



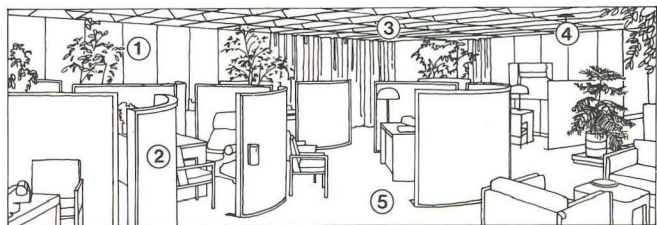
HUMANITIES BUILDING, SUNY CAMPUS AT PURCHASE, NEW YORK BY VENTURI AND RAUCH
MUSEUMS: A PORTFOLIO OF DESIGNS FOR DISPLAY
ROUND TABLE: PUBLIC PROCUREMENT OF A-E SERVICES
BUILDING TYPES STUDY: OFFICES IN THE SUBURBS
FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

OCTOBER 1974 **10** A MCGRAW-HILL PUBLICATION THREE DOLLARS PER COPY



**New from Armstrong.
The first pre-engineered package
of products for the open plan office.**



**It combines acoustical and
visual privacy, air distribution, and
quality lighting, with good looks, too.**

Until now, you've had to deal with as many as five or six different suppliers to put together the various elements required for a successful open office plan.

Now, Armstrong offers a complete product package that functions well, looks as good as it works, and provides, for the first time, a *single-source responsibility*.

1. Soundsoak™ Wall Panels*

These panels are made of an acoustically efficient mineral fiberboard mated to a soft modacrylic fabric. They can be easily installed on interior walls and other flat surfaces and make a substantial contribution to the control of reflected sound.

Available in a wide choice of modern colors, Armstrong Soundsoak Panels are decorative as well as functional. They're 30" wide and available in either nine- or ten-foot heights.

2. Soundsoak Divider Screens

Screens are an indispensable element in efficient open office planning. They provide effective separation of work

*Patent pending



stations, contribute to acoustical and visual privacy, and add splashes of color to the room. Freestanding and easy to move, they are covered with a tufted-nylon fabric in a wide choice of colors which coordinate with the wall panels. Both curved and straight types are available in five-foot width, and there is a choice of a five- or six-foot height. All models offer a trim selection of either walnut-finished wood or bronze anodized aluminum.

3. C-60/30 Luminaire Ceiling System

The most important factor in open planning is acoustical privacy, and the ceiling is the key element in achieving that privacy. The Armstrong C-60/30 Luminaire Integrated Ceiling System provides not only acoustical efficiency but also other important open plan environmental factors such as quality lighting and draft-free air distribution.

In the 100%-vaulted configuration, using a special 1" Classic Open Plan ceiling board, the C-60/30 System

complies with the GSA PBS-C.1 performance specifications for a Speech-Privacy Potential of 60**

4. Sound-Masking System

The Armstrong open plan package includes a completely integrated and matched electronic sound system that introduces into the working area sound of the proper intensity and frequency content to help attain the desired level of speech privacy. The system can be "tuned" to provide evenly distributed, nondisturbing background sound to any open plan space.

5. Armstrong Floors

To complete the open plan visual package, Armstrong offers a selection of flooring materials. If carpet is your choice, there is a wide range of colorful Armstrong Commercial Carpets that will add warmth and quiet to any open plan.

Where the practicality of resilient floors is called for, Armstrong Quiet Zone® Vinyl Corlon® is the answer.

**at 10' 6" interzone distance

Thanks to its generous foam-cushion backing, it's both quiet and comfortable.

That's the Armstrong five-in-one open plan package. For more information, mail this coupon to Armstrong, 4210 Rock St., Lancaster, Pa. 17604. In Canada, write Armstrong Cork Canada, P.O. Box 919, Montreal 101, Quebec. *For more data, circle 1 on inquiry card*

Please send me your 16-page brochure and complete information on the Armstrong package of open plan products.

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

FROM THE  INDOOR WORLD® OF
Armstrong

HOW STEEL FABRICATORS, INC. TAUGHT EVERYONE A LESSON AT THE HARRISBURG MIDDLE SCHOOL.

The lesson was how to cut three to six months off the design and construction time for completing a school.

The teaching materials were Vulcraft's steel joists and joist girders as utilized in Steel Fabricators' "Fab-Lok" structural subsystem, which made "fast track" construction scheduling possible for this job.

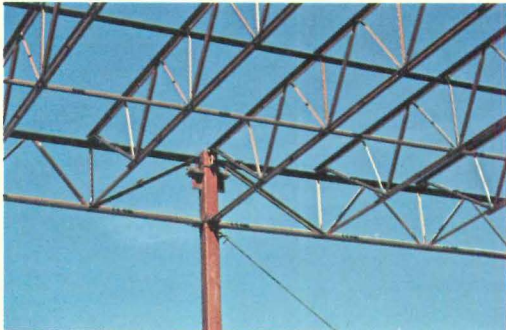
By using Vulcraft steel joists and joist girders instead of concrete, the structural work on the building could be started before the final design was completed. Because Vulcraft's joist girder system utilizes a standard five-foot panel point spacing.

Knowing this allowed designers to standardize lighting/ceiling components as well as heating, ventilating and air conditioning components. And layouts for wiring, ducts and pipes. Also, because Vulcraft's steel joists use an open web construction pattern, installation of all wiring, ducts and pipes goes easier and faster. They actually can

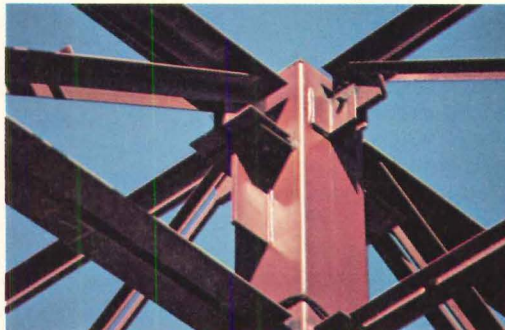
pass right through the joists and joist girders.

The light weight of Vulcraft's joists and joist girders offers other advantages, too. Erection is easier and faster. Supporting columns can be spaced further apart to provide for larger bay areas. And foundation size can be decreased.

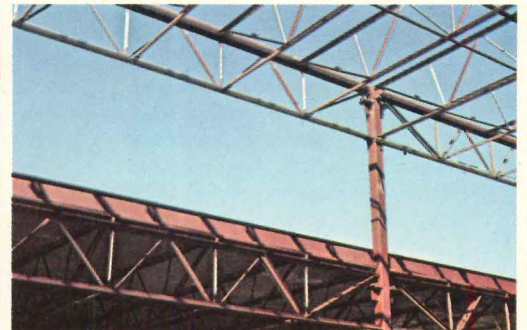
The "fast track" technique worked in Harrisburg, Pennsylvania. Plus ten other schools throughout the country where Vulcraft steel joists and joist girders have been used by Steel Fabricators, Inc.



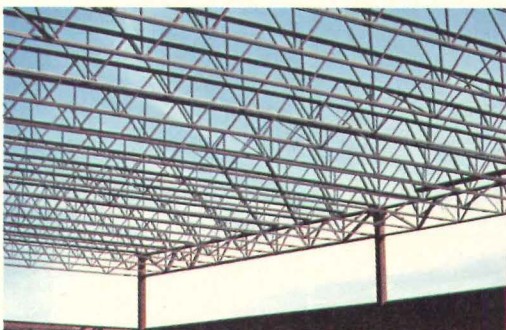
Vulcraft's steel joists and joist girders allow a standard five-foot module between connecting points.



The standardization of column connection also speeds up construction. And requires fewer connecting bolts.



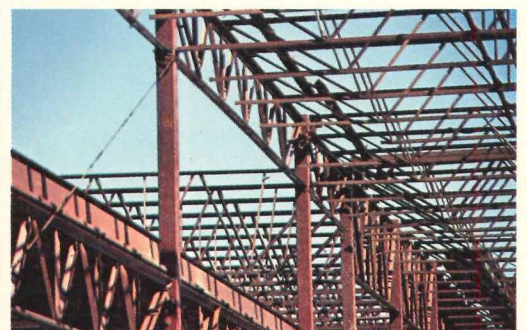
The light weight and simplicity of Vulcraft's steel joists and joist girders make erection fast and easy.



The open web feature of steel joists and joist girders allows ducts, pipes and wiring to pass directly through the steel members.



The high strength of steel joists and joist girders provides increased clear span area, allowing larger bays.



The ease and versatility of designing with steel joists and joist girders solve otherwise complex design problems.

And it can work for you. Just contact your local Vulcraft representative for your Joist Girder Specification Guide. Or write Vulcraft, P. O. Box 17656, Charlotte, North Carolina 28211 to learn how to speed up your work. Or call (704) 366-7000.

We have the know-how. And we have five plants located throughout the country to make sure your deliveries are there on time.

After all, when school time rolls around, nobody wants to be late.

VULCRAFT

Architect: William Lynch Murray & Associates, Harrisburg, Pennsylvania. Erector: Walsh Steel Services, Pittston, Pennsylvania. General Contractor: Ritter Brothers Construction, Harrisburg, Pennsylvania. Steel Fabricator: Steel Fabricators, Inc., Fort Lauderdale, Florida. Consulting Engineer: Quentin Bowers, P. E., Harrisburg, Pennsylvania.

For more data, circle 2 on inquiry card

Letters to the editor

Having acquaintance with your publication for over ten years, and now acquiring almost every issue since the year 1948, I find myself compelled to comment on the excellence of ARCHITECTURAL RECORD's performance, both past and present.

In a field of art and science that direly needs continual upgrading of one's knowledge, the RECORD adequately serves that purpose. Moreover, I feel the dedication to Building Types Study and new materials is invaluable to practicing architects and, like myself, devoted students of the architectural arts.

In the area of spotlighting notable accomplishments of architectural design, it is both knowledgeable and pleasurable to read of others and their successes at esthetic, functional design and construction.

Looking to your continued excellence, and your next academic Building Types; and wishing you every success, I remain

*James P. Fleury, Jr.
The Delta Gamma Theta
Alumni Association, Inc.*

Many of us have been waiting a long time to read an Editorial calling on Architects to put aside the "Sackcloth and Ashes" syndrome. You are quite right when you say that Architects should quit being "just plain folks."

Many of us argued with Bob Hastings against throwing away the term Architect. Perhaps one of the problems of the profession is that many of its members enter by the door of architectural engineering, environmental statistics, or some other sub-discipline and are never able to quite see that Architecture is more than "environmental design."

You were right about the need for an AIA Convention, based upon the power of positive thinking. There is much more right than wrong with Architecture and Architects. We need to do something to convince ourselves that this is so.

*Arthur F. Sidells, President
The Sidells Associates
Warren, Ohio*

I take my hat off to a gentleman who is not afraid to write his opinion of our present-day society.

It seems that our members are losing sight of what once was proper and that we all strived for seems to be passé today.

The great majority of the members of the American Institute of Architects worked energetically for five or

more years in college for a degree, which I believe everyone who has received a degree in Architecture is proud of. I know I am.

Whenever a person is elected to a high office or awarded a dignifying type of an award such as the Gold Medal Award or an award for outstanding work of Architecture, these people should be displayed in a prominent place, especially in a function such as the annual ball which is held at all national A.I.A. conventions. To me, they are a symbol of what all Architects should be striving to attain.

You are right, that it is almost un-AIA, not to at least have one Gold Medal winner per year! There are great Architects in this country that I feel are worthy of the Gold Medal. I don't agree that the winner needs to be near the end of his great era of productivity.

These are a few thoughts from one of the common Architects who hopes someday to gain a small award with his work.

*George E. Clayton, Architect
George E. Clayton & Associates
Grand Island, Nebraska*

Your editorial on Architects being "Just Plain Folks" elated me. How can the growth and development of our field of Architecture possibly continue without a sense of pride? The most practical way to attain pride in one's field is to emphasize the progress and good work being done for all to see and scrutinize. The mistakes and shortcomings are to be used as information for improvement, and not be the main focus point of the viewing public. After all, at how many medical conventions do you find the emphasis on publicly degrading or "constructively criticizing" doctors for their shortcomings? Are not the great discoveries and the progress heralded for all to see? Let us have the emphasis and spirit dwell upon the positive for all to see and realize that architects are something more than esoteric dreamers and second-rate sociologists.

*Michael J. Ilko, Jr.
Registered Architect*

Much more effectively, and better than any convention, your magazine—and the others—could show what's good about humane architecture, by showing more and more examples of such, and less and less of the assertive, the scaleless, the photogenic, the heartless.

Joy is for Life's sake.

Start now, not sometime.

*Norman N. Rice
Architect*

Calendar

OCTOBER

18-19 Designers' Saturday, tour of 24 contract furniture showrooms, New York City. Contact: Designers' Saturday, P.O. Box 1103, FDR Station, New York, N.Y. 10022.

19-20 Conference on applications of natural energy, focusing on technologies of solar and wind energy devices. Clark University, Worcester, Massachusetts. Contact: Diane C. Blitzer, 784 Memorial Drive, Cambridge, Mass. 02139.

23 Thirty-fifth Building Products Executives Conference, Statler Hilton Hotel, Washington, D.C. Topic: "Planning Ahead: The Changing Climate for Construction." Conducted by the McGraw-Hill Information Systems Company. Contact: Bernard H. Merems, McGraw-Hill, 1221 Avenue of the Americas, New York, N.Y. 10021. Phone (212)997-3851.

28-29 International conference on "Practical Applications for Air-Supported Structures," Frontier Hotel, Las Vegas, Nevada. Organized by the Air Structures Division of Canvas Products Association International. Contact: Robert Smith, CPAI, 600 Endicott Building, St. Paul, Minn. 55101.

NOVEMBER

4-5 Seminar on How to Market Professional Design Services, Houston. Sponsored by Architectural Record. Contact: Building Industry Development Services, Suite 104, 1301 20th Street, N.W., Washington, D.C. 20036

5-7 National Interior Design Show, Automotive Building, Exposition Park, Toronto. Contact Show offices, 1450 Don Mills Road, Don Mills, Ontario.

DECEMBER

4-6 Third National Bicycle/Pedestrian Planning, Design and Implementation seminar, Vacation Village Hotel, San Diego, Cal. For more information, contact: MAUDEP, Box 722, Church Street Station, New York, N.Y. 10008.

5-6 Seminar on How to Market Professional Design Services, Phoenix, Arizona. Sponsored by Architectural Record. Contact: Building Industry Development Services, Suite 104, 1301 20th Street, N.W., Washington, D.C. 20036.

17-20 International conference on housing for the emerging nations, Tel Aviv, Israel. Sponsored by the International Technical Cooperation Centre in cooperation with the Association of Engineers and Architects in Israel. Contact: ITCC Secretariat, 200 Dizengoff Street, Tel Aviv, Israel.

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, ARCHITECTURE and WESTERN ARCHITECT AND ENGINEER)

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

EXECUTIVE, EDITORIAL, CIRCULATION AND ADVERTISING OFFICES: 1121 Avenue of the Americas, New York, N.Y. 10020. Other Editorial Offices: 425 Battery Street, San Francisco, Cal. 94111; 1249 National Press Building, Washington, D.C. 20004

PUBLICATION OFFICE: 1221 Avenue of the Americas, New York, New York 10020. Second class postage paid at New York, New York 10001 and at additional mailing offices.

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ASSOCIATED SERVICES/McGraw-Hill Information Systems Co.: Sweet's Catalog Files (Architectural, Light Construction, Interior Design, Industrial Construction, Plant Engineering, Canadian Construction), Dodge Building Cost Services, Dodge Reports and Bulletins, Dodge/SCAN Microfilm Systems, Dodge Management Control Service, Dodge Construction Statistics, Dodge regional construction newspapers (Chicago, Denver, Los Angeles, San Francisco).

THIS ISSUE is published in national and separate editions. Additional pages of separate edition numbered or allowed for as follows: Western Section 32-1 through 32-6. POSTMASTER: Please send form 3579 to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520



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Valley Center, Phoenix, Arizona. Owner: Valley National Bank. Architects and engineers: Welton Becket & Associates, Los Angeles.

IN YOU CAN H, FROM LOF.

HOW THE RIGHT GLASS CAN SAVE ENERGY DOLLARS.

It was 114 degrees in Phoenix when the upper right photograph was taken from the Golden Eagle Restaurant in towering Valley Center. Patrons dine in air-conditioned comfort enjoying the aesthetic benefits of LOF Thermopane® insulating units of reflective Vari-Tran® glass. Valley Center's owners enjoy the practical benefits — reduced energy consumption and reduced air-conditioning costs.

Compared to ordinary tinted glass, LOF high-performance glass permitted Valley Center an estimated annual savings of \$27,500 in air-conditioning operating costs. And added efficiencies in controlling solar heat gain enabled substantial reductions in cooling equipment capacity. Initial savings, in this case, were estimated to be \$480,000. Overall, Valley Center's calculated annual energy need for heating and cooling was cut by almost 2.4 million kilowatts.

With Thermopane and Vari-Tran, annual fuel savings and cooling load reduction are precisely calculable and convincingly impressive. Contact Libbey-Owens-Ford Company, 811 Madison Avenue, Toledo, Ohio 43695. One of our architectural representatives will be glad to work with you on your particular design/energy problem.

LOF

For more data, circle 4 on inquiry card

See how corrosion starts, then stops, because of an aluminum substrate.



Scanning-electron photomicrograph (2500X) of test sample of metal siding with an organic coating, exposed to a highly corrosive industrial atmosphere for four years.

The scanning-electron photomicrograph you're looking at shows how any organic coating weathers in time. The coating has become spongelike and retains moisture. Wet cycles last longer. The hydrophilic cells trap such contaminants as sulfur dioxide, which combines with water to form sulfuric acid. Now the corrosive effects of electrolytic action include chemical attack at the interface . . . underfilm problems that can

cause flaking or loss of adhesion . . . and staining or streaking, depending on the performance of the substrate. At this point, however, an aluminum substrate helps to *protect* an organic coating because its natural aluminum oxide film resists the effects of electrolytic action. This stability at the paint-metal interface discourages flaking or adhesion loss. Painted aluminum can be drilled, punched and sawed without concern about chipping or undercutting. If you want color in the second

place, put it on aluminum in the first place. It will last. Especially if you specify an Alcoa® Super Alunalure® finish, the long-life PVF coating that offers the advantages of a super-tough fluorocarbon at a price you can live with.

For more information, see Sweet's Architectural or ICR/PE files. Or write Aluminum Company of America, 1056-K Alcoa Building, Pittsburgh, PA 15219.

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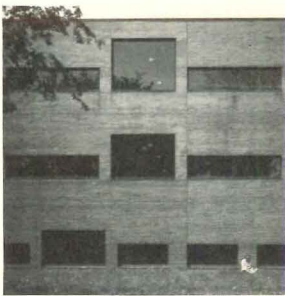
For more data, circle 22 on inquiry card

A woman with blonde hair, wearing a long, sleeveless red dress, stands in a modern building lobby. She is leaning against a large, textured terrazzo planter box. In the background, there are multiple levels of stairs with terrazzo steps and railings. A large indoor plant is visible to the right. The floor is made of large, light-colored terrazzo tiles. The overall atmosphere is clean, modern, and sophisticated.

terr
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o

*its only
limit is your
imagination.*

To meet today's modern design requirements, terrazzo contractors are installing this age-old material in a variety of ways. Poured in place to provide beautiful floors that last and last, and are easy on the maintenance budget. Textured surfaces for curbs, walls or outdoor paving that beautify walks, malls and plazas while adding an extra measure of safety under foot. Precast terrazzo for stairs, decorative accents, even flooring. Because terrazzo is a sensible solution to the rising costs of initial construction and building maintenance, what started as an ancient art is a thriving business today. Get all the facts from your terrazzo contractor or regional technical representative. Or write **terrazzo** 2A West Loudoun Street, Leesburg, Virginia 22075. (703) 777-7683.



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State University of New York at Purchase
Architects: Venturi and Rauch
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—and a request for your personal help

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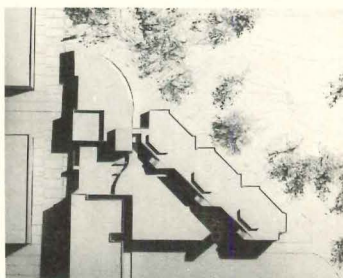
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Recognizing the architect's contract
with his client as a form affecting
artistic as well as business
endeavor, Kathleen Kelly calls on
wide experience in helping to write
contracts for complex projects
in this piece of good advice to
architects. It puts available
standard forms into perspective and
tells architects and engineers when
they may need legal help.

**69 Construction management:
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for budget control**

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professionals in the control of
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factors and goes through several
phases on a given job, according to
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of CM Associates in this fourth part
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A two-day discussion by 22 panelists covered procedures and issues in the procurement of private A-E services by public agencies. Position papers this month deal with Federal issues.

**113 A small private open plan school
by Hardy Holzman Pfeiffer Associates**

The Salisbury School in Salisbury, Maryland for children from nursery school to eighth grade bases its learning environment on the principles of open education. This type of program calls for a comfortable versatile building serving as a series of workshops for the various age levels. The building is as serious, yet fresh as the teaching program it serves.



Norman McGrath

**119 Humanities Building for the State
University of New York at Purchase**

The Humanities Building by Venturi and Rauch is an important new addition to the Purchase campus master plan of Edward Larrabee Barnes. It is shown first on its own, followed by a post-construction evaluation by the architects.

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125 Office buildings in the suburbs

Both speculative and corporate headquarter buildings are sprouting in the areas around cities, and—while the flight to the suburbs may not be the best thing for the cities—a diverse breed of building type is being produced incorporating employee amenities and planning which recognizes the varying conditions of the local landscape.

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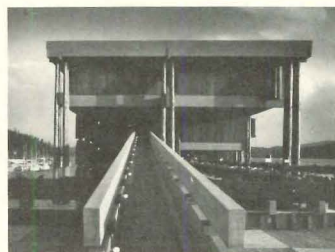
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**141 Automated fabrication enhances
over-all space-truss economics**

Pipe space trusses span 120 ft over the gymnasium and the natatorium of Cleveland State University's Physical Education Center. Programmed cutting and welding equipment in the fabricator's plant made possible clean, economical connections.

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NEXT MONTH IN RECORD

Airports

Planning and design activity for airports is livelier than might be expected, considering cutbacks in projected passenger traffic and the unhappy plight of owners of fabled jumbo aircraft. A strong resource for airport terminal designers is in the facilities departments of airlines themselves. Next month, we'll look at some of the studies and reviews by airlines personnel—they're architects on staff—and then show examples, in U.S. and foreign airports, of current trends in planning and design.

Houses in the San Francisco Bay Region

Three houses of the San Francisco Bay Region bring up-to-date the RECORD's long coverage of its lovely tradition in indigenous American architecture.

Bart Stations

Two Bart stations, less-known than the rapid transit system itself, point up the high design standards that have applied to the system's architectural aspects.

One fixture, three lighting materials and four weeks in a municipal park.

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The International Design Competition: an important refocusing—and a request for your personal help

Since April, we've been writing about what we think is one of the most important and most useful and most innovative design projects ever proposed: a competition for the improvement of urban environment in the developing countries.

We're not the only people that think the Competition is important. The staff of the United Nations Environment Program has enthusiastically endorsed the Competition, has done a great deal of work in several countries to make it feasible, and sees the results of the Competition as a major input to the critically important United Nations Conference Exposition on Human Settlements to be held in Vancouver in 1976.

Hundreds of architects and planners have written expressing enthusiasm for the goals of the Competition, and most have indicated a desire to participate.

And—most important of all (see below)—The International Architectural Foundation, formed to hold the competition, now has a site and a commitment to build the winning design.

But, despite an intense effort, there's a problem—and the problem, not atypically these days, is money. Which is what this editorial is mostly about. But first. . . .

To review: The International Architectural Foundation was formed to conduct the competition—and get architects' input

In their April issues, RECORD and L'ARCHITECTURE D'AUJOURD'HUI announced the formation of the Foundation (IAF) "for the purpose of organizing an International Design Competition open to the professions of architecture and planning throughout the world." The competition was our idea—but now the project (as it should be) is the IAF's.

Original goal was the design of three small new neighborhoods within the existing context of three cities—one in Central/South America, one in Middle East/Africa, and one in Asia/Oceania. Each city was to designate a site, agree to commission the winning designer, and commit itself to building the premiated design—which in itself would be a major contribution. But further, we felt, the competition should provide the best-yet source

Full details in RECORD, April, pages 13 and 14; August, pages 14, 18, and 19; September, pages 226 and 227 and pages 204-205 this issue.

of design ideas for anyone concerned with the urban planning and architecture for the poor, because the winning designs (and probably many more of the entries) are planned as a major exhibit feature at Habitat '76, and because the best designs will be featured in special issues of RECORD and L'ARCHITECTURE D'AUJOURD'HUI and in a book of the best ideas from all of the entries. Thus, even entries not premiated would be available for study by governments, agencies, and professionals around the world.

The need is of course clear—and there has been little chance for architects to make an input

There are, of course, many major efforts in the world community to alleviate the condition of the poor trapped in slums around most of the world's major cities. One thinks at once of the work done around the world by the World Bank, by AID and agencies of our and other countries, by some of the great foundations.

But it is fair to argue, that with few exceptions (like the limited competition held by the UN and the government of Peru for housing in Lima) there has been little opportunity for architects as a group to participate and thus little opportunity for governments and concerned officials to see the possible contribution of the thinking and talent of the world's architects.

Thus the Competition.

And in his editorial (April) announcing the project, RECORD publisher Blake Hughes quoted Charles Abrams: "The solutions to the problems of urbanization may be the key to an international rapprochement—and even to a lasting peace. . . . The main obstacle is, of course, the dearth of talent and knowledge for meeting the challenges of urbanization." We feel that architects can supply much of that talent and knowledge.

Thus the Competition.

As we said in that first editorial on the Competition: "We are not so naive as to believe that architecture is the solution to all the problems of the world; that good planning and design is a substitute for jobs that don't exist, or food that doesn't exist or is too dear. But housing and a sense of community are basic human needs—and that is the part of the problem that we know most about and can best do something about. So let us try."

Thus the Competition: a realistic try to

solve real problems on real sites for real people with real problems.

Well, everything is going very well to get this Competition going—EXCEPT (and alas!) for the funding

The proposed budget for the competition was originally nearly \$300,000—the great bulk of it for prizes and jurors' fees; though, of course, some money was tightly budgeted for the professional advisor to develop programs for each of the three sites and for getting them printed.

RECORD and L'ARCHITECTURE D'AUJOURD'HUI undertook to help raise this money for the IAF.

In April, that looked like a serious undertaking—but not an impossible one. We figured, not unreasonably, that out of the hundreds of corporations in this country with (if nothing else) business interests overseas, and out of the hundreds of foundations, we could reach 15 who could devote \$20,000 to this effort. Our reasoning seemed plain: A corporation which gave \$20,000 would really only be spending \$10,000 (given the tax structure and the tax-deductibility of contributions to the International Architectural Foundation). For this generous gift (to say nothing of the intangible satisfactions and the possible real benefits to a corporation in the affected country), a perhaps small but very meaningful and world-wide public relations exposure would continue for three years—with a major public relations exposure in the burst of publicity and dialogue in Vancouver in 1976. But mostly, we reasoned, benefactors would see the real importance in human terms—in direct effect on a few thousand desperately poor families and a catalytic effect on hundreds of thousands of others.

A few did. First, the Graham Foundation, which has so long and so effectively interested itself in architectural projects, pledged major financial support. Then, equally generously, The Johns-Manville Fund pledged its support.

Smaller but terribly important contributions were made to the IAF by The International Development Research Centre (Canada) and the Asia Foundation.

The total raised is now a little over \$50,000. Of the original budget of nearly \$300,000.

The "shortfall" (to use the newest buzz word) has not been for lack of trying. Almost all RECORD editors have called or written

prospects. The salesmen have called or written prospects. Publisher Blake Hughes has called and written and followed up with literally many hundreds of possible contributors.

And, let me say clearly and earnestly, we have no complaints. We get and sense nothing but enthusiasm for the Competition and its goals from almost every corporate and foundation executive. But—these days, like all of us—they've got problems. Some very generous sources are fully committed. And, even as you and I, perhaps some are just plain too nervous about the state of the economy to make any big financial commitments just now. But . . .

Decisions and commitments are piling up.

So the IAF has made two decisions: The first is to cut the competition to one city

That's an unhappy decision for a number of reasons. The concept of three cities was designed, of course, to jointly develop urban plans and designs responsive to a good cross-section of physically different sites, housing people of varied social and economic pattern. But all of us involved have persuaded ourselves that the patterns and ideas developed for one city will accomplish 95 per cent of what we set out to do. And it cuts the Competition budget—by our estimate—to well under \$200,000.

The city chosen is Manila—because of its enthusiastic input, and real desire and intense need for the competition

Michael Seelig, of Gutheim/Seelig/Erickson—the firm retained by the IAF as professional advisors for the competition, has just returned from Manila, and his report (excerpted here) is incredibly exciting:

The first site for the IAF International Competition has now been selected in Manila, Philippines. The actual site designated for the design of the prototype project is part of a much larger site, which will eventually accommodate a community of over 200,000 people, all of whom are squatters at present.

Location:

The site is in the heart of Manila in Dagat-dagatan—an area which currently serves as fish ponds and which is to be reclaimed by the end of 1975. The site is located at a distance of approximately three kilometers from the Tondo Foreshore area—at present the largest squatter community in the Philippines. The present living conditions in the Tondo area and future development plans for the Manila Region require that the majority of inhabitants of the Tondo Foreshore area be relocated in the near future. The Dagat-dagatan area was selected by the Government as the relocation site, due to its size and its proximity to the Tondo Foreshore area.

Both areas have been studied extensively by a team of 150 planners and other professionals during the past year. Extensive information is now available with regard to physical, social, economic and political conditions in these areas. Master plans for the two have also been prepared, and are now undergoing minor revisions and modifications.

The People:

At present, there are approximately 26,750 households—about 190,000 people—in the Tondo area. Here are some characteristics of the people to be relocated:

Seventy-seven per cent of the households are headed by males, 23 per cent by females; mostly first-generation migrants to the Tondo Foreshore area—75 per cent from the provinces, 25 per cent from the Greater Manila area. Half of the population

in the area is below 19 years of age and 75 per cent of the population are below the age of 30. The average household size is 6.5 persons, and the average number of children per family is five. The majority of household heads are highly literate, and only 3.1 per cent have no schooling at all. Eighty-six per cent of household heads have jobs, although many of them are only employed on a seasonal basis; 24 per cent of the workers are skilled workers. About 30 per cent work within walking distance from their home, 22 per cent within the periphery of the Tondo district; and the mean total monthly income of households is approximately U. S. \$56. The average number of major income earners per household is two.

Physical Conditions:

The present physical conditions in the Tondo Foreshore area are very poor. The density is 113 families—approximately 790 persons—per acre [the equivalent of a crowded six-story urban neighborhood—all in one-story shacks!—Ed.]. Over one half of all structures in the area should be demolished immediately. Less than 50 per cent of the households have toilet facilities in their houses.



In short, the Tondo Foreshore area and the community living there are in need of urgent help and rehabilitation. The recognition of the severity of these conditions, coupled with the strong commitment of the Government of the Philippines and the enthusiasm and professional skills of the people working on this project, offer great hopes for immediate improvements that can and will take place in the very near future.

Government and Professional Support:

The Government of the Philippines has accepted enthusiastically the offer of The International Architectural Foundation to conduct an international architectural competition for the design of one section of the new housing community in Dagat-dagatan. The Development Academy of the Philippines has been assigned the task of carrying out all formal negotiations with regard to the competition, and the IAF has been informed that the winning design will be constructed, and its author appointed architect of the project. In addition, there exists a good possibility that the winning designer or other entrants will be commissioned to design further sections of the entire Dagat-dagatan project.

The DAP has created a task force from its own staff, headed by Dr. Jose Conrado Benitez, to handle the administrative aspects of the project, and has appointed a committee to assist with all technical and professional matters. The technical committee comprises representatives of the Philippine Institute of Architects; League of Philippines Architects; Association of Philippine Government Architects; Philippine Institute of Environmental Planners; and the Philippine Institute of Building Contractors.

The project also received the enthusiastic support and interest of Dr. Onfore D. Corpuz, president of the DAP and Secretary de Vega, special assistant to President Marcos.

The Architectural Competition:

The architectural competition will seek to obtain designs for a housing community to accommodate 3,500 population [more than originally conceived] to be realized by a substantial amount of self-help, including such community facilities and services as may be considered appropriate, and with a particular view to the environmental impact of such a community.

Comments:

The idea of the competition in Manila has been accepted by all parties in the Philippines with great enthusiasm and expectations. The people with whom I met were most dedicated, idealistic, and displayed highly professional qualities which no doubt will help make the project a great success.

And *that* is a real competition site and a real opportunity for an important success in helping the world's poor with architectural input. The site is difficult (and prototypical); the conditions are (alas!) all too typical of the condition of millions of urban poor. This enthusiastic involvement by the Philippines government at its highest level, and the apparent self-help capability of the people who will be housed, clearly makes the project workable—physically, politically, economically, and socially. Further . . .

The competition program has been written by Fritz Gutheim of Gutheim/Seelig/Erickson and has been submitted for review by the UIA; the project program for Manila is being written; the background material on the site needed for the program is being assembled.

Indeed, the success of the Competition seems assured—except that more financing is needed. Hence this request:

As noted above, RECORD has undertaken to help develop the financing for the Competition, and despite the most earnest effort only \$50,000 has been raised to date. The budget for a one-city (Manila) competition would be about \$175,000. That's \$125,000 to go.

And since the money apparently cannot be raised in large contributions, we're going to try for smaller ones. To get to the point:

We hope very much that at least 1200 architects and engineers—you readers—will find it possible to contribute \$100 or \$200 (or as much more as you can) to the competition.

It is our understanding that such contributions would not affect the status of any architect who wished to enter the competition.

We intend (just so you don't think we're giving up) to go back to every company and foundation whom we've asked for \$20,000 and ask them for whatever sum they can give.

If we can't (and dammit that's unthinkable) raise enough to hold the competition, we'll return part of your contribution (some money will have to be spent for expenses that we simply cannot stop now—like program development). And it *is* tax-deductible.

Heck, we've said it all. Please help if you possibly can. Checks should be made payable to The International Architectural Foundation. Its address is: The International Architectural Foundation, Inc., 1221 Avenue of the Americas, New York, New York 10020.


If you have any questions call me at 212/997-4565 or RECORD's publisher, Blake Hughes, at 212/997-4685.—Walter Wagner.

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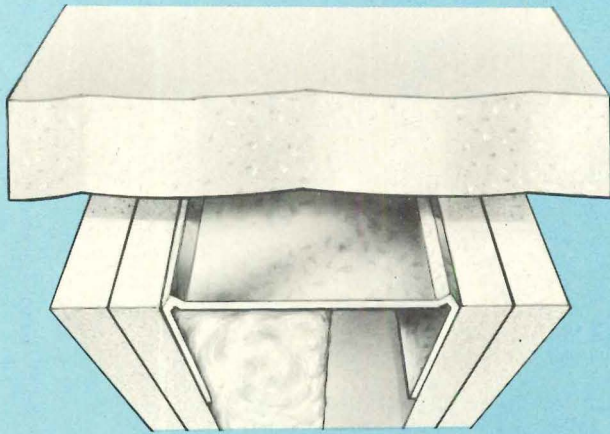
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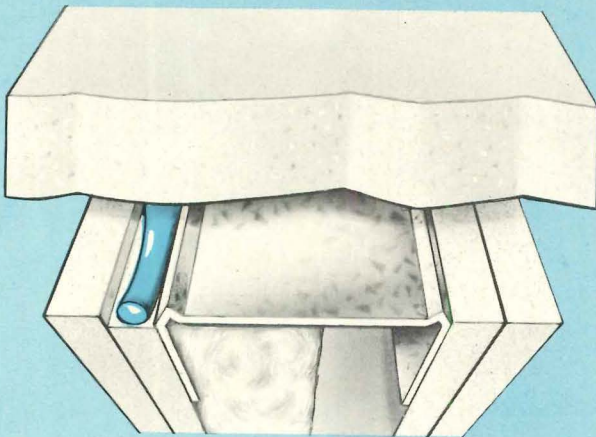
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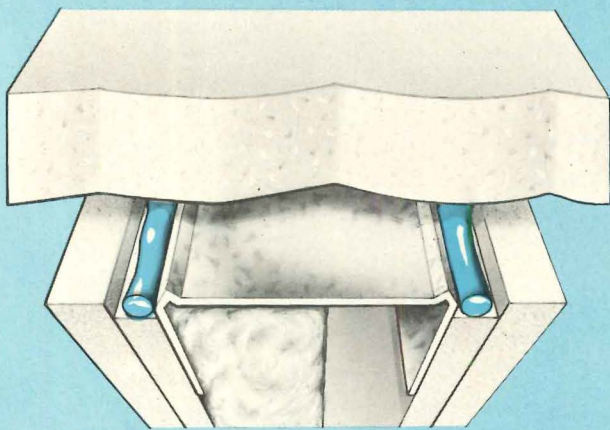
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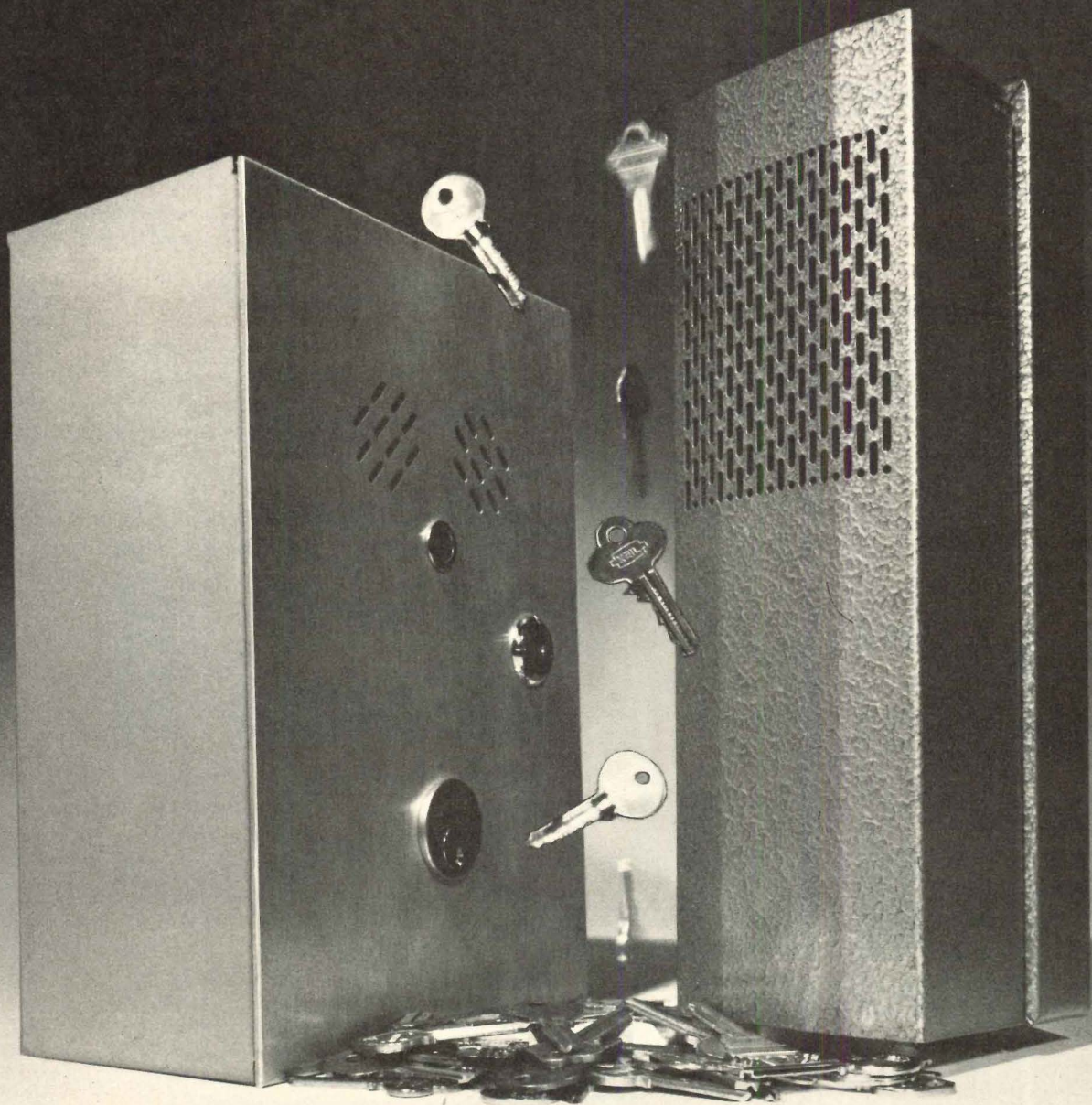


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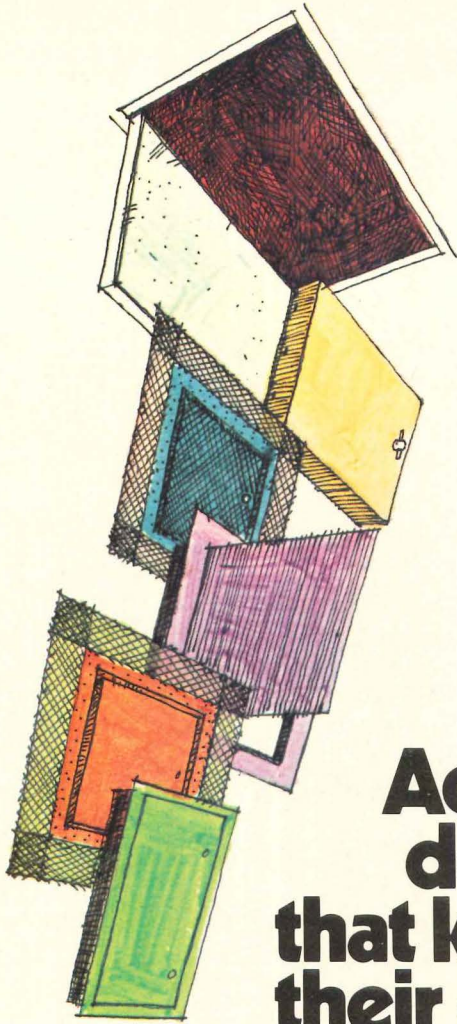
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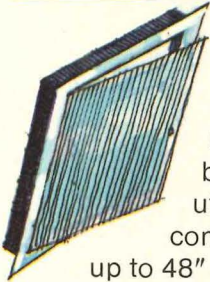
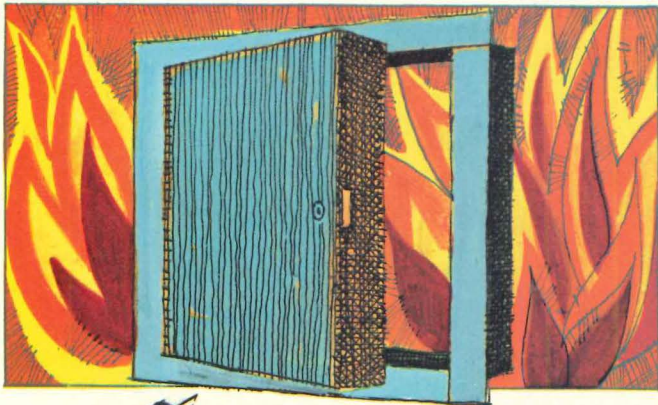


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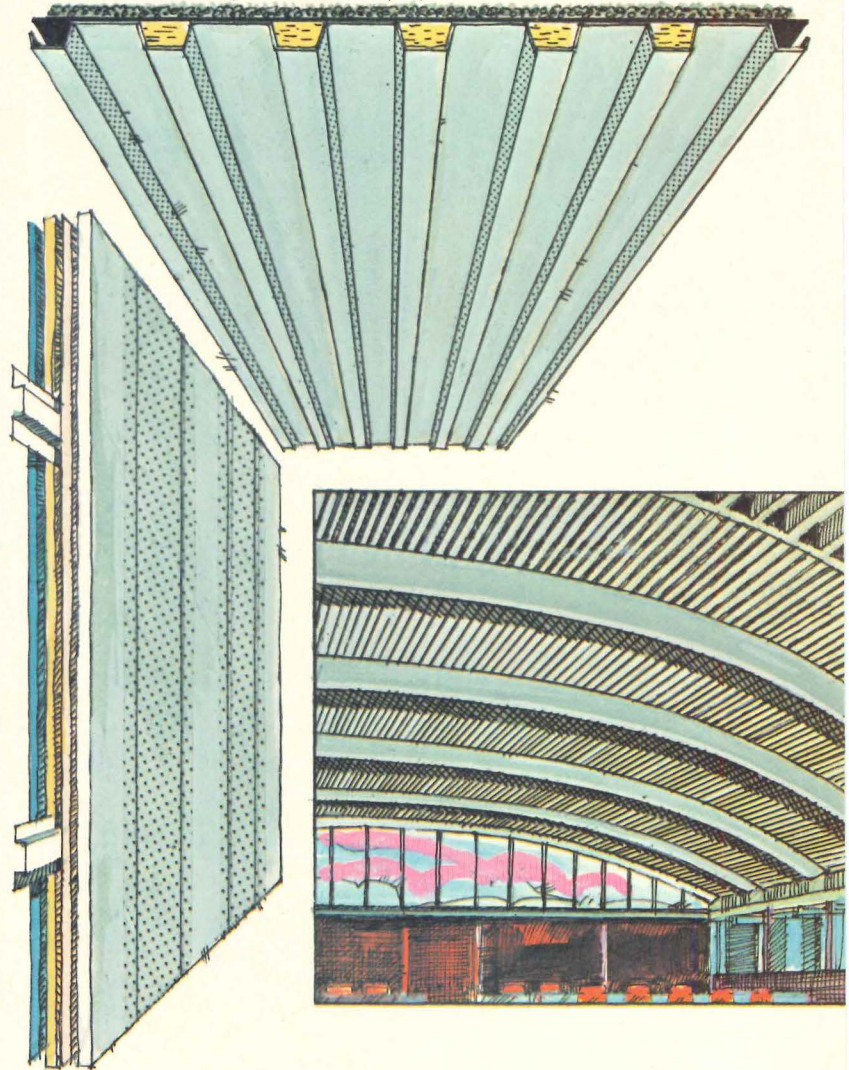
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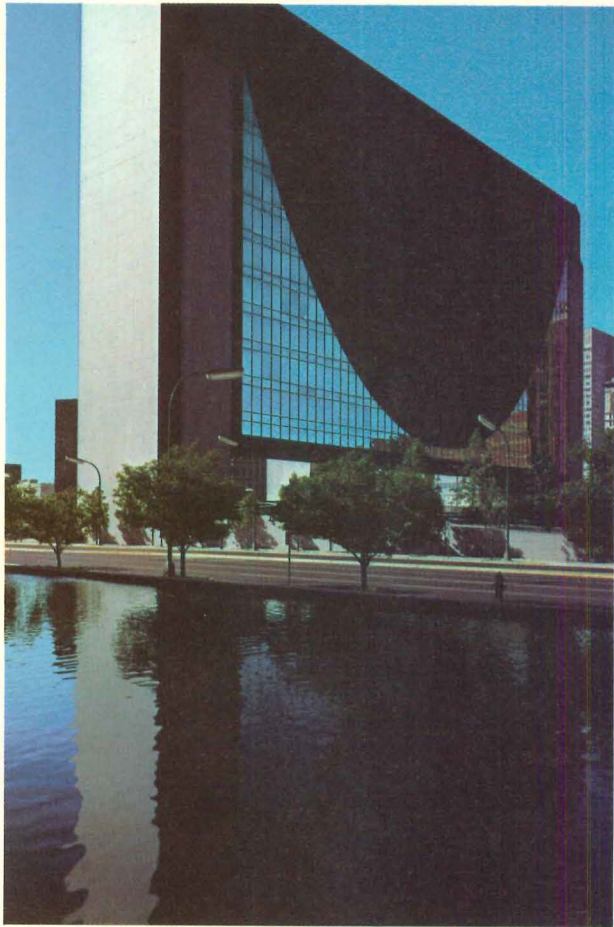
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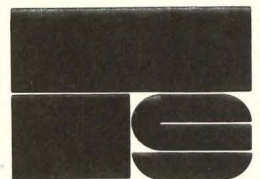
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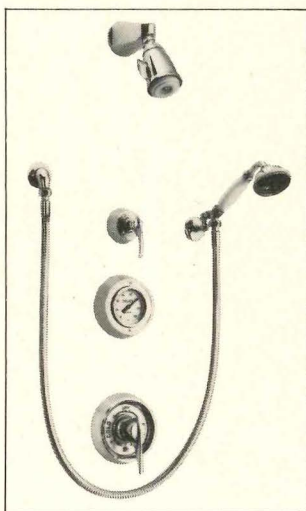


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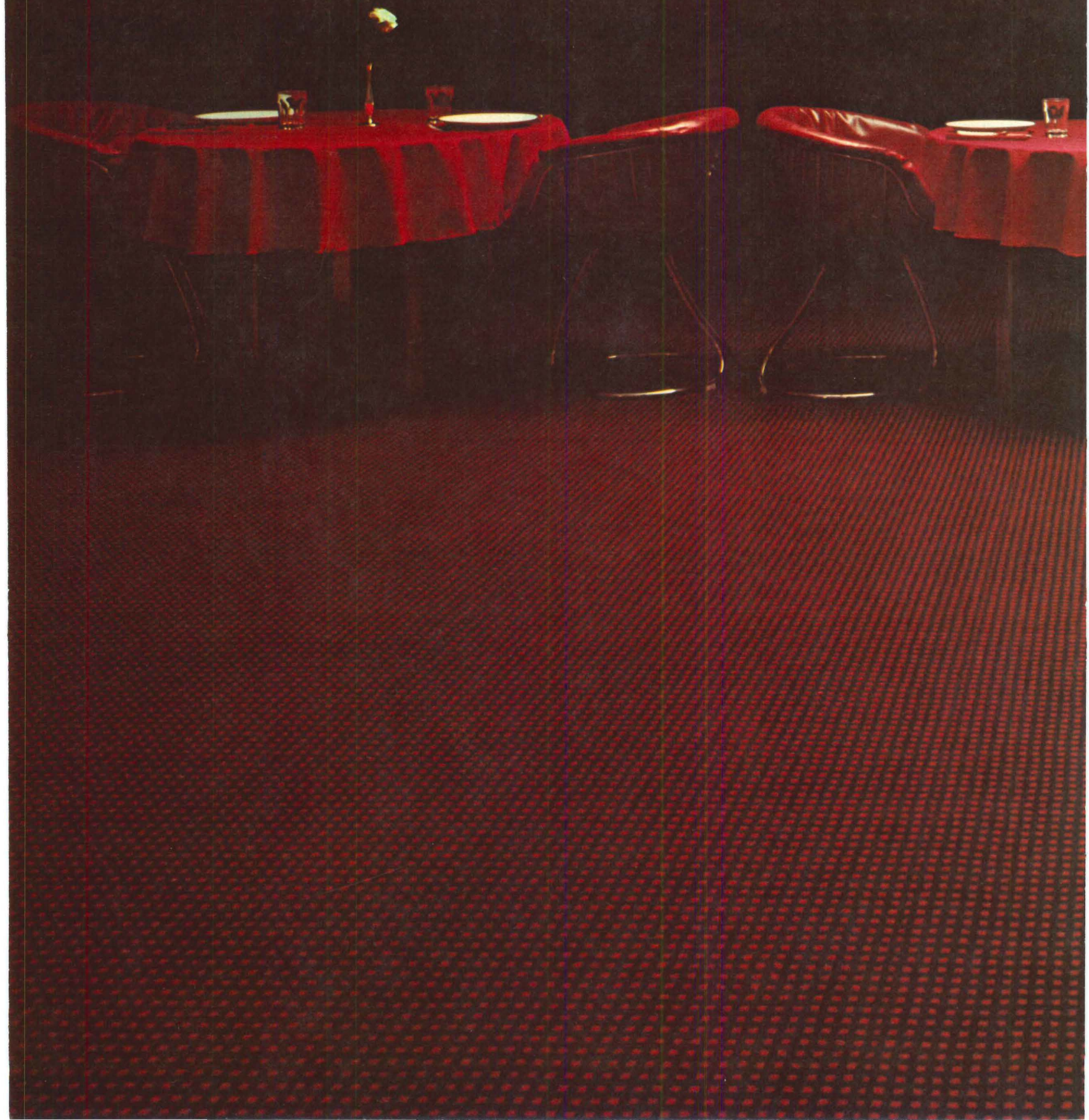


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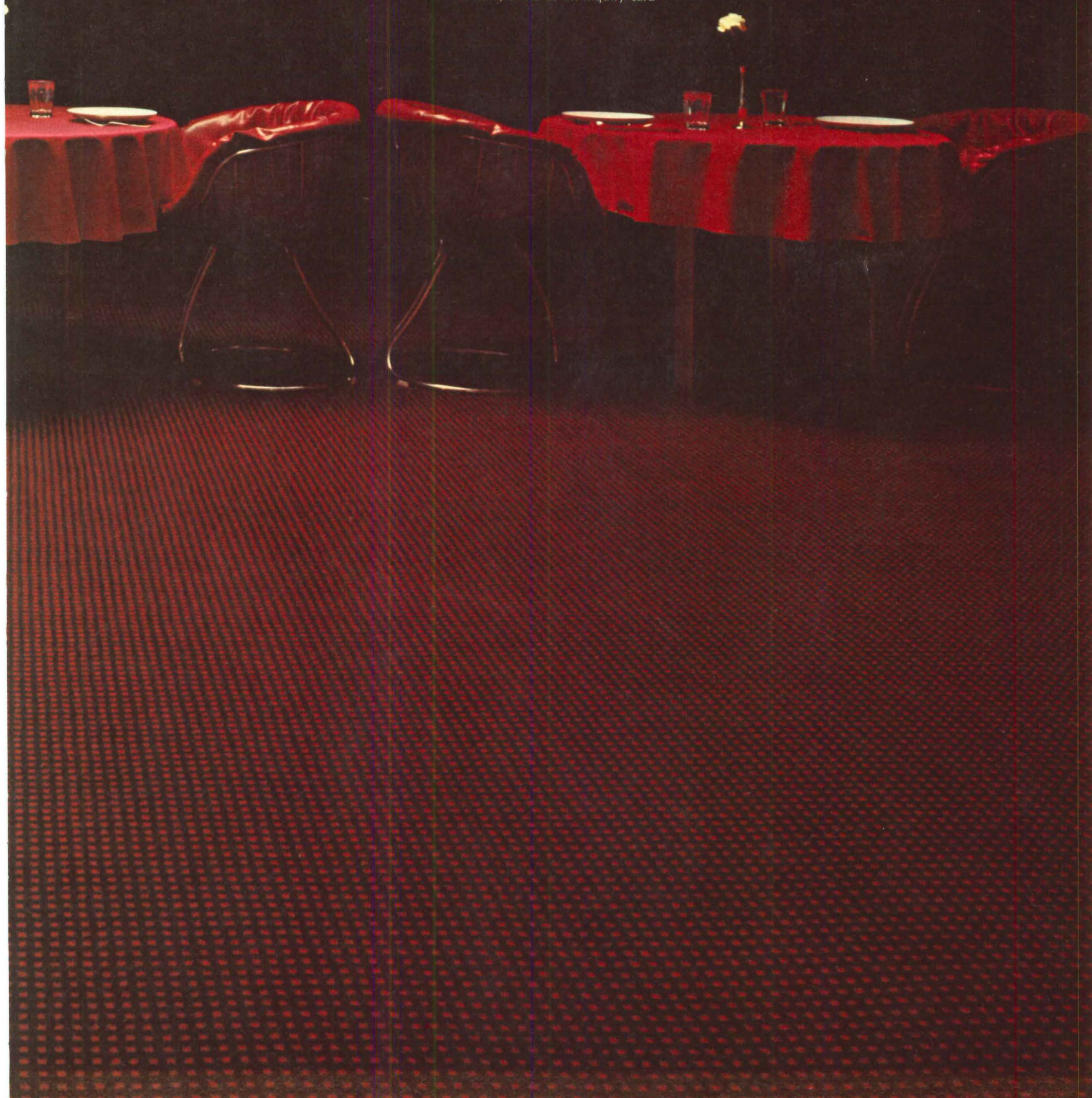
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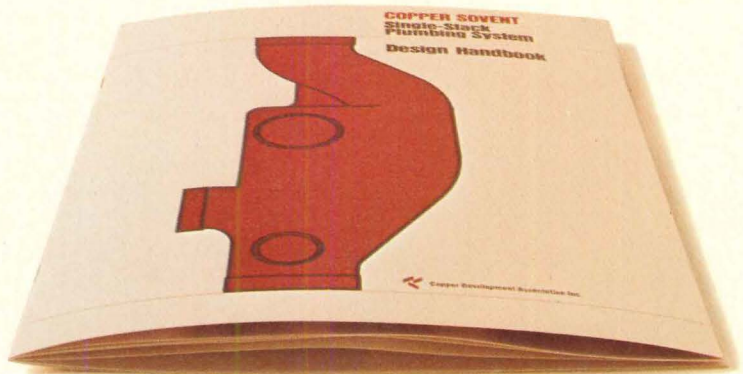
This innovative concept for multi-story plumbing is now accepted by all major building codes. There are now more than 300 high- and low-rise installations across the country.

