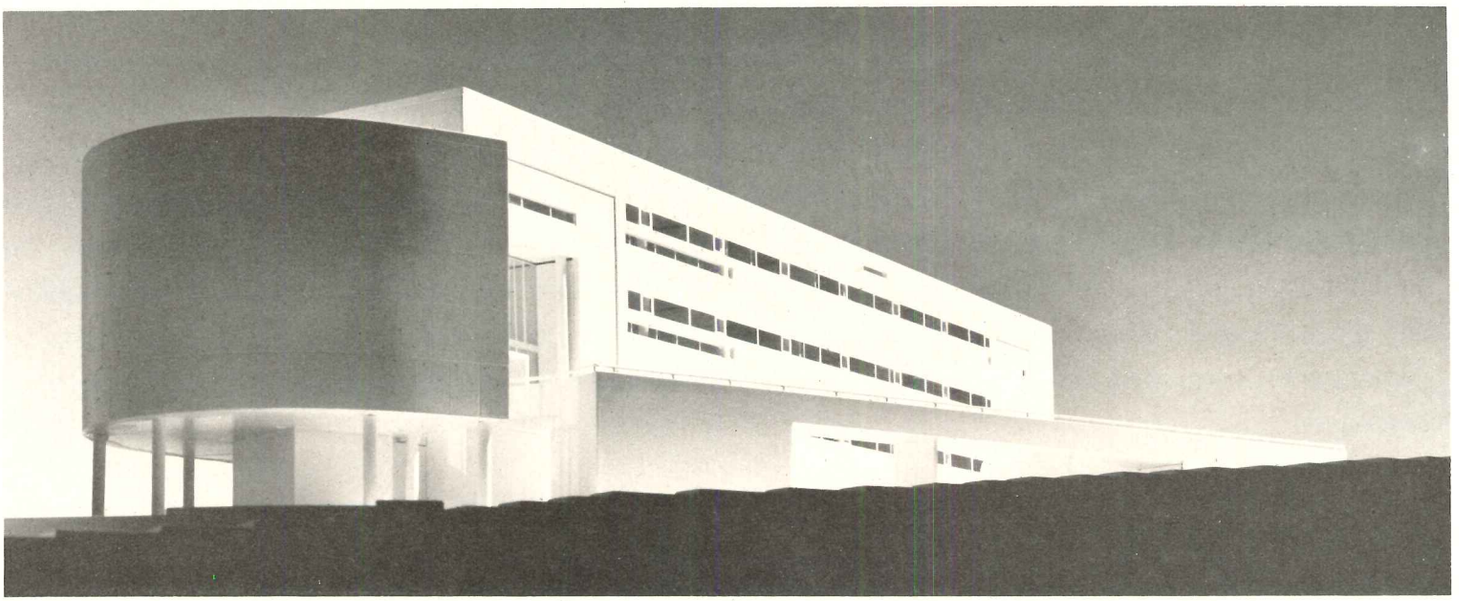
A TRADITIONAL IMAGE FOR OLIVETTI

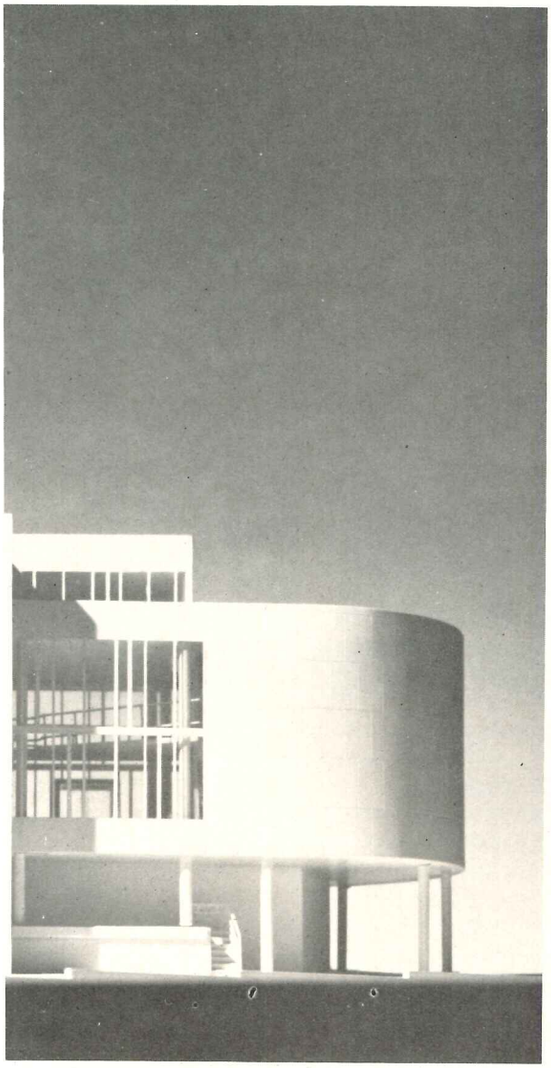
In recent years the Olivetti Corporation has commissioned Richard Meier & Associates to produce four separate designs for its American division, and the choice of Meier as purveyor of the Olivetti image across the continent is certainly appropriate and not particularly surprising. Since the early 30's Olivetti's reputation as a patron of good design (and specifically of good design rooted in the modern tradition) has been secure. And there is probably no more orthodox and visible practitioner of modernism in America than Richard Meier. The four designs are for a dormitory for trainees to be built next to an existing training center in Tarrytown, New York, for a large branch office building in Washington, D.C., and two smaller prototype branch offices intended to be built in 13 different locations in the United States. Meier has approached these commissions with the meticulous skill of an archeologist excavating and rebuilding the *Maison Stein:* the surfaces of the buildings are crisp, planar, and apparently weightless (designed to be made of metal panels), and the walls and columns are in almost every case kept free of each other (according to early Corbusian prescription); every part is studied and precise, and the whole is an elegant refinement of well-understood precedents.



Branch office, Washington D.C.

This large office building for Olivetti's sales staff in the Washington area is designed to be constructed on a hill above the intersection of two busy roads. The main entrance is on the south side (site plan, opposite page); it is reached by a gently sloping ramp (photo below) that begins near the parking area and ends by leading into a double-volume reception area and demonstration room (plans, opposite). The curving wall of the demonstration room hooks itself around the main entrance; seen from below, it is a crisp signal of the building's presence to passers-by.





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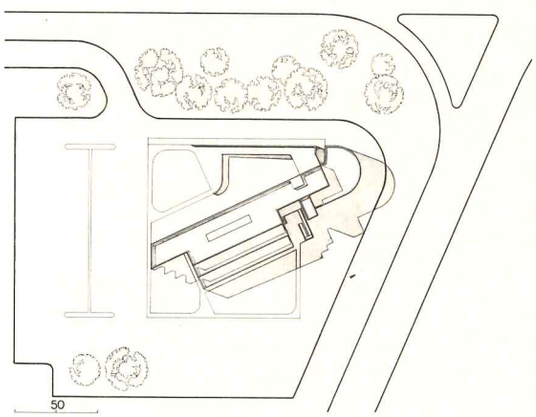
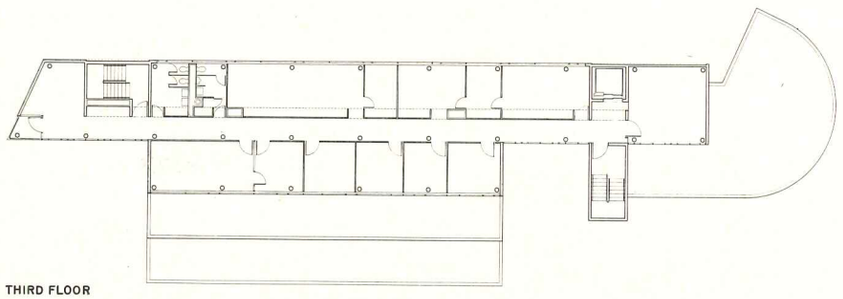
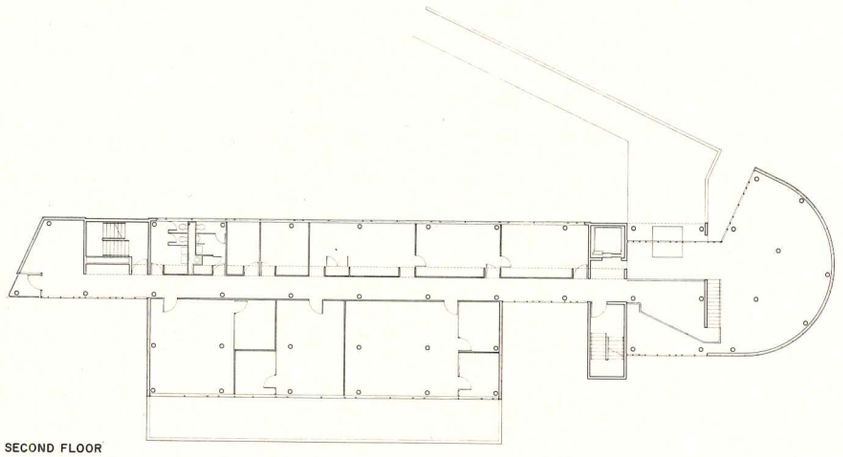
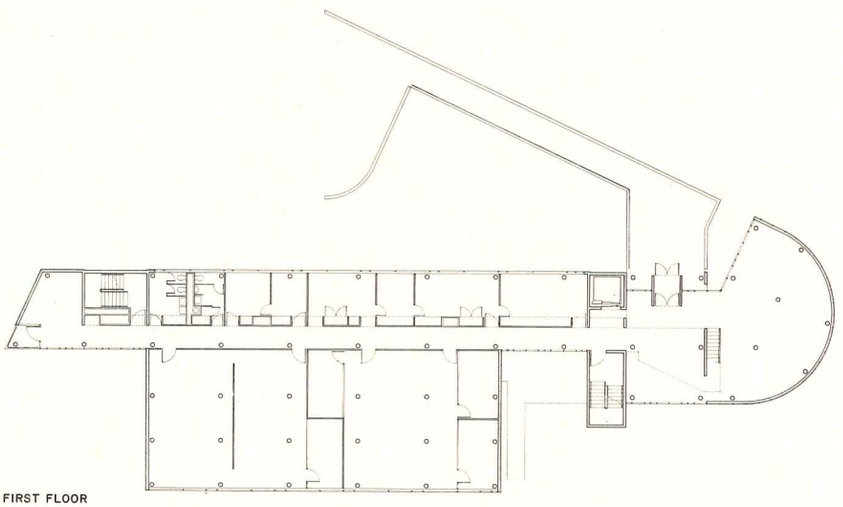




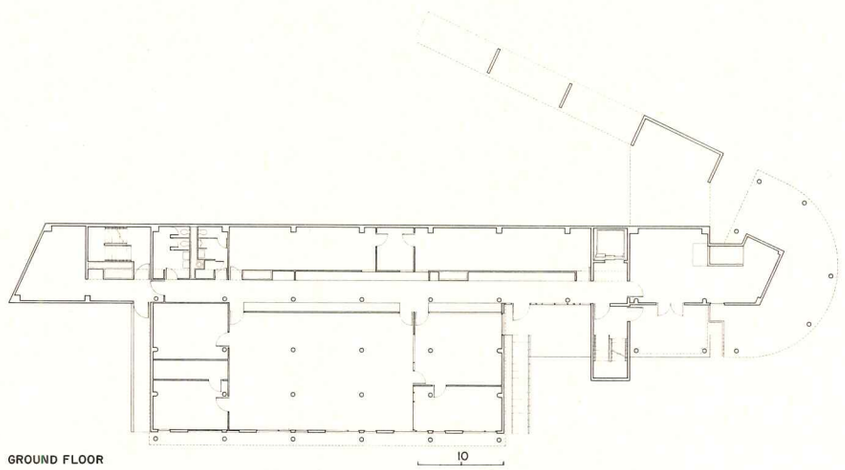
THIRD FLOOR



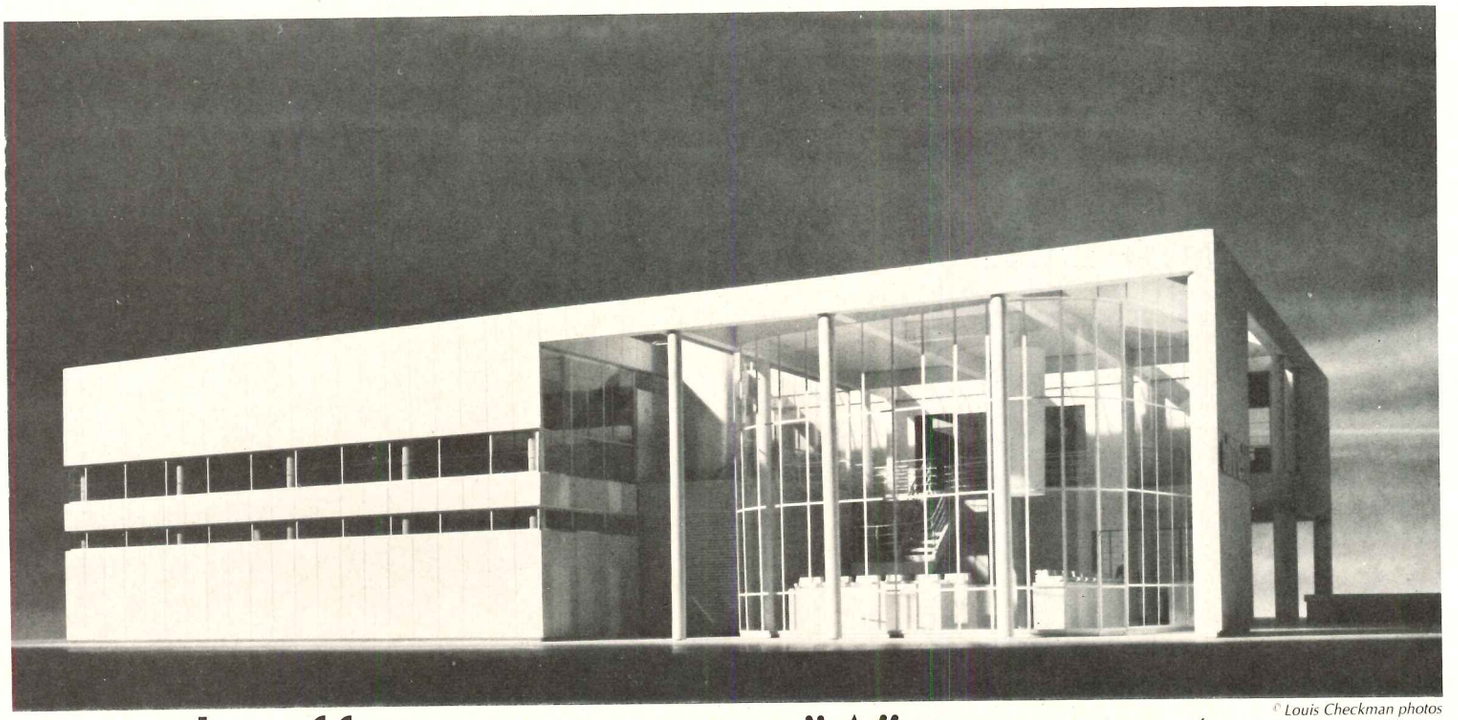
SECOND FLOOR



FIRST FLOOR



GROUND FLOOR



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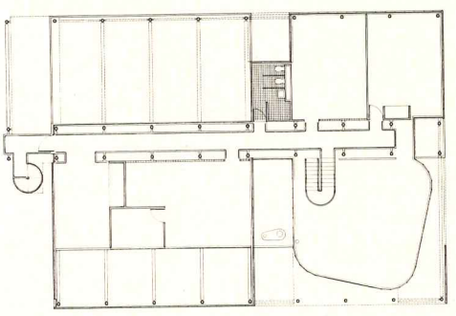
Branch office prototype "A"

The program requirements for Olivetti's prototypical sales offices fall roughly into two categories—one having to do with demonstration and sales, and the other with service, stocks and other supportive functions. In the first of the two prototypes the former activities take place in a single large room enclosed by curving glass walls (plans below). The latter activities take place in a series of rooms in what is approximately the other half of the building. Expansion of these areas is possible by adding more bays, or by filling in the vacant spaces at the second floor level (photo below).



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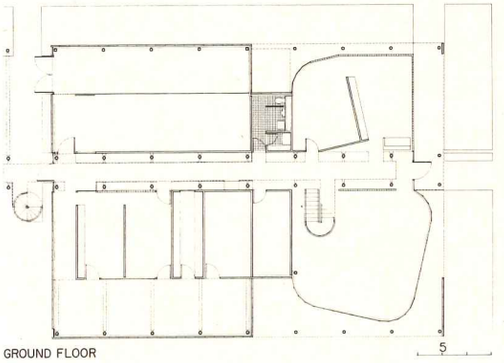

GROUND FLOOR

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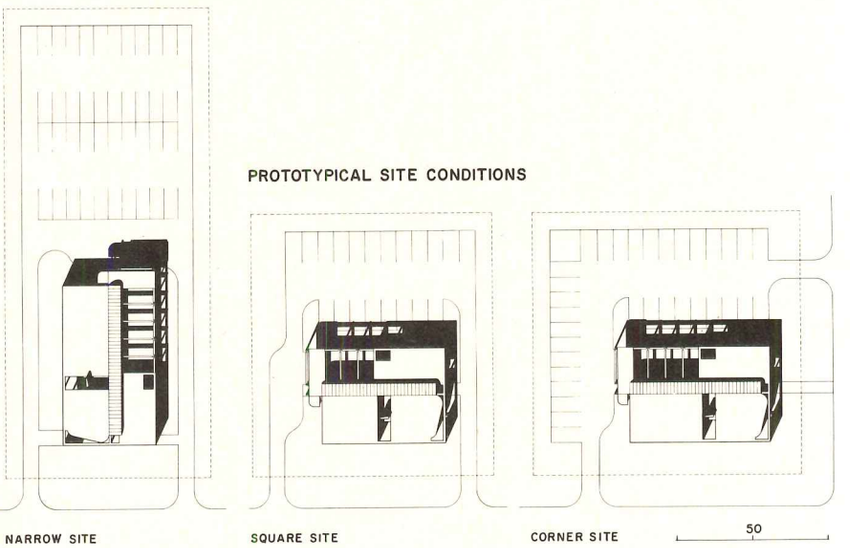


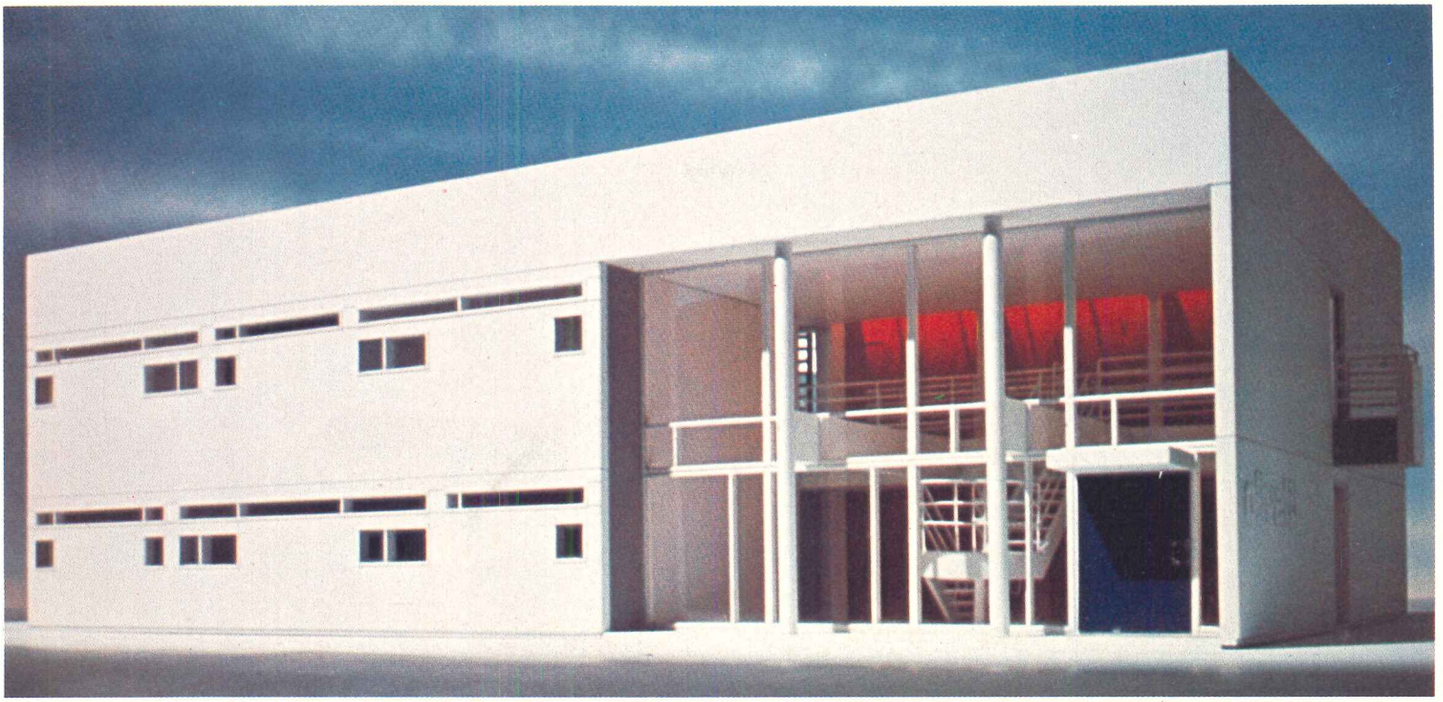
PROTOTYPICAL SITE CONDITIONS

NARROW SITE

SQUARE SITE

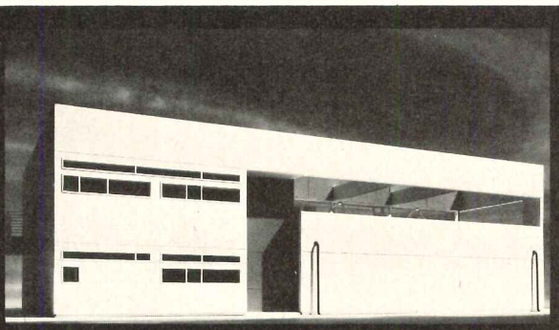
CORNER SITE

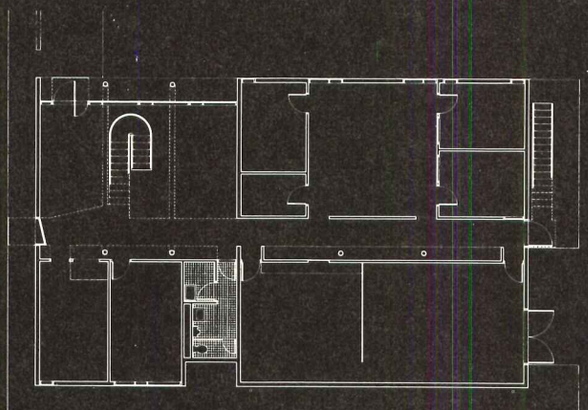
50



Branch office prototype "B"

This is a simplified, smaller version of the first Olivetti prototype (5,100 square feet, as opposed to 7,642 to 10,000). In it the organization scheme maintains the distinction between demonstration and sales and stock and service—distinctions which are more elaborately expressed in the original prototype. Here the demonstration area takes on a more usual form and is enclosed on only one side by glass (plans below); its special importance is indicated by its two-story height, and by a single bright-colored wall visible from the outside (photo above).





GROUND FLOOR

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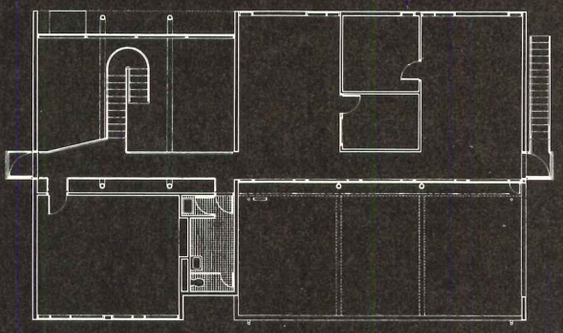
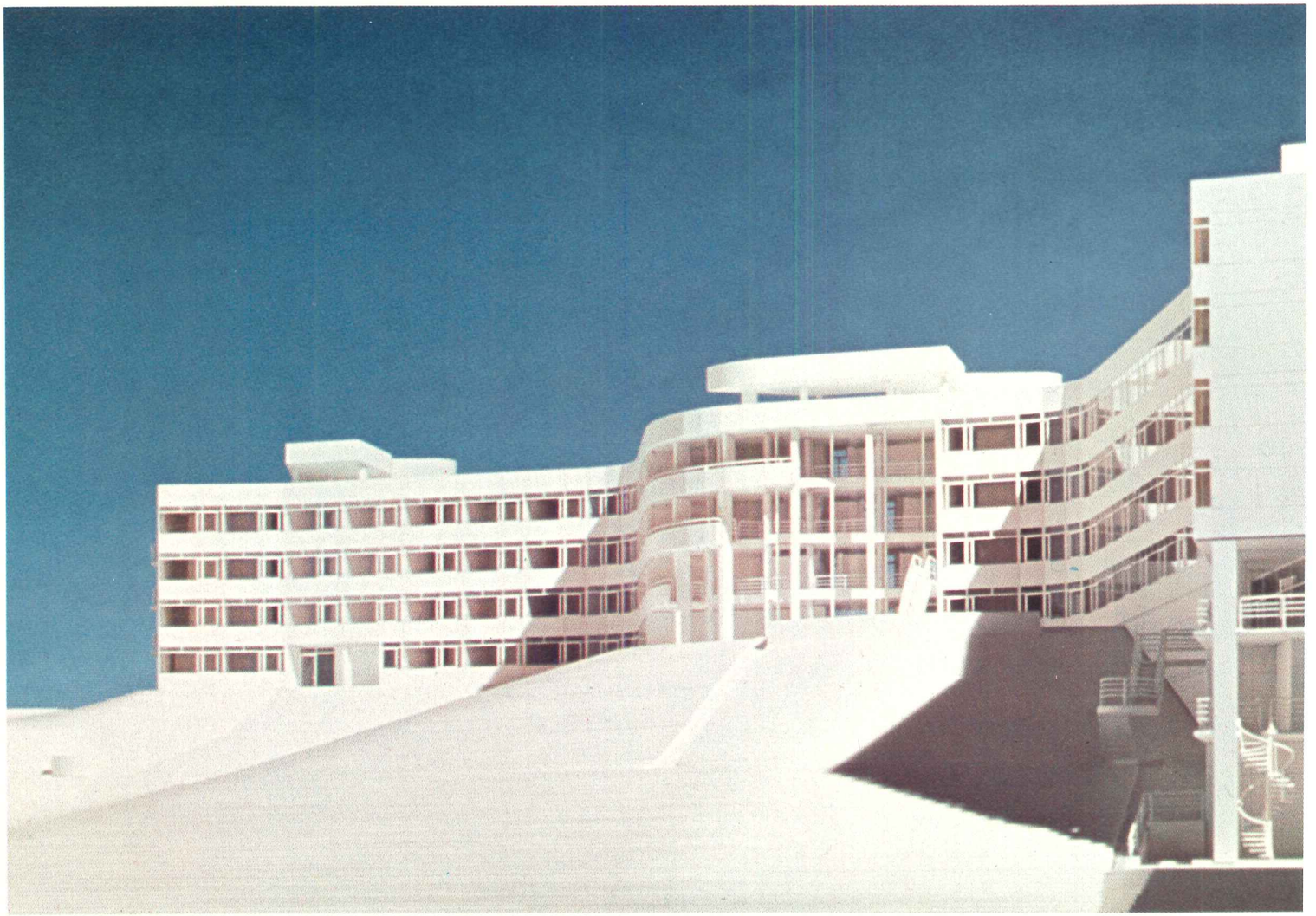


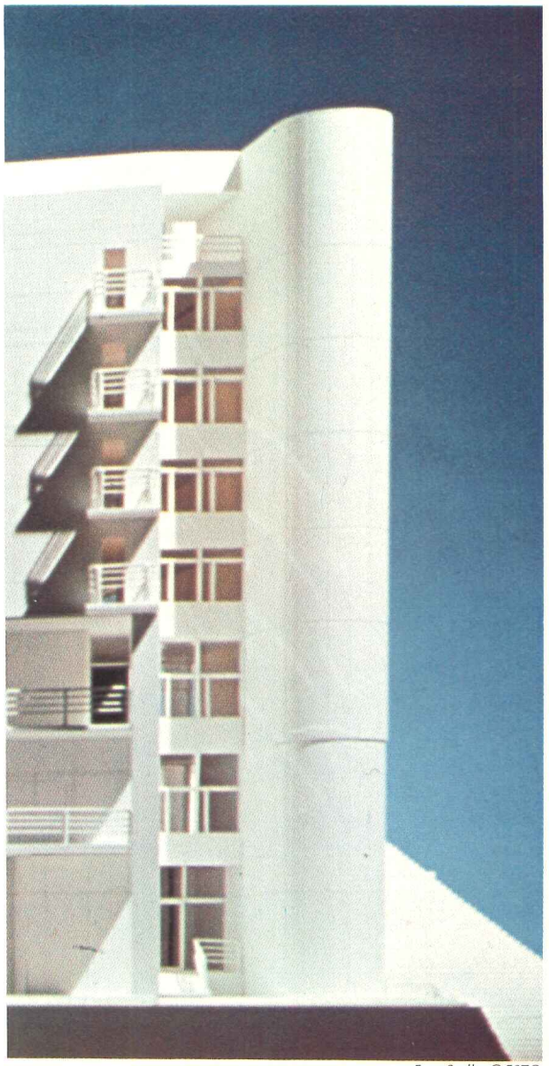
SECOND FLOOR



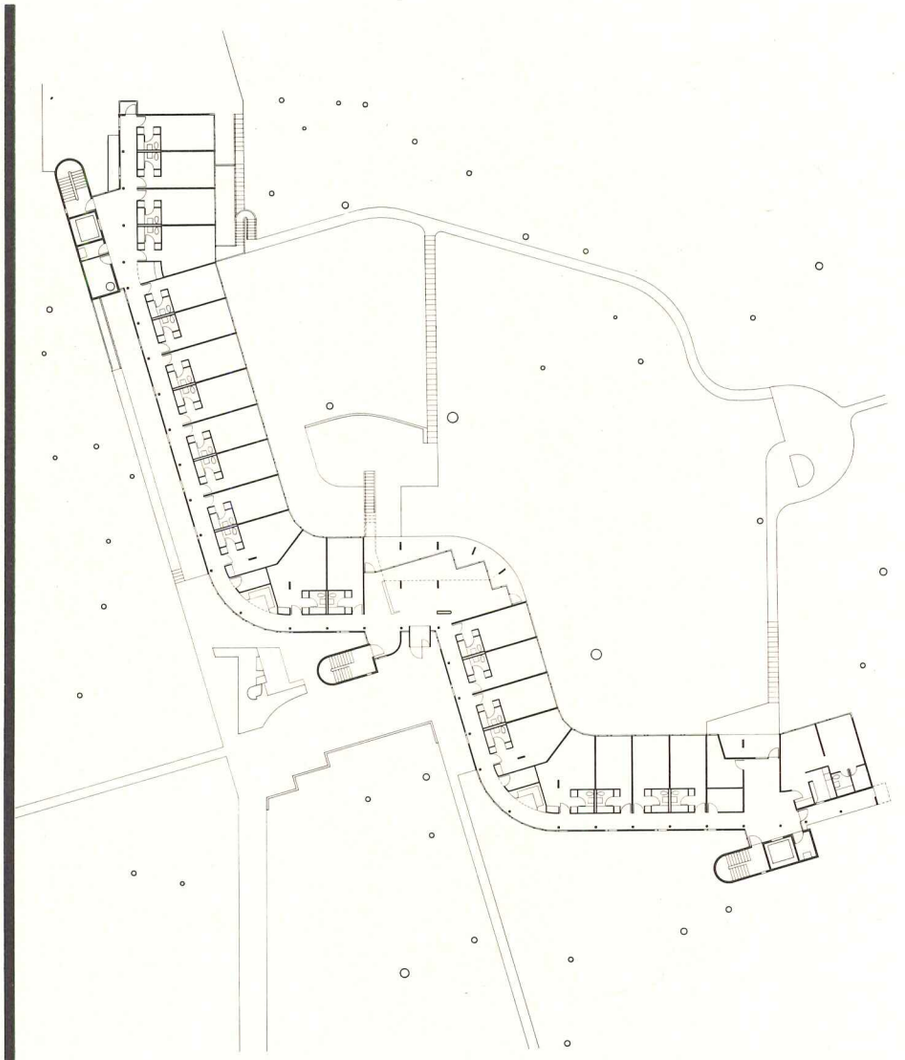
Dormitory building, Tarrytown, N.Y.

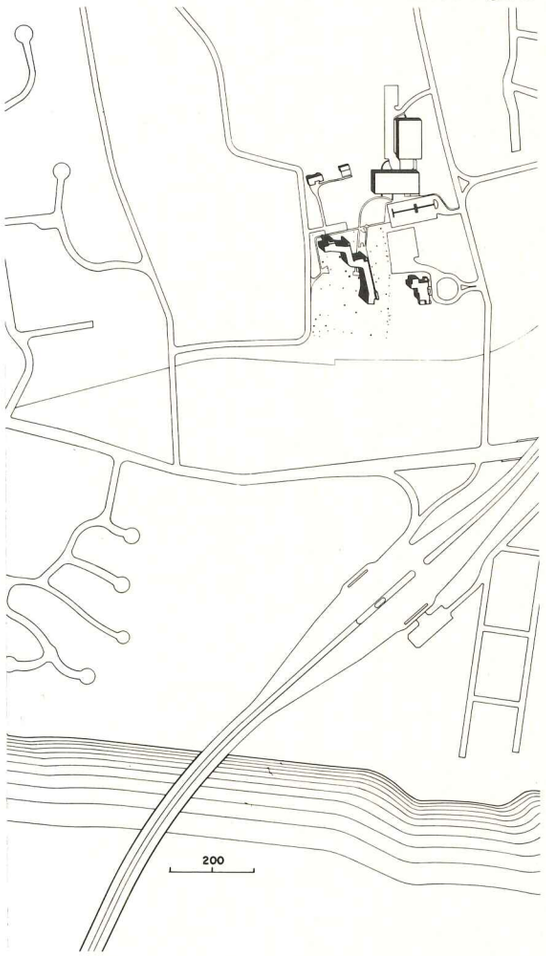
Richard Meier & Associates' dormitory facility for Olivetti in Tarrytown is intended to house trainees who come for limited periods of time. It will be adjacent to the training center itself (where there are also dining facilities) atop a large hill that slopes towards the Hudson River (site plan right). The building is organized along a single-loaded corridor which turns and curves in a way reminiscent of the contours of the land itself. Near the center, and at the point of greatest curvature, there are more freely configured common areas with large walls of glass.