Because the Copper Sovent system takes up less space in the walls, you get more income-producing space on every floor. And fixtures like island sinks go where you want them with a Sovent system.

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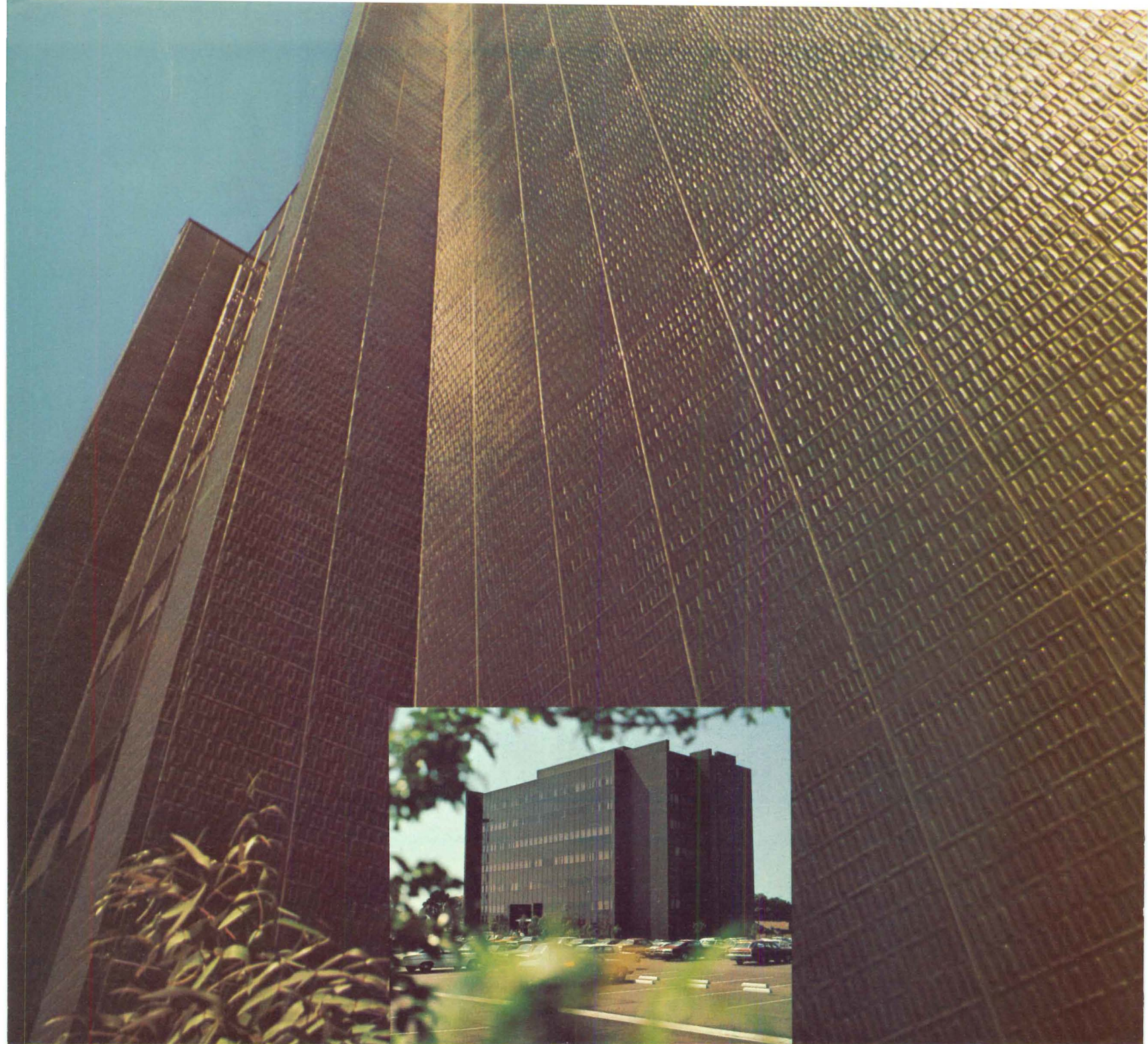


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Palm Harbor General Hospital, Garden Grove, California. Architect: Widom/Wein & Associates, Los Angeles, California. Sculptured metal facade by Warnel Corporation, South El Monte, California. Coil Coater: California Finished Metals, Inc., Cucamonga, California.

4-10

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NEWS REPORTS

BUILDINGS IN THE NEWS

HUMAN SETTLEMENTS

REQUIRED READING

Construction industry leaders met in Atlanta, September 12, in mini-summit on housing and construction. This meeting, one of several in advance of President Ford's summit meeting on inflation, heard pessimistic news from the housing segment, and less gloomy reports from the heavy construction sector. Details on page 34.

Five finalists have been selected in national competition for the Wainwright Building renovation. The St. Louis landmark will become part of a new state office complex. The five architectural firms selected as finalists are: both the New York and Chicago offices of Perkins & Will in association with William B. Ittner, of St. Louis; Joseph W. Albert of Milwaukee, in conjunction with Howard, Needles, Tannen and Bergendoff, of Kansas City, Mo.; Urban Architects of Kansas City, Mo.; Hastings and Chivetta, St. Louis, in conjunction with Mitchell-Giurgola Associates of New York. The first place award will be announced at the end of the month.

Ground was broken last month for the LBJ Memorial Grove on the Potomac in Washington, D. C. The national tribute to the late President Johnson will occupy a 15-acre site on the west bank of the Potomac, overlooking the Capitol and the Lincoln and Jefferson Memorials. Scheduled for completion in time for the Bicentennial, the grove of trees, shrubs and trails will be dominated by a Texas granite rock 19 feet tall. The Grove was designed by landscape architect Meade Palmer.

Dr. Ernest Pickering, 81, Architecture Dean Emeritus at Cincinnati died August 30. Dr. Pickering retired from the University of Cincinnati's College of Design, Architecture and Art eleven years ago, after almost 40 years with the institution. A widely recognized architect, educator, author and urban planner, he was also chairman of the Cincinnati Planning Commission until 1968. Besides the textbook, "Architectural Design," he authored "Shelter for Living," "Marriage and the Family," and "The Homes of America."

A program to help AIA components with local public relations has been announced by Thomas A. Bullock, chairman of the public relations committee. Components may apply immediately for up to \$2000 in aid for 1974 community-oriented public relations projects. For further information, call Evagene H. Bond, public relations project director, at (202) 785-7267 in Washington, D. C.

Richard Meier of New York City will serve as jury chairman for the 27th Annual AIA Honor Awards. On the jury will be: John J. Desmond, Baton Rouge, La.; Donald E. Olsen, Berkeley, Cal.; Gertrude L. Kerbis, Chicago; and Al Price of the Princeton Graduate School. October 21 is the deadline for submissions. Additional information can be obtained from AIA headquarters in Washington, D. C.

General Services Administration has announced it will pay contractors for materials storage, both on and off construction sites. According to GSA Public Buildings Service Commissioner Larry Roush, "contractors can order materials immediately, taking advantage of early price quotations." Detailed information about the payments program can be obtained from GSA regional offices.

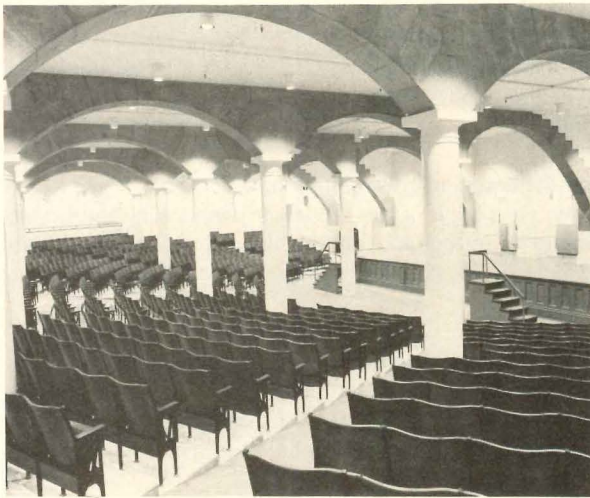
Only \$6 million has been approved for the new Federal National Bureau of Fire Prevention in the Senate-passed version of the appropriations measure including Commerce Department fiscal 1975 funds. The Bureau is a part of the Commerce Department. The Administration had sought \$13 million and the House allowed \$7 million, but the Senate committee said the big slash was due to "delay in finalizing program formulation."

There has been a delay in the issuance of new insulation standards for one- and two-family homes built with insured FHA mortgages or guaranteed VA loans. Standards which were to be released last month, may be as much as six months away. Reason for the postponement was said to be industry resistance. Industry comments challenge the effect these standards would have on building costs for masonry versus frame walls, involving the "U" factor and its requirements for insulation. HUD officials estimated the change could add from \$250 to \$500 to the cost of a home.

The American Consulting Engineers Council has ordered the establishment of a Research Corporation which will seek government research and study grants for work to be performed by Council members. Such grants are available to non-profit organizations and the new Corporation will meet this requirement.

Thirteen organizations have adopted the founding resolution for the National Forum on Growth Policy, sponsored by the American Institute of Architects. Seven more organizations expect action. The next meeting of the Forum will be held this month.

A \$4000 scholarship competition has been announced by the Associated General Contractors. Open to students studying construction and/or civil engineering for careers in construction, the competition has a deadline of December 1, 1974. Applications are available from AGC, 1957 E Street, N.W., Washington, D. C. 20006, or from any chapter office.



New York landmark opens after major renovation

The Cooper Union Foundation Building, an official national and New York City landmark, reopened for classes last month after a massive renovation project.

The Foundation Building, located between Seventh and Eighth Streets and Third and Fourth Avenues, originally opened in 1859. In deference to the building's historical significance, the exterior has been left largely intact. However, a

round elevator shaft (below) originally installed has been extended above the roof (see photo, top), a glass-enclosed arcade has been constructed along the west side, and rooftop terraces have been built atop the eight-story structure. In addition, a portion of adjacent Seventh Street has been converted into a plaza linking the building with Peter Cooper Park.

Inside, each major discipline of the School of Art and Architecture has been assigned its own floor, complete with studio areas, classrooms and faculty offices. The library has been installed on the first floor.

John Hejduk, architect for the renovation, said the project had brought a return to the features of the original building's design and that this, in turn, had helped produce a significant increase in usable space.

"When the building opened, it had a very straightforward, simplified design," said Hejduk, who is head of Cooper Union's Division of Architecture and an alumnus of the college. "But through the years, this was broken down in a very erratic way and the basic schema was destroyed. We have clarified the design and brought it back to its original simplicity."



NSPE expels five Maryland engineers

Five Maryland consulting engineers last month were expelled from membership in both the National Society of Professional Engineers and the Maryland state affiliation. They had been involved, it was charged, in alleged kickbacks and payoffs which led to the resignation of former Vice President Spiro T. Agnew following his "no contest" plea in a Federal income tax evasion case, October, 1973.

Earlier, three other engineers in the state had their resignation from the two organizations accepted "with prejudice," which means they will not be readmitted to NSPE or its Maryland affiliates. These three—Jerome B. Wolfe, former president of Greiner Environmental Service, Inc., Lester Matz and John Childs, once owners of Matz, Childs and Associates—provided evidence to Federal prosecutors in the Agnew case.

NSPE president Leslie C. Gates, said the five others were expelled "for unethical conduct involving payoffs in the Spiro Agnew case," and a state kickback scandal which resulted in a five-year prison sentence for former Baltimore County Executive Dale Anderson.

The engineers whose expulsion was announced are: Alan L. Green, former president of Green Associates; James Petrica, president of James Petrica & Associates; George W. Stephens, Jr., president of his own firm; Walter P. Weigand, former associate in the Petrica firm, and Robert A. Whiteford, former president of Whiteford, Falk and Mask, Inc.

HUD funds tax, neighborhood studies

New approaches to property taxes that could benefit local governments and taxpayers alike will be developed and tested under a \$415,000 research contract announced by the Department of Housing and Urban Development.

HUD Assistant Secretary Michael H. Moskow said the International Association of Assessing Officers (IAAO) will survey and analyze the property tax assessment procedures of more than 200 local governments. On the basis of this research, IAAO will produce a handbook on alternative assessment practices that local governments can use to improve both the yield and the equity of their own property tax collec-

tion systems.

The project is part of HUD's effort to help strengthen local governments by developing useful management tools for local officials.

Property taxes now account for 85 per cent of all locally-raised revenues and are "a continuing mainstay" of local finance, Mr. Moskow noted.

In another area of HUD activity, cities of the future may use computers to forecast and curb the beginning of neighborhood decline in changing residential areas as a result of a \$585,000 HUD study, according to a spokesman.

The study will produce a mathematical model of neighborhood change and of new approaches for revitalizing older neighborhoods that could give computer-equipped cities a "prediction capability for pinpointing potential neighborhood decline and lead to ways to prevent it in neighborhoods that are still in good condition.

The 33-month research effort will be conducted by the Joint Center for Urban Studies of the Massachusetts Institute of Technology and Harvard University, under contract to HUD's office of Policy Development and Research.

Industry finances solar prototype

A privately-financed experiment in solar heating and cooling of commercial buildings has begun with the participation of Oliver Tyrone Corp., PPG Industries, Aluminum Co. of America, and The Standard Oil Co. (Ohio).

Oliver Tyrone Corp. will be the managing participant and will use the engineering firm, Environmental Systems Design of Chicago to aid in coordinating the technological input of all the participants.

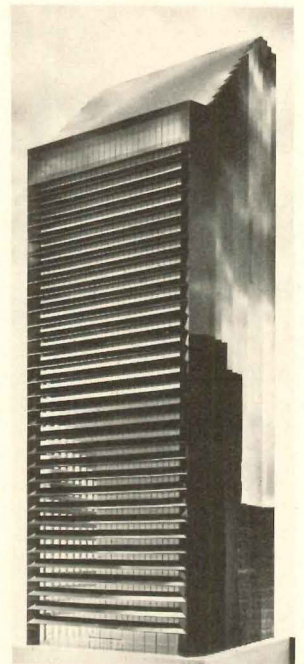
The first phase, a 20 foot by 20 foot by one-and-one-half floor mockup, will cost \$30,000 and require about three months to build. It will be primarily a learning model to measure the amount of solar energy and resulting heat collection on a site at PPG's research center near Pittsburgh.

The second phase will be a functional 30 by 30 foot by two-and-one-half floor demonstration building, costing \$90,000. It will be completed by next spring.

Projected third phase, not yet funded by the participants, will be a 6 to 10 story building. The ultimate goal of the experimental structures is a commercial high-rise office building with economies to justify the

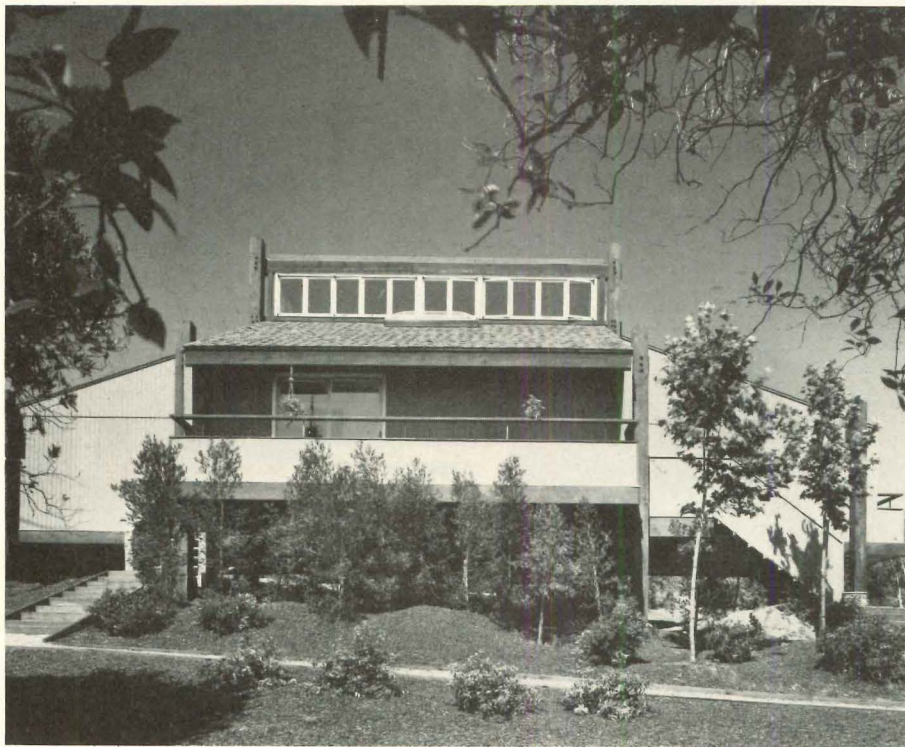
higher energy-saving construction costs.

The fundamental and novel aspects of the ultimate building design (photo below) include minimization of heating and air conditioning needs and collection of solar energy. Maximum insulation in opaque areas and double glazing in windows will minimize heat loss in winter through the exterior wall. Solar heat gain in summer will be minimized by orienting windows to the north, northeast on the east side, and north, northwest on the west side, and by completely shading vision glass windows on the south side with angled solar collector cells.



Double-glazed clear glass-covered collector cells made of coated aluminum plates will gather solar energy striking the prototype building facade and roof. The plates with integral fluid-carrying channels, connected to pipes, will contain a liquid, such as water and ethylene glycol, which will be heated by the sun, returned to a central location at the base of the building. The hot liquid can be used for heating in the winter and to operate refrigeration equipment in summer.

Integration of the two principles of heat saving and solar energy collection results in a novel design which, with the exception of energy for lighting, could be a net exporter of energy. The excess of solar energy collected on sunny and mildly overcast days, versus that needed for heating and cooling the building, can be exported in a quantity greater than that purchased on a day when solar energy is not available in sufficient quantities to heat or cool the building, according to spokesmen.



Energy-efficient home developed by the American Plywood Association

The Energy Cost Cutter House, developed in a cooperative effort by *Family Circle* magazine and the American Plywood Association can cut heating, cooling and electric bills in half through careful design and thoughtful use of today's conventional building techniques and materials, according to the American Plywood Association.

The 1,750 square foot, two-story house was designed by PBD Architects Associated, Joseph Paoluccio—Consulting Engineers, and AKE Engineering of San Diego. The architects also served as the prime contractor on the prototype house.

The basic structure can be built for approximately \$30,-

000. Wood-framed windows and doors, plywood systems for walls, floor and roof, and complete insulation are said to work together to cut operating costs and to hold construction costs in line.

The house is supported by pressure-treated 10 by 10 posts which cut costs both in foundation and site preparation work. The system also adapts to virtually any site condition, according to APA.

Complete balance of all exterior sides allows the house to be oriented to take full advantage of the sun's energy without sacrificing appearance.

The basic shape of the house is the key to a heat reuse system which minimizes winter

heating requirements and creates a natural ventilation system to make the house independent of mechanical cooling systems in most parts of the country.

In winter, heat from the sun, the furnace, and the fireplace is collected in the family room loft and is redistributed through the ducts with the use of a blower.

For summer cooling, the house works like a chimney. Cool air is introduced through windows and doors on the first floor and drawn through the house to be exhausted through open windows in the second story loft.

Vestibules with inner and outer doors are used to protect the entries. These small anterooms provide a buffer area or air lock to reduce the flow of outside air into the house and prevent the escape of air which has been conditioned to comfortable temperatures.

Ductwork is placed within the floor panels so that heat loss through the ducts is radiated up into the structure. The home is suited to any type of furnace or heat pump; selection depends on the energy costs in the particular area.

Energy requirements of the lighting system have been reduced by 50 per cent through the use of a selective lighting scheme which incorporates fluorescent fixtures. The lighting scheme provides for efficient task-oriented lighting throughout the house. Concentrated supplemental lighting is added in places such as study and meal preparation areas.



Contractors suggest new industry federation

There is a move sponsored by the Associated General Contractors of America toward formation of a new building and construction federation which can unite the various industry sections, including design professionals, to present a more coherent industry response to users and government.

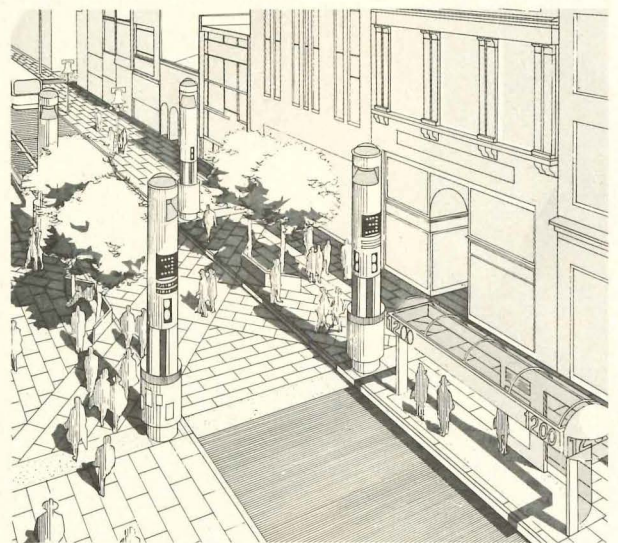
It is much too early to assess the impact this new organization, which may be called the Construction Industry Council, will have if and when it develops to full fruition. Virtually all of the twenty-one associations participating in a two-day meeting on the subject at Reston, Va. recently came away from the assembly with high praise for the effort.

While AGC barred business press reporters from the day and a half conclave, it issued a release following the meeting announcing that the attendees had agreed to set up a steering committee "to review the feasibility of establishing a more formal federation of associations in the U.S. construction industry." This committee is to

report its findings within the next six months.

The delegates, ACG said, agreed to prepare positions on these industry problems: increasing jobsite productivity; using the construction industry as a tool to heat up or cool off the nation's economy; speeding payment to the contractor on completed work; increasing construction safety by positive rather than punitive means; establishing a mechanism allowing contractors to recover money lost due to honest bidding error; providing fast and complete payments for stored materials; defining research objectives; converting to the metric system; leaving worker's compensation to the states; and developing an industry position paper on the environment.

Participating in the organizing activities at Reston were representatives from: American Institute of Architects, American Consulting Engineers Council, American Society of Civil Engineers, Associated Landscape Contractors of America, Inc., and the National Society of Professional Engineers.



Philadelphia plans Bicentennial-related projects

The Philadelphia firm of Ueland and Junker, Architects and Planners, has been selected as architects for two separate projects related to the Bicentennial Celebration. The firm was recently selected by the city of Philadelphia and Philadelphia '76, Incorporated for the design of the Chestnut Street Mall (shown). In a separate action, the Southeastern Pennsylvania Transportation Authority selected the firm for redesign of the Independence Mall-Fifth Street subway station.

The Chestnut Street Mall involves the closing of a major

downtown artery to traffic. Only low pollution buses and pedestrian zones will be created, featuring bus shelters, landscaped sitting areas, kiosks, and decorative paving.

The entire street will be resurfaced using colored paving, and new decorative lighting fixtures will be installed which will also be capable of holding special and seasonal street decorations such as flags, banners, symbols, Christmas trees, etc. The improvements are scheduled to begin early 1975, and be completed in time for Christmas of that year.

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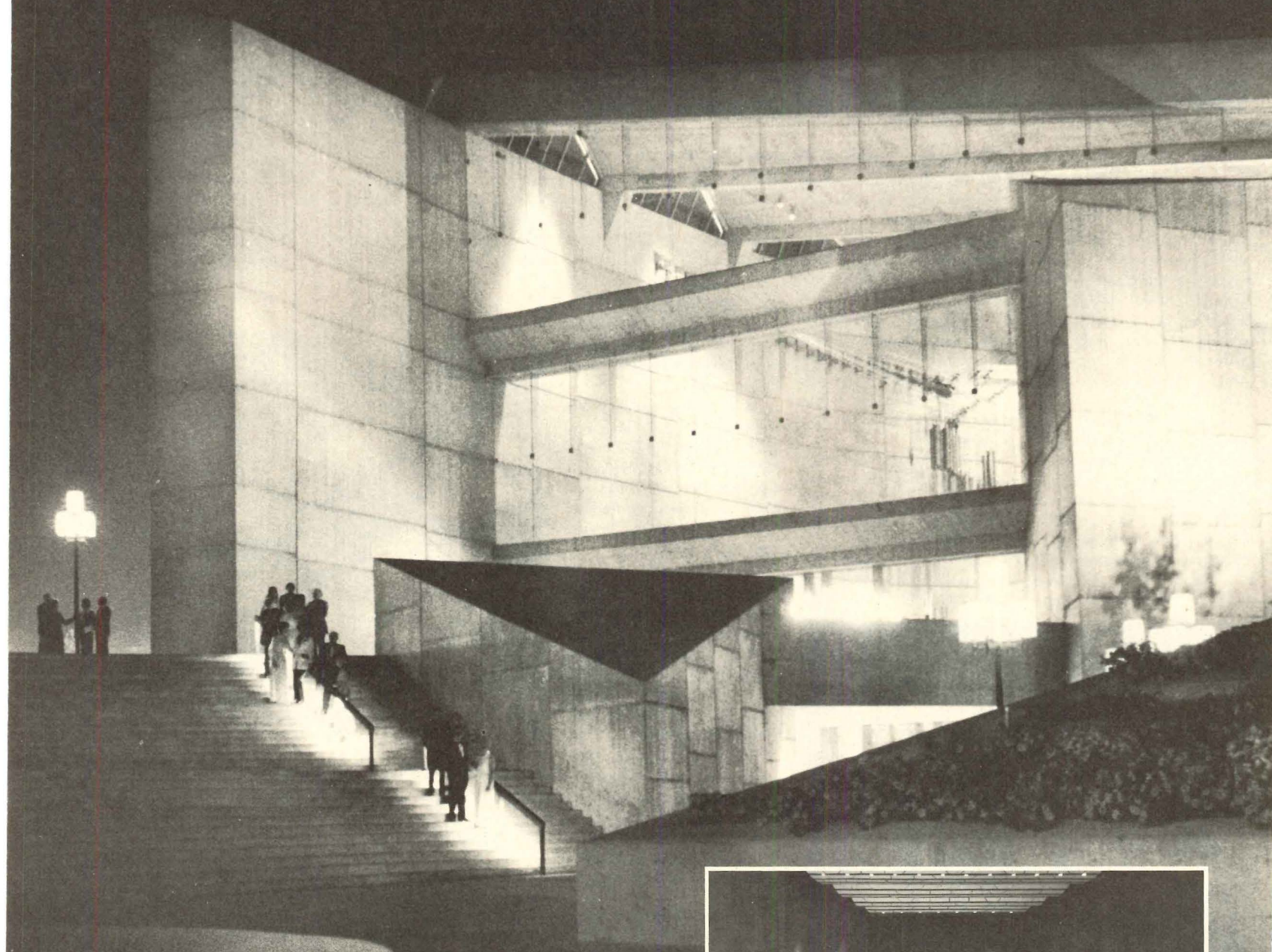
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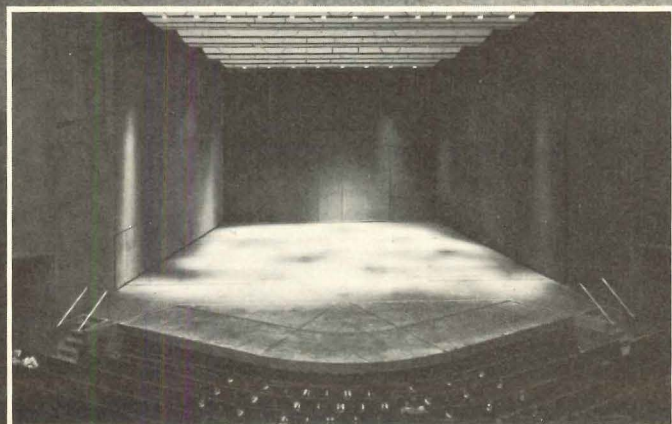
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Edwin J. Thomas Performing Arts Hall
University of Akron
Architects: Caudill Rowlett Scott
Dalton, van Dijk, Johnson & Partners
Carl E. Bentz

Theater Consultant: George C. Izenour
General Contractor: Mosser Construction, Inc.

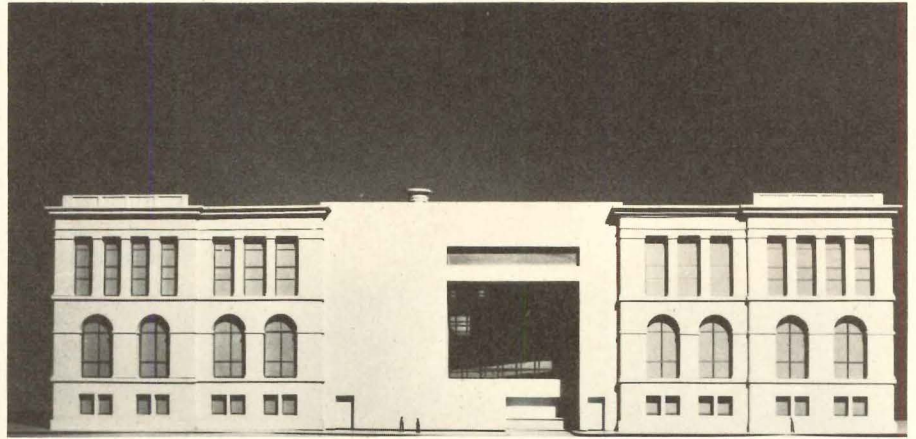
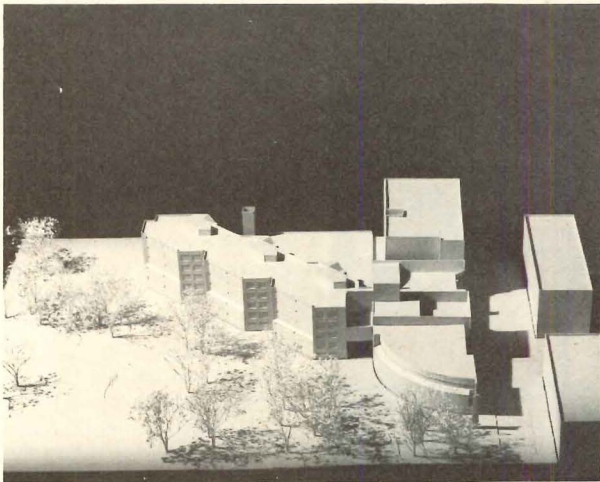
Stage lifts installed by Dover Elevator Co., Cleveland, Ohio



Intermediate school in Manhattan for 1800 pupils

This recent project of James Stewart Polshek and Associates is composed of three sections: the two-level assembly-community section (right) containing auditorium, gymnasium and cafeteria to interface a main avenue and nearby park; the five-level classroom section divided into three 600-student sub-schools along the park edge; and the three-level support fa-

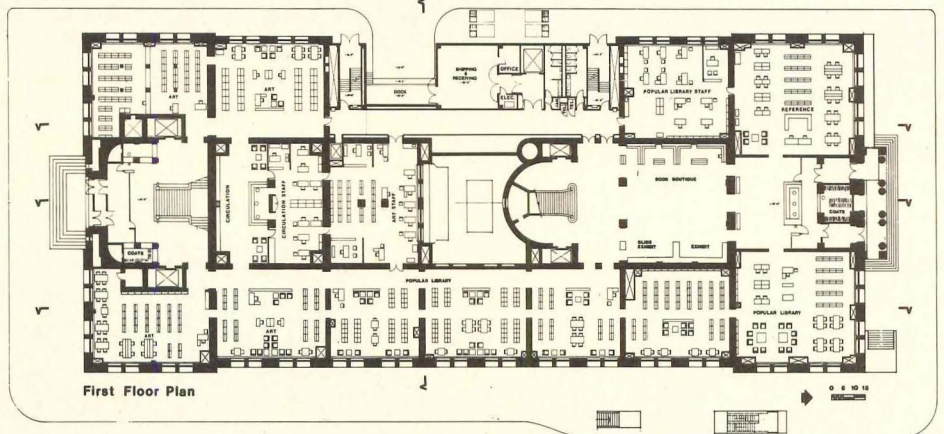
cility section containing shops, library and administration, at the interior of the site. The classrooms are arranged along a single-loaded corridor with views toward the park. The gymnasium roof is designed as an outdoor terrace, and the structure is concrete-fire-proofed-steel frame with a masonry cavity wall enclosure of light buff face brick.



An \$11,000,000 renovation program is planned for Chicago Public Library

Holabird & Root are the architects for a project that will convert the 77-year-old Central Building of the Chicago Public Library into a functional center for art, music and general library activities. Completion is set for June, 1976, and ground was broken in August. Most of the work is to be internal, with the only new construction being in an open area presently used

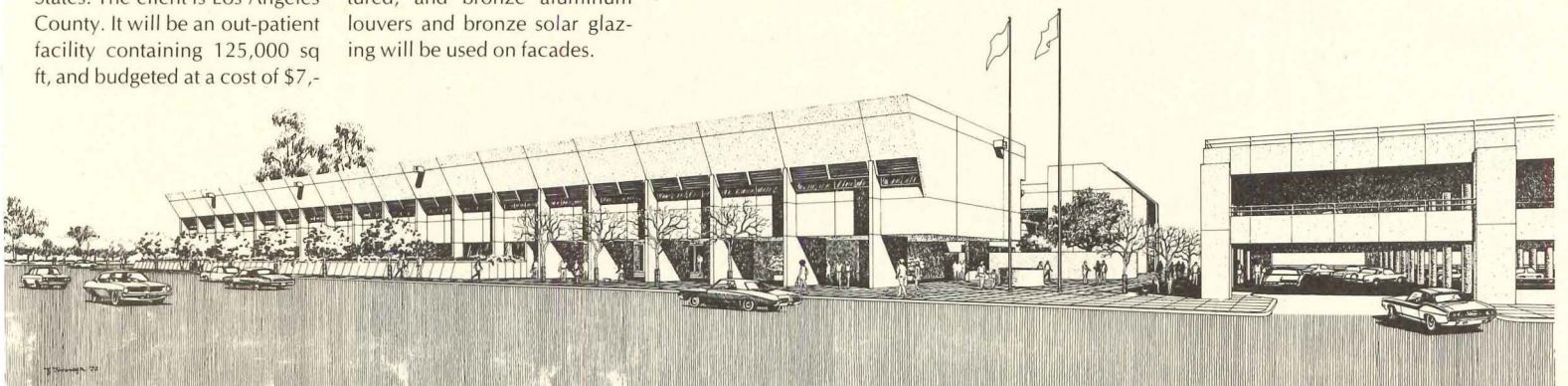
for loading and parking. New construction (above) will provide a five-story public facilities core, connecting the second and third floors from north to south by means of ramps. The first floor plan is shown below. Among the improvements will be the uncovering of two Tiffany domes which had been obscured by metal covers. The building dates from 1897.

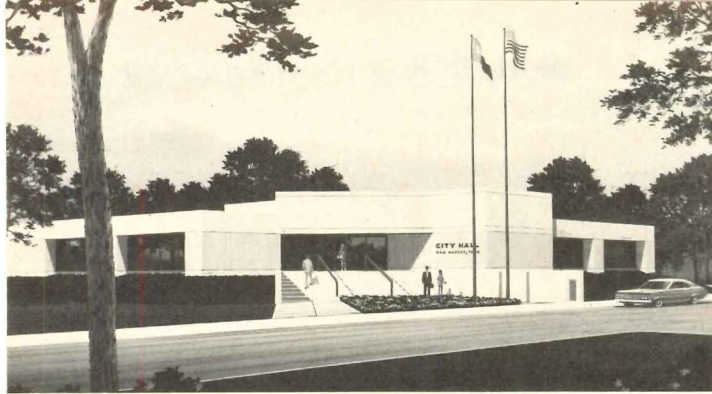


Health care facility for a community of 110,000

Designed by Carey K. Jenkins Architects, the Southeast Comprehensive Health Center in Los Angeles will be, according to the architects, the first public comprehensive health care center to be built in the United States. The client is Los Angeles County. It will be an out-patient facility containing 125,000 sq ft, and budgeted at a cost of \$7,-

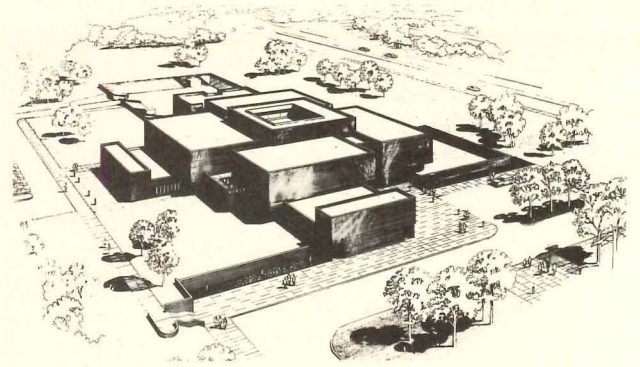
120,000. All major medical departments and their support are located around the perimeter of courtyards, designed as outdoor waiting space. Exposed poured-in-place concrete beams and slabs will be textured, and bronze aluminum louvers and bronze solar glazing will be used on facades.





Proposed City Hall for San Marcos, Texas

Designed by Ken Rehler and Associates of San Antonio, this building will be constructed of pre-cast concrete, with suspended foundation and roof deck of double "T" members on precast beams. Five-inch-thick wall panels will have a vertical ribbed pattern. The 12,000-sq ft structure will include a drive-in window for payment of taxes and utility bills.

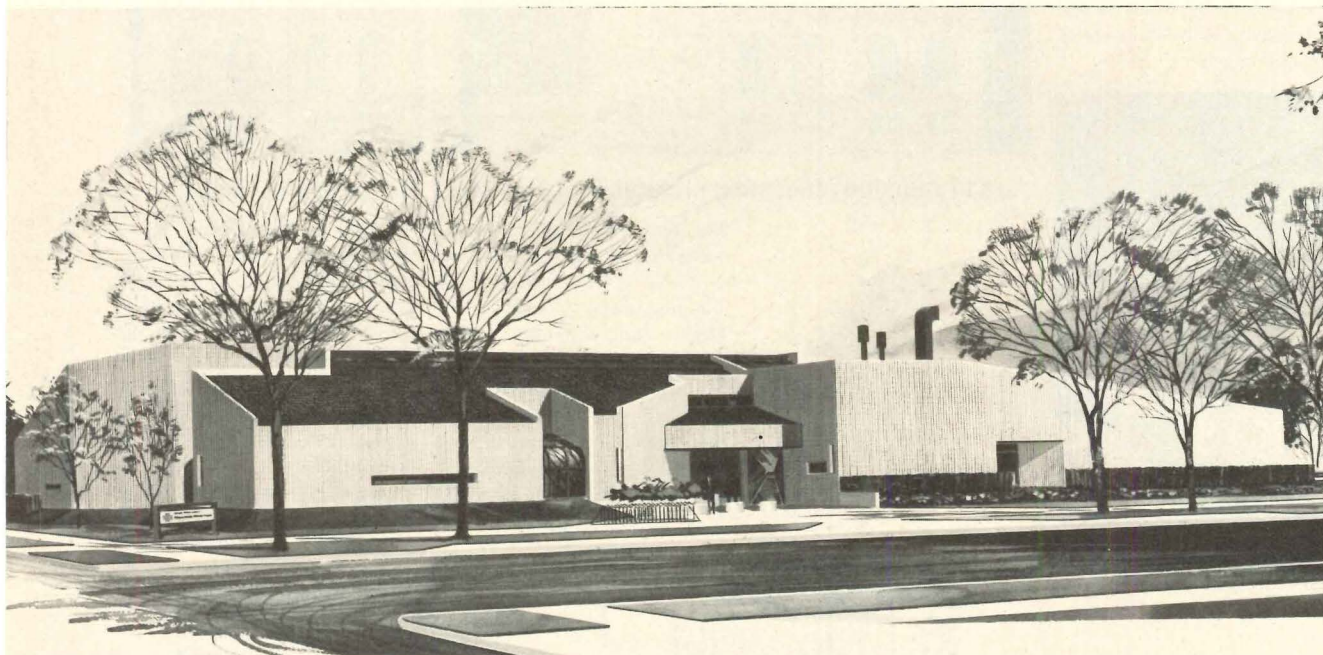


Museum of Atomic Energy nearing completion

The new American Museum of Atomic Energy, designed by A. M. Kinney, Inc., architect/consulting engineer, is nearing completion on a 17-acre tract in the center of Oak Ridge, Ten-

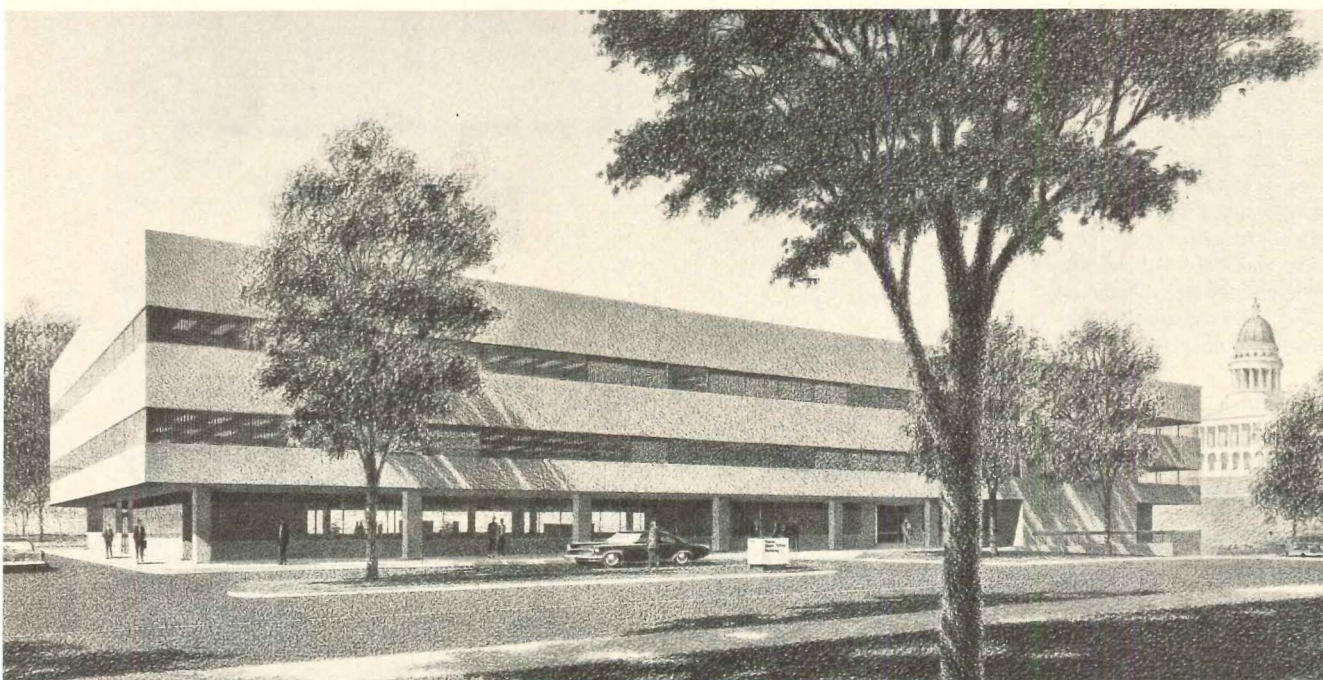
nessee. The reinforced concrete structure, with brick exterior, will cost approximately \$3.5 million, and is scheduled for completion early next year.

Construction begun on inner-city branch for Denver Public Library



Denver architects More Combs Burch have designed this 10,400-sq ft library for an ethnically diverse inner-city neighborhood which has shown a steadily increasing usage of its present Carnegie-era library. The building is open in plan, with one seminar room enclosed in plastic, and two lounge areas defined with similar screens. The exterior of the building responds to needs for acoustical and visual privacy, protection from vandalism and minimization of heat transfer. Windows have, therefore, been sized for viewing and ventilation only, and natural light is provided by a roof ridge skylight and two greenhouse solarium for the study lounges. Patterned concrete block was selected for the walls. Completion will be in 1975.

The Architects Collaborative wins Maine State Office Building Competition

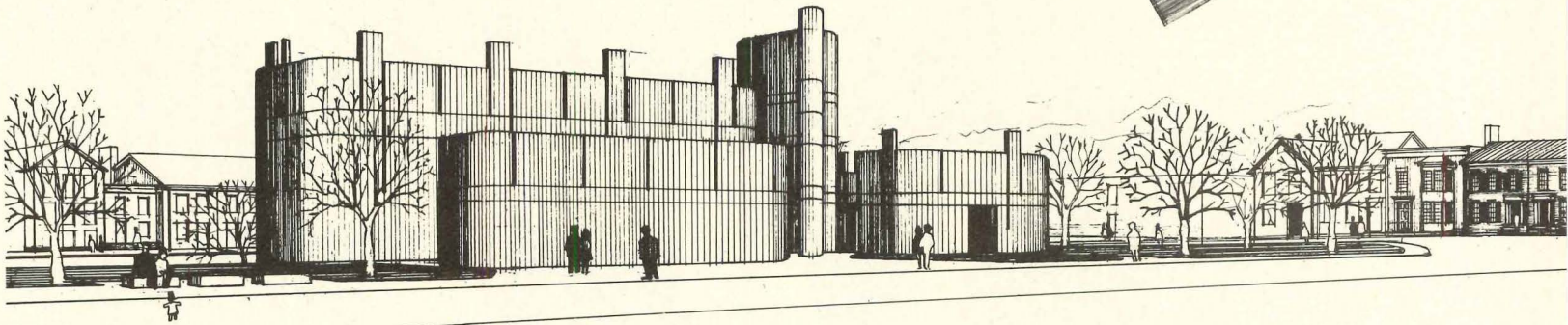
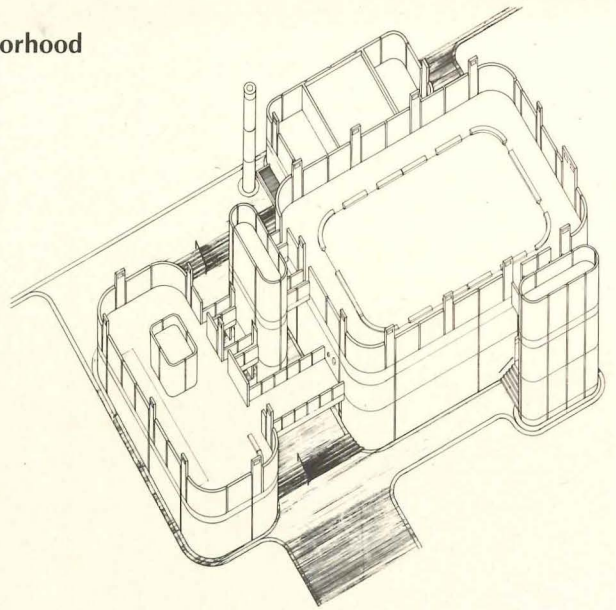


The Bureau of Public Improvements for the State of Maine announced in August the selection of the "Design-Build Team" including The Architects Collaborative; Webster, Ebbeson, Baldwin & Day; and Stewart & Williams Inc. (developers and contractors) as the winners of a design competition for the new State Office Building to be built in Augusta, Maine. The lift-slab structure will house the State Department of Transportation and Motor Vehicles, and is expected to be completed in 1976. It will contain 110,000 sq ft of space on four levels.

Recreation-community center for Washington neighborhood

John E. Keegan is the architect for this community center for a ghetto area of Washington, D.C. According to the architect, separation of functions into three separate yet related buildings and two stair towers permits a playful, realistic use of the site, and creates an interesting series of related external pedestrian spaces. Brick paving, a design nod to the old city brick of nearby sidewalks and alleys, extends the existing urban pavement into the center. Sand or tan bark at play areas and around trees, and grass, ivy and pachysandra generally complete the

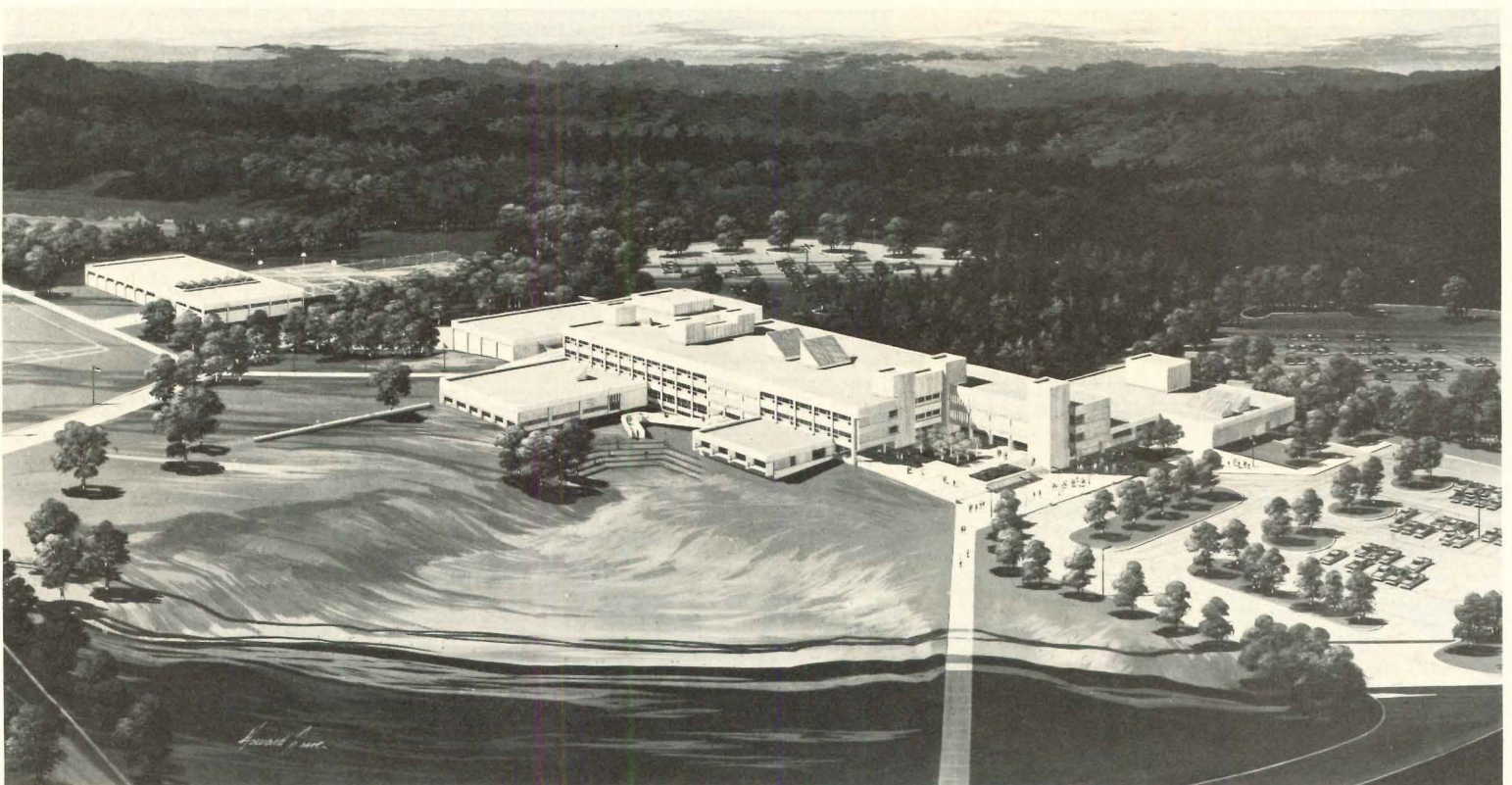
site work. The building itself will contain an auditorium/gymnasium (largest component), community center and locker and utility space, all located in articulated structures. The building is sited at a street corner intersection to permit future additions of a swimming pool and tennis courts. Two stair towers are connected to the activity roofs by open bridges. The gymnasium roof has a roller skating rink on it, while the community center roof is for passive recreation. High parapets are provided with viewing slits.




Hugh Stubbins designs wing for previous project in Gardner, Massachusetts

The Mount Wachusett Community College designed by Hugh Stubbins and Associates—and just opened this fall—will soon have a two-level Fine Arts wing linked to the four-level megastructure which now provides core facilities and teaching space for 1,200 students. The new second stage, planned for completion in January 1976,

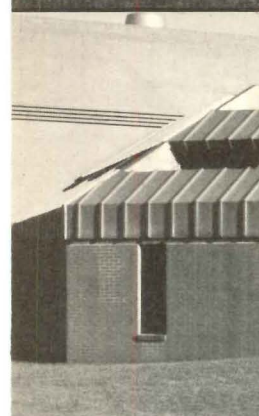
will include a theater, shops, studios, offices and an art gallery/exhibition hall in 41,000 sq ft. Like the rest of the college, it will have a pre-cast concrete exterior. A special design feature is the incorporation of the wing into the main college, with a separate entry for the community while the rest of the building is closed.





Martin Luther King, Jr. Vocational High School, Cleveland, Ohio
Architects: Madison•Madison International, Cleveland
Roofer: Korner Roofing & Sheet Metal Company, Cleveland

Photos by Abel Photographics



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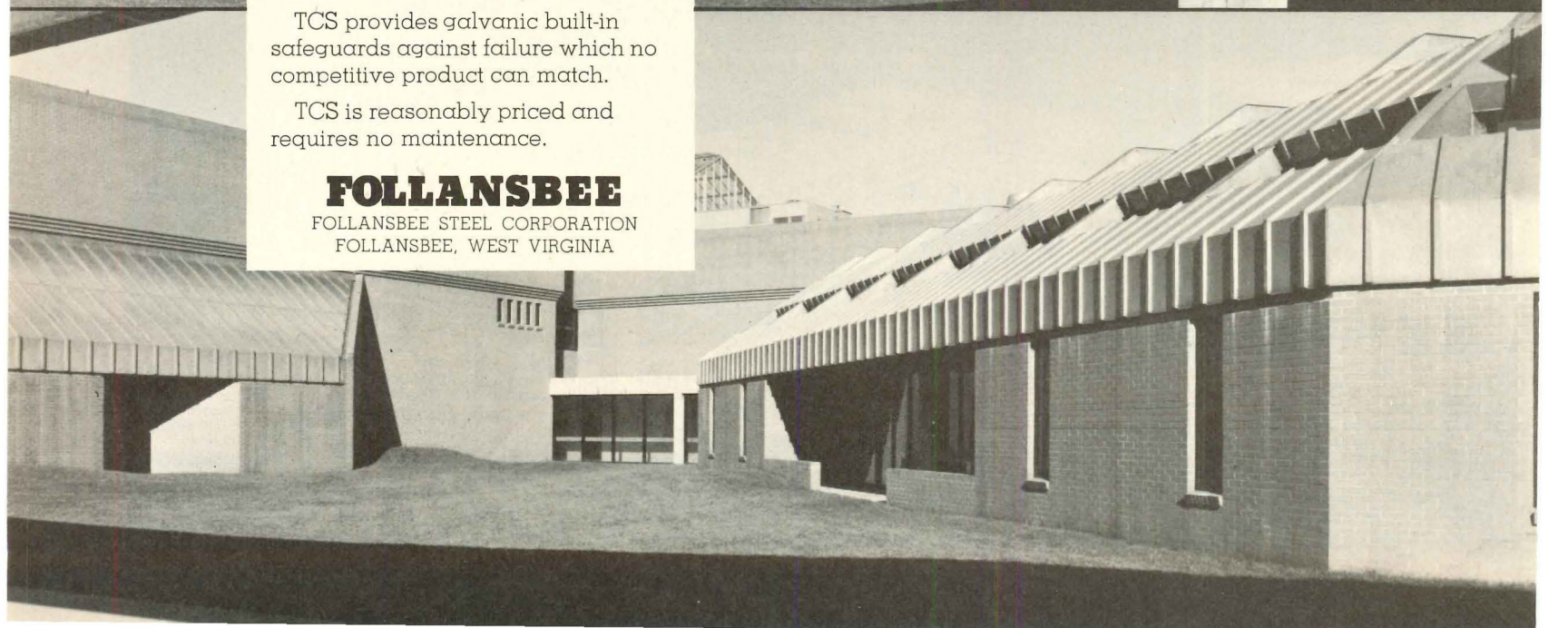
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The U.S. analyzes its current housing and construction problems

Although they said they heard nothing new, leaders of the construction industry left the president's mini-summit on housing and construction in an optimistic frame of mind, September 12. The conference was attended by about 200 persons in government and private industry involved in all phases of housing and construction.

James T. Lynn, Secretary of HUD, who presided over the conference, said in an afternoon press conference that he had heard two new "options" in the course of the meeting. One was a system of compensation payments to thrift institutions for the difference between their rates of interest paid to savers and the rates available on treasury notes. Another was the development of new indicators of economic activity that reflect more quickly the state of the economy. Lynn, who defined the role of government participants in the conference as one of listening, said Federal officials now must analyze the trade-offs involved in the various proposed remedies for the current state of affairs in housing and construction.

"The die is cast in housing for the next few months," he said and added that the nation will not get back to the level of 2 million housing starts a year until interest rates are brought under control.

Delegates attending the conference apparently felt that the die is pretty much cast for the entire economy over the next 12 months. A poll by Louis Harris and Associates, Inc., of 60 delegates to the meeting from labor, residential and heavy construction and its financiers and suppliers found that 65 per cent of them expect the economy to worsen.