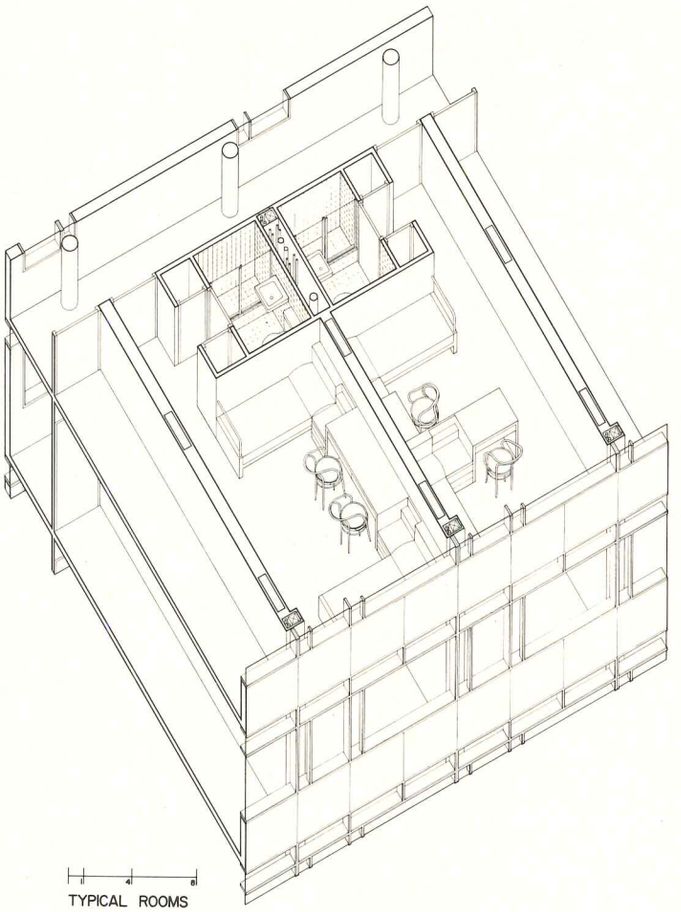
©Louis Checkman



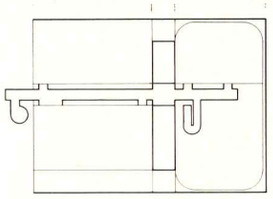
Ezra Stoller ©ESTO

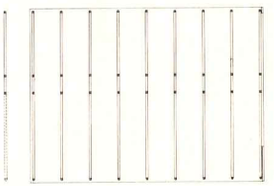


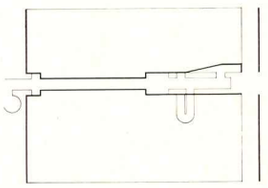


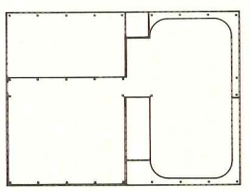


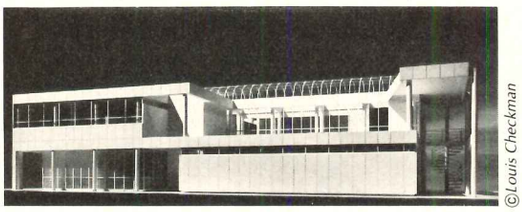
Olivetti's four new designs by Richard Meier & Associates have a great many things in common, and if it is useful to think of the "Five Architects" group of which Meier is a member as "Exclusivists" (see page 113), then the notable similarities between the Olivetti projects can come as no surprise. For the very term "Exclusivist" implies, at best, a narrowing of the architect's range of concerns in favor of concentrating more intensely on those few that are selected, a reduction of variety in the service of clarity. All four buildings shown on the previous pages, for instance, eschew variety in the choice and treatment of materials, which are on the whole limited to simply expressed columns and beams, to walls of glass or to neatly articulated windows in solid walls that are light both in color and in apparent weight. All four buildings exclude certain possibilities for relating to the land on which they are to be built, for all are objects intended to stand free, unburdened by (and unconcerned with) surrounding buildings, and markedly different in their abstract appearance from the landscape itself (even though the Washington and Tarrytown buildings do derive a part of their form from the configuration of the terrain). All four buildings, moreover, show less concern for the configuring of individual rooms than for other exigencies—like external shape or the expression of structure or of general functional relationships. Few of the rooms betray any extensive concern for qualities of light and outlook, or (with the exception of some of the larger, public areas) for special qualities of space. Most are treated with dispatch; some, as in the Tarrytown dormitory, are allowed to become contorted so that the building can achieve its over-all shape. But, once all these exclusions have been made, what is left becomes eminently comprehensible and workable. Thus it is possible to describe the design concerns for the branch office prototype "A" in terms of the adjacent diagrams, which represent (from top to bottom) program, structure, circulation and enclosure. The completed design (shown below) synthesizes and realizes all of these areas of attention with considerable clarity and considerable power—so much, in fact, that it is quite easy to forget that any excluded concerns might be of importance. Whether they are important or not is partly a matter of individual predilection and partly a matter that time will tell. Will the abstract, finely machined images of modernism which these buildings so successfully cultivate have much staying power over the imagination? (So far, over the past half century, they seem to have had more success in charming the architectural profession than the general public.) Will the construction techniques and materials that these designs seem to require cause rancor among contractors and suppliers, who may have strong allegiances to more ordinary ways of putting a building together? Or among the clients, who must underwrite the cost? It will be good to have the designs for Olivetti built. They may provide some answers to these questions.—*Gerald Allen*











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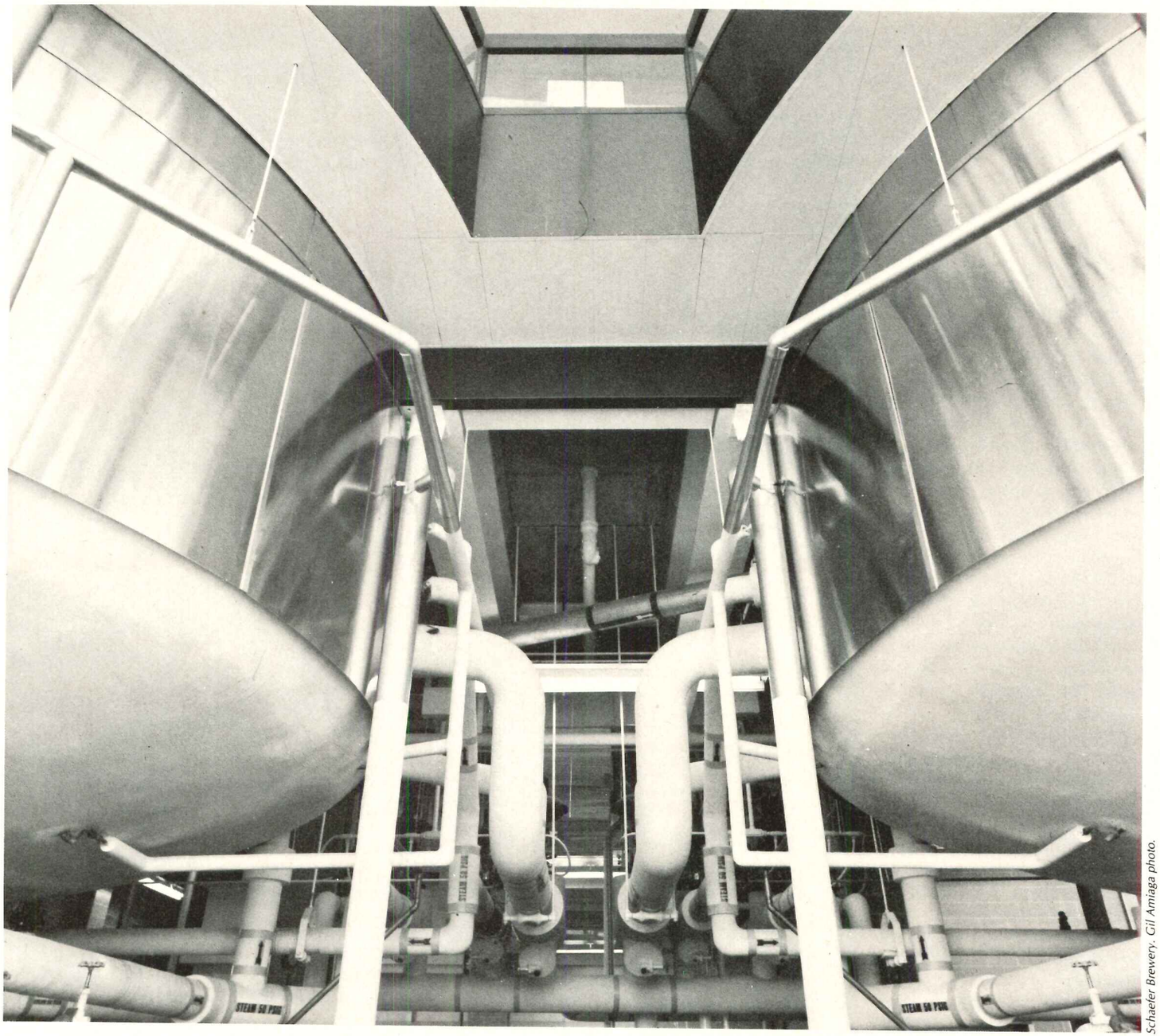
OLIVETTI BRANCH OFFICE, Washington, D.C., BRANCH OFFICE PROTOTYPE "A", BRANCH OFFICE PROTOTYPE "B", DORMITORY BUILDING, Tarrytown, New York. Architects: *Richard Meier & Associates—team for the Olivetti projects: Richard Meier, Gerald Gurland, John Colmarino, Frank Harmon, Steven Hildebrand, Sherman Kung, Barbara Littenberg, Harry Lyew, Richard Oliver, Michael Schwarting, Peter Szilagyo, Tod Williams.*

INDUSTRIAL BUILDINGS

Good neighbors and good places to work as good business



Schaefer Brewery. Gil Amiaga photo.

Industrial construction continues to grow in volume—despite the generally uncertain business forecasts for 1974. Given a time of economic stress, what will the new buildings be like? The climate for poor decisions could be at hand, but new words are entering the management jargon: ecology, environment, neighborliness, quality of life, public image and—most important—planning. Even the primarily image-motivated client is seeing the reasoning for erecting real buildings and not just facades on "package" structures. One of the most encouraging signs is evidence that some manufacturers are looking at new construction as not only buildings—but as parts of the environment. The reasons are varied: demands of conservationists or adjacent property holders fearing a decline in values, labor agreements stressing working condition improvements—or maybe a growing conscience. A strong influence on client attitudes may come from the current lack of energy supply whereby the low first costs of buildings may mean disastrous long-term consequences.

There is a unification of concerns between the architects and everyone-involved-in-industry. Better planning means better functioning and working conditions—not "hanging on the decoration" as industry seems to have long suspected. But meeting new client realizations may mean more of the architect's involvement in the process of the plant and acceptance of efficiently running mechanisms as beauty in themselves. The projects shown on the following pages all illustrate (in varying balance) the design considerations discussed here—and illustrate the individual architect's abilities to prove that good planning can mean a long-term benefit to industry and the public alike.—*Charles Hoyt*

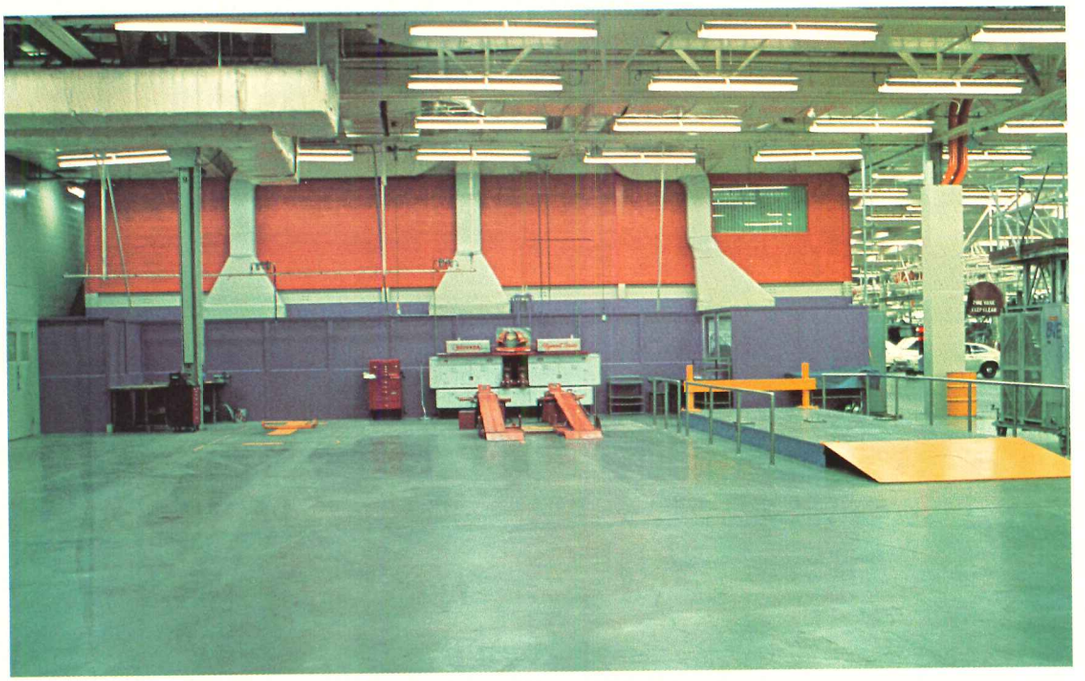
FORD, IBM AND.....

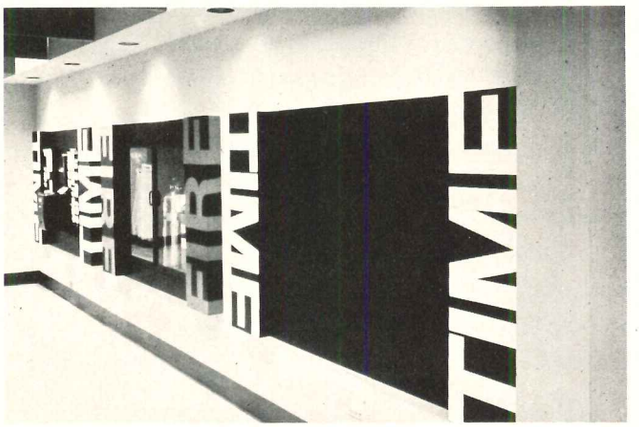
Looking at plants from the inside

The realm of the designer of industrial interiors has been frequently limited to ancillary offices while production space has been "designed" by necessity or rote. New considerations are now becoming apparent as workers question boredom and lack of the sense of self-identity in their daily existence. Labor agreements may not yet directly equate physical appearance with the mental condition produced, but such awareness may well be coming. Progressive corporations are already "a jump ahead" with active programs to upgrade—not only on-job safety and the provision of convenience facilities—but the general ambience of their existing and new production areas. And the list is certainly not limited to the examples shown here.

Architects Smith Hinchman and Grylls Associates Inc. have an active department of graphics and signage design headed by John R. Berry and specializing in recommendations to many industrial clients. The department's work includes a wide range of consideration: providing information (and the ability to change it), psychological effect, safety, durability, and maintenance. Workers' identity with individual work space (in areas up to 1,250,000 square feet) has been a prime part of their concern. "Mood tone" graphics are employed to provide different identifiable patterns for separate areas and still maintain a consistent spatial definition. SHG's design for IBM's Boulder, Colorado Manufacturing Facility relies on strong colors overlaid with extra large white lettering identifying exits, time clocks, etc. Conveying information becomes far more interesting than the basic knowledge might warrant but provides a new dimension: a graphic sense of location.

Ford Motor Company's program of existing plant renewal has similar objectives and was designed by Ford and Earl Design Associates. Circulation is marked by bold coloring, (as seen on the stair, photo, above). Strong separation of upper and lower walls by a horizontal division of color helps to visually relate spatial height to the individual and allow a sense of belonging.





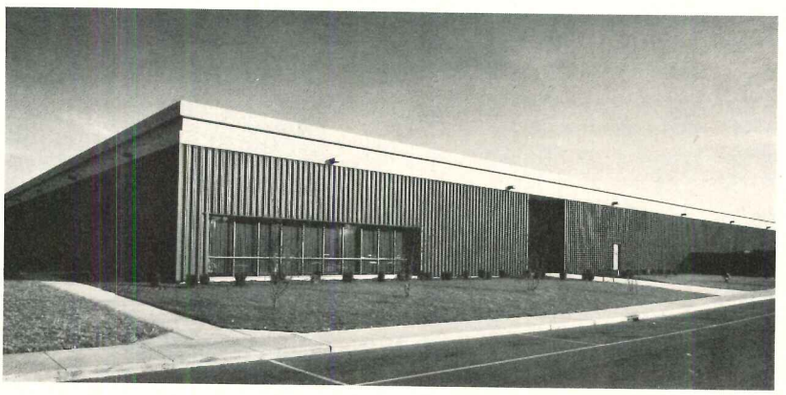
Many manufacturers are becoming aware of the desirability of increasing labor morale—not only by the increased provision of safety and convenience facilities—but also by upgrading the visual environment. Programs for Ford's existing plants (photos above) and for a new IBM production facility (photo left) are aimed toward providing a cheerful atmosphere, furnishing information on operations and giving individual reference points to the space in which the workers' days are lived.

A CENTRAL LAUNDRY

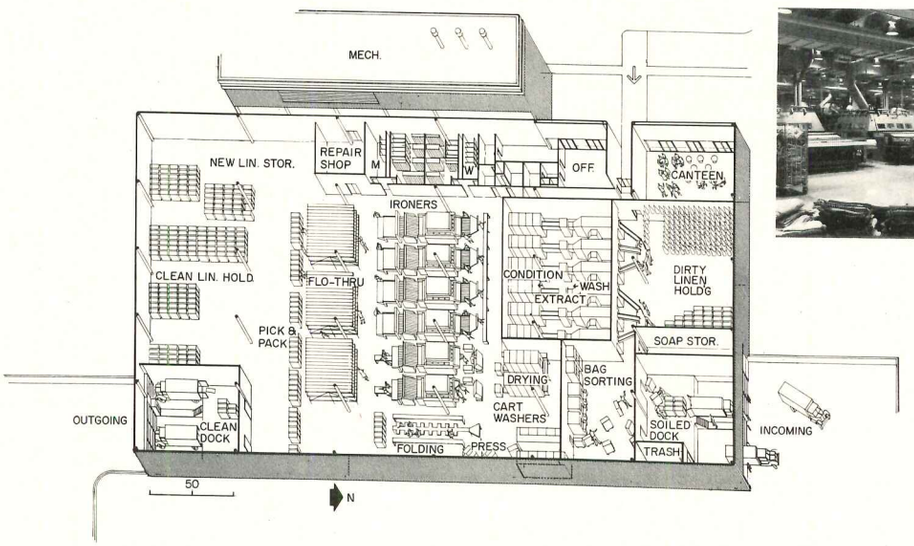
A visitor to this newly-opened Kansas City, Kansas facility is little prepared by the simple design of the dark metal panel exterior for the explosion of color that occurs within. Architects Hellmuth, Obata & Kassabaum have produced a cheerful working environment—despite a lack of visual contact to the outdoors—by a straightforward recognition of the visual interest inherent in the plant's basic functions. Capitalizing on the sculptural quality of machinery and pipes, the designers have accentuated various elements with separate colors and clarified the elements as well. Other amenities for the workers include a high-volume air-conditioning system and social gathering rooms (with windows). Continuous-process machines reduce the amount of repetitive hand labor and individual service connections—and costs as well. Concrete tee beam construction was chosen to reduce lint collection on ceilings. Sorting is accomplished by the health facility clients who separately bag a limited number of standardized types of items before pickup.

The Central Laundry exemplifies a current general trend towards a reduction in the repetition of transport and handling in the service industries. A possible multiplication of facilities has been consolidated for bulk pickup, processing and distribution The plant cleans some 18 million pounds of linen annually for 14 participating hospitals in the Kansas City Area and can be expanded to meet a growing demand. This project is part of a downtown urban renewal effort on the part of Kansas City. The construction cost was $1,800,000 exclusive of equipment.

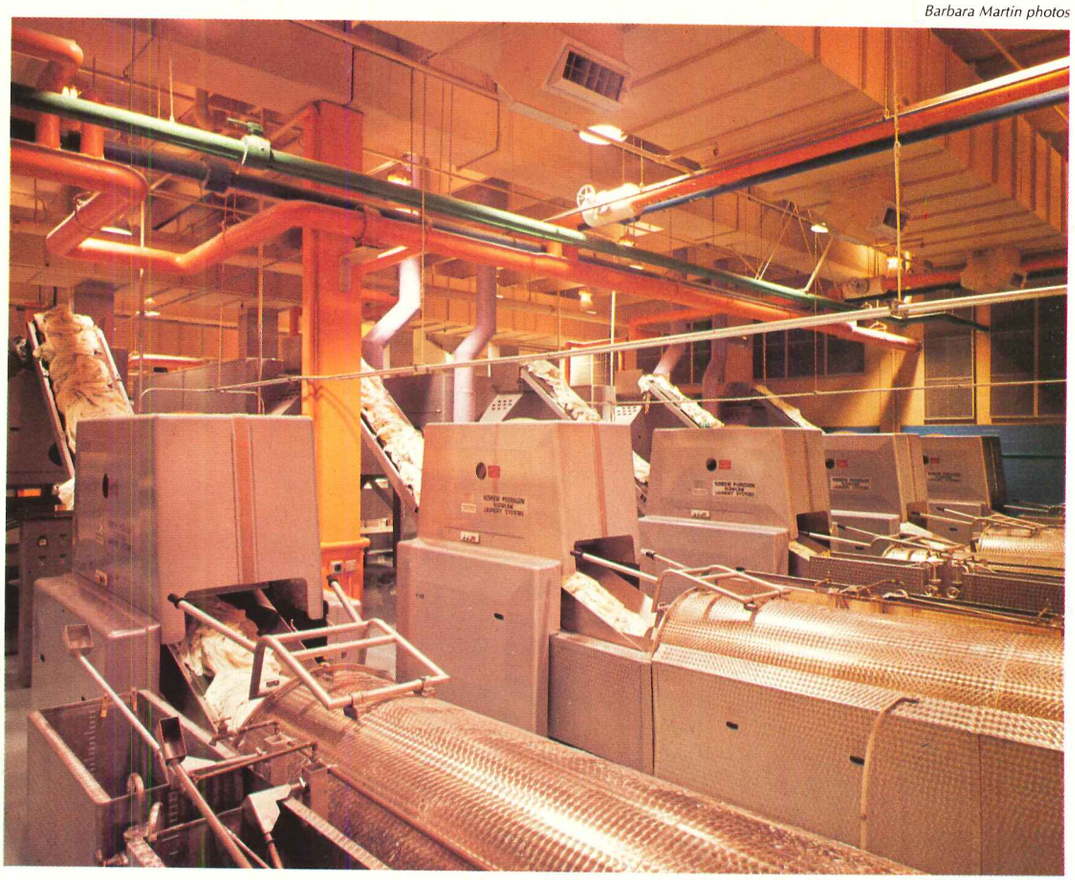
HOSPITAL LINEN SERVICES, INC., Kansas City, Kansas. Owner: *Kansas City Area Hospital Association.* Architects: *Hellmuth, Obata & Kassabaum, Inc.—principal-in-charge; King Graf; project architect: Charles Danna; chief designer: Gyo Obata; project designers: Bernard Bortnick and Harry Culpen.* Engineers: *Tse Wen Lin* (structural); *Walter E. Hansen* (soils); *Harold P. Brehm* (mechanical/electrical). Consultants: *Victor Kramer Co., Inc.* (laundry); *Chip Reay* (graphics); *Neil Porterfield* (landscape). General contractor: *Collins Construction Co.*



Turning high-volume laundry machines into a colorful visual experience, the designers have more than provided the worker stimuli of less automated environments—or windows. The dark asbestos finish of the aluminum exterior siding contrasts with the brightness within. Colors are meant to give information on each element's function—and cheer. Offices and production are accommodated under one roof and provide a psychological unity.



Barbara Martin photos



DOW IN MICHIGAN

Recognizing the industrial landscape

The Dow Chemical Company's Midland Division comprises one of the world's largest chemical production complexes—occupying over 2,000 acres and 500 buildings. The plant celebrated its (and Dow's) 75th anniversary in 1972 with a re-analysis of ongoing facility renewal and replacement procedures. Dow property manager Hugh Starks explains that the result was a desire for a strengthened procedural organization with a clear aim of making Dow's large physical presence compatible to workers, the public and neighbors (nearly 500 separate properties abut the plant).

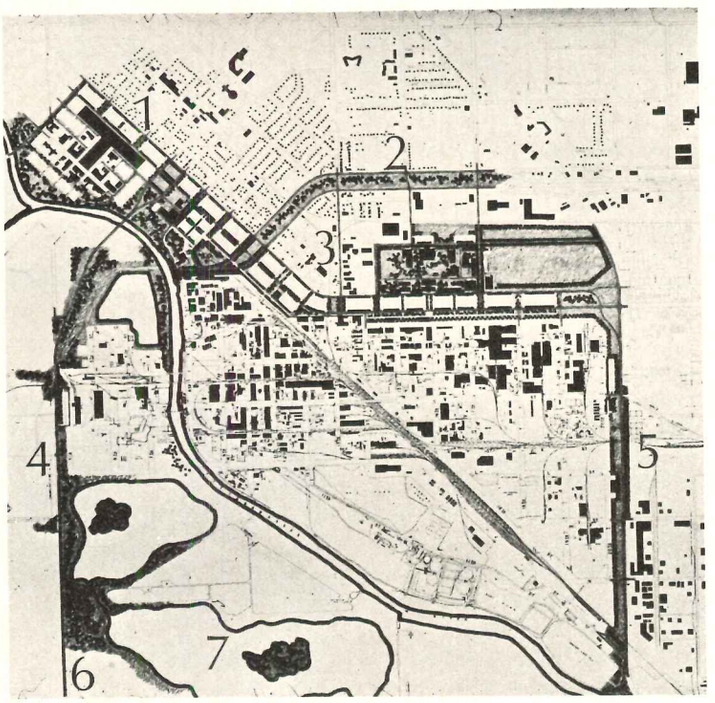
Planners HOK Associates (Jamie Cannon, project manager and Frank Clements project designer) were commissioned to do a study of the best courses of action, and some remarkable implementations have occurred—with more to come. In line with a good neighbor policy, a large part of the Company's concern involved the plant's impact from the site perimeters, which had become deteriorated despite the proximity of downtown Midland (upper left in the plan) and the homes of Dow's top management. But even early concerns did not stop at the plant perimeters and one of HOK's first steps was the preparation of a "blight plan" of all nearby properties.

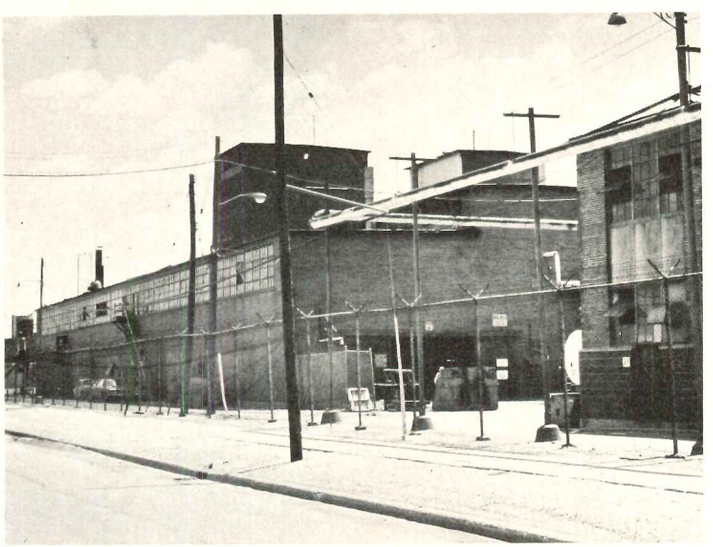
One of the first design assumptions was the sound acceptance of the major plant elements of tanks, piping, stacks and metal clad structures as visually interesting shapes without need of cosmetic coverup except for new light gray paint to enhance sculptural qualities and lighten building interiors. The program has been a great success with workers (Dow realizes the necessity of their people appreciating the value of all the present programs). Ground-level clutter became the target for basic design efforts, and the results can be seen in the section, opposite page. Typically the existing visual elements consisted of massive parking areas facing streets, chain link fence surrounding the whole site, overhead power cables, and the endless—but necessary—flow and storage of smaller portable equipment and supplies (photos, opposite page).

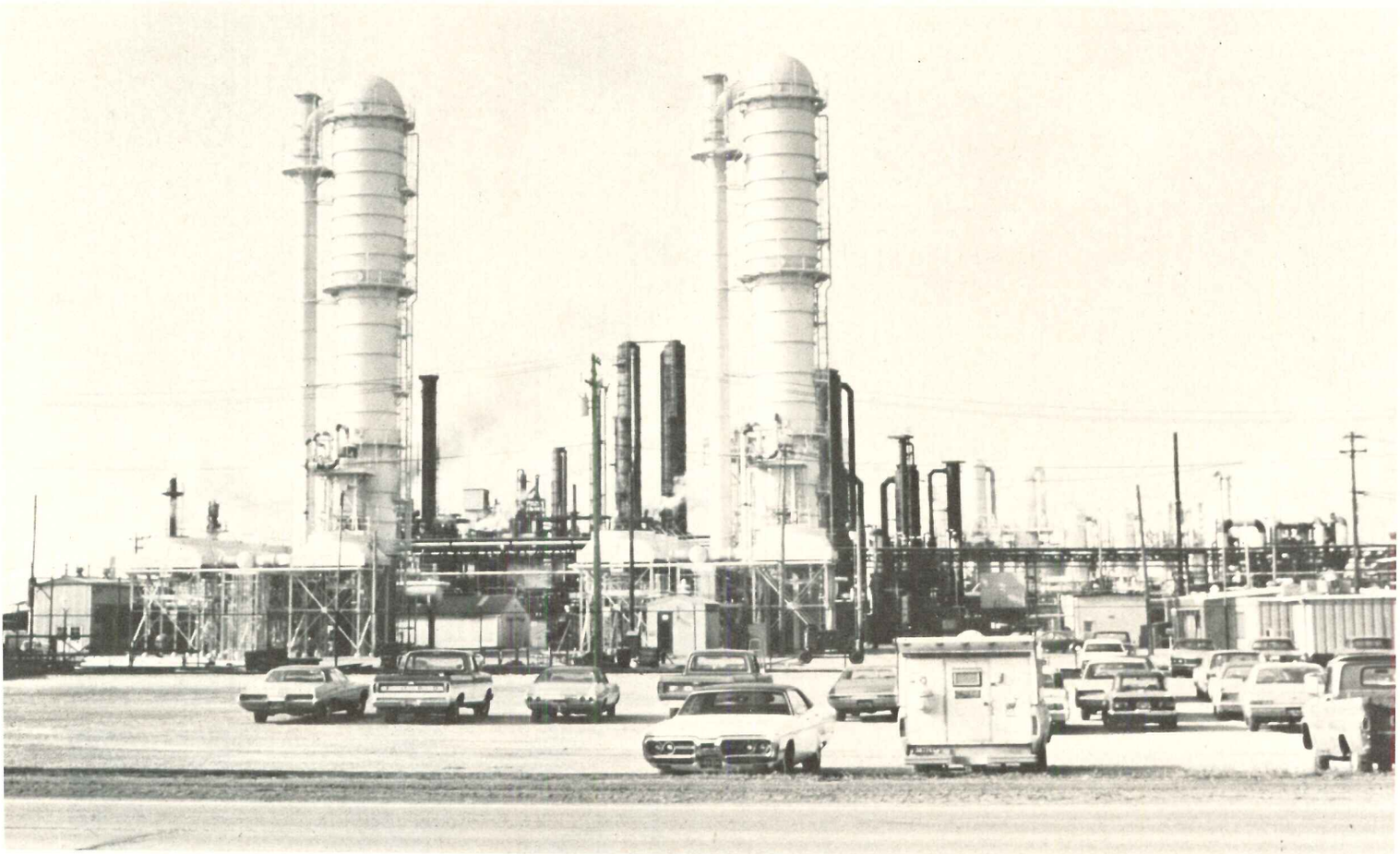
HOK's site perimeter recommendations involved removing as much parking as possible from the land between street and fence to a landscaped center strip of a new parkway created from two streets (point 3 on site plan). The old parking areas will become a bermed and planted zone to conceal the fence and ground level clutter and provide a green buffer to outside properties (as well as a visual base to the industrial sculpture above). Overhead power lines are to be buried. Fill for the berms comes from dredging of the old sediment ponds (7) which are being converted to naturally shaped landscaped lakes while continuing their old functions more efficiently. A new Overlook Park (6) will provide the view across the lakes seen in the night photo, opposite page.

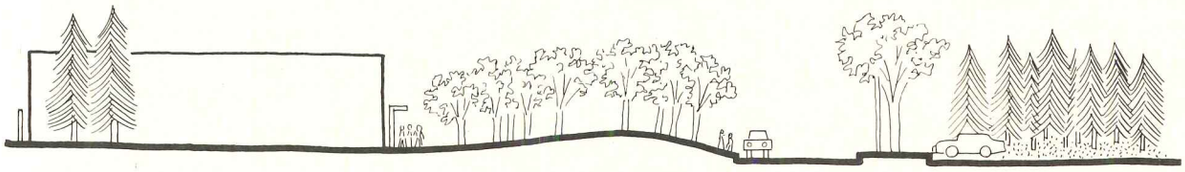
Internally, efforts include organization of both existing visual and traffic pattern confusion, a unification of scattered research facilities into a campus area, a reorientation of the headquarters area (1) and a park strip along the river banks. A simultaneous 7.9 million dollar environmental protection program is being carried through. Dow's eventual aim is a zero effluent plant.

Today, Dow has gone further than some of their original goals. A downtown revitalization study is being prepared by HOK, and Dow is a catalyst in carrying through study recommendations. Implementation of city approach improvements (2) as well as plan recommendations along one road (5) may be put into physical form by the Midland Community Organization originating in HOK's study and set up to receive monies from foundations and find practical methods of carrying through on planning. Other programs are waiting normal cyclical renewal dates. Painting is done on a four-year rotating basis, and some burial of power lines may wait required replacement dates. The Poseyville Road phase (4) is completed as planned (except for planting). The adjacent Dow-Corning plant had adopted a similar program by HOK—now largely implemented. With the backing of Dow General Manager Joe Temple, Dow's goal for a substantial carry-through on planning lies within the decade.

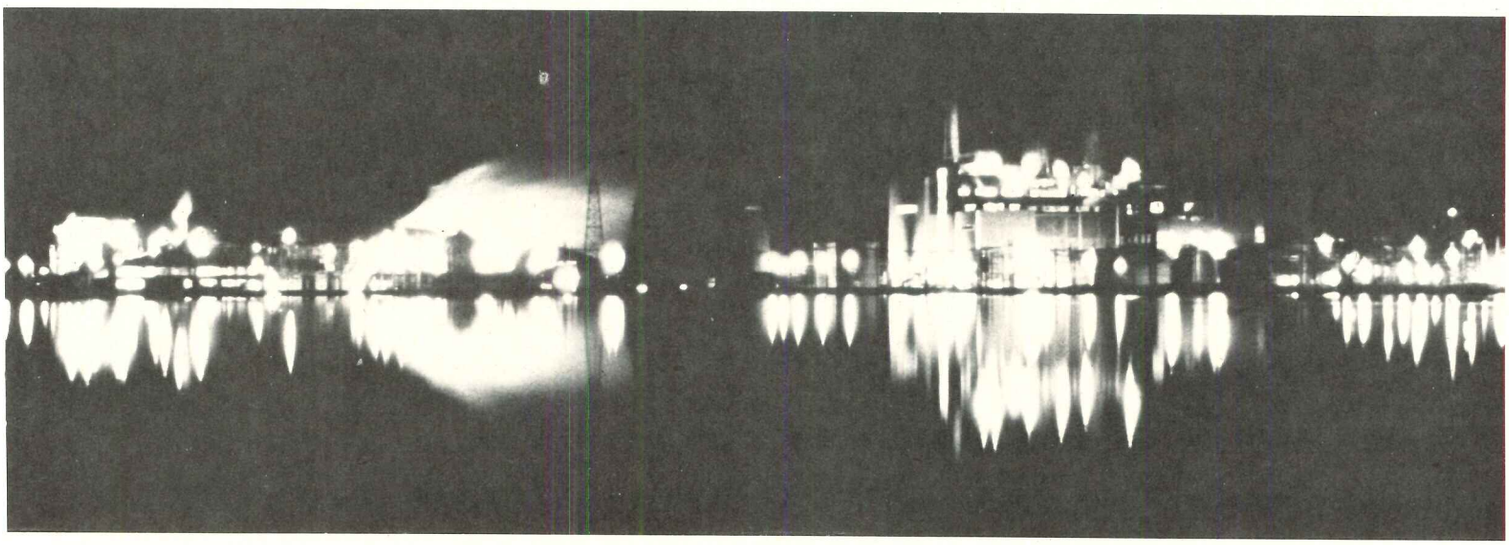








The view above is about to change. A section indicates the removal of parking and replacement by a planted earth berm concealing fencing and ground-level clutter. The full Dow program involves all areas of the plant. Shading on the plan indicates perimeter renewal. The aerial view shows the diversity of neighbors (foreground), the headquarters undergoing replanning (center) and a sediment pond to become a lake.



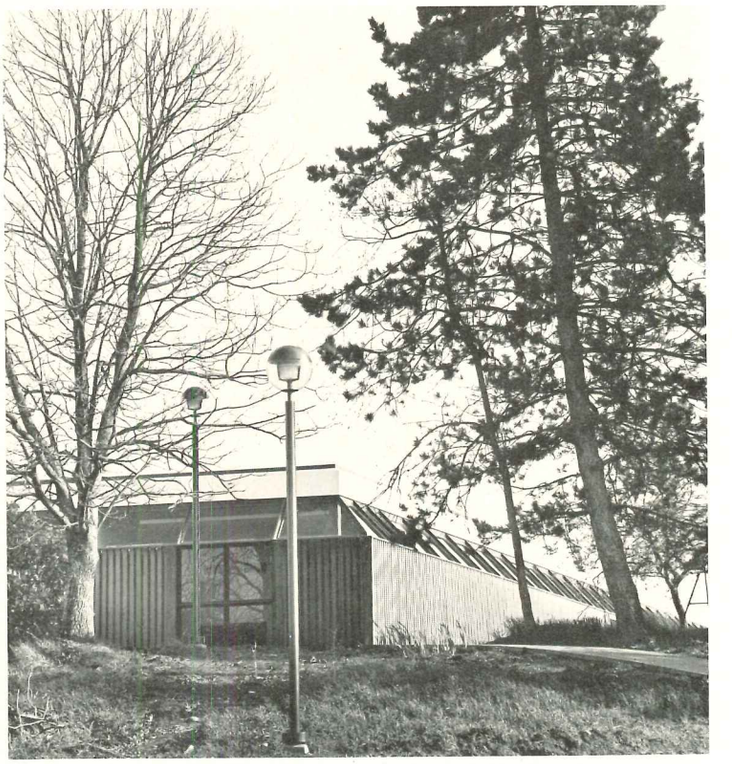
WARN INDUSTRIES

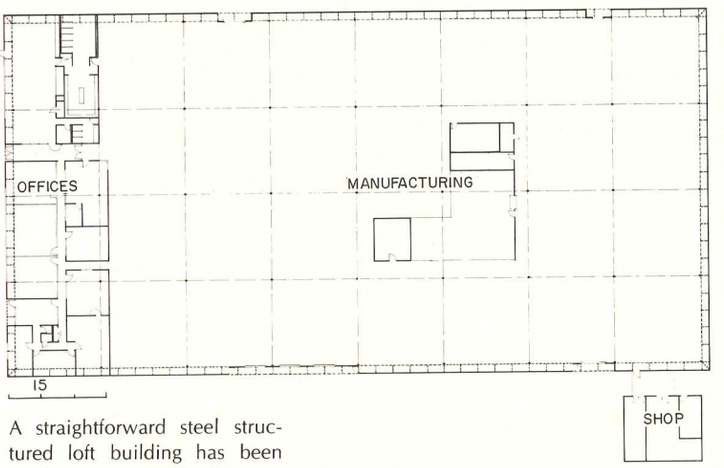
A bright place to work in a rainy climate

The use of perimeter skylights, white paint and colorful graphics has produced a cheerful environment for employees in this 60,000-square-foot Milwaukee, Oregon plant. Hubs for four-wheel-drive cars and winches are among the small metal parts produced. The 12-acre-site is located in an industrial area, but landscaping, saving of natural trees and orientation of windows toward unspoiled views have removed many usual shortcomings of such a location.