While representatives of the housing industry at the conference characterized the situation as a disaster that could become whatever is worse, members of the heavy construction part of the industry were less gloomy, although concerned about the slowing pace of the economy. Construction's labor leaders, however, faced with unemployment about twice the

national average, were inclined to favor stimulation of the economy.

Papers submitted by labor and management in the construction industry outlined at least 30 proposed steps toward alleviating inflation within the construction industry. Four proposals with the widest support were the creation of an office of construction within the Federal government, some form of supervising wages or prices or both, relaxation of environmental, OSHA, and other Federal regulations, and suspension or repeal of the Davis-Bacon Act.

The generally subdued tone of the conference was enlivened by the discussion between construction management and labor interests over the former's widely supported advocacy that the Davis-Bacon Act be suspended or repealed. Most of the advocacy was in favor of repeal.

When construction leaders said that the act has resulted, according to GAO study, in the waste of more than \$9 billion in its administration, Senator Joseph R. Biden (D-Dela.) pushed the point of whether this was the result of the act or its maladministration which he said were not the same. A difference over what wage rates the act actually mandates was clarified by Lynn, who explained that it requires only that contractors pay the wage prevailing in an area, not necessarily union rates.

Creation of the Federal Construction Office within the Commerce Department drew support from the AGC, CEC, ABC, National Association of Minority Contractors, The National Constructors Association and the National Electrical Contractors Association. The broad support this recommendation found apparently reflects growing industry concern that it has no clear representation in government decision-making although it is one of the nation's largest industries. While most proposals assigned this new office a duty of serving the industry's statistical needs—a need mentioned in several papers—the National Construc-

tors Association asserted, in discussing the collective bargaining process, that the Office of Construction be "empowered to recommend and, if need be, enforce those actions necessary to restructure and stabilize this industry."

A proposal for the relaxation of various governmental regulations, with those concerned with OSHA and the environment most frequently mentioned, was contained in the positions of the AGC, CEC, AIA, American Road Builder's Association, American Subcontractors Association, ABC, Mechanical Contractors, and the National Constructors Association.

Both NECA and the Subcontractors group recommended that producers of scarce material be provided tax

incentives to ease scarcities.

The Building Trades Department said that public assistance to cushion unemployment should be undertaken and that tax relief for lower and moderate income families is in order. The AIA, in suggesting a balanced budget either through reduced expenditures or increased taxes, said that these moves should be designed so as to not fall unfairly on some groups and that government undertake to replenish the construction industry pipeline with housing programs contracts. The Construction Mutual Association and the AGC asked that "cost plus" contracts be eliminated. The mechanical contractors, however, said that Federal agencies should accept escalation clauses on contracts involving Federal funds "if no other solution can be found."

New multinational proposal for construction data study of various countries

Current and projected data on the construction industry in at least 22 countries are to be developed in a multinational study proposed by Battelle Memorial Institute. The research is to be carried out as a joint effort by Battelle's Columbus, Ohio; Frankfurt, Germany; and Geneva, Switzerland Divisions.

Scope of the study includes residential, nonresidential, and civil construction, such as highways and bridges. The main thrust will be the development of one-year and 10-year trend forecasts on the construction industry in each of the countries studied.

The data will be provided in a common format so that comparisons could be made from country to country. In addition to the forecasts, the research is to include a report providing an overview of the construction industry in the individual countries.

The research is to be organized on a group basis with a number of companies sharing in the cost and benefits of the effort.

The program is designed to provide participating firms with vital inputs to business planning

and strategy development including: data and forecasts to monitor and help plan the activities of overseas divisions; data useful for identifying new markets for existing products and opportunities for new products; data and analyses helpful in making decisions on the desirability of joint ventures, licenses, and foreign-trade agreements.

The study will be carried out over a three-year period with reports issued annually covering at least 10 countries the first year—principally Saudi Arabia, Japan, United States, West Germany, Iran, Kuwait, France, Iraq, Bahrain, and United Arab Emirates; six countries the second year: Sweden, Brazil, Venezuela, Spain, Algeria, and Mexico; and six countries the third year: Australia, Colombia, Egypt, United Kingdom, Italy, and Libya.

Participation in the program is flexible. Companies may participate in the total 22-country study or in only part of it covering specific geographic regions. An investment of \$15,000 is required for the total program.



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New maps of the past

RAYMOND HOOD, ARCHITECT: FORM THROUGH FUNCTION IN THE AMERICAN SKYSCRAPER, by Walter H. Kilham; Architectural Book Publishing Co., New York, 1973, 200 pages, illustrated, \$10.00.

HISTORY PRESERVED: A GUIDE TO NEW YORK CITY LANDMARKS AND HISTORIC DISTRICTS, by Harmon H. Goldstone and Martha Dalrymple; Simon and Schuster, New York, 1974, 576 pages, illustrated, \$12.95.

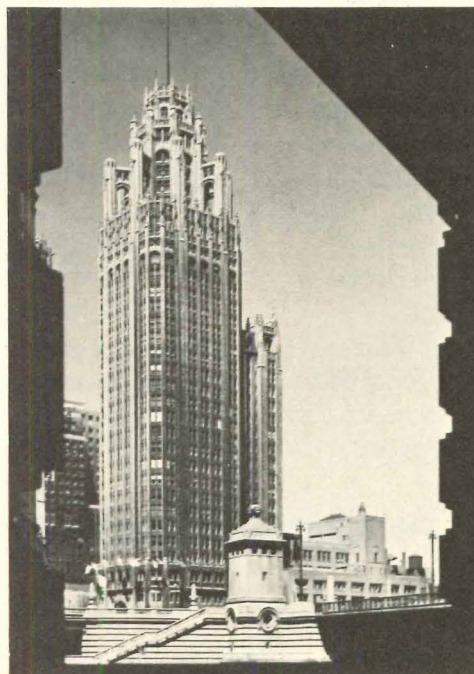
"A society requires antecedents . . . It tests its sense of identity, of regress or new achievement, against that past." So speaks George Steiner in an epigraph to *History Preserved*, succinctly establishing the case for keeping in touch with the past. The view that any of us has of the past is shaped by the kind of accessibility we have had to it. Some historical records are disciplined, rigorous, abstract, encompassing a great sweep of events within a single theory. Others, by contrast, are like twice-told tales, casual about detail, anecdotal and often eccentric in their choice of subject matter; but they have the ability to flesh out the past at a level accessible to common experience. Thus the past can, by extremes, seem as remote as the far edge of an uncharted continent or as familiar as the back of one's hand.

Two new books which are more anecdotal than theoretical make efforts at charting for our use and pleasure some previously unfamiliar ground. The first, *Raymond Hood, Architect*, is a biography which covers Hood's life while focusing on his short but productive career as an architect of notable skyscrapers, beginning with the competition-winning design for the Chicago Tribune and concluding with Rockefeller Center and the old McGraw-Hill Building.

The author was a member of Hood's office during the most productive years of the 1920's and early 1930's. He brings to the book his firsthand understanding of Hood, the various clients, and the context in which the buildings took shape. Kilham shows great admiration and affection for Hood, and as a consequence his book suffers from a certain lack of critical distance. But Kilham is a modest author, not seeking to use Hood as a soapbox for his own personal theories. His biography is concerned with giving a picture of how it all was, by charming anecdotes, reminiscences and some thoughtful retrospection, rather than delving into what it all meant. The latter pursuit will presumably be followed later by more entrepreneurial historians, who will sweep Hood up into some new theory of the alternate history of 20th-century American architecture. Meanwhile, Kilham has provided us access to a man about whom little has been written, in

spite of the fact that he was the architect of at least five great American buildings, one in Chicago and four in New York.

Hood was propelled to fame in 1922 when he won, with John Mead Howells, the design competition for the gothic Chicago Tribune Building, after having been for eight years a virtually unknown New York architect. The stunning "black and gold" building for the American Radiator Company followed in 1924. The Daily News Building, in 1928, developed the idea of vertical expression in a skyscraper so persuasively as to transform the

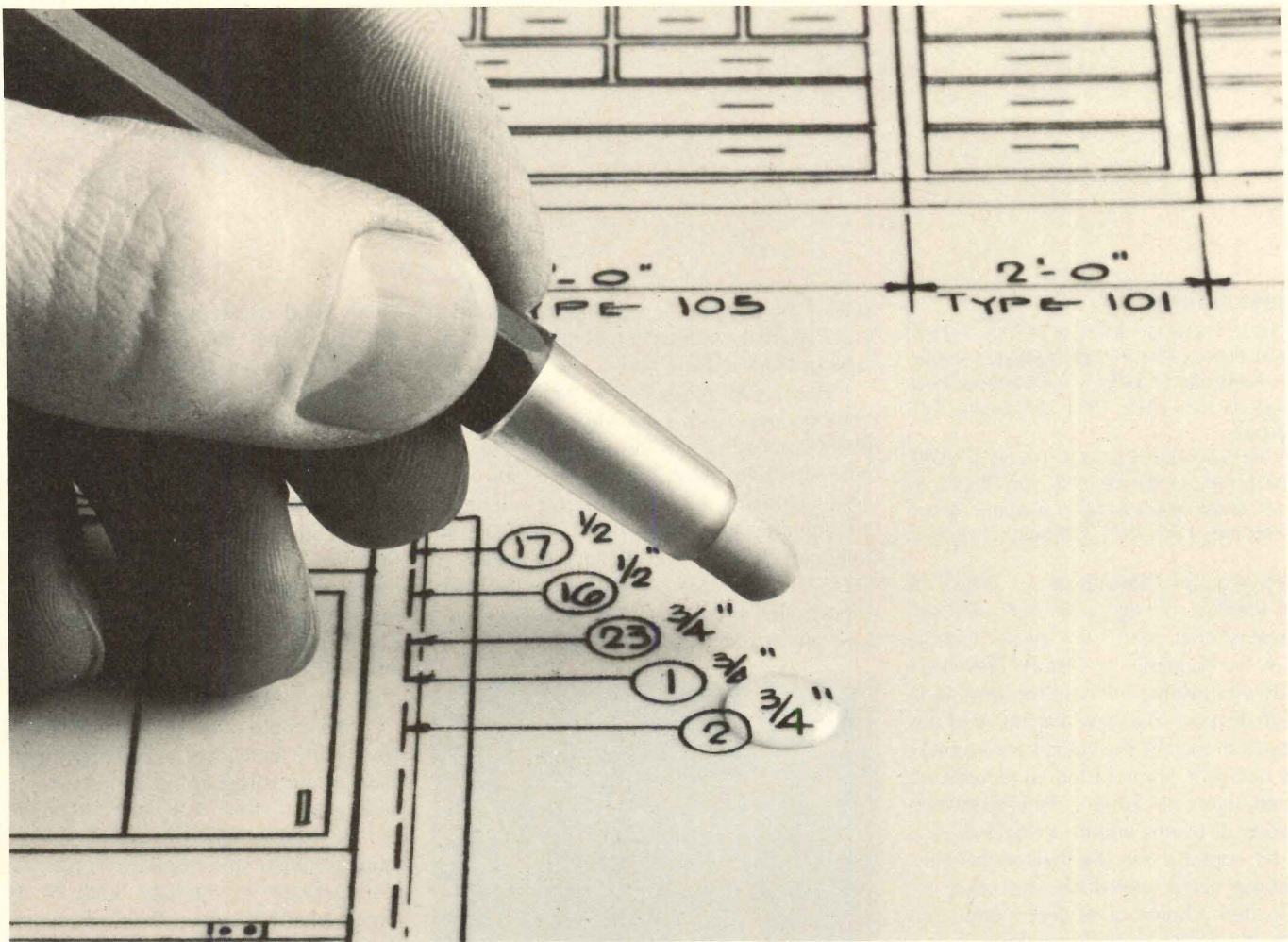


News Building into the paradigm of the modern skyscraper (for confirmation, turn to the "Architecture—modern" section of any encyclopedia, and you will find pictures of the Daily News Building and Fallingwater). Hood's career culminated with his participation on the team of architects who designed Rockefeller Center, and finally the very spare and intensely coloristic McGraw-Hill Building. Although Kilham gives emphasis to the skyscraper commissions, he doesn't fail to mention in passing other interesting projects—Capt. Patterson's house painted in camouflage, the Rex Cole showroom with an overscaled refrigerator on top, and others.

Our record of the 1920's and 1930's is so completely dominated by the experiments and ideas of the European Modernists that a book on Raymond Hood is all the more precious for its rarity. As the history of this period becomes more complete and resonant, Hood may take second place to the late work of Bertram Goodhue or to Norman Bel Geddes or others; but for the moment his career seems utterly fascinating because it was a kind of finely tuned barometer of the radical shift in visual taste among architects and the public, a departure from the great eclectic styles towards a modernistic esthetic. Hood was finally a conservative man, more at home with businessmen-clients than with intellectual theories. His career was played out on a pragmatic, "show me" stage, his innovations quickly tested in the marketplace. And yet, in this context, Hood moved effortlessly from the Tribune Building, with its beautiful gothic tracery, in 1922, to the modernistic McGraw-Hill Building, with its vibrant color and lack of ornamentation, by 1931. It is remarkable that the same man could do both buildings within a span of nine years. Regrettably, Kilham doesn't analyze thoroughly the causes of that shift, but his book is a worthy introduction to a man and a time and place that, with any luck, we will come to know more intimately.

The second book, *History Preserved*, becomes a splendid celebration of the history of New York City as seen through its still extant landmark buildings and historic districts. The book is extensive, covering each of the five boroughs in detail (with emphasis on Manhattan), and intended both for general reading and as a guidebook for laymen and for architects and historians. Chapter One is given over to definitions and explanations: Landmark, Historic District, Landmarks Preservation Commission, and an Architectural Vocabulary or classification and description of the various architectural styles. This chapter will be required

more Required Reading on page 45



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reading for a complete appreciation of the remaining nine chapters. The authors discuss each borough in terms of five building types—residential, ecclesiastical, public, commercial and utilitarian—and they include ample photographs and maps. At the end of the book there is a glossary of terms, a bibliography and a chronological chart which categorizes each landmark building by its type, decade of completion and style.

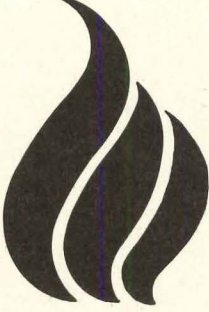
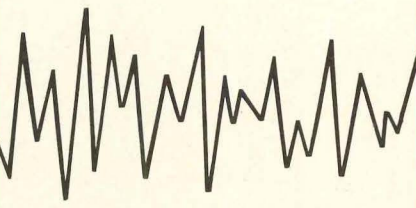
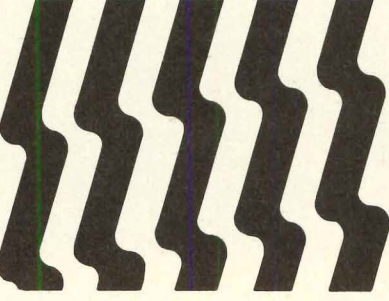
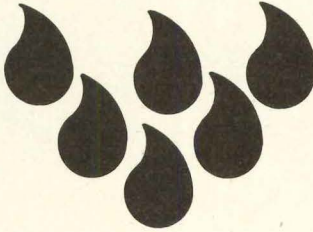
In the hands of less talented or involved writers, *History Preserved* could have emerged as the driest piece of cataloguing this side of the telephone directory. Fortunately, Goldstone and Dalrymple have produced a book in which a wealth of valuable information about a bunch of notable buildings has been interwoven with great flair, with an abundance of social, economic and political anecdotes, first-hand descriptions, juicy gossip and the like—all of which gives a sense of the life and times in which these buildings emerged and existed. In describing the Fulton Fish Market and the nearby Schermerhorn Row, the authors don't fail to mention the oyster bars, where "young bloods, elegant ladies dressed in the latest fashions, statesmen, politicians, even the clergy gathered in the rather rough wooden rooms to enjoy the succulent shellfish on the half shell or in stews." A description of the Brooklyn Bridge recalls that its Manhattan approach sits on what was No. 3 Cherry Street, a house rented by George Washington when he was President-elect and New York was the National Capital. In addition to pointing out that the house, though large, was insufficient for George and Martha and their eighteen servants, the authors describe the sight of George in his "cream-colored coach, ornamented with cupids and festoons of flowers and drawn by six prancing horses with painted hoofs." Included in the description of "Clear Comfort," a house on Staten Island, is the tragic story of Alice Austen, an accomplished photographer and early feminist. The story of St. Luke's Place is embroidered with the recollection that the ill-fated Starr Faithfull lived at No. 12 until June, 1931, when her strangled body was washed up on a Long Island beach. And who could fail to be fascinated by the tale of Consuelo Vanderbilt weeping through her arranged marriage to the Duke of Marlborough at St. Thomas Church? It is to the author's credit that they have managed to transform the buildings and districts into stages full of life past and present, rather than just describing stylish artifacts.

Both books are set in New York, but that should cause no discouragement to readers in other places. Raymond Hood happened to be a New York architect, but more importantly he was designing notable buildings at a time of transition in American architecture. *History Preserved* is about New York City history, but also discusses the mechanisms and motivations for preserving the built past in cities all across the land.

—Richard Oliver

Mr. Oliver is an architect who practices in New York and who currently teaches at UCLA.

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OFFICE NOTES

New firms, firm changes

Campbell, Rea, Hayes & Large have changed the name of the firm to **Rea, Hayes, Large & Suckling** architects.

Albert Bass, P. E., consulting engineers has relocated their mechanical and electrical design and engineering offices to The Stratford Marina Building, Foot of Broad Street, Stratford, Connecticut.

Jon Halverson • Gary Johnson Architects have opened their office at 24 North Fourth, Grand Forks, North Dakota.

Lester Wertheimer AIA Architect has moved to new offices at 924 Westwood Boulevard, Suite 840, Los Angeles, California.

B. A. Berkus Associates has changed the name of the company to **Berkus Group**, Architects and Planners and has consolidated its California operations at 2082 Business Center Drive, Irvine. It will establish its corporate headquarters and commercial division at 1100 Glendon Avenue, Los Angeles.

Dalton•Dalton•Little•Newport, architects, engineers, and planners in New York, have announced the establishment of a combined production capability with the **Office of Ira Kessler, Architect**, in Manhattan at 135 East 44th Street.

Mr. Donald R. Cross & Mr. Kent B. Braasch have announced the incorporation of **Cross & Braasch Architects, Inc.** with offices at 3005 North 67th Place, Suite A, Scottsdale, Arizona.

M. Richard Meyers, Architect, has opened his new office at P.O. Box 1487, Aspen, Colo.

The Land Group, Inc. announced the opening of their new office for the practice of landscape architecture, land planning and engineering at Suite 150 Arrow Press Square Building #6, the Glass Factory, Salt Lake City, Utah.

The San Francisco architectural firm of Bull Field Volkmann Stockwell has joined forces with Business Space Design of Seattle, Washington to form an affiliate organization to be known as **BSD/San Francisco**, specializing in architectural interiors and space planning. Offices will be located in Musto Plaza, 350 Pacific Avenue, San Francisco.

New partners, associates

Ross & Yamane Architects have announced that **Stanley J. Kaczmar**, AIA has been made a partner in the Cleveland firm.

Goodkin/Ruderman/Valdivia (GRV), of Los Angeles, have announced that **Teody Zano** and **John Kilbane** have been named associates in their architectural and planning firm.

Keith M. Sipperley has joined Giffels Associates, Inc., Detroit, as director of architecture.

Gerald L. Boughton, P. E., has joined the staff of Wheeler & Tillitt, Inc. consulting engineers, 2101 Hennepin Avenue, Minneapolis.

Texas architect **I. Milton Durham Jr.**, AIA, has joined Connell Associates Inc., Architects, Engineers, Planners of Coral Gables as vice president.

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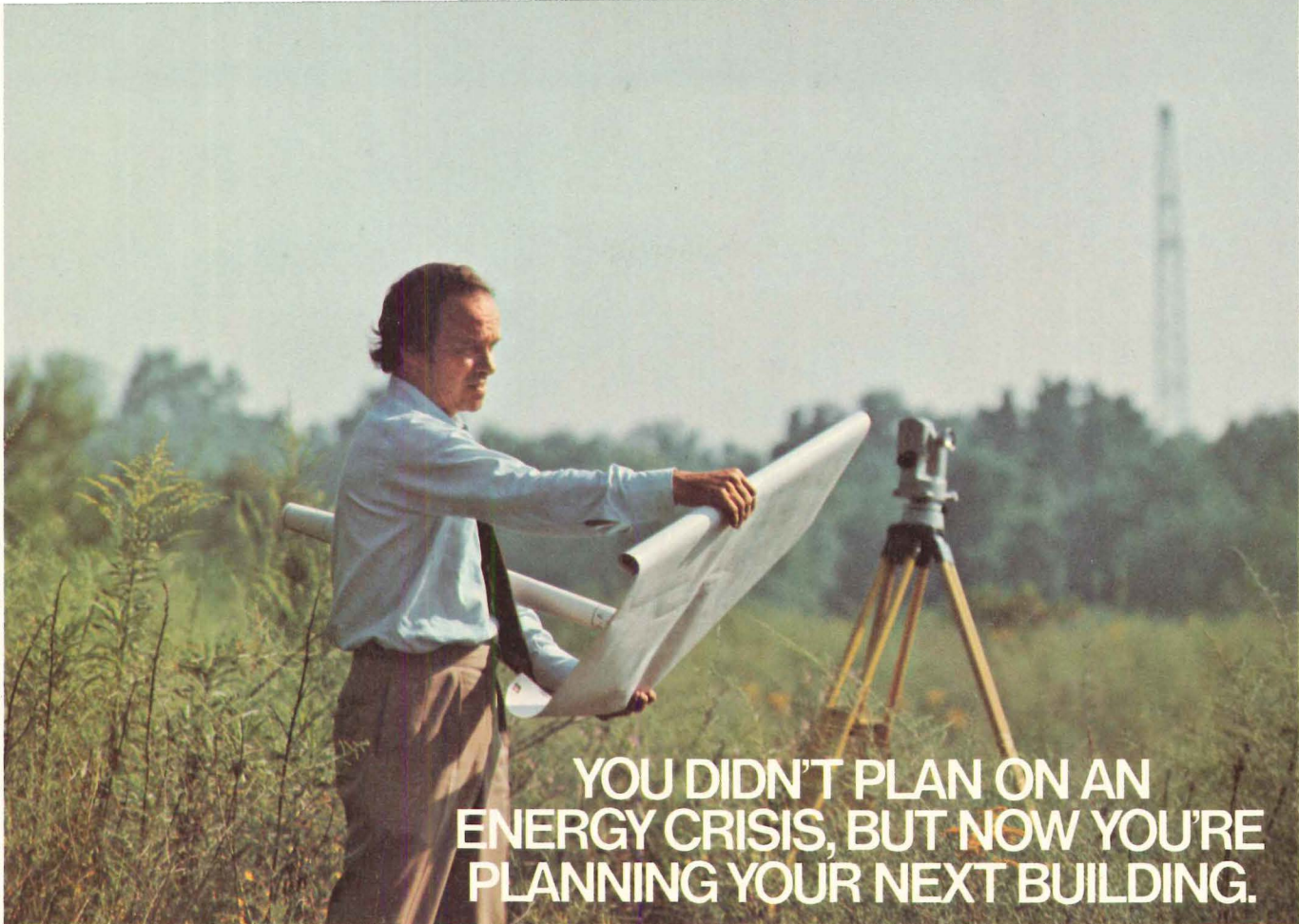


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YOU DIDN'T PLAN ON AN ENERGY CRISIS, BUT NOW YOU'RE PLANNING YOUR NEXT BUILDING.

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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 Fahrenheit 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.

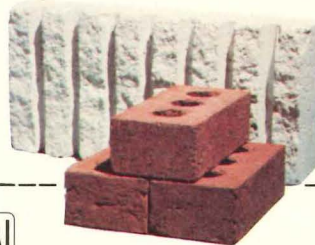
In a time of one energy crisis after another, masonry makes eminently good sense as a good citizen.

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.



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And so the interior of the New Mexico Bank, with perimeter walls of AllianceWall porcelain-on-steel and precast concrete, will stay comfortably cool on the hottest days while saving a great deal of energy. The 1" porcelain panels used in this project provide approximately the same insulation as a 12" brick wall.

Architect: W. C. Kruger & Associates
Albuquerque, New Mexico

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For complete information on the unusual thermal insulating qualities of AllianceWall porcelain-on-steel panels, write for free catalogue.

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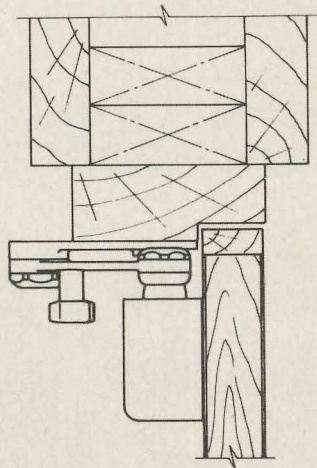


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Fisherman's Cove Restaurant, Atlanta, Georgia
Architects: Romweber-Bornhorst-Edwards-Brimm Associates

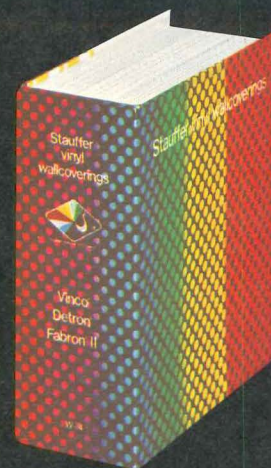
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In a Pella Clad Wood Window, all exterior wood surfaces are covered with an acrylic coated aluminum skin. An outside finish that is known for its durable, low maintenance qualities. Equally important, however, is the fact that our clad exterior lets you select colors, shapes and sizes that complement your plans. Naturally. Pella Clad Wood Windows. Available in three standard (a) and eight special colors. On our Casement, Awning, Double Hung, Fixed and Trapezoidal Windows.



(a)

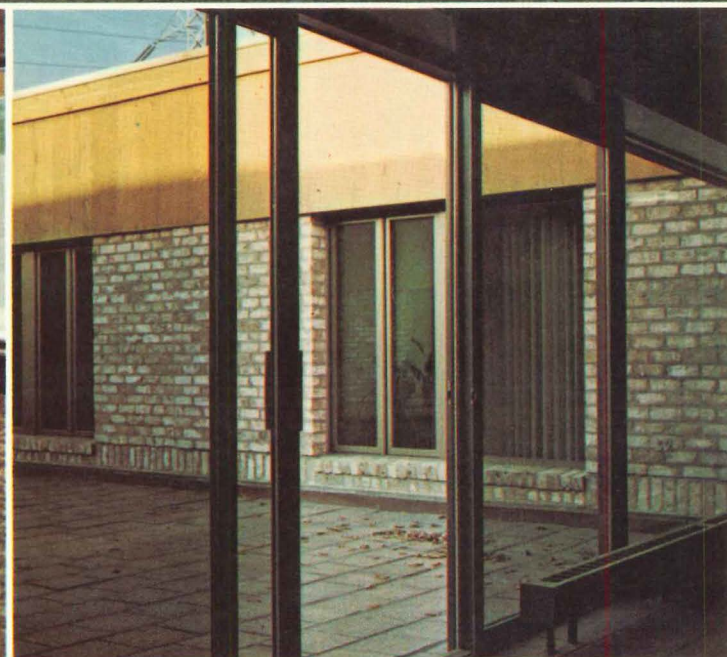
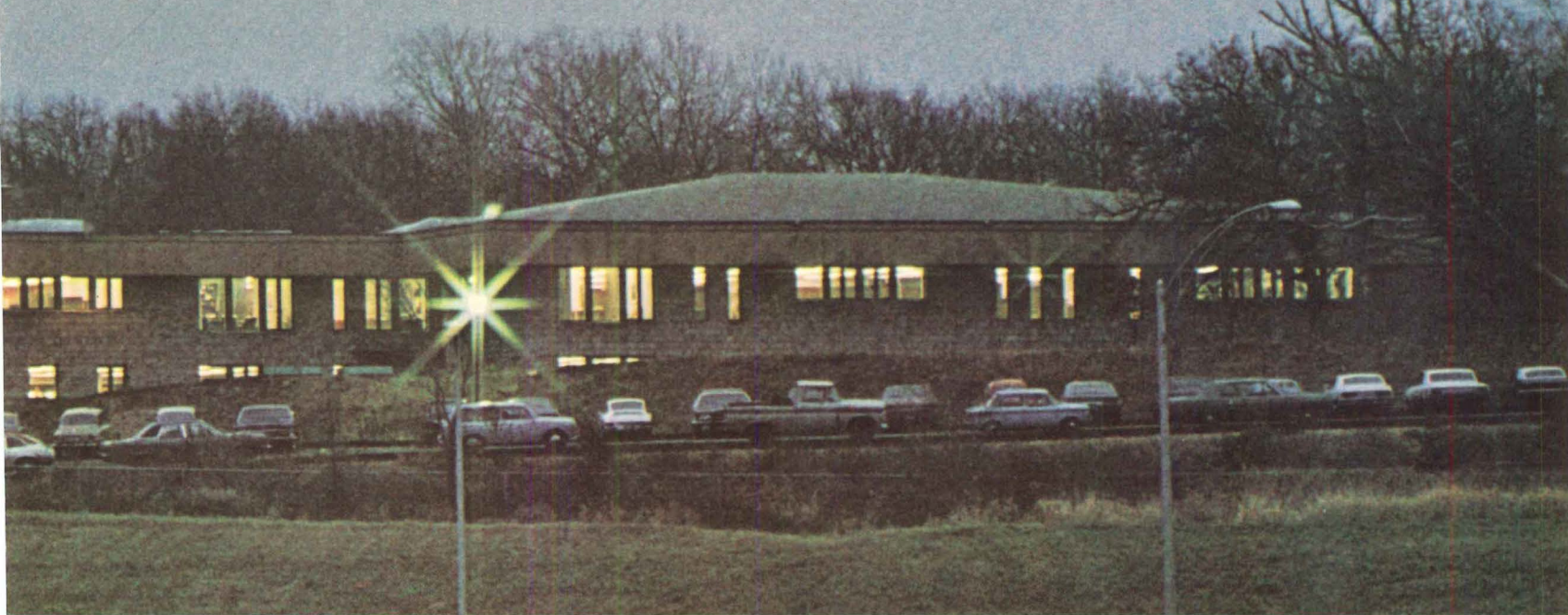
Inside, the natural warmth and beauty you expect to find in a quality wood window.

While we recognize the need for a low maintenance exterior, we are also well aware of the natural warmth and beauty that a wood window contributes to a building's interior. So we were very careful to preserve these two qualities when we designed the Pella Clad Wood Window. For example, the exterior aluminum skin never penetrates the frame or sash (b). Leaving the natural insulating value of the wood intact. And the natural beauty of the interior wood surfaces completely undisturbed.



(b)

**At Fingerhut's new headquarters,
this Pella Clad window system
blends in beautifully,
inside and out.**



Architect: Ackerberg and Associates Inc. Architects Builder: Nystrom Constructors Inc. Windows: Pella Clad Casement and Fixed Units

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(c)

Pella Clad Sliding Glass Doors are as solid, as beautiful and as maintenance-free as a Pella Window.

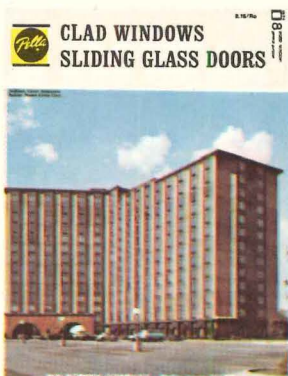
Pella Clad Sliding Glass Doors combine the natural beauty and insulating value of wood with an exceptionally solid framing system. Welded steel T-sections (d) frame the glass in the slender wood panels. This prevents warping and keeps the panels aligned for smooth, easy operation. Pella Clad Sliding Glass Doors let you extend the view, without having to sacrifice inside appearance or comfort. They are weathertight, even under severe weather conditions. Available in all 11 colors.



(d)



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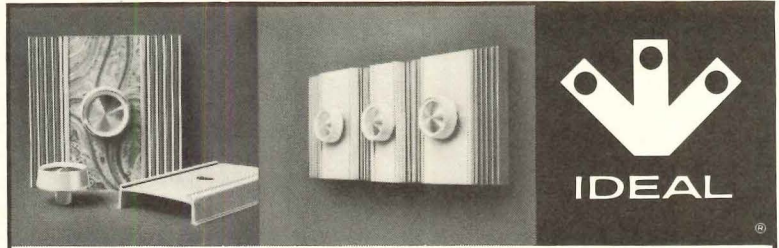
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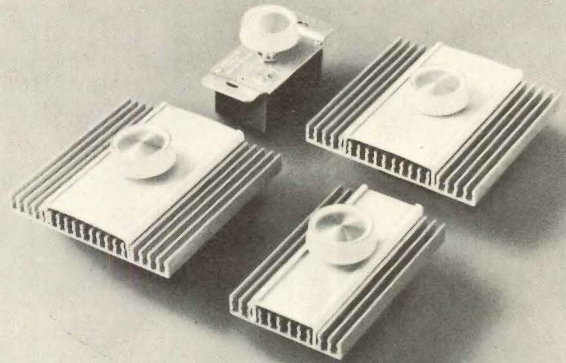
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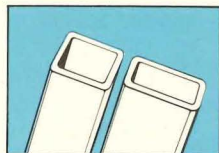


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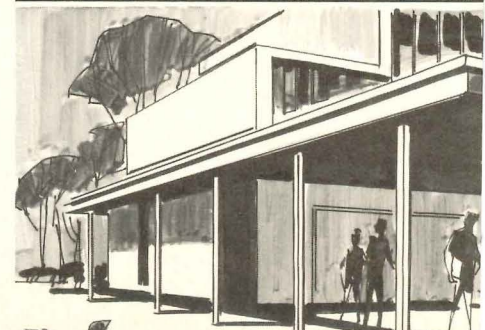
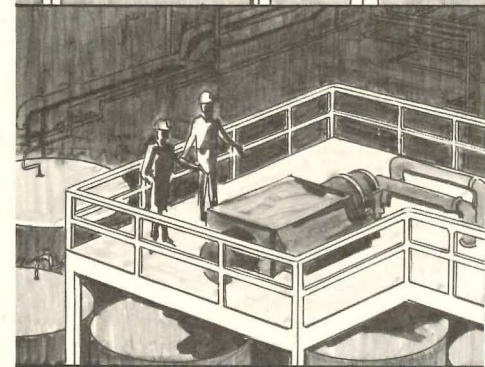
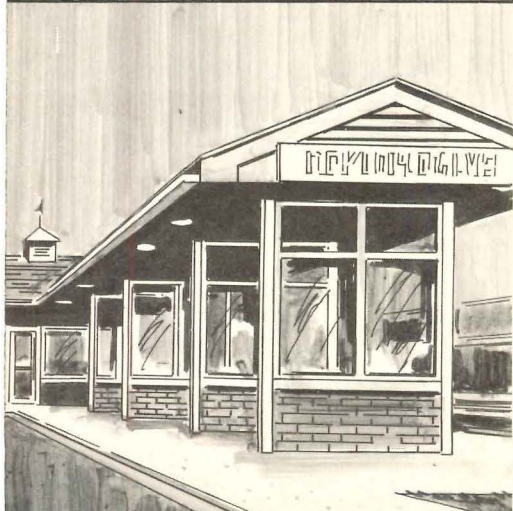
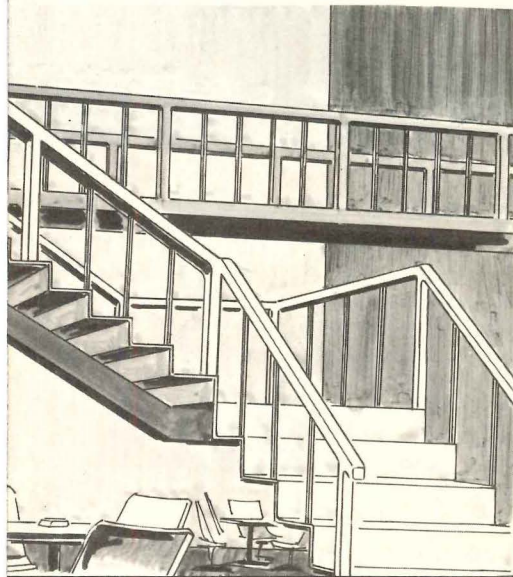
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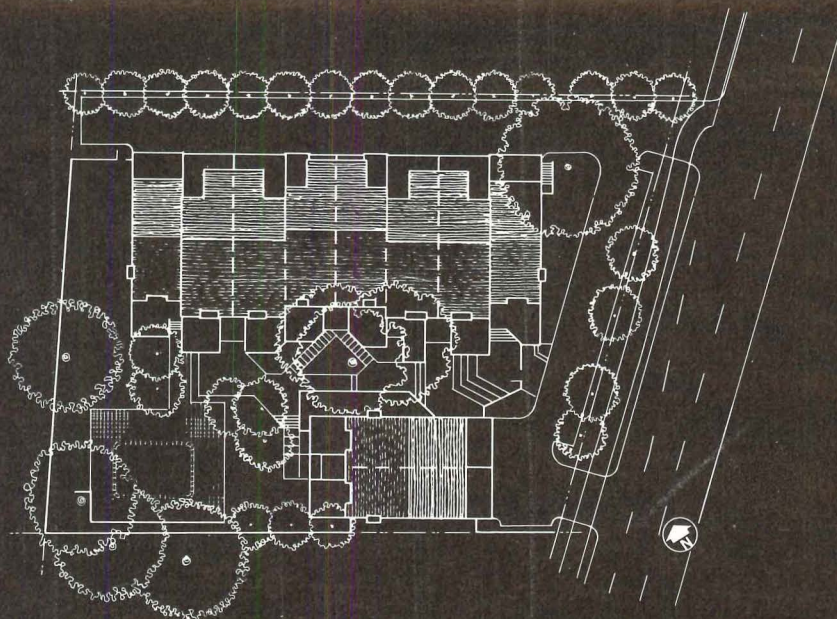
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Red cedar addresses vest pocket condominiums.



White Oak Townhouses, Menlo Park, California. Frank L. Hope and Associates, Architects.

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Professional contracts: Notes of caution about forms

AIA contract forms have been so carefully constructed and revised over the years that many if not most architects use them routinely and—by and large—safely. But there are occasions when complications of ownership or special requirements for services, schedule or budget call for special handling and reexamination by experts in the law of contracts. The following article by Kathleen Kelly makes these and other points based on the author's unique opportunities for observation. As special assistant on the staff of the New York State Urban Development Corporation, Ms. Kelly wrote and/or reviewed innumerable contracts between that public super-client agency and architectural firms. After curtailment of UDC, she moved to Philadelphia and continues on a private consulting basis to write contracts, proposals and reports for architects and engineers.

During my tenure with the Commercial Division of the New York State Urban Development Corporation (UDC), a prominent New York City architectural firm offered to draft a contract for their services on a small downtown shopping center in upstate New York. The firm was thoroughly familiar with the project and with UDC's standard architect's agreement. They had had numerous discussions with us on how the project should proceed and, as the job of drafting such contracts usually fell to me, I was delighted to accept.

A few days later, I received several copies of AIA B131, without amendment, filled in only to state the firm's name, UDC as owner, the name and location of the project, a list of the basic elements of the project, and a percentage fee.

The proposed contract did not in any way acknowledge the facts that:

UDC was only an interim owner, providing front money to the municipality;

Each element of the project would have a different owner, each of whom would participate in the design process throughout;

Construction would have to be phased;

Each element would have different financing.

In spite of all this, the most logical end product was an architecturally and structurally integrated building.

I informed the partner on this job that the draft contract was unacceptable to me and, further, that, if for no other reason than that he would lose money, it shouldn't be acceptable to him. We threw it away and started again.

The firm had been working very hard to

help us sift out and resolve the issues presented by the project. Their suggestions, persuasions, and responses to our criticisms were well thought out and extremely useful. But it was costing them money and they were properly eager to insure that they would be compensated for their services.

And so they looked to a well recognized instrument calling for standard architectural services and a standard percentage of construction cost fee. To the detriment of both architect and client, they completely ignored the very special creative process that constitutes "architectural services", especially in a project of this complexity.

To the degree that architecture is considered art, its practice is unique. In no other artistic profession can one design exclusively on commission and to so many specifications of the commissioner without being accused of compromising one's art to commerce.

Only in architectural practice is the realistic ideal a dialogue between architect and client in which the architect recognizes the legitimacy of the client's influence on design, budget and timing, while the client in turn looks to the architect for both artistic and technical expertise.

And that very complicated phenomenon is a business arrangement.

Why, then, do so many contracts for architectural services ignore the creative process required and gloss over the very legitimate business interests of both parties?

Perhaps because in the past architecture has been a gentlemen's profession, in which gentlemen's agreements with gentlemen clients would suffice, and the money only really mattered to the client.

Whatever the reasons, my purpose here is to suggest ways in which architectural contracts can be improved to: 1) become a useful tool in the creative process and, 2) make the business arrangements more businesslike, for the protection of all concerned.

The contract as an instrument for organizing art

In order for contracts to address the creative process, the architect must know exactly what is expected of him by the client, both as end product and as services leading up to the end product. Architect and client must, in the very first instance, confer with each other to whatever degree is necessary for both to understand and agree on the parameters of the job and the extent of services the architect will provide.

"Insufficient early communication between architect and client is the biggest problem" leading to contract difficulties between both parties, says Vincent Garrity of Duane, Morris & Hechscher, a prominent Philadelphia law firm. He believes a substantial portion of owner-architect suits could have been avoided had both parties asked enough questions at the start and, if necessary, addressed those questions in the contract.

How firm is the program? Are there any inflexible deadlines or budget limitations? Is some degree of community consultation appropriate or required? What is the process for approval of submissions and who is involved?

Additional questions may revolve about the over-all purpose of the project, characteristics of the project's intended market, the owner's feelings about the general character of the end product, the use of specific materials which may be encouraged or forbidden, and so on.

Conversely, the architect should be sure that the client understands what services the architect will and will not provide and the implications for architectural services residing in the client's requirements; for instance, the nature of each normal submission and the time and expense of alternative design studies.

The contract should take work flow into account

Based on this consultation, the architect should develop a plan for the most logical flow of work including the most efficient timing for decisions and client input.

The work plan is an internal (not a formal contractual) document, describing among other things the method by which the architect's products and services will be rendered. For small straightforward projects, it may correspond to the "Scope of Services" in the AIA standard form contracts.

However, when working with unsophisticated clients, even on small projects, it may be most efficient to work in more detail and devote more time than is usual to the first phase of design. By so doing, one can further insure that architect and client have the same understanding of the process that is taking place and of the end product that is expected.

If an extended first phase of design seems useful, it should be reflected in the work plan, calling perhaps for extra meetings with the client, allowing for presentation of alternative sketches, and by specifying a further level of detail for the first-phase submission.

In the case of large, complex, or time-consuming projects, the process of developing a work plan is critical to pointing out problem areas in the work flow, and to making decisions on the sorts of contractual arrangements which are most appropriate. For instance, a work plan for the downtown shopping area discussed at the beginning of this article would have pointed out a need for:

- An indefinite amount of extra services in the first phase of design;
- Separate sets of preliminary and construction drawings for each project element;
- Perfect coordination among the three sets of drawings;
- An unusually long period of construction supervision (for a project of this size) because of phased construction.

A work plan in this case would also have addressed the fact that there were at least four and possibly five clients for this job: UDC, the eventual owners of the three project elements, and to some degree, by UDC's statute, the community concerned with this project.

All of these items had implications for the structure of any contractual arrangements between UDC and this particular architect: the number of contracts, the character of the scope of services, and of the fee provisions (it costs money to have five clients on a single job).

The work plan leads to the scope of services

A formal scope of services for inclusion in the contract should be based on the work plan, describing the products that will be submitted to the client, their order of submission and describing or making provision for all other services the architect may be called upon to provide in the course of his work.

In the case at hand, the scope of services (a single contract seemed most appropriate) should have been provided for:

- An expanded schematic phase, calling for the architect's participation in working out the legal and financial problems, as well as a standard schematic submission; and
- Three separate stages (one for each project element) for all work after schematics, to accommodate more flexibility in the flow of the architect's work, as well as UDC's need to assign portions of the contract to the final owners of the project.

The detailed methodology of the work plan should not be included in the scope of services since it may then become a contractual requirement and thereby restrict the architect's flexibility in providing services should a different method appear more desirable in the course of work. Further, inclusion of a detailed methodology in either a scope of services or a proposal gives the impression of a lack of sophistication or experience, as if one were to recite a recipe for Beef Wellington in order to get a job as a chef.

Lastly, descriptions of methodology tend toward jargon. While shorthand language and special meanings for everyday words may be useful for communicating to others in one's profession, they have no place in a legal document such as a contract.

A "scope of services" can be creative

writing at its best. It must be written to permit all tasks directly appropriate to the job at hand, without calling for any that are unnecessary or repetitious. It must be as precise as possible so that a proper estimate of fees can be made. It must be loose enough to accommodate the study of special problems that may arise in the course of work. The scope of services should make provision for any service the architect anticipates will be required of him, such as attendance at public meetings and special study of a certain aspect of the job. It may include provisions for future work or specific written instructions before proceeding into a new phase of work.

Whatever is included, the scope of services must correspond to the structure of the work the architect is expected to perform. If the work is complex, the scope of services will be too. And that shouldn't frighten anyone as long as it has been written as clearly and concisely as possible.

The preamble to architectural contracts normally includes the name, location and boundaries of the project. (If it doesn't, it should.) However, it is often useful, depending on the nature of the job and the structure of the contract, to say something specific about the scope of the project—for example, number of dwelling units, square feet of leasable space—in the body of the contract. To the degree this is appropriate, it may be included in a general paragraph at the beginning of the scope of services section of the contract.

Even the best written scope of services occasionally has to be amended. The procedure for doing so should be clearly outlined in the body of the contract.

The contract is not a schedule for attending to business

"If these [architectural] services are rigidly scheduled by a contract device, the relationship [between client and professional advisor] may be compromised and can degenerate into an unsatisfactory and unproductive exercise in meeting deadlines." So says the *Architect's Handbook of Professional Practice* published by The American Institute of Architects.

There are several good reasons why it may be unwise for most architectural contracts to include a firm schedule of dates: 1) It then becomes a firm contractual requirement; and 2) such schedules usually leave out the client's scheduling responsibilities.

However, it is clear that architects do have a responsibility to elicit from their clients any scheduling requirements they may have, and to incorporate those requirements into an internal schedule based on the work plan. Such an internal schedule is essential for planning within the architect's office and, in some cases, for deciding whether it's wise to accept the job at all.

An internal schedule will have to include obligations of both client and architect (the time for reviews and outside approvals, as well as the time it takes to do preliminary construction drawings), and there should be no objection, if either party requests it, to inclusion in the contract of a schedule defined by intervals of time rather than by specific dates.

For instance: "preliminary drawings will be submitted within six weeks after receipt of written approval of schematic drawings."

From the schedule and work plan, it should be possible to make a good estimate of the architect's cost to produce the job. Whether the fee is fat or nonexistent, this cost estimate is a very important piece of information for determining whether or not the design work is on budget, and if not, why not.

... and for this plan rational fees can be determined

Fees to cover this cost, including reimbursables and the cost of models and special consultants, must be provided for in the contract from the start. In no case should the architect rely on later amendments to the fee provisions of the contract to cover costs.

Whether fees are expressed as lump sum, an upset based on billing rates, or as a percentage of construction cost depends on many factors—including the client's and architect's preferences and the financial implications of the work plan and over-all structure of the job.

In the case of the downtown shopping area discussed earlier, the client preferred percentage fees. However, a straight percentage would not have covered the architect's extra work in the expanded schematic phase of the contract proposed above. Suitable compromise would have been

- Timecard billing through schematics up to a negotiated upset. (The upset would have to be relatively easy to amend since the duration of the services would be determined by the client and outside circumstances and would not be predictable by the architect.)
- Three separate percentage fees can be stipulated, one for each project element, after approval of schematics.

Complex jobs require complex fee provisions and it is not difficult to imagine a contract which would require three different types of fees: lump sum, upset and percentage.

Open-ended contracts, those intended to provide the most flexibility to both architect and client for jobs involving architectural coordination, exploratory planning and design studies, etc. can be a delight, and several Philadelphia firms use them successfully. But they usually give heart attacks to clients' accountants and delusions of grandeur to architects' accountants unless some limits are placed on costs and/or services. Typical restraints that usually make the contract more satisfactory to both parties are a quarterly maximum on fees, a requirement for a separate contract for services which turn out to be especially time-consuming or complex, or an upset on fees for any one service.

Conversely, architects should show great restraint in allowing standard contracts to turn into open-ended contracts. An architect in Philadelphia was persuaded to take on a number of miscellaneous but important tasks, "rush jobs" all of them, which were not included in his comprehensive planning contract. He was compensated for all of them, but he is now experiencing great difficulty in getting an amendment to the contract to cover the cost of the work that was in the scope of services. Ap-

parently, there was inadequate documentation of all the special requests.

It is less important that fee provisions be simple than that the total of all fees cover all costs, and that the structure of the fee provisions correspond to the structure of the job and the contract as a whole.

While differences of interpretation on the scope of services are usually negotiable, such differences with regard to fee provisions are less so. Therefore, clarity of language in the terms of fee provisions is especially critical.

One common mistake in this regard is the expression of what is intended to be a percentage of construction cost fee as a lump sum, by virtue of not making any reference to either the construction budget or the agreed upon schedule of percentage fees. I recently examined a contract for a firm about to start work on a government project in Boston. The contract specified a fee which, given the estimated construction budget and the agreed upon schedule of fees, happened to be correct. But the contract made no specific reference to the budget or the fee schedule, and further, the program and budget were subject to change. Under the strict terms of the contract, the architect could have been required to do twice as much work for the same fee. (Specifying the nature or estimated program of a project in the scope of services also helps to define the fee provisions.)

Working out fee provisions on large and complex projects is the one area in which an attorney can be very useful in actually composing a contract. In any case, it is notable that firms which work out their fee provisions carefully usually do well, and those which do not work them out, do not do well.

Within the body of the contract there should be a clear procedure for amending fee provisions and delineation of fees owed in case of delays by the client, termination, or default by the architect.

Most architects today devote a certain amount of their time to activities for which they expect little or no compensation: advocacy work and work for family and friends. The fact that the architect is not compensated for this work makes it all the more important to handle these projects in a businesslike way as much as possible: to document any agreement to do such work, and to establish a work plan, schedule and estimate of costs. In addition to keeping time sheets and other records as the work proceeds, it may even be useful to send "bills" periodically, since many organizations will gladly pay for past work when they finally do get some funding.

Universal clarity is essential in producing and accepting contracts

A contract of any kind must be written clearly and precisely so that architect, client, their attorneys and, if necessary, a court of law all get the same understanding on reading it with a minimum of added explanation.

Any intelligent person who is familiar with the practice of architecture, the job under discussion, and the general form of contracts, who also writes well can write an architectural contract.

However, only an architect can provide the specific information about the job required to write the contract, and only the architect can attest to whether every term is understood and accepted.

Furthermore, while in the vast majority of cases the role of the architect's attorney in producing a contract begins after the contract has been written, at that time an attorney is required to determine that the contract is legally binding, internally consistent, and does not subject the architect to undue liability. Many law firms can provide this service within 48 hours and architects should use it.

The AIA and many public agencies, as well as private corporations, have developed standard forms for owner-architect agreements. They are, by and large, very useful documents, and John Clark of the Philadelphia law firm of Dechert Price & Rhoads, who helped draft the original AIA forms, urges much greater use of standard forms by public agencies—and of course more standardization among them. However, he also advises that any standard form being used for the first time, or any previously okayed form which is altered or amended in any way, should be checked out with the architect's attorney.

And even so, the use of standard forms does not mitigate the need for the architect to go through the exercises described above, the work plan, the schedule and the estimation of costs. Nor does it eliminate the requirement that the structure of the contract correspond to the flow of the architect's work.

Public agencies that do use forms usually tell architects that their forms cannot be changed in any way. As a matter of fact, most responsible agencies are continually trying to improve their forms and publish revised editions from time to time. In the majority of cases they will amend the form if a provision is pointed out to them as being clearly unfair or misleading. Two such provisions which usually get edited out sooner or later are limitations on the agency's liability to pay fees should it suffer political or financial reverses, and unlimited ability to use the architect's work on other projects without additional compensation.

Conclusion:

Take care!

Given the usual blend of art and technology that is architecture, and the fact that almost every architectural job today has something special about it, architectural contracts become rather special documents and should be composed and written with care. They should be based on a well thought-out plan for accomplishing the work at hand, including scheduling and financing. The adequacy of these of course depend on the adequacy of information obtained from the client at the start.

Contracts should be written clearly and precisely and their structure should correspond to that of the job. Lastly, no contract should be signed until the architect and his attorney agree that every term is understood and accepted and that the contract as a whole covers all of their concerns.

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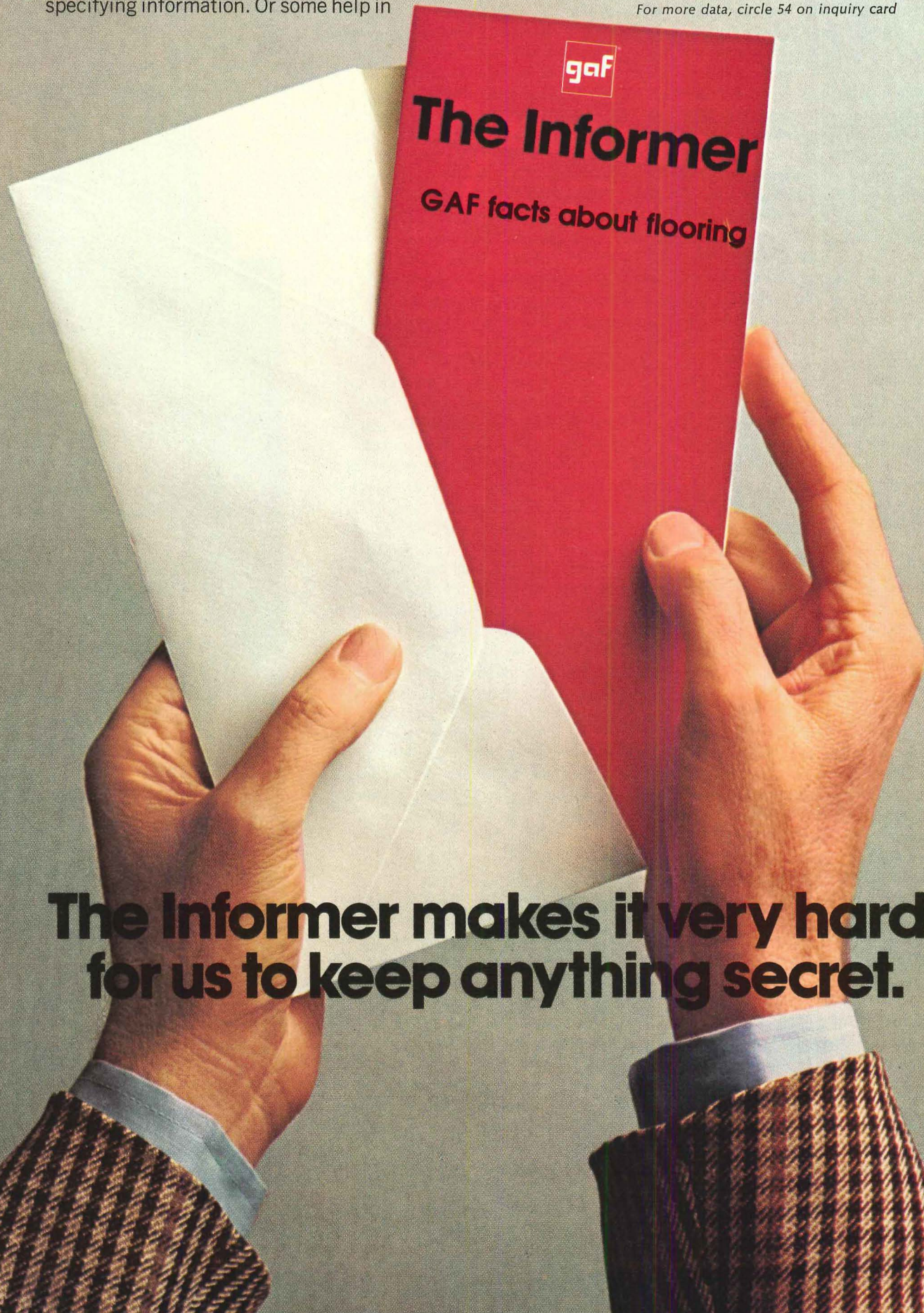
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Estimating provides the scale for budget control

While accurate estimating is not cost control *per se*, it is one of the indispensable tools in the cost-control segment of the construction management process. In this fourth part of an intermittent series by the staff of CM Associates, vice presidents Corwin Vansant and Byron Stenis describe both the potentials and the limitations of a computerized estimating system. Prior articles in this RECORD series dealt with: an overview, September 1973; budgeting method, February 1974; and project purchasing, May, 1974.

Few in the business of design and construction of buildings will argue against the necessity of controlling costs. When it comes to the *how-to-do-it*, however, the viewpoints frequently conflict. One of the common misconceptions is that cost control and estimating are synonymous. They aren't. Cost control is a management process that uses many tools, one of which is estimating. But if estimating is not cost control *per se*, it is vital to the process.