Architects Campbell, Yost and Grube designed the steel frame building for future expansion. Accordingly, the weathering steel exterior walls could not be used for bracing and are isolated from structural columns—facilitating the skylight locations. Offices and employee amenities are incorporated into the basic shed-type construction providing a unity to the building and a lack of the psychological separation of workers and management inherent in the "office wing" planning approach. The construction cost was $850,000.

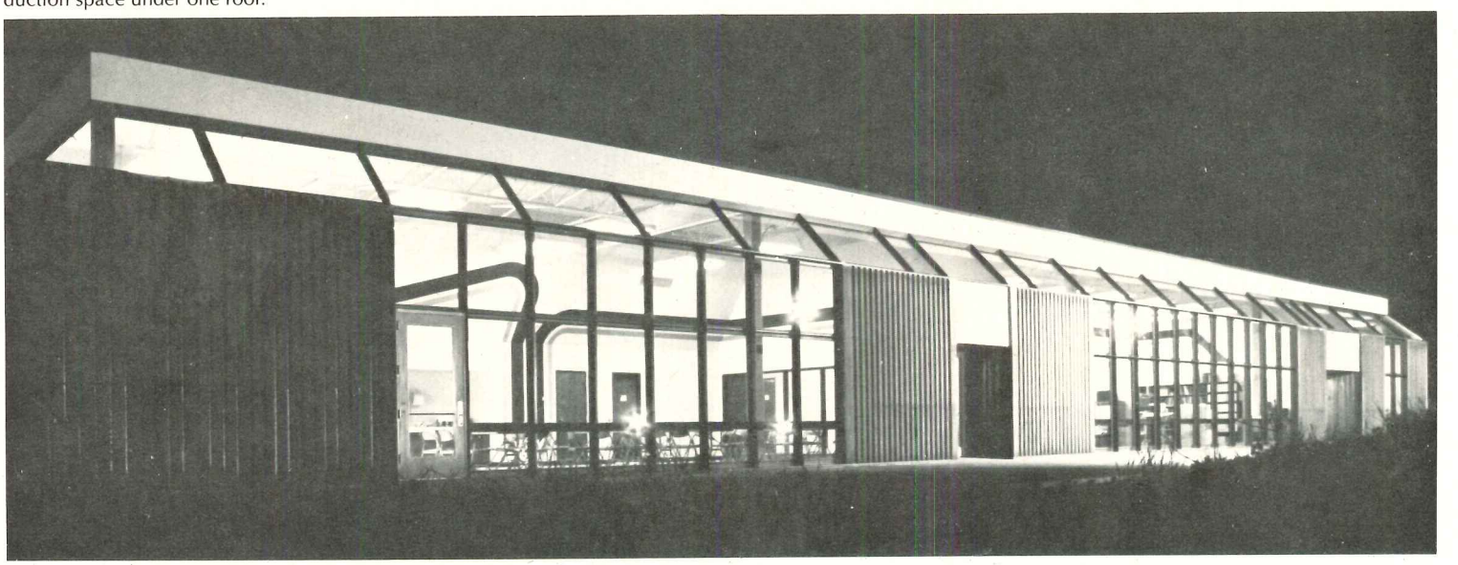
WARN INDUSTRIES, Milwaukee, Oregon. Architects: *Campbell, Yost and Grube and Partners—design partner: Richard Campbell; design assistant: Joe Macca.* Engineers: *Peterson Associated Engineers, Inc.* (mechanical/electrical); *Engineering Pacific, Inc.* (structural). General Contractor: *T&C Construction.*





A straightforward steel structured loft building has been made a congenial place to work by the introduction of natural light, crisp white walls, pleasant views and a physical arrangement encouraging unity between management and employee. Unusual planning joined offices, facilities and production space under one roof.

C. Bruce Forster



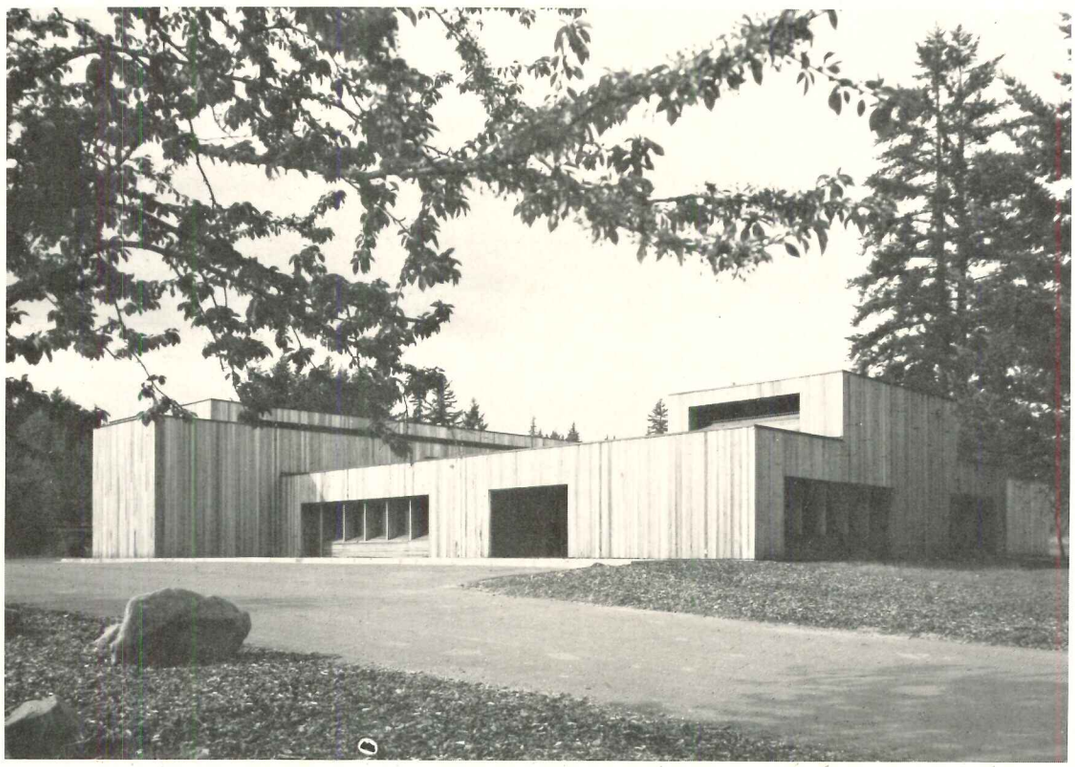
CHIPPER MACHINES

Coping with the residential environment

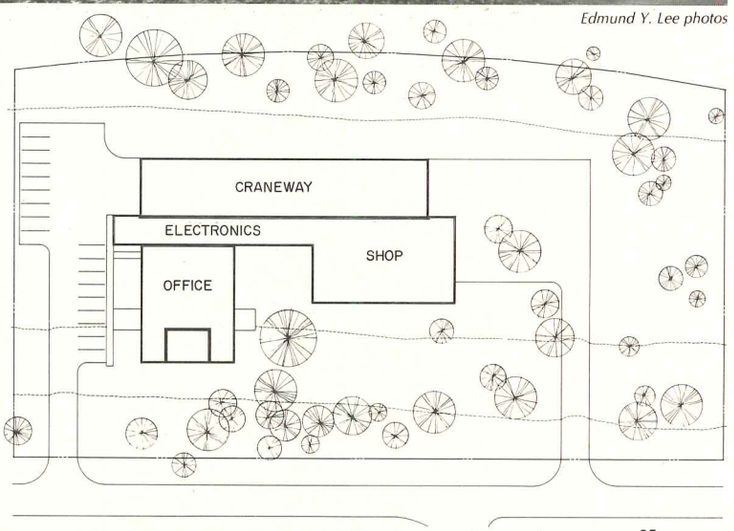
Chipper Machines and Engineering Company is located in a small-scale industrial park adjacent to one of Portland, Oregon's better residential areas, Oswego. Architect John Thodos hopes that his design will set a precedent for future industrial expansion in the area, and a general neighborhood acceptance of the new building should be an influence in that direction. The production space height and the 22,000-square-foot floor area—while not large by industrial standards—could have easily dominated the locale without the sensitive distribution of building mass that has occurred. Basic production is carried on in the high linear craneway along which ancillary shop and electronic areas are distributed. Office and ancillary spaces serve as a street buffer—as does the largely natural site. Another happy planning decision was the cladding of the building in wood: redwood exterior with cedar and hemlock finished interiors. The wood sheathing is compensated by the use of sprinklers and—while not a universally applicable industrial cladding—it is described by the architect to be adequate for this function and location. While furthering the cause of neighborhood congeniality, the cladding also provides an appropriate boost to the product manufactured: a wood chipping machine that removes the rough outside of logs and leaves rectangular shapes suitable for lumber production. Edmund Gurney, president of Chipper, invented the machine and emphasized its efficiency in producing a granulated matter suitable for lawn mulch—whereas older sawing methods produced largely scrap.

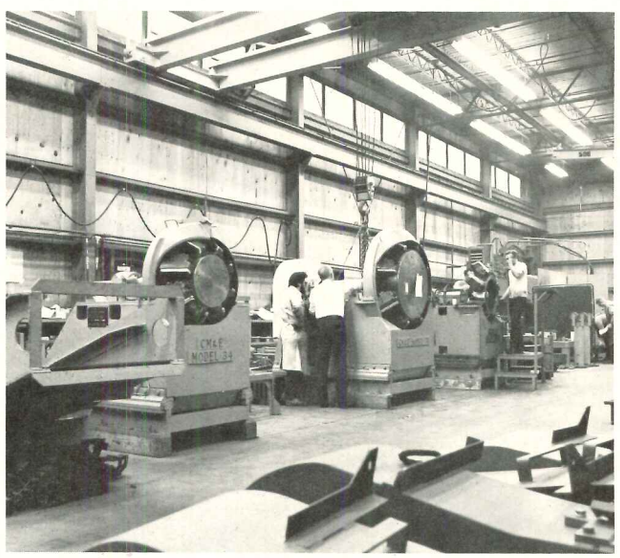
This building won a 1973 regional AIA Merit Award for *both* the architect and client. It is certainly one of the most "human" of industrial buildings to be seen. The construction cost was $750,000 exclusive of equipment.

CHIPPER MACHINES AND ENGINEERING COMPANY, Portland, Oregon. Owner: *Mrs. Marion Meade.* Architect: *John Thodos.* Engineers: *Pierson, Inc.—Jerry Estoup: principal-in-charge* (structural); *McGinnis Engineering, Inc.* (mechanical). General Contractor: *Triad Construction.*



Edmund Y. Lee photos





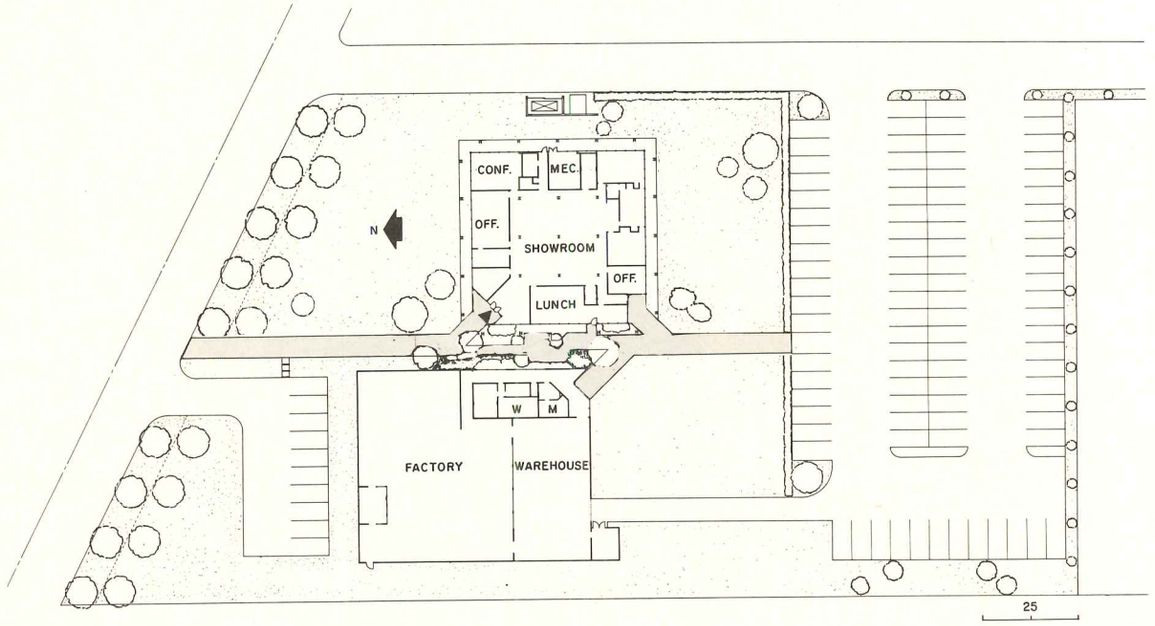
This plant houses the production of machines designed to rend logs suitable for lumber (photo left). Use of wood sheathing has expressed the nature of the business within—and coupled with a sensitive building massing—has shown that job resources could be brought compatibly closer to workers' homes.

SEIKO INSTRUMENTS

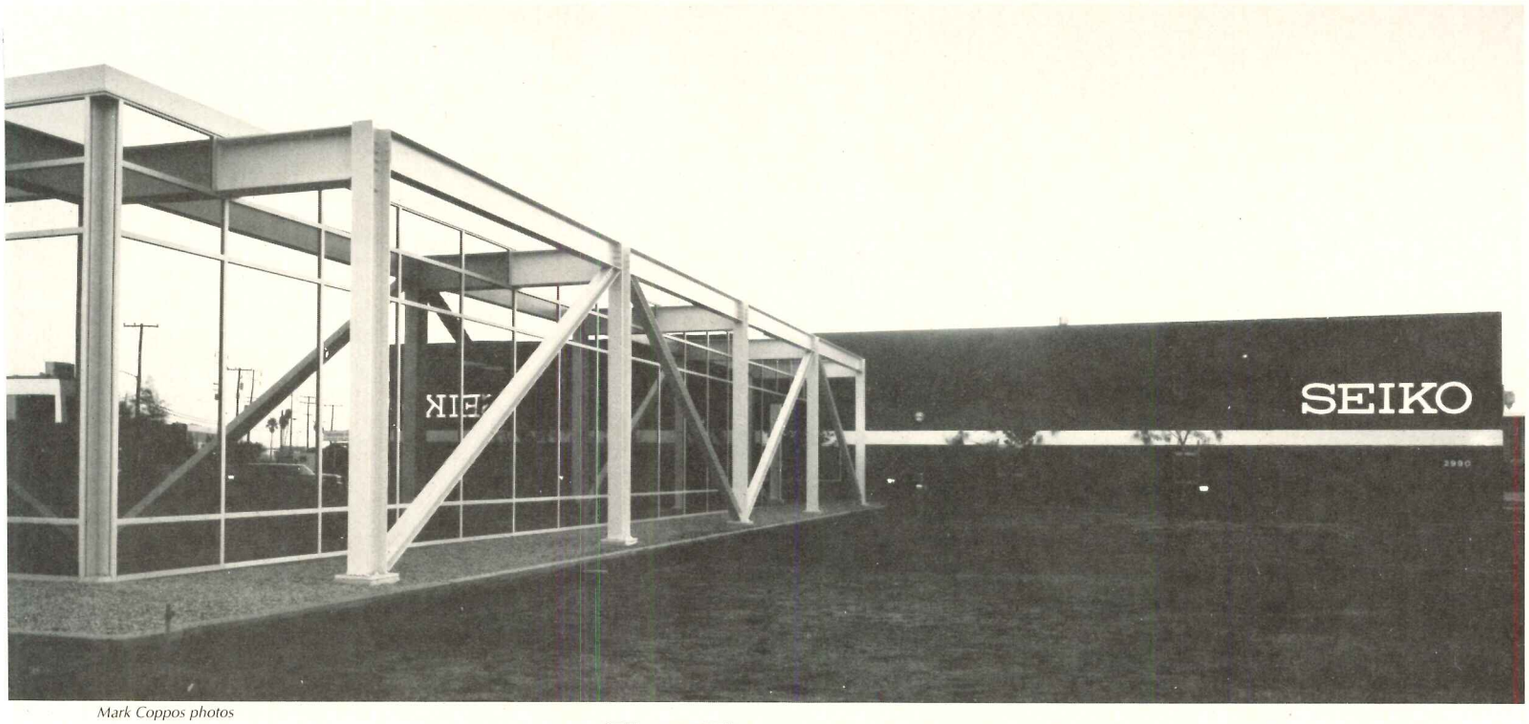
Giving the neighborhood a lift

Seiko's U.S. headquarters and watch assembly facility is located in the unfriendly environment of an established industrial park in Torrance, California. The surrounding structures largely reflect an expedient design approach antipathetical to the desired qualities of a stimulating working atmosphere—and a progressive corporate image. To counteract the new site's disadvantages, architects Kajima and Associates designed a building which can provide the desired qualities while standing up to its neighbors (despite its small 20,000 square feet). Torrance hopes that Seiko will serve as a model for future industrial development to come.

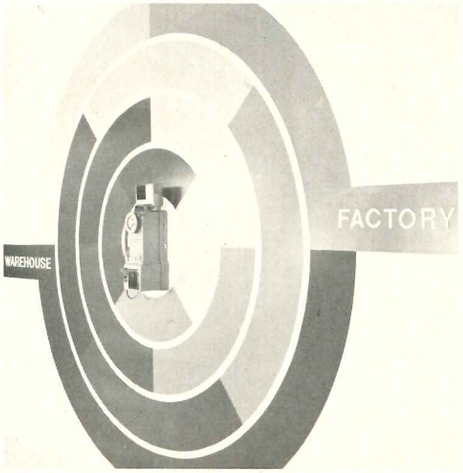
An early decision was the provision of a large percentage of open site with landscaping, and this will be largely continued in an anticipated doubling of floor area in the future. While the assembly area will expand horizontally, the office block will expand to a second floor to be added on the exposed steel framing without interruption of the ongoing first-floor operations. Because of this difference in projected expansion techniques and the proportionally large area of independently functioning office space required, there was no attempt to integrate manufacturing and headquarters operations into one building. An open central pedestrian spine is meant to provide a consolidation of feeling for office and factory worker alike. All must enter by one means and may meet at lunchtime or for meetings (middle photo, far right). All offices face the mirrored glass exterior and are arranged around a showroom whose exposed steel ceiling appropriately reflects industrial proximity. The factory building is built with "tilt-up" concrete panels and wood laminated beams. Construction cost was $500,000.

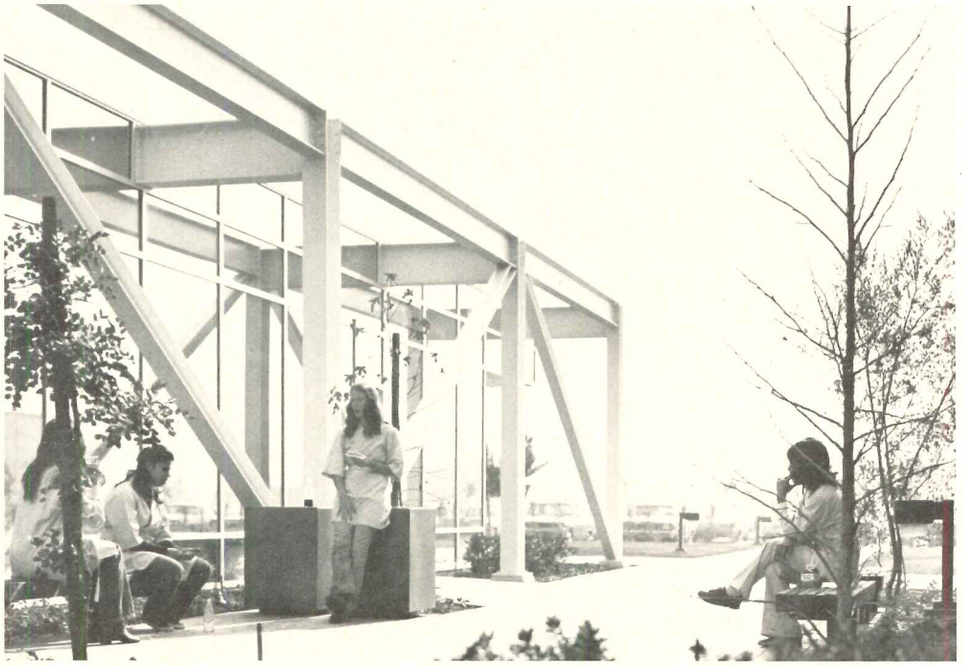


U.S. HEADQUARTERS—SEIKO INSTRUMENTS, INC., Torrance, California. Architects: *Kajima Associates—principal architect: Hayahiko Takase; project manager: Roosevelt Suzuki; project designer: Takeshi Hirose.* Engineers: *Tom T. Kamei Associates* (structural); *Wittler-Young, Inc.* (mechanical); *Gharles M. Sloan* (electrical). Landscape architects: *Takasaki and Associates.* General contractor: *Oltman Construction Company.*



Mark Coppos photos





Office and manufacturing facilities are separated into two strongly contrasting but complementary volumes to establish an exemplary character for this plant in a highly impersonal industrial area. Generous landscaped open space will be maintained by future expansion of the office building to a second story added to exposed steel construction. All personnel enter on a single pedestrian spine which becomes a common meeting ground for gatherings and lunches promoting unity among all workers.

ROURE BERTRAND DUPONT PERFUMERY

A sensitive industry sets a high standard

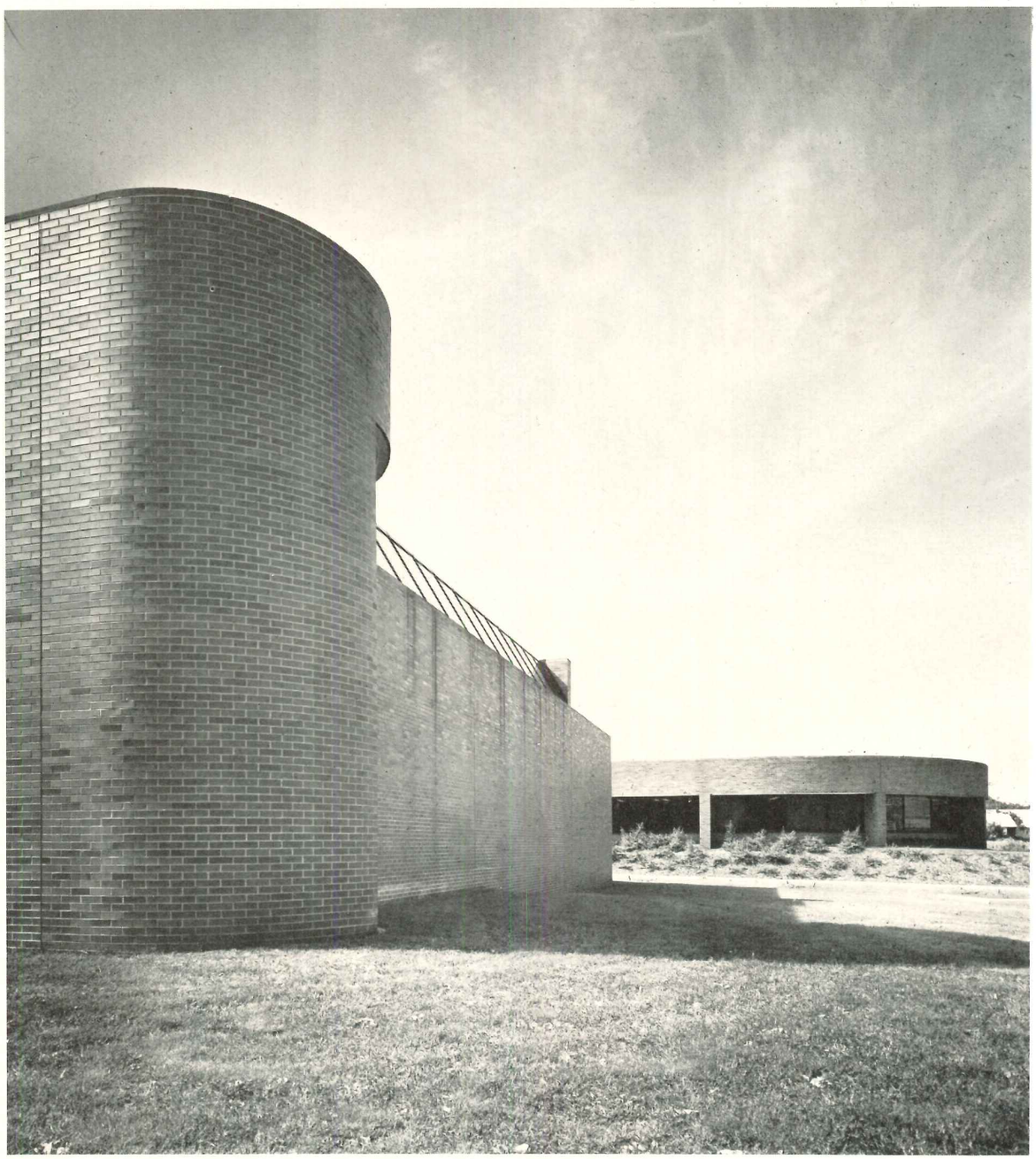
This plant for a unique client strongly exemplifies all three of the desirable qualities discussed in this Study's introduction: neighborliness, a good place to work, and a forceful image for the product. And—while the client may be unique—Kahn and Jacobs' design principles seem widely applicable.

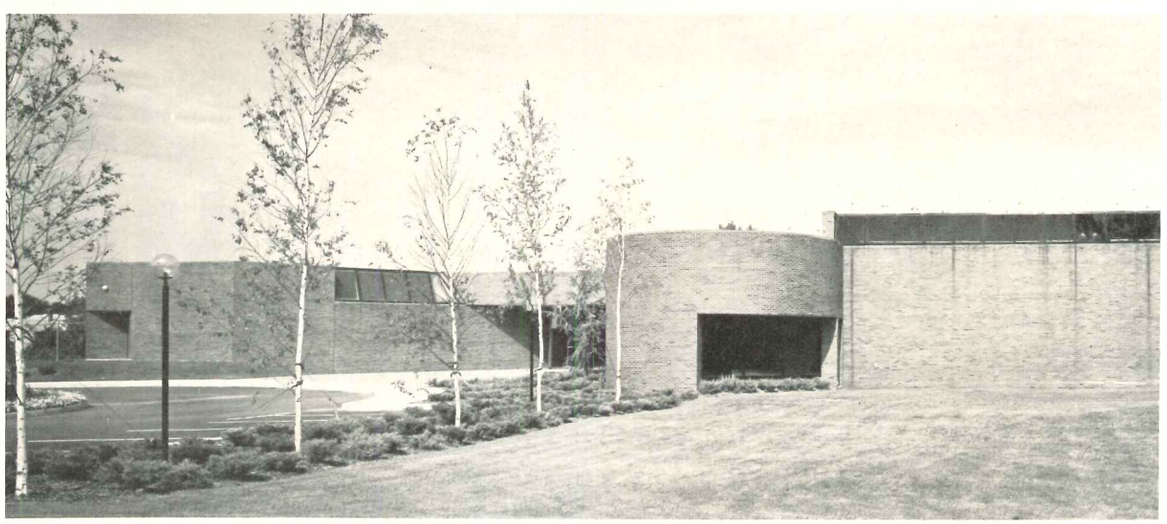
The Teaneck, N.J. site is a heavily wooded buffer between a residential neighborhood of single-family houses and a railroad track. The visual presence of the building's 60,000 square-foot-floor area is reduced by tree concealment, a healthy setback from the main road, and a break-up of mass achieved by articulation of the internal functions. An anticipated doubling of floor space will be achieved by a second story rather than by increased site coverage. Parking is conveniently distributed around the building in isolated clusters—not on one expanse of asphalt.

Dupont president Alvin Lindsay is an enlightened client who initially requested a building whose design qualities would be much more than a public facade. The results, shown here and in RECORD INTERIORS (January), have produced high worker morale, and Mr. Lindsay is proud to show visitors every corner of the new production space.

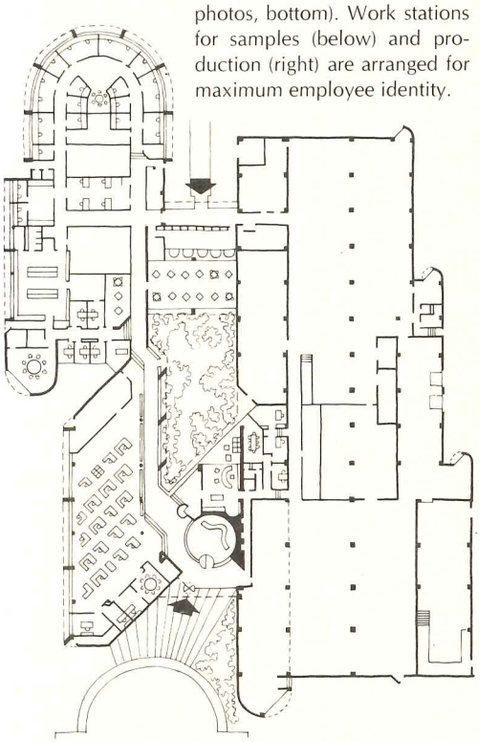
Project designer Der Scutt tells of a high degree of involvement with both the workers' interests and the production process, which is arranged in a work flow pattern. Perfumers, in semi-isolated "suits," make constant new fragrances which pass into sample preparation and on to production and storage. Each step was analyzed to produce efficiency and a personal identification by workers. An example of the latter is the provision of individual lighting seen at each work station in the sampling preparation area (opposite page, center).

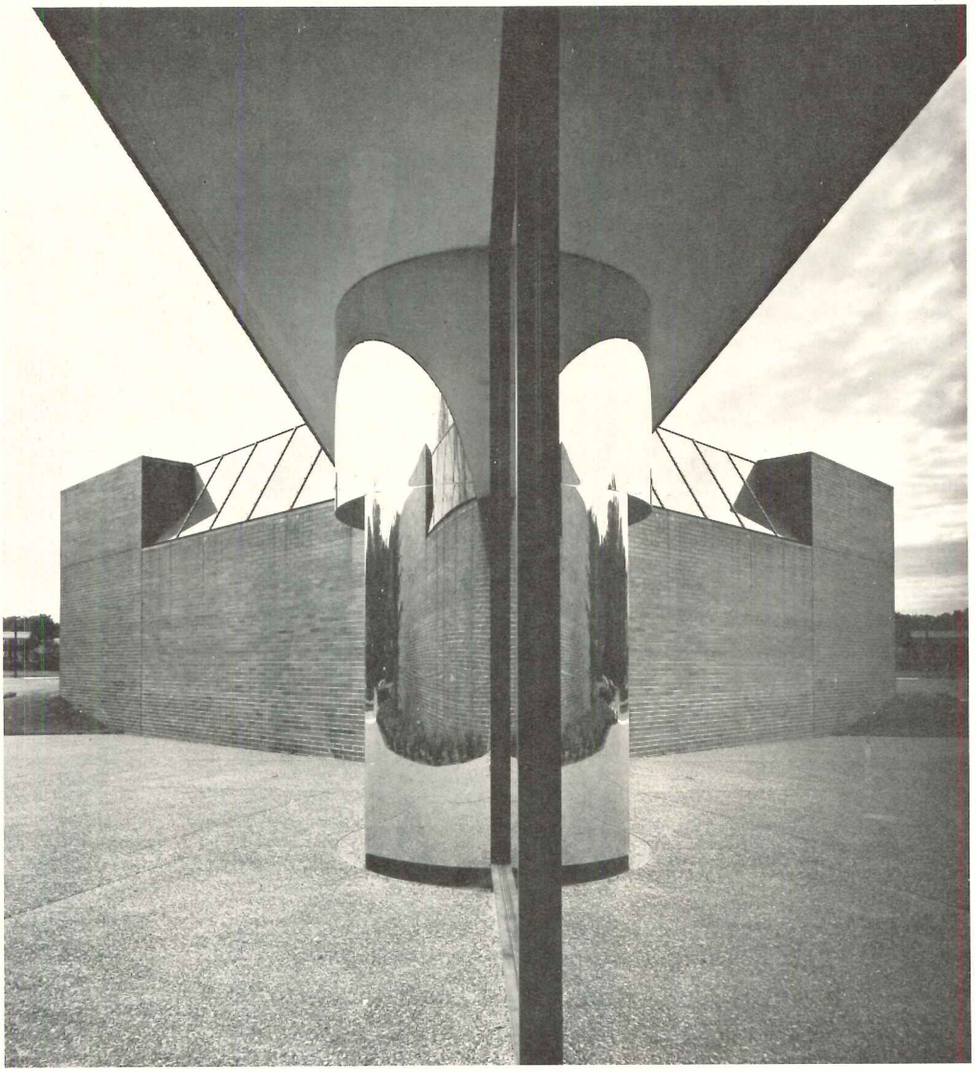
ROURE BERTRAND DUPONT, INC., Teaneck, New Jersey. Architects: *Kahn and Jacobs—Project designer/interior designer: Der Scutt; project team: Thomas Burrow, Eunice Cahn.* Engineers: *Sigmond Roos* (structural); *M.P. Zacharius Associates* (mechanical/electrical). General contractor: *Wigton-Abbott.*

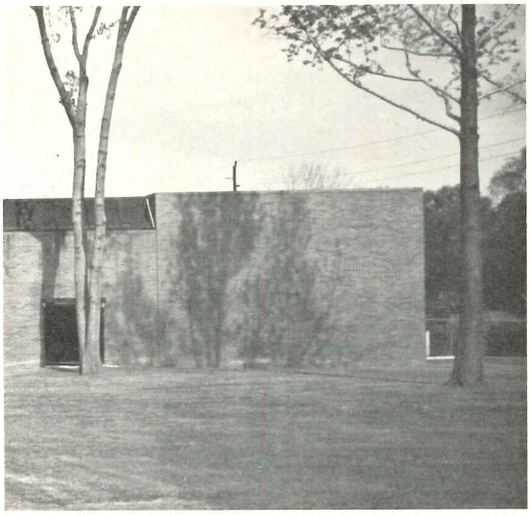




This plant is in harmony with a residential neighborhood and provides a happy working ambience. The employee entrance (photo, left and closest plan arrow) is no less desirable than the public entrance (two photos, bottom). Work stations for samples (below) and production (right) are arranged for maximum employee identity.







Norman McGrath photos

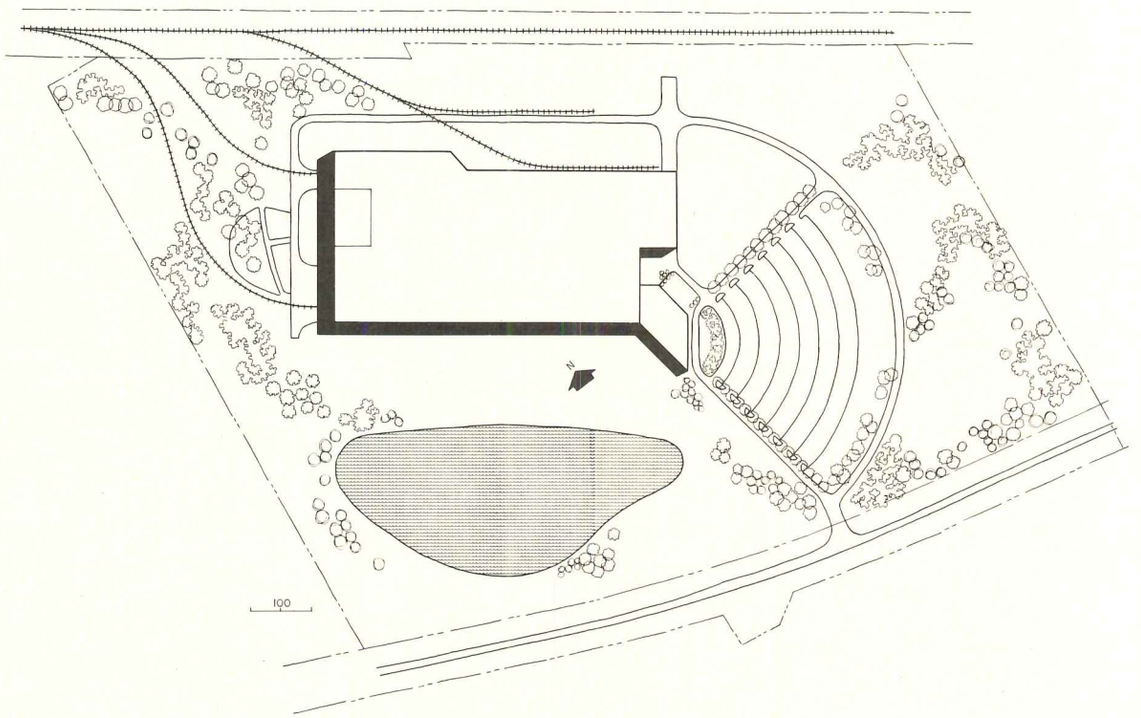
WESTINGHOUSE TRANSFORMERS

Blending 600,000 square feet into the natural landscape

Architects Kivett and Myers successfully adopted a "background" approach to this mammoth Jefferson City, Missouri heavy manufacturing facility. Unlike the projects on the preceding pages, there was little question of the ability to visually reduce such a large bulk by segmenting the building into smaller parts. Big is big. Instead the architects chose to play the design to (and complement) an even larger scaled horizontal element: the 150-foot-high bluffs that contain the Missouri basin. A combination of dark coloration (natural rusting steel siding) and horizontal massing (the usual roof top mechanical equipment was depressed and vents are contained in the facade protrusions) produces the view from the Missouri State Capitol Building seen close-up in the center photo, far right. Fill, from a newly dredged lake, was used to raise the building only above flood levels.