The beginning of cost control comes with the establishment of a budget, which is refined through value engineering. That budget has a way of becoming a fixed and sacred entity in the owner's mind, as well as an ethical and sometimes legal obligation to the construction manager and architect. One of the most immediate reactions to it is estimating.

Estimating proves or disproves the budget and is, in turn, proven or disproven when the project is bought out. With good estimating, an architect can know, as his design begins to take shape, how well it is working relative to the owner's pocketbook. And bidding can be anticipated and better responded to, since the building team knows what a contract is worth before dealing with the contractor. Without good estimating, there is no scale to measure against and knowledgeable purchasing becomes virtually impossible.

The tools: technology and judgment

Computers have greatly facilitated the estimating process. Computer-oriented estimating systems provide building teams with precise, consistently organized data that compare building components on an apples-to-apples basis, shorten the feedback time from design idea to price tag, and reduce the opportunities for mathematical errors. And because they free the estimator from the tedious, time-consuming, manual elements of estimating, he can increase the amount of actual estimating he does

(in CM's case, by as much as triple the volume). The natural result is to accelerate experience, which amplifies judgment ability.

The computer system employed at CM stores some 10,000 unit costs (kept current through periodic updating) for building components and materials, their descriptions and units of measure. Access to the data is through a time-sharing, high-speed terminal located in the main office. Cost data are maintained on a disc at a remote computer center. This disc-style storage permits access to any of the costs on the basis of random inquiry.

For a given project, materials and quantities are determined from design drawings. The materials (identified by code numbers already stored in the computer data bank) and their quantities are keypunched onto computer cards. A deck of cards is produced representing the quantities and materials in the building. The computer program then reads each card, retrieves the materials descriptions and unit costs, makes the necessary calculations, and prints the materials estimates. The computer can sort costs into any building discipline desired—architectural, structural, mechanical, and so on—and print a percentage cost summary of each.

The estimates that appear on the computer printout should not be the simple product of material times quantity times unit cost. For flexibility, unit costs should be based on national averages, thus making them raw costs. By applying a location factor to national averages, a building team can take a unit cost and project it to any place in the country, eliminating the need to develop new unit costs for building projects in different locales.

To make the raw costs relate to individual projects, the estimator must apply four factors (Figure 1).

1) COPIT is a combined factor for contractor's overhead, profit, insurance, and taxes, arrived at from experience and current market conditions.

2) An area location factor (taken from established patterns and published indexes) takes into consideration such local conditions as the market, local labor costs and productivity, and adjusts raw costs up or down accordingly.

3) Escalation is simply an inflation factor.

4) The development factor is a provision for project growth, a kind of "hunch" element that allows the estimator to make assumptions based on experience. Building projects tend to increase in scope—both quantity and quality—as they get farther along. The development factor provides for this. It recognizes the fact that certain building elements may not get identified in the early estimates. It also allows for such situations as the client's working relationship with contractors, changes in local union conditions, and—in light of recent market trends—for added costs due to materials shortages or delays. In short, the development factor provides for all those variables that are there, under the surface, and about which a skilled estimator develops an extra sense. It has been attacked by some as patently unscientific. Agreed. But wouldn't it be crazy if the elegance of the process prevented the use of good judgment!

The computer, however, is not the key to successful estimating. It is a tool, in the same way that estimating is a tool for cost control. The key still lies in the experience and judgment of the people using the data. Combine a thorough and accessible data bank with astute estimators, and estimating becomes a viable cost control tool.

Limitations: "should cost" isn't "will cost"

The architects and construction managers may have computers and large data banks and highly refined techniques at their disposal—but most bidders don't. Estimating is a method of determining what something *should* cost, not a guarantee of what it *will* cost. Seldom, if ever, do different contractors think the same way when it comes to figuring their costs. Estimating, as a result, becomes an exercise in guessing about someone else's guesses.

Where the guessing gets rough is in the labor market, with its great variations in productivity.

Let's assume that an electrician is giving a bid to a general contractor for some work. The market is hungry, and he is not very busy. He's down to his last 10 journeymen. These guys

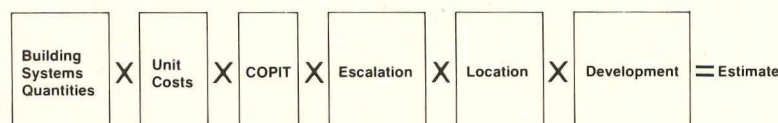


Fig. 1. Factors that must be applied to the estimate.

are his best, which is why he's kept them on. They are also his competitive edge. In giving his bid to the general, he'll figure their labor productivity very optimistically, and, indeed, they will be far more productive than the average electrical journeyman. As a result, instead of the \$100 he might figure normally for labor, he may figure \$80, maybe less.

On the other hand, if the market is fat and our electrician has 50 men working for him and needs more, the only additional journeymen available will be the bottom of the barrel, since everyone else will be busy. As he uses these, his labor productivity will dip, his costs will go up, and his bid will inflate. Furthermore, in a fat market, even the people who are productive in competitive or hungry times tend to be less productive. They know they can go somewhere else tomorrow, if necessary.

When you take these costs and compound them right on through the series of markups, the result is a substantially different cost picture. The rapidity with which the market can change is largely what keeps an estimator guessing. The accuracy of his guess is, in the long run, his competitive edge.

The process: early is better

Estimating must begin early in the design phase when the budget is being established and project direction determined if it is to be effective. Then after project scope and finances have been wedded, design and estimating can get specific.

Starting with schematic design, the estimator can begin to take off quantities of architectural materials, relating them to design considerations such as building perimeter, floor-to-floor height, and building volume. For this, the architect should provide rough floor plans, elevations, and sections. The plans need to be color coded to indicate probable floor, ceiling, and wall materials to be used. Structural plans should be provided that show what the system is and how it works (i.e., bay sizes, foundation requirements, and so on). Site drawings, no matter how elementary, allow the estimator to look for unusual cut/fill requirements, paving, site drainage, and utility requirements. Mechanical, electrical, and plumbing drawings are not necessary at this point.

The estimator must now sit down with the architect and construction manager to discuss and review design. In estimating at this stage, quantities for all architectural elements of the building are calculated and appropriate unit costs derived. The structural estimate can be based on a square foot of building area for various units, such as substructure, framing system, and so on. When adequate information is available, actual quantities will be taken off and unit prices applied. Mechanical estimates can be done on a per-ton basis and further adjusted to relate to the system used (i.e., roof-top units, central plant, or whatever). The plumbing estimate can be based on the number of fixtures, and the electrical estimate on area of times unit costs per square foot.

The schematic design estimate reflects the actual building systems used and is the first

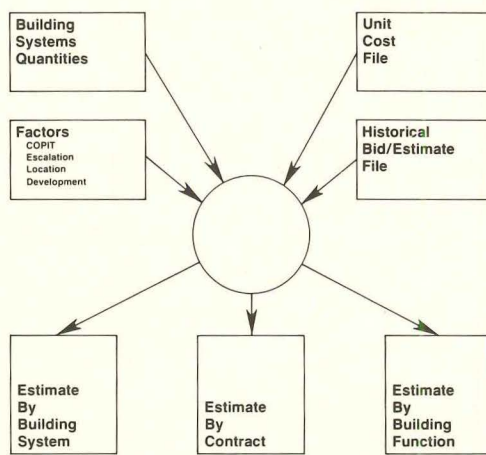


Fig. 2. Estimating computer input and output.

fairly defined estimate made. If it compares favorably with the budget, then full speed ahead is in order. If it doesn't, then enough information is available to look at alternate solutions.

The design development estimate: refinement in pursuit of time

The most thorough estimate should come during design development, when building plans have been firmed, mechanical and structural systems selected, heating and cooling loads established, and piping and air systems determined. A more accurate take off could be made from completed construction documents, but by then it would be too late to be useful.

At the design development stage, architectural and engineering input must achieve a considerable level of detail, delineating as much materials and systems information as feasible. Because there is more opportunity for variation in architectural materials and, therefore, more opportunity for adjustment in the event of budget overruns, it is here that the estimate must get the most involved. Specifications should be broken down into exterior wall, roof, floor, and ceiling systems, interior doors, interior partitions, painting and surface effects (much like the budget analysis), and miscellaneous items such as millwork, carpentry, graphics, and so on.

But still further detail is required.

For instance, if the exterior wall is to be pre-cast panels, it's necessary to know type and thickness, as well as finish (sandblasted, exposed aggregate, colored concrete, etc.), and the fastening methods. If the ceiling system is to be suspended acoustical, it will be necessary to know whether it's fire-rated, the type of material, the type of suspension, and size.

Structural costs can be predicted from preliminary structural design. A quantity take off is made for foundation, substructure, and superstructure. Mechanical, electrical, plumbing, and conveying estimates can be achieved with semi-detailed quantity take offs, coupled with systems-type projections.

In all earlier estimates, site development and fixed equipment was included as a percent of construction cost based on building type. More detailed information should be available at this time on fixed equipment (maybe in the form of a schedule) and draw-

ings indicating site utilities, paving, landscaping, and storm drainage should be available.

A complete take off is done for all disciplines and unit prices are applied. For example, no longer is the plumbing estimate based on a simple count of fixtures. The estimator will do a take-off of associated piping and include complementary equipment such as water heaters, grease traps, etc.

By the time a project has reached the construction documents stage, estimating should have successfully established an accurate cost picture. Little more than an updating of previous estimates will be required from this point on. If the cost-input data are monitored, checked, updated, and the changes plugged back into the project, then no major redesign effort will occur during the construction development stage.

The computer's bonus skill: stacking cost decks for different players

The cost information sought by architect, construction manager, and owner involved different considerations. An architect needs to see costs system by system, so he can decide which to use (concrete structure or steel, roof-top units or a central system, masonry or pre-cast skin). A construction manager wants to know prices contract by contract. Prior to bidding, he wants to know the painting contract, while the architect is interested in the exterior skin and ceiling system prices, both of which may be overlapped by the paint contract. At the same time, the owner is concerned about costs per functional area.

Project estimates, therefore, should be organized to meet these needs. CM's computer system organizes estimates by system for the architect, by contract for the construction manager, and by area for the client (Figure 2).

When all is said and done, one of the most important aspects of estimating is the level of detail achieved early on in the project. It should be considerable, allowing the architect to adjust the design *before the fact*. If the bottom line is over the budget at early phases, the architect has the opportunity to go back through an estimate and modify the cost picture by making relatively simple materials substitutions.

And even if the budget has been exceeded by an amount too great (in excess of five percent or so) to be handled by simple alterations, early detail will present the option of changing a design that hasn't been fully developed and basically fixed. Performing major surgery on a design that is virtually complete is not only a blow to the client's psychological well-being but to the project's completion and the architect's and construction manager's profit. Details early in the estimating process mean flexibility and flexibility gives everyone on the team a better shot at a successful project.

The building team will be able to move into the next phase of the project—purchasing—with reasonably good expectations that no big surprises will occur, that the budget and project will survive. Estimating will have provided the yardstick that makes the step from design to bid a firm one.

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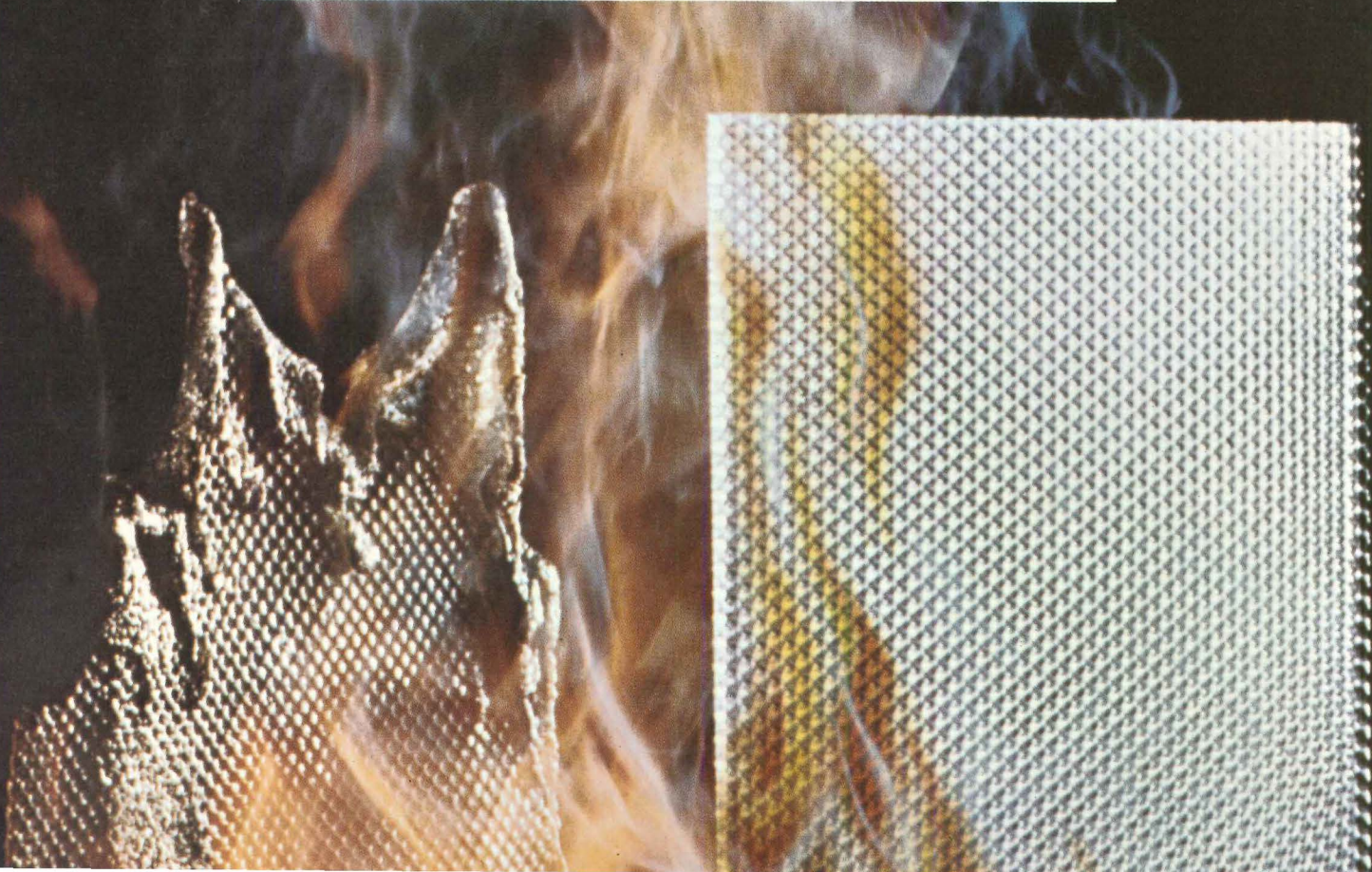
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Construction costs near stabilization?

Average building costs have gone up 4.1 per cent since last Spring and now stand at 9.1 per cent above a year ago. These figures indicate a decline in percentage increases since our Fall survey. This would tend to confirm reports from around the country that material prices and labor rates are beginning to stabilize in the face of drastically lower building activity.

Basic hourly wage rates are 5.5 times what they were in 1941, whereas material prices are about 3.5 times that year. Overall, building construction costs at the builder to investor level average about 385 per cent higher than in 1941. The following table shows how this varies from one major district to another.

	4/74 to 10/74	10/73 to 10/74	1941 to 10/74	% under NY, NY
Eastern U.S.				
Metro NY-NJ	+4.8	+9.2	+367.3	- 9.2
N.E. States	+4.5	+9.8	+391.5	-13.4
N.E. & N.C. States	+3.6	+8.2	+393.7	-14.8
S.E. & S.C. States	+3.9	+9.4	+366.6	-26.9
Average East. U.S.	+4.2	+9.1	+379.8	-16.1
Western U.S.				
Miss. River & W.C. States	+3.9	+9.3	+378.8	-21.7
Pacif. Coast & Rocky Mt. States	+4.1	+8.7	+403.3	-18.2
Aver. West. U.S.	+4.0	+9.0	+391.1	-20.0
U.S. Average	+4.1	+9.0	+385.4	-18.1

John H. Farley, senior editor
Dodge Building Cost Services

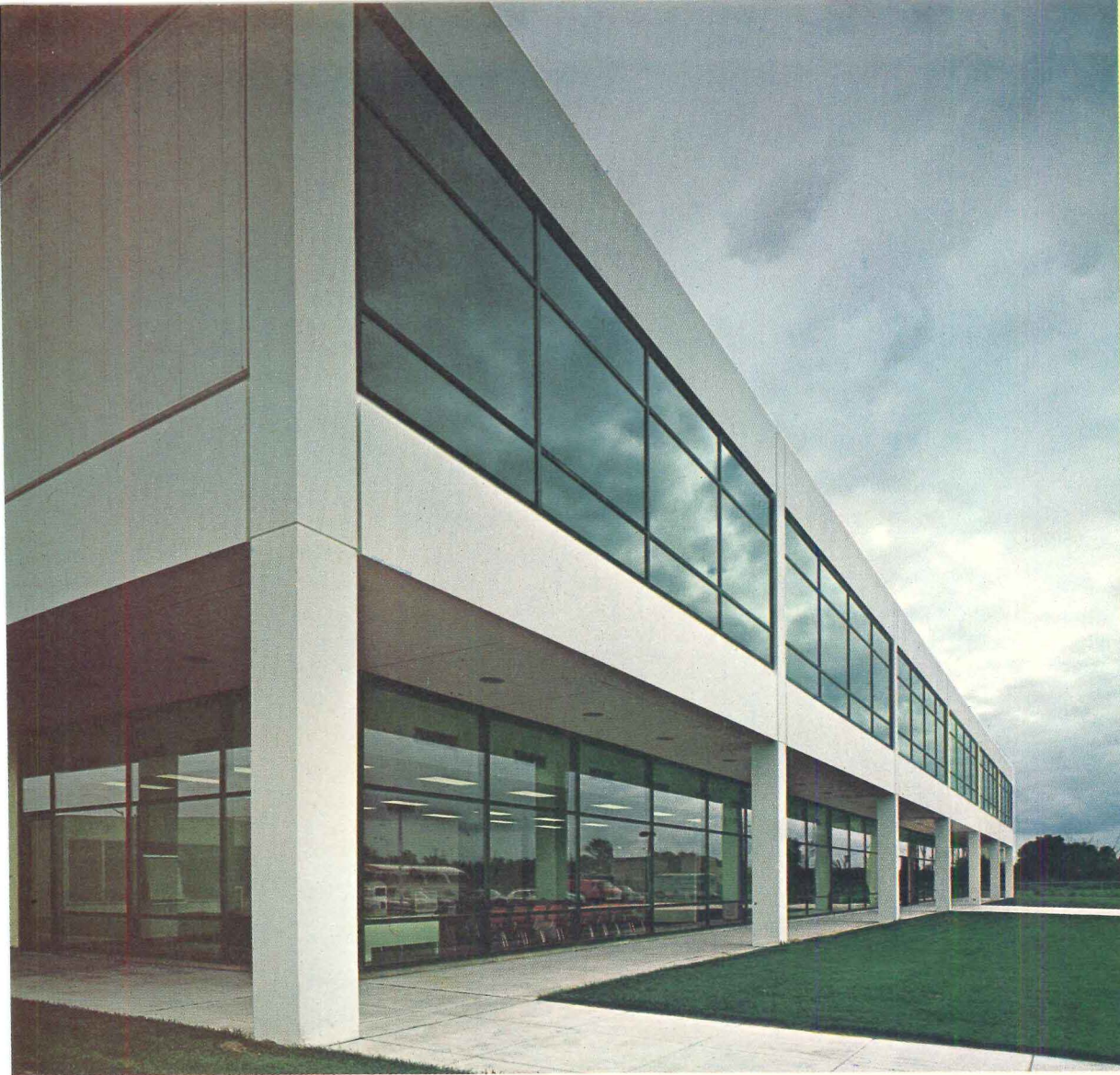
Metropolitan area	Cost differential	Current Indexes				% change last 12 months
		non-res.	residential	masonry	steel	
U.S. Average	8.3	473.6	453.1	464.7	453.3	+ 8.57
Atlanta	7.5	581.0	547.7	569.6	558.8	+ 5.46
Baltimore	8.6	542.4	509.9	530.7	516.2	+12.29
Birmingham	7.2	425.6	395.8	411.0	407.2	+ 4.64
Boston	8.7	467.5	441.6	464.6	450.8	+ 5.54
Buffalo	9.1	524.2	492.2	516.5	502.1	+10.13
Chicago	8.3	536.0	509.6	517.3	509.8	+ 4.04
Cincinnati	8.6	505.6	475.7	493.8	481.3	+ 8.06
Cleveland	9.0	515.6	485.1	504.2	492.5	+10.15
Columbus, Ohio	8.2	499.4	468.9	490.9	478.1	+10.69
Dallas	7.8	481.2	465.9	471.4	462.7	+ 9.42
Denver	8.2	514.6	484.1	504.7	491.1	+10.54
Detroit	9.7	543.6	517.9	553.6	530.7	+ 7.44
Houston	7.1	429.6	403.4	416.6	410.8	+ 8.65
Indianapolis	7.7	428.5	402.4	419.4	409.8	+ 8.26
Kansas City	8.2	449.6	424.8	440.2	428.9	+ 9.54
Los Angeles	8.4	543.5	496.8	529.6	518.0	+ 5.58
Louisville	7.6	468.7	440.1	457.0	447.6	+ 7.72
Memphis	8.3	486.8	457.1	468.3	461.5	+12.66
Miami	7.8	490.3	467.1	475.3	465.7	+ 8.47
Milwaukee	8.2	522.6	490.7	512.2	498.1	+ 9.48
Minneapolis	8.6	492.9	463.7	483.7	475.1	+ 7.03
Newark	8.8	464.6	436.2	457.0	446.5	+11.07
New Orleans	7.2	446.8	421.7	441.1	430.8	+ 5.03
New York	10.0	526.1	489.1	513.8	501.0	+ 6.09
Philadelphia	9.0	523.2	498.4	519.3	502.8	+ 6.80
Phoenix (1947 = 100)	7.8	269.8	533.1	260.5	256.1	+ 8.05
Pittsburgh	8.8	469.7	441.8	464.6	450.3	+ 9.61
St. Louis	8.5	481.9	454.8	477.1	465.8	+ 7.22
San Antonio (1960 = 100)	7.6	183.0	171.8	178.9	174.8	+14.91
San Diego (1960 = 100)	8.4	198.2	186.1	194.9	190.0	+10.46
San Francisco	9.2	686.4	627.4	682.2	659.1	+ 6.29
Seattle	8.4	460.8	412.4	456.5	439.5	+ 5.98
Washington, D.C.	8.2	467.6	439.0	457.4	445.9	+15.43

Cost differentials compare current local costs, not indexes.

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

Metropolitan area	1941 average for each city = 100.00										1973 (Quarterly)				1974 (Quarterly)			
	1964	1965	1966	1967	1968	1969	1970	1971	1972	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
Atlanta	313.7	321.5	329.8	335.7	353.1	384.0	422.4	459.2	497.7	516.4	518.0	543.8	544.8	555.2	556.7	573.5		
Baltimore	280.6	285.7	280.9	295.8	308.7	322.8	348.8	381.7	420.4	441.8	443.6	474.5	475.5	516.3	517.8	532.8		
Birmingham	260.9	265.9	270.7	274.7	284.3	303.4	309.3	331.6	358.3	371.7	373.2	401.1	402.1	405.5	407.0	419.7		
Boston	252.1	257.8	262.0	265.7	277.1	295.0	328.6	362.0	394.4	414.0	415.6	436.8	437.8	455.1	456.6	461.0		
Chicago	306.6	311.7	320.4	328.4	339.5	356.1	386.1	418.8	444.3	465.3	466.9	507.6	508.6	514.2	515.7	528.1		
Cincinnati	269.5	274.0	278.3	288.2	302.6	325.8	348.5	386.1	410.7	430.4	432.0	461.4	462.4	484.5	486.0	498.6		
Cleveland	283.0	292.3	300.7	303.7	331.5	358.3	380.1	415.6	429.3	436.7	438.3	461.2	462.2	490.3	491.8	508.0		
Dallas	256.4	260.8	266.9	270.4	281.7	308.6	327.1	357.9	386.6	407.3	408.9	435.4	436.4	453.7	455.2	476.4		
Denver	287.3	294.0	297.5	305.1	312.5	339.0	368.1	392.9	415.4	429.5	431.1	460.0	461.0	476.1	477.6	508.5		
Detroit	277.7	284.7	296.9	301.2	316.4	352.9	377.4	409.7	433.1	463.4	465.0	500.0	501.0	519.5	521.0	537.2		
Kansas City	250.5	256.4	261.0	264.3	278.0	295.5	315.3	344.7	367.0	387.7	389.3	404.8	405.8	435.6	437.1	443.4		
Los Angeles	288.2	297.1	302.7	310.1	320.1	344.1	361.9	400.9	424.5	453.3	454.9	503.2	504.2	514.3	515.8	531.3		
Miami	274.4	277.5	284.0	286.1	305.3	392.3	353.2	384.7	406.4	419.0	420.6	446.2	447.2	467.6	469.1	484.6		
Minneapolis	282.4	285.0	289.4	300.2	309.4	331.2	361.1	417.1	412.9	430.6	432.2	455.1	456.1	469.7	471.2	487.1		
New Orleans	240.9	256.3	259.8	267.6	274.2	297.5	318.9	341.8	369.7	382.1	383.7	419.5	420.5	437.5	439.0	440.6		
New York	289.4	297.1	304.0	313.6	321.4	344.5	366.0	395.6	423.1	453.5	455.1	484.3	485.3	497.4	498.9	513.8		
Philadelphia	275.2	280.8	286.6	293.7	301.7	321.0	346.5	374.9	419.5	459.3	460.9	484.1	485.1	495.7	497.2	517.0		
Pittsburgh	263.8	267.0	271.1	275.0	293.8	311.0	327.2	362.1	380.3	406.3	407.9	423.4	424.4	443.7	445.2	464.1		
St. Louis	272.1	280.9	288.3	293.2	304.4	324.7	344.4	375.5	402.5	427.8	429.4	443.2	444.2	458.7	460.2	475.2		
San Francisco	365.4	368.6	386.0	390.8	402.9	441.1	465.1	512.3	561.0	606.4	608.0	631.3	632.3	647.1	648.6	671.0		
Seattle	266.6	268.9	275.0	283.5	292.2	317.8	341.8	358.4	371.5	388.4	390.0	423.4	424.4	437.8	439.3	448.7		

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.



Owner:

United Air Lines Incorporated, Chicago, Illinois

Architects/Engineers:

Graham, Anderson, Probst & White, Chicago, Illinois

General Contractor:

Power Construction Company, Elmhurst, Illinois

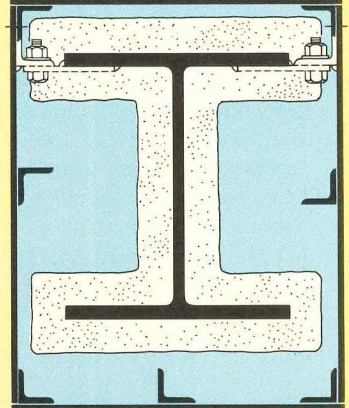
Steel Fabricators:

Frame: Wendnagel & Company Inc., Chicago, Illinois

Exterior: David Architectural Metals Incorporated, Chicago, Illinois

Architectural Walls:

H. H. Robertson Company, Pittsburgh, Pennsylvania



Section through typical free-standing column, illustrating steel plate cladding method.

PAINTED STEEL IS WORTH A SECOND LOOK.

The clean, crisp lines of this white-painted steel building command instant attention.

It's the Regional Reservation Center in Elk Grove Township, Illinois — the newest addition to a group of United Air Lines buildings not far from O'Hare Airport.

A 1973 AIA Honor Award winner, the building has a modular steel frame and a white-painted carbon steel plate exterior skin — enhanced

by grey insulating glass. The steel — both structural and exterior — is ASTM A-36 from United States Steel.

Spandrel and column cover components were shop-fabricated into sub-assemblies and painted with a primer coat. In the field, these parts were bolted to brackets on the frame, joints were welded and ground smooth and the entire exterior was sealed with two coats of white, acrylic-latex paint.

The striking simplicity of this new structure demonstrates one of the features of a painted steel building: it's well worth a second look!

For further information about this building and for advice on the many ways to use architectural steel, contact a USS Construction Marketing Representative through the nearest USS Sales Office or write: United States Steel, Room C 311, 600 Grant Street, Pittsburgh, Pa. 15230.



United States Steel

Capital spending: still a bright spot, but . . .

The economists at last month's summit meeting, called to prescribe the proper remedy for our inflationary ills, may not have reached an agreement on what the right dosage should be, or even what medicine to be using, for that matter, but they were of a similar mind about a number of things. One was their attitude toward capital spending. All seemed to agree that the current high level of expenditures is helping to fend off the adverse effects of slow-downs in other areas of the economy. They also agreed that increased spending would ease inflationary pressures in the longer run by relieving the bottlenecks to output.

With housing flat on its back, the prices of key commodities confounding the tight money strategy, inventories piling ominously higher, and consumers adopting a wait and see attitude, the rate of capital spending was all that was really left to be thankful for, it seems. In fact, for an indicator that typically leads the others down into economic recessions, capital spending is doing quite well, indeed. Total outlays are currently 12 per cent ahead of 1973's pace, and are expected to hold that lead in the months ahead. By year-end, businessmen will have spent some \$112 billion on the modernization and expansion of facilities.

What's behind strength of capital spending

There are many good reasons for this persistent strength, even though it flies in the face of some otherwise bleak economic news:

- A number of businesses in recent years have been underestimating the growth potential of the demand for their products, in that they did not fully appreciate the impact that the two dollar devaluations would have on foreign trade—both in stimulating exports and curbing imports. New capacity is needed to help satisfy this higher demand.

- Shortages of raw materials have accelerated the search for new domestic sources. This is particularly true of oil, but not limited to it. The oil cartel's successes are generating a lot of imitators among foreign raw materials suppliers, and businessmen are attempting to counteract the potentially damaging results.

- The profit surge a number of industries have enjoyed recently is making it easier for them to launch capital upgrading and expansion programs. They no longer have to rely as heavily on borrowed funds as they did previously. And many of these expansion programs are overdue. As far as industrial contracting is concerned, we've never gotten back

to pre-1970 recession levels, in real terms. The Freeze and all those Phases spooked many businessmen into holding back new expansion, when instinct told them it was really time to go ahead with it.

- Mandated air and water pollution standards have made pollution abatement spending a more important segment of the total capital spending package than it used to be.

Unfortunately, the current strength in business capital spending is confined largely to new industrial plant and equipment. Commercial investment and new spending for utilities are not proceeding apace. And even in the industrial area, the advance does not extend across the board.

Commercial investment, which has enjoyed a 30 per cent gain since the 1970 recession, has been essentially flat for the last year and a half. The key to this performance has been the construction portion of the investment total. Accounting for two-thirds of that total, on the average, investment in new commercial structures stopped growing when the store component, which had advanced by nearly 70 per cent since the 1970 recession, turned sour. Riding the crest of the surge in housing starts since the beginning of the 1970's, contracting for new stores and shipping centers peaked out a year ago, and has been trending lower ever since. New office building, the other major component of the commercial total, has shown modest growth so far in the 1970's, but appears currently to be marking time, like the economy generally.

Utility investment, the victim of both a crisis in confidence, and a hostile credit climate, has also languished. Surging fuel prices shot holes in the "guaranteed profit" assumptions that utility investors have accepted on faith for years. And the pass-along increases in utility rates have stimulated consumers to economize on the use of electrical power. This has put a big question mark on many utility companies' long-term demand projections, and the expansion plans to meet those projections. All of this has made the credit situation facing those utilities that *do* seek to expand harsher than it would otherwise have been.

Capital spending may not mean a big building investment

Data available on industrial investment show that food products, paper products, petroleum, chemicals and ferrous metals have been the biggest gainers so far this year—at least as far as work starts on new plants are concerned.

Unlike commercial investment, where structures account for some two-thirds of total spending, the *plant* proportion of industrial plant and equipment expenditures amounts to something like one-fifth of the total. Not only is industrial equipment a larger fraction of the total initially, but generally, it also wears out quicker and is replaced or modernized more often. And, in recent years, the need to invest more liberally in pollution control equipment has widened the gap further still.

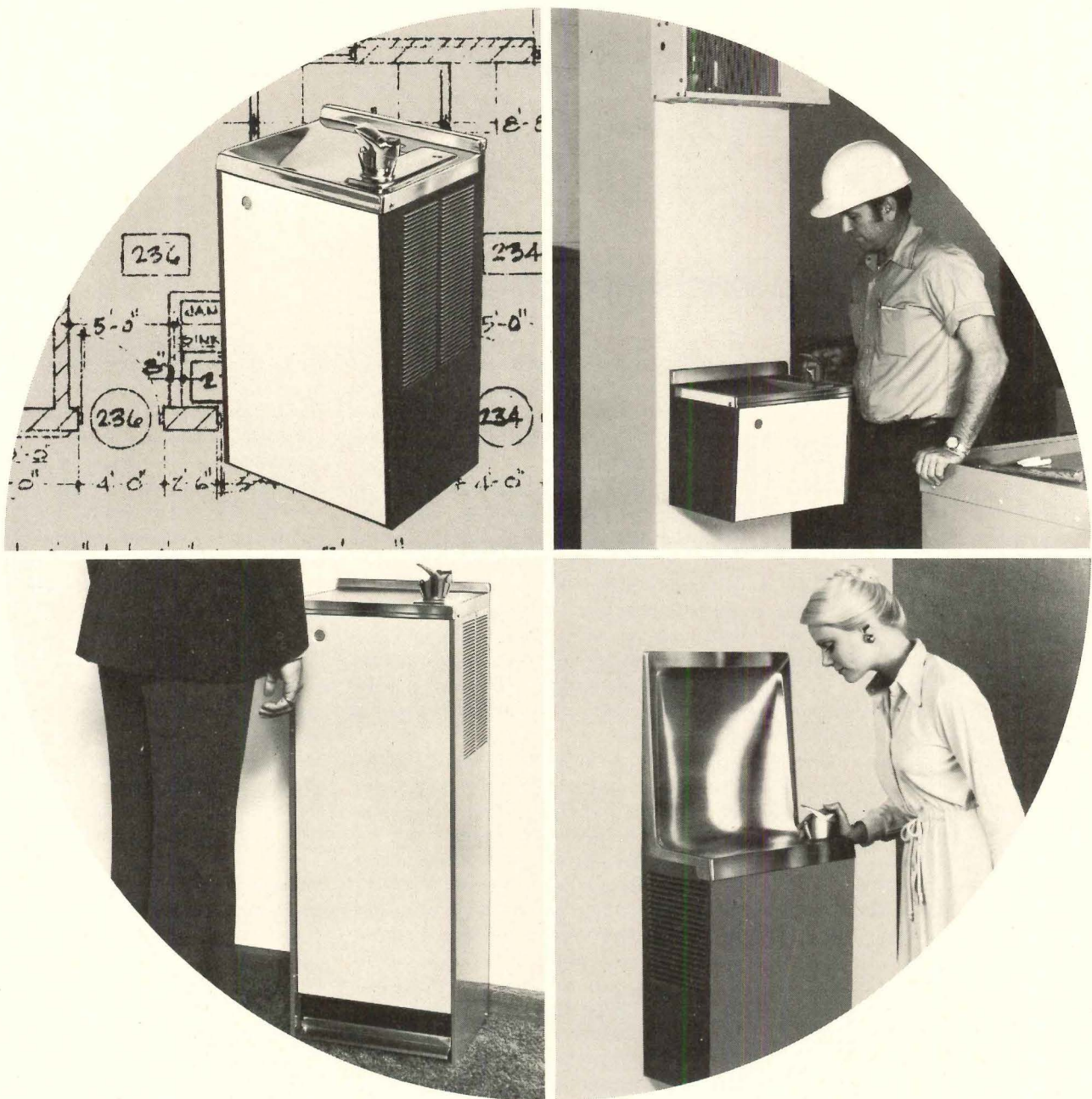
Regionally, the South has gradually increased its market share of both industrial and commercial building over the past decade. But, because many firms in the industry have their headquarters there, sharp peaks in the South's market share tend to occur in years when an abnormally large volume of chemical and petrochemical construction is launched. 1974 is one of those years.

In the long run government policy sets the pace

In general, there is enough momentum left in the economy to keep business-related construction afloat through the end of the year, anyway. But, industrial building will be doing most of the bailing.

The variables and unknowns really begin to multiply once we look beyond 1974. But, the one thing that's clear is where the key decisions must come from. Economic summit meetings are a good forum in which to seek alternative solutions from private experts, but, now more than ever, the responsibility for our economic health falls on government policy makers. When the most optimistic forecasts are calling for a "slowdown" in economic activity, and that slowdown was deliberately precipitated as a matter of government policy, it is incumbent on those policy makers to help minimize the adverse economic effects of that policy. It was just about this time in the last business cycle when the Nixon Administration dropped its "game plan" and switched to a more stimulative economic policy. Its going to take something like this, and fairly soon, if business-related building is going to keep from sinking in 1975. Because, if our policy makers are correct in calling the current policy of balanced budgets and tight money "the old time religion" in economics, then it may be just as accurate to call what these policies are doing to some segments of the construction industry "religious persecution".

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



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

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Plaza Madera at Corte Madera, California. Matt Copenhaver Associates.

Simpson Custom Ruf-Sawn Redwood Plywood. For offices as beautiful as all outdoors.

Architects today are depending more and more on materials that blend harmoniously in natural environments. And almost nothing looks more natural than Simpson's Custom Grade Ruf-Sawn Redwood Plywood.

No other commercially available wood surpasses redwood for beauty in any setting. Left natural, it weathers to a soft driftwood gray. And redwood is exceptionally resistant to surface checking, making it outstanding for durability and maintenance in any climate.

Simpson Custom Ruf-Sawn, with its rough-sawn

surface and pleasing contrasts of heartwood and sapwood, enhances redwood's natural charm. And because it's plywood, you get all the advantages of plywood, too. High strength-to-weight ratio. Easy handling. Excellent workability. Plus economy when compared with solid lumber.

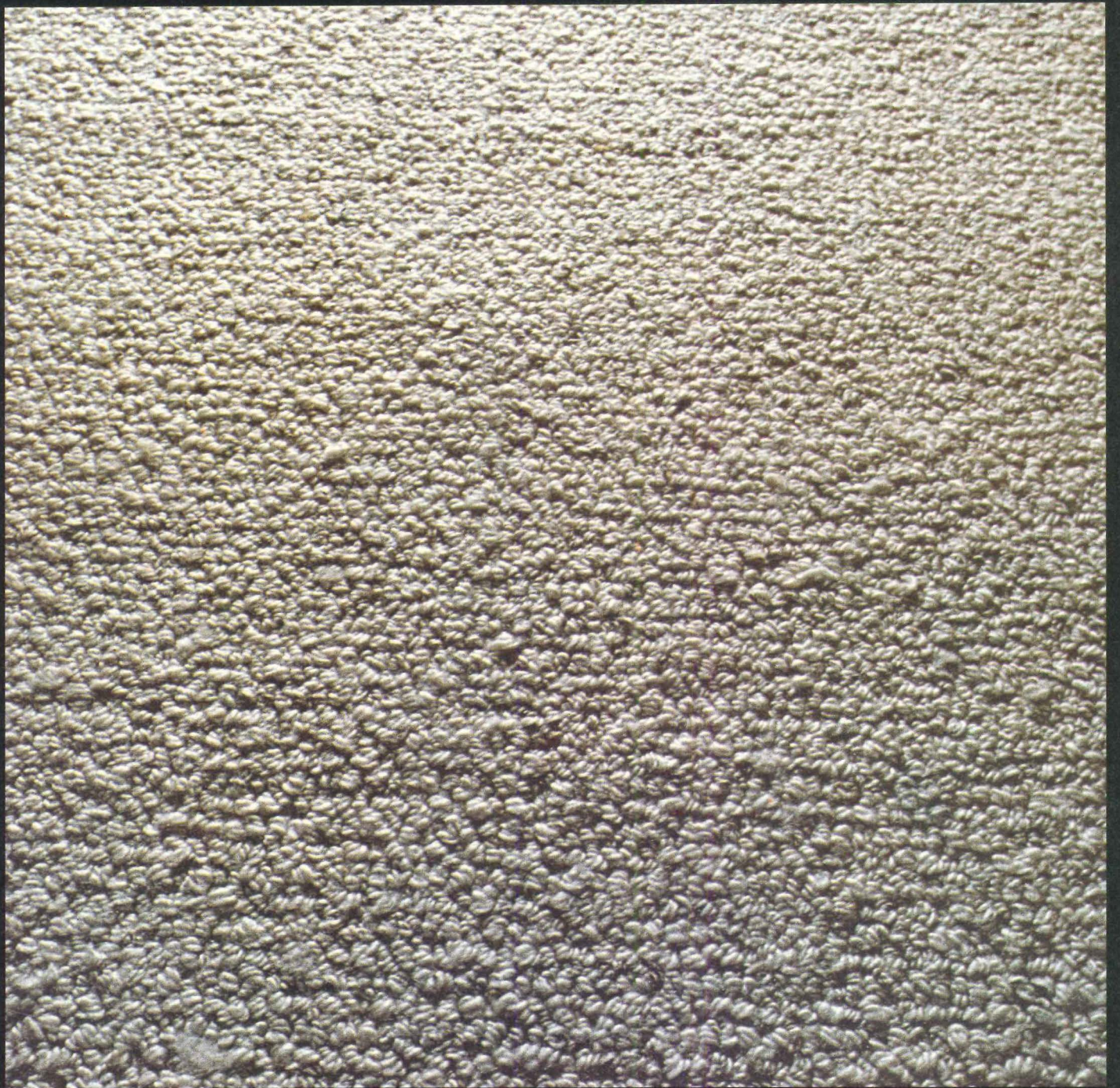
Simpson Custom Ruf-Sawn Redwood Plywood. A beautiful way to get back to nature.

For details on patterns and sizes, contact Simpson Timber Company, 900 Fourth Avenue, Seattle, Washington 98164. Phone 206-292-5000.

Simpson



For more data, circle 58 on inquiry card



Q: CAN A CONTRACT CARPET HAVE THE LOOK AND HAND OF NATURAL BERBER WOOL?

We won't show you a room setting in this ad.

When a carpet looks as good as this contract-grade "Berber" by Customills of Dalton, Georgia, nothing will do but a close, loving look.

With its natural tones, random flecks and rich, deep texture, it would take a pretty knowing Berber weaver to tell the difference between this carpet of Acrilan® acrylic fiber and his traditional wools.

That is, until he used it a little while.

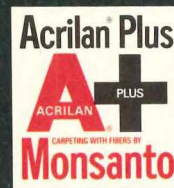
It wouldn't take him long to see how Acrilan outperforms wool. Especially in the bright North African sunlight. Acrilan has many times the fade-resistance of wool. (If it were Acrilan 2000+, it would have at least 50 times as much!)

And, of course, Acrilan is more abrasion-resistant, more static-resistant, more stain-resistant than wool, and a lot easier to clean.

For your next contract installation where rich, good looks are as important as performance specifications, consider carpeting of Acrilan, by Customills or any other Monsanto-licensed mill. The license is your assurance that the maker has met or exceeded Monsanto's strict quality standards. If he hadn't, he'd only be able to call his carpet "acrylic," but not Acrilan.

And that assurance of quality construction is one more thing you can't get from wool.

A: CUSTOMILLS SAYS ACRILAN® CAN.



Washfountains that wipe out vandalism while they clean up the kids.



Bradley's "School Board Special" Washfountain. Built right because we developed it to the specific needs of an actual school district. And built dependable because of Bradley's long experience in designing for school markets.

We work with school maintenance people to find features that will help solve their individual vandalism problem. And the result is Washfountains that require less

maintenance and are more vandal resistant. New ideas like the combination soap dispenser/restraining bracket that dispenses soap while anchoring the sprayhead support tube assembly. A pressurized system that dispenses soap with a minimum of effort. A foot controlled tape switch instead of a foot rail. And more.

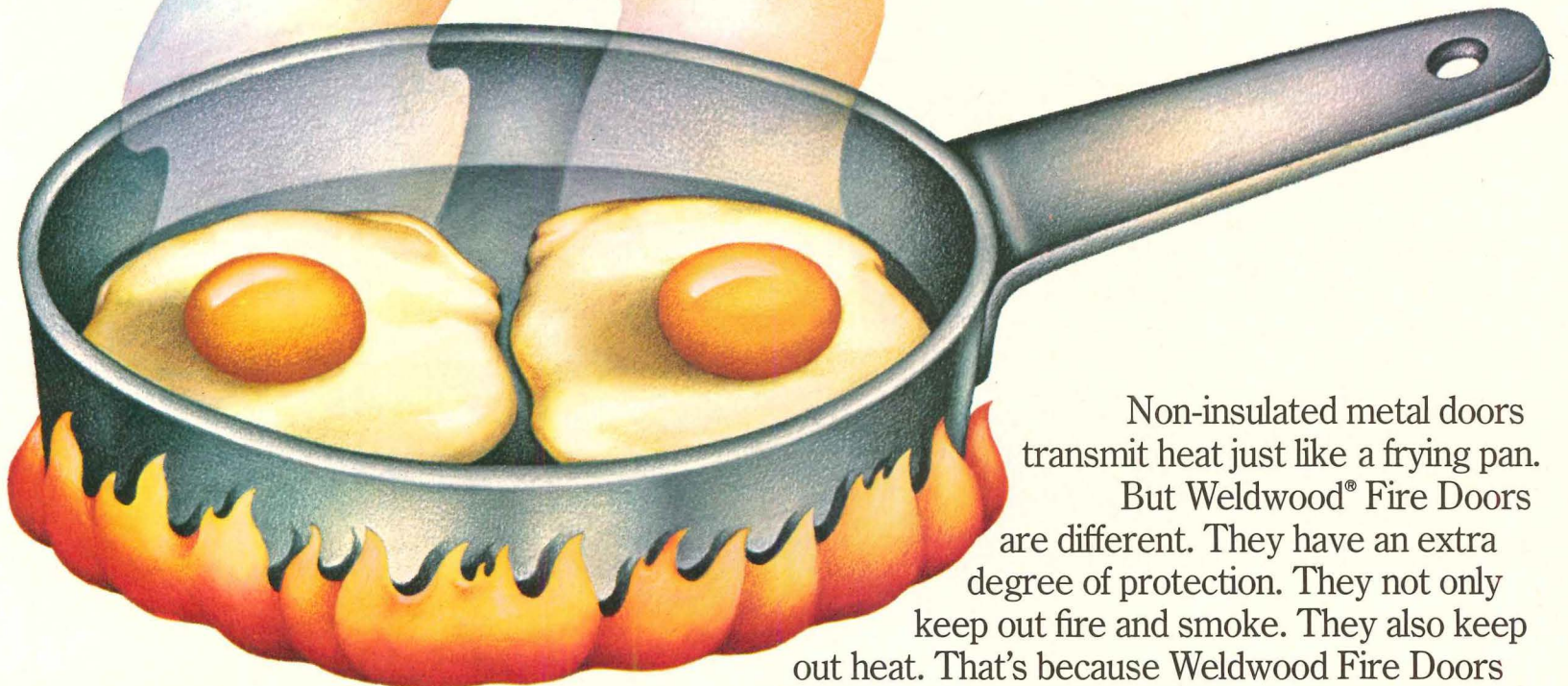
You can even specify the material that best fits your needs. Stainless steel. Precast

terrazzo. Or new tough Bradglas®. Choose from a wide range of colors and options, too. For complete details, see your Bradley representative and write for latest literature, including a list of communities that have installed these special units. Or call (414) 251-6000. Bradley Corporation, 9109 Fountain Drive, Menomonee Falls, Wisconsin 53051.

Another bright idea from  **Bradley**

For more data, circle 60 on inquiry card

YOU'RE LOOKING AT WHAT'S WRONG WITH MOST METAL FIRE DOORS.



Non-insulated metal doors transmit heat just like a frying pan.

But Weldwood® Fire Doors are different. They have an extra degree of protection. They not only keep out fire and smoke. They also keep out heat. That's because Weldwood Fire Doors

have an inner layer of incombustible Weldrok® mineral core. It retards heat transmission. So the unexposed side doesn't get hot enough to be dangerous.

Besides giving extra protection, Weldwood Fire Doors add an extra degree of beauty wherever they're installed. In offices, hotels and apartment buildings, Weldwood

real veneer doors look elegant. And in schools, hospitals and factories, our laminated doors add a colorful touch.

And Weldwood Fire Doors come in a complete range of time ratings: including ¾ hour, 1 hour and 1½ hours.

Before you specify any fire doors, you should make sure you're up on all the fine points of fire door standards, codes and construction details.

You'll find everything you need — and should know — at your U.S. Plywood Branch Office. Or by sending for our new booklet, "All About U.S. Plywood Wood Fire Doors."

Then you'll know all about the Weldwood extra degree of protection.

And perhaps our doors will become your doors.

U.S. Plywood



AR

U.S. Plywood
777 Third Avenue
New York, New York 10017

Please send me your booklet,
"All About U.S. Plywood
Wood Fire Doors."

NAME _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

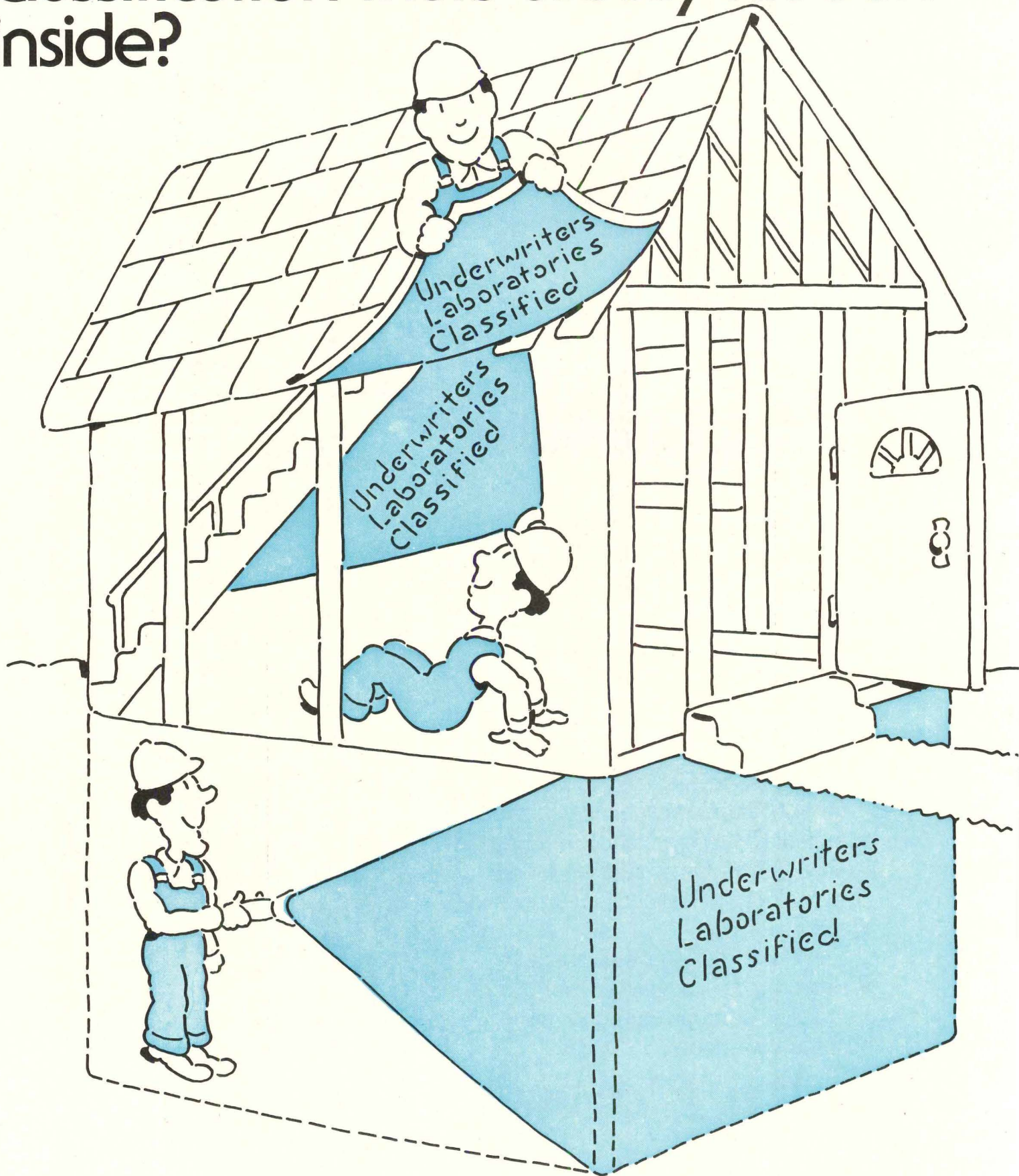


Look for this metal label on every Weldwood Fire Door. It's your assurance of that extra degree of protection.

 **U.S. Plywood**
Division of Champion International

For more data, circle 61 on inquiry card

Why do building materials manufacturers go outside to get Classification that's usually hidden inside?



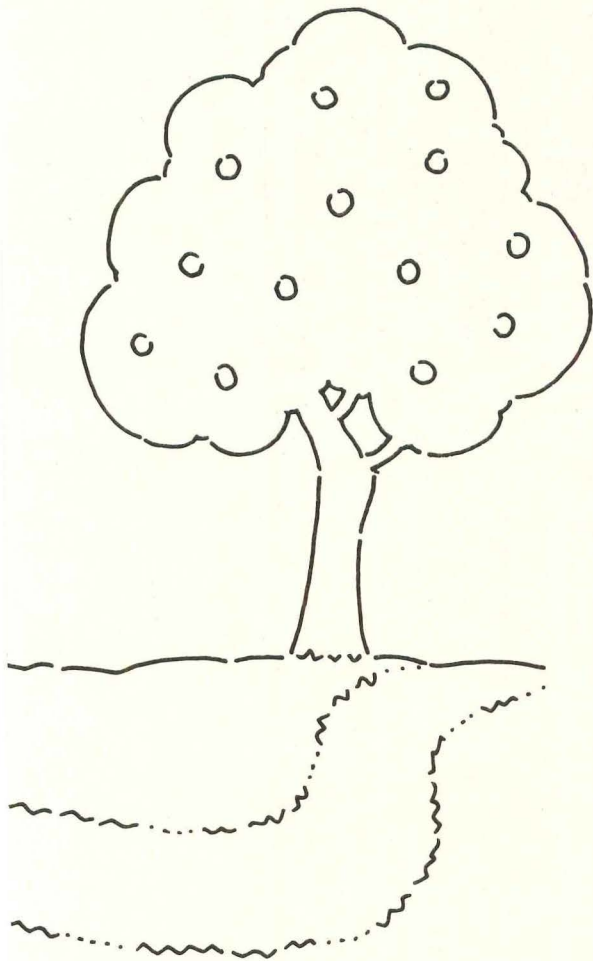
Because there's more to UL than meets the eye.

By going to an independent third party for testing, manufacturers can be sure their products and systems get a tough but thoroughly impartial judgment. What's more, a UL Classification is recognized by jurisdictional authorities, architects, engineers, insurers, building inspectors, and contractors. It's no wonder that manufacturers will imprint the UL Classification Mark on their products to inform these interests, knowing full well that the Mark will end up where few people will ever see it.

What makes the UL Classification Mark so meaningful? It indicates that UL has originally tested and evaluated the product, materials or design under specified conditions. The Mark on the product or carton informs users of the test results. It also means the manufacturer agrees to produce his product according to these standards when he applies the UL Classification Mark to the product. To check compliance, UL establishes a Factory Follow-Up Service requiring periodic examinations by UL inspectors of the manufacturer's production control.

Once a product has met the required standards, it is eligible to bear the UL Classification Mark on the product or its carton. Manufacturers who are authorized to use the Mark are listed in UL's **Fire Resistance Index** or **Building Materials Directory**.

While UL is 80 years old, and the world's largest independent, not-for-profit testing laboratory, the installation of sophisticated new test facilities in the early 1960's greatly expanded the UL activities with building products. Because of this, there is now a lot more to UL than meets the eye.