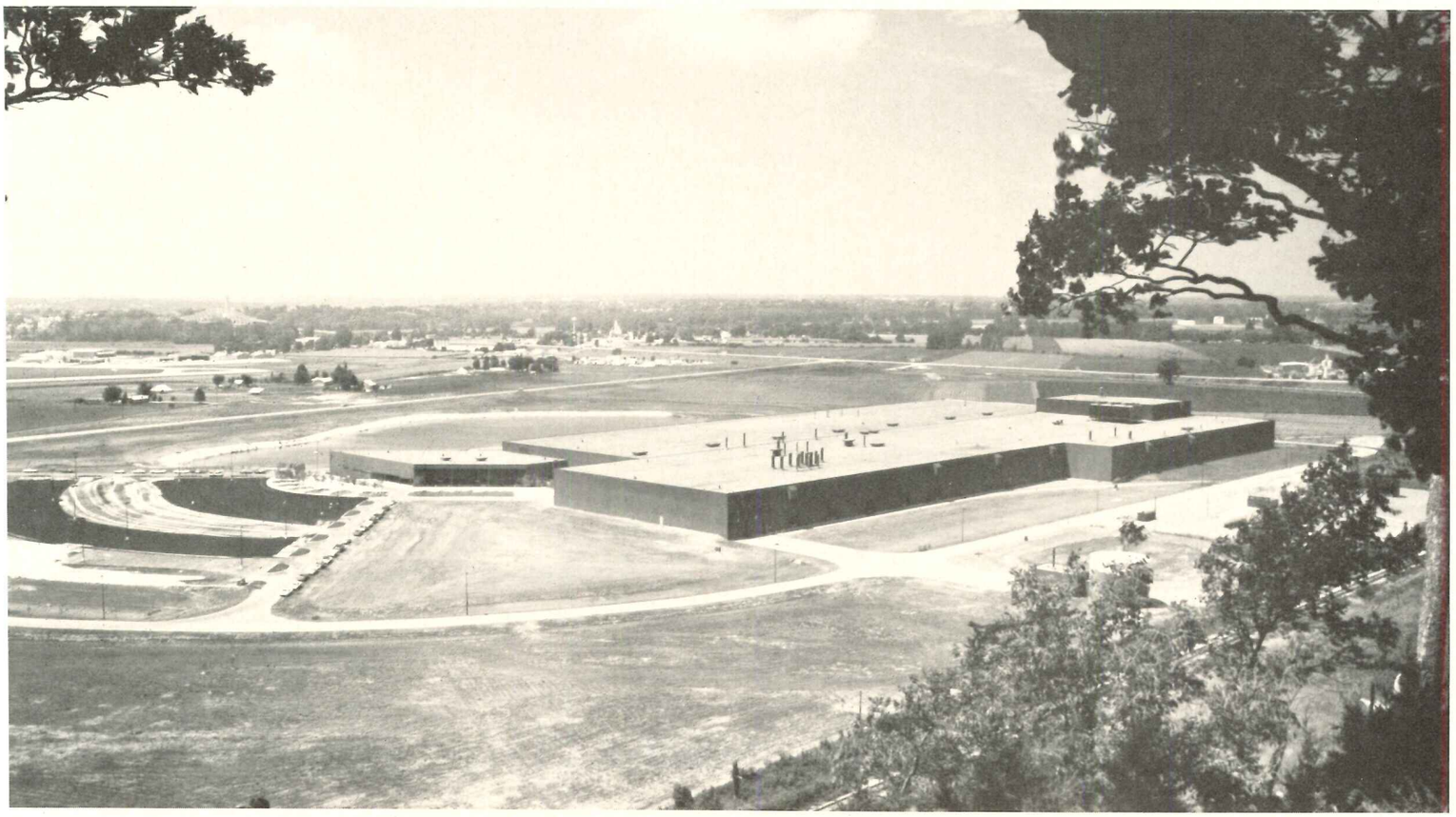
By contrast, the interior of the new facility exerts itself in a forcefully concerted manner. A prime intent was oneness of all personnel who enter through a single means: a wide wood floored corridor past a cafeteria, other employee amenities, and offices. The office wing, whose two stories roughly equal one of manufacturing space, is integrated into the fabric of the total building. The production spaces are well ordered though vast, and wall graphics have been employed for visual relief and to furnish information about location—such as that over the main plant exit (photo, right). The exceptional designs are being considered for use in other Westinghouse facilities.

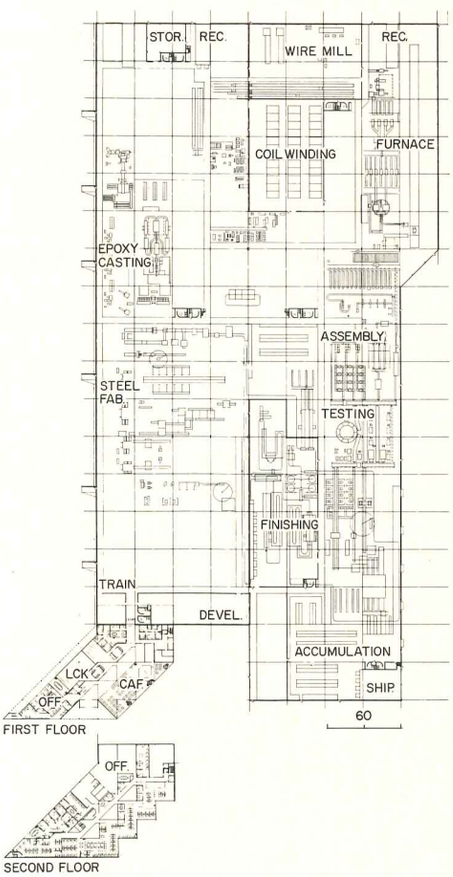
The windowless design is intended to facilitate a (currently problematical) climate-controlled interior. The wall sheathing is heavily insulated to produce a low heat transfer in this region of extreme temperature differential.



Paul Kivett photos

WESTINGHOUSE UNDERGROUND DISTRIBUTION TRANSFORMER PLANT, Jefferson City, Missouri. Owner: *Westinghouse Electric Corporation.* Architects: *Kivett and Myers.* Engineers: *Howard, Needles, Tammen & Bergendoff* (structural); *Holloway, Perkins & Eisman* (mechanical/electrical); General contractor: *J.S. Alberici Construction Company.*





The Missouri State Capitol building is located nearby (just out of sight—to the left—in the top photo). The view of this new plant from the Capitol steps is seen in closeup (above), against the strong horizontality of 150-foot-high bluffs. All personnel enter through one means: a wide corridor in the two-story office area (lower left, in plan). Interior graphics are used to brighten production spaces, (photo left) supply information and provide a sense of location for workers. The facility produces electrical transformers for underground power systems and will have a good long-term effect on the country's over-all landscape.

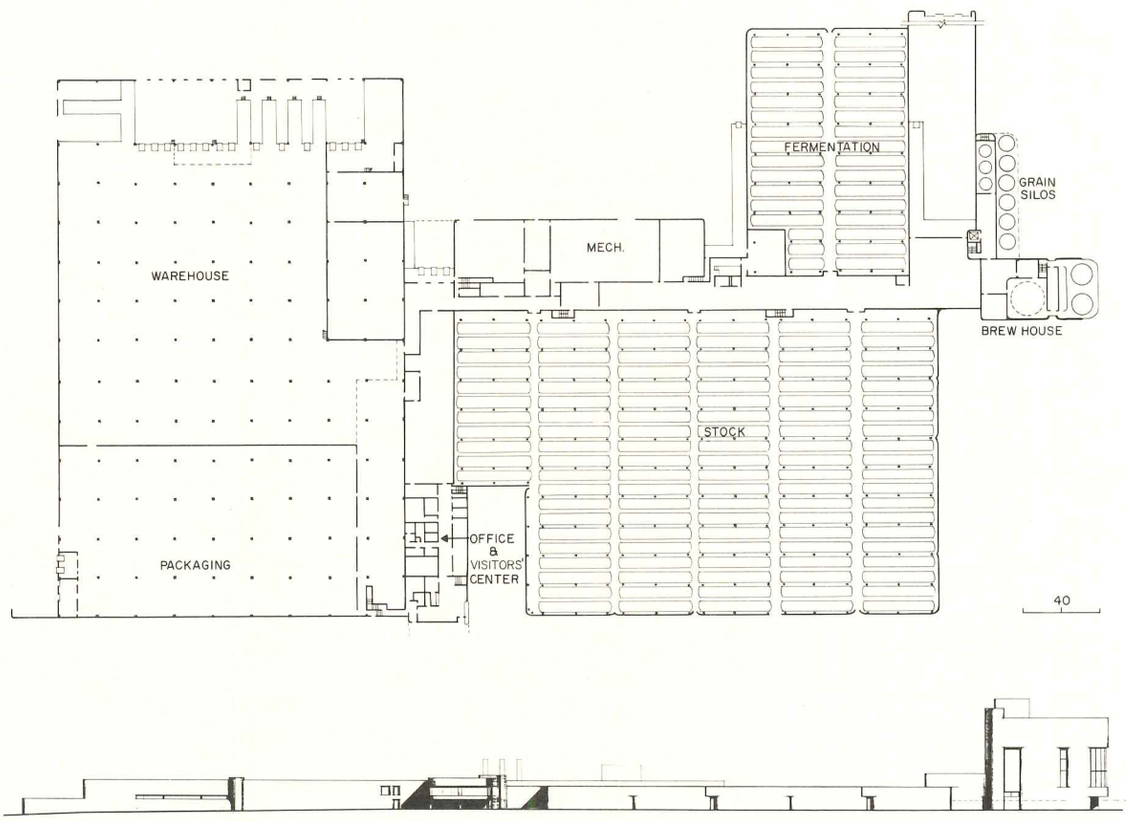
SCHAEFER BREWERY

A congenial neighbor can be a highway billboard

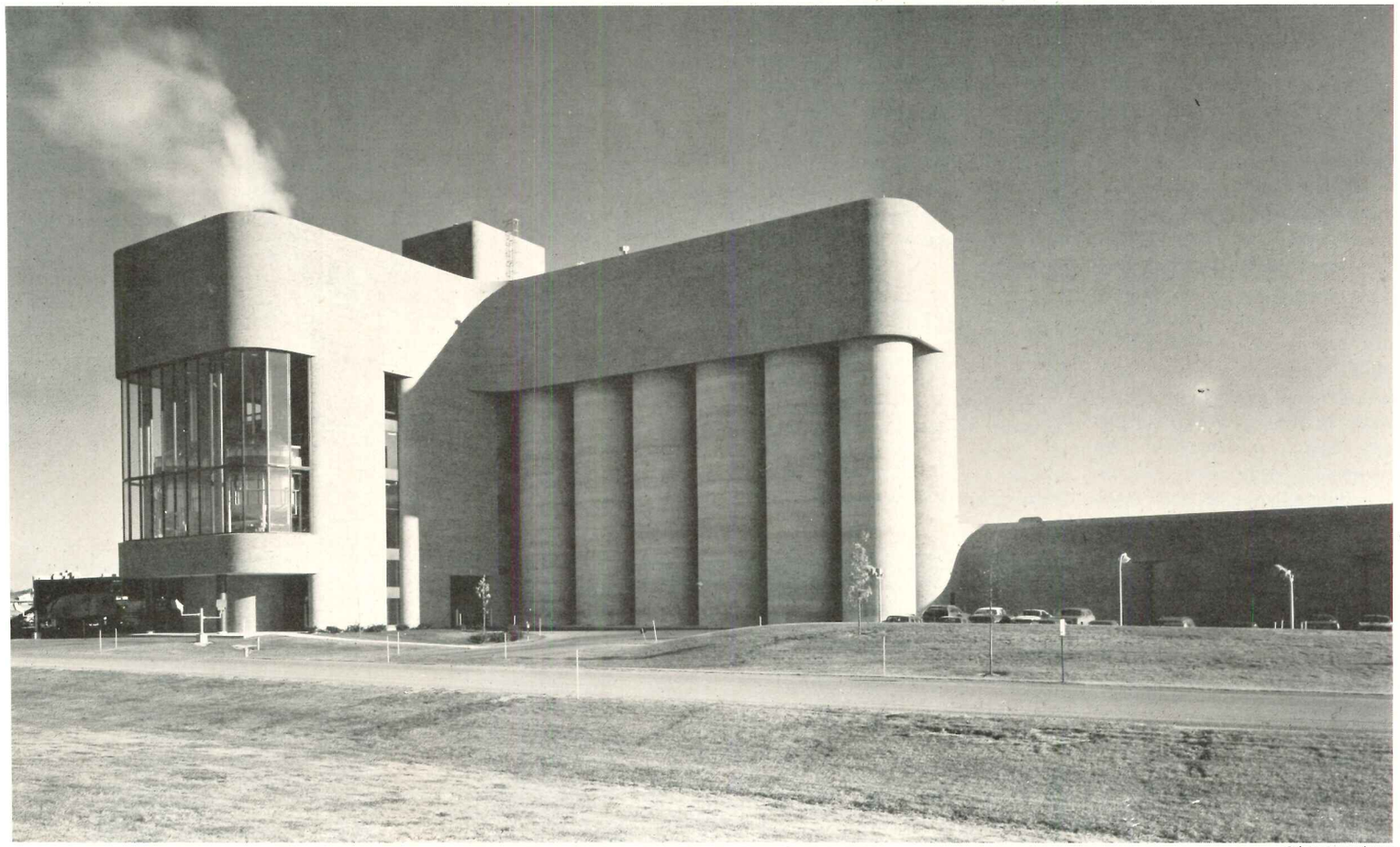
This 600,000-square-foot Fogelsville, Pennsylvania facility has been designed to hug a rural 160-acre site—and stand out at the same time. Certain elements have been chosen for visual emphasis, in line with the client's desire that the public be not only aware of, but induced to tour the full plant. The most prominent element contains the grain storage silos and two stainless steel kettles behind the 40-foot-high brewhouse windows (photo, upper right). The functions are clearly revealed and at the same time, the forms are reminiscent of the adjacent agricultural structures, here translated into red brick, concrete and glass. The walls of the lower parts of the building are visually relieved by brick recess details reflecting the rounded shapes of storage tanks (photo, opposite page, center) within. The rounding of exterior wall corners is derived from the silo shapes.

A happy collaboration between architects The Eggers Partnership and corporate production planners produced a plant closely related to the production process. One of the first design steps was preparation of a model of the facilities mechanism around which the form of the building was determined.

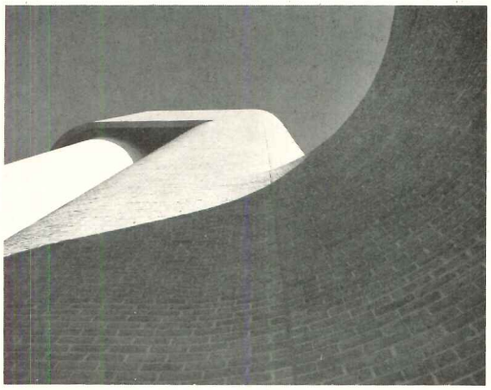
Schaefer's contribution to its Lehigh Valley location is multifold. The plant provides up to 400 jobs and produces 800,000 barrels of beer a year under extreme cleanliness requirements and with a high degree of automation benefiting consumer and worker alike. A strong emphasis on quality control produced the requirement for a large testing laboratory. Effluent is limited to that of gas or low-sulfur oil consumption. Used grains and hops become feed for farm animals and other by-products are similarly employed. Construction cost was $60,000,000.

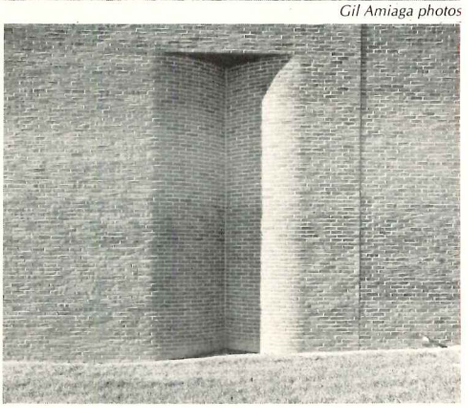


LEHIGH VALLEY BREWERY, Allentown, Pennsylvania. Owner: *F & M Schaefer Brewing Company.* Architects: *The Eggers Partnership—partner-in-charge: David L. Eggers; project designer: John B. Hayden.* Associated architects and engineers: *Sverdrup & Parcel and Associates.* Landscape architect: *M. Paul Freidberg.* General contractor: *J.A. Jones Construction Company.*



Gil Amiaga photos





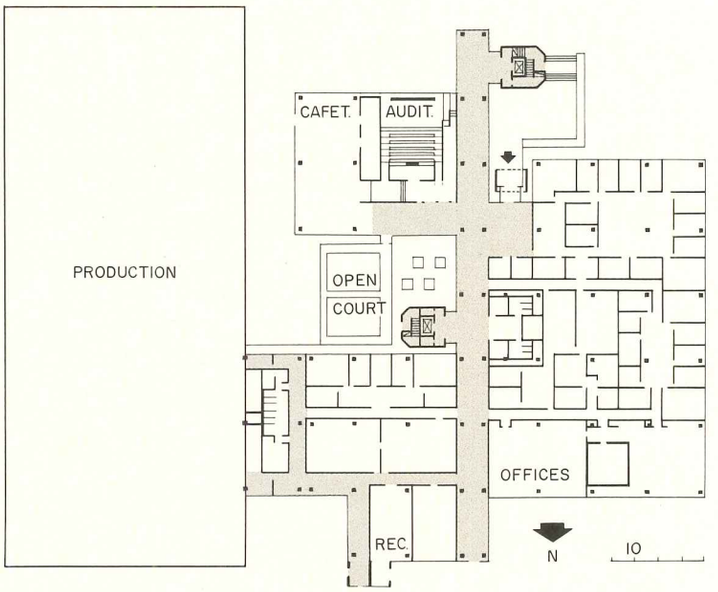
BUCKMAN LABORATORIES

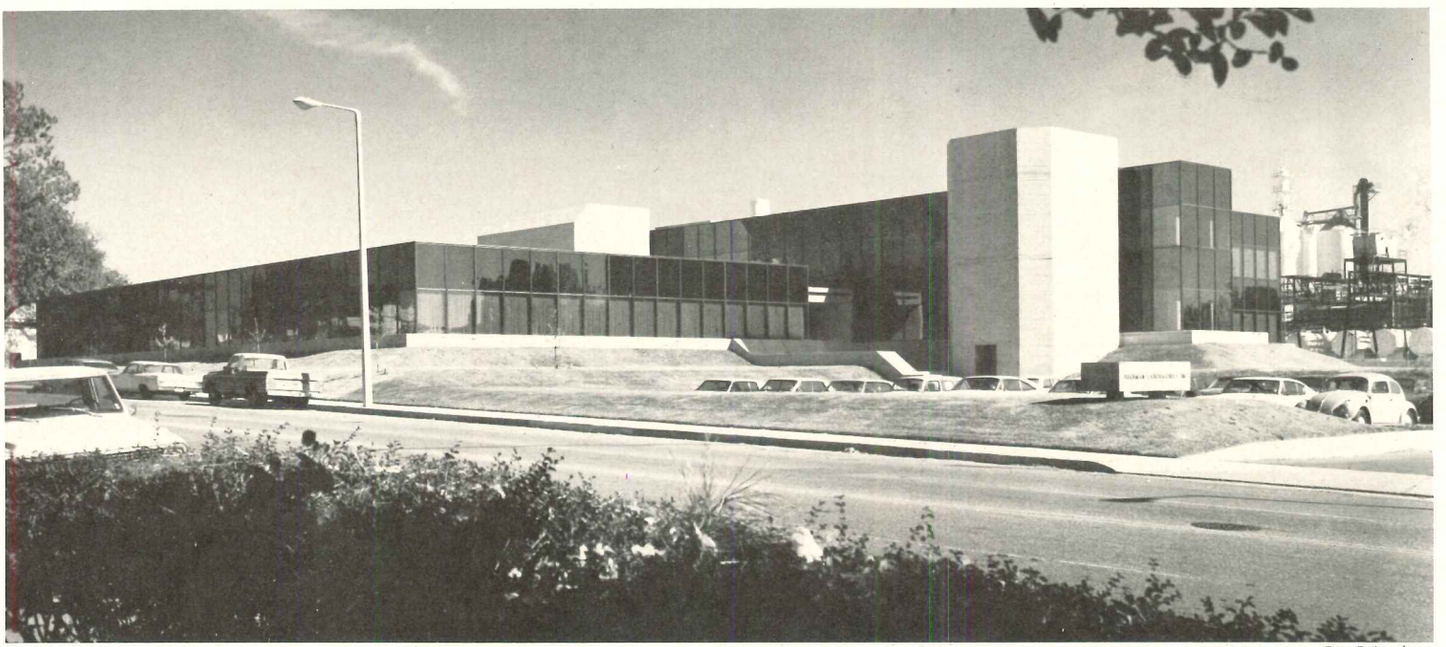
The industrial landscape in a residential neighborhood

This large chemical production facility is located in a residential section of Memphis, Tennessee adjacent to the offices of architects Walk Jones + Francis Mah. The design involves a number of good-neighbor concepts.

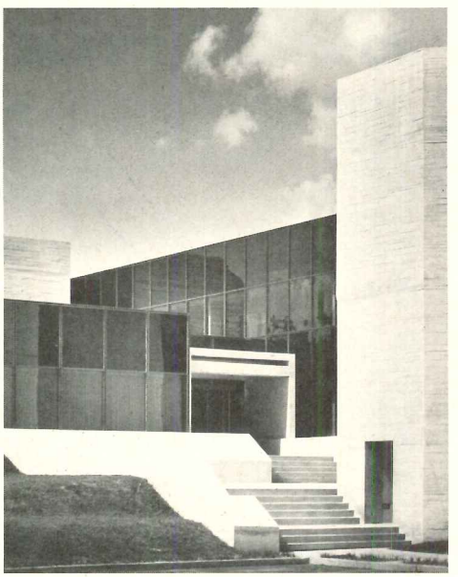
Offices, production backup and employee facilities are contained in the cleanly detailed dark glass, steel framed building seen in the foreground of the photos. The bulk has been arranged for minimum visual obtrusion and is further broken up with the introduction of poured concrete stair towers outside the building envelope. Parking is concealed from the street by earth berms. By contrast, little attempt has been made to conceal the production facilities whose wiry appearance forms a sculptural counterpoint to the solid shape of the building. Visual treatment of exposed mechanical functions is reminiscent of Dow's program in Michigan (page 128), and the reduced scale of elements here makes the approach fully compatible to residential proximity.

BUCKMAN LABORATORIES—PHASE ONE, Memphis, Tennessee. Owner: *Buckman Laboratories, Inc.* Architect: *Walk Jones + Francis Mah, Inc.—project designer: Francis Mah; project architect: Raymond Scott.* Engineers: *O. Clarke Mann, P.E.* (structural); *Griffith C. Burr* (mechanical). Contractor: *Harmon Construction.*





Otto Baitz photos



Engineers tailor structure's wind resistance to cut costs

By using the end walls as well as the core, they could eliminate foundation piles and float the building on a mat, which saved both valuable time and money, and helped to bring the building within the budget.

A completely new approach to the foundation design, which was permitted by a new wind-bracing scheme for the superstructure, chopped off close to $1 million of the cost of the 40-story One Biscayne Tower in Miami. Use of a precast joist and beam system is reported to have saved another $600,000. Altogether, savings in materials and construction time are estimated to have approached the $2½-million mark.

The owner, faced with losing his financing for the building unless it was brought in at $20 million instead of $22 million, turned to New York City structural engineers DeSimone + Chaplin for a redesign that involved switching from a pile-supported to a mat foundation, and from core wind bracing, solely, to core-plus-end-wall wind bracing. The new wind bracing eliminated tension forces at the building base and lessened unit forces on the soil, making a mat foundation feasible. This greatly reduced excavation costs and time, and eliminated the cost of deep piles. Capacities of the soil were investigated by Dames & Moore, working closely with the structural engineers.

Prior to this time all tall buildings in Miami have been on piles. This building is on Biscayne Boulevard right next to the water; consequently, soil conditions are poor.

With end walls as wind bracing the engineers could turn to a less costly foundation

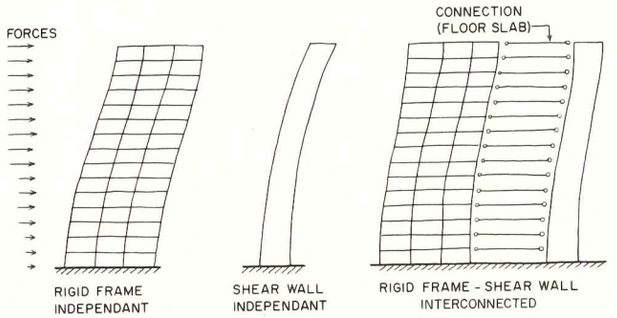
In the original design, the wind load (105 lb per sq ft at the top, equivalent to a hurricane wind of 185 mph) was to be resisted alone by the concrete core, which transferred its load to a 6-ft-thick concrete mat under the whole building. In turn, the mat transmitted its load to a large number of deep piles. Both the core and the mat were to be post-tensioned.

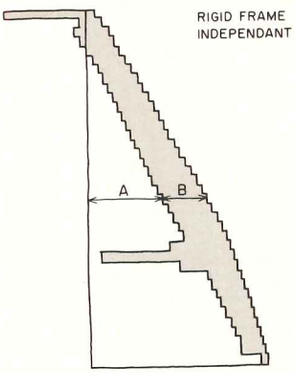
With a total overturning moment of 2 million kip-feet on the building, the stresses in the core were extremely large. And because the mat, itself, was wide, the forces on the piles at the edges of the mat were high. The reason for this is that the wide mat presented a long lever arm to the core which acted as a cantilever under wind load. But the structural engineers found that even with a smaller mat, the wind-loaded core could still cause tension forces at the base (see drawing following page).

DeSimone + Chaplin determined that only minimal savings could be achieved with other pile systems, caissons, etc. The joint-venture general contractor, Paverini Construction Co., Inc., and Edward J. Gerrits, Inc. wanted to get rid of the piles to cut costs and time. But in order to accomplish this, the engineers calculated that the overturning moment resisted by the core across the short direction of the building would have to be cut by 50 per cent. To do this they decided to utilize the stiffness of the two walls across the short ends of the building—designing these walls, structurally, as Vierendeel girders.

The walls are frames consisting of four columns, 30 ft on centers, joined by concrete beams. The first 12 floors of the building are an open garage, and the remaining 28 floors, including two mechanical floors, are an office tower. To make the walls stiff enough, the beams were increased to a depth of 4 ft at office floors, and to 5 ft at garage floors.

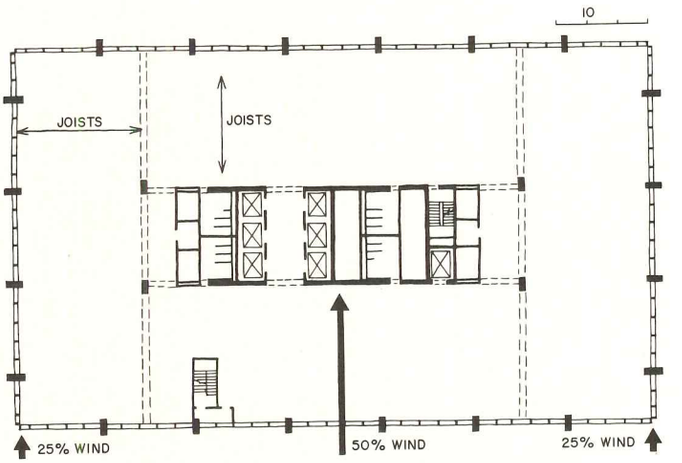
The amount of overturning moment that could be taken away from the core and assumed by the end walls was limited to the ex-

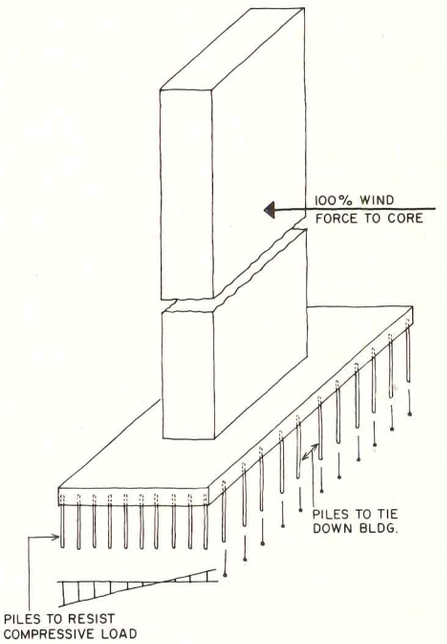


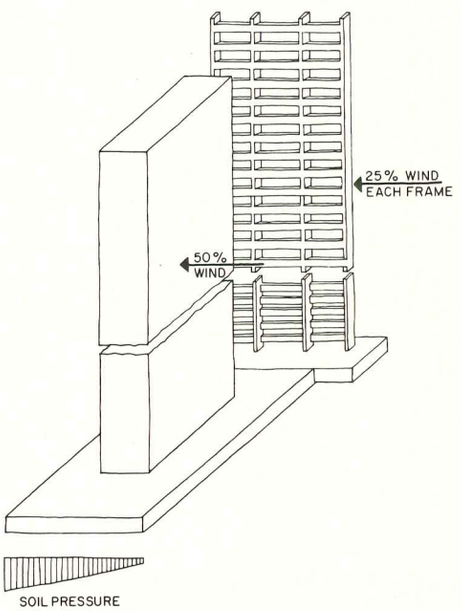


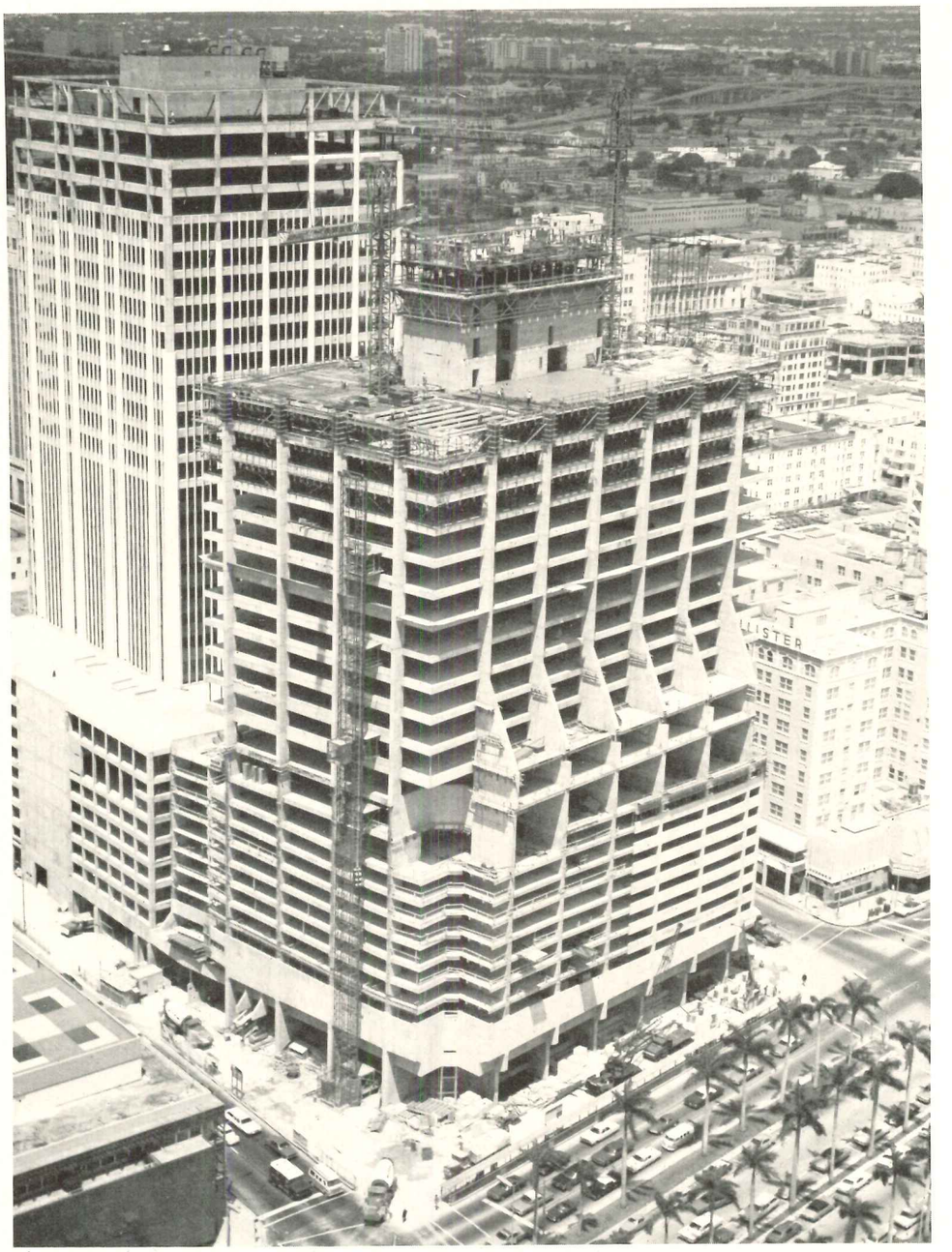
When both core and end walls are used as wind-resistant elements, there are no tensile forces at the base, so the building is stable supported on a mat foundation. When the core alone takes the wind, tension piles are required on the near edge of the mat (below, left).

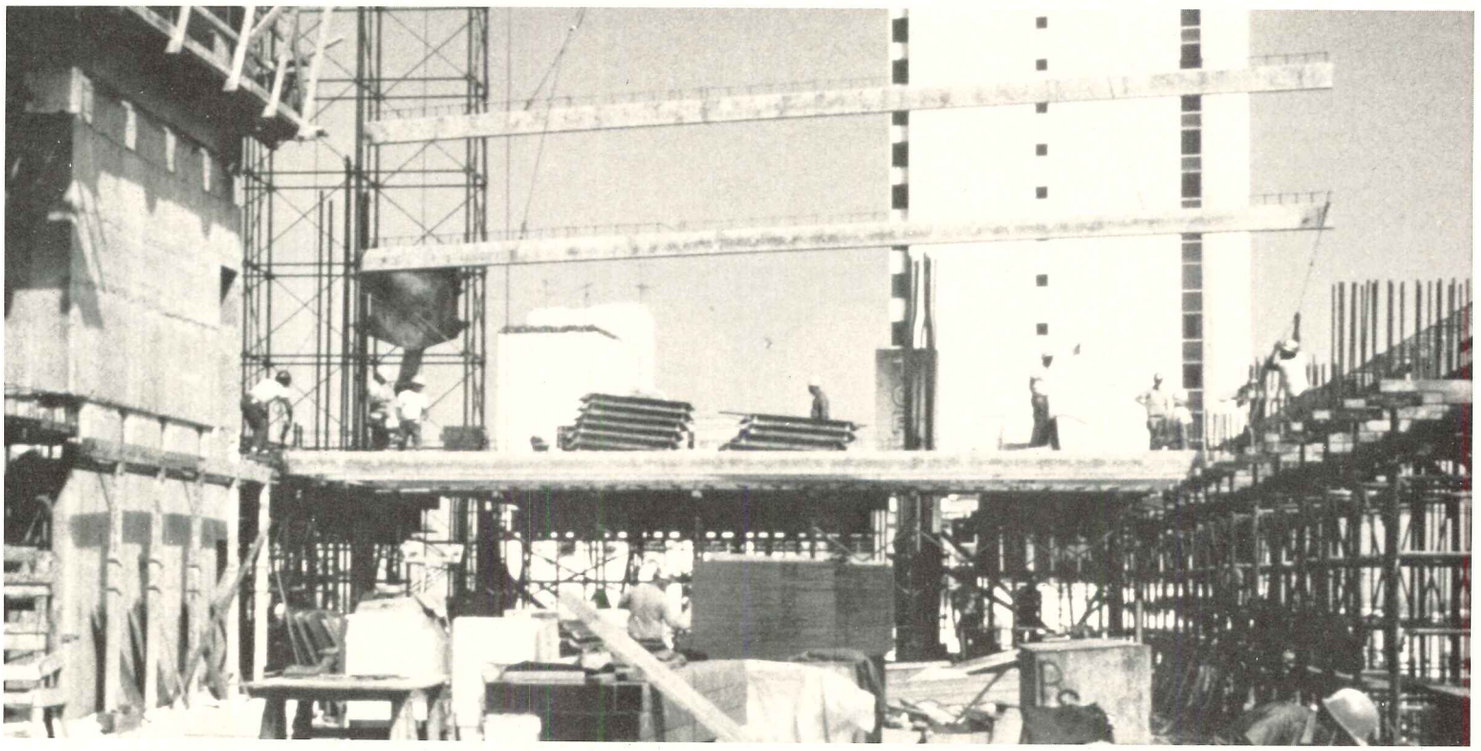
Because of stiff walls at the 13th floor and at the top shear reversals occur at these levels (the walls take much more shear than the core). Floors have to transfer shear accordingly.

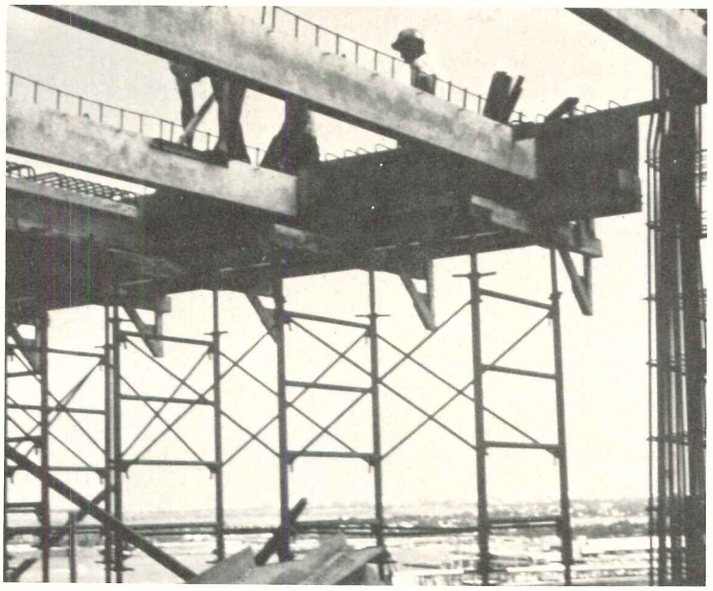








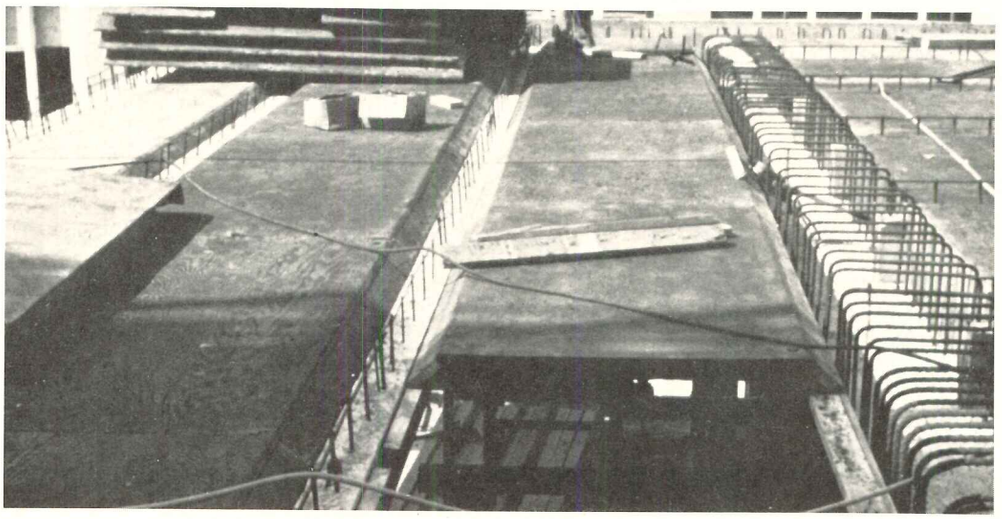




The floor system consists of precast-prestressed joists and beam soffits. Shown here is the condition where the joists span from notches in the core to spandrel beams at the exterior wall. As can be seen in the plan and photo on the opposite page, there are several rows of interior beams to support the joists where no core exists.

The beams are poured at the same time as the floor slabs. Reinforcement of the spandrel beams has to be detailed to take the torsional forces induced by the floor system.

The core was slip-formed at the same rate as the floor construction proceeded (one floor per week). The tower cranes were used only for the floors and columns.



The floor forms need no scaffolding because they are supported by pins temporarily set in holes provided in the joists. After the concrete has set the pins are taken out and the forms dropped. The forms have a bevel to increase the depth of the joist because of the length of the span.

Also shown in this photo is one of the interior beams with its stirrups projecting. At the righthand side of the photo, the joists being supported can be seen coming in at right angles.

tent that gravity forces (weight of the end frames and the floor loads they carry) would outbalance potential tension forces at the base created by the overturning force of the wind. Further, unwanted tension problems at the base and bending problems in the mat were avoided by separating the mats that support the end walls and the core. The core is on a 10-ft-deep mat 99 by 145 ft; end frames are on a 6½-ft-deep mat 26 by 121 ft. There is only a 9 in. separation between the two, but this allows the core and the end walls to transmit their overturning moments separately to the ground. The floor system acts as a diaphragm to transmit the wind forces on a side wall to the core and the end walls.

With regard to the bearing capacity of the soil, the engineers calculated that the mat-supported building would have a 2-in. settlement; and the actuality (2¾ in.) came close to the engineers' prediction.

A precast and beam system plus a slip-formed core saved both time and money

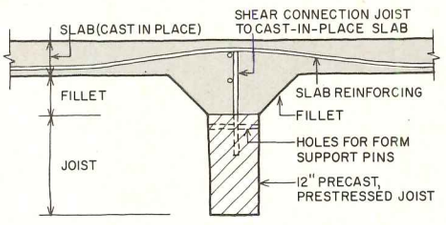
The proprietary, precast-prestressed floor system had been used for garages, apartment buildings and shopping centers in the Miami area, but this was a "first" for a high-rise office building. Because the floor system is "simply" supported (not a rigid frame) it could be kept shallow, reducing dead weight.

The system consists of tapered-section joists on 5-ft centers, spanning from core to spandrel beams; or from interior beams to either the core or to spandrel beams. The beams are supplied as precast-prestressed soffits with integral stirrup steel. Longitudinal reinforcement is added at the site.

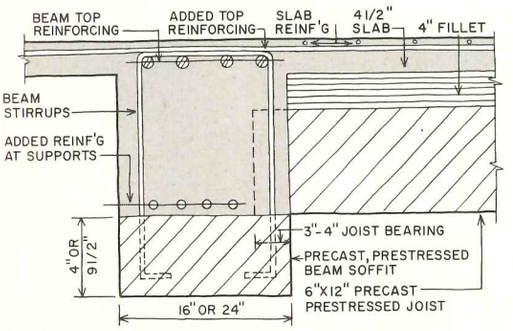
No scaffolding is required for the poured-in-place floors because the floor forms are supported by steel pins inserted in holes that pierce the joists. After the concrete has set, the pins are knocked out and the forms dropped.

The concrete core was slip-formed at a rate to coincide with the speed of floor construction—one 22,000-sq-ft floor each week. By slip-forming the core, valuable tower-crane time was released for the floor system and column construction.

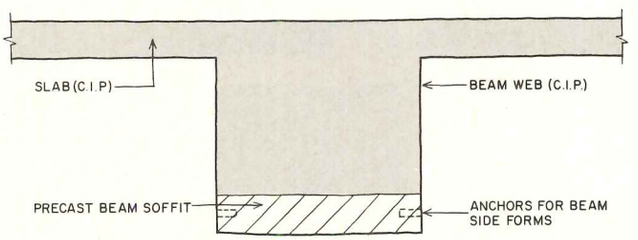
The architects, Fraga & Associates of Miami, designed the office tower portion of the building so that only the columns are exposed. Of course the garage portion is fully exposed, and both the architect and owner were concerned about the appearance of the concrete. This meant considerable care and detail with regard to construction joints, tie holes, etc. Further, in an unusual approach, the contractor requested that the perimeter beams of the garage be designed as two elements: the first to support construction loads and the second, an architectural-concrete spandrel, to be added later. This meant that the necessary joints and connecting steel had to be provided to permit delayed installation. The approach enabled the contractor to proceed with construction at a rate of one floor every six days, and allowed him to come back later and give greater care to the follow-up operation of casting the architectural concrete spandrel. The spandrel works structurally, however, and the reinforcing detail had to account for this.



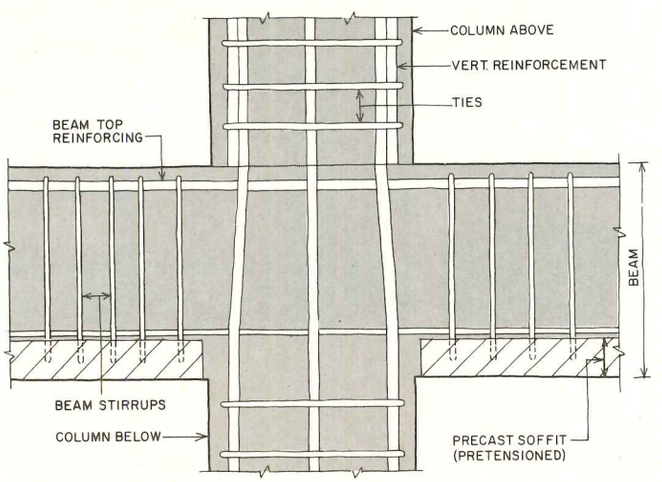
TYPICAL JOIST-SLAB DETAIL



TYPICAL BEAM-JOIST DETAIL



TYPICAL BEAM SECTION



TYPICAL COLUMN-BEAM

Details of the floor system show how the precast elements are combined with poured-in-place concrete. The fillet increases the depth of the joist-floor system for the long spans (43 ft) that were involved with this building.

Reinforcement for the combined precast, poured-in-place beams cannot be the same as for fully poured-in-place sections, but has to be detailed for the allowable shear area spelled out by code.

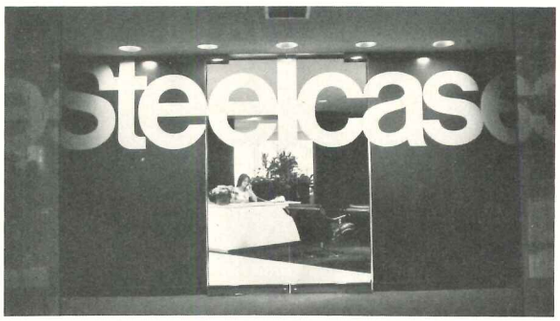
For more information, circle item numbers on Readers Service Inquiry Card, pages 221-222.

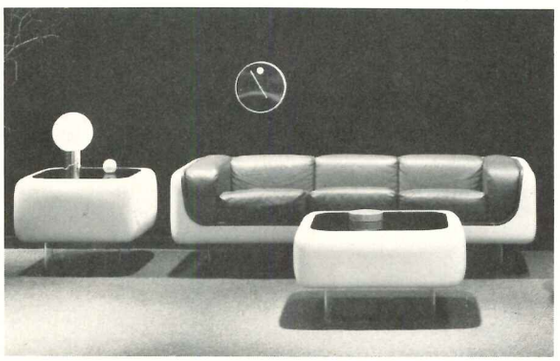
From France, coordinated baths, down to the towels

The company which for many years was known in Europe for its high quality glass (yes glass) tile, is now offering in the United States an extensive line of bathroom coordinates which are suggested for luxury hotel and residential use. Bath towels, fixtures, brass and cabinetry of Italian design are offered with the tiles, themselves nearly indestructible and impervious to the extent that several European subway systems are completely surfaced in the product. The design services of the company are available to create patterns on a custom basis. ▪ Briare Co., Inc., New York City.

Circle 301 on inquiry card

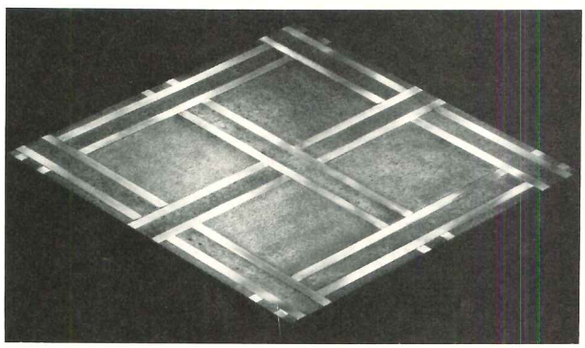
New office furniture—an excellent new showroom





Out of the ordinary is one of New York's newest contract showrooms, located on the 29th floor of 299 Park Avenue. Designer James R. Vaughn, working with a standard U-shaped loft space, has planned the showroom to afford unique city views and to lead the visitor logically from reception area (top) through varied and multi-level settings. Office planning solutions are suggested in such vignettes as the middle photo—this, the company's *Soft Seating* line with cushions and fiberglass shells seeming to float on clear acrylic bases. Elsewhere, one might encounter the desk, conference and side chairs (below) designed by architect Warren Platner. Each seat, back and arm is individually molded and upholstered. ▪ Steelcase, Inc., Grand Rapids, Mich.

Circle 300 on inquiry card



Bronze floor and wall tiles bond to most surfaces

Tile squares in sizes up to 20 by 20 in. are made of bronze clad on copper sheet. The backside is prepared for laminating or bonding to most common intermediate surfaces such as plywood, sheetrock and others. The product is said to be ductile enough to contour and high in abrasive wear resistance. Accent bands (shown) can be supplied. ▪ Furcotex, Seabrook, N.H.

Circle 302 on inquiry card

More products on page 155

NEW!

EXCLUSIVE!

KALWALL'S®

SOLAR CONTROL

SYSTEM!

USE THE SUN TO MAXIMUM ADVANTAGE.

The KALWALL SOLAR CONTROL SYSTEM is perfect for walls and roofs because it has this unusual combination of performance benefits for architects and for building owners . . .

- Best thermal insulation ("U") of *any* other light transmitting material *to make buildings easier to heat and cool!*

  "U" factors from .40 all the way down to 0.06 available!!!
- Wider range of natural light transmission to suit the design and the interior function — ideally!

  From 3% to 65% transmission available!!!
- Solar energy transmission properties can be designed to provide more, *or less*, solar heat than all other light transmitting materials, depending on the building's design and exposure!

Investigate this new ENERGY CONSERVATION SYSTEM from the Kalwall Corporation. Write or phone Mr. Bruce Keller at the Kalwall Corporation, 1111 Candia Road, Manchester, N. H. 03103. Phone 603-627-3861.

KALWALL CORPORATION

Insulated Translucent Wall and Roof Systems

For more data, circle 59 on inquiry card

Patente

For more information, circle item numbers on Readers Service Inquiry Card pages 221-222.

DOOR CATALOG / A 20-page color catalog of entrance, interior and other doors includes descriptive charts of all styles, with the color illustrations. The company has included three special features of interest to both jobbers and consumers. One section is entitled "What You Should Know About the Care and Finishing of Doors," the other an illustrated page on the decorative aspects of doors. A glossary of terms is also provided. ▪ St. Regis Paper Co., Tacoma, Wash.

Circle 400 on inquiry card

WOOD STRUCTURAL SYSTEMS / Laminated wood structural systems for clear-span circular buildings are featured in a new brochure that describes the *Triax* glue-laminated timber dome, which is recommended for building diameters up to 400 ft. The dome structural members are arranged in a series of triangular modules which are joined by a patented hub connection. ▪ Koppers Co., Inc., Pittsburgh, Pa.

Circle 401 on inquiry card

INSULATED HEATING CABLE / The bulletin describes features of the company's heating cable such as moisture-, fire- and corrosion-resistance. It also details the numerous uses to which the cables would be applied, including frost protection of water pipes and heating of process piping, tanks and hoppers. The cable may also be embedded in surfaces for protection against snow accumulation and structural damage from freezing sub soil. The publication gives specifications for pipe operation temperatures, tells how to determine heat loss, cable length and size and how to specify for imbedded heating. ▪ General Electric Co., Shelbyville, Ind.

Circle 402 on inquiry card

STEEL WINDOW CATALOG / A catalog prepared and distributed by the Steel Window Institute is available. ▪ Steel Window Institute, Cleveland, Ohio.

Circle 403 on inquiry card

WATER COOLER CATALOG / The company has released its 1974 full-line catalog featuring pressure and bottled water coolers with complete specifications and dimensions. ▪ Ebco Mfg. Co., Columbus, Ohio.

Circle 404 on inquiry card

CERAMIC TILE / A new color catalog and retail price list features a wide variety of colors, patterns, sizes and shapes in ceramic tile. Also included is a list of nationally located showrooms. ▪ Agency Tile Inc., Nanuet, N.Y.

Circle 405 on inquiry card

CERAMIC WALL TILE / The catalog includes a product selector and the full color line. Specifications are also given. The company's wall tile line includes matte glaze, for low light reflectance—wet look—on walls; crystal glaze, for walls, counters and light traffic residential floors; dapple and bright glaze for walls and counters. Unglazed mosaics are shown for walls, floors, exterior use, murals and swimming pools. ▪ Florida Tile, Lakeland, Fla.

Circle 406 on inquiry card

MULTIZONE ROOFTOP UNITS / A 16-page catalog contains performance data, dimensions, specifications for gas, electric, steam, and glycol heating systems; information on cooling systems; and describes blower, intake/exhaust/return, damper, and filter systems. Charts and nomenclature section are included. ▪ Modine Mfg. Co., Racine, Wis.

Circle 407 on inquiry card

ALL-WEATHER WOOD FOUNDATION / A below-grade pressure-treated plywood wall, said to cost significantly less than other systems is detailed in a new 16-page brochure that contains builders' comments, construction and installation details, and cost comparisons with conventional foundation systems. ▪ American Plywood Assn., Tacoma, Wash.

Circle 408 on inquiry card

CERAMIC TILE / The primary objective of this annual handbook is to provide quick reference details and a means for simplifying and standardizing installation specifications for ceramic tile. It includes new guides to help select the best ceramic tile installation method for walls, and right grouts for both wall and floors. Levels of performance now include residential, light, moderate, heavy and extra heavy. The "1974 Handbook for Ceramic Tile Installation" is listed in Sweets' Architectural Catalog File under Section 9.18/Ti. ▪ Tile Council of America, Inc., Princeton, N.J.

Circle 409 on inquiry card

FASCIA, COPING CATALOG / New this year from the company are eight standard baked enamel colors for the *Modu-Line* Fascia, the *Permasnap* coping and the *EconoGard* gravel stop that is formed rather than extruded. ▪ W. P. Hickman Co., Troy, Mich.

Circle 410 on inquiry card

SAFETY PLATFORM CATALOG / A 12-page catalog features safety platforms to help meet the OSHA requirements in the manufacturing and construction markets. Full specifications and prices are included. Over 50 different models are available for overhead work up to 72 ft above the floor. ▪ Economy Engineering Co., Bensenville, Ill.

Circle 411 on inquiry card

LIMESTONE / A brochure describes Indiana limestone used as floor-to-floor panels in curtain wall construction. Textures are discussed as well. ▪ Harding & Cogswell Corp., Bedford, Ind.

Circle 412 on inquiry card

DECORATIVE LOCK STYLES / Containing more than 60 color photos of knob styles, one- and two-piece entry handle keylocks, lever handles, deadbolts, miscellaneous locks and decorative trim, the catalog also contains all pertinent data on the locking function, the finishes each of the locks is available in, and the general specifications for each series of locks. ▪ Weslock Co., Los Angeles, Cal.

Circle 413 on inquiry card

AIR DISTRIBUTION PRODUCTS / A 388-page catalog that provides complete, up-to-date information on the company's full line of products is the 3rd edition of the fully bound catalog first introduced in 1971. In addition to supplying information on current product lines, the new catalog furnishes performance and selection data on a number of new air diffusion products and systems. ▪ Titus Mfg. Corp., Dallas, Tex.

Circle 414 on inquiry card

NON-ELECTRIC THERMOSTATIC CONTROL / An engineering and specification leaflet describes a complete line of non-electric thermostatic heating controls and related valves which can be used on either hot water or low-pressure steam systems. Detailed information is included covering design, specifications, dimensions, and capacities. ▪ Ammark Corp., Fair Lawn, N.J.

Circle 415 on inquiry card

More literature on page 157

NEW ENERGY SAVING DESIGN IDEAS

The porcelain-on-steel panels used here provide excellent insulation. . .approximately four times as effective as insulated glass. Panels contain one-inch core of insulating material. Building requires minimum heat and air-conditioning. Panels are also maintenance free.

Free 1974 Brochures describe variety of insulated panels in detail with specs. Send today.

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Other plants: Okmulgee, Oklahoma; Genk, Belgium; Odense, Denmark.

For more data, circle 61 on inquiry card

Architect: Orus O. Eash, Fort Wayne, Indiana

Jute-backed carpeting passes time test

Is direct glue-down jute-backed carpet practical and economical? Does it have staying power? A revisit after eight years to the first large installation, in a Ford Motor Company building in Dearborn, Michigan brought a "yes" to each question from Ford building management executives. The installation was completed in 1965 in the then new facility in the Ford World Headquarters complex.

Charles K. Gehringer, Ford office facility planning coordinator and one of the original planners eight years ago, reports: "All anticipated benefits have been realized. The jute backing has held fast to the sub-floor throughout, despite some severe trials. It has given no shrinkage, mildew or delamination problems with systematic cleaning, even below grade and with cafeteria spills. Jute's edges have sealed seams so that they have remained tight since installation. With most desks still in their original positions, chair casters have been riding the same paths for eight years. Jute gave the pile a sound, stable foundation so that carpet replacement is far off."

One severe trial was a partial flood in the cafeteria several years ago. The carpet involved came up cleanly, was dried with fans and reinstalled without shrinkage and backing deterioration or separation.

Another severe trial is in the below grade computer center, operating around the clock seven days a week, with heavily laden four-wheel carts constantly in motion and straining the seams and floor bond of the carpet. No backing problem occured, and the carpet looks almost new, according to Ford.

Mr. Gehringer adds: "We initially thought we were sacrificing some wear life without attached or separate cushioning, which we were willing to do for lower initial cost, seam 'insurance' and easy mobility for cart wheels and underchair casters without pads. Judging by the carpet's condition and industry life expectancy for contract grades in sites as ours, we now question if any wear life is lost."

Credit for practically all today's successful no-pad direct glue-down installations is attributed to jute's ability to absorb and retain floor adhesive, which also oozes up through the jute mesh weave under the pressure of application to provide an additional bond against delamination. Jute is the only no-pad secondary backing material with the necessary fibrous and mesh qualities, producers claim.

An architectural guide specification detailing the system and prepared by a member of the Construction Specifications Institute, plus a case history report, is available without charge from the Jute Carpet Backing Council, 25 Broadway, New York, New York 10004.

Butcher Block. We call this lounge group Butcher Block because that's just what it is. Uncomplicated. Straightforward. Functional. And exceptionally handsome. Oak chair, two seater and sofa are available in an almost unlimited selection of fabrics. Designed to coordinate with a collection of occasional butcher block tables which, by happy coincidence, we also produce. See them at the Thonet Center of Design. New York. Chicago. Los Angeles. Dallas. Or write Thonet Industries Inc., 491 East Princess Street, York, Pa. 17405. Telephone (717) 845-6666.

THONET
CENTER OF DESIGN

continued from page 149

MUSIC PRACTICE ROOMS / Pre-engineered, prefabricate modular practice rooms, with self-contained lighting and ventilation are said to permit relocation of rooms any number of times without loss of effectiveness. No caulking is required during initial erection or subsequent relocations. Judged by an independent testing laboratory, the unit is said to equal or surpass the effectiveness of comparably priced built-in units. ▪ Wenger Corp., Owatonna, Minn.

Circle 303 on inquiry card

THERMOFORMED ACRYLIC GLAZING / The windows shown here in the Indian Polytechnic Institute in New Mexico are custom-fabricated in linear pattern from sheets of breakage-resistant, solar-control *Plexiglas* acrylic plastic. The panels are 5-ft-wide and range in height from 8 to 16 ft. Thermoformed to a depth of 3 to 6 in., more than 600 panels were used in this installation, according to architects W. R. Kruger & Associates. The company making the *Plexiglas* claims the panels control solar heat gain and glare. ▪ Rohm and Haas Co., Philadelphia, Pa.

Circle 304 on inquiry card

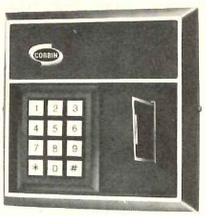
INTEGRATED SIGNAGE / Winner of an honorable mention for decorative accessories in the latest Resources Council Product Design Awards program, this signage provides plaques, lettering, application techniques and mounting hardware in one system. Components are consistently available states the company and re-use capability of components is possible. Letters peel off. ▪ Herman Miller, Inc., Zeeland, Mich.

Circle 305 on inquiry card

HAND CARVED SIGNS / Working with all types of wood, the company can create any style sign with any letter styles, molding, stains, full-color oil illustrations, logos, letter colors (paint or 23K gold leaf), sculptured wrought iron, pegged hand-hewn beams, etc. Signs are said to be relatively maintenance-free. ▪ Vermont Hand Carved Signs, Hartland, Vt.

Circle 306 on inquiry card

SECURITY CONTROL SYSTEM / The system can provide multi-level access control to any combination of more than 50,000 areas. The cards are read by solid-state circuitry units. Programming can be changed quickly in case of lost or stolen cards. *Cardfidential* units are housed in weatherproof cases. ▪ P & F Corbin Hardware, Berlin, Conn.



Cirlce 307 on inquiry card

Minnesota Ore Operations Administration Building, Mountain Iron, Minnesota. *Owner:* United States Steel Corporation, Pittsburgh, Pennsylvania. *Architect:* Architectural Resources, Inc. Hibbing & Duluth, Minnesota. *Engineer:* R. O. Jacobson, Jr., Hibbing, Minnesota. *Fabricator:* American Bridge Division, United States Steel Corporation, Chicago, Illinois.

No invisible means of support!

U.S. Steel builds first load-bearing exposed steel plate-wall building.

Sitting among the ore fields of Northern Minnesota, at Mountain Iron, is a structure that breaks new ground in building design.

Serving as the administration headquarters of U.S. Steel's Minnesota Ore Operations, its most unique feature is a load-bearing, exposed A36 steel plate-wall. Floor and roof loads are directly supported by the wall.

To our knowledge, this is the first building in which exposed, painted steel plate *on the outside* supports loads *on the inside.* The steel plate wall actually holds up the building!

This advance in building design is functionally efficient and can help cut construction costs.

The rolled wide-flange shapes welded to the plate wall, apart from serving as an architectural element, perform two key functions: they stiffen the plate-wall and support the floor loads. The wall itself was fabricated in modules with window openings cut into the plate.

A 3-coat paint system was used—a primer and 2 field coats, having a total thickness of 3.5 mils.

Considerable research and experimentation went into the construction of this new building at Mountain Iron. The result is a clean, crisp structural wall in steel that serves the additional purpose of enclosing the building.

This system, pioneered and developed by U.S. Steel, marks another step forward in the uses of exposed steel for modern building exteriors.

For more information, contact a USS Construction Marketing Representative through the nearest USS Sales Office or write: United States Steel, (Room C189), 600 Grant Street, Pittsburgh, Pa. 15230.

United States Steel USS TRADEMARK

For more data, circle 66 on inquiry card

AUTOMATED STORAGE AND RETRIEVAL / A 16-page manual is designed to provide architects with an introduction to automated storage and retrieval of filed material. The literature discusses the basic components of automated filing systems, explaining such features as work stations, storage areas, how filed matter is transported from one area to another, etc. In addition, the manual outlines the architectural problems/solutions of storage and retrieval relating to 8 different installations. ▪ Supreme Equipment & Systems Corp., Brooklyn, N.Y.

Circle 416 on inquiry card

METAL-FACED WOOD LETTERS / A catalog of wood and metal-faced wood letters is now available with 20 complete alphabets, and numerals where applicable, displayed on background grids for size comparison. Standard letter heights range from 6 through 24 in. and ¼ through 2 in. in thickness. The wood letters are cut from solid 7-core marine plywood and finished with lacquer for interior use and exterior enamel for outdoor use. The metal-faced letters are furnished with satin anodized aluminum facing and painted edges. ▪ West-On-Letters, Inc., Los Angeles, Cal.

Circle 417 on inquiry card

DUMBWAITER PLANNING GUIDE / A 12-page brochure contains a dumbwaiter planner with selector guide for recommended uses and charts that indicate specific uses of dumbwaiters in various buildings, car sizes and weight limits, horsepower/amperage duty tables, and hoistway clearances. Information on safety gates, UL doors, automatic cart or container material handling systems, residential electric and hand-operated dumbwaiters is included. ▪ D. A. Matot, Inc., Chicago, Ill.

Circle 418 on inquiry card

PREFINISHED DOOR FACINGS / The brochure describes and illustrates various residential and commercial applications of the embossed hardboard doorskins. It also provides information on the physical properties of the prefinished surface. Facings are available in all standard door sizes and in three finishes—walnut, white and oak. They are said to duplicate the look and feel of natural wood. ▪ Masonite Corp., Chicago, Ill.

Circle 419 on inquiry card

METRIC CATALOG / Anticipating the increasing use of the International Metric System by engineers, architects and draftsmen, the company has prepared a 12-page brochure that is both a reference guide and a catalog of new metric products. The brochure describes and illustrates a line of 10 metric drafting machine scales (300mm and 450mm lengths), two metric triangular scales, nine metric flat scales, a metric conversion slide rule, and a series of metric templates. ▪ Bruning Div., Addressograph Multigraph Corp., Schaumburg, Ill.

Circle 420 on inquiry card

UPHOLSTERY AND WINDOW FABRIC / A new sample package consists of two slipcase boxes containing samples of the upholstery and window fabric collection, in all more than 400 fabrics. Owners of these swatch files will receive complimentary future additions to the collection as they become available, as well as notifications of discontinued designs. The new price list is also part of the package There is an intitial charge of $25 plus postage for the complete sample package. This amount is refunded in full by credit applied to the first order. ▪ Isabel Scott Fabrics Corp., New York City.

Circle 421 on inquiry card

More literature on page 159

People-proof panelboards.

Protect lighting panels with tamper-proof Mono-Flat® trims—standard on all Square D lighting panelboards. When the Mono-Flat front is properly installed and locked, it's practically impossible to get at the inside without the key. The lock is flush with the surface of the door so there is very little room for someone to insert a screwdriver under the lock and pry the door open. And the trim screws are inaccessible behind the locked front. Mono-Flat fronts come with one of either of two key changes so standard and emergency lighting can be keyed differently.

On a more aesthetic note, the Mono-Flat front has a smooth appearance that can easily be papered, painted, or otherwise covered to blend in with the surrounding decor.

Mono-Flat enclosures are easy to install. They hold themselves in place while the trim screws are locked. And the front of the panel can be adjusted in or out if the box is set improperly in the wall.

Mono-Flat trims are now standard on all Square D lighting panelboards as well as on several smaller power panelboards. Anytime you have a panelboard application, select a people-proof Square D panel with a Mono-Flat front to make it look its best.

For specific engineering data on Mono-Flat panelboard fronts, contact your Square D distributor. Or write, Square D Company, Dept. SA, Lexington, Kentucky 40505.

SQUARE D COMPANY

Wherever Electricity is Distributed and Controlled

For more data, circle 68 on inquiry card

MAIL BOXES / A complete line of mail boxes and apartment house intercom systems is described in a new bulletin on horizontal and vertical mail boxes for high- and low-rise apartments, campus post offices, dormitories and office buildings as well as data on the U.S. Postal Services's new Neighborhood Collection-Delivery Boxes, designed to meet the needs of new communities, developments, mobil home-trailer parks, and other special applications. The company's line of standard, voice-actuated and alphanumeric apartment intercom systems is also featured. ▪ American Device, Steeleville, Ill.

Circle 422 on inquiry card

STAINLESS STEEL FIXTURES / The products highlighted in the 50-page catalog include: sink tops, bowls and various accessories. Accessories include: faucets, drains, cutting boards, dish drains, etc. Custom-made and stock sink tops feature an anti-splash rim around the bowl perimeter and two-way pitched drainboards without grooves or creases. ▪ Just Mfg. Co., Franklin Park, Ill.

Circle 423 on inquiry card

STOCK RACK / A data sheet describes a product available on short notice for immediate shipment and delivery. It features bolted assembly using perfect (round) upright columns and all-welded shelf beams. An inch-and-a-half center bolted connector is said to give wide vertical adjustments for horizontal shelf elevations. The literature details sizes and prices. ▪ Artco Corp., Hatfield, Pa.

Circle 424 on inquiry card

ILLUMINATION BROCHURE / The brochure, designed primarily to help stimulate creative thinking among designers and end users of architectural lighting, is non-technical and illustrates many of the concepts resulting from research into impact-resistant lamp enclosures—from the original butyrate plastic replacements for those ornamental globes of the early 1900's—to the modern, multi-faced geodesic shapes of today. Also described are spheres, cubes, cylinders, ellipsoids and drums. ▪ Plastics Inc., St. Paul, Minn.

Circle 425 on inquiry card

SUN CONTROL / Control of sunlight in buildings with large window areas, through the use of laminated glass, is described in a bulletin examining each of the three elements of radiation in sunlight—ultraviolet, visible and infrared. The company manufactures *Saflex* plastic interlayer which, in one product, can provide noise control, safety and security, in addition to heat and light control, according to the company. ▪ Monsanto Polymers & Petrochemicals Co., St. Louis, Mo.

Circle 426 on inquiry card

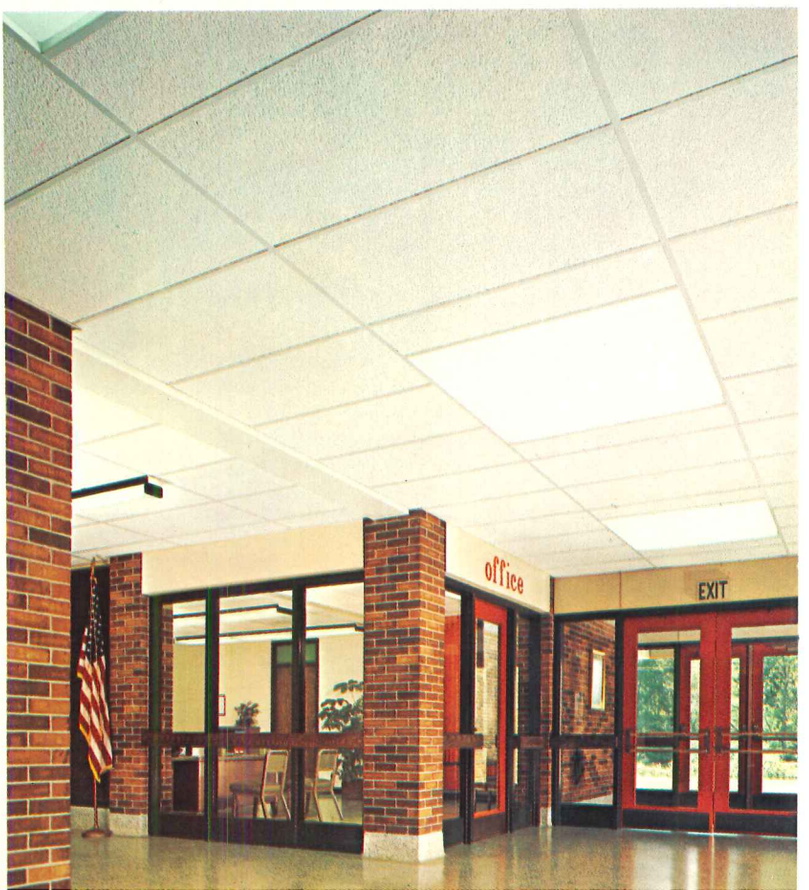
WATERPROOFING SYSTEMS / A 12-page illustrated brochure giving architectural design guidelines for construction of total waterproofing systems for a variety of below-, on-, and above-grade applications contains 20 detailed cross-sectional drawings showing recommended treatments and optimum designs for both single- and twin-slab construction. Detail drawings cover such subjects as expansion joints, drains, and wall and deck junctures. A reference chart describes the characteristics and applications of the company's complete line of liquid polymers, masonry preservatives, and transparent preservatives for waterproofing systems. ▪ Tremco Mfg. Co., Cleveland, Ohio.

Circle 427 on inquiry card

First Federal Savings & Loan Assn. of Danville, Martinsville, Virginia. Architect: Calvert, Louis & Smith. Acoustical Contractor; J. W. Squire Co. Banking area ceiling: Conwed 12″ x 12′ Rock Face Ceiling Tile.

Indianapolis 500 Hospitality Suite, Indianapolis, Indiana. Engineers: Fink, Roberts and Petrie, Inc. Acoustical Contractor: Perry Acoustics. Ceiling: Conwed Rock Face 24″ x 24″ Reveal Ceiling Panels.