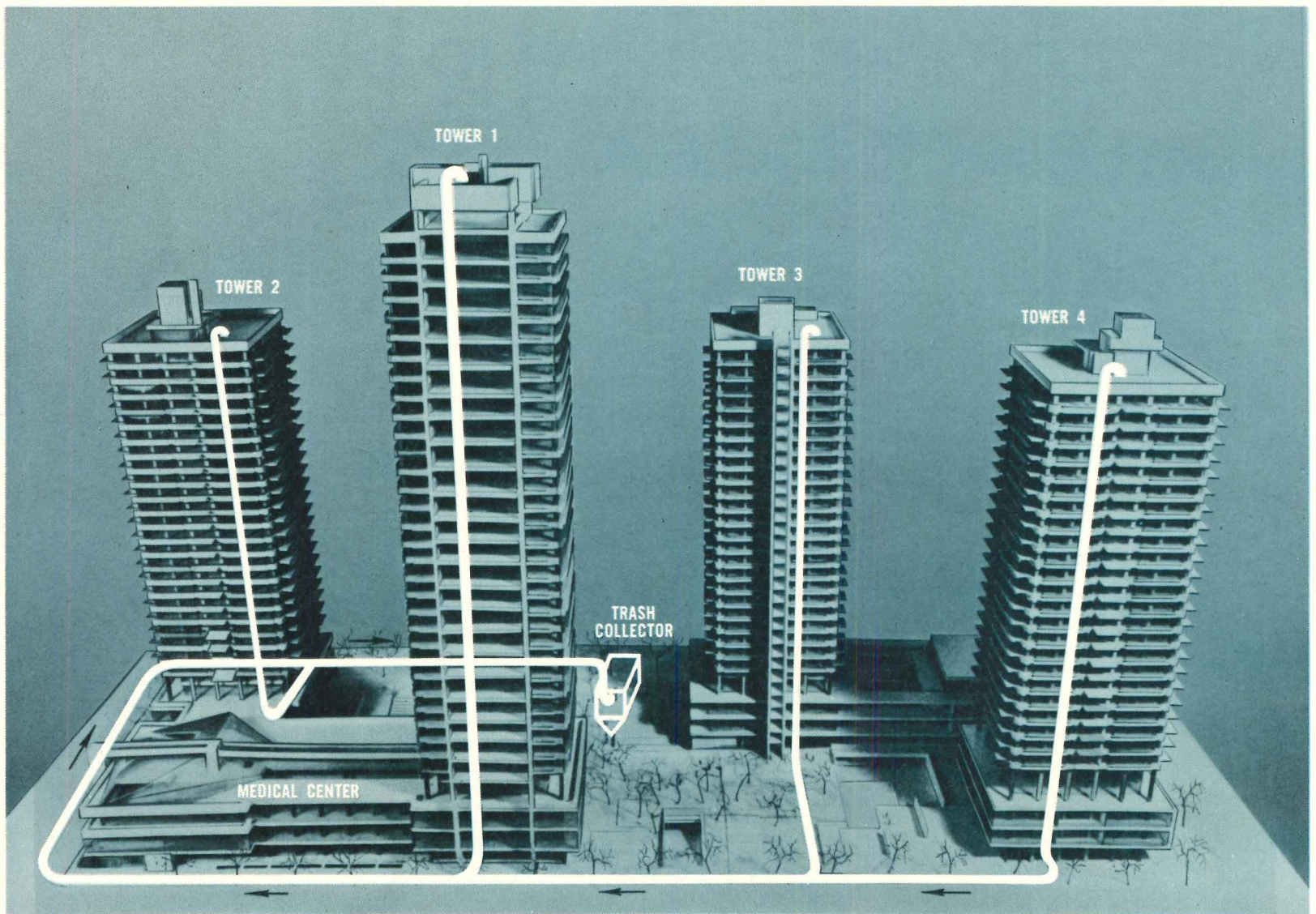


Underwriters Laboratories Inc.

An independent laboratory testing for public safety.

Chicago and Northbrook, Ill., Melville, N.Y., Santa Clara, Cal., Tampa, Fla.

For more data, circle 62 on inquiry card



This is how one pressure group operates to keep Harlem clean.

The pressure we're talking about is the negative pressure exerted by the vacuum principle of ECI's Air-Flyte pneumatic waste disposal conveying system.

It was the kind of pressure the East Harlem Tennant Council and their architects, Silverman & Cika needed to protect the environment of their highrise project.

They wanted to make sure that the garbage cans, the odors and most importantly the vermin and the rodents that can ruin a project of this size, were completely eliminated.

Four towers housing 656 families, a day care center, a job training facility, children's playhouses, an amphitheater and stores can produce a lot of trash.

The initial estimate was 7,500 pounds a day. The planners turned to an ECI Air-Flyte pneumatic conveying system to remove it, cleanly and effectively.

The system consists of conventional gravity trash chutes, specially designed sizing and receiving hoppers, an ECI Air-Flyte pneumatic conveying system and a waste holding area, containing two large compactors with 35 yard roll-off containers.

Waste is placed in the gravity trash chutes, or directly into receiving hoppers in the commercial and service areas.

The system automatically sizes and transports the waste to the central collection system via the Air-Flyte conveying system. The Air-Flyte system uses a negative pressure vacuum principle to

carry the waste at a mile-a-minute, in any direction, up, down, diagonally, around corners—over any required distance.

Once the waste is placed in a trash chute or hopper it's never touched again. Because the system is completely enclosed, odors, vermin and rodents are eliminated.

The Air-Flyte system works efficiently to keep the environment clean, in Harlem or anywhere else. Ask your ECI representative for the whole story on Air-Flyte trash collection systems.



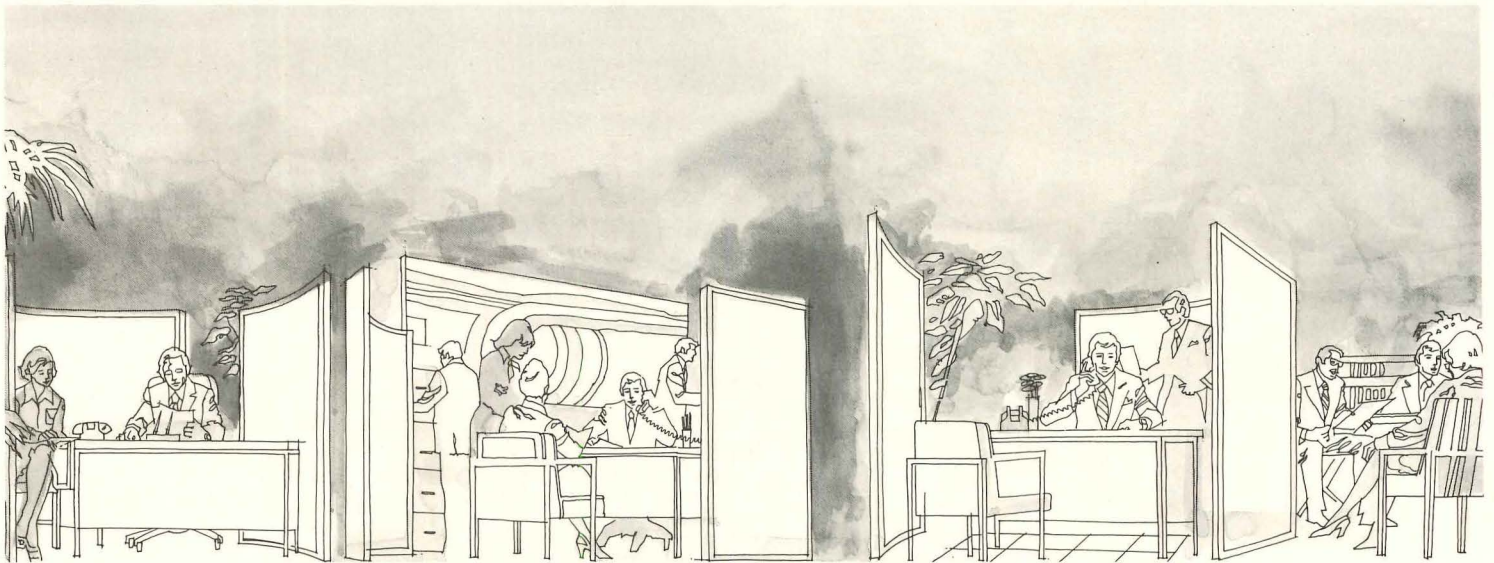
ECI Air-Flyte Corp.

Subsidiary of Eastern Cyclone Industries, Inc.
15 Daniel Road • Fairfield, N.J. 07006

Regional Sales Offices:
BOSTON • CHICAGO • LOS ANGELES
ATLANTA • DALLAS
Affiliations in Europe, Africa, Australia and Asia

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OPEN OFFICES NEED CLOSED CONVERSATIONS



Some of your clients may be passing up the great economy and versatility of open plan office design. And only because they think they'll lose conversation privacy. Which is why we think you and your clients should know about the Executone electronic SoundScreen™ system.

By masking the specific "articulation" frequencies with a low-level background sound, the Executone system screens out unwanted conversations from adjoining office areas.

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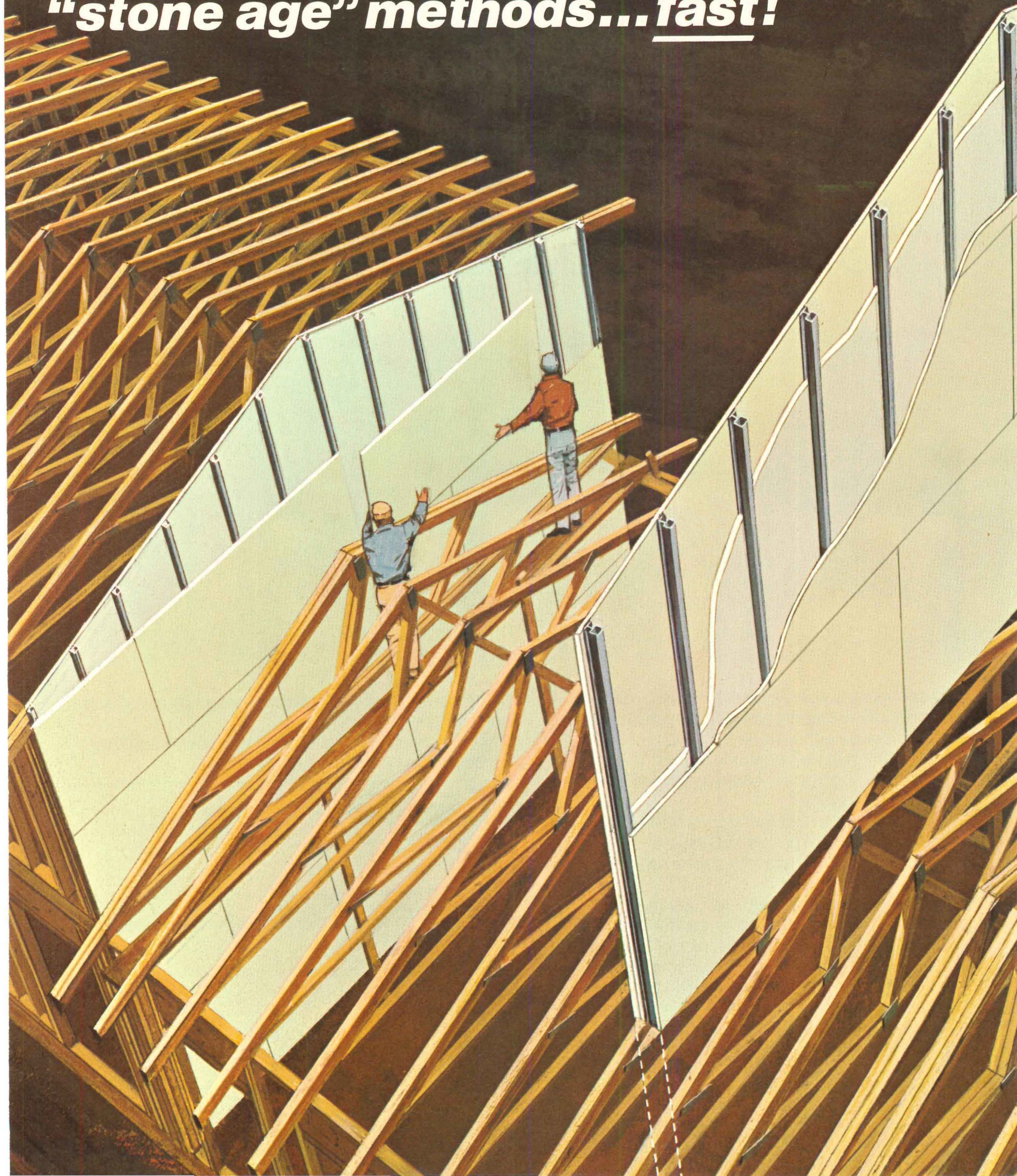
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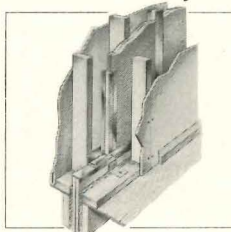
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*Based on 24' long walls

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Nothing cushions like pneumacel. It sinks in easily at first, then pushes back as pressure increases. Never fully compresses. Keeps its resilience.

Any carpet over pneumacel feels luxuriously thick underfoot. Pneumacel spreads the load to help prevent crushing of carpet face pile and stretching of its backing. Prolongs useful life of carpet.

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Additional information is detailed in Sweet's *Architectural Catalog File*, reference 9.29/Du. For samples, see *Sweet's Interior Design File*. Or write Du Pont, Pneumacel Marketing, Christina Site, Wilmington, Del. 19898.

*Pneumacel is the generic term for pneumatic cellular polymeric cushioning material.



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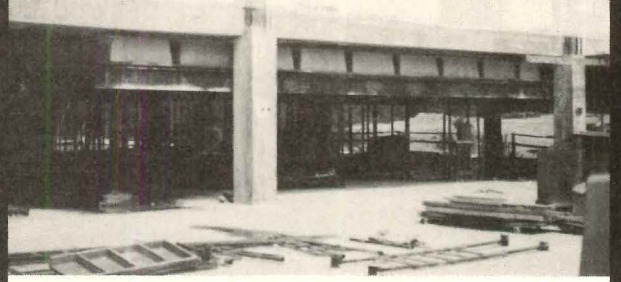
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Despite skill at placing concrete forms one-by-one, much time is saved by moving entire sections as the job progresses.

At Friendly Center's Forum VI in Greensboro, N.C. the section of 9 long forms shown is ready to be removed prior to positioning for the next pouring in another part of the building. Left: the finished ceiling. Want more details? Ask us!



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RETROFLEX 180

As you start to rise, the RETROFLEX 180 Tablet Arm retracts by itself, at a single touch, in one simple automatic cycle. (In fact, you can't get out of the chair without the arm folding, unless you are a contortionist!)

Patented return mechanism eliminates tablet arm damage occasioned by half-folded or incompletely returned tablet arm, and clears the aisle for quick exit.

Another innovation to keep you sitting pretty from

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Vista/Sphere™
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Luminaires that look as good as they light.

Graceful design plus superior lighting. The special combination that sets these fine Holophane luminaires apart.

For openers, there's a variety of shapes, textured with a delicate array of tiny light controlling prisms. There's even a unique prismatic sphere.

Other spheres are smooth, and surround intriguing geometric forms that are both appealing to the eye and functional in their control of light. The spheres can be clear. Or bronze. Or dusk. Or opal white.

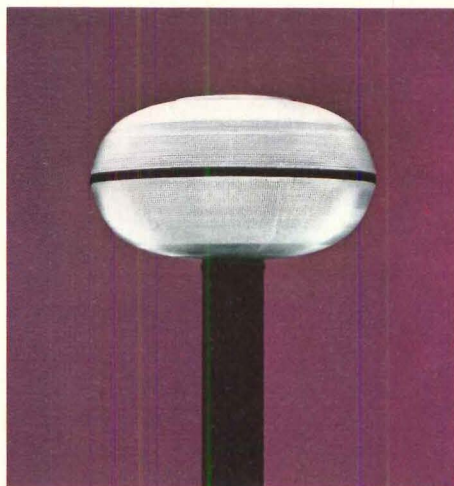
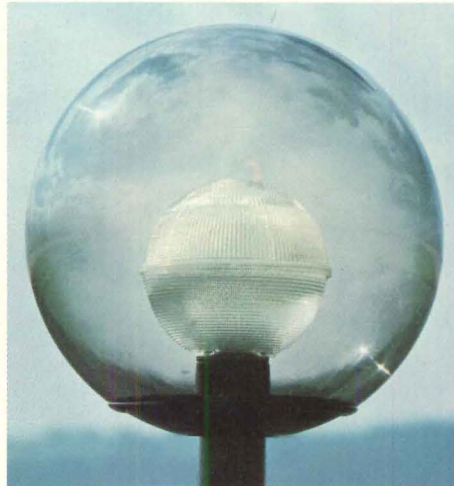
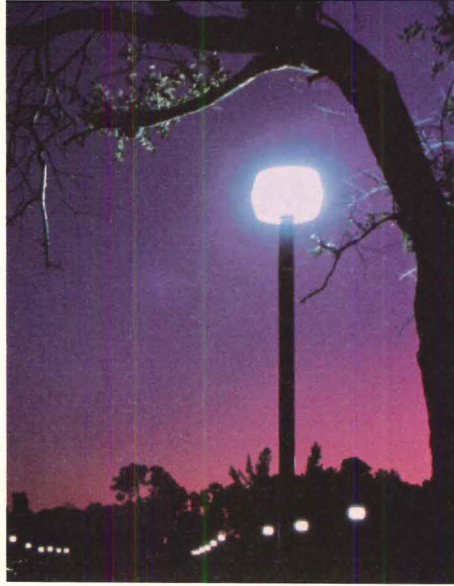
It's a collection that's certain to challenge your imagination.

Mount them singly or in clusters. On wall brackets or on decorative wood or metal poles.

You'll like the way they look. And the way they light.

Your Holophane sales engineer will be glad to give you complete details on the entire collection. Or write to Holophane, Department AR-10, Greenwood Plaza, Denver, Colorado 80217.

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INDUSTRIES



**A less expensive glass
would have cost them more.**

The owners of the Raleigh Office Building were developing a frankly speculative structure.

So they used high-performance glass — PPG Solarban® 575 Twindow® reflective insulating glass. And saved money.

Even though it was more expensive than plain tinted glass, Solarban 575 Twindow insulating glass permitted them significant savings on the cost of their HVAC equipment.

Not to mention the long-term savings they'll realize from lower operating costs.

Esthetically, they're getting the best looks money can buy. The reflective tones of Solarban 575 Twindow insulating glass give a building beauty that's noticeable yet not intrusive.

It gave the Raleigh Office Building a beauty that will bring them tenants.

And an economy that will bring them smiles.

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For more information, write for our new book, "Glass and the Future." PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future

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Architect: Seymour J. Levine Architects Inc. A.I.A.
Developer: The Raleigh Land Company
Project: The Raleigh Office Building

As Charles Luce, Chairman of the Board, Consolidated Edison recently stated:

can help bring this about.
"Building Construction must be critically reviewed for long term energy efficiency—one of the most important places to start is with properly insulated walls and roofs."
Most major building projects



... and we agree

ENERGY CONSERVATION in new buildings begins with a Smith Wall System

COMPARE ENERGY SAVINGS WITH SMITH WALLS vs CON- CRETE BLOCK CONSTRUCTION

How much energy and actual dollars can you save by using insulated metal panel walls instead of conventional concrete block? Naturally, it depends on many variables. However . . . to give you a valid comparison, we designed a typical building and had a professional heating consultant calculate the possible energy (and dollar) savings you could have. We found that over the life-span of the building . . . regardless of the type of heating energy used . . . savings would be considerable.

COMPARE SMITH WALL- U-FACTORS . . .



Varispan Panel System with 3" Glass Fiber Insulation. U-Value=0.111 btu



Standard Foamwall Panel System with 2" Urethane Insulation. U-Value=0.070 btu

Based on the design criteria, here is what we found:

12" CONCRETE BLOCK WALL VS SMITH VARISPAN PANEL SYSTEM WITH 3" GLASS FIBER INSULATION

49.8% LESS ENERGY AND DOLLARS
using VARISPAN*

*IMPORTANT: Even greater energy and dollar savings can be obtained by using SMITH FOAMWALL

Energy must be conserved! So it makes sense to consider this particularly important factor early in the design stages of new building construction. The savings go on . . . and on . . . and on . . . during the life-cycle of the building. Write for further information and the report "THINK OF 'U' and \$."

DESIGN CRITERIA FOR THEORETICAL BUILDING ON WHICH COMPARISONS WERE BASED . . .

Size: 96' x 125' x 36' building.
Location: Pittsburgh, Pa.
Floor: Slab on Grade.
Glass: Single Pane.
Roof: Built-up on steel deck, 1" Insulation.
Walls: 12" Concrete Block vs. 3" SMITH VARISPAN PANEL.

Results calculated by an Independent Consulting Mechanical Engineering Firm using recent ASHRAE procedures. Cost figures based on standard rates per KWH, per gal. of oil, or per cu. ft. of gas.

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EGS-110

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Many new roofs waste a lot of energy. Here's how to cut that loss by 50 percent—without spending an extra dime.



It may sound amazing, but you can do it.

The only thing you have to do is specify thicker 2¼-inch Fiberglas* roof insulation instead of the thinner 15/16th-inch size.

This dramatically reduces heat loss through your roof. And it actually brings the total cost of your building *down!*

The reason: the improved thermal performance of your roof enables you to get along with less elaborate, *less expensive* heating and cooling equipment.

In general, every dollar you spend on thicker 2¼-inch roof insulation

vs. 15/16th-inch size cuts up to *two* dollars off original equipment costs. So you come out considerably *ahead.*

On a suburban office building in northern climates, for example, thicker roof insulation could save as much as \$27,000 in equipment costs for every 60,000 square feet of roof.

And, of course, the thicker Fiberglas roof insulation goes on slashing the loss of fuel energy through the roof of your building by 50 percent—and the fuel *bills* by roughly 10 percent—year after year after year.

The exact savings vary according to climate zone, the size and type of roof deck, "U" improvement, and the added cost of the thicker insulation.

We've worked up all the figures and charts in a handy booklet called "Roof Raiser's Guide to Cost Reduction." For a free copy, write: I. X. Meeks, Architectural Products Division, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

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

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A totally new direction in office furniture for the private office as well as the open area. For every department of the 2001 company.

A system of furniture that grows with you. Changes with you. Supports your every work need.

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MUSEUMS: A PORTFOLIO OF DESIGNS FOR DISPLAY

Once a work of art was thought to be an artifact which at its creation passed out of time and accident into a realm where it stood alone, independent, unique and timeless. Once the perception of a work of art was thought chiefly to involve a dialogue between the imagination of the beholder and the object hanging on a wall or standing on a pedestal. It was all very private, and a little hermetic. Now it is also passé, for our presumptions have changed, and the displaying as well as the creation of art has come actively to include art's environment—its relation to other art and to culture as well as its independence from them, its timeliness as well as its timelessness. Thus openness and accessibility have become buzz words even for museum curators, taking their place alongside traditional passions for accessions, deaccessions, provenances and bequests. The headlong rush to win the with-it prize has produced some notable catastrophies, jeered by professionals and laymen; but the impulse to understand and to experience art as an intelligible cultural activity is not silly, and in one way or another it underlies all of the successful designs for display shown on the following pages.—*G. Allen*

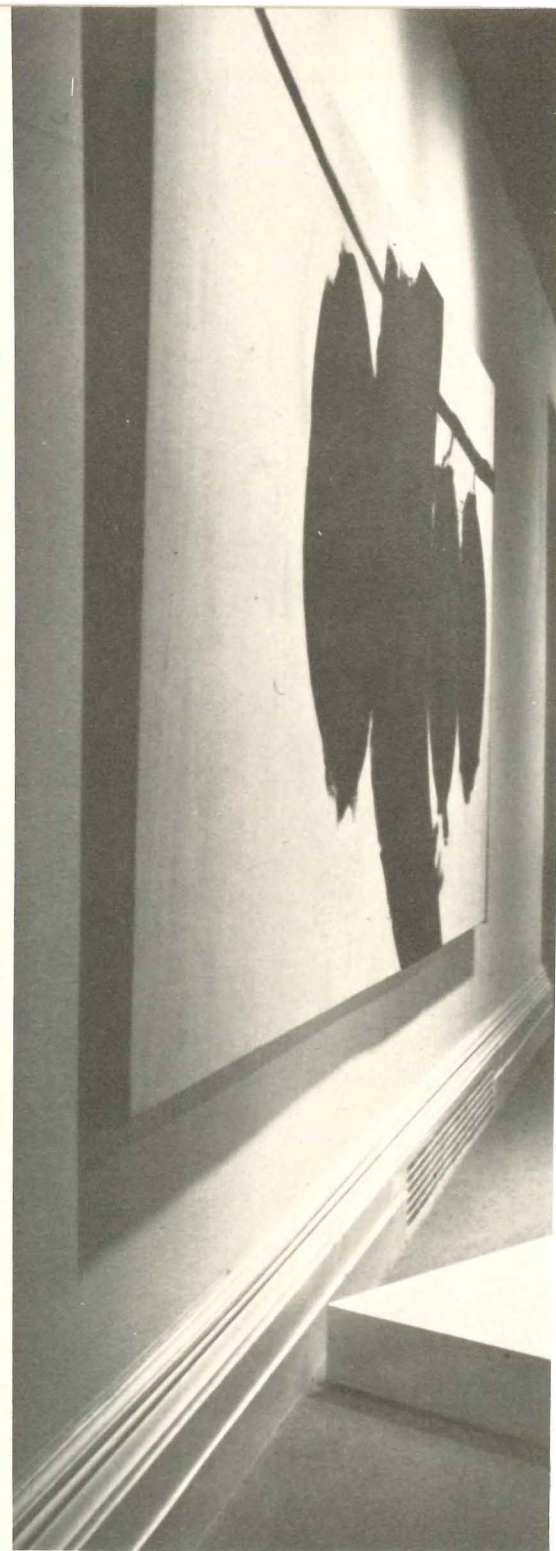
Norman McGrath



A WORKING GALLERY MADE FOR STUDENTS

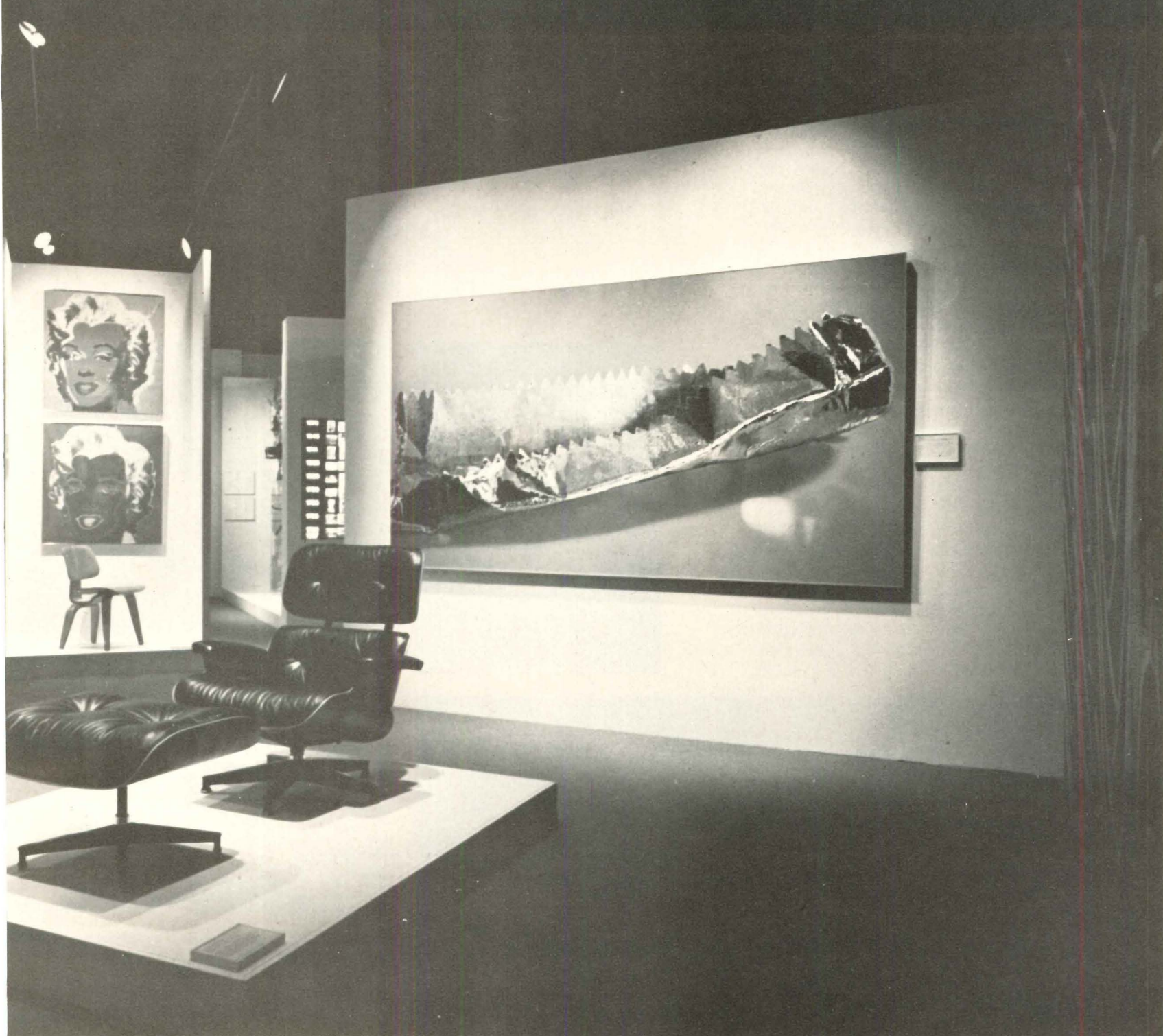
The permanent exhibition of American art shown on this and the opposite page has been set up in a rambling series of Beaux-Arts rooms in the old Yale Art Gallery, which was designed by Egerton Swartwout and completed in 1928 (and to which the more famous gallery of 1953 by Louis I. Kahn is an addition). These once grand and ample rooms have now been divided by more or less freestanding partitions into exhibition spaces that are smaller, brighter and cozier, and that are meant to encourage close and detailed study of the objects on display, with the aid of information from extensive labels, motion pictures and slide shows. "The goal of this exhibit," says Charles F. Montgomery, curator of this part of Yale's collection, "is to create an exciting teaching museum and to do what a good teacher does—to stimulate and excite the student (and the public); to see each thing in relation to its fellows in time and space; to see art objects individually and collectively as manifestations of the culture and creativity that is America."

THE MABEL BRADY GARVAN GALLERIES OF THE YALE UNIVERSITY ART GALLERY, New Haven, Connecticut. Architects and Designers: Cambridge Seven Associates, Inc.—principles-in-charge: Ivan Chermayeff and Paul Dietrich.



Norman McGrath photos





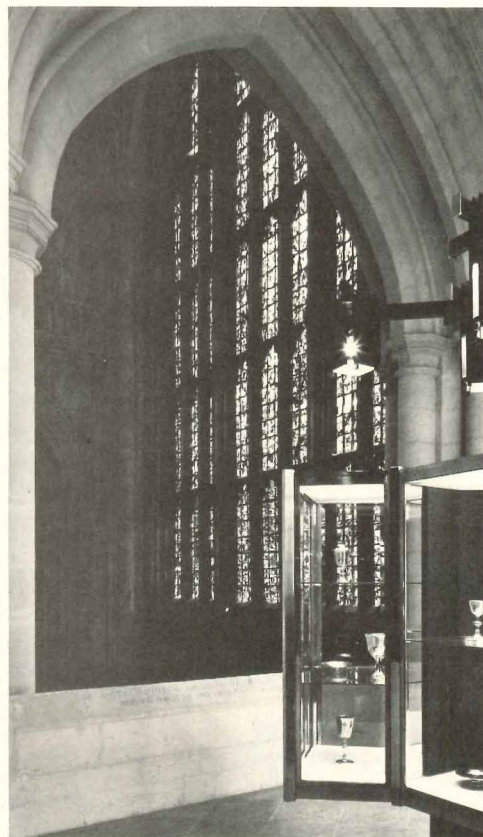
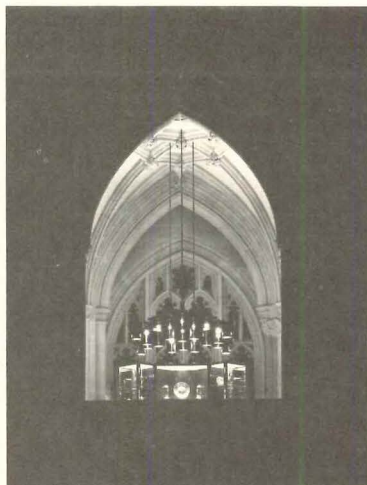
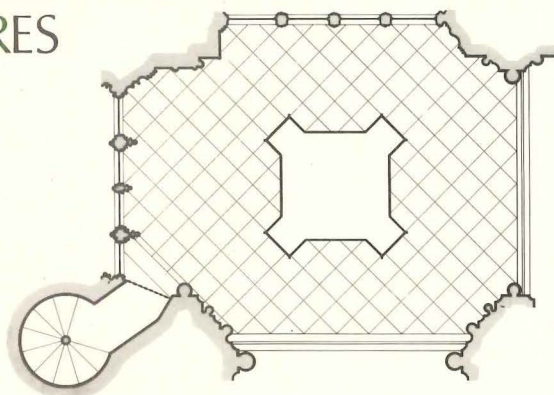
At the Garvan Gallery at Yale objects in different forms and different media are juxtaposed, united only by the period in which they were made. They are also seen from surprising angles, as in the wall of Chippendale chairs immediately below, or the contemporary chairs below right.



DISPLAYING HALF-FORGOTTEN TREASURES

The cathedrals of England and the parish churches of their dioceses often possess beautiful and valuable collections of old silver and gold—chalices, patens, basins, ewers and other objects used in ecclesiastical ceremony. Until recently in modern times, these were almost always kept stashed away in bank vaults, available on loan for special exhibitions or brought out occasionally for major church festivals. Well over a decade ago, however, the idea of cathedral treasuries—special places where these collections could be displayed—was advocated and underwritten by the Worshipful Company of Goldsmiths, a semiofficial, benevolent band of craftsmen and enthusiasts roughly equivalent in essence if not in style to an American professional association. The first cathedral treasury, at Lincoln, was opened in 1960, and since then treasuries have been installed at Winchester, Norwich and York. Those at Winchester and Norwich were designed by London architects Stefan Buzas and Alan Irvine, and they are shown on this and the following page.

The Winchester treasury, shown on this page, is in a small 15th-century gallery above the nave of the cathedral near the west door; the entrance is by a small door and a short winding stairway. In the gallery is a single



Edgar Hyman and Peter Chorley photos

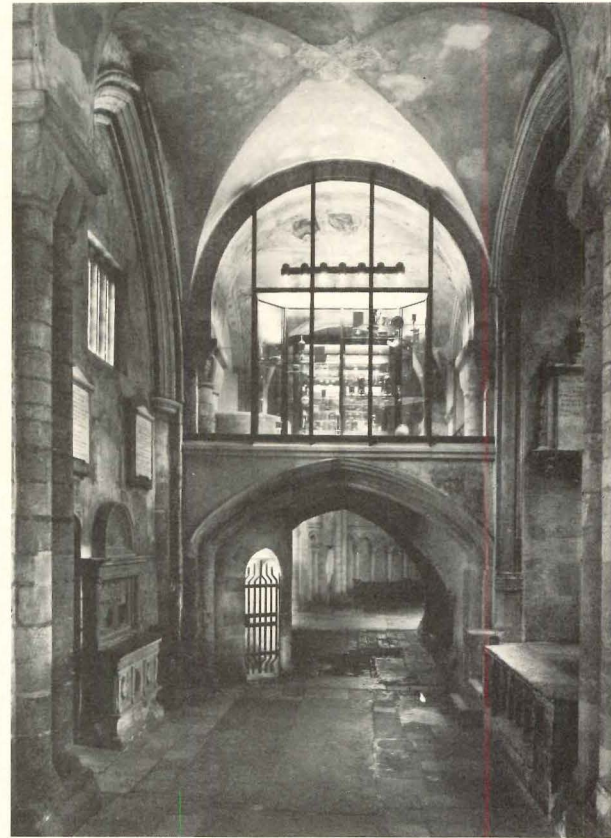
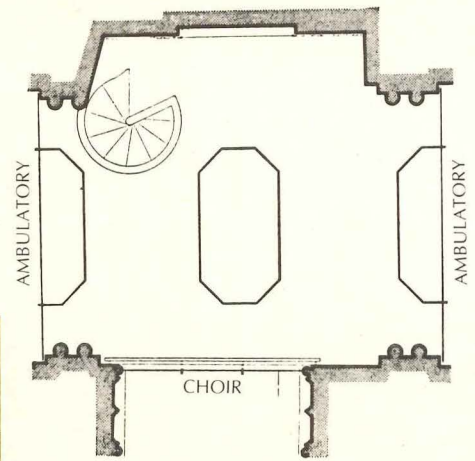
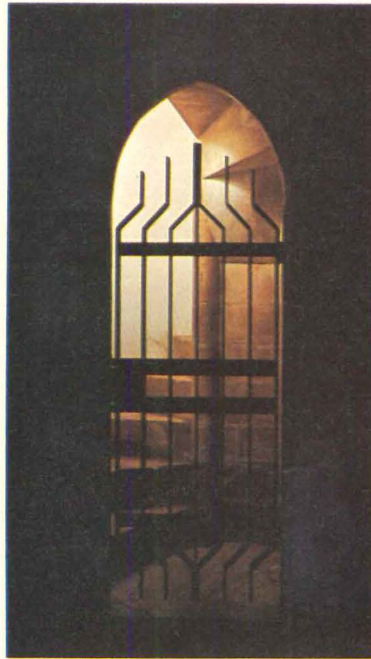
The single bronze display case of the Winchester Cathedral treasury, seen close up and from above and below in the adjacent photographs, has eight separate sections; the bottom is lined with Purbeck stone, whose light color reflects the light from the chandelier suspended above.



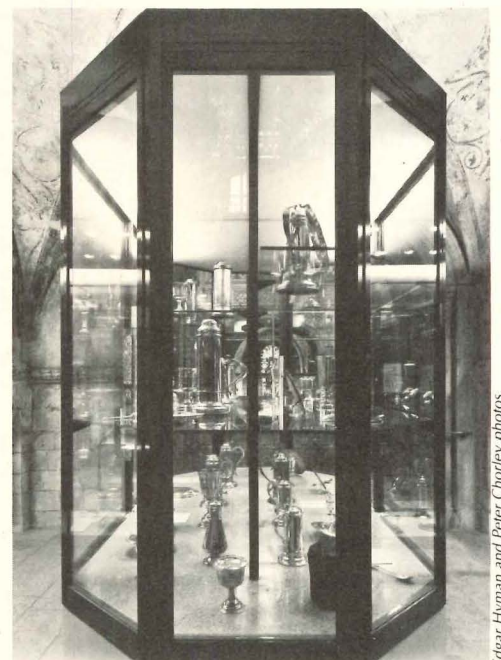
showcase elegantly constructed of bronze; its translucent glass top admits light from the 16-lamp chandelier suspended above. The chandelier is made of bronze-anodized aluminum to minimize its weight. The central, cruciform-plan showcase was chosen in order to give adequate circulation space around the case and to leave the balustrades clear and thus to preserve two excellent views of the cathedral.

The Norwich treasury, shown on this page, is also situated in an existing gallery—this one in the ambulatory of the cathedral, and possessed of notable 14th-century frescoes on the vaults above. There are four display cases, of which two form part of the glass walls within the semicircular arches enclosing the treasury. Above each of these showcases is a seven-light bracket made of bronze. There is also a shallow showcase in the north wall, and a central showcase, whose lighting also illuminates the frescoes on the ceiling.

WINCHESTER CATHEDRAL TREASURY, Winchester, England; NORWICH CATHEDRAL TREASURY, Norwich, England. Architects: *Stefan Buzas and Alan Irvine*. Engineers: *Ove Arups* (structural, for reinforced concrete vault at Winchester). Prime contractor: *A. Edmonds & Co.* (for fabrication of bronze showcases).



The Norwich Cathedral treasury was installed in a gallery above the north choir aisle, used in medieval times for the display of relics, and enclosed now by glass walls, making the treasury visible from below. The architects of the treasury also designed the iron gate at its entrance.



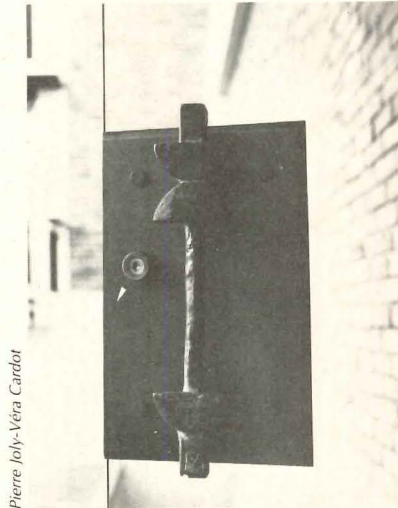
Edgar Hyman and Peter Chorley photos

A "MEETING PLACE FOR THE ARTS" GROWS

The arts destined to meet in the original Maeght Foundation in Saint Paul de Vence, completed in 1964, were, most prominently, painting, sculpture and architecture. The painters and sculptors included Braque, Miró, Chagall, Giacometti, and Calder, and their works were meant not merely to be housed in and around the museum, but actively to become a part of it. The architect was Josep Lluís Sert, and the patron was Parisian gallery owner Aimé Maeght.

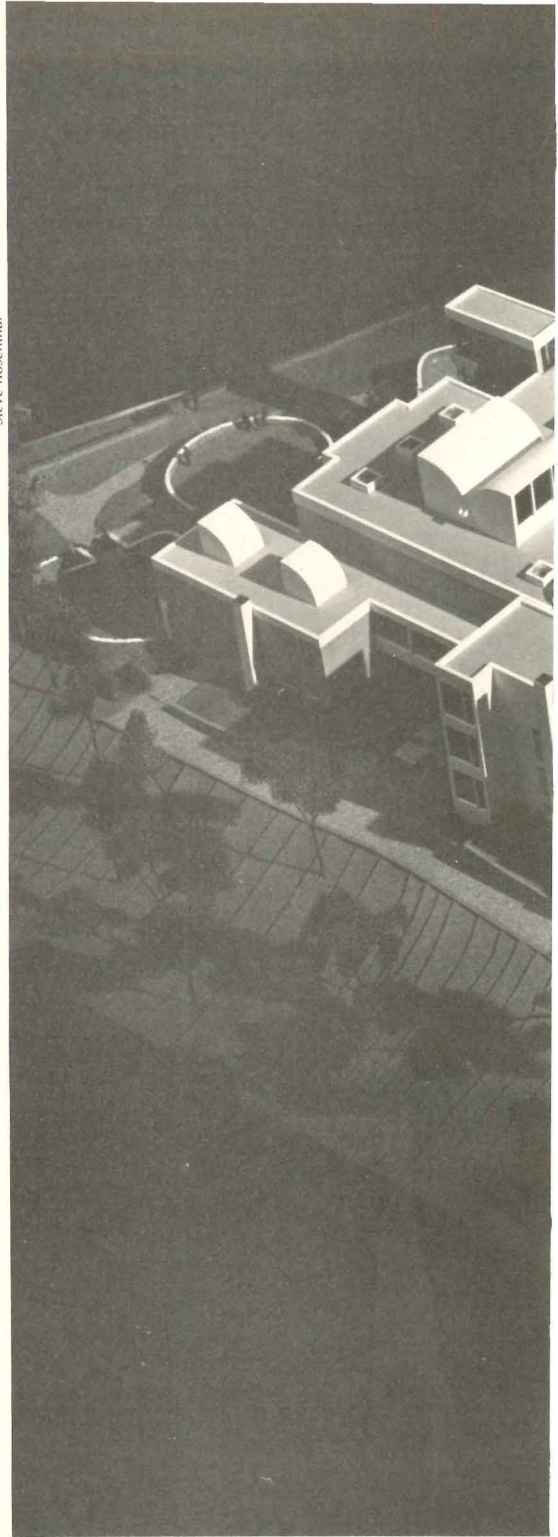
All that was ten years ago. Now it has come time to construct a second phase of the *Fondation Maeght*. Anticipated from the beginning, this extension continues the original format of a series of simple brick-walled enclosures lit from above by whitewashed concrete light scoops. But the second phase is also influenced by a decade's working experience, and by a demonstrated need for facilities for festivals, conferences, musical performances, ballets, and movies—a need, as Sert puts it, for "more changeable, active and animated spaces," where not only the arts but the arts and people can meet in concert.

ADDITION TO THE MARGUERITE AND AIMÉ MAEGHT FOUNDATION, Saint Paul de Vence, France. Architects: *Sert, Jackson and Associates*. Associated Architects: *Bellini Lizero and Gozzi*.

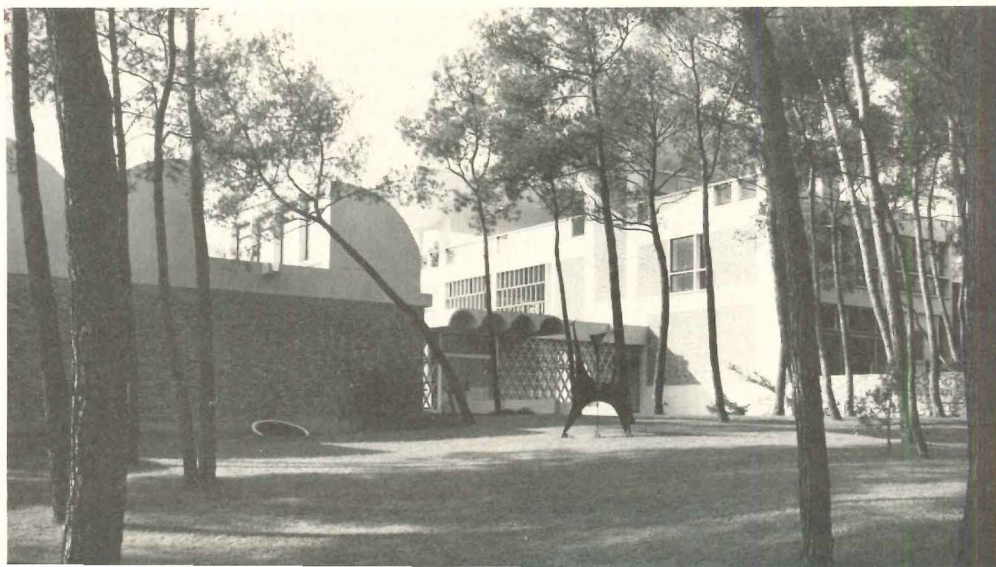


Pierre Joly-Véra Cardot

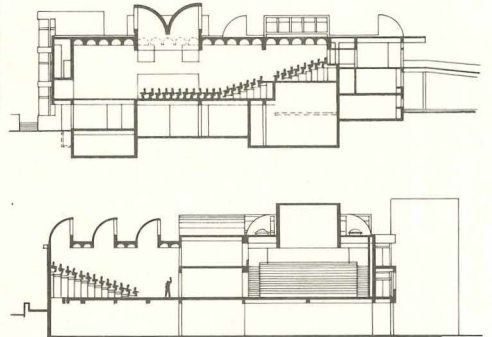
Steve Rosenthal

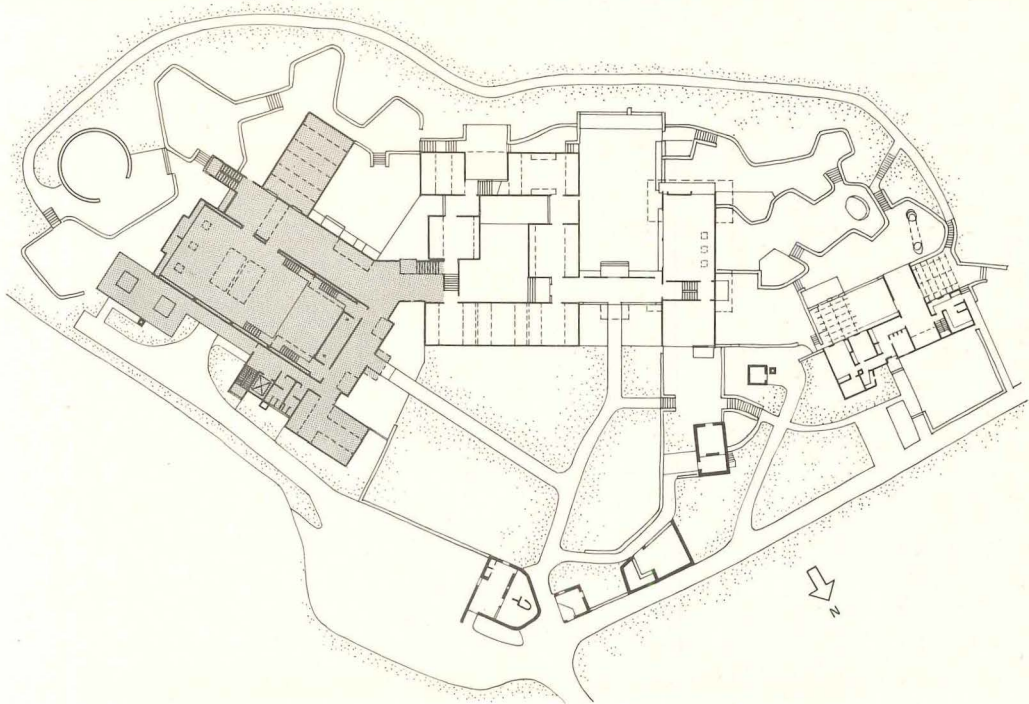
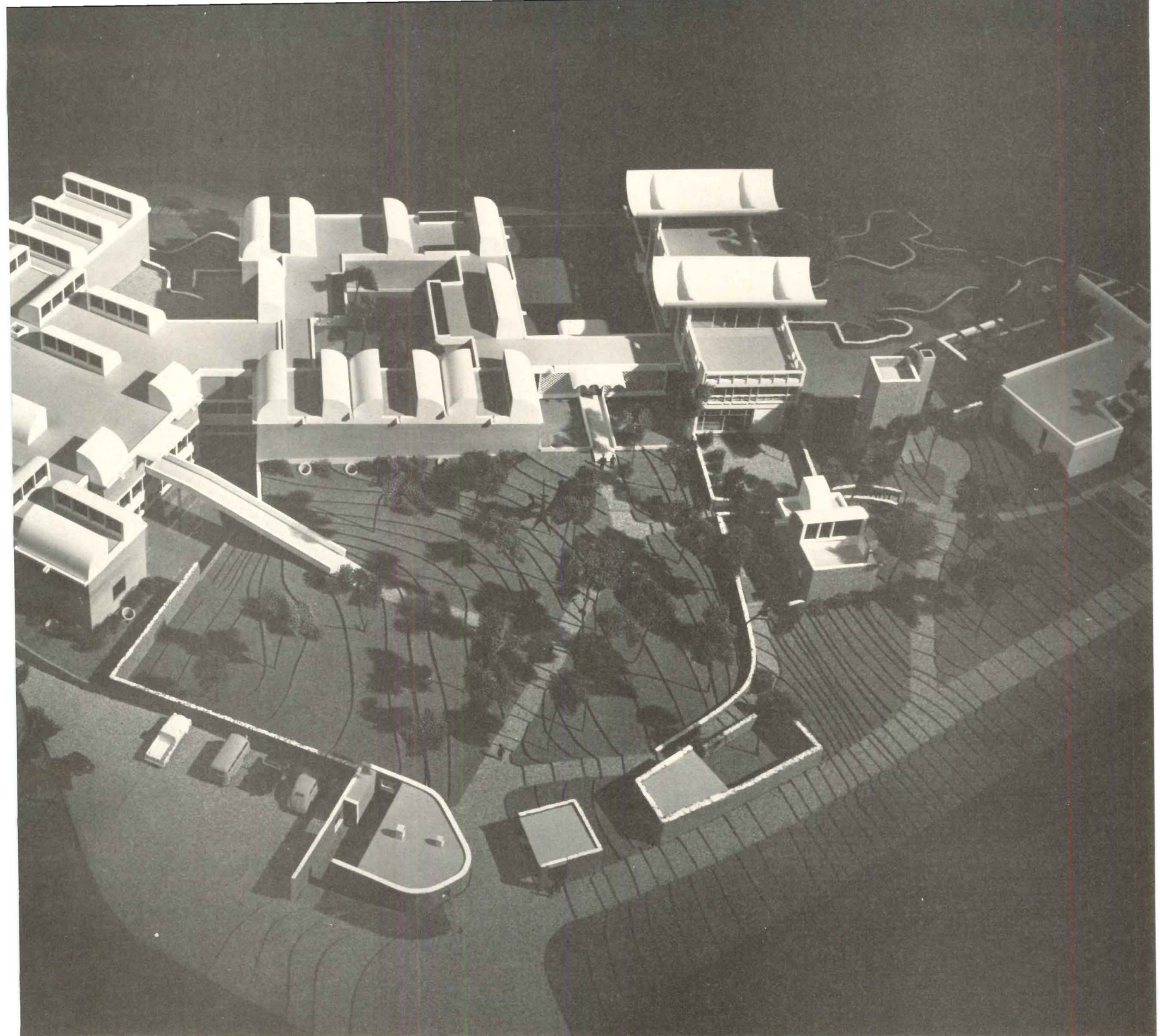


The small photograph above left shows a doorknob designed by Giacometti for the first phase of the Maeght Foundation. Immediately left is one of the galleries built in the first phase, and below is one of the informally landscaped lawns, populated by an Alexander Calder sculpture.

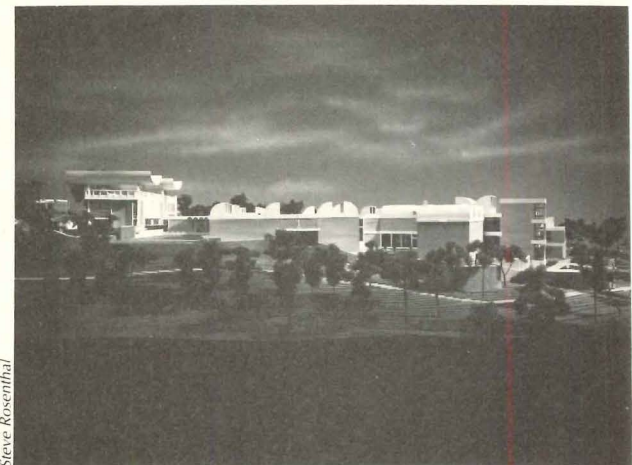


Claude Gaspari





A model of the Maeght Foundation, phases I and II, is shown above and immediately below; the shaded portion of the plan on the left is phase II. The principal room in this addition, designed for use as a multi-purpose auditorium and exhibition space, is shown in the sections on the opposite page.

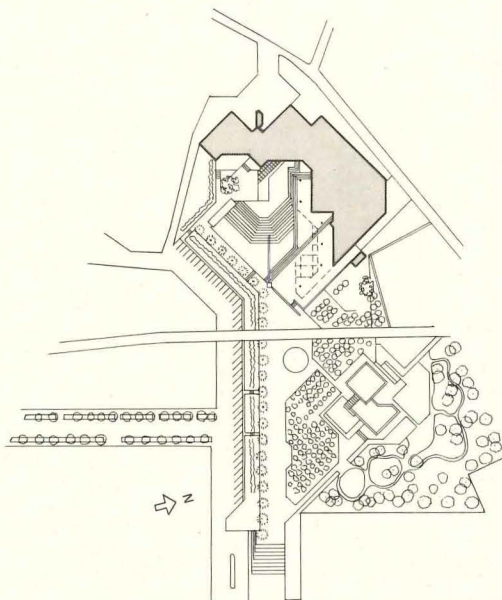


Steve Rosenthal

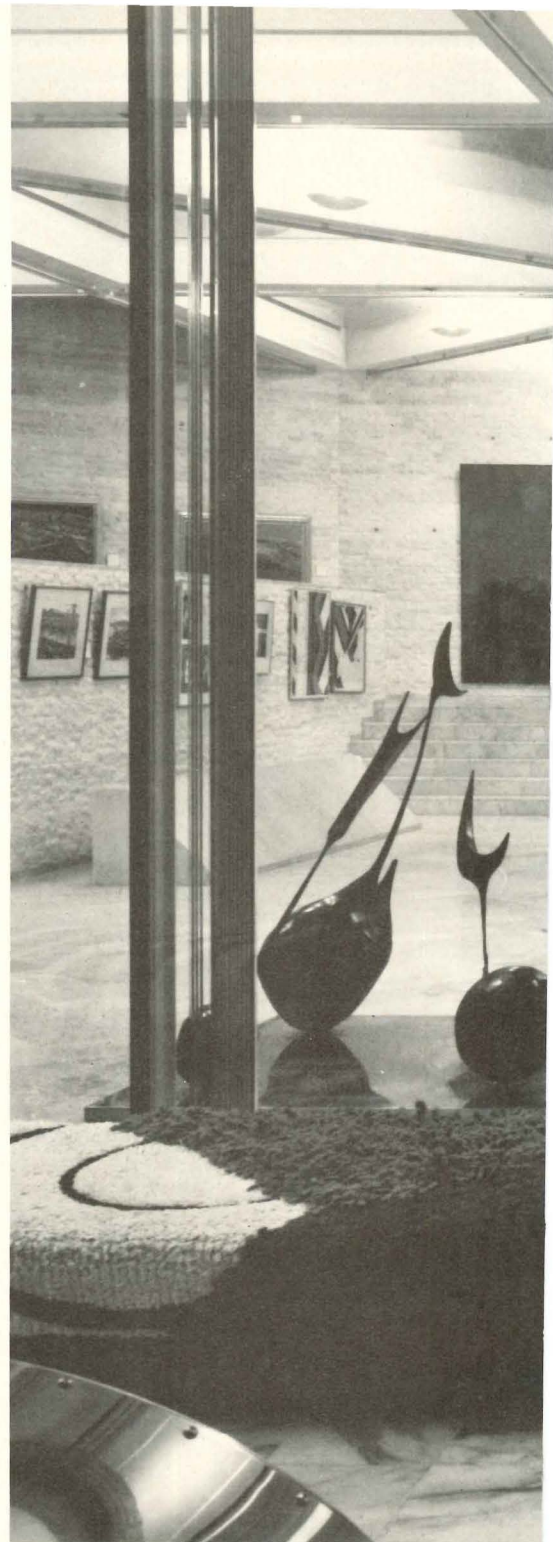
AN OPEN, ACTIVE ENVIRONMENT FOR ART

"Many of the world's museums of modern art concentrate primarily on the autonomous nature of the works displayed," according to Kiyoshi Kawasaki, architect of the Tochigi Museum of Art, shown on this and the following two pages. "They therefore evolve high-level, interior-oriented, artificial spaces for the exhibition of those works." By contrast, the Tochigi Museum represents an attempt to retrieve the displayed artifact from such environments, where participation in it is, according to Kawasaki, passive and even monotonous. The gallery spaces in this museum use the now-familiar exposed structural concrete ceilings, with provisions for movable lighting, in order to provide maximum flexibility in the arrangement of shows. The galleries themselves (see plan on page 106) are freely configured, flowing into each other and opening to the outdoors, a plaza "where artists and art lovers can make their contributions to the total environment of the museum."