Fort Wayne Elementary School,
Fort Wayne, Indiana. Architect: Cole Matson & Matott. Acoustical Contractor: C.N. Parker Co. Lobby and Corridor area ceiling: Conwed 24″ x 48″ Rock Face Ceiling Panels.



Cloverleaf Mall, Richmond, Virginia. Architect: Carneal and Johnston. Acoustical Contractor: Consolidated Tile Co. Ceiling: Conwed Rock Face 24″ x 24″ Reveal Panels.

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CONWED® CEILINGS FOR ENDURING BEAUTY

Conwed® Rock Face...the ceiling family with beauty, character, and stamina.

Over a thousand ceilings ranging from locker rooms to executive offices, from corridors to lounges, prove Rock Face ceilings are more than abuse resistant. This one-of-a-kind ultra hard ceiling has a surface texture that's handsome and natural. It stays that way during installation, when removing panels for plenum access and when there are unexpected bumps and jars.

Now a choice of 10 types and sizes including U.L. labeled fire rated formulations make up the Rock Face family for ceiling design variety... Reveal Panels... 24″ x 24″ and 24″ x 48″ Lay-in Panels... Concealed Tiles. Each ready to give its own characteristic to the particular design. All maintaining surface texture continuity and abuse resistance.

You can have ceiling beauty and toughness too! Rock Face ceilings have proved it. Write Conwed for Rock Face family data or refer to Sweets Catalog 9.1/Co.

For more data, circle 70 on inquiry card

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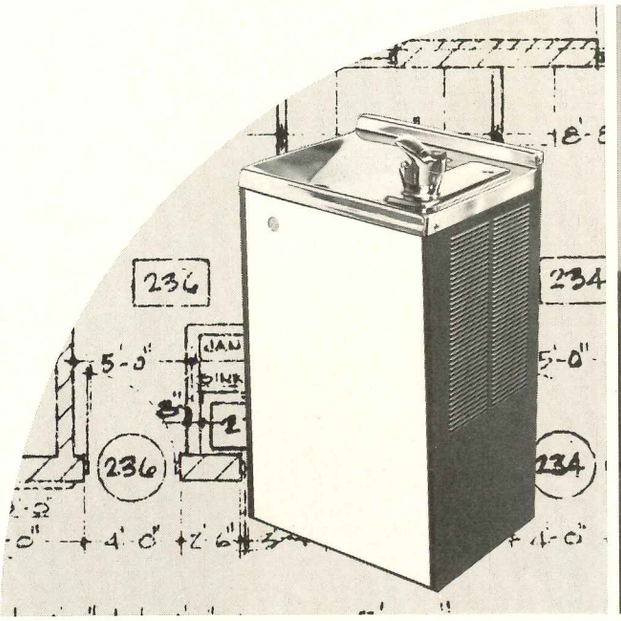
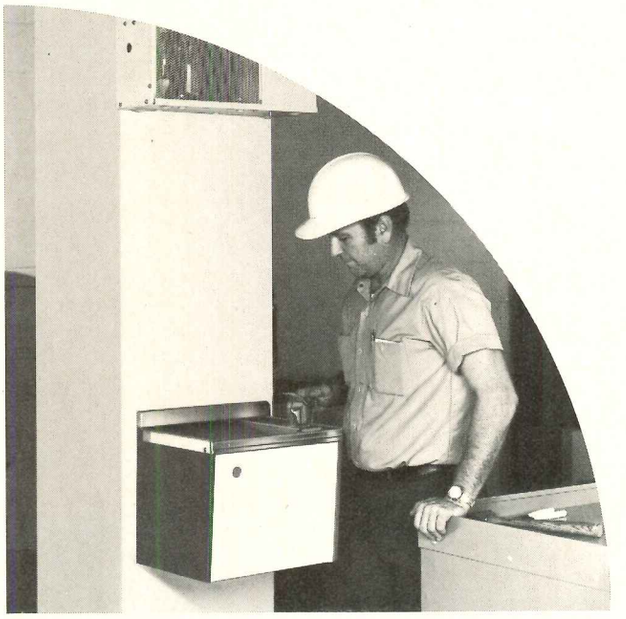
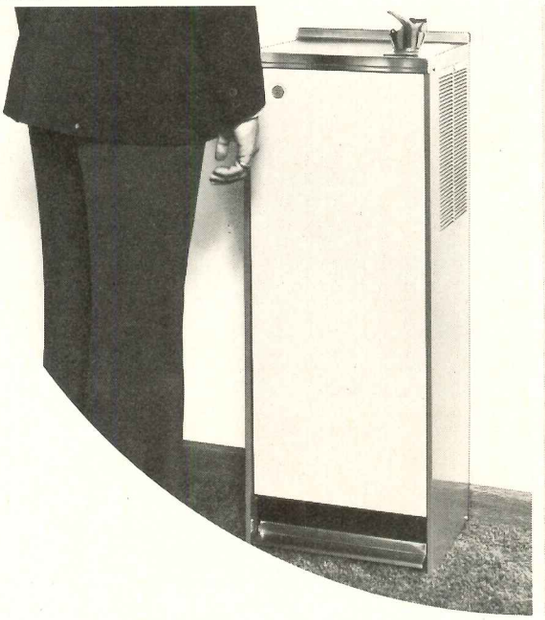
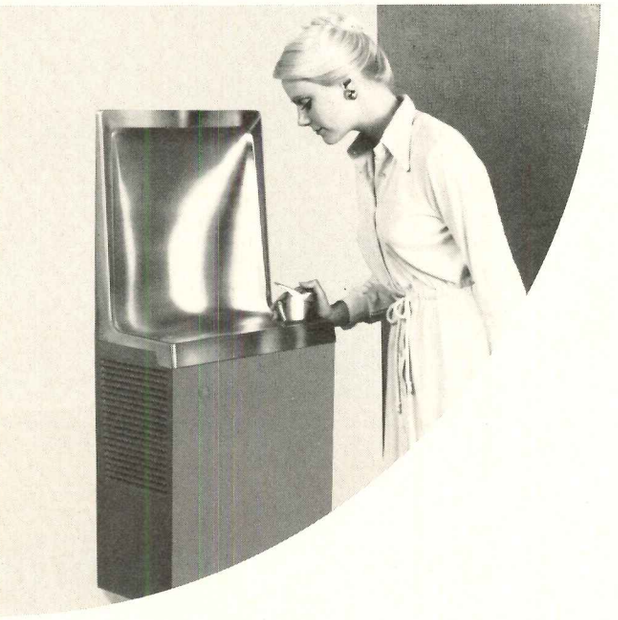
Saint Paul, Minnesota 55101









Wherever you plan a water cooler, Westinghouse works.

Westinghouse water coolers. Where the functional blends in with style. Forty basic models in wall mount, semi-recessed, totally recessed, floor mount and remote types. Choose the coolness of satin-finish stainless steel, or warm things up with vinyl-clad cabinets in several decorator colors. All backed by Westinghouse Nationwide Sure-Service. And we offer expert selection assistance, if you'd like it. Westinghouse water coolers . . . the functional element as a design element. Westinghouse Electric Corporation / Water Cooler Dept. / Columbus, Ohio 43228.

Westinghouse water coolers work for you.

Westinghouse

For more data, circle 71 on inquiry card

New **Kodak** Colorado Division requires optimized control of thermal environment for its optimum rated film/paper/plates

Kodak has gone West to Windsor, Colorado with a new 3000 acre production and distribution complex for film, finishing, paper and printing plates.

Low tolerance control of setpoint temperature/humidity is critical for maintaining *uniform,* quality production in the currently completed 1½ million sq. ft. facility. High-efficiency air-conditioning/heating systems have integral heat transfer coils for such *balanced* environmental requirements. Aerofin Heat Exchanger Coils share in this responsibility. Reliable performance, plus remarkably high exchange co-efficients have earned Aerofin industry leadership. Call our specialists on any new or renovation job with demanding coil controlled environment specs.

PROFESSIONALS AT WORK

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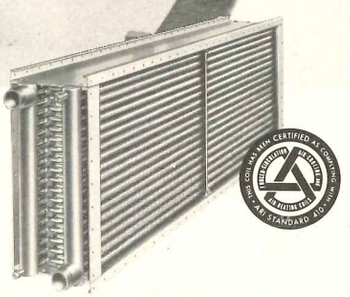
Mechanical Engineers: Giffels and Rosetti and Eastman Kodak Company

Mechanical Contractors: U. S. Engineering Co., and L. E. Meyer Inc.

General Contractor: Phelps Construction Company, Greeley, Colorado



ARI certified rated Type C chilled water cooling coil with stainless steel casing.

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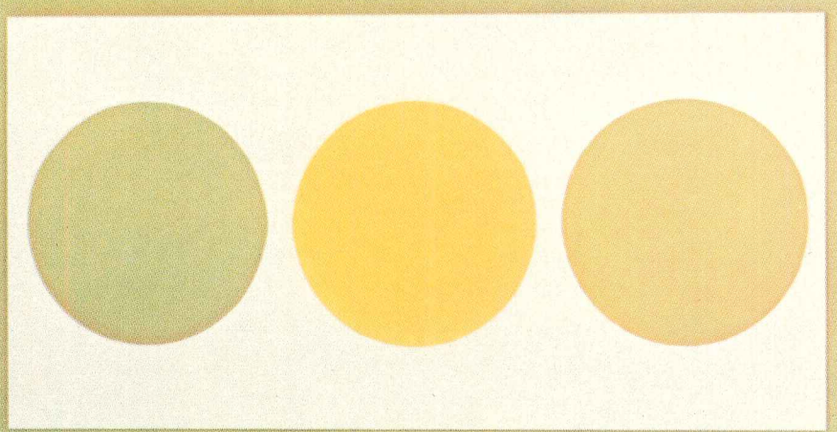

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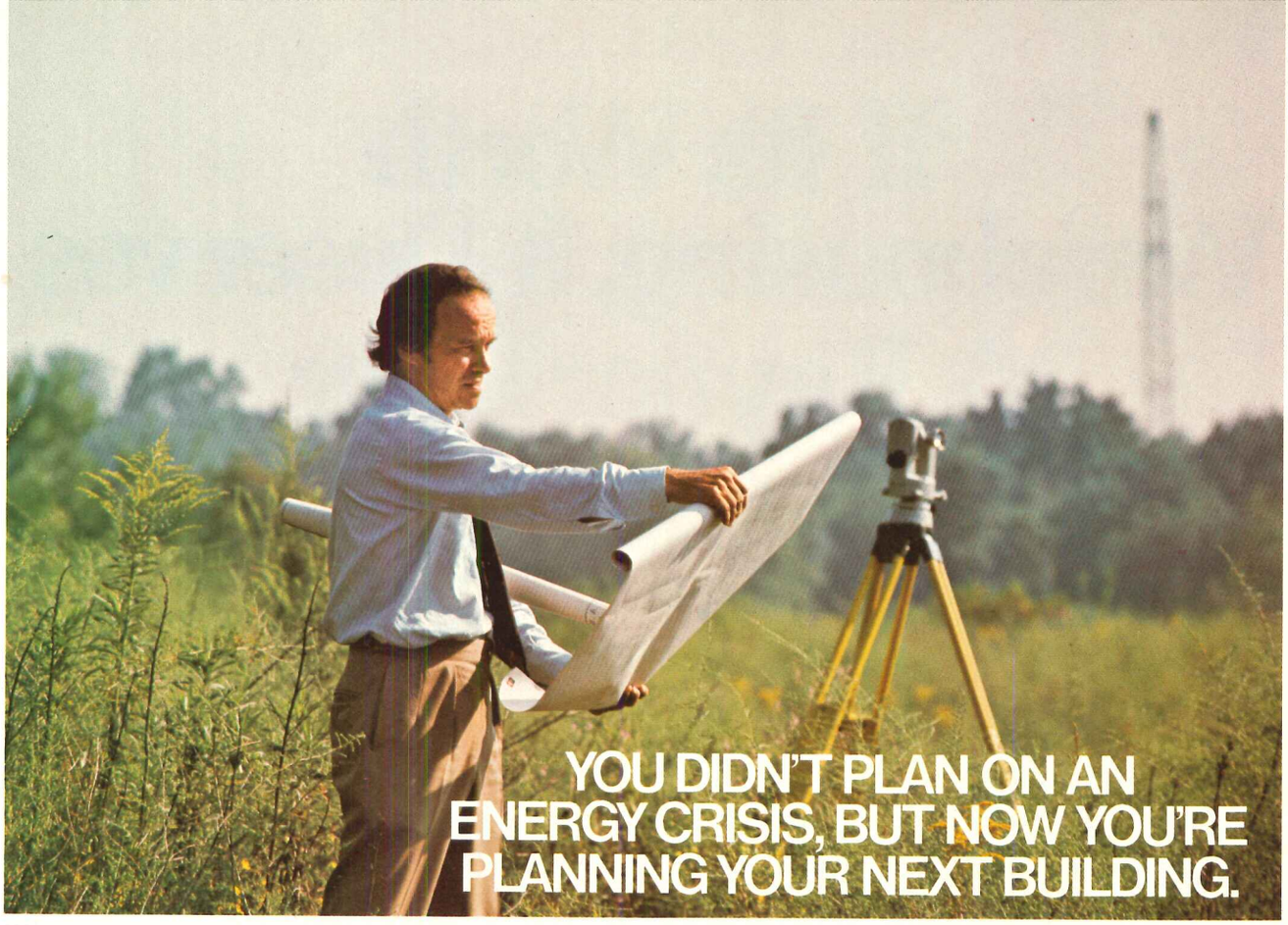


YOU DIDN'T PLAN ON AN ENERGY CRISIS, BUT NOW YOU'RE PLANNING YOUR NEXT BUILDING.

Which building material will you use?

You've got energy shortages to think about. Air-conditioning costs. Heat gain through the long, hot summers. Heat loss in the winter months. Heating equipment costs. The whole set of energy-use factors suddenly has become critically important. The building material you use affects all of them.

Compare the energy conserving capability of masonry, for instance, with double-plate glass walls.

At 4:00 P.M. on a hot August day in Washington, D.C., the heat gain through a square foot of west-facing insulated brick and concrete block wall will be 2.2 Btus an hour.

The heat gain through a double-plate glass wall in the same location will be 173 Btus a square foot in an hour. A big difference.

Project this differential over 10,000 square feet of wall. You come up with a heat gain through masonry of 22,000 Btuh, while the heat gain through double-plate glass is 1,730,000 Btuh.

In the case of the masonry wall, cooling equipment with a two-ton capacity can handle the heat gain. But with the double-plate glass wall, about 143 tons of cooling capacity will be needed.

An analysis of a typical 10-story building shows that over its useful life, the air-conditioning cost for a square foot of our masonry wall will be about 23 cents. For the double-plate glass wall, it will be $7.60.

It takes a lot of money to buy, install and create space for all the extra air-conditioning equipment required by the double-plate glass wall. A lot of money and a lot of energy to run that equipment.

Compare the heat loss in winter. It has a dramatic effect on energy consumption and building operation costs.

Our masonry wall, for example, has a "U-value" of .12. The double-plate glass wall has a "U-value" of .55. (U-values are used to determine heat loss through one square foot of wall area in Btuh per degree Farenheit differential across the wall.)

This means that the masonry wall is about 450% more efficient, on the average, than the glass wall in reducing heat loss.

Over the useful life of the building, the heating cost per square foot of wall area for masonry will be about 30 cents. For double-plate glass, about $1.38.

In a time of one energy crisis after another, masonry makes eminently good sense as a good citizen.

The masonry industry believes that the thermal insulating qualities of masonry are an important economic consideration to building designers, owners and investors, and all citizens.

Masonry walls save on air-conditioning and heating costs. And just as important, they are less expensive to build. The masonry wall we've described would have a 38% lower initial cost than the double-plate glass wall.

If you'd like to find out more, write to us and we'll send you a booklet comparing the thermal insulating qualities of masonry walls with double-plate glass walls, metal panel walls and pre-cast concrete walls.

International Masonry Institute
823 15th Street, N.W., Washington, D.C. 20005 / (202) 783-3908

Please send the booklet comparing insulating qualities of masonry with other building materials.

Name

Title

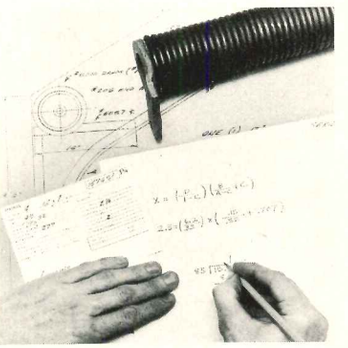
Company

City State Zip

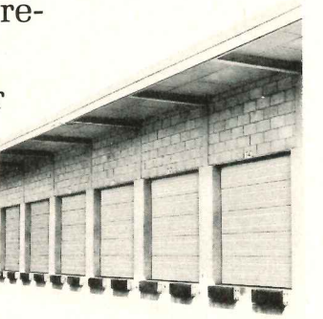
Nature of Business

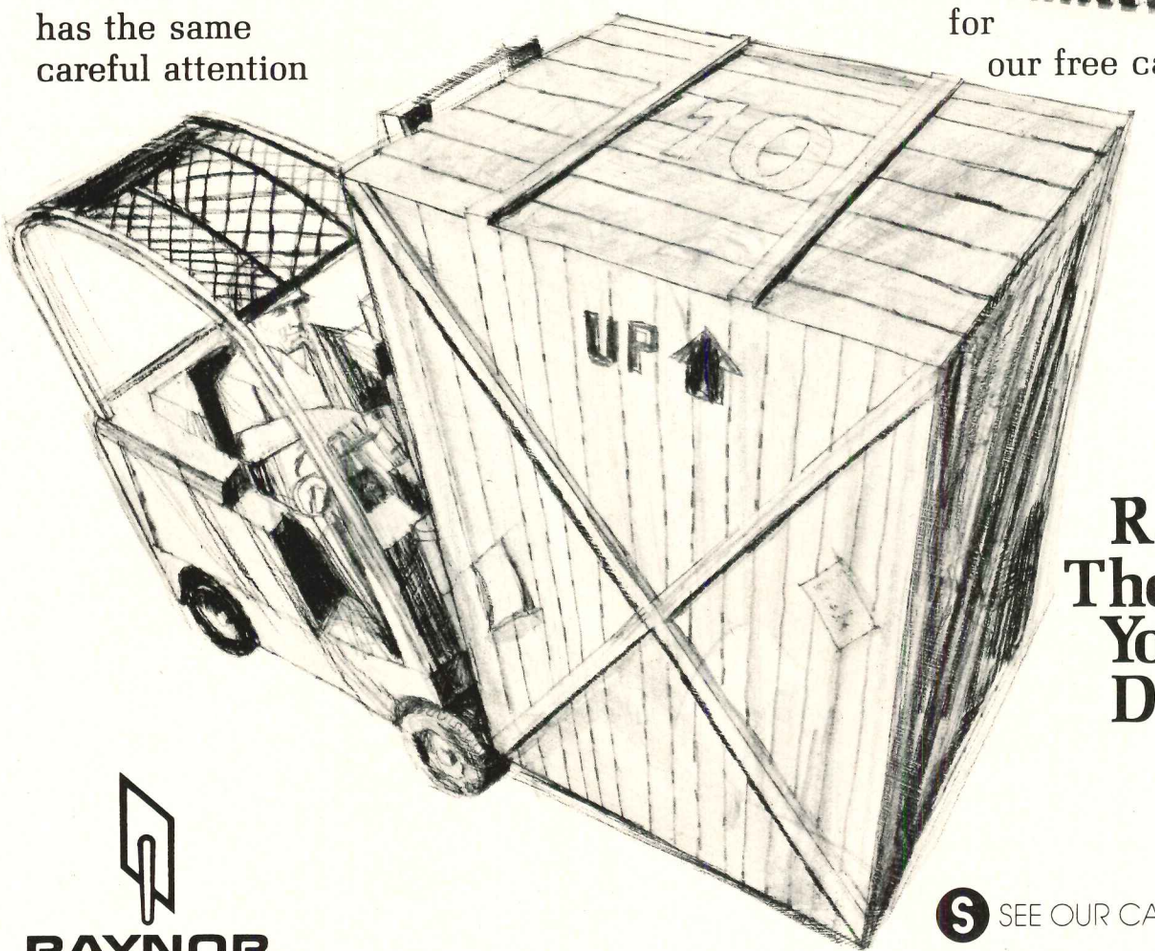
For more data, circle 73 on inquiry card

If It's Worth Warehousing, It Deserves A Raynor Door



Because Raynor offers so many options and choices, you can virtually customize the door you need for the warehouse you're planning. You can order doors in wood or steel or aluminum or fiberglass, each with custom wound springs and custom hardware that exactly fits the characteristics for a specific warehouse opening. Raynor makes a full range of sizes, from the smallest toolshed to doors for aircraft and locomotives. Each has the same careful attention to detail and quality that is characteristic of every Raynor garage door. Why on earth does Raynor go to all the extra trouble in making doors? So you won't have trouble later. If it's worth warehousing—or manufacturing or plain protecting—it deserves a Raynor door. Send for our free catalog.





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SEE OUR CATALOG IN SWEET'S

RAYNOR MANUFACTURING COMPANY, Dept. AR-2, DIXON, ILLINOIS 61021

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For more data, circle 75 on inquiry card

ASG REFLECTOVUE®

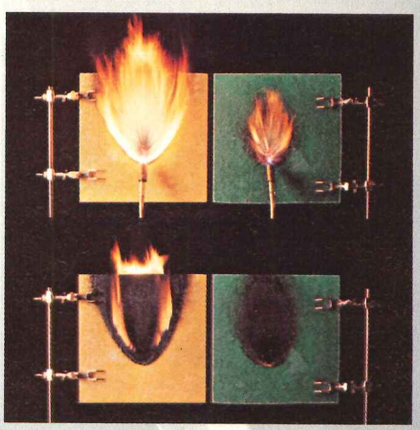
The Glass Company believes anything that wastes energy doesn't deserve to be called beautiful.

So we've made sure that rich-looking gold Reflectovue® does a beautiful energy-saving job. Reflectovue rejects up to 90% of the solar heat when used with ASG's TruTherm® insulating units. It combines this superior heat reflection with an excellent thermal performance, pius a low "U" value and shading coefficient. Reflectovue's ability to control heat loss and gain means less strain on heating and air conditioning equipment. So, while its vacuum deposited thin metallic coating of pure gold is mirroring the environment, Reflectovue is hard at work conserving energy. ASG Reflectovue. It looks—and performs—like a real beauty.

ASG Industries Inc.

The Glass Company, P.O. BOX 929, KINGSPORT, TENN. 37662

A builder and a fire inspector learned something about Alcoa hydrated alumina when they tried to set fire to this beautiful tub.



Fiber glass panel made with unfilled polyester resin, at top left, is ablaze after less than 30 seconds contact with 2000 F flame, in IAMPO and proposed NAHB test. Unfilled panel continues burning after flame is removed (bottom left). Fiber glass panel with 1:1 hydrated alumina/polyester resin effectively inhibits burning (at top right) and extinguishes fire when ignition source is removed (bottom right).

Alcoa® hydrated alumina helps reinforced polyester plastic products resist fire and suppress smoke generation as a builder and a fire inspector saw for themselves at a demonstration Alcoa conducted in Detroit on December 12, 1973.

Hydrated alumina filler actually absorbs heat during a fire and substantially slows the rate at which filled polyester plastic will burn.

Hydrated alumina is a nonsmoking, fire-retardant, cost-saving filler. It can be used at levels up to 60 percent of the polyester resin system, saving costly resin material and eliminating the need to use smoke-producing halogen-antimony oxide systems.

And with less volatilized material, there's less smoke.

The bathtub is just one way in which Alcoa hydrated alumina is helping to fight fire and smoke. Its special properties allow it to be used in other plastic systems for flame retardancy and smoke suppression. Whatever the application, Alcoa can supply hydrated alumina in several grades, in quantity, from three manufacturing locations in the U.S.

For more information write to Aluminum Company of America, 478–B Alcoa Building, Pittsburgh, Pa. 15219.

Change for the better with Alcoa Aluminas

ALCOA

It's not your cup of tea, but it may be your problem.

Times have changed.

As an architect, you are often specifying carpets for institutional buildings where only a few short years ago carpeting was unheard of and unthought of.

Sometimes the owner wants carpet because of the low noise factors and sometimes simply for appearance—and there you are caught between the pile and the coffee spots. Not only must you specify a good durable carpet but you feel responsible to suggest a proper maintenance procedure to keep that carpet clean and attractive.

Carpetsheen works fast, is easy to use and doesn't require the usual expensive carpet care equipment, either. Best of all, it does an outstanding cleaning job on both natural and synthetic fibers... including shag. Even the toughest spills, like coffee, cola, tar and blood come out with Carpetsheen.

We would be happy to send you our "How to Care for Carpets Booklet" which you can incorporate with the Owner's Maintenance Manual.

The all-in-one carpet care product.

CARPETSHEEN by hillyard

Professional floor care products worldwide
Corporate offices: St. Joseph, Missouri 64502

For more data, circle 76 on inquiry card

For more data, circle 77 on inquiry card

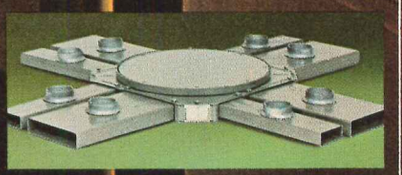
Solve a communication problem with no strings.

The communication explosion can teach you a lesson. If you aren't ready for it, things can come to a screeching halt. While you're trying to make room for more phone wiring, more new equipment.

So take note. Put a Walkerduct Underfloor System in your building specs. Keeps up property value. And isn't that nice to hear?

By running all the communication, power and signal requirements under the floor inside Walkerduct, you've got nothing to worry about. The building is safer, more efficient and able to handle any future needs quickly, easily and neatly. Without tearing up the floors. Without spending a small fortune.

Contact your nearby Walkerman for more information. Or write: Walkerduct, Parkersburg, West Virginia 26101. In Canada: Walkerduct of Canada.



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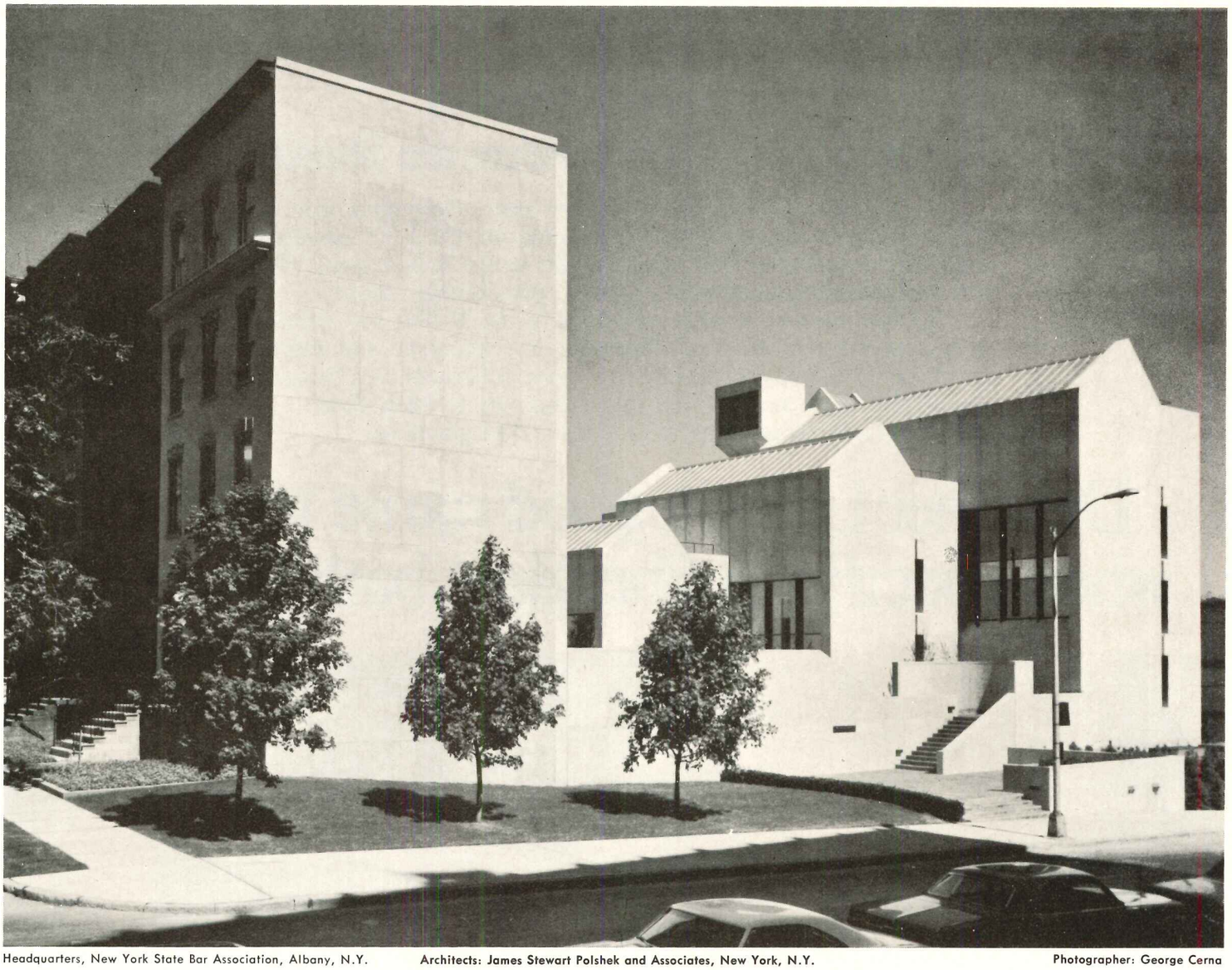


Headquarters, New York State Bar Association, Albany, N.Y. Architects: James Stewart Polshek and Associates, New York, N.Y. Photographer: George Cerna

TCS . . . and a "lesson in civilized architecture"

"The headquarters of the New York State Bar Association," as a most distinguished critic recently wrote, "is an object lesson in how to build intelligently, sensitively and well . . . In a happy alliance, the lawyers and the architects, James Stewart Polshek and Associates, have preserved a row of handsome 19th-century town houses and incorporated them, not as a false front, but as a working part of a completely and strikingly handsome contemporary complex built behind them. The words that come to mind are skill, imagination and taste, qualities not encountered too often on the urban scene."

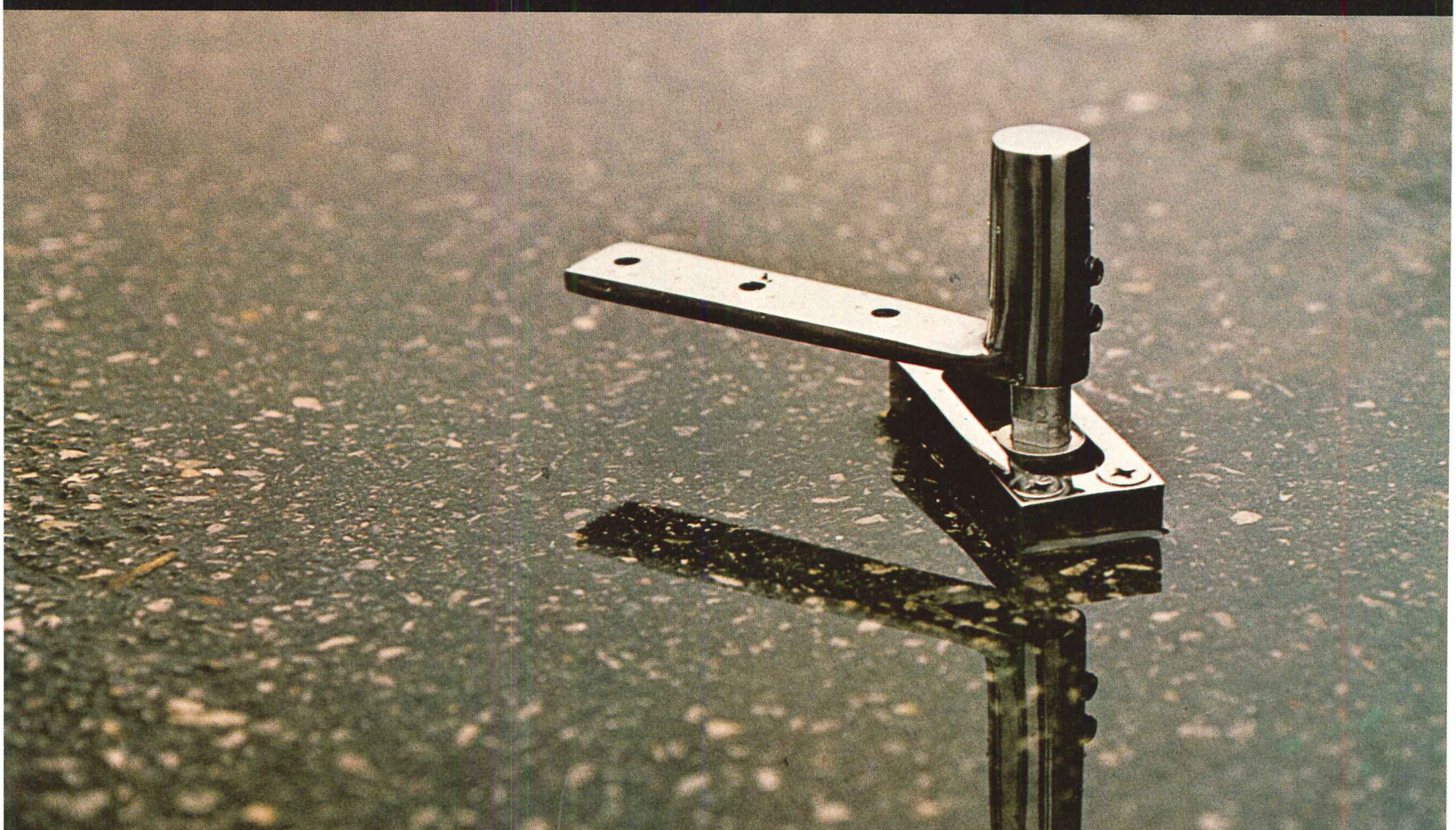
We at Follansbee Steel are particularly gratified that Mr. Polshek specified TCS (Terne-Coated Stainless Steel) for all pitched-roof areas on this outstanding building in which originality of design and integrity of site are so felicitously coupled.

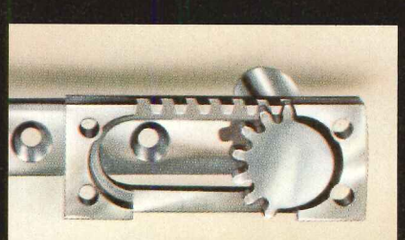
FOLLANSBEE STEEL CORPORATION
Follansbee, West Virginia

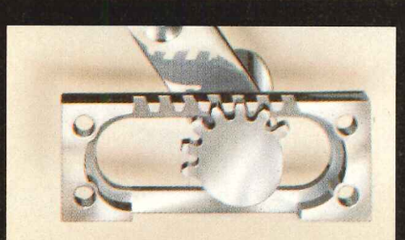
For more data, circle 79 on inquiry card

The real beauty of Hager's Raconteur® hinge is hidden.

The beauty of Hager's Raconteur® pivot is that you can't see it. It's perfect for concealed applications in executive offices, libraries, private clubs, luxury condominiums, apartments and homes. Raconteur® rack and pinion pivots will support any 1-3/4" wood or metal interior door weighing up to 150 lbs. Paneled walls of doors with uninterrupted lines are possible because Raconteur® completely concealed pivots require no frames. And Raconteur® pivots allow doors to open 105°. All pivot components are made from fine quality brass, stainless steel, rolled steel and cast iron eliminating sagging common with other concealed hinges. Plastic plugs allow for simple concrete floor installation. Patent #3,394,428.







Alignment is easily adjustable. Available in satin brass and satin chromium decorator finishes. Ask your architectural hardware consultant about Hager's complete selection of fine quality door hardware. Or, write Hager Hinge Company, 139 Victor Street, St. Louis, Mo. 63104.