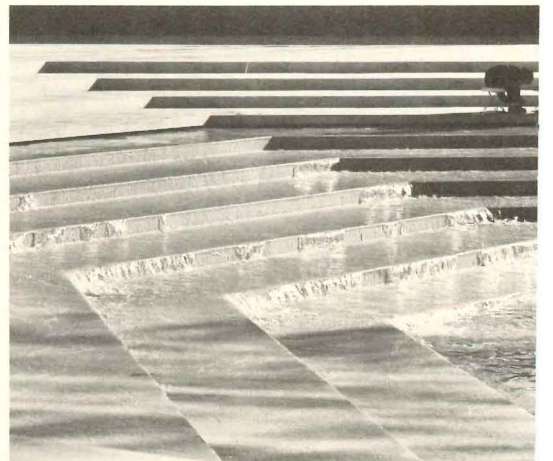
TOCHIGI MUSEUM OF ART, Utsunomiya, Japan. Architect: *Kiyoshi Kawasaki and Associates*. Engineers: *Torao Shioji* (structural); *Inuzuka Engineering Consultants* (mechanical). Consultants: *Sori Yanagi* (furniture); *Motoko Ishii* (lighting); *Reiko Ohta* (textiles); *Yoshikuni Iida* (sculpture). General Contractor: *Shimizu Construction Co. Ltd.*



Ryoo Hata



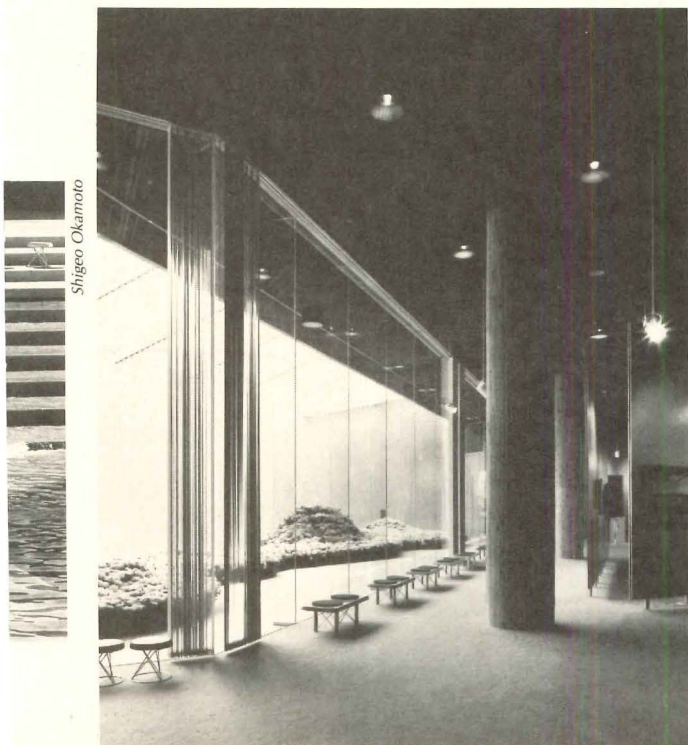
Shigeo Okamoto





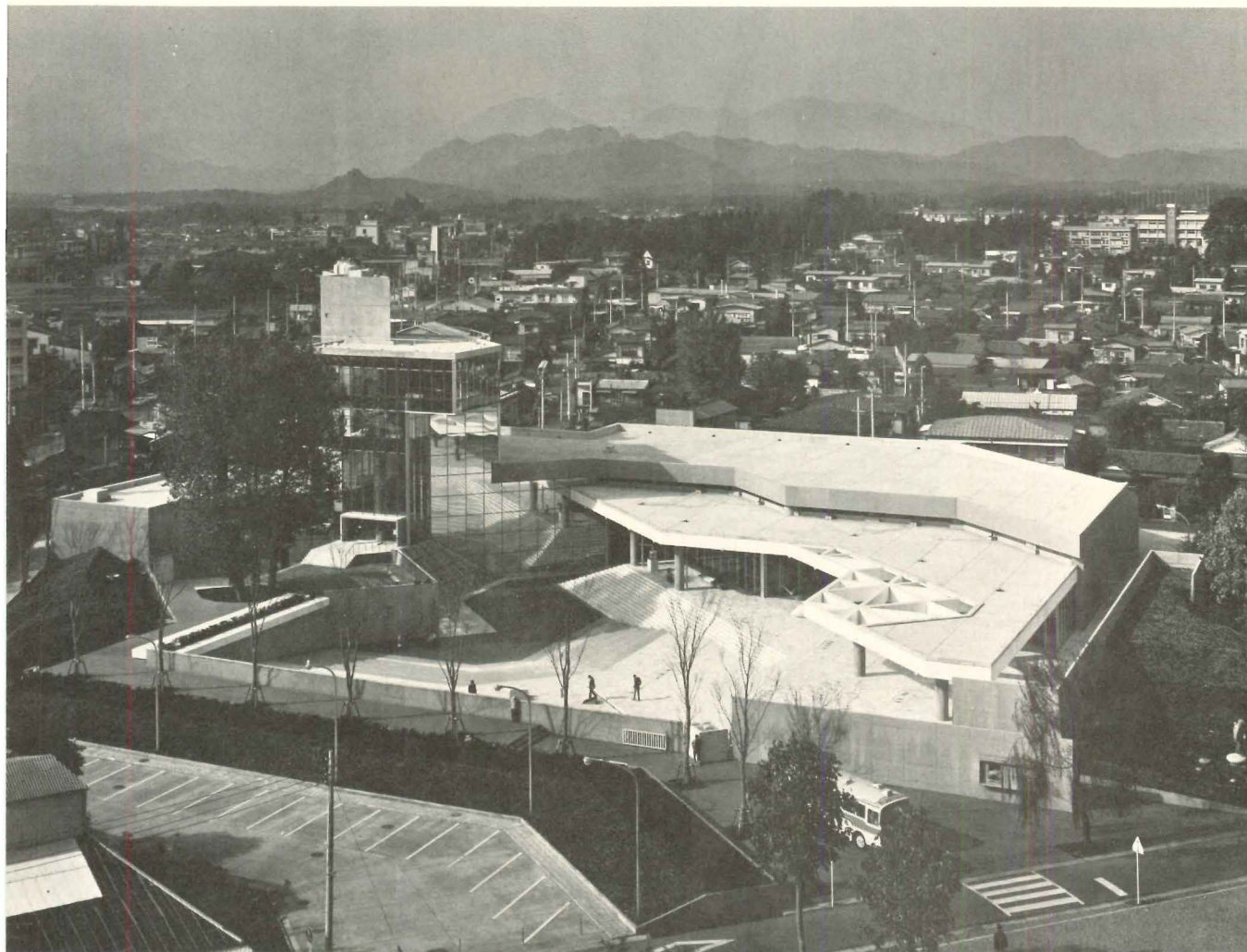
Above is a view of Exhibition Hall "B" from the outdoor exhibition area, whose most notable architectural feature is a large reflecting pool reached by flights of steps. Some of these steps are flooded with water flowing down into the pool, as in the photograph on the left.

Ryoo Hata

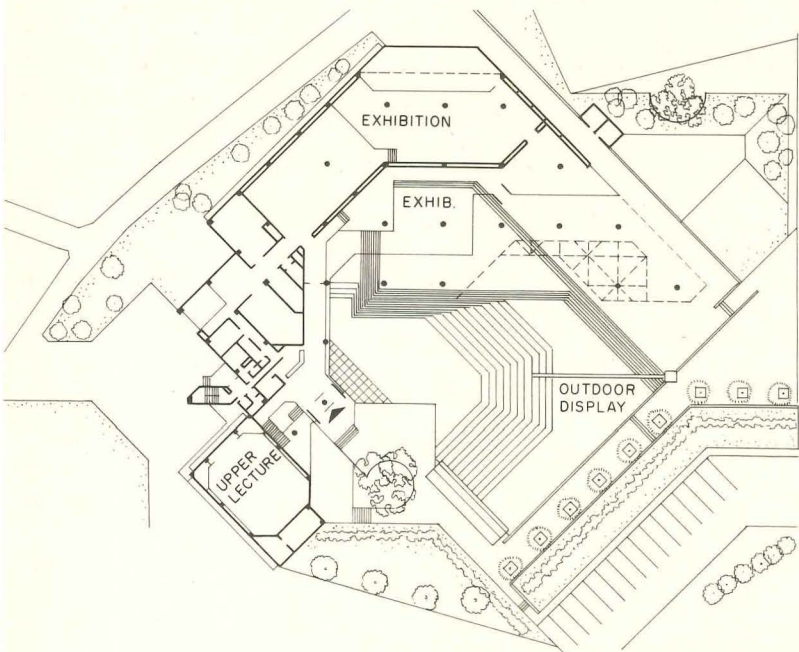
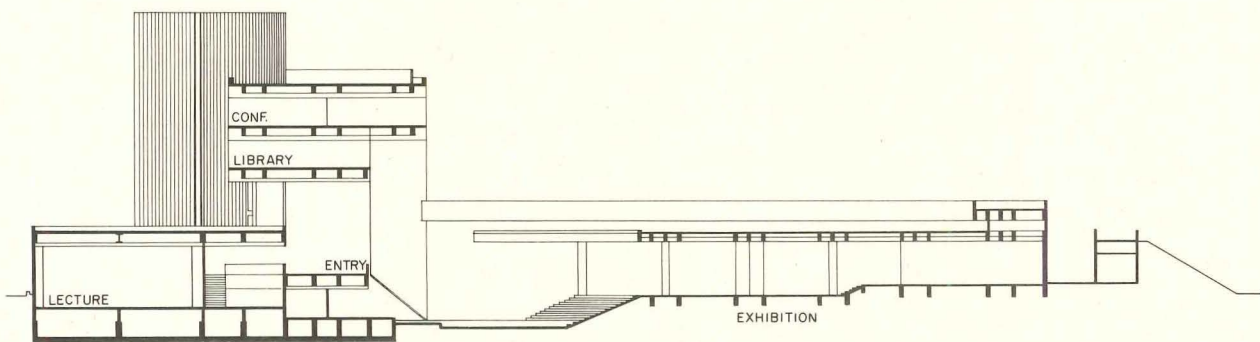


Shigeo Okamoto

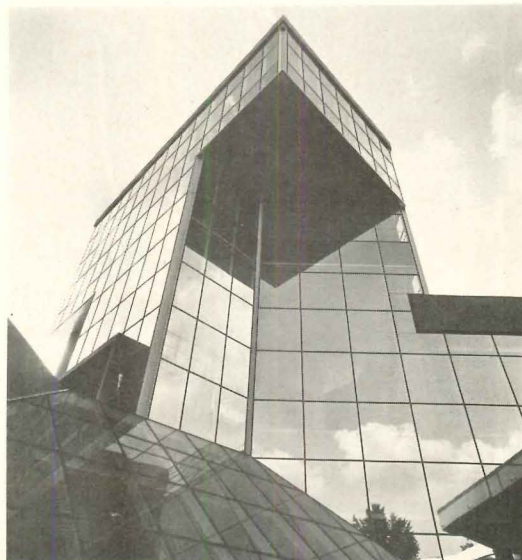




Ryoo Hata



The general view of the site shown in the top photograph above reveals the low, small-scale environment in which the museum is placed. The photograph below is an upward view of the office wing, and below left is a plan of the main floor.



Osamu Murai

ROUND TABLE:

Public procurement of A-E services

In March, when Maryland and the nation were reacting to the Agnew confrontations and when public agencies including GSA were studying ways in which public bodies might better fulfill a client role in the commissioning of buildings and other public works, ARCHITECTURAL RECORD invited key people involved in these matters to a two-day Round Table discussion. The format of the event was a presentation of position papers by five individuals representing various important considerations. The balance of the meeting was in every sense a Round Table discussion of not only the content of those papers but all matters pertaining to the issues involved. Speakers and content of position papers are outlined in the panel at right, together with a roster of participants.

THE ISSUES

1. The nature of professional competition
2. Accountability of the public agency
3. Striving for design excellence
4. Controlling opportunities for misuse by selection procedures and systems
5. Rating of firms and pricing services

The volume and value of papers and discussion over the two days has presented a problem for their publication in RECORD. Rather than cut excessively to fit available pages in a given month, we are going to publish the position papers dealing with Federal problems this month and continue with state and local papers and the general discussion in succeeding issues.

THE POSITION PAPERS

(in order of presentation)

Vernon L. Hill, Assistant Director-in-Charge, Logistics and Communications Division of the U.S. General Accounting Office. Mr. Hill set forth the position of Elmer Staats and the GAO relative to the intent of Congress in prescribing not only fee limitations but also the position of Federal agencies with regard to pricing and selection of professional services.

Leo A. Daly, representing the position of AIA and the professional societies involved in a study group reporting to a Commission on Public Procurement, summarized some of the findings of that group and offered additional comment on the problems of public procurement, especially as they might be affected by outside influence.

Arthur F. Sampson, Administrator of GSA, described the position of that agency as client representative for PBS and other Federal agencies and gave details of the current means by which GSA seeks to enlist the public professional sector in procedures designed to insulate the agency from undue influence. He further described the efforts of GSA, through special studies, to re-examine those procedures in depth and to recommend such changes as might improve the process.

George A. Dudley, Chairman of the New York State Commission on Architecture, described variations of the procurement problem as they apply at state and local levels and further suggested the ways in which the professions themselves might be involved in improving the selection process.

Milton Musicus, formerly at a key policy level in the Lindsay administration and previously executive director of the New York State Facilities Improvement Corporation, talked about the basic principles of public procurement, the various kinds of influence that are brought to bear, and the kinds of disciplines he sees as essential to the process.

OTHER ATTENDING MEMBERS

George Agron; Stone, Marraccini & Patterson

Raymond Gaio; Gaio Associates, Ltd.

Harold Gold; Lewis, Mitchell & Moore

Ed Grafton; Ferendino, Grafton, Spillis & Candella

Robert Isaacs; U.S. Postal Service

J. Karl Justin; Evans, Delehanty & O'Brien

Bill Lacy; National Endowment for the Arts

Milton Lunch; National Society for Professional

Engineers

Jim Mann; IBM Corporation

Walter Meisen; General Services Administration

Gerald McKee, Jr.; McKee-Berger- Mansueto, Inc.

Bradford Perkins; Llewelyn-Davies Associates

Bradford I. Towle; IBM Corporation

Thomas F. Williamson; General Accounting Office

For ARCHITECTURAL RECORD

Blake Hughes; Publisher

Walter F. Wagner, Jr.; Moderator

William B. Foxhall; Co-Moderator

"Isn't it fair to say that the goal of government procurement at the Federal level, at the state level, and at the local level ought to be the best possible architecture for the taxpayers?"—Walter F. Wagner, Jr.

"No one will stand up for lack of integrity. But there is no force more furious—or fat-headed at times—than moral indignation. And if that indignation is combined with a simplistic and exaggerated faith in the curative properties of scientific management techniques, it can be most dangerous."—Blake Hughes

"We strive toward the result of better architecture, fairly commissioned, and constructed at a fair and affordable price."—Blake Hughes

Editor Wagner frames the issues of the conference—and the goals

In performing general introductions and outlining the scope and format of the meeting, Walter Wagner, RECORD editor and moderator of the meeting, had this to say about the issues involved:

"The meeting is intended to air major issues surrounding public procurement of A-E services. These issues include, among other considerations, the integrity and function of both the client agencies and the professionals—the architects and engineers—who work for them. The issues also include the framework established by law pertaining to procurement and to pricing of services. Another issue is the structure of the various procurement systems now in use by Federal, state, and local agencies; and finally, the capability of improved systems to increase the quality of professional services while reducing both red tape and opportunities for unethical manipulation.

"Isn't it fair to say that the goal of government procurement at the Federal level, at the state level, and at the local level ought to be the best possible architecture for the taxpayers? They are our clients; they are everyone's clients. It is the view of a lot of us, of course, that accomplishing this goal depends heavily, though far from exclusively, on having the best available firms do the design. That seems to us to involve giving all firms a chance to be heard, and, if they are best qualified, hired. It means making a selection of the best firm on the basis of professional qualifications—far from emphasis on price, though, of course, not ignoring that—and far from being under political pressures of any sort. So that is what we are going to talk about; about how to achieve excellence."

Publisher Hughes sounds a call to moral verities

In welcoming remarks, Blake Hughes, publisher of ARCHITECTURAL RECORD, talked about the ethical disarray in high places and the variously motivated—but forever righteous-sounding—fervor to take corrective action. To those who put their faith in procedural systems to keep pure and wise the process by which architects and engineers are selected for public work, he sounded a plea for deeper contemplation.

"It is difficult," he said, "to think calmly

and to maintain a sense of proportion in the midst of raucous shouts and rhythmic chants. It is difficult to maintain perspective when one cannot distinguish clearly between true defects and well-motivated magnifications of them—or even devious distortions of them!

"No one will stand up for a lack of integrity. But there is no force more furious—or fat-headed at times—than moral indignation. And if that indignation is combined with a simplistic and exaggerated faith in the curative properties of scientific management techniques, it can be most dangerous. The dangers, of course, are vindictiveness and self-delusion; the idea, on the one hand, that we can really solve our problems by a kind of moral fox-hunt—and the idea, on the other hand, that we can reform the world by mandating some intricate new mechanism for a higher morality.

"Let us not forget that, in a time of burgeoning moral relativism, and in a society that is in danger of losing its grasp on first principles, moral rust-proofing becomes more difficult.

"Nevertheless, even today honest moral concern can overpower cynicism. We can still believe in the possibility of enabling the light side of human nature—whatever that is—to prevail over the dark side—whatever that is!

"What we attempt to do here, it seems to me, is to explore ways of minimizing for 'good' but weak men the obligations, temptations and pressures that lead them to compromise their own best intentions. At the same time, we try to see whether it is possible to assure them of wise counsel in the exercise of their authority and the discharge of their responsibilities. We strive toward the result of better architecture, fairly commissioned, and constructed at a fair and affordable price."

Vernon L. Hill presents the GAO position

The quandaries and objectives of the U.S. General Accounting Office in trying to interpret and implement the intent of Congress regarding the procurement of architectural and engineering services were outlined in a position paper by Vernon L. Hill, Assistant Director-in-Charge, Logistics and Communications Division, U. S. GAO.

MR. V. L. HILL: We appreciate the opportunity to relate some of GAO's past involvement and current work concerning public procurement

of A-E services.

Although the agenda provides for debating issues, we are not in a position at this time to discuss the issues that we are reviewing for the purpose of later reporting findings and information to the Congress, because in many areas we have not reached firm conclusions. Upon the conclusion of our work, we plan to provide factual information for the Congress relative to the selection procedures and practices currently being followed, and any suggestions that we have which we believe the Congress may wish to consider.

GAO has been interested in the Government's procurement of A-E services for a considerable time. As you may know, we issued a report to the Congress in April 1967 in which we reached three principal conclusions:

First, the six per cent statutory fee limitation was impractical and unsound. It simply did not insure that the Government would obtain A-E services at fair and reasonable prices.

Second, A-Es were required to submit and certify cost or pricing data in accordance with the requirements of Public Law 87-653, commonly referred to as the Truth in Negotiations Act, and implementing agency regulations.

Third, the selection of A-Es by Government agencies came within the purview of the competitive negotiation procedures required by Public Law 87-653.

The conclusion that A-E procurements were subject to the requirements of competitive negotiations was the most controversial aspect of our report.

Because of the complexity of the questions raised, we stated that our office would take no action until the Congress had clarified its intent concerning whether or not selection should be under the competitive negotiation procedures of Public Law 87-653.

Subsequently, the Congress passed Public Law 92-582 (The Brooks Bill) in October 1972, which is familiar to all of you.

The Brooks Bill, in effect, reflects the traditional method of selecting A-Es with two exceptions:

First, Government agencies are required to publicly announce requirements for A-E services. This requirement is a helpful step in providing the opportunity for more architectural and engineering firms to participate in Federal procurements.

The second departure from the traditional A-E selection procedures is the mandatory re-

"First, the six per cent statutory fee limitation was impractical and unsound. It simply did not insure that the Government would obtain A-E services at fair and reasonable prices."—V. L. Hill, GAO

"Recent events alleging improprieties in the award of contracts for architectural and engineering service have led to an erosion of public confidence in the established procedures. . . ."—V. L. Hill

"The conclusion that A-E procurements were subject to the requirements of competitive negotiation was the most controversial aspect of our report."—V. L. Hill

quirement for discussions with at least three firms before ranking the firms in order of preference for price negotiations. Discussions are to embrace anticipated concepts and the relative utility of alternative methods for furnishing the required services. We believe this is also an improvement.

We did not favor enactment of the Brooks Bill at the time of passage because we believed that the well-recognized concept of competitive negotiations could be successfully applied to the procurement of A-E services as it has been applied to similar professional services without degrading the quality of the services furnished.

Accordingly, we suggested withholding congressional action on legislation until such time as the Commission on Government Procurement, then actively studying the A-E selection question, had an opportunity to report its recommendations to the Congress. The Congress, however, decided to proceed with the enactment of The Brooks Bill on the basis that the law could be amended at such time as such action seemed desirable.

The Commission on Government Procurement issued its report in December 1972. The majority opinion recommended that:

- Procurement of A-E services, so far as is practicable, be based "on competitive negotiations, taking into account the technical competence of the proposers, the proposed concept of the end product, and the estimated cost of the project, including fee. The Commission's support of competitive negotiations is based on the premise that the fee to be charged will not be the dominant factor in contracting for professional services."

- Policy guidance be provided "through the proposed Office of Federal Procurement Policy, specifying that on projects with estimated costs in excess of \$500,000 proposals for A-E contracts should include estimates of the total economic (life-cycle) cost of the project to the Government where it appears that realistic estimates are feasible. Exceptions to this policy should be provided by the agency head or his designee," and

- Consideration be given to "reimbursing A-Es for the costs incurred in submitting proposals in those instances where unusual design and engineering problems are involved and substantial work effort is necessary for A-Es to submit proposals." We continue to support the findings of the majority opinion of the Com-

mission on Government Procurement.

Recent events alleging improprieties in the award of contracts for architectural and engineering services have led to an erosion of public confidence in the established procedures and to a reexamination and reevaluation of the methods of selection followed by various agencies—public and private.

We are aware of a number of efforts underway within the various professional organizations and by States and municipalities regarding possible solutions to the problems. And we are aware of GSA's review of its procedures for A-E selections.

As I previously mentioned, the General Accounting Office, in response to congressional and public interest, is making a review of the procedures being used by Federal agencies for selection of A-Es. As part of this effort we feel it is the opportune time to include managerial considerations as well as the legal aspects previously emphasized. We are interested in the effectiveness of the selection provisions and whether they have contributed to certain abuses that have been alleged in connection with A-E contract awards. And we are reviewing the implementation of the Brooks Bill. We will cover such matters as the nature, extent, and significance of the "discussions" held with A-Es; and whether selection panels are used and the criteria used for selection. We will examine into the pattern of A-E awards, particularly whether there has been any degree of clustering around a limited number of firms. And we will compare and review how various States and localities select the A-E firms they employ.

We do not, however, want the attention being paid to controls within the contracting procedures to obscure the broader objectives which form the need for competent A-E services. We believe that the procurement focus should be on excellence in design and on economic analysis of the total procurement-construction process.

In our study, therefore, we intend to consider life cycle costing and energy conservation and the effect such matters might have in the selection of A-Es and in choosing building alternatives. Our work to date indicates that owners and members of the building industry recognize the importance of these factors and are studying how they should be considered.

We have emphasized and reemphasized that we are *not* advocating the use of formal

advertised procedures for A-E procurements which would require award to the responsible bidder submitting the lowest bid, provided it conforms to the Government's advertised specifications. In commenting on proposed legislation, we have stated a number of times recently that we do not favor the use of formal advertising procedures in securing A-E services, thus reiterating again our view that professional services properly may be obtained on other than a formal bid basis with price being the dominant factor.

At this point, what I am saying is that we have an open mind and no firm conclusions as to specific methods and procedures that would, in a final analysis, be most desirable or most appropriate for Federal procurement of the services of architects and engineers. We are searching, as you are searching, for improved methods. Our search is being conducted mainly through review of agency practices, and when more of these data and practices are accumulated and analyzed, we are hopeful that possibilities for improvements will be clearer.

In this search, you are now having this round table working toward the improvement objective. Therefore, I would like to suggest for your consideration and evaluation two matters that we believe should be studied before reaching final procurement proposals.

First is the matter of life-cycle costs and the rate of energy usage. These concepts hold promise of economies in connection with facilities of the future. They surely are of interest to A-Es and owners, and may present a supplementary means for selection of A-Es. At this point we know little about how the idea can be applied and consequently we would like to see you make a study of means of applications.

We have been told by one large owner that it intends to establish an energy budget stated on the basis of energy consumption per square foot or cubic foot, and design proposals which are too far off this budget would be given less consideration than those which meet the budget.

We understand that much of life cycle costing heretofore has been applied during the construction stage as a part of value engineering. And we understand from some designers that, more profitably, the process should be a design consideration. If that is correct, we wonder at what point in the design process life cycle cost proposals should be

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"We have emphasized and reemphasized that we are not advocating the use of formal advertised procedures for A-E procurements which would require award to the responsible bidder submitting the lowest bid . . ."—V. L. Hill

"The General Accounting Office recommendations were readily accepted by the architectural and engineering professions, except for the suggestion that A-E's should engage in price competition in order to be considered for a specific Federal project."—Leo A. Daly, AIA

made. Probably as soon as is feasible in consideration of the details required. The details seemingly should support the additional construction costs to be incurred, if any, and the operational savings envisioned over a stated period of time so that the owner can discount the savings to present value and calculate the financial advantage, if any, of the life cycle package and consider how it might figure in the selection process.

And second is the matter of negotiated competition. We have noted that this approach is dismissed as being too loaded toward price competition. But it seems to us that the possible options or procedures that could be used might provide quite a range of emphasis; however, as you know, we do not advocate that price be the dominant factor.

It is our objective among other things to seek procedures within the framework of the recommendations of the Procurement Commission, which will assure the quality of A-E services received, while introducing the type of competition we believe necessary to assure that the Government receives the most life cycle cost effective product. If such procedures can be developed without adversely affecting the quality of design, we believe they should receive the support of both Government and industry.

Perhaps a two or three step award procedure has certain advantages, and at some point or under some conditions payment would be made for certain design work that was proposed but not adopted. The ratio of firms submitting preliminary concepts, say 10 or 15, to those submitting a final proposal that would include price, say three or even two, moderates the weight of price or fee. And in the final selection, whether you have two, three, or more firms in the competition, there could be systems of weighting technical and business components. There are many combinations, and we believe the participants here and the societies represented are well equipped to engage in this type of analysis. We hope that you do so engage yourselves.

Leo A. Daly reviews interprofessional studies and recommendations

A position paper presented by Leo A. Daly under auspices of the AIA summarized recent and massive studies, by interprofessional commissions, of government procurement practices. Conclusions and recommendations of

one group (Study Group 13-B of the Congressional Commission on Government Procurement, of which Mr. Daly was chairman) are reviewed as background supportive to passage of the Brooks Bill and to current positions of the professions.

MR. LEO A. DALY: My thinking on procurement of architect-engineer services by governmental agencies is strongly influenced by the impressions I gained while serving as Chairman of Study Group 13-B of the Congressional Commission on Government Procurement. So, the ideas that I will present to the Round Table today not only will be my own ideas, but also will be the findings and recommendations of Study Group 13-B as they were presented in late 1971—and I don't think any of the panel members have changed their minds since then.

You might say that 13-B is "old hat." The Brooks Bill has been passed since then, and we have seen some changes in Federal procurement policies. Incidentally, while I refer to Public Law 92-582 as the Brooks Bill, there were several members of Congress who sponsored the measure and were instrumental in its passage—for example, Senator Percy, Senator McClellan and Senator Brock. The Brooks Bill follows very closely the recommendations of 13-B, as do the changes that are being made in Federal procurement. Actually, the Federal procurement policies are being changed to conform to the Brooks Bill.

I am going to start off by giving you a little history of Federal procurement as it applies to A-E services.

We found that governmental procurement at local and state levels closely follows Federal procurement practices. For years, government agencies, the Congress and private practitioners have expressed concern over imperfections and inconsistencies in the laws and regulations governing Federal procurement of A-E services and, to a lesser extent, over certain aspects of the procedures that were followed.

On several occasions, but notably in a 1967 report to the Congress, entitled, "Government-Wide Review of the Administration of Certain Statutory and Regulatory Requirements Relating to Architect-Engineer Fees," the General Accounting Office had taken the position that Federal agencies had exceeded the statutory limitations or had not followed required procedures when procuring such services, particularly with respect to free competition. In its

1967 report, the GAO recommended 1) repeal of "Impractical and unsound statutory limitations on A-E fees;" 2) submission of cost and pricing data by A-E's in accordance with the "truth in negotiations" provisions of Public Law 87-653; 3) use of the "detailed analysis" method in computing and negotiating the A-E's compensation; and 4) finally recommended that Congress clarify its intention with respect to price competition between A-E's who have submitted the best technical proposals prior to selection for Federal work in compliance with the "competitive negotiation" requirements of Public Law 87-653.

Competitive negotiations for Architect-Engineer services would, according to the Comptroller General, involve the following steps:

1. Priced technical proposals would be solicited from the maximum number of Architect-Engineer firms qualified to accomplish the proposed project;
2. Written or oral discussions would be conducted with all responsible Architect-Engineers whose proposals were within a competitive range, price and other factors considered; and finally the point at issue,
3. An Architect-Engineer would be selected whose technical proposal *and price* offered the best over-all advantage to the Government.

The General Accounting Office recommendations were readily accepted by the architectural and engineering professions, *except* for the suggestion that A-E's should engage in *price competition* in order to be considered for a specific Federal project.

A-E's viewed this proposal as tantamount to competitive bidding and argued that its use would lower the quality of professional services to the detriment of the public interest. This concern prompted the architectural and engineering professions, through a joint inter-society committee, to testify before the Subcommittee of the House Committee on Government Operations in support of the establishment of the proposed Commission on Government Procurement. In their testimony they pointed out the special problems surrounding A-E procurement and suggested that these be studied by the Commission.

So, it was in this environment that the Congressional Commission on Government Procurement in January of 1971 activated Study Group 13-B.

I would call your attention to the fact that the *procurement of A-E services is not gener-*

"The A-E competes against the Government estimate, which is an essential requirement of the negotiating process."—Leo A. Daly

"I would call your attention to the fact that the procurement of A-E services is not generally an end in itself, but is an essential part of the process for obtaining a desired facility having a cost far, far greater than the cost of the A-E services."—Leo A. Daly

"The five statutes limiting A-E fees . . . should be redrafted . . . or repealed, with greater use made of cost or pricing data and project audits."—13-B recommendation/Leo A. Daly

ally an end in itself, but is an essential part of the process for obtaining a desired facility having a cost far, far greater than the cost of the A-E services.

From the beginning (about 1939), statutes concerning A-E procurement have reflected a public understanding of the *distinction* between *professional service contracts* and *contracts for goods and materials*. Where professional services are involved there often is *no precise specification of what is required*. This makes it imperative to obtain the most technically qualified professional, subject to negotiated compensation that is fair and reasonable. In the procurement of goods and materials, however, it is possible to *specify precisely what is required*. Thus, award of a contract often can be based solely on price.

Government, at all levels, usually adopts policies and procedures for buying goods and services which are often refinements of practices already in use in the private sector. Both Government and private industry traditionally have purchased professional services on the basis of technical competence and ability and have exempted these services from formal advertising for competitive bids or from "price being a consideration" in the selection process.

The general pattern for Federal procurement of A-E services is 1) identification of the need, 2) review of the qualifications of A-E's, 3) ranking of A-E firms by technical and professional competence, geographical proximity and availability, 4) negotiations with the most qualified firm, 5) if negotiation with the top-ranked firm is unsuccessful, negotiations are undertaken with the next ranking firm and the process continues until the contract is awarded. The A-E competes against the government estimate (of both project cost and A-E compensation), which is an essential requirement of the negotiating process.

This is the process presently being utilized in the Federal Government, and in most state and local governments to a less formal degree. As I have stated, the procedures presently being used are entirely acceptable to the architectural and engineering professions, and it is the feeling of the professions that they promote the public interest. I say that, based on the studies that were made during the year 1971 among a large segment of the architectural-engineering community. The studies we conducted took a full year to complete. The

information we gathered fills five standard, four-drawer filing cabinets. 13-B was the first of the Congressional Commission Groups to submit its report, and, since it was the first, the Commission staff not only had ample opportunity to critique the report but extravagant amounts of time to do so.

Study Group 13-B conducted 83 official meetings and interviews in 18 different cities in the United States. A total of 201 persons were interviewed by members of the Study Group during the period from February 22nd through July 7th—a five-month period. Interviews were held with 88 representatives of 11 Federal agencies headquartered in Washington, and 11 agency field offices in various parts of the country. Thirty-six private A-E firms or related constructor-type firms were interviewed (as were) representatives of the various professional societies across the country (and) 10 large industrial users of A-E services.

I tell you all this so you know that the facts that I base this paper on are not mine alone, but represent the thoughts of capable architects and engineers within and outside the Federal agencies. After interviewing all of the major Federal agencies, incidentally, we interviewed a number of state and local governmental agencies.

In addition to what I describe above, a company in California with expertise in computerized surveying was retained by the Commission to survey architects and engineers. They produced a 202-page analysis of more than 1,600 questionnaires returned by A-E's on their thinking regarding Federal procurement of A-E services. The study group, by the way, was not comprised *solely* of private practitioners. The full-time members of this group were four men from four of the major Federal agencies, including two government attorneys who specialize in procurement and three men from private practice. In addition, we had seven part-time members with approximately the same ratio of service.

At the end of 1971 we produced a report, and anyone who is interested can write to me, and I will be glad to see that they get a copy. This is the first time, as far as I know, that any public discussion has been aired on the findings of 13-B. During the course of the study, we were prohibited by the regulations of the Commission from discussing it with anyone but ourselves and the people involved in the survey. Since we submitted the report, I have

not given it any public exposure, and I don't know of any degree of public disclosure it has had from any other source. Therefore, I am pleased to give you a few of the facts, recommendations and conclusions that we arrived at following our study.

Here are the conclusions we came to and the recommendations that we made late in the year of 1971, and if we were meeting again, I don't think we would change them.

1. A-E's should be selected on the basis of their comparative professional technical competence, subject to the negotiation of compensation that is fair and reasonable.
2. Design competition, when utilized, should be on a compensated basis.
3. A structured evaluation of the technical abilities of competing A-E's should be carried out for all projects.
4. The five statutes limiting A-E fees to six percent of estimated construction costs should be redrafted to apply uniformly to all A-E contracts for the preparation of design, plans, drawings and specifications, with small projects, renovation work, and highly complex facilities exempted. Or, as an alternate, the statutory limitation should be repealed, with greater use made of cost or pricing data and project audits.
5. A detailed analysis of the cost of A-E services should be prepared by both parties to the contract prior to agreement on compensation, with compensation based on the level of effort.
6. Cost or pricing data requirements should be re-drafted to apply government-wide to all contracts over \$100,000, and agency heads should be encouraged to request such data on contracts of lesser amounts. A-E's should not be required to certify to questions of judgment.
7. An inter-agency committee should be formed and charged with bringing about uniformity in A-E procurement practices.
8. Agencies should consider the use of the professional construction management concept for large projects on an experimental basis, to develop the potential of this technique of promoting efficiency.

In addition to these eight recommendations, which I would consider primary ones, the Study Group provided 26 other recommendations of a secondary nature, arrived at from study of matters not specifically charged to the group by the Commission. I think it is worth noting that the 13-B report recommendations were unanimous. This is one of

"The GSA is opposed to competitive bidding per se at this point in our history. . . . However, . . . it is seeking alternatives."—Arthur Sampson

"This is a point which is very important. They (the public advisory panels) are instructed to recommend only firms that can do the job excellently."—Arthur Sampson, GSA

"In our system, there is a role for politics in the decision-making process."—Arthur Sampson

the few reports that I know of where both Government and industry representatives, with considerable experience in the construction industry, arrived at a consensus agreeable to all concerned.

To all of you who are interested in governmental procurement of A-E services at all levels of government, it would be well worth your while to study the results of the 13-B report, and I would recommend it.

Arthur Sampson's three main points: design excellence, improved systems, politics

Last year (November 1973) when RECORD lent strong editorial support to some of the AIA positions about professional presence in the A-E selection process, Arthur Sampson wrote to Walter Wagner saying, more in sorrow than in anger: "Let's discuss." That was the beginning of this Round Table. Since that time, RECORD surveys of professionals revealed rather surprising gaps in the general information about how the GSA selection system really works. Here is some help for those who want better acquaintance with that system.

MR. ARTHUR SAMPSON: There are very strong pressures throughout the country, because of our current situation, to pass laws which would require competitive bidding for A-E services. For example, in March this year the Maryland House of Delegates unanimously passed such a bill. The GSA is opposed to competitive bidding *per se* at this point in our history. I emphasize that, and we will probably discuss it this afternoon at some length. However, GSA does not have a closed mind. It is seeking alternatives. We think the present system is sound; but we do feel there is a good opportunity for modifying it to eliminate suspicion and criticism of the system.

Because of this, I recently appointed a very high-level group of people to look at our system in depth. We were careful to appoint members to that committee who were independent in their thinking, and we gave them an open charter to interview our people, look at our records, and proceed in whatever fashion they thought was appropriate to meet their charge. [The report of this special study committee was issued June 10, 1974.]

Second, recommendations from various sources are a factor in the decision-making process. These recommendations come from

senators, congressmen, political state committees, governors, mayors, professional people, cousins, Federal agencies, friends, associates, and so on.

A third criticism of our system is that our regional advisory panels are not consistently effective.

Fourth, our fee determinations are not believed to be consistent.

Our present system is as follows: When we have a project, we advertise it nationally in the *Commerce Business Daily*. We describe the project and invite people to say that they want to participate in and to be considered for that project.

Second, firms then apply in accordance with that advertisement.

Third, our regional public advisory panels meet, review the qualifications of the firms that have applied, and any other firms that they feel appropriate, and, after going through their review process, reduce their recommendation to GSA down to five to eight firms who can do the job excellently. This a point which is very important. *They are instructed to recommend only firms that can do the job excellently.*

The next step is that GSA professional people on an internal evaluation board review the work of the public advisory panels to be sure the work they did was effective. Then they interview firms according to criteria which we have established in our regulations. The next step is that the Commissioner of the Public Buildings Service for whom these GSA personnel work then forward the information to the Administrator to make the final selection. Then, according to the Brooks Bill, the Administrator of the GSA must choose three firms, and rank them 1-2-3.

For the benefit of those of you who may be unfamiliar with the GSA setup, let me say that we are broken down into ten regions throughout the country. Each regions has from two to four or five states, some six or seven states, under its jurisdiction. Each region has a regional public advisory panel for the selection of architects and engineers. These panels consist of architects and engineers who are appointed annually by the Administrator. Recommendations for membership on these panels come from professional societies and informed professionals on staff of GSA and client agencies in the Federal Government.

The GSA staff reviews recommended members for these panels in terms of their rep-

utation and the work they have done. The GSA staff works closely with AIA to confirm their findings about the prominence and reputation of these panel members. Virtually all members of the advisory panels are members of the AIA. There may be one or two exceptions in all the members that we have on our panels.

In our system, there is a role for politics in the decision-making process. As I mentioned earlier, we receive recommendations. Most of them come from political sources—congressmen, senators, governors, et cetera. These recommendations come to us in two different forms. First of all, we have what I call the perfunctory recommendation, where A-E firms go to their senators or congressmen as their constituents and ask them to send their credentials to GSA. On a continuing basis we receive letters from these sources, saying, "Will you please consider these firms for your jobs. . . ."

The second form of recommendation is somewhat more precise. An A-E firm learns of a project through the *Commerce Business Daily*. Sometimes they know of a project before we do! And then you will get a recommendation for a specific project, Senator X will write in and say, "I would like to have you consider Firm A for the project in my State."

We have within the Administrator's office a liaison office which handles all recommendations that come in to GSA. These recommendations are acknowledged and they are kept on file in this office. Most of the recommendations, as I have said earlier, come from Congress.

All things being equal, and meeting the three criteria I have established—i.e., if what I am to do is legal, ethical, and meets the standards of excellence in architecture—I will try to follow the recommendations that are submitted to me.

Last, I should like to have you know that the ratio of selections based on recommendations within GSA ranges from 50 to 60 per cent.

Those are all the comments that I wish to makes at the present time.

Next month, the position papers by George Dudley and Milton Musicus focusing on problems at state and local levels, will be followed by summaries of the discussion, sometimes heated, always well reasoned, by the panel of 22 leaders from all sectors of this field.

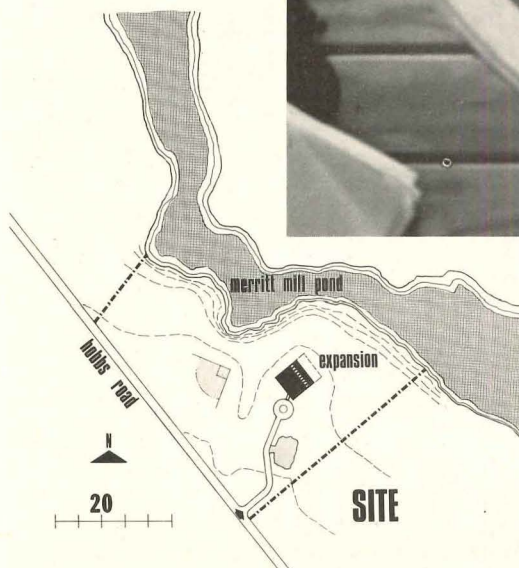
DESIGNING A LEARNING ENVIRONMENT FOR CHILDREN

The Salisbury School in Salisbury, Maryland by Hardy Holzman Pfeiffer Associates meets the basic criteria of today's architecture—it was built on time, within the budget, and it works. But true architecture, as we all know, is more than this and Salisbury has much of this "more". Its deeper success as a building has little to do with its cost (surprisingly low), its form (a flat-roofed square, one-story box bisected by a triangular tunnel), its structural and mechanical systems (commonplace) or its workmanship (average). What it expresses is the loving care of its architects who brought simplicity, clarity, seriousness and freshness to the task of creating a place for children to grow.

—Mildred F. Schmertz



Norman McGrath



Hardy Holzman and Pfeiffer's buildings are becoming instantly recognizable as such. No other architects that we know of are even attempting to work in their way. (If HHP have devoted followers and loving imitators somewhere out there, let us hear from you). Whether they be schools, theaters, museums or medical centers, HHP buildings have a common expression which is rooted in the work of such 20th century artists as Duchamp, Picasso, Schwitters, Miro, Kandinsky and Klee. The architecture of this young firm shares the fundamental interest in the idea of transformation by isolation or juxtaposition which informs the work of these painters and sculptors. HHP's architecture also acknowledges the expressive vitality of pure geometric form.

Duchamp's bicycle wheel, detached from its context and isolated upon a pedestal, was found to have a life of its own. Picasso and Schwitters made collages out of the contents of their rubbish cans—scraps of newspaper, corrugated brown cardboard, letters, menus, ticket stubs and cloth. Miro, in his words, likes "to collect things washed up by the tide. Things lying there, waiting for someone to discover their personality."

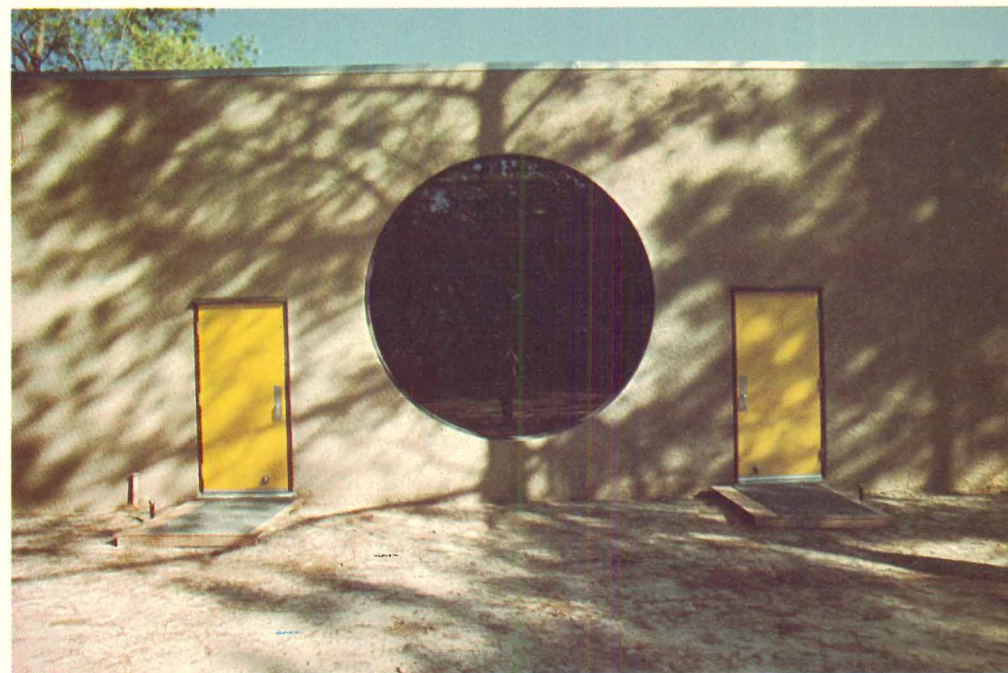
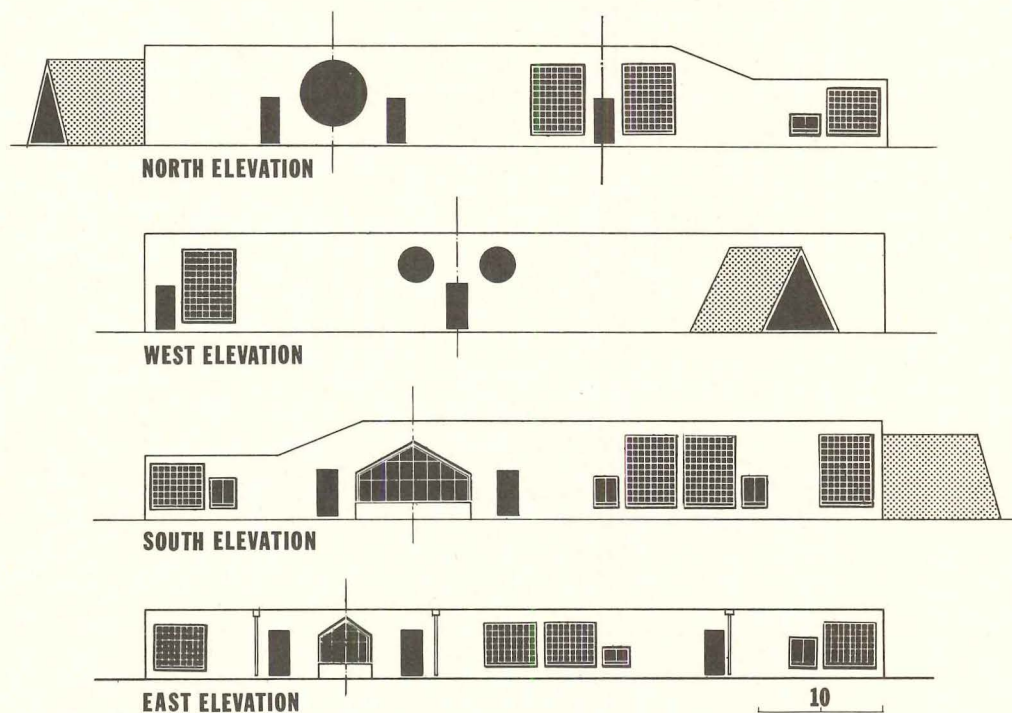
Hardy, Holzman and Pfeiffer, one imagines, like to leaf through Sweet's Catalog doing much the same thing. Their buildings are three-dimensional collages of building materials and products assembled with seriousness, originality, spontaneity and irreverence. In their hands, new uses and expressions are found for commonplace forms, materials and equipment. An air diffuser is celebrated as an *objet trouvé*. The floor of an entire school becomes one continuous, multi-level, carpeted seat.

Like Kandinsky and Klee, HHP invest basic geometric shapes—the circle, square, rectangle and triangle—with symbolic content. If the assembled abstract shapes in Klee's drawings express the collective unconscious as powerfully as do the drawings of children, so the combined forms of the Salisbury School speak to us with the primitive directness of a toy dwelling created by a child from the geometries of his building blocks.

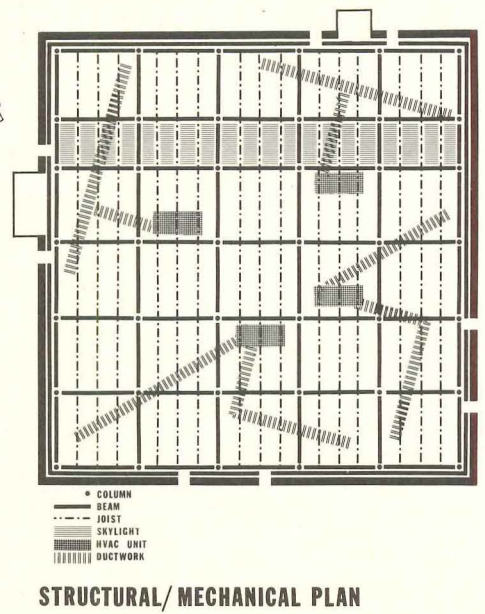
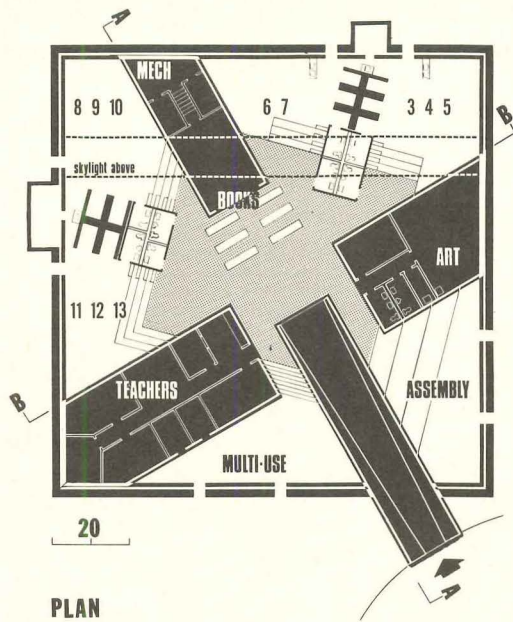
If the source of creativity is the child within us, Hardy, Holzman and Pfeiffer, like the artists whom their work resembles, are each very much in touch with that



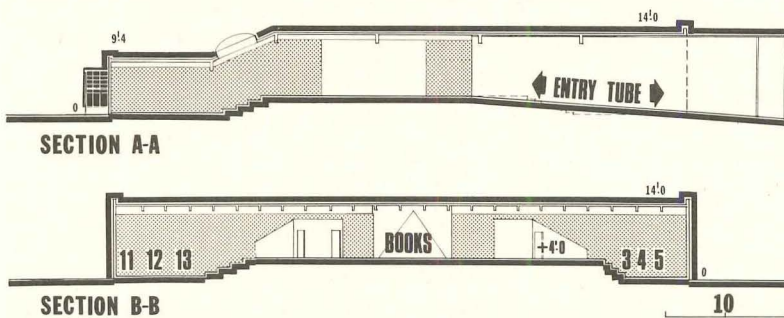
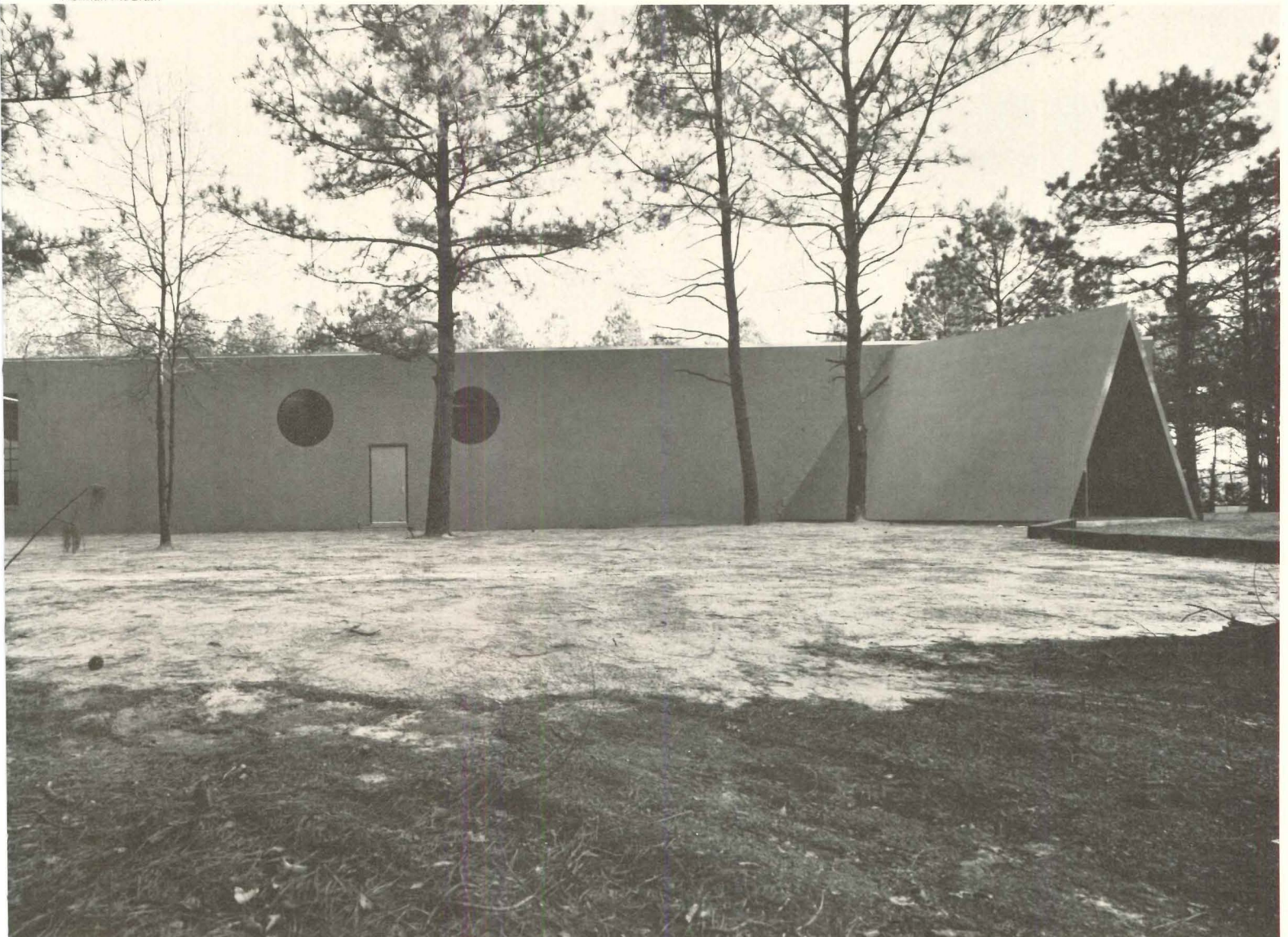
John Veltri



John Veltri



Norman McGrath



The image of this little school is direct and memorable. It is hard to imagine its graduates ever forgetting it. Its parts are modest and chunky like children's building blocks. It has been designed to heighten and intensify events—the act of entering and leaving which takes place in a dark triangular tunnel or of con-

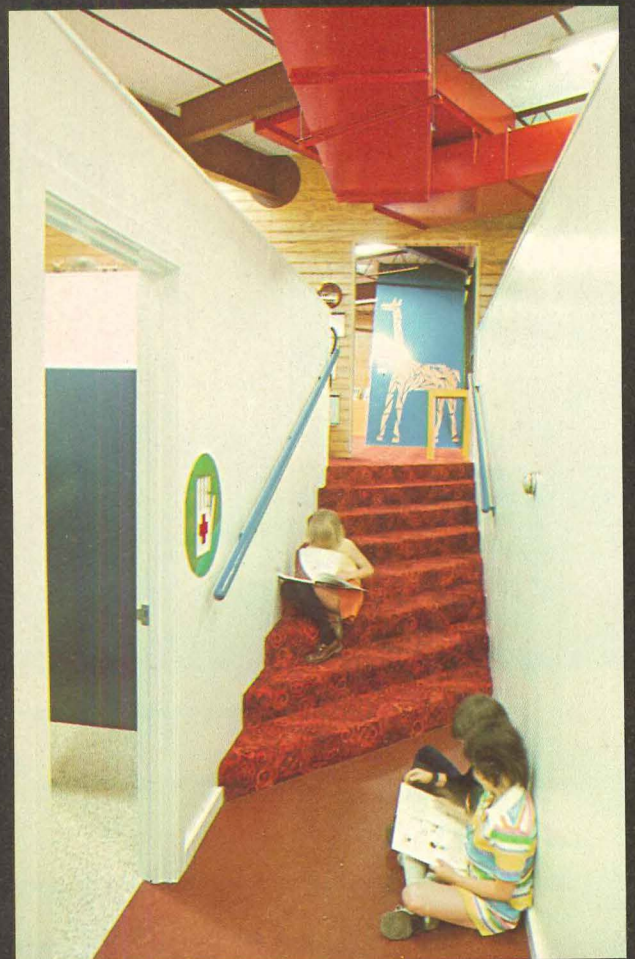
templating the woods outside through a circular window. As the photographs (overleaf) will indicate, the interior spaces appear to be intriguingly complex but all this spatial interest occurs in what is essentially a very economical square, flat-roofed shed sheathed in concrete block.

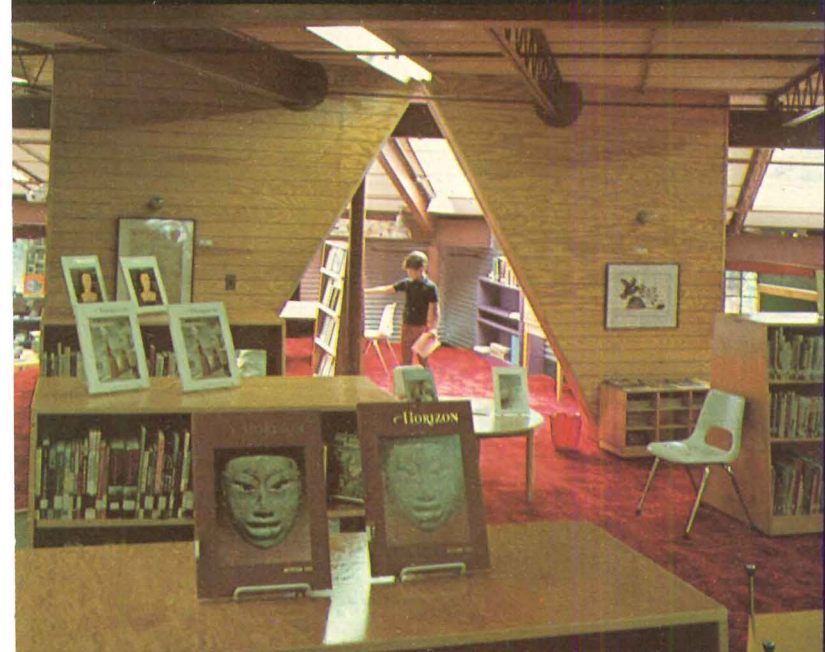


The Salisbury School is of simple steel frame construction with exposed open-web joists, skylit interior spaces, exposed mechanical equipment, wood fiber cement plank ceilings and striated plywood used extensively as an interior wall surface. Since the children are encouraged to sit and lie on the floor, this surface is carpeted wherever possible. In selecting carpet, Hardy, Holzman and Pfeiffer often elect to use wildly conflicting patterns which cheerfully defy conventional taste as here. Their juxtapositions of other materials are equally surprising yet effective. From every angle the forms of basic geometry beckon. Down through the ages the circle has symbolized the center of the psyche, ultimate wholeness and human perfection. This may be the reason the architects placed a big one, in the form of a window, in the assembly area.



John Veltri photos





child. This is why they like to build environments in which children learn and create, and why they do them so well.

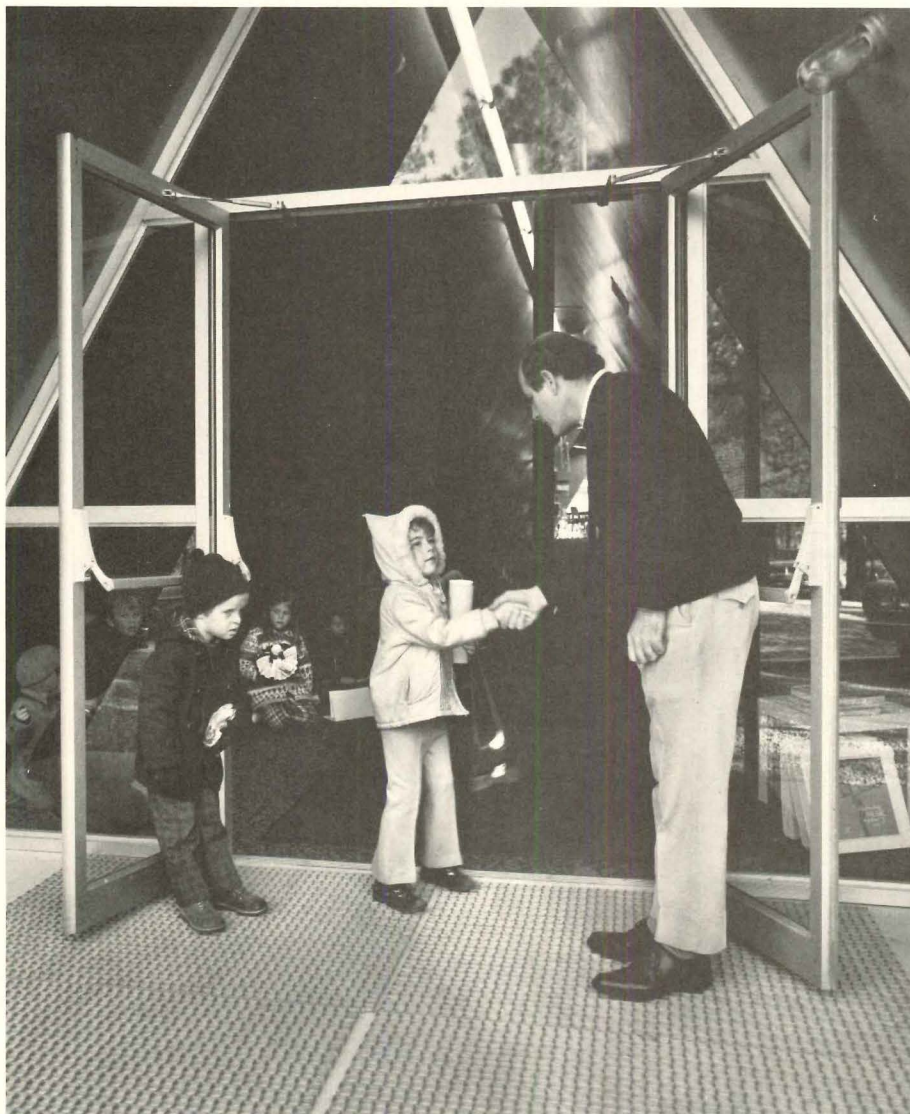
The Salisbury School is a private, independent day school for boys and girls from nursery, age three, through the eighth grade. It offers what educators call "moderately open education." The goals of open education schools are similar to those of conventional schools. Their graduates are expected to master at least the same levels of mathematical and language skills and other fundamentals as graduates of traditional schools. The difference lies in the approach to teaching and learning. In an open classroom there is little direct teaching, but the teacher is there to answer questions and to guide each child as he individually seeks knowledge. The idea is that the children should educate themselves while participating in endeavors which interest them. Each classroom is essentially a work shop in which the child may move about freely. At the time they received the Salisbury School commission, Hardy, Holzman and Pfeiffer were working on the design of another open plan school for open education, the Mt. Healthy School in Columbus, Indiana (September 1973, pages 121-128).

While Mt. Healthy (660 maximum student capacity, 50,000 square feet, over \$1.5 million cost excluding architects' fees) is a much larger project than Salisbury (150 maximum student capacity, 10,000 square feet, \$258,000 cost excluding fees), the two schools share fundamental concepts. In both schools, the interior teaching spaces flow into each other but are distinguished from one another by changes of level and diagonal partitioning which does not reach the ceiling. Both schools emphasize the importance of the central spine or corridor. At Salisbury the corridor is a triangular tunnel, painted dark blue-green and lit at a low level, through which the children must pass to enter the bright and cheerful learning environment, or leave to go outdoors. The tunnel makes an event of this symbolic passage from darkness to light. —M.F.S.

SALISBURY SCHOOL, Salisbury, Maryland. Owner: *Salisbury School*. Architects: *Hardy Holzman Pfeiffer Associates—project architect: Marvin Wiehe*. Engineers: *Atec Associates* (foundation); *Irving Fishman Associates* (mechanical); *Robert A. Hansen Associates* (acoustical). General contractor: *The Farms Company*.



John Veltri



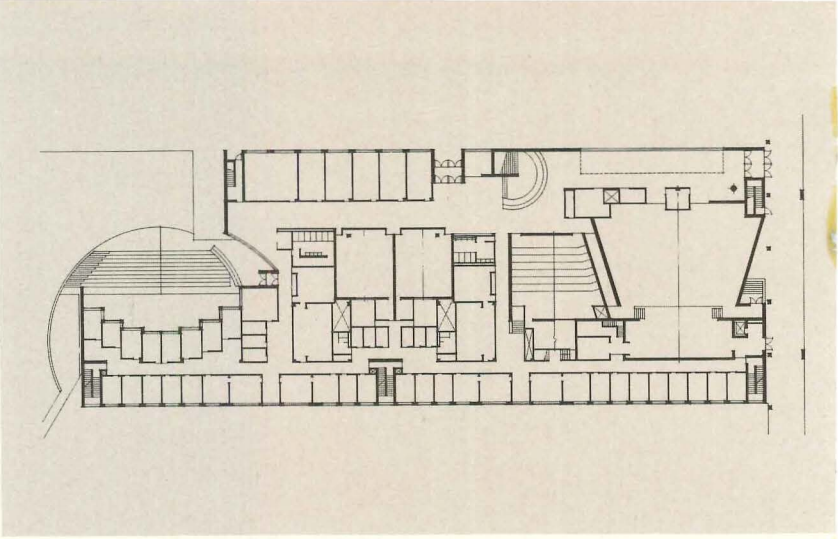
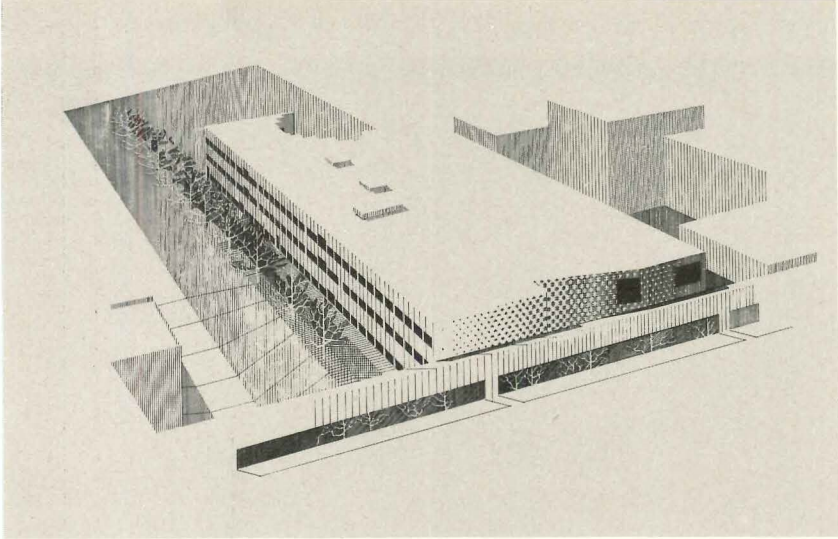
Norman McGrath

At the end of the school day, the children wait in the tunnel to be picked up and taken home (top left). Headmaster Eugene Munnelly (above), as a daily practice, greets and bids good-bye to each and every student. The school is located in a woods (top right) which has been left in its natural state.

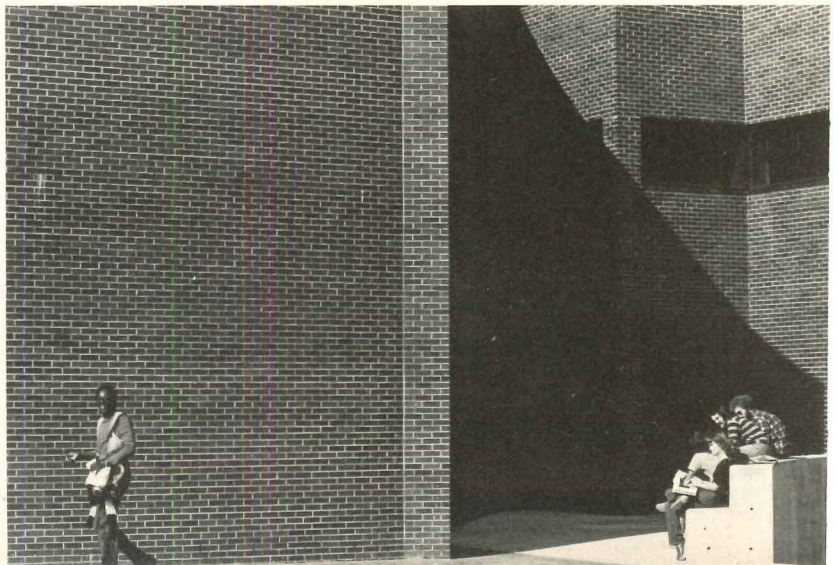
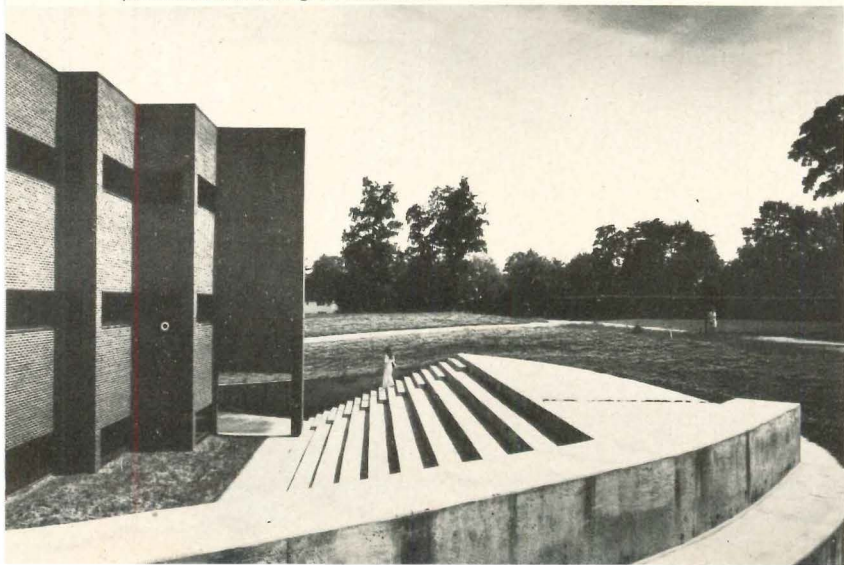
VENTURI AND RAUCH'S HUMANITIES BUILDING FOR THE PURCHASE CAMPUS OF THE STATE UNIVERSITY OF NEW YORK

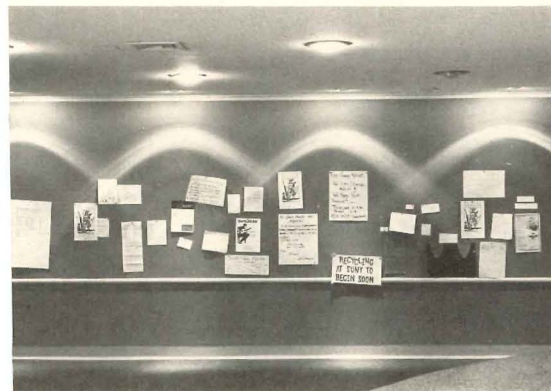
The Philadelphia-based architectural firm of Venturi and Rauch began work on the Humanities Building for the campus of the State University of New York at Purchase in 1967. At that point this branch of the university had no students and no faculty—only a few deans and administrative personnel. It also had a site plan, designed by Edward Larrabee Barnes. Barnes' plan organized the many buildings required for this large campus around a central axis, an open space flanked on two sides by a covered arcade. Individual buildings were commissioned from various luminaries in the world of architectural design—including Robert Venturi, and Barnes himself—and most of these buildings were required to front the arcade for an allocated 130 feet. Pedestrian streets, 30 feet wide, run between the buildings. For the sake of unity, the choice of materials for each





photos above and below © 1974 Mark Cohn





building was limited, and colors and textures were consistent.

The program for the Humanities Building was developed by the New York State University Construction Fund, and it was very specific and complete, calling for a classroom building with a series of small, medium and large rooms, some of which needed natural light and some of which did not (Figure 1). In Venturi and Rauch's plan, faculty and departmental offices, classrooms and seminar rooms—all of which need light—are placed along the outside walls (Figure 2). The big lecture rooms, which need to be able to be darkened, are placed in the interiors of the building.

This distribution of uses suggested to the architects two different scales of circulation: a broad and busy "street" between classrooms and lecture rooms, and a narrow, quiet hall along the other side of the building (Figure 3) for the offices. Outside the large lecture hall (Figure 4) there is a high, narrow gallery, shown in the color photograph on the previous page. This is, to borrow from the architects' terminology, the only "rhetorical" space in the building; the rest is composed more conventionally, and more simply.

The architects tried to incorporate in the Humanities Building ideas they had arrived at as faculty members and students themselves. These ideas focused more, for instance, on the design of the circulation space than on the design of the rooms themselves. And so the "Street" came to be thought of as a place where waiting would be pleasant and informal; it was a place where discussions started after lectures, and could continue over a cup of coffee; it was a place where

notice boards (Figure 5) and telephones were easily accessible.

Thus the "street" was thought of as an informal extension of the common room space—space which, as it turns out, was insufficient in the original program. It begins with the double-volume gallery by the large lecture hall, and it ends (Figure 6) at a wide, curved window overlooking the outdoor "amphitheater" at the back of the building. As the architects point out in the post-construction evaluation on the following pages, this end of the "street" was meant to be a place where people would stop and sit and relax. The "amphitheater" outside (Figures 7-9)—which will finally be a light court once the planned-for addition is built—provides yet another place for students and faculty to take their coffee, and sit in the sun.

Inside, along the length of the street, the architects designed a series of sitting places which were not explicitly benches, but which could be sat on in various implicit but not altogether clear ways. The most dramatic of these is a soft, heavy rolling balustrade around a low half-landing on the main staircase (Figure 10). At once a seat and a railing for the half-landing, it can be slouched on, leaned on or even climbed over. It, too, is described more fully on the following pages.—*Gerald Allen*

HUMANITIES BUILDING, STATE UNIVERSITY OF NEW YORK, Purchase, New York. Architects: *Venturi and Rauch*—project architect, *Arthur Jones*; campus architect, *Edward L. Barnes*. Engineers: *Keast and Hood Company* (structural); *Segner and Dalton* (mechanical/electrical). Consultants: *Bolt Baranek and Newman, Inc.* (acoustical); *Dian Boone* (interiors). Landscape architect: *Peter G. Rolland*.

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Venturi and Rauch photos except as noted

A post-construction evaluation

by Denise Scott Brown, Elisabeth Izenour and Steven Izenour, of Venturi and Rauch

The programming function has become so specialized and so complicated in large projects like a new campus that we felt it would be useful to us as architects to return to the Humanities Building to evaluate the practical effects of the theoretical positions we took in its original conception and design. We went three times in the last school year to observe the building in use and to talk with students, faculty and administrative staff. We held a two-hour seminar with Ms. Suzanne Kessler's class in Environmental Psychology, and we talked with two deans, one registrar, two secretaries and two faculty members in addition to the students.

Because our object was to learn from the building in order to improve our subsequent performance, the notes which follow are long on criticism and short on praise. The issues which seem to concern most people are these:

Personal control over the environment

The first complaint of most people was that the windows can't be opened. The general thrust of this criticism was, "Here we are in the country where the air is fresh, and we can't get any of it," or, "Given the ecology and energy crises, why should we be totally dependent on mechanical systems?" No one seemed aware that a sealed building was part of the program of the university and was in answer to the noise problem of an adjacent airport. When we told them, many people realized for the first time that they had never heard the sound of an airplane from inside the building. But some still questioned the importance of airplane noise compared to personal control of fresh air.

As a result, future buildings on the campus will have windows that can be opened, especially in offices.

Other complaints arose over the kind and location of secondary exits. The Humanities Building has a main entrance from the arcade, and two secondary entrances—one in the rear courtyard (Figure 11) and another on the west side. But because there are dormitories and a faculty parking lot on the east side many people find it easier to enter from there. So the fire exits on the east side are wedged open so they can be entered from outside.

A strong criticism voiced by the faculty is that their office doors close automatically. This problem indicates a basic conflict between the human desire for accessibility and the fire code's requirement for a rated horizontal exit. In fact, many faculty members prop their doors open with chairs. They also decorate the exterior of their doors with pictures and messages, presumably to express their identity and to convey a feeling of accessibility (Figure 12).

Ms. Kessler's students surveyed faculty members' reactions to their offices; most reactions appeared to vary according to faculty members' previous experiences with academic facilities. Some had altered the office arrangements to suit themselves (as we had hoped they would), but many had not. Even some who had were defensive, as if they thought it was not allowed.

Circulation

It seems that people like the "street" (Figure 13). Students mention the "airiness" of the building at the entrance

gallery and the width of the "street." We found people sitting on non-benches, as we'd hoped they would (Figures 14-16); they were perched cross-legged on top of the balustrade, running and jumping over it, and in general treating it like the piece of furniture sculpture it is. They said they liked it; but we must admit that in designing it we, like most modern architects when they design furniture, made a rather uncomfortable seat.

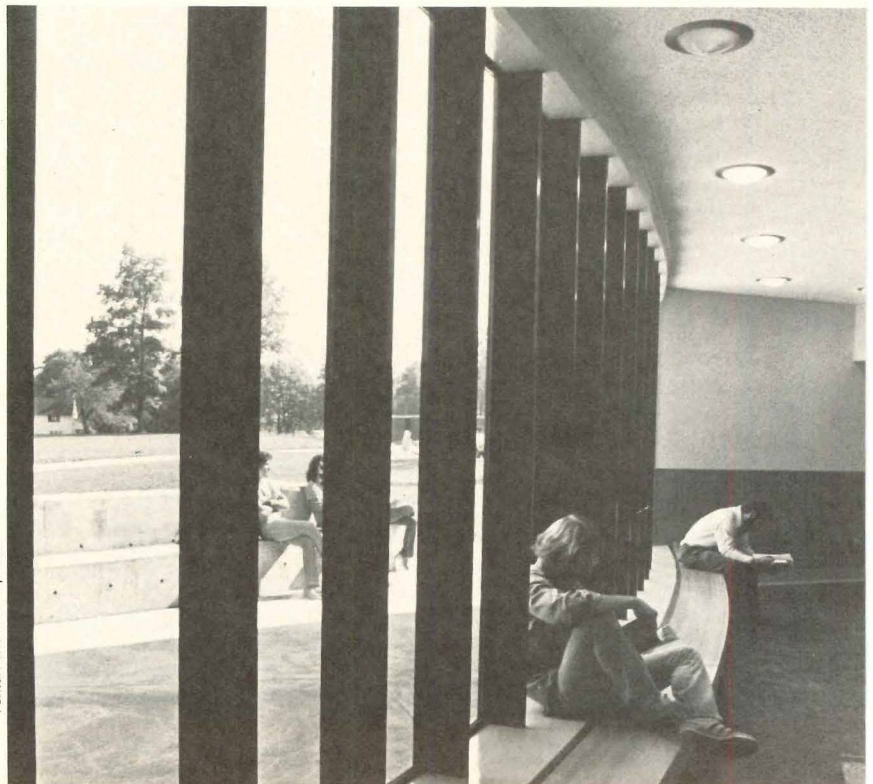
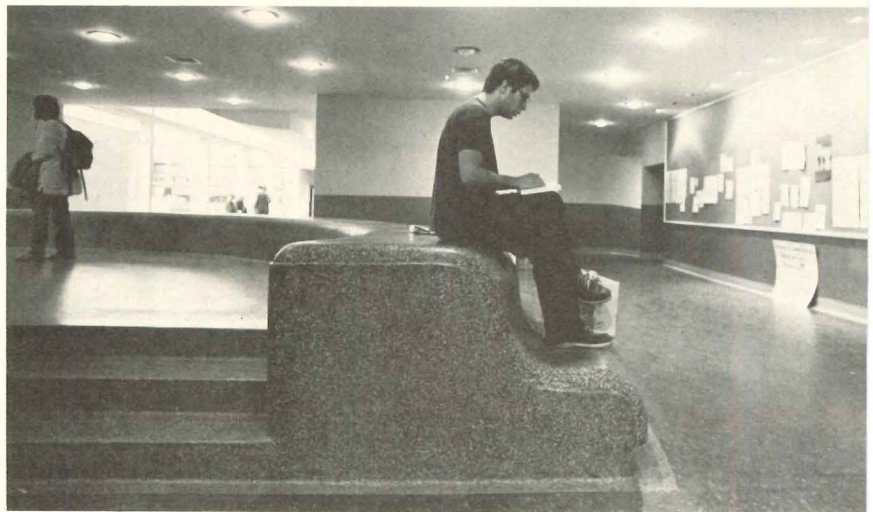
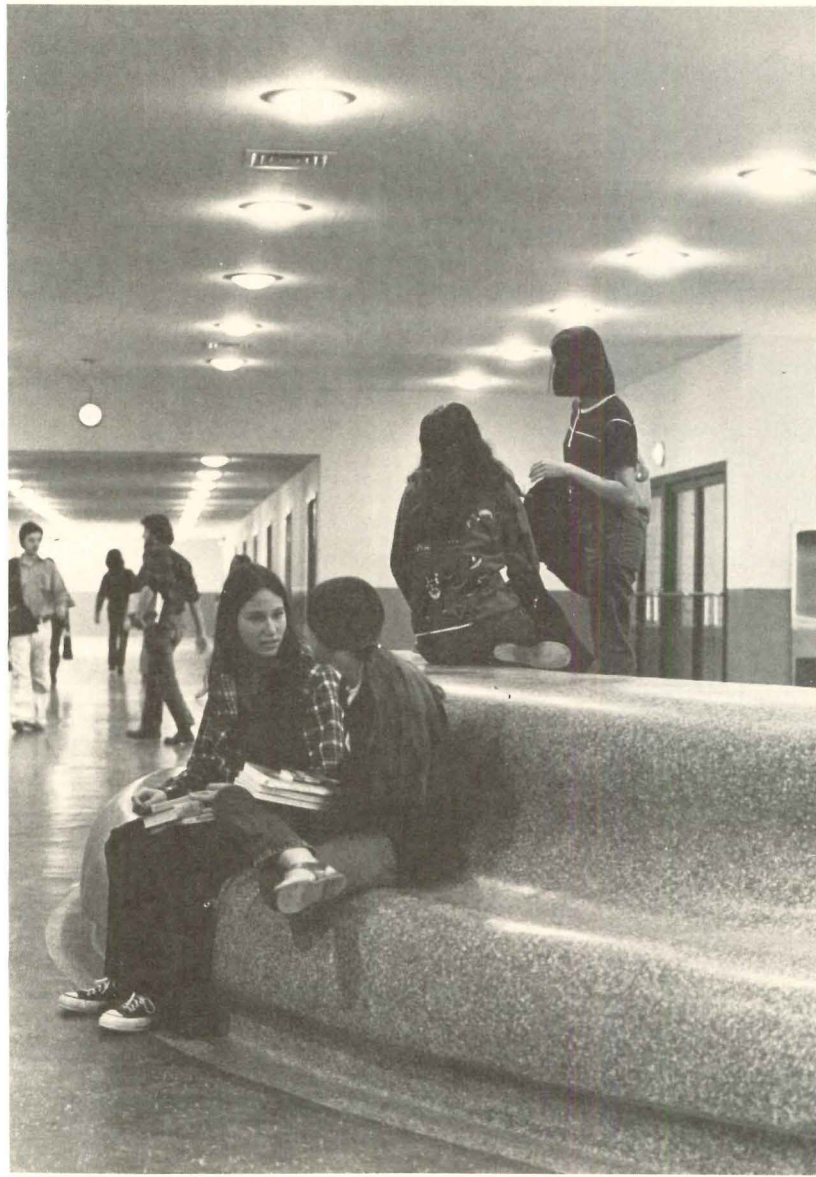
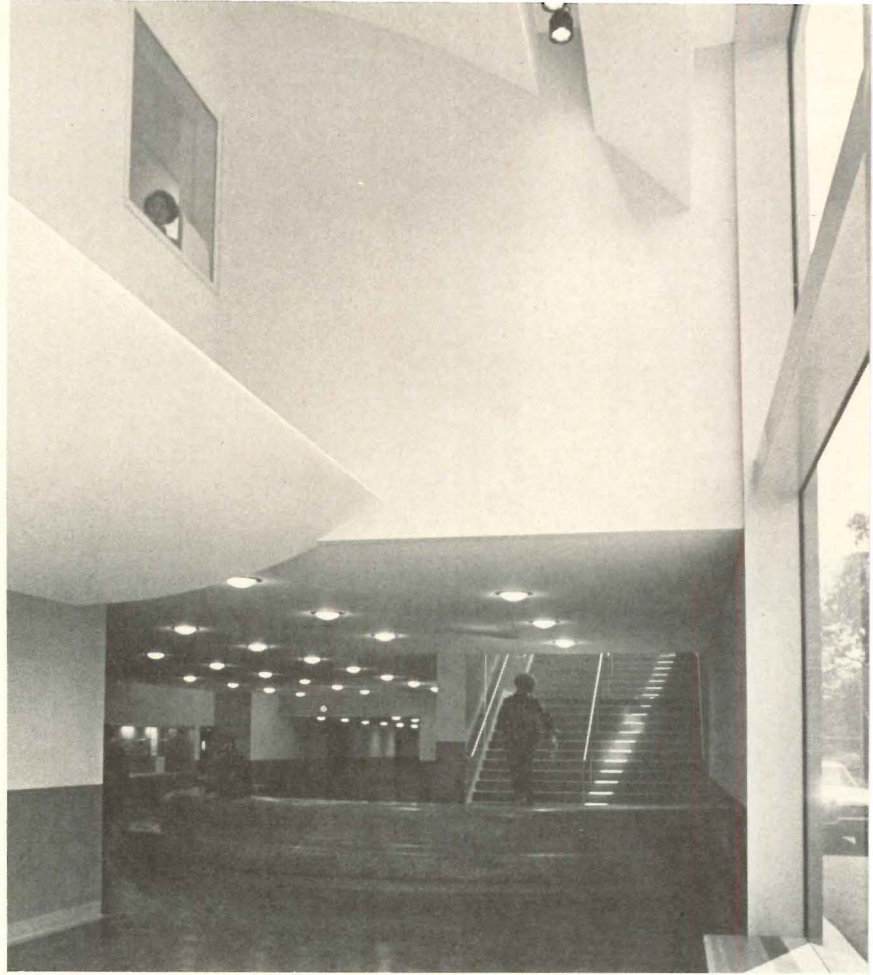
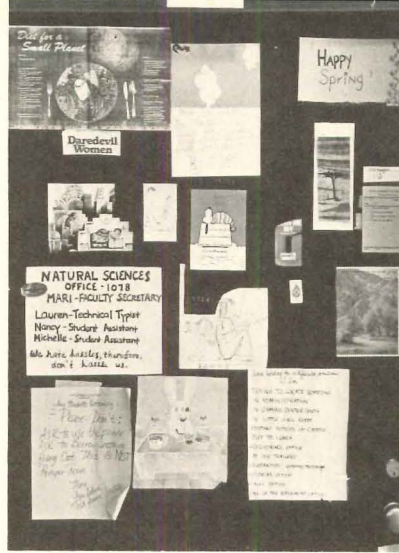
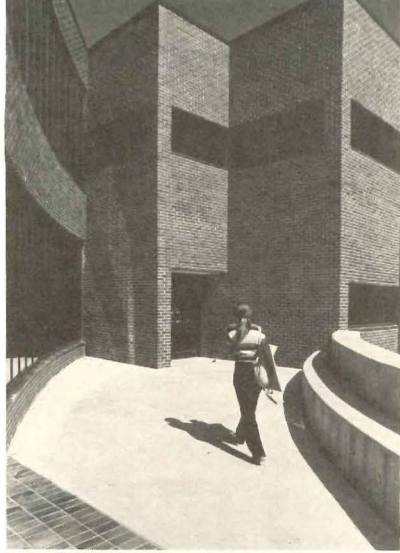
The other more conventional benches, under the big windows in the gallery, were occupied too, by students waiting for classes to change. The bench against the curved windows at the end of the "street" was particularly pleasant with the afternoon sun streaming in (Figure 17). But it didn't serve as the meeting place we had intended, because the coffee machine has not yet been installed.

Decoration and signing

To meet the budget, the interior finishes of the Humanities Building are of today's usual inexpensive materials—resilient tile floors, gypsum wallboard, epoxy resin wainscoting and acoustical tile ceilings. Our color scheme tried to be Edwardian-institutional, or like the interiors of classic Pullman cars. We hoped that the puce wainscoting and dark floors would age well and disguise the dirt and wear.

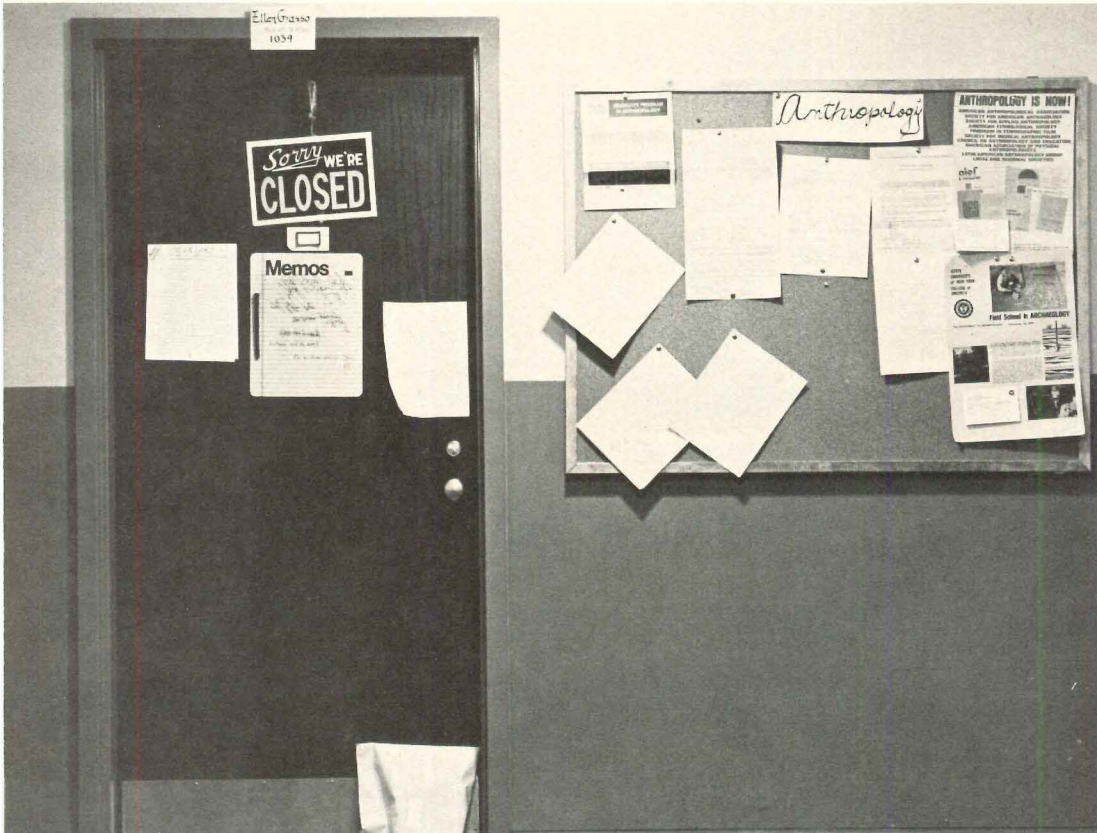
But, while the dark colors result in a cleaner looking building than most institutional buildings with dirty white walls, we should have minimized the contrast between the floor and the baseboards to make less noticeable the wavy lines of walls that are out of plane. Many students thought

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Venturi and Rauch photos

Venturi and Rauch photos



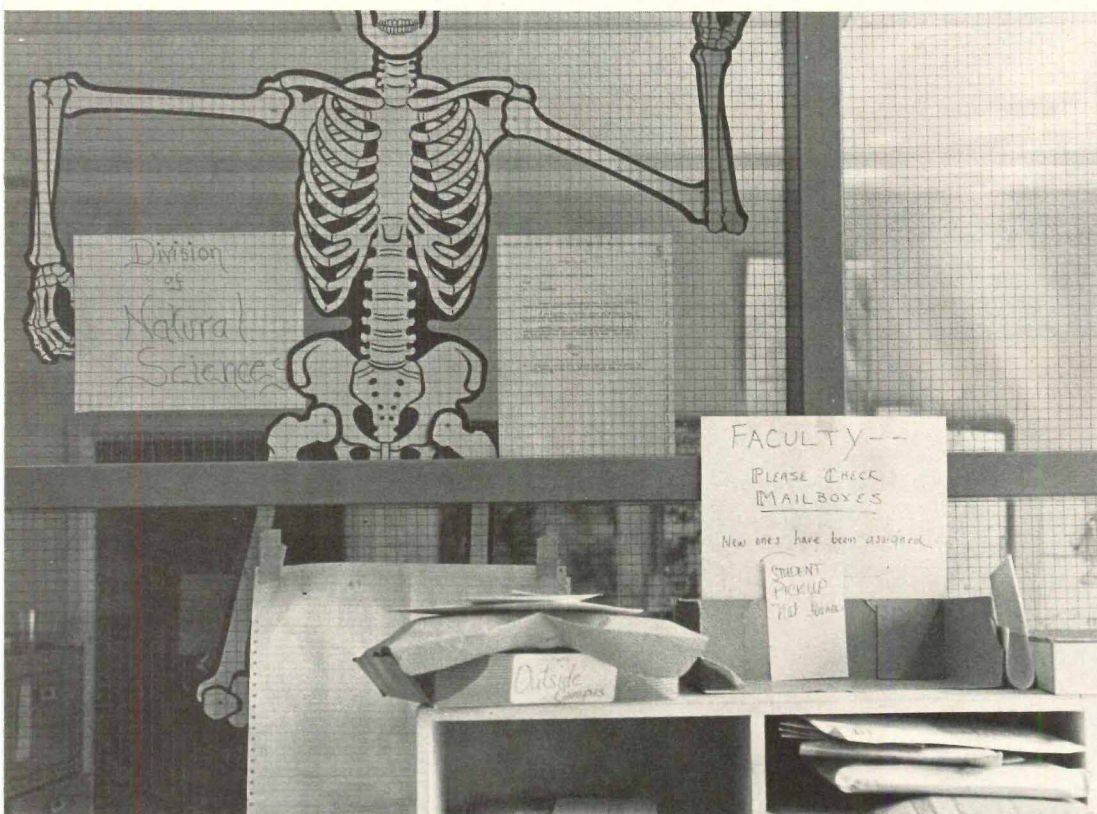
that the colors were too dark, especially when the lighting had to be reduced during the energy crisis. But they joined us in disliking dirty white walls.

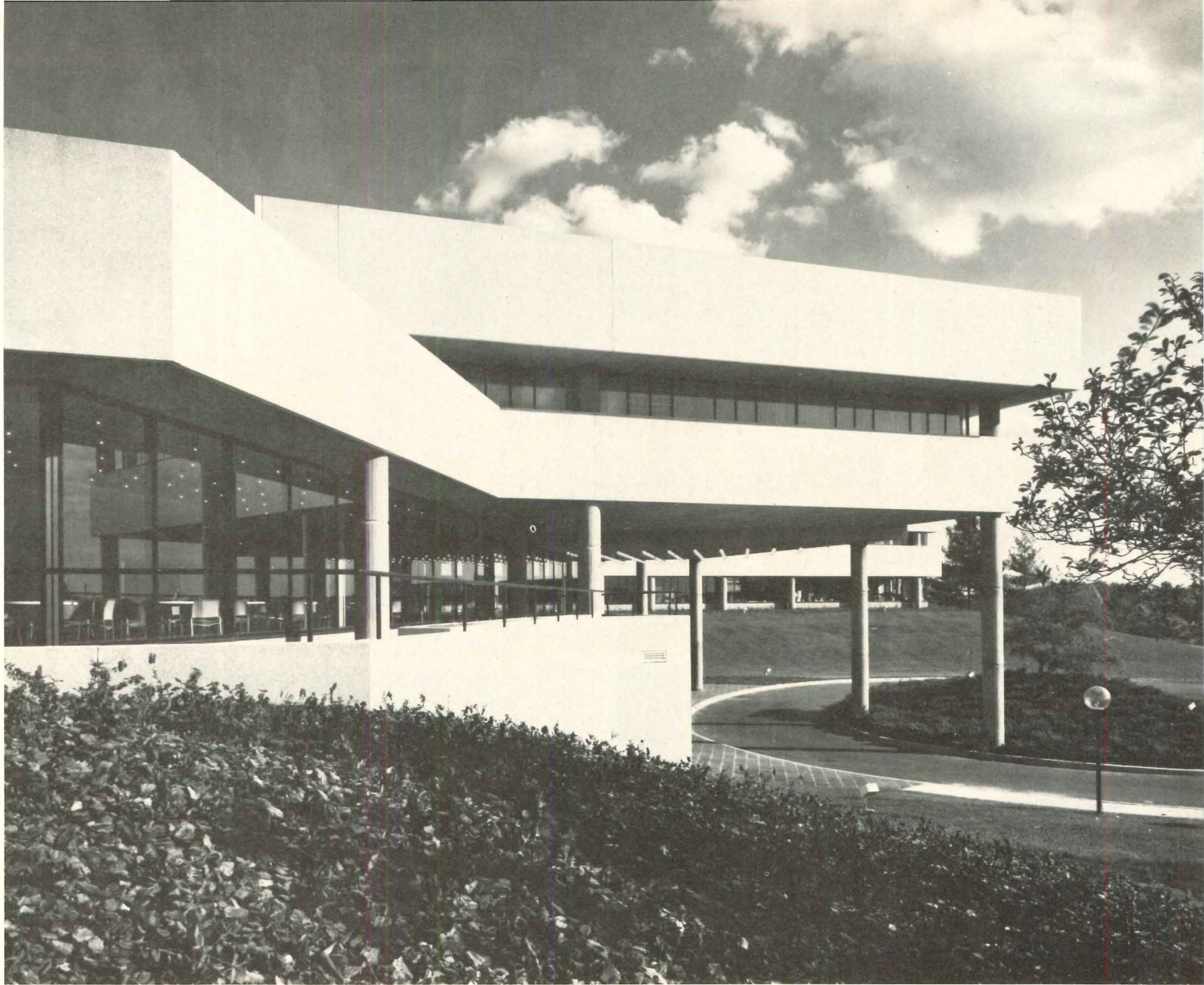
As architects who are noted for our interest in signs, we should have shown more concern for the design of an internal information system. We hope that, as the campus develops, an over-all graphic system will be designed. In large cellular structures like the Humanities Building, good graphics are needed for orientation and direction. We allowed for large tackboards in the "street" and next to the doors of departmental offices (Figures 18-19); they are being used imaginatively, but we could also have planned for tackboards outside each office, and more along the "street." It might be argued, however, that the ingenuity shown by some faculty members in decorating their doors might have been thwarted if they had a tackboard.

User and institutional behavior

While we had hoped that the people who used it would make the building their own by altering it and adding to it, this happened only rarely. It seemed to us that many users felt themselves at the mercy of the "institution," and that this had generated an inertia. They complained but did not act.

We feel that the users of large institutional buildings like this one should form their own committees to apprise the administration and the architects of their concerns. Doing so cannot help but improve subsequent plans, because of the users' participation in and control over the design of the environment—and therefore their destinies in it.



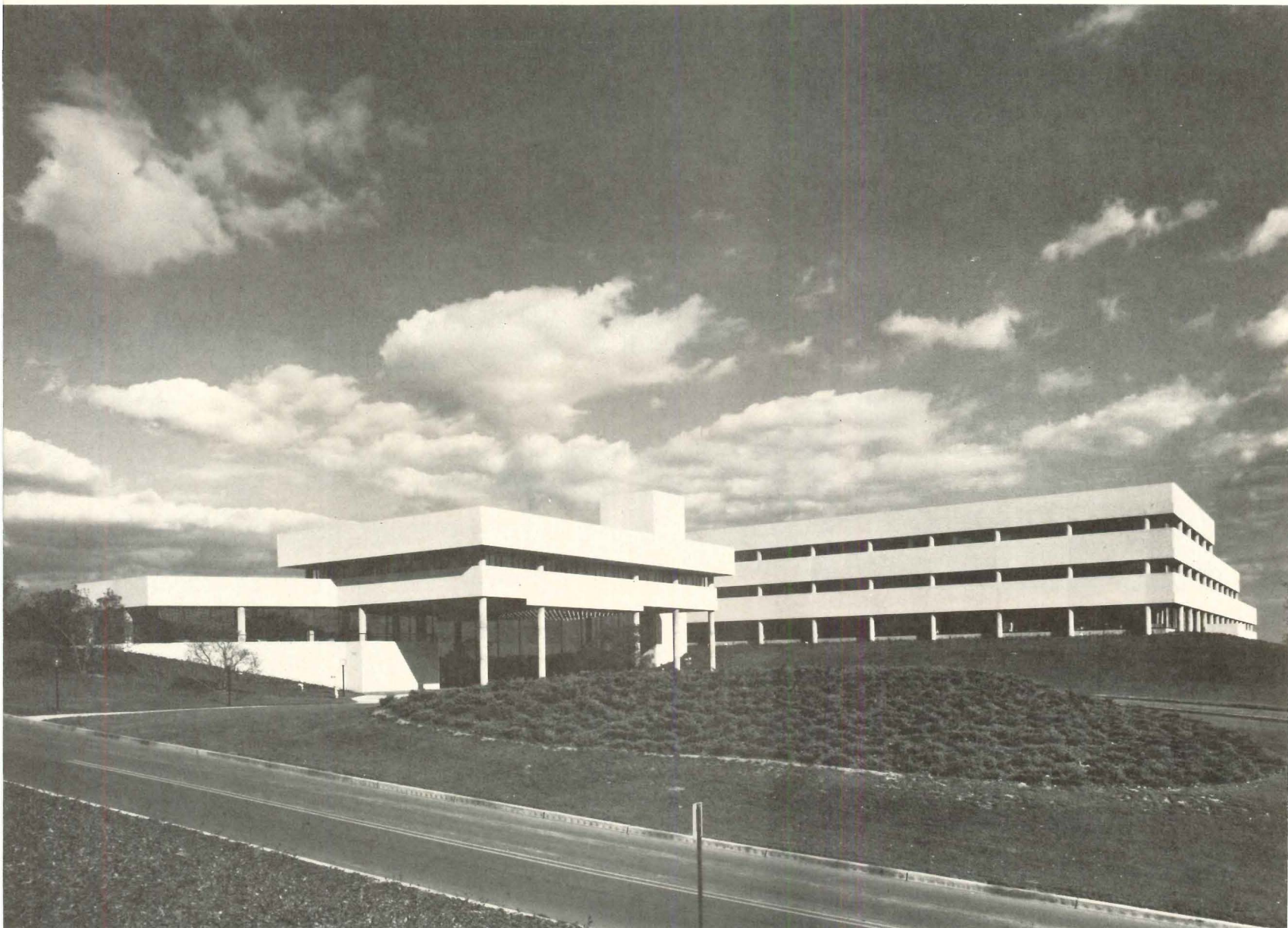


Western Union Headquarters photo Barbara Martin

BUILDING TYPES STUDY® 467

OFFICE BUILDINGS IN THE SUBURBS

The shape of office buildings in cities is often the product of a predetermining push and pull of forces caused by maximizing the use of super-expensive land and the limitations of local zoning restrictions. As is shown on the following pages, a reduction of such confining pressures in the suburbs has allowed a much wider variety of design solutions to suit the unique circumstances of individual neighborhoods, environments and users. If consistent characteristics are to be found, they will occur in the need to provide more employee amenities, such as places to eat, park, shop and relax, and in the ability to appear less overpowering and assertive than their urban counterparts—while reflecting a desired prestige to their owners.—*Charles Hoyt*



Barbara Martin photos

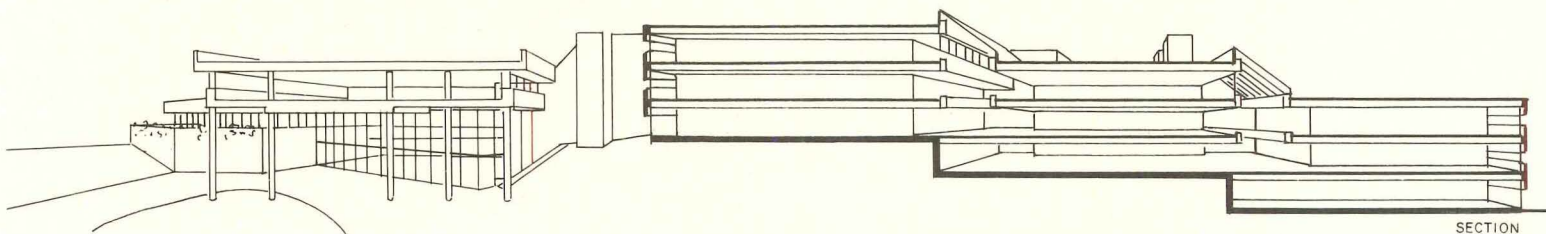
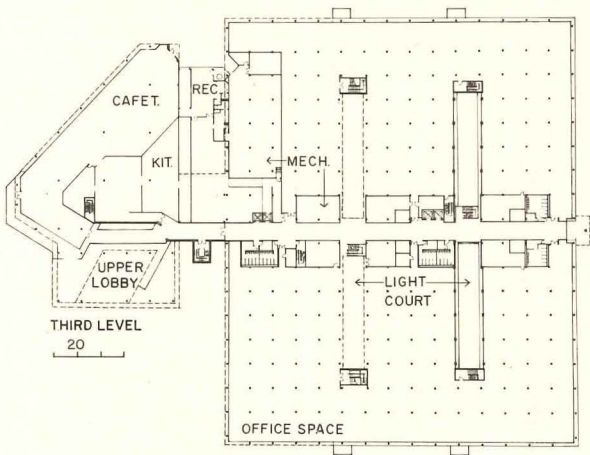
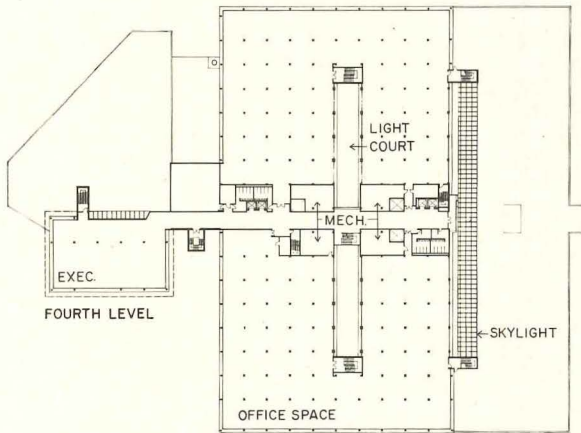
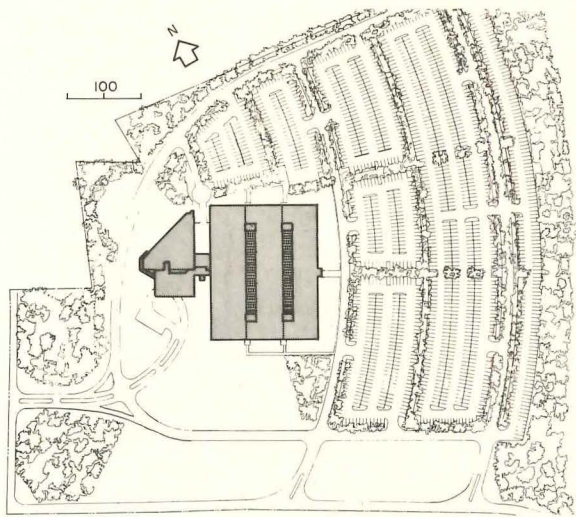
WESTERN UNION CORPORATE HEADQUARTERS

To soften its almost 400,000-square-foot presence in an area of single family houses, this building is situated to allow a screening of trees planted in and around parking "shelves." These step down the hillside toward residential property-lines to the north and accommodate 1600 cars without the visual "supermarket appearance" of a flat plane of asphalt paving. At the same time, a more impressive aspect is revealed toward a highway on the south of the site. The building is basically massive in appearance in recognition of the client's desire that large flexible-use floor areas be built as economically as possible. Hence, the compacted volume is enclosed with a minimum of irregularities in the peripheral walls. Unlike architects Kahn and Jacobs's building for Roure Bertrand Dupont (RECORD January and February, 1974), a separate element here contains the lobby (photo, opposite top), executive offices and employee amenities. This was done to provide a reduction in scale on the exposed front of the building toward a residential neighborhood. Designer Der Scutt also stepped the basic mass down the hillside to reduce visual size (photo above). The project is recipient of the State Business Manufacturers Association's "Good Neighbor Award of 1973".

The executives are located on the top floor of the separate element on the front of the building, and they are easily accessible to visitors using the main entrance. Many other entrances are around the

perimeter of the larger block for employee use; these also allow for the possibility of leasing floor-space to other tenants. Circulation through each of the large floor areas is centered on a wide corridor, which runs from the front to the back of the building, and which intersects three courts roofed with skylights (photo, right). These courts are planned to reduce the distances to daylight in the large interior spaces and to provide a constantly changing quality of light. This innovation helped obtain the 1973 New Jersey IES Lumen Award in which the jurors cited innovation and economy. Other construction economies include the reduced perimeter produced by the straight walls, a repetitive construction system of steel, and individual mechanical-equipment rooms for the various spaces. The exterior walls consist of white precast-concrete panels contrasted with the black anodizing of window framing. The architects describe the construction costs as being extremely low in comparison with similar buildings.

WESTERN UNION TELEGRAPH COMPANY, Upper Saddle River, New Jersey. Architects: *Kahn and Jacobs*—partner-in-charge: *L. A. Doughty*; project manager: *Richard Heinrichs*; project designer: *Der Scutt*. Associated architect: *Barbara Martin*. Engineers: *Abbott, Merkt & Company* (structural, soils, mechanical and electrical). Interior design consultant: *John McGovern & Associates*. Landscape architect: *Lawrence Tencza Associates*. General contractor: *Conforti & Eisele*.



SECTION



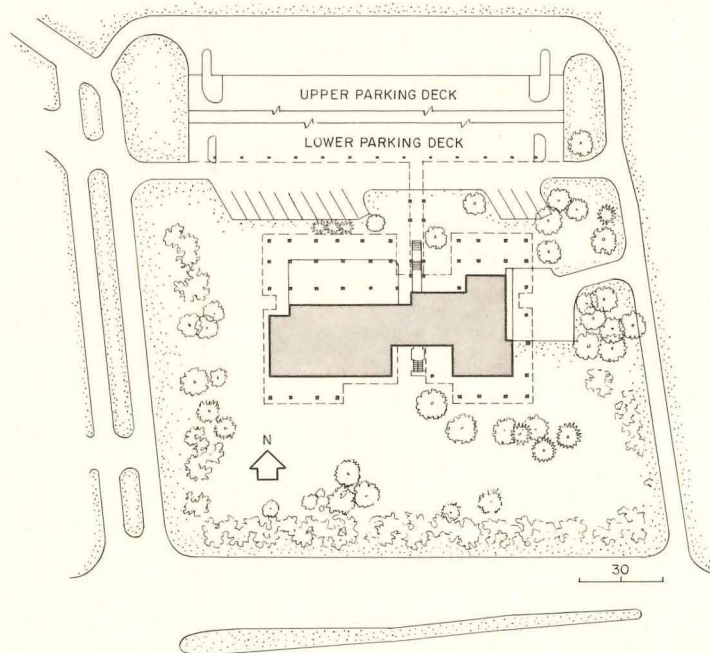
Gordon Schenck photos

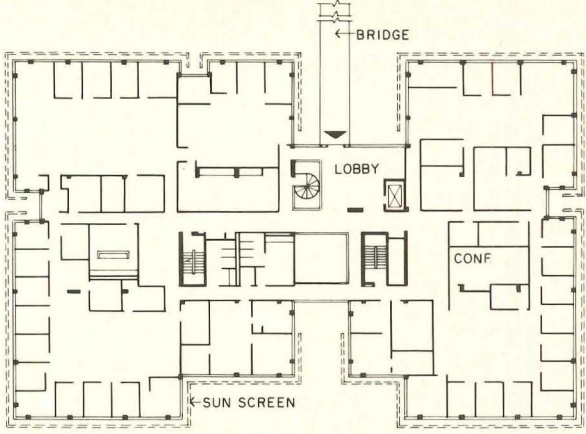
THE PROGRESSIVE FARMER COMPANY HEADQUARTERS

Taking an approach to siting that is as public-benefit minded as it is unusual, architects Jova/Daniels/Busby have placed this building, of 46,000 square feet, far back from a parkway and maintained much of the concealing natural-growth. A vertical arrangement of office and parking areas was designed for a minimum disturbance to the three and a half acre site. But the office building's three story height was visually reduced on the entrance side by placing one story on the slope below the driveway level (photo, right). Weathering steel sheathing and dark reflective glass blend into the natural surroundings.

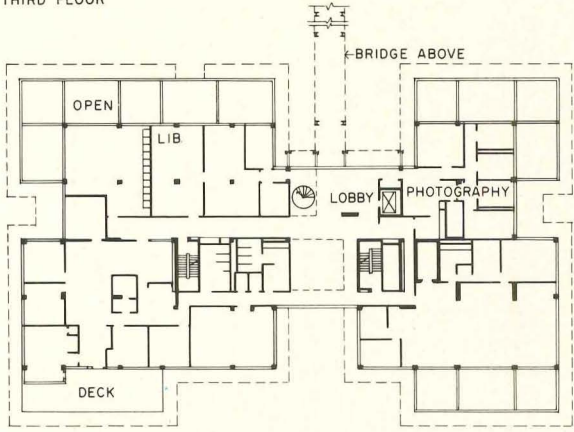
The Company is the publisher of two magazines, "Progressive Farmer" and "Southern Living", and this duality of function is expressed in the divided editorial-floor at the top level. Administrative and shared functions occupy the middle level and service areas and the cafeteria are on the bottom, where employees enter at grade. Visitors enter from the upper parking deck and cross the bridge (photo, right) to the lobby, which overlooks a double height exhibition space enriched by murals of enlarged photographs by staff photographers.

HEADQUARTERS BUILDING FOR THE PROGRESSIVE FARMER COMPANY, Birmingham, Alabama. Architects: *Jova/Daniels/Busby*—project architect: *Joseph League, Jr.*; interior designer: *Karen League*. Engineers: *Armour & Cape, Inc.* (structural); *Newcomb & Boyd* (mechanical). Landscape: *Charles Griner*. Contractor: *R. B. Ethridge*.

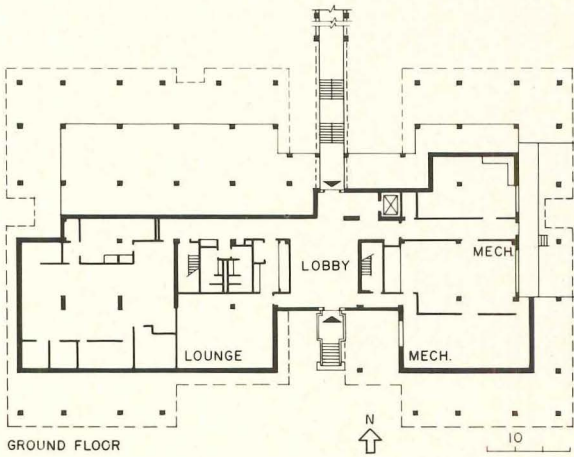




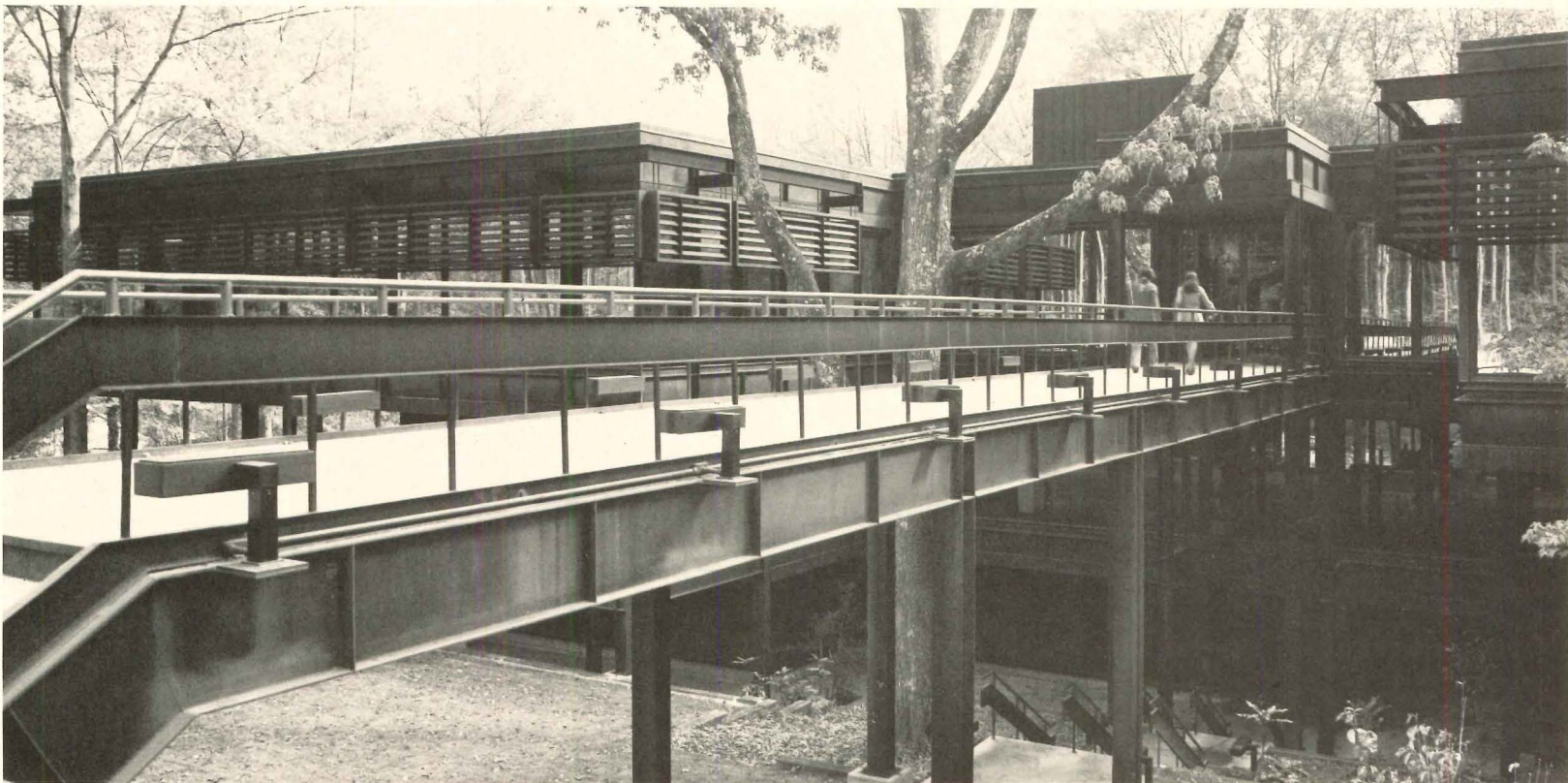
THIRD FLOOR



SECOND FLOOR



GROUND FLOOR





THE GENERAL ELECTRIC COMPANY CORPORATE HEADQUARTERS

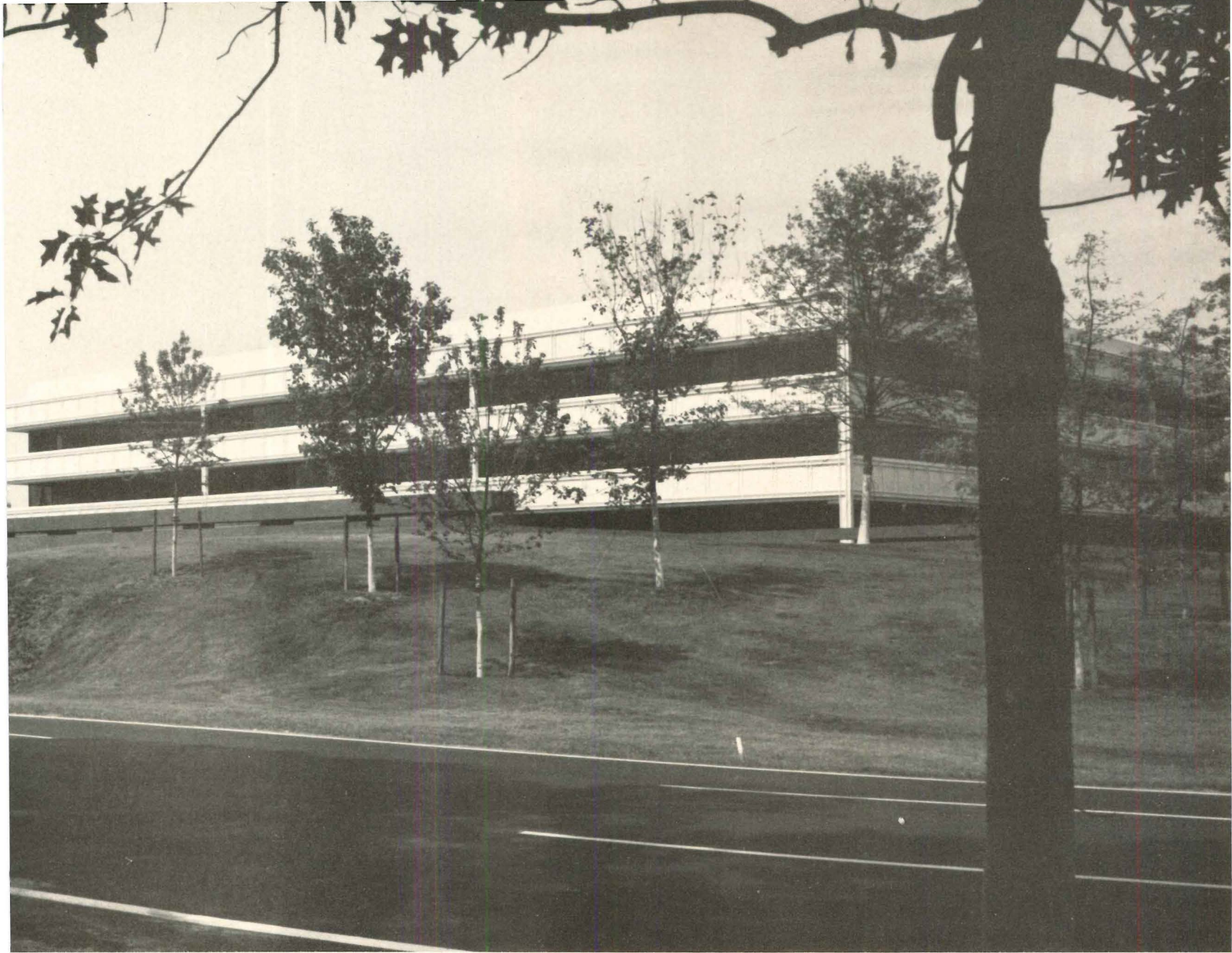
A generous site of 100 acres has allowed architects Skidmore, Owings, and Merrill to express these buildings' large size of over 500,000 square feet in a bold manner, without visual conflict with neighboring structures. Even so, the clients took care to consult representatives of this Connecticut community before design began, and the enclosure of parking within the buildings' concrete podium as well as the dedication of 30 acres to public park land (lower right in plan) were carried through for the benefit of neighbors and employees. SOM partner-in-charge Roy Allen states that the separation of offices into two buildings, around courts, was as much of a way to gain a maximum number of perimeter offices (only top executives are housed here), as it was to reduce visual bulk.

The exposed white-painted steel structure above the podium consists of trusses, of a six-and-a-half foot depth, which span columns at 80-foot intervals. The original intention had been to eliminate interior columns, but these were added to reduce costs. Individual air handling units are contained within the spandrels and are connected to central condensers on the roofs (see section, overleaf). The recessing of the dark-colored glazing provides protection from direct sun and emphasizes the strength of the exterior design. The erection of the prefabricated exterior columns and spandrels was accomplished with surprising ease, although the shop work required careful coordination.

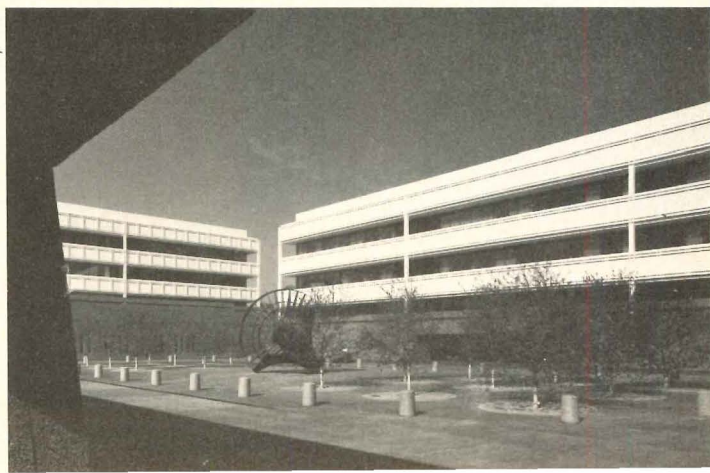
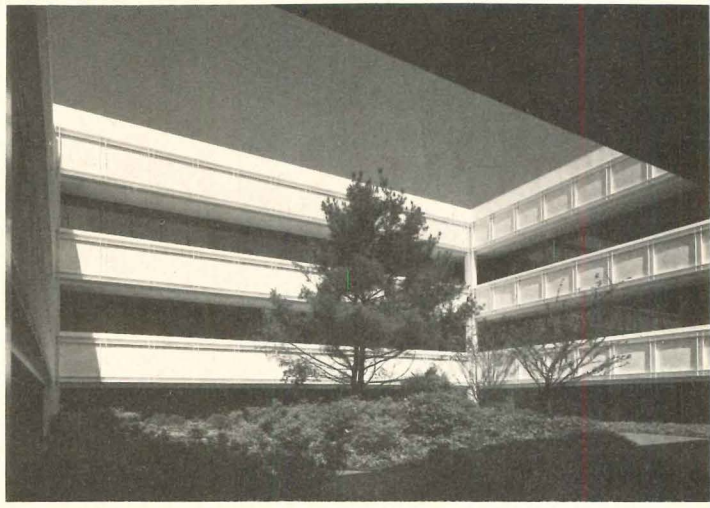
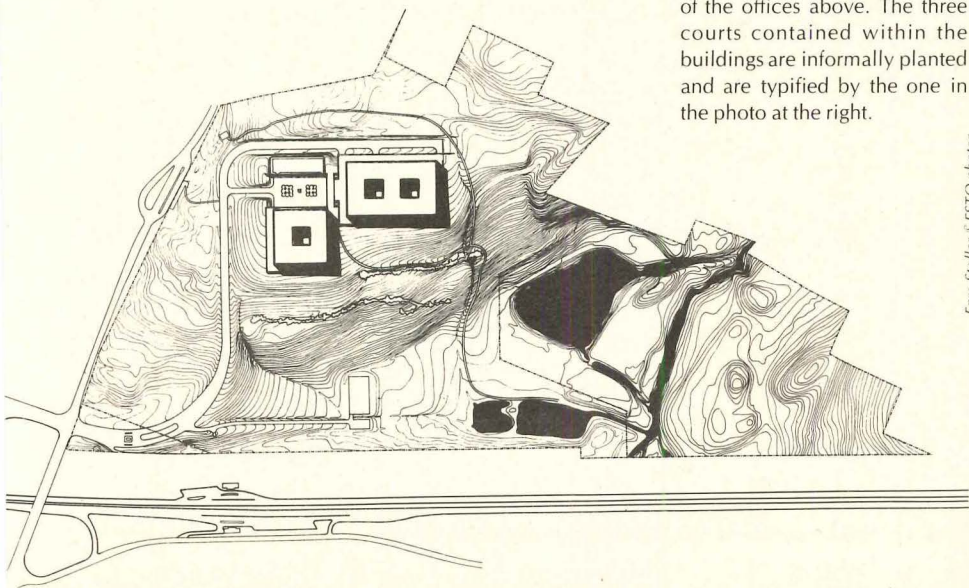
There are an unusual number of employee amenities here, which include lounges, three types of dining facilities and a store which sells everything from convenience articles to the products of the company. All of this is designed to offset the inconveniences of the site's relative isolation and contributed towards a high percentage of the 700 employees making the move with the company from New York City.

The Headquarters were completed within the original deadline and budget. GE project manager Richard Young credits this feat to the team-work approach of architects, client and contractor, a modified fast track construction schedule, and the coordination produced by having sub-contractors as well as the general contractor brought in during design and paid an appropriate project management fee.

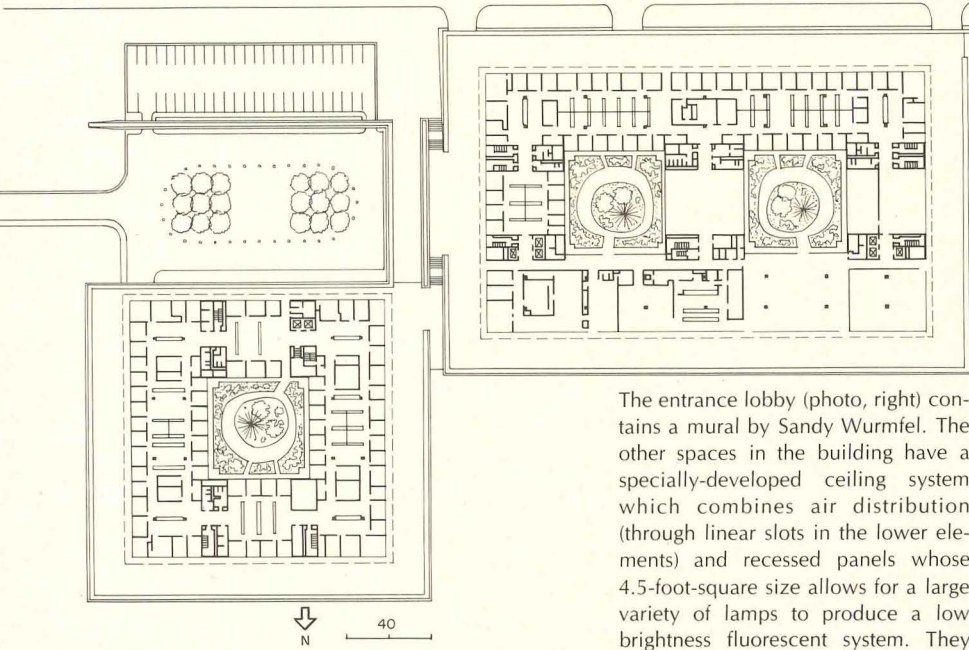
CORPORATE HEADQUARTERS BUILDING, THE GENERAL ELECTRIC COMPANY, Fairfield, Connecticut. Owner: *The General Electric Company Real Estate Construction Operations*. Architects: *Skidmore Owings and Merrill—partner-in-charge: Roy Allen; project manager: Paul Pippin; senior designer: Michael McCarthy; interior designer: Davis Allen; job captain: William Fryer*. Engineers: *Weidlinger Associates* (structural); *Syska & Hennessy, Inc.* (mechanical and electrical). Acoustical consultant: *Lewis Goodfriend Associates*. Lighting consultant: *Syska & Hennessy, Inc.* Graphics consultant: *Walter Kacik Design Associates*. Traffic consultant: *Wilber Smith & Associates*. Parking consultant: *Edison Parking Corporation*. Food service consultant: *Arthur Dana Associates*. General contractor: *Turner Construction Company*.



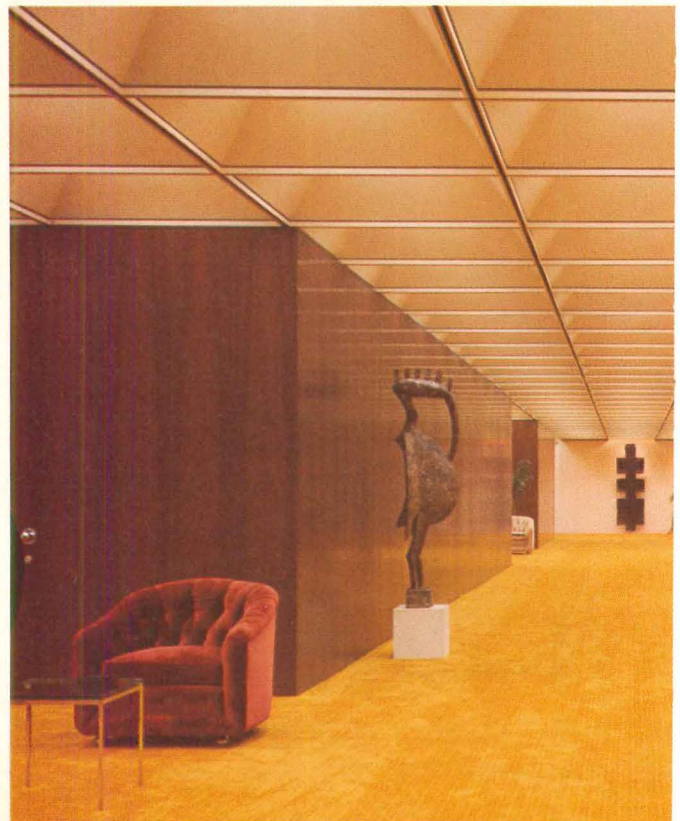
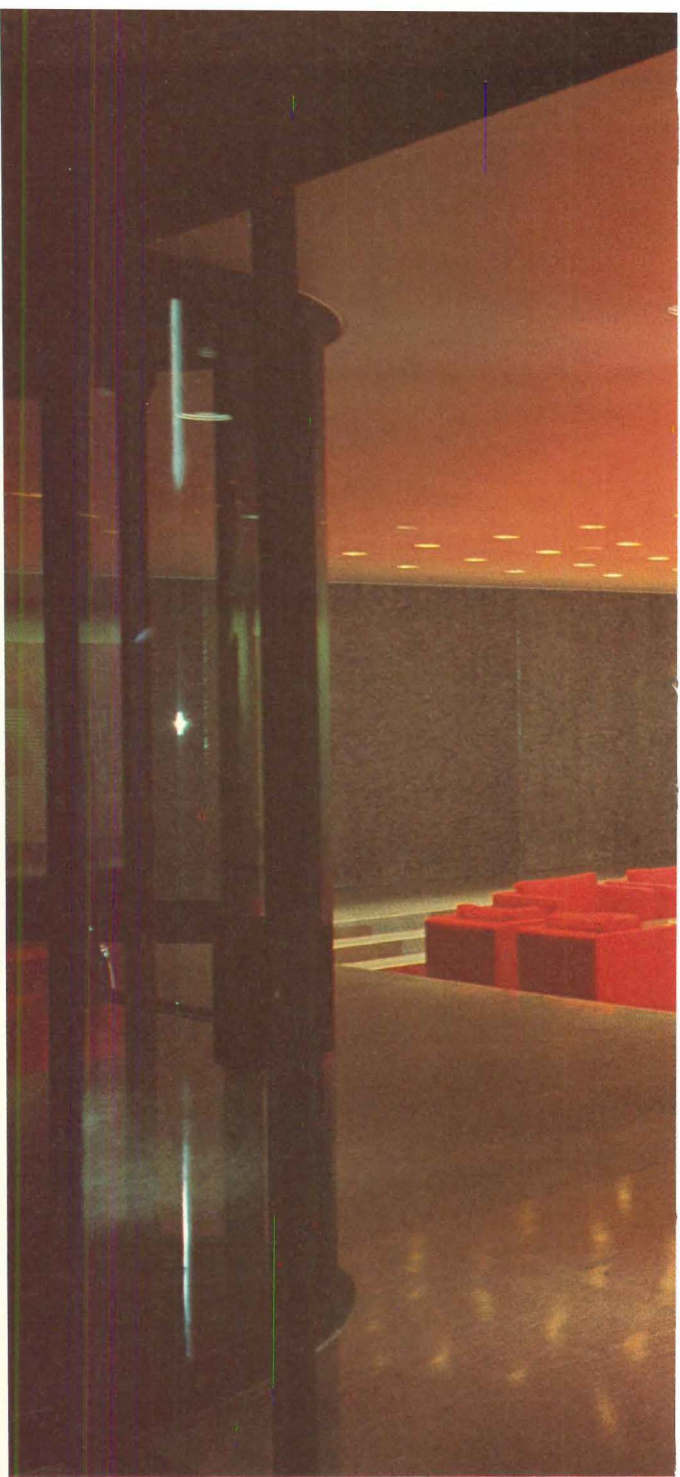
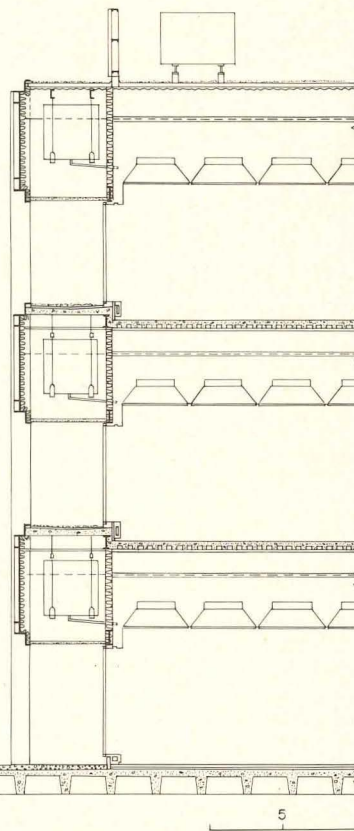
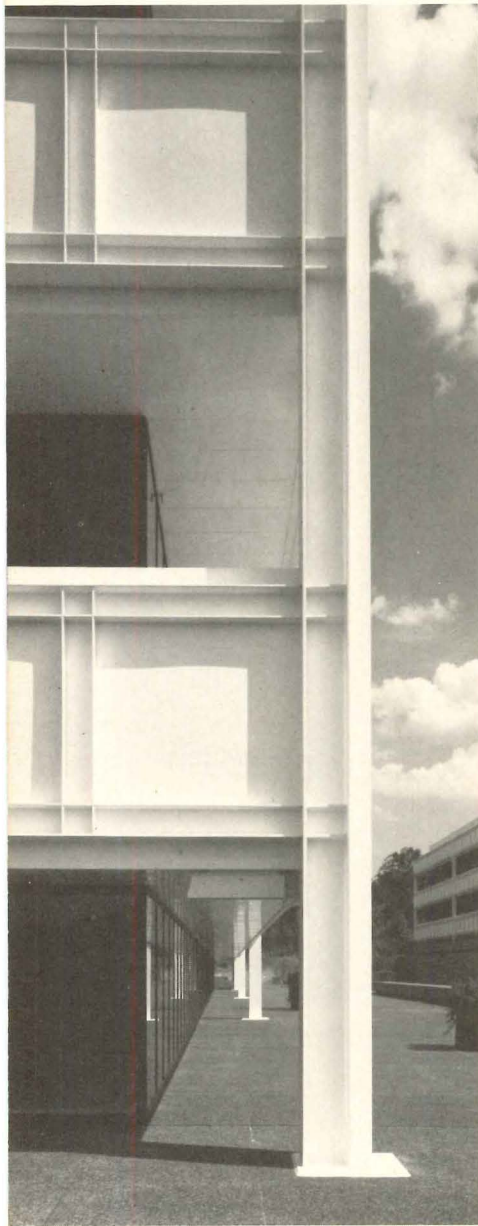
The view above is that seen from the upper left of the plan. Behind the berm in the foreground, a wall encloses the paved entrance court (photo, below) which contains a steel sculpture by Charles Perry interpreted by the clients to be reminiscent of a turbine engine. An exposed aggregate finish on the structural concrete podium (which contains covered parking) provides warm contrast to the white-painted steel structure of the offices above. The three courts contained within the buildings are informally planted and are typified by the one in the photo at the right.



Ezra Stoller © ESTO photos



The entrance lobby (photo, right) contains a mural by Sandy Wurmfel. The other spaces in the building have a specially-developed ceiling system which combines air distribution (through linear slots in the lower elements) and recessed panels whose 4.5-foot-square size allows for a large variety of lamps to produce a low brightness fluorescent system. They can also contain incandescent "spots". Air handling units above the soffits of the projected spandrels (below and left) supply the required controlled temperature. One of three dining areas (here combined with a lounge) is shown in the photo at the bottom of the opposite page. Options are offered for two grades of waiter-service dining and a cafeteria which is brightly painted with black and white graphics to indicate the locations of various foods. Although a maximum number of perimeter offices were produced in the buildings' planning, interior offices were required for some executive personnel. These have low partitions and gain views through glass doors on the exterior offices. Glass doors were favored by the clients because they offered more privacy than fixed glazed panels directly in front of the workers' desks.





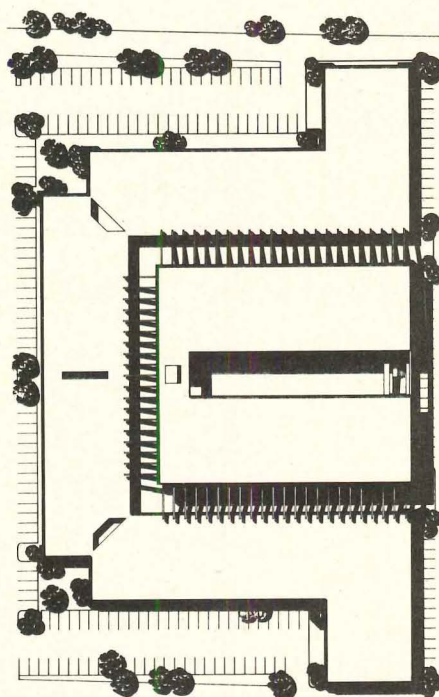


E. Allen McGee photos

THE ATRIUM: AN OFFICE "DEVELOPMENT"

To cope with the problems of housing many rental tenants in a Miami neighborhood of indeterminate character, architects Cooper, Carry & Associates have chosen to join eight buildings into a group with most entrances facing the interior of the compound. It offers a cohesive alternative to the usual office park of individual scattered buildings. The total floor area of 127,000 square feet is distributed around two concentric courtyards which function as an outlook for the indoor spaces and lobbies for relaxation and circulation. These exterior spaces take advantage of the normally favorable climate, and have contributed towards the building's remarkably low construction cost of under 20 dollars per square foot. The facade forms a unifying "street-wall" on one side (an entrance here is seen in photo above), and parking is distributed about the other three sides to allow direct access to the individual office spaces. Bright graphics indicate entrances and enliven the public spaces (photo, bottom). The structure is steel, sheathed in stucco and wood. The exposed beams provide shade and a sense of unification. The site area is 9 acres.

THE ATRIUM, Miami, Florida. Owners: *Ackerman & Company*. Architect: *Cooper, Carry & Associates*. Engineers: *Ray Chalfant* (structural); *Pittsburgh Testing Laboratories* (soils); *Edward & Rosser, Inc.* (mechanical and electrical). Landscape architect: *Cooper, Carry & Associates*—architect-in-charge: *Ray Baker*. General contractor: *Cohen-Ager Inc.*



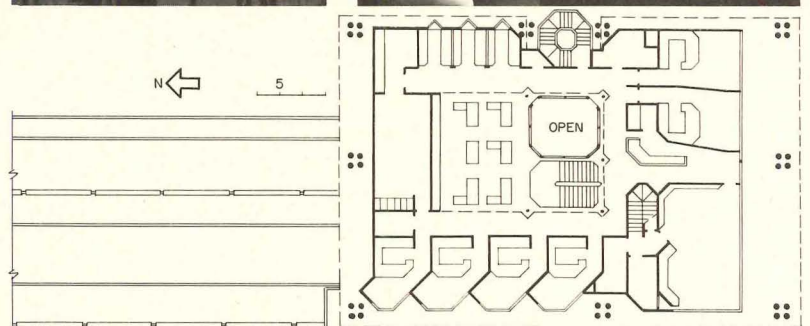


Julius Shulman photos

HAGADONE NEWSPAPERS CORPORATE HEADQUARTERS

Utilizing the site of an existing pier in Coeur d'Alene, Idaho, architect R. G. Nelson has created a four-story building of 11,000 square feet which appears to be a vertical extension of the previous structure, although the entire construction is entirely new. In terms of integrating the facility into a beautiful natural setting, this would seem to be the most sensitive of possible solutions. The columns of cedar logs are exposed on the building's exterior, and the various articulated elements of office spaces and circulation appear to be hung between them. Housing only the executive offices and accounting functions, the interior spaces are arranged in a vertical spiral about an open shaft. The top level contains president Duane Hagadone's offices. In descending order are the executives' offices, accounting-computer spaces, reception and conference rooms, and service areas. The exterior is finished with cedar siding, and the natural finishes are carried into the carefully detailed interior. Access is gained by a vehicular causeway, a pedestrian ramp and a boat dock which allows for a variety of pleasant approaches.

HAGADONE NEWSPAPERS CORPORATE HEADQUARTERS, Coeur d'Alene, Idaho. Architect: *R. G. Nelson*. Engineers: *Peter Suden* (structural); *Robert Luhn* of *Rice & Luhn* (mechanical); *Fred Wanless* of *Wanless-Cook* (electrical). Interior design consultant: *Arthur Elrod & William Raiser*. General contractor: *Gem State Construction Company*.



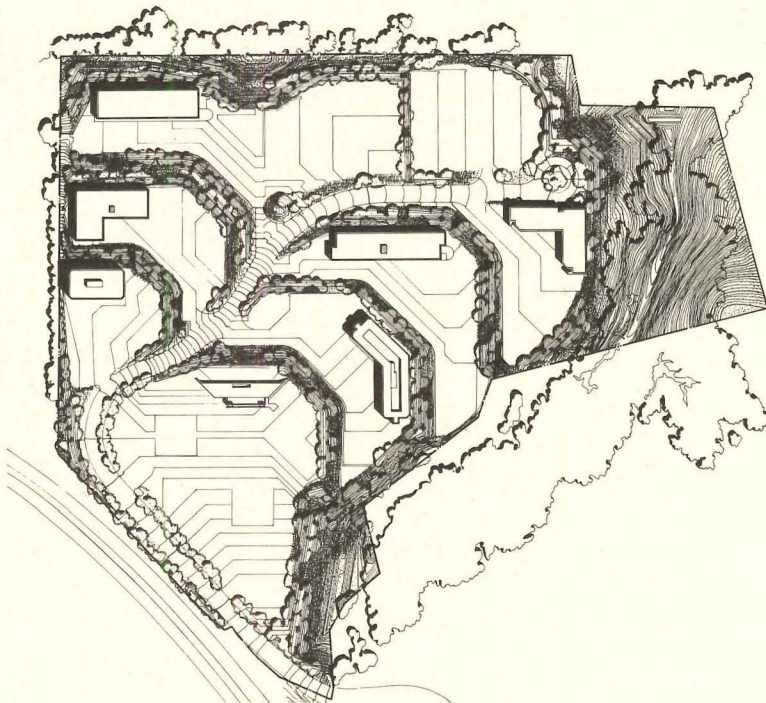


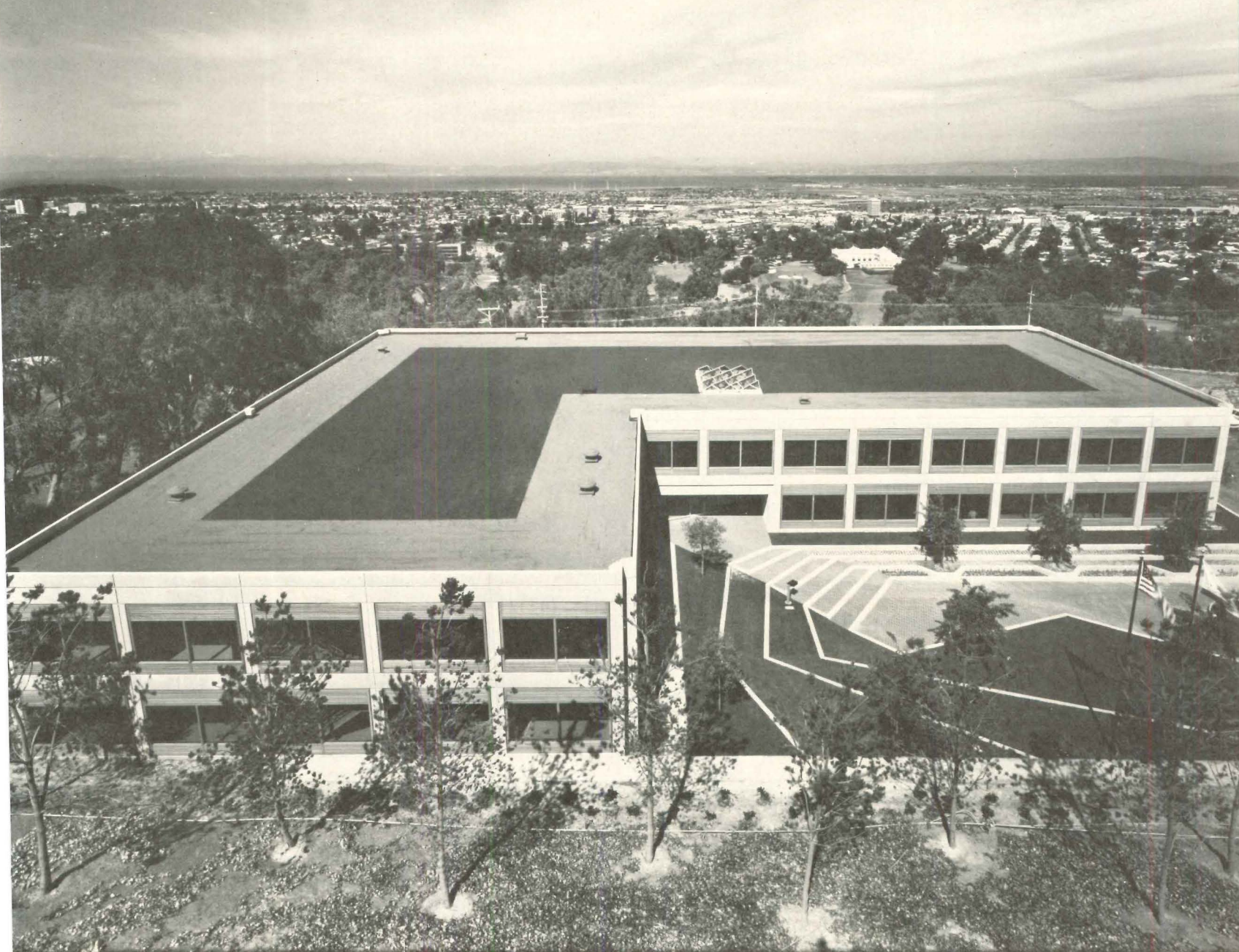
Robert Brandeis photos

PENINSULA OFFICE PARK

A common problem with office parks has been a scattered-building effect, where it is difficult to achieve individual distinction, and where the outdoor areas are amorphous—neither having the containment of urban development or the openness of rural spaces. As one variation, the Atrium shown on page 134 has drawn the component buildings together to form a unified whole on a restricted site. Here, architects Robinson and Mills have taken an opposite approach—on a sloping site of 54 acres with dramatic views. Each building attains its own identity by placement on a separate level of terraced land. Views are achieved, and the highly-individual character of each building (all by the same architects) has no direct competition with its neighbors. An initial investment in site development included the rearrangement of 750,000 cubic yards of earth, and the purchase of extensive quantities of landscaping materials. The projected capacity of this site is 600,000 square feet of office space. Since 1971, over 200,000 square feet have been built, and an ancillary restaurant (at the top of the hill-bottom left in site plan) has also been built and is in successful operation drawing clients from both Peninsula Park and the surrounding area. The remaining buildings are in planning for the immediate future.

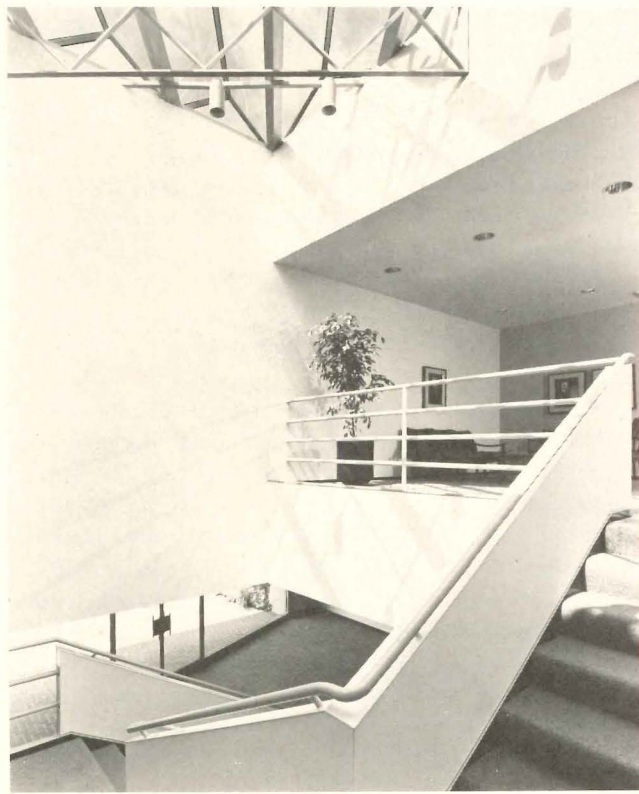
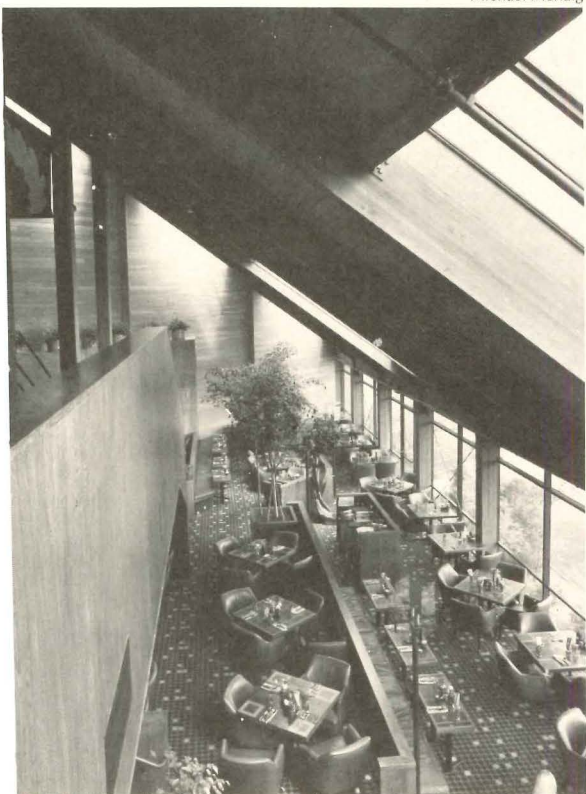
PENINSULA OFFICE PARK, San Mateo, California. Owners: *Borel Development Company*. General contractor: *WEBcoR Builders, Incorporated*.

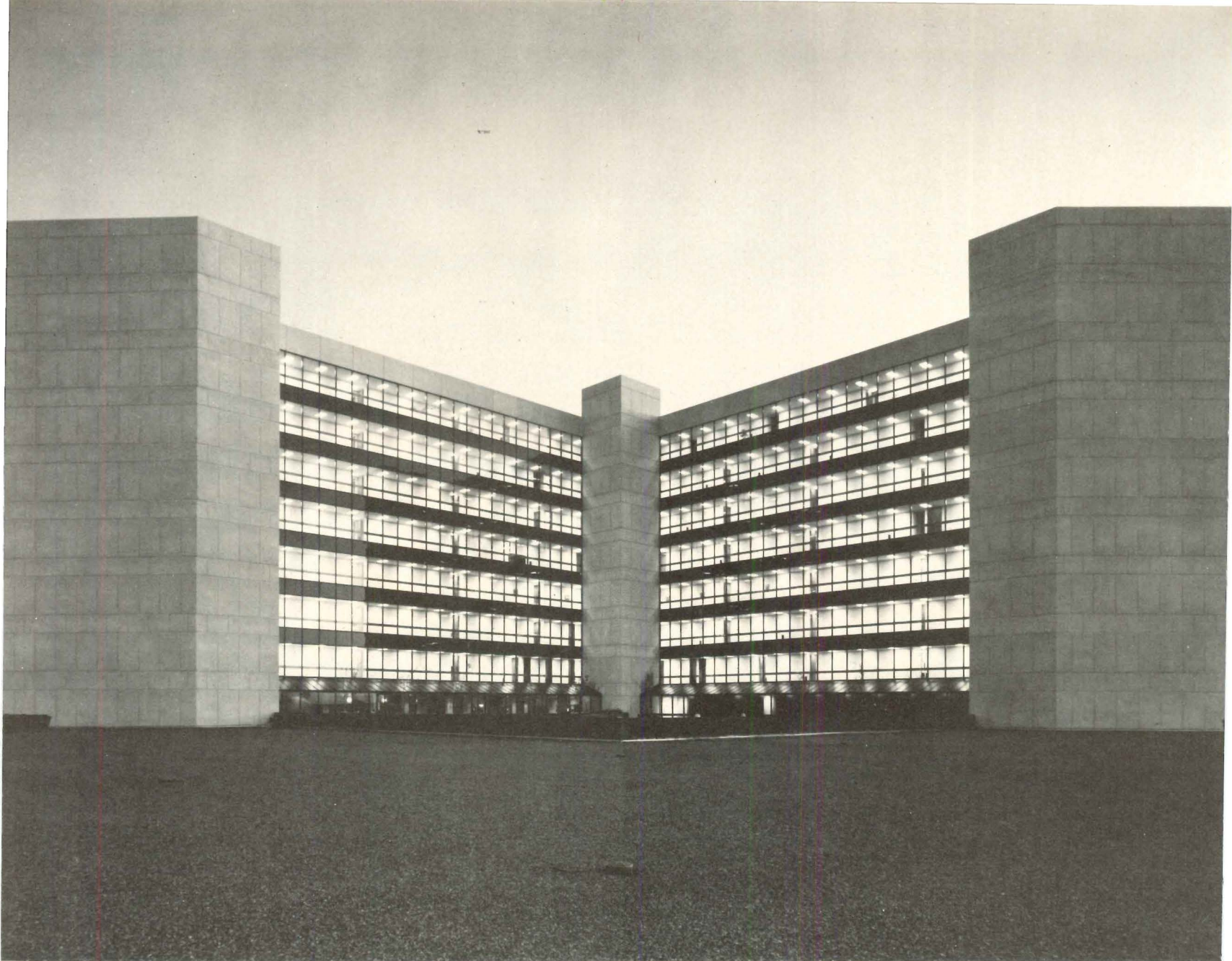




Michael McKaig

Views and individual identity are among the strong advantages of a terraced steeply-sloping site. Four of the projected eight office buildings are complete and two are shown above. They are the Arthur G. McKee Building (photo, opposite) and the Bank of America Building (photo, this page) whose skylit lobby is shown to the right. All of the office facilities are constructed with reinforced concrete frames and various infill techniques which include precast concrete (McKee) and glass with redwood framing (Bank of America). The roofs are designed to be looked onto from above—the mansard shown opposite is clad with surface-oxidizing-steel. Borel's Restaurant, containing 16,000 square feet commands a dramatic outlook from the top of the hill and has varied facilities for 425 diners (photo, left). It is built with a heavy timber frame, and wood sheathing covers the walls and sloping roof.





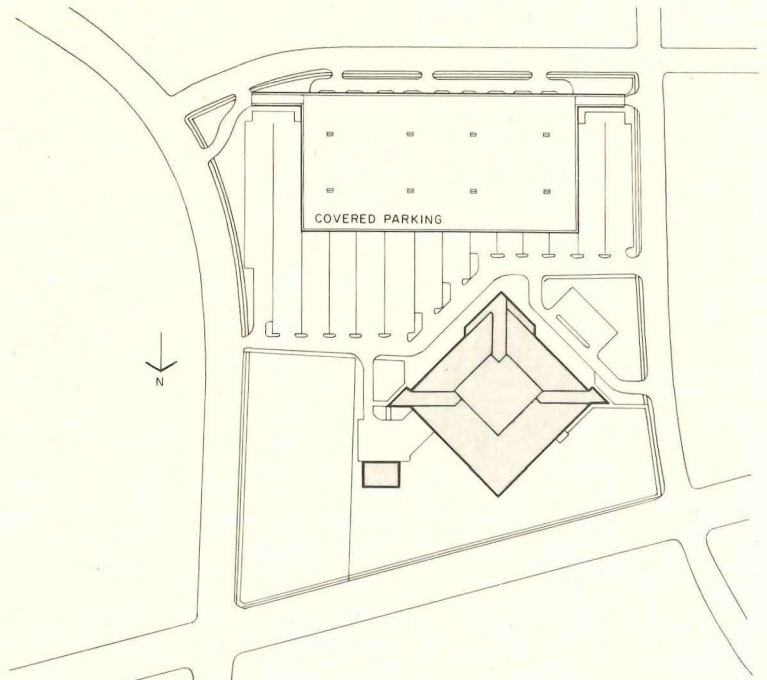
Marvin Rand photos

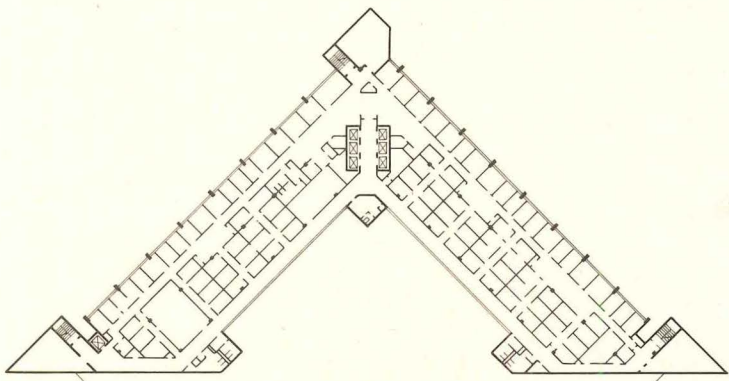
SHELL INFORMATION CENTER

Part of an office park built by Shell near Houston's Astrodome, this building of 454,000 square feet is located on an 18.5 acre site in an area surrounded by some haphazard development away from the downtown center. The design recognizes the need to accommodate both future expansion and the local change to a more closely-knit relationship of structures that will inevitably occur. It is a strong focus in an amorphous landscape and a standard to which future development may pace itself. It is a suburban building waiting to become urban.

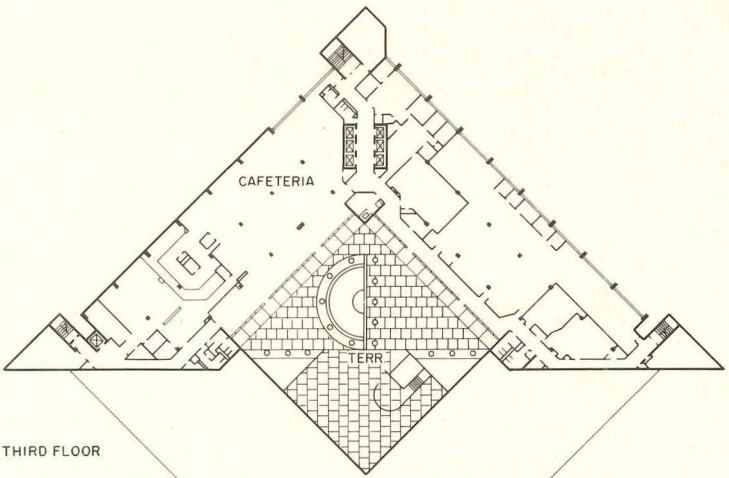
The location of the three cores for vertical circulation (which includes a conveyor system for quick routing of printed matter, office supplies and files) has been determined to allow the programmed expansion. At present, the windows within the interior of the plan's V shape (photo, above) afford views of downtown Houston and the plaza (opposite page) which has been built on the roof of the lower element. The concrete structure and precast infill panels are white and are contrasted with dark colored glass.

SHELL INFORMATION CENTER, Houston, Texas. Owner: *Shell Oil Company*. Architect: *Welton Becket and Associates*—project director: *Patten Brooks*; director of Houston office: *Gilbert Thweatt*. Engineers: *Ellison Engineers Inc.* (structural); *Welton Becket and Associates* (mechanical/electrical). General contractor: *W.S. Bellows Construction Corporation*.

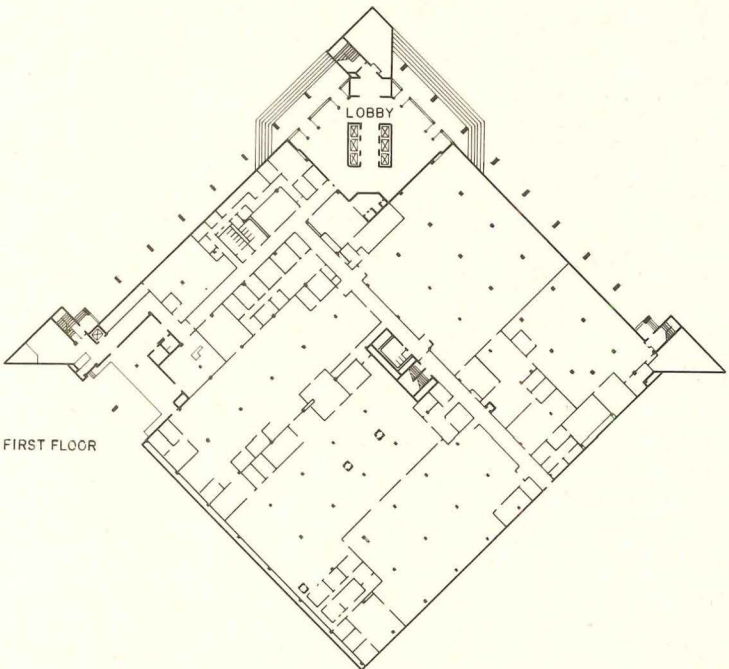




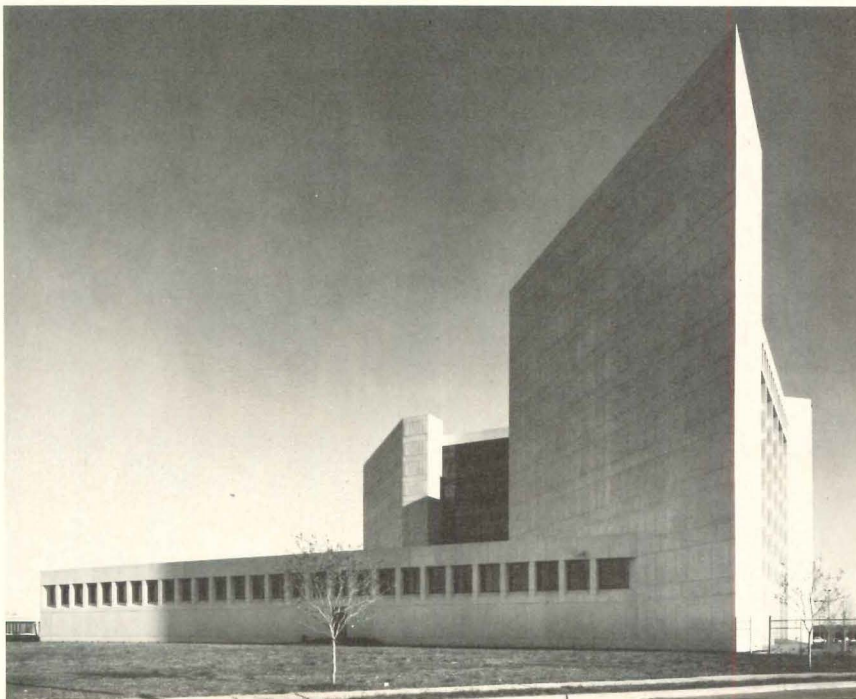
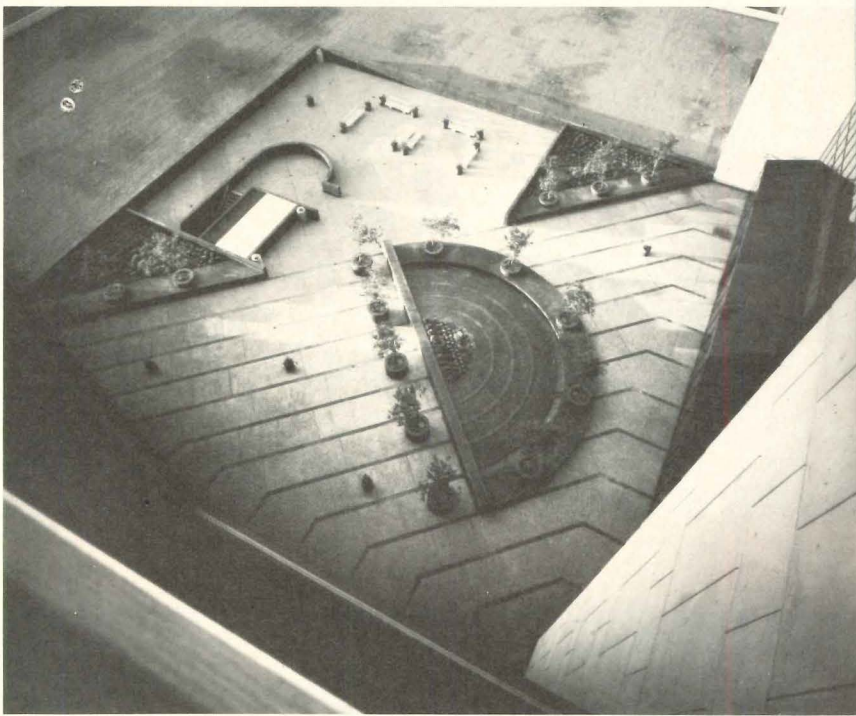