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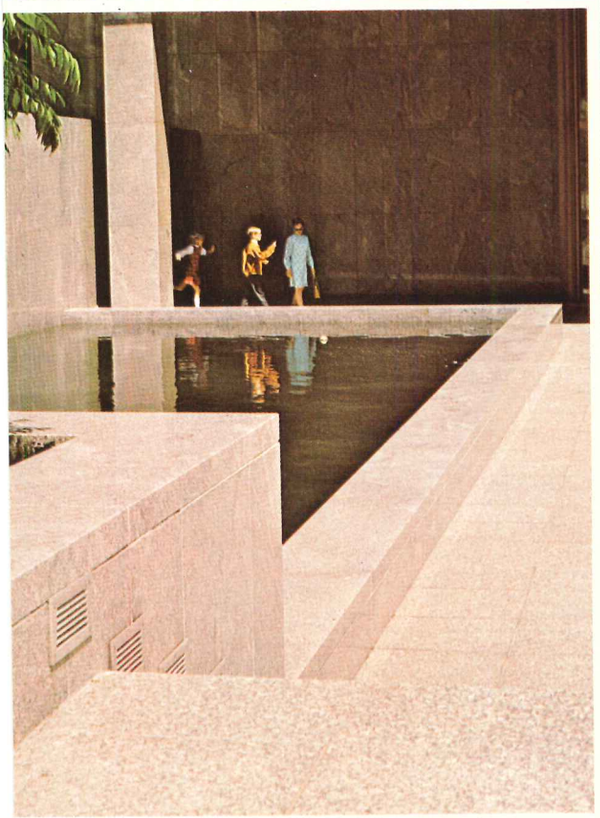


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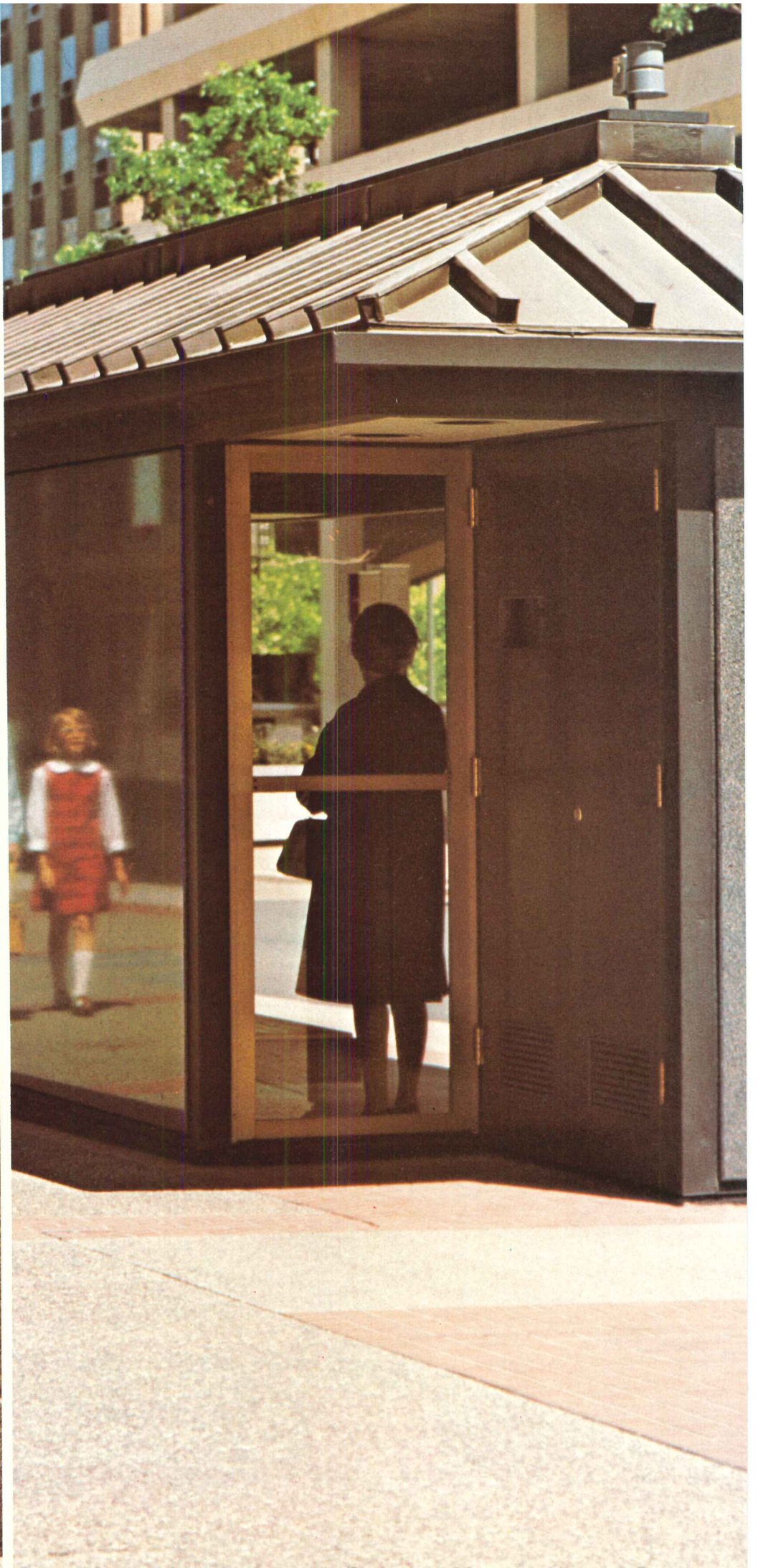

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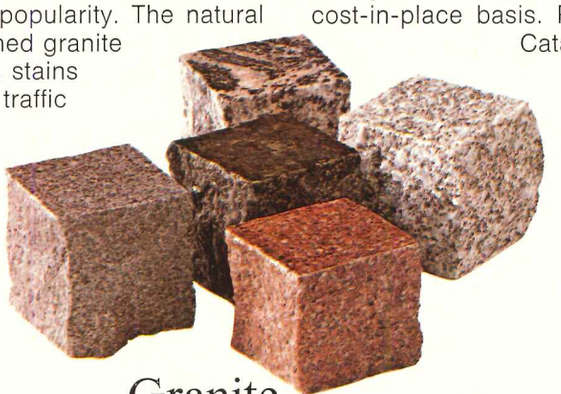

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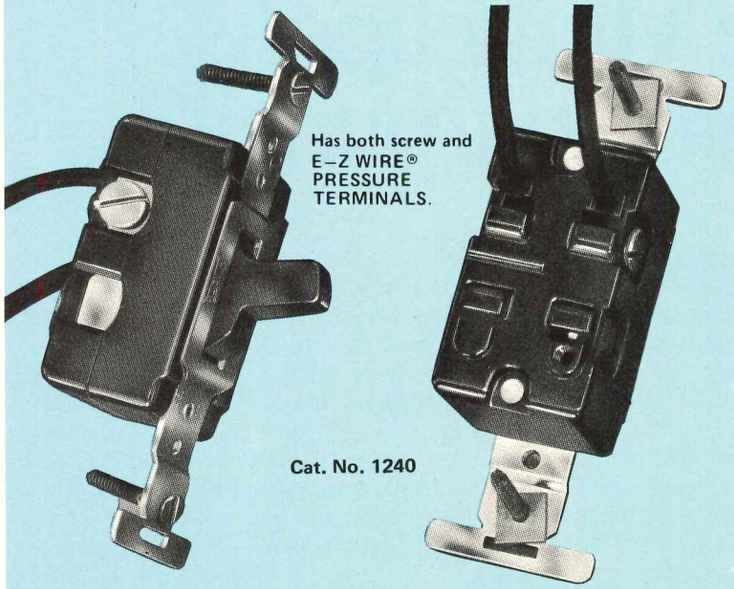
SWITCHES

Why the Eagle TOUCH-A-MATIC® Switch is the safest, most dependable choice for your electrical specifications.



How it works:

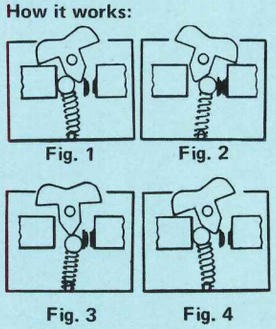


Fig. 1. switch in "off" position (contacts open). As switch lever is rotated, actuating ball compresses the coil spring, but ball must pass pivot point of lever before it can close the contact. As it passes the pivot point it has maximum momentum and closes the contact points positively and rapidly. All independent of hand action (Fig. 2.). As the switch lever is rotated in the opposite direction, Fig. 3, the ball is depressed and slowly releases some spring tension on the contact arm, permitting the contact points to open enough to break the arc slowly. Then as the ball passes the pivot point it completes the cycle (Fig.4.).

The Eagle Heavy Duty Touch-A-Matic Switch operates on a completely different principle than the generally used cam-action switch. This principle is specifically designed for AC use.

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Eagle Touch-A-Matic Switches have both screw and E-Z WIRE® pressure terminals, which permit faster installation at lower cost. Touch-A-Matics are Specification Grade, UL listed and meet Federal Specifications and OSHA standards. Available in Single Pole, 3-way, Double Pole, 4-way; 15 and 20 Amp,120-277V AC only (½ HP, 120V AC), in brown and ivory; and white in some styles. Lifetime Guarantee.

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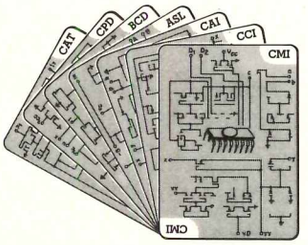

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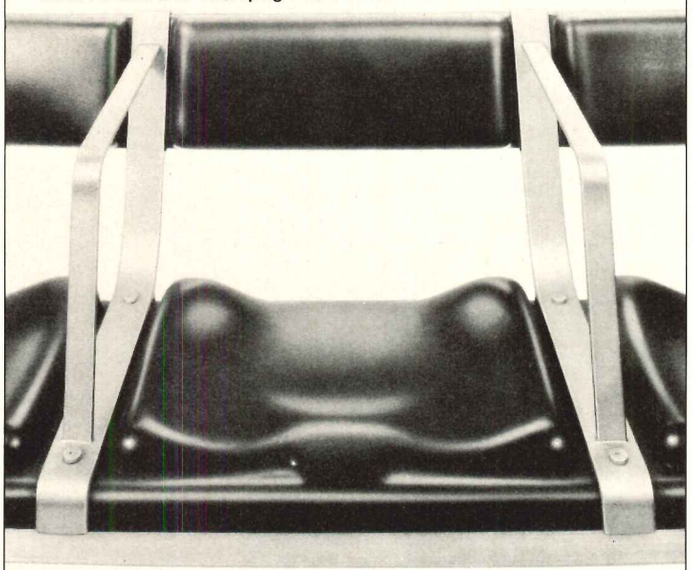

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For more information, write to GAF Corporation, Floor Products Division, Dept. F24, Box 1121, Radio City Station, N.Y., N.Y. 10019.

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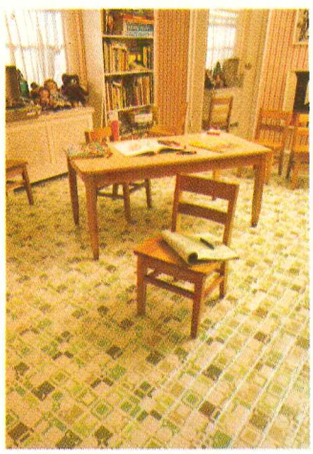

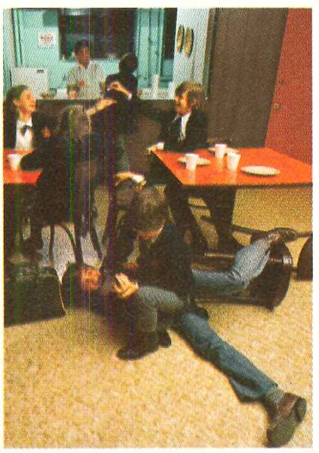

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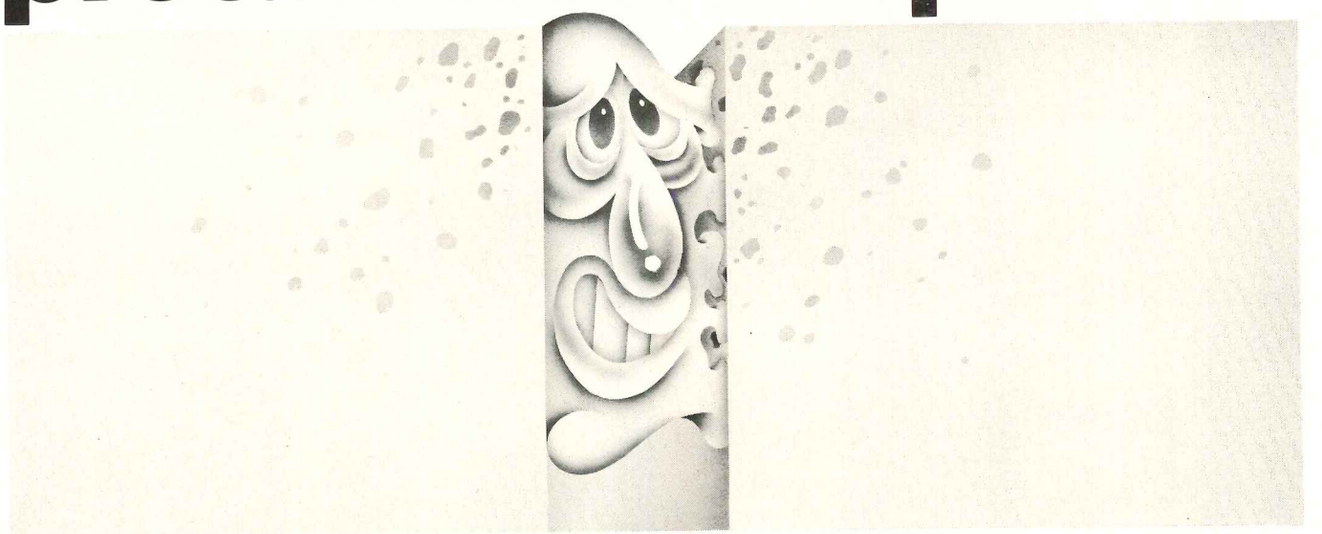
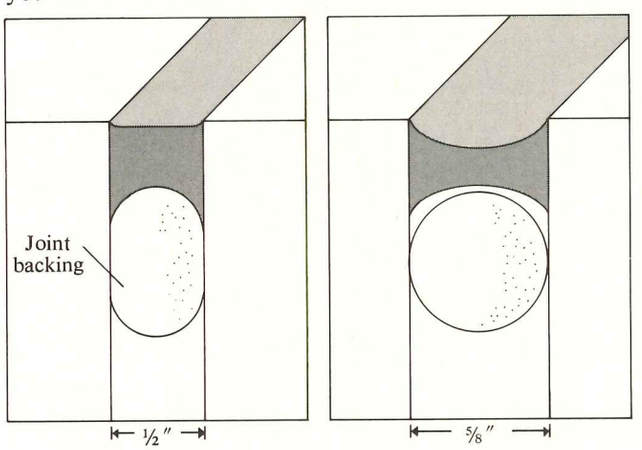
How to avoid sealant problems when you design with precast concrete panels.

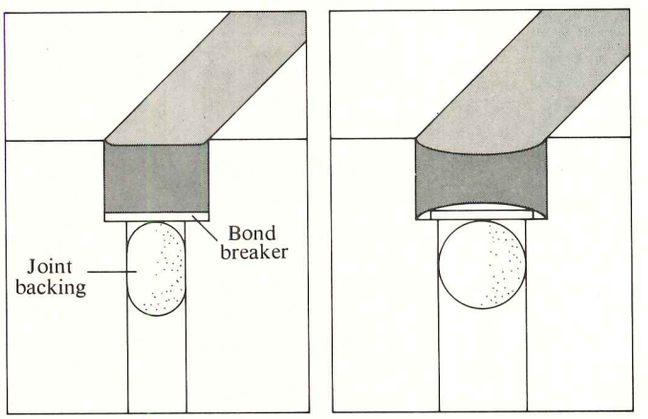


Obviously, you don't want sealant-adhesive failure in the joints between the panels. Your precast contractor doesn't want it. And certainly we — Tremco — don't want it. So here's a brief guide to potential problem areas and tips on how to prevent and solve them.

Let's start with design. When you're designing a joint, be sure it's wide enough to allow the sealant to move within its capabilities. If the joint is found to be too small on-site, it should be saw cut to a sufficient width. A good rule of thumb is to design ½" wide joints for panels up to 15 feet. Larger panels will require a ⅝" or wider joint.

While you're in the design stage is also a good time to meet with your precast contractor and your Tremco man. By discussing some of the following problems, odds are you can avoid them.





Form release agents: friend and foe. Form release agents are helpful in removing dense concrete panels from forms. But they can also become a major problem for sealants.

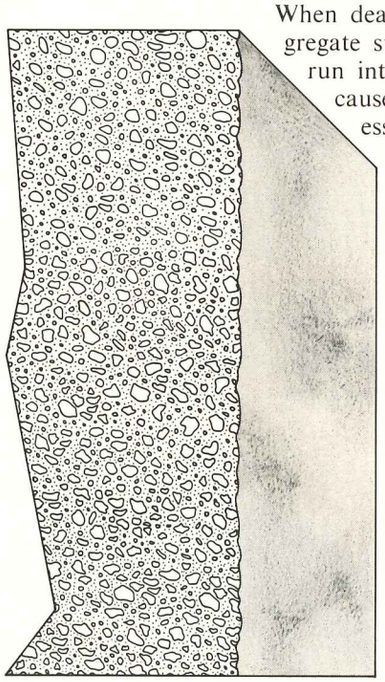
Agents containing wax, oil or silicone create a surface film which impairs adhesion of the sealant bead to the joint interface. When this happens, the sealant may lose its grip. This could happen within weeks or months, depending on the type of sealant and the amount of joint movement.

To prevent this, your precaster should use an agent that will be absorbed by the concrete in the curing process. If your precaster uses new fiberglass forms, he should remove the wax from any portion that comes in contact with the joint interface.

If release agents are found on the joint interface, they must be removed before caulking. The only sure method

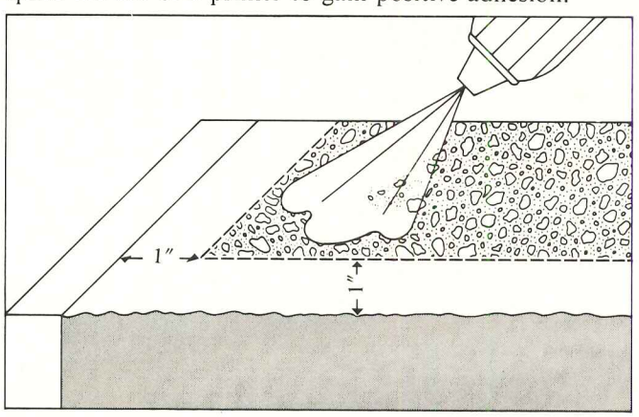
of removal is light sandblasting. If this isn't possible, the job may call for mechanical wire-brushing, grinding or high-pressure water and detergent, depending on the type of release agent used.

Don't take a powder. Another common problem affecting sealant adhesion is laitance — a dusty or powdery condition — of the joint surface. Interfaces should always be checked for laitance. If masking tape picks up loose particles, laitance is present.



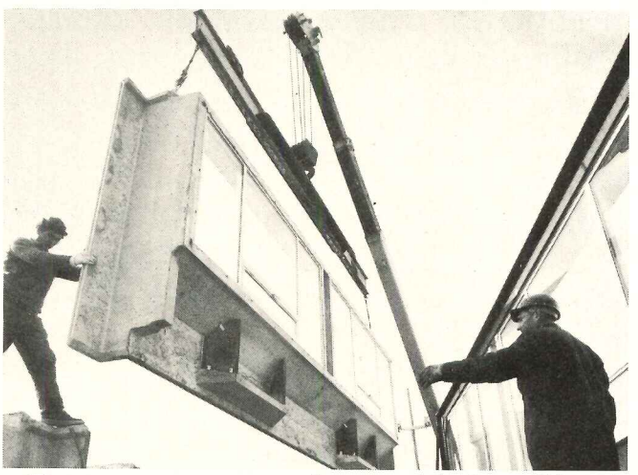
When dealing with exposed aggregate surfaces, you may also run into a powdery problem caused by the retarder process. To prevent this, your precaster should select an application technique that will limit the retarder to the panel face only and prevent migration to the joint interface. The application should stop at least one inch from the panel edge.

To correct either problem, wire-brush. Or use a high-pressure water spray. Or grind lightly. Before caulking, a wipe with an oil-free solvent is recommended. Some sealants may still require the use of a primer to gain positive adhesion.



Waterproofing woes. Waterproofing solutions can also cause sealant failure.

If your precaster is going to apply waterproofing to the panel before delivery, he should mask the joint interface before he sprays the panel. Or, if your specs call for waterproofing when the panel is in place, the caulking should be done first.



There are some waterproofing materials that will impair sealant adhesion. The waterproofing can only be removed by mechanical wire-brushing, grinding, or light sandblasting.

To avoid potential problems, always caulk first, then waterproof.

An ounce of prevention. Remember, your Tremco man will be happy to meet with you and your precaster before the job is begun to discuss effective sealing of the walls and to identify potential problem areas.

You can count on Tremco to help because we've been solving sealant and waterproofing problems for more than 45 years. With some 15 basic job-proven sealants to choose from, such as MONO®, DYmeric®, and Lasto-Meric®, and our unique TREMproof™ liquid polymers and our roof edging system, Tremline™, your Tremco man can recommend the sealant and waterproofing systems that are exactly right for your job.

So talk to Tremco first. And you won't have joint sealing problems later. For help, contact your Tremco rep. Or The Tremco Manufacturing Company, Cleveland, Ohio 44104. Toronto. Canada M4H 1G7.

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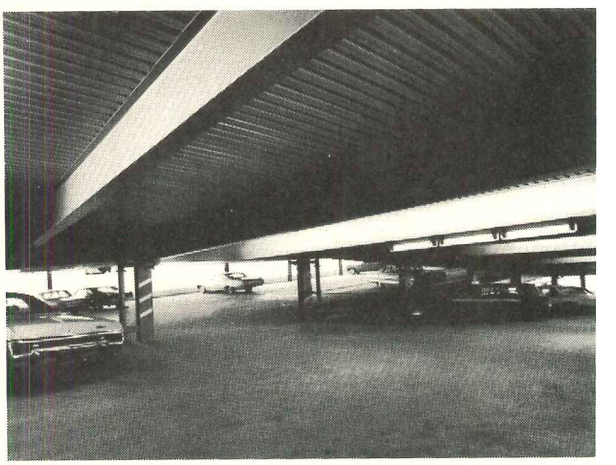

The steel design for this self-park, open-deck garage in Greensburg, Pa., just had to be a contract winner. It had so much going for it: low construction cost, no fire protection required, optimum usable space and fast construction time—for a quick return on invested capital.

No wonder. The garage uses the increasingly popular exposed steel-frame, long-span design concept, with USS EX-TEN Structural Steel. The floors are steel reinforced concrete poured on metal decking.

Project budget was based on low "design/construct" bid. The winning design beat five others, including four pre-cast schemes. Actual cost: only $5.97 a square foot!

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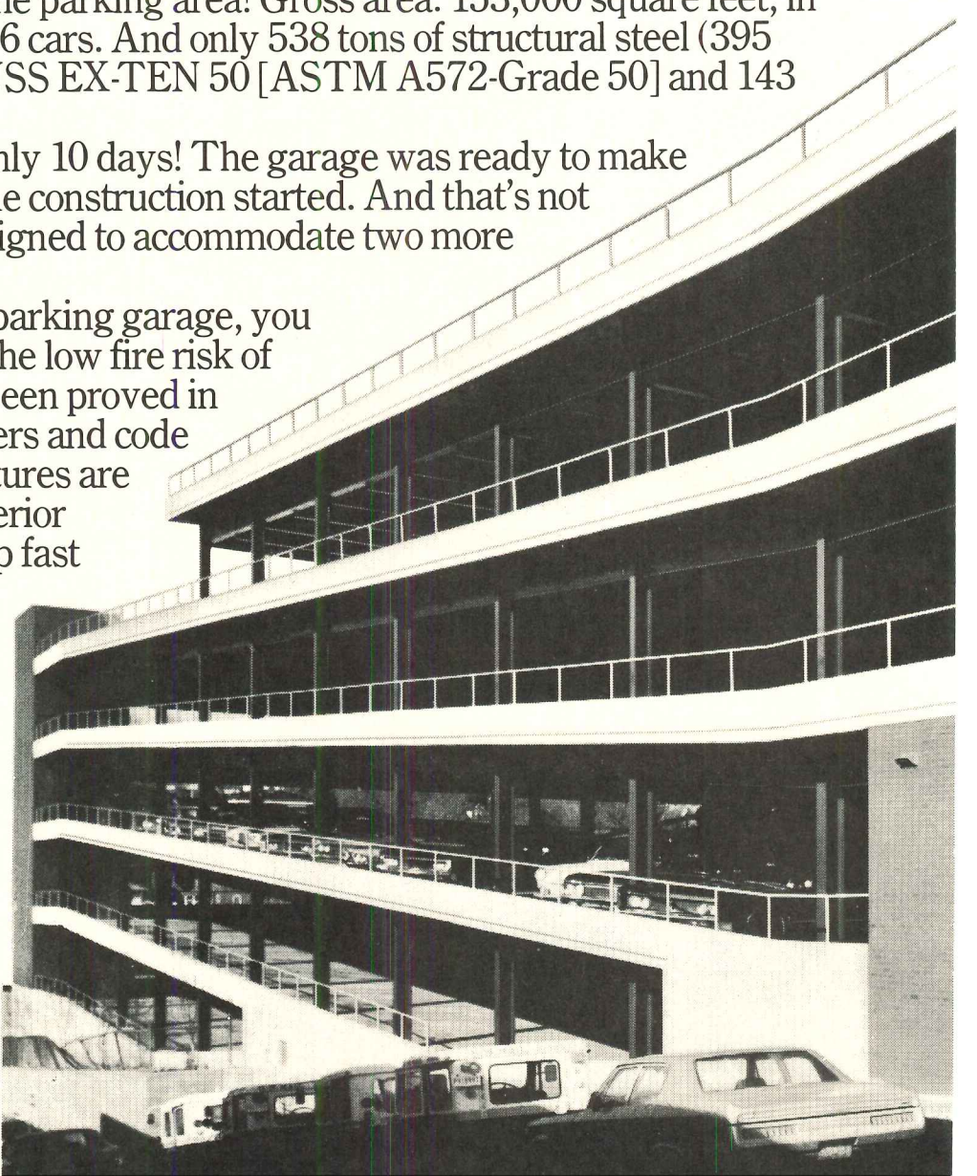
If you're planning or designing a parking garage, you should keep these points in mind: 1. The low fire risk of open-deck, steel-framed garages has been proved in actual tests. And insurance underwriters and code officials recognize this. 2. These structures are lighter, with more usable space, no interior columns, fewer footings. 3. They go up fast because of factors like shop fabrication, modular sub-assemblies and field bolting.



Owner: Greensburg Parking Authority, Greensburg, Pa. *Architect:* Thomas G. Donald, South Greensburg, Pa. *General Contractor:* L-D Building Company, Latrobe, Pa. *Fabricator:* Moore Metal Manufacturing Company, Greensburg, Pa. *Erector:* Penn Erection and Rigging Company, Turtle Creek, Pa.

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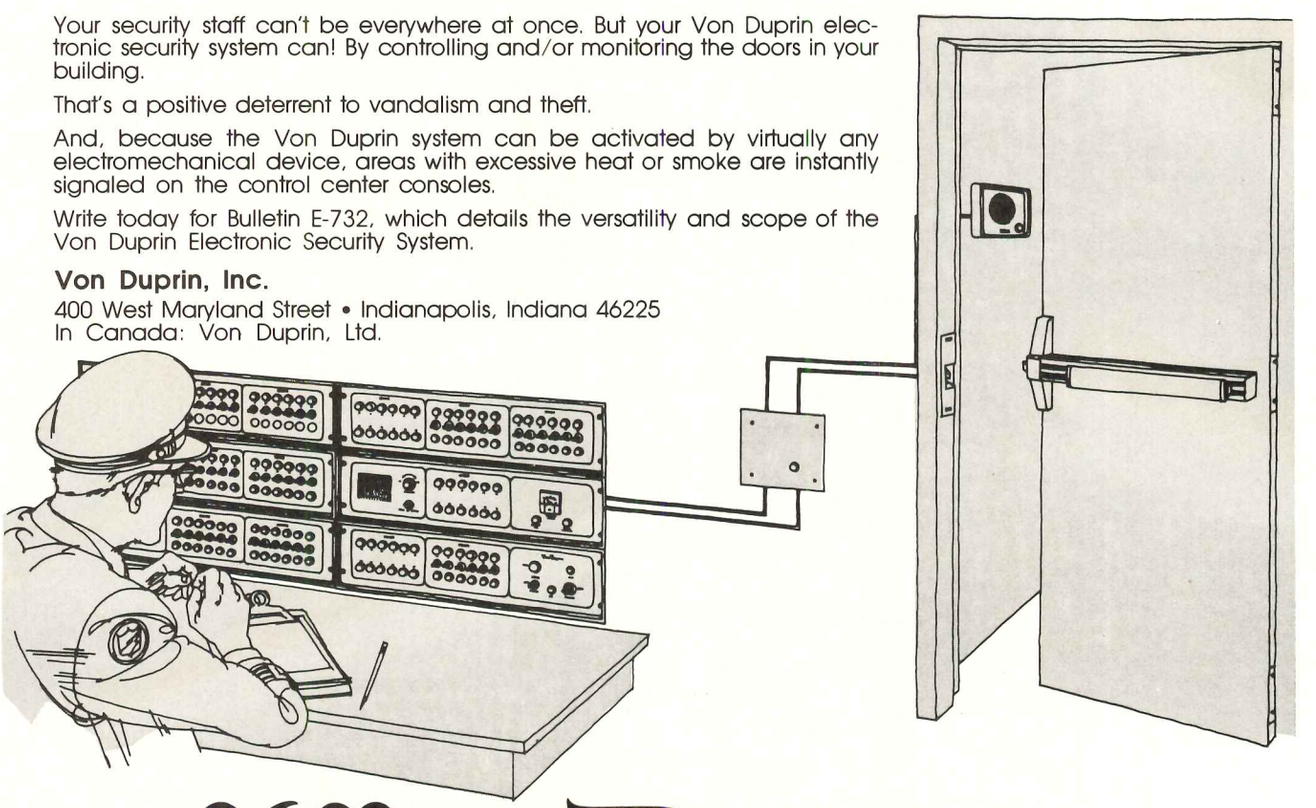

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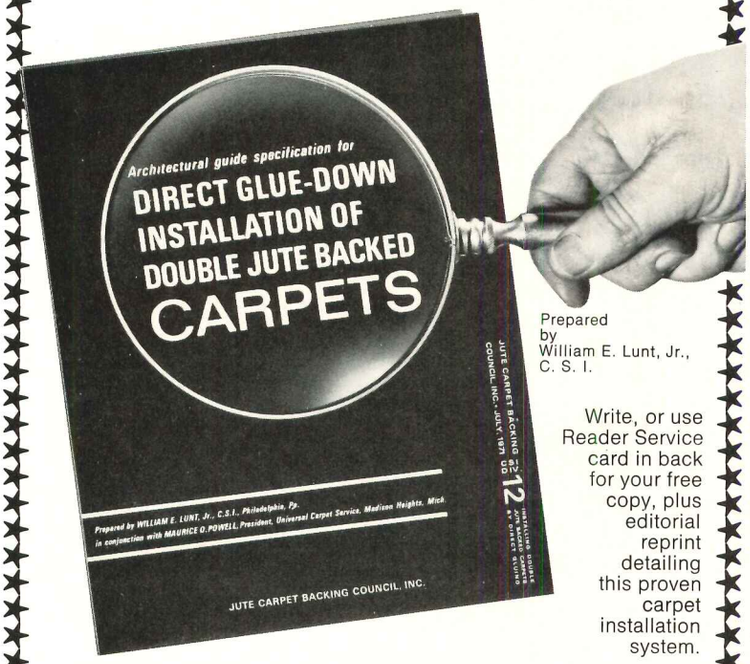

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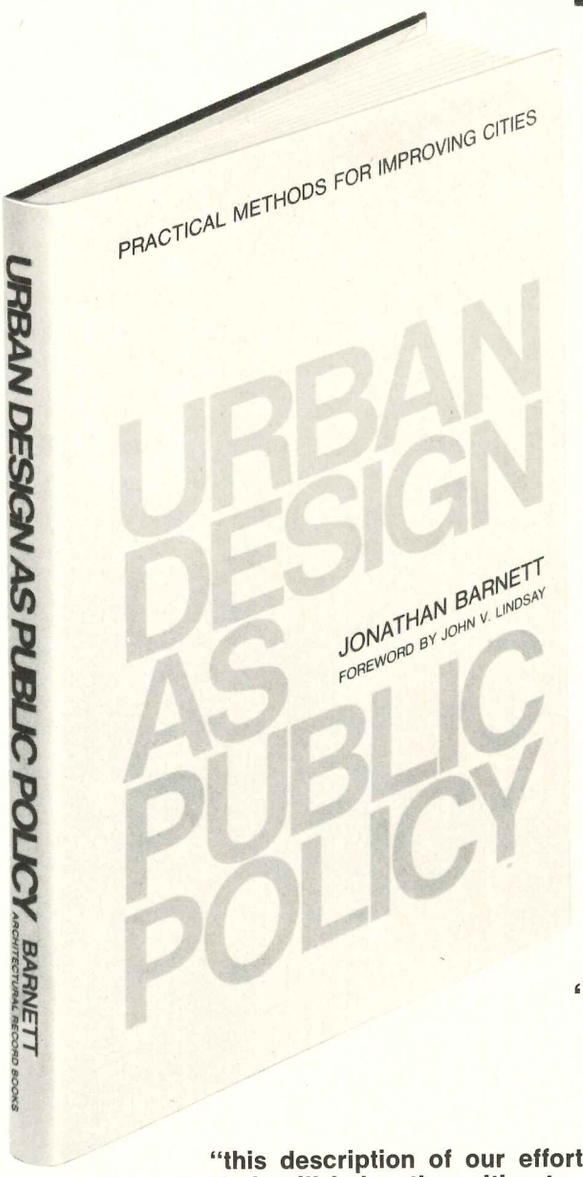

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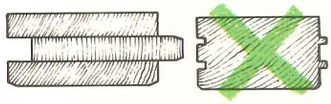

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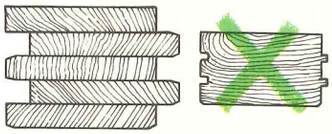
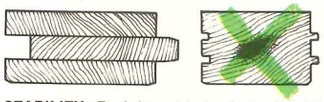


STRENGTH: Lock-Deck offers a range of E factors giving superior load-carrying values in spans to 20′ or more in 5″ thicknesses.



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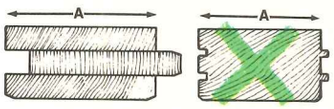
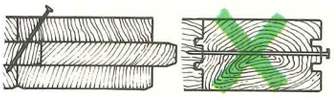


MORE COVERAGE: Offset tongue and groove on Lock-Deck gives more coverage per bd. ft. than machined solid decking.



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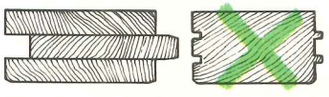

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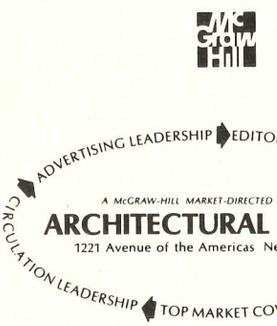

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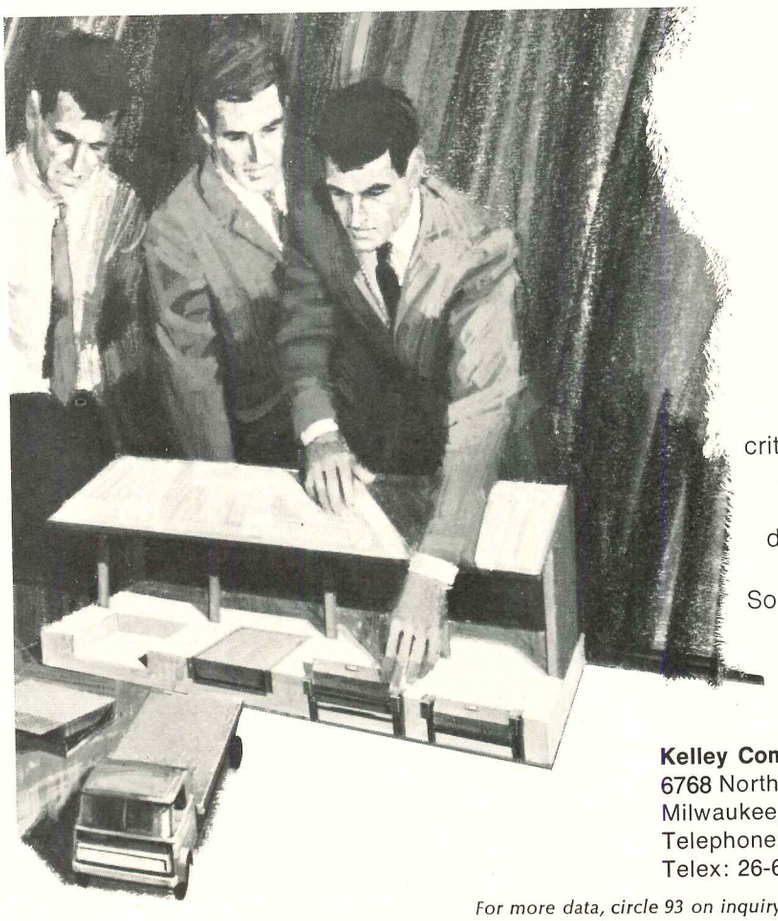

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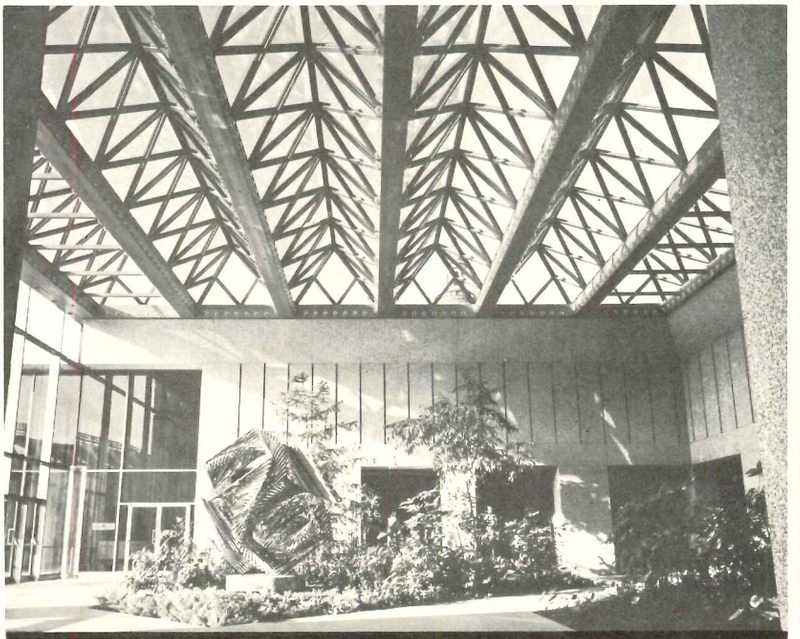

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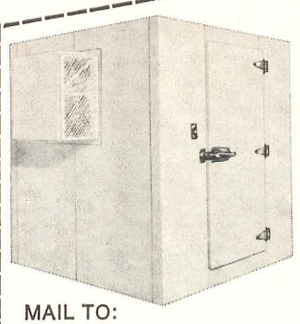

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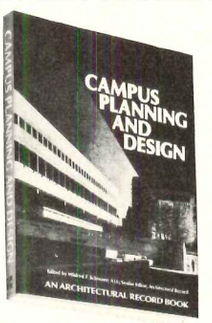

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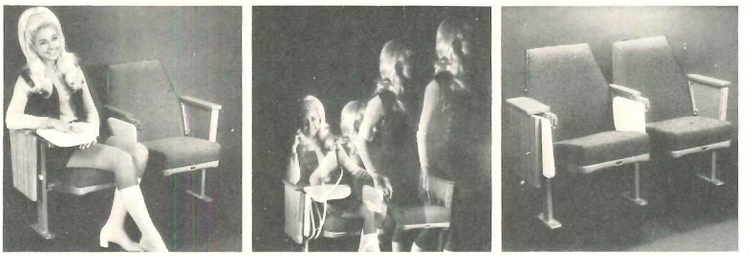

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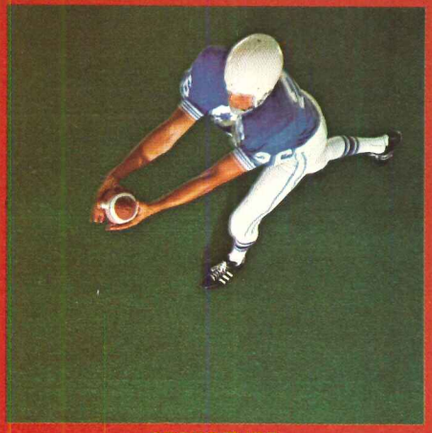

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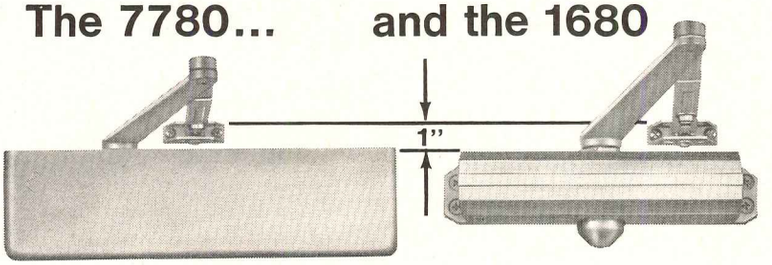

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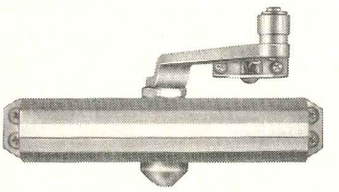

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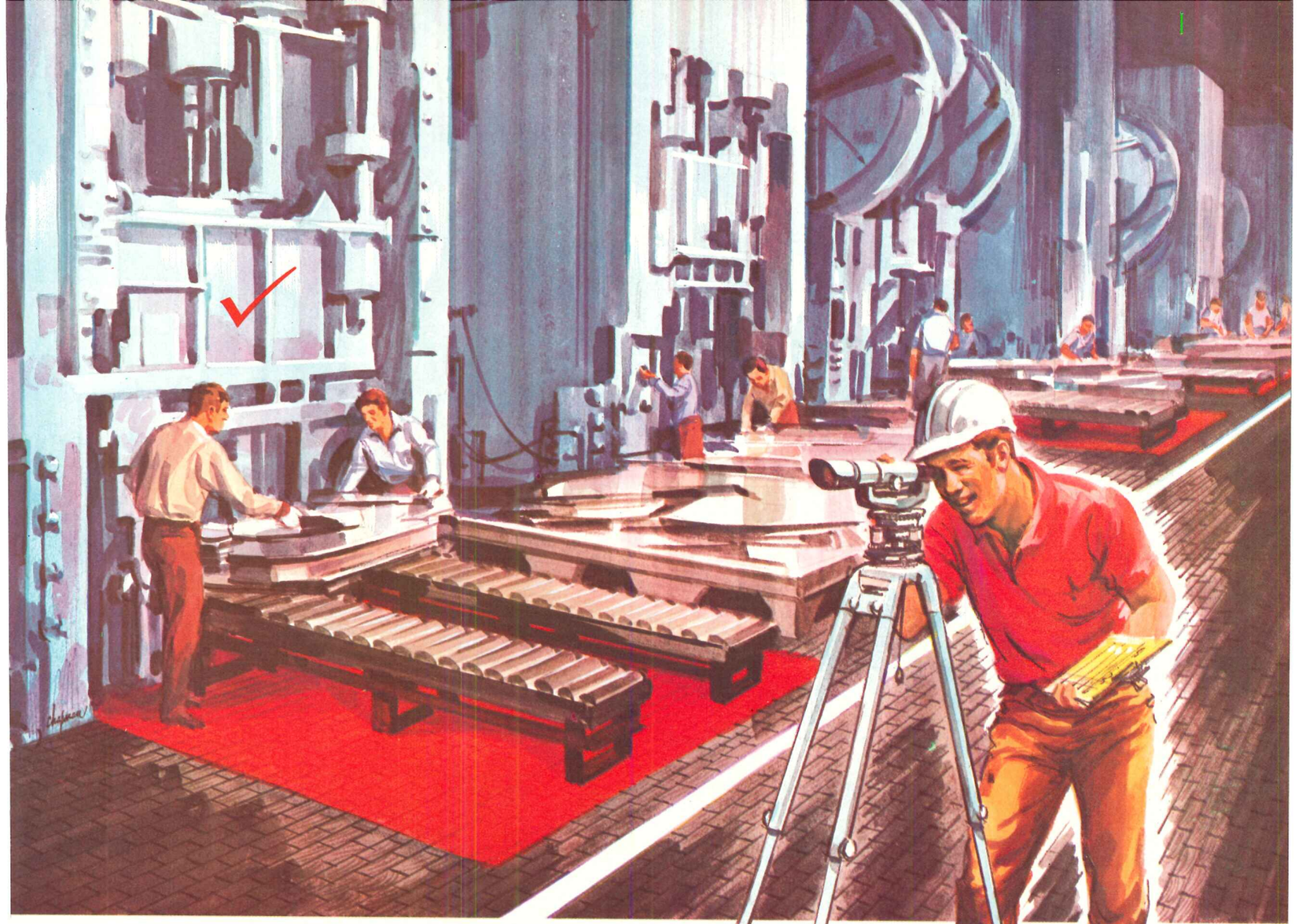

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- Organizing for a productive, professional business development program
- Where and how to attract new clients—while retaining the old ones
- Planning for change, expansion and professional growth
- Evaluating existing and potential markets
- Using business development tools—from job histories to preparation of Standard Form 251
- Specialized intelligence gathering and investigation of leads
- Effective selling preparations—what to do before, during and after the interview
- Successful strategies for getting the job
- Political action
- Associations and joint ventures

"Up to now, the design professional traditionally has had to learn selling techniques essentially by experience, through trial and error, and with no real standards against which to measure the degree of his successes and failures."
from HOW TO MARKET PROFESSIONAL DESIGN SERVICES
a McGraw-Hill book by Gerre L. Jones

These workshops are *not* for the design professional who believes that his client acquisition activities have reached a stage of perfection—or for the firm that, for whatever reasons, is satisfied that it has more clients and contracts than it can comfortably handle over the next 3 to 6 years.

Nor are the workshops geared to firms whose principals are convinced they have achieved the ultimate in
—organization and staff participation in business development
—practice and client mix
—productive, customized, *selling* presentations
—public relations
—all of the tools of job search and acquisition

If you have never attended a professional workshop or seminar on business development, be assured that ARCHITECTURAL RECORD and Building Industry Development Services have assembled the faculty from among the most experienced, knowledgeable people in the field. Discussion leaders will include successful, sales oriented directors of business development from small-to-large firms and client representatives of both public and private sectors. For the first time, participants in ARCHITECTURAL RECORD's Professional Marketing Workshops® will have the opportunity to hear it like it is—from both sides of the marketing fence.

Senior coordinator for the workshops is Gerre L. Jones, executive vice president of Building Industry Development Services, and author of the authoritative McGraw-Hill book, HOW TO MARKET PROFESSIONAL DESIGN SERVICES.

Each participant will receive a set of invaluable course materials for his continuing use. The specially produced course handbook contains ideas, suggestions and sample materials available from no other source.

A unique periodic follow-up program to the workshops assures every participant of continuing interest and advice for up to six months beyond the concentrated two-day workshop session itself.

b.i.d.s. BUILDING INDUSTRY DEVELOPMENT SERVICES
SUITE 104 1301 20th ST. N.W.
WASHINGTON, DC 20036 202-785-2133

Please send complete information on ARCHITECTURAL RECORD's Professional Marketing Workshops® scheduled during 1974, with program outline, costs, dates, locations and other details.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____ ZIP____

TELEPHONE

□ ARCHITECT □ ENGINEER □ PLANNER

□ DESIGNER □ OTHER

1974 SCHEDULE

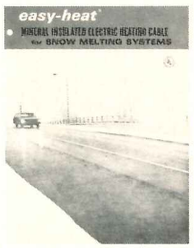
1974 Professional Marketing Workshops® are planned for the following cities:

February	21-22	Washington, D.C.
March	14-15	Atlanta, Georgia
April	17-18	Boston, Massachusetts
May	2- 3	Denver, Colorado
June	6- 7	Chicago, Illinois
September	5- 6	Newark, New Jersey
October	7- 8	Tulsa, Oklahoma
November	4- 5	Houston, Texas
December	5- 6	Phoenix, Arizona

Dates and locations of workshops in other areas for 1975-1976 will be announced.

AE/UPDATE

A classified advertising section devoted to helping architects and engineers keep up to date on building product manufacturers.



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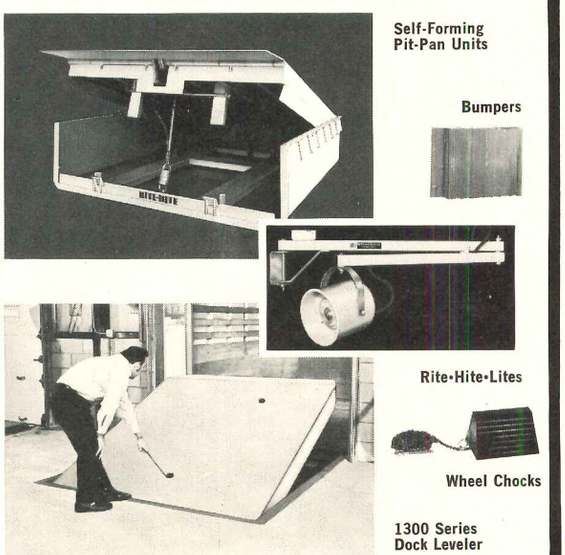

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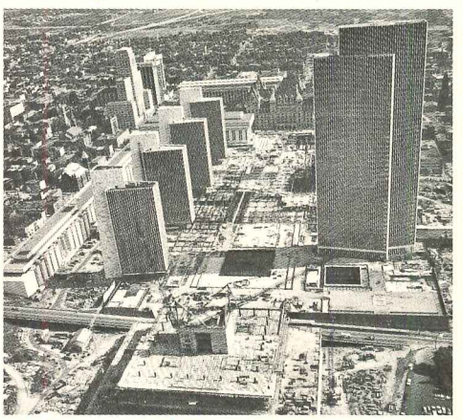
TRANS-VAC® progress report

It won't be long before we'll be cleaning up the Empire State Plaza . . . .



with our giant vacuum cleaner!

Progress Report

While workmen are driving toward completion of the beautiful Empire State Plaza in Albany, New York, a modern vacuum trash collection system is being installed by the TRANS-VAC Systems Division of Montgomery Industries International, Jacksonville, Florida. When completely installed this giant vacuum cleaner system will be the largest fully pressurized central waste collection system in an office complex anywhere in the world.

The Empire State Plaza consists of eight separate office buildings, a meeting center, and a combined library-museum clustered around a huge 5-story main platform. The platform itself, in addition to underground parking, a health laboratory, and other service facilities, also contains a large auditorium which can accommodate 2,800 persons for lectures or conventions, or 1,500 sit-down guests at a formal banquet. The giant complex is intended to provide modern, centrally located office space for a state work force of 11,000 to 12,000 people, many of whom are presently occupying various rented quarters in downtown Albany.

This large concentration of people in the enormous complex led to the decision to install a centralized waste collection and processing system. Otherwise, the Plaza might well have found itself buried under a daily anticipated accumulation of 50,000 lbs. of waste paper and trash (which is equivalent to the trash and solid wastes generated by a typical town of 5,000 people).

System Outline

The refuse handling system presently being installed by TRANS-VAC Systems includes approximately 6,000 ft. of large diameter conveying pipe and some 68 loading stations located in the various office buildings. Although all buildings in the complex will be connected to the waste disposal system, only the 44-story main office tower will have pressurized vertical chutes. Bulk loading stations are being installed in the four 23-story agency buildings and in the platform area, while a motorized cart system will pick up from the meeting center and shopping areas on the main platform. Six Montgomery shredders and four compactors will be employed to reduce the accumulated trash and process it for final disposal.

When fully operational, the entire waste disposal system will utilize electronic computerized control stations to provide proper sequencing and operation. Changes can be made in sequencing so that discharge is regulated from one building to another simply by changing panels in an electronic control station.

Background

Montgomery Industries has been designing, manufacturing, and installing pneumatic conveying systems since 1925. In 1970 the TRANS-VAC Systems Division was created to further develop this fast growing new application of a proven material handling concept in large office buildings, hospitals, hotels, sports complexes, and large residential projects.

We can be helpful

For best results, a pneumatic system should be decided upon during the preliminary planning stages of design. See our Catalog 11.25/Tr in SWEET'S 1974 Architectural Reference File. Please write or phone Dept. AR for additional information and/or design assistance.

TRANS-VAC® SYSTEMS
A Division of MONTGOMERY INDUSTRIES INTERNATIONAL
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JACKSONVILLE, FLORIDA 32206
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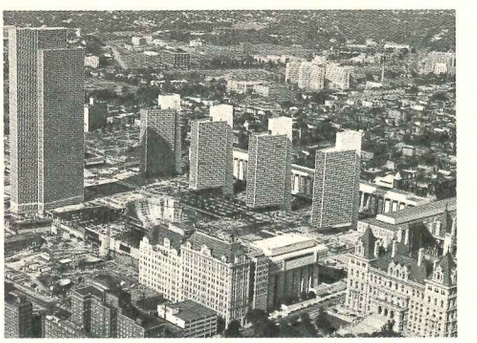
All TRANS-VAC Systems are custom designed for each structure in which a pneumatic system or a waste disposal system is desired. Systems are designed around the architect's preliminary structural layout for new construction projects or for renovation of existing facilities. Each system design considers:

- The characteristics of the materials to be conveyed.
- Location of loading stations.
- Conveying velocities throughout the system.
- Sizing and placement of collector hoppers to receive the conveyed material.
- The blower requirements to provide the best combination of initial cost and operating cost in order to minimize the total investment by the customer.
- Whether or not a shredder should be used in connection with a waste disposal system for processing the solid wastes prior to hauling away, compaction, or incineration.



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Yes, it won't be long before TRANS-VAC is cleaning up the Empire State Plaza with its giant vacuum system . . . . just one of over 30 TRANS-VAC installations currently under contract or in operation throughout the U. S. and abroad.

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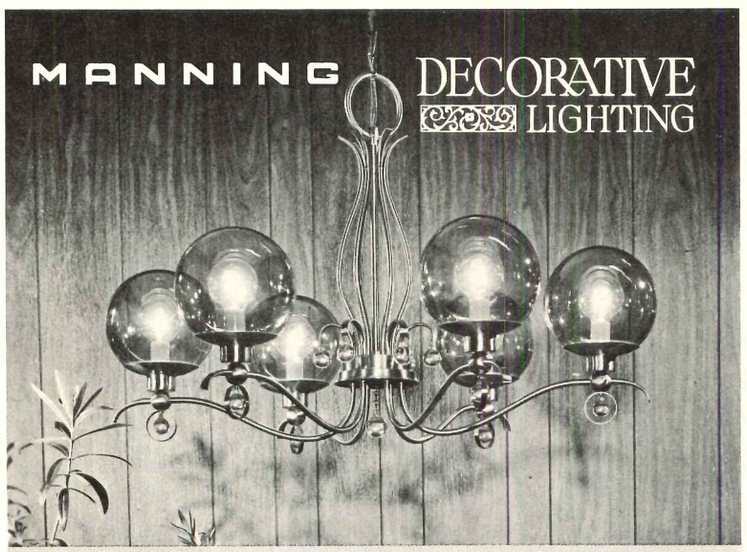

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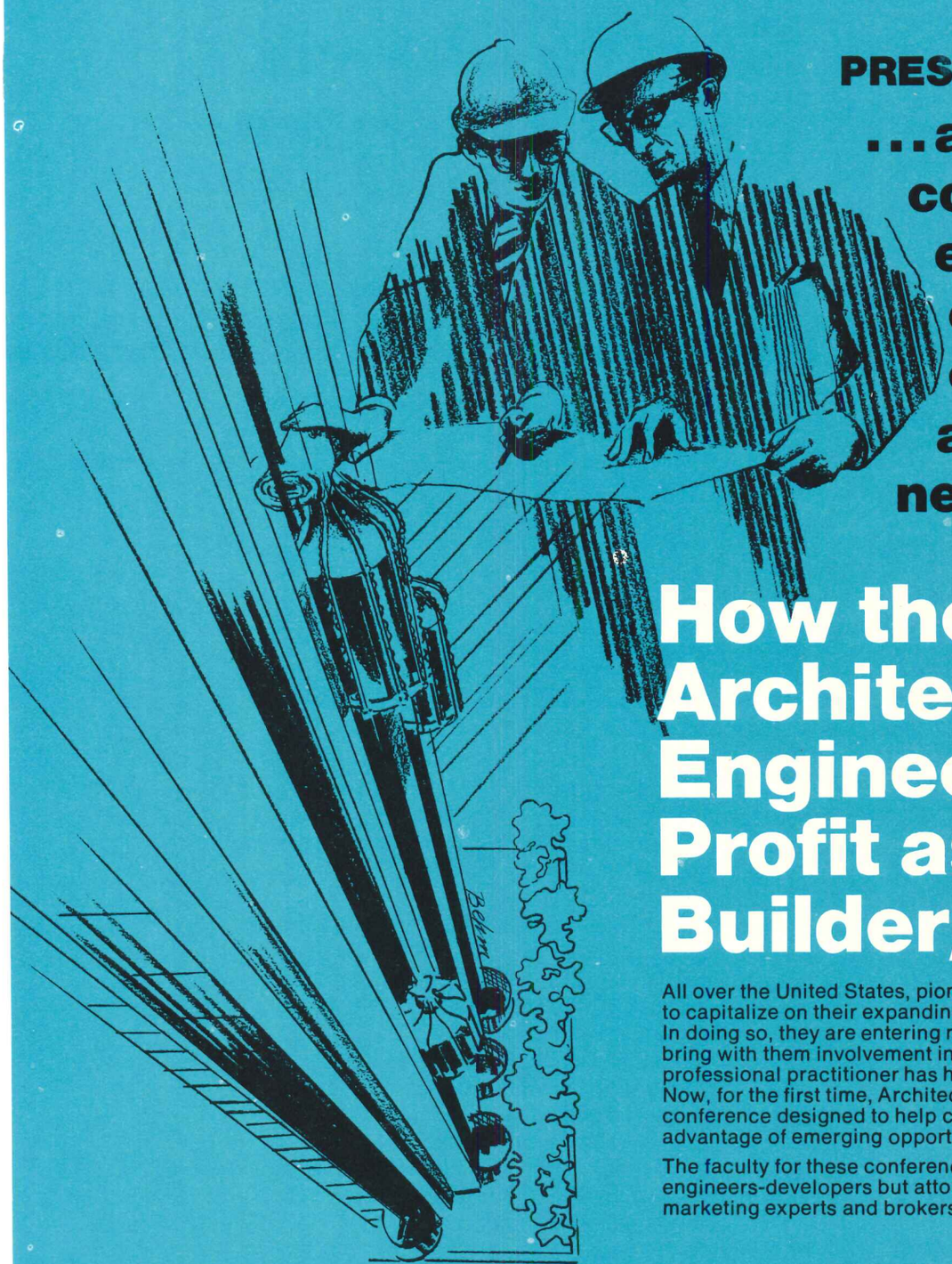

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Conference Highlights

- Feasibility Studies—how to determine the potential marketability and profitability of a project
- Land acquisition—how to choose the right land—how to secure favorable zoning
- Project financing—an evaluation of the alternative methods of real estate financing—how to find the money
- Legal and ethical implications of the architects involvement in development building
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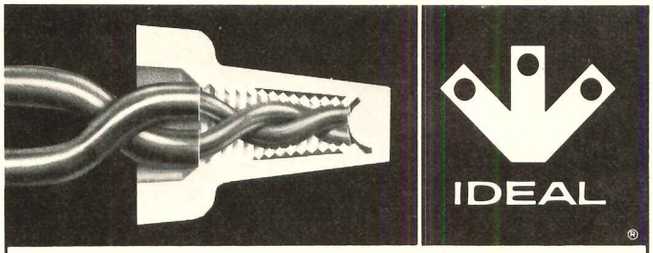

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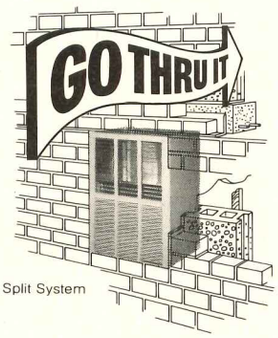

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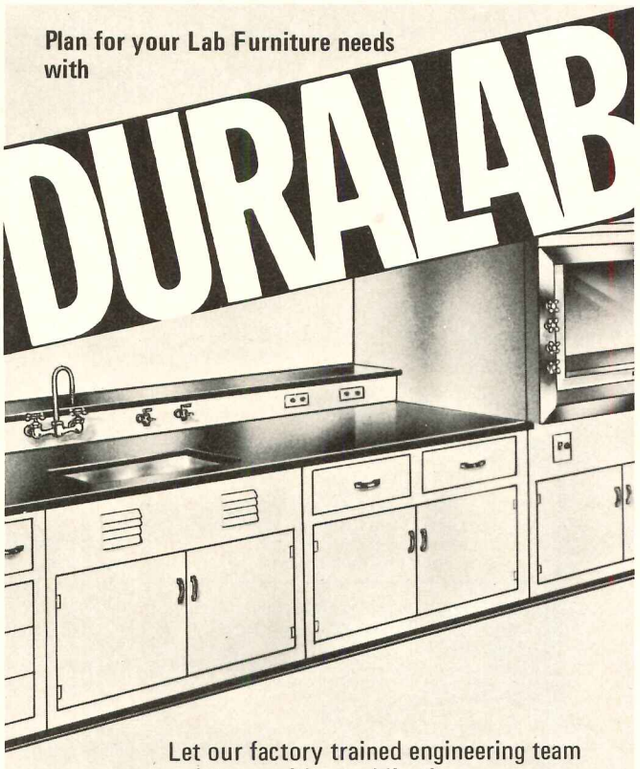

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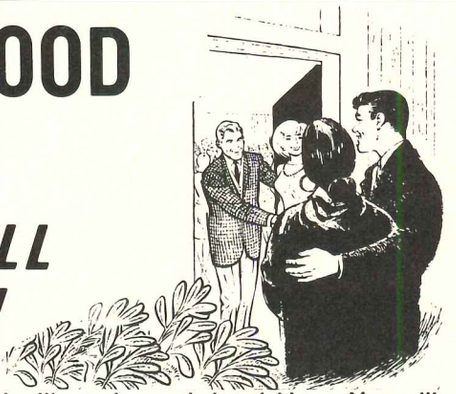

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First, it's later than you think, with schools closing on different semester schedules, and students torn between lining-up "sure" jobs now or gambling that something in their chosen field will come along later.

Second, and most important, it's in our industry's best interest to encourage and hold its life-blood by providing practical experience in their future profession.

And, since there'll always be more applicants than openings, you'll be able to select the cream of the crop, then evaluate them with an eye towards hiring, when as coveted graduates, the job market might well be in their favor.

Because we believe this program is of mutual benefit to both employer and employee alike, we again offer our services as a clearing-house.

Just fill out and return the coupon below, and we'll include your organization in a free listing to be sent to Placement Directors and Department Heads at leading colleges and universities across the nation. They'll post it, and the students will contact you directly.

Free summer help listing

MAIL TO: ARCHITECTURAL RECORD/POST OFFICE BOX 900/NEW YORK/NY 10020

NAME/TITLE (of individual to be contacted)

ADDRESS: (Mailing address of your personnel office)

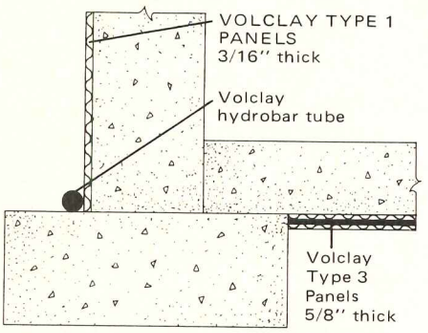
ORGANIZATION: (Firm, Company, Government Agency or Institution)

TYPE AND NUMBER OF STUDENTS SOUGHT: Architect Civil

Mechanical Electrical Other: (Draftsman, Illustrator, Model Builder, etc.)

2/74

VOLCLAY
THE WATERPROOFING THAT WORKS



Above illustration shows concrete structure with Volclay Type 1 and 3 Panels.

When you specify Volclay to your clients you are assuring them of positive waterproofing. Simple to install, Volclay provides substantial costs reduction. Volclay is granular bentonite packed in the corrugated flutes of bio-degradable kraft panels. Anaerobic action degrades the panels leaving an inorganic Volclay bentonite water barrier to activate into gel by moisture in the soil. The overlapped panel edges self seal—there is no leakage.

VOLCLAY TYPE 1 PANEL

For use on sub-surface exterior concrete walls, under slabs designed to withstand hydrostatic pressure, and over earth filled concrete tunnel roofs and decks. Also easily attached to soldier beams and lagging. Panels are 4' sq. and 3/16" thick.

VOLCLAY TYPE 3 PANEL

Made with three laminated bio-degradable kraft boards the VOLCLAY Type 3 panels are designed for use under non-structural slabs 4 to 6 inches thick. The center board is packed with dry granular VOLCLAY, the two outer boards are empty. The hollow outer flutes provide space for expansion when moisture in the soil activates the center panel's VOLCLAY core. The kraft decomposes leaving a pure gel water barrier under the slab. Panels are 4' sq. and 5/8" thick.

VOLCLAY HYDROBAR TUBE

Illustrated above, this water soluble tube is filled with dry granular VOLCLAY bentonite. The tube is placed along the base of the first panel course on sidewall applications providing protection at the foundation footing joint.

For complete technical data on Volclay write for Bulletin VP-300.

AMERICAN COLLOID COMPANY
Building Materials Division
5100 Suffield Court
Skokie, Illinois 60676

For more data, circle 128 on inquiry card

ADVERTISING INDEX

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A Architectural File (green)
I Industrial Construction File (blue)
L Light Construction File (yellow)
D Interior Design File (black)

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2-5, 3-chome, Kasumigaseki, Chiyoda-ku, Tokyo, Japan

Glasweld gives you the durability of masonry, the beauty of glass, the flame-resistance of stone, and the low cost of Glasweld.

Oregon Institute of Technology, Klamath Falls, Oregon.
Skidmore, Owings & Merrill, Architects.

With all that going for it, no wonder the architects chose Glasweld® for this building in Oregon.

And no wonder builders and architects are using Glasweld to achieve interesting effects on low-rise buildings, as well as skyscrapers.

Glasweld is a flat, inorganic fiber-reinforced panel, coated with an all-mineral, colored enamel surface.

It is highly versatile, too. Except for the windows, all major surfaces in this photograph are Glasweld. Window-wall insert panels, fascias and fabricated coffer soffits. Even interior wall linings.

Another feature is permanence. The kind you find in the very best grades of porcelain enamel and ceramic tile.

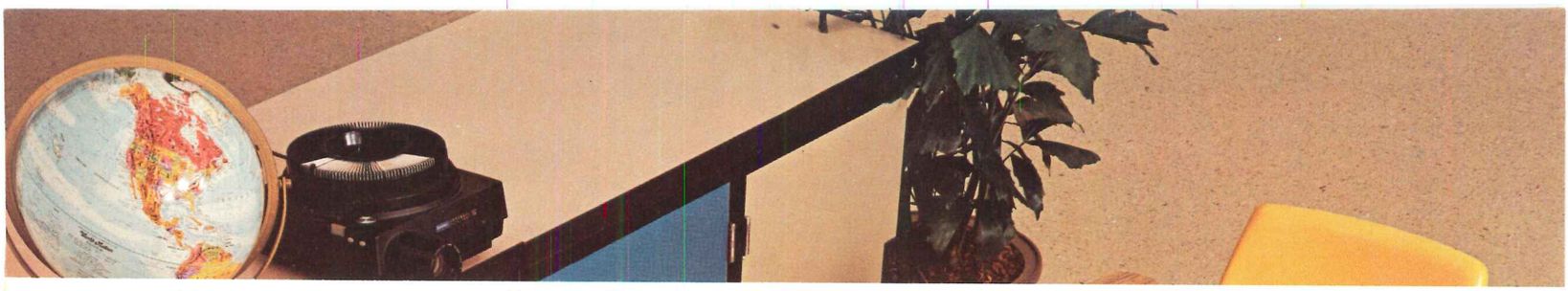
As if that weren't enough: Glasweld is incombustible, waterproof, impervious to stains, simple to cut and drill, and easily applied. So, installation and maintenance costs are low.

But the real beauty of Glasweld is on the surface. The fine-brushed slate surface, the two textured sand finishes, and the 23 other colors.

Like to know more? Contact your U.S. Plywood Branch Office. We can tell you all about Glasweld *and* the rest of our extensive line of exterior cladding.

EXTERIOR CLADDING BY
U.S. Plywood
777 Third Avenue, New York, N.Y. 10017

U.S. Plywood Division Champion International



Azrock—the best buy in flooring...

for Schools

Azrock vinyl asbestos tile is the best buy in flooring, because it serves more educational facility requirements better than any other type of flooring. Yet it costs less than half of what it did 20 years ago. Here's why you can specify Azrock with confidence:

- Fire safe, will not support combustion
- Over 25 years proved performance in schools
- Gives taxpayers more school for dollars spent
- Low initial cost—long-lasting durability
- Low-cost no-wax maintenance
- Performs longer, looks better with minimum maintenance than any other flooring
- Low repair or replacement cost
- Shock proof
- Non-allergenic, mildew proof, no odor retention
- Exceeds federal specifications
- Styled to coordinate with contemporary interiors

More vinyl asbestos tile is used in schools than any other kind of flooring. Keep taxpayers happy and save funds for better education with low-cost Azrock vinyl asbestos tile—the best buy in flooring.

Floor shown: Custom Cortina, one of over 150 colors and styles.

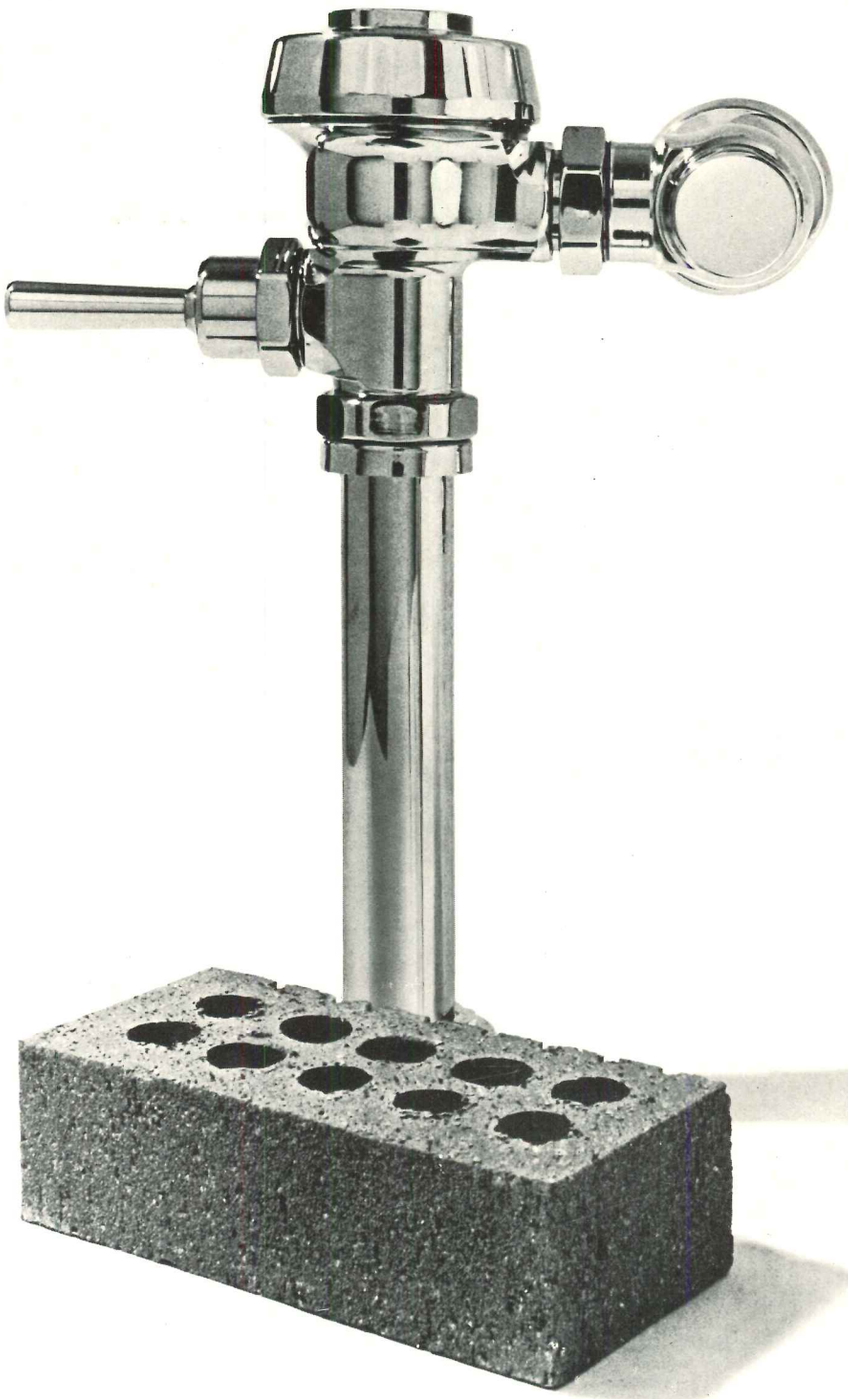
the vinyl asbestos floor tile people

AZROCK®

Write for free samples and No-Wax Maintenance information. Azrock Floor Products, 525A Frost Bldg., San Antonio, Texas 78292.

For more data, circle 132 on inquiry card

The sure way to save water- without a brick



People have been putting bricks in toilet tanks for years.

It's an old trick that shuts the water off sooner than normal after operation and one which has received a lot of recent publicity.

You save one brick's worth of water—the brick's displacement volume. But you still may be losing many bricks of water due to leaks.

These days there's a better way for saving water and eliminating leaks,

The Sloan Flush Valve.

The Sloan Flush Valve positively prevents water waste.

It meters out water, automatically shutting off after delivering a sufficient amount to satisfy the requirements of the fixture.

You can't hold a Sloan Flush Valve open. It won't let you. Each flush uses the same minimal amount of water every time and does so for the life of the building.

So if you really want to save water, use flush valves—Sloan Flush Valves.

Sloan Flush Valves save water. Lots of it.

SLOAN VALVE COMPANY
10500 SEYMOUR • FRANKLIN PARK, ILL. 60131

For more data, circle 133 on inquiry card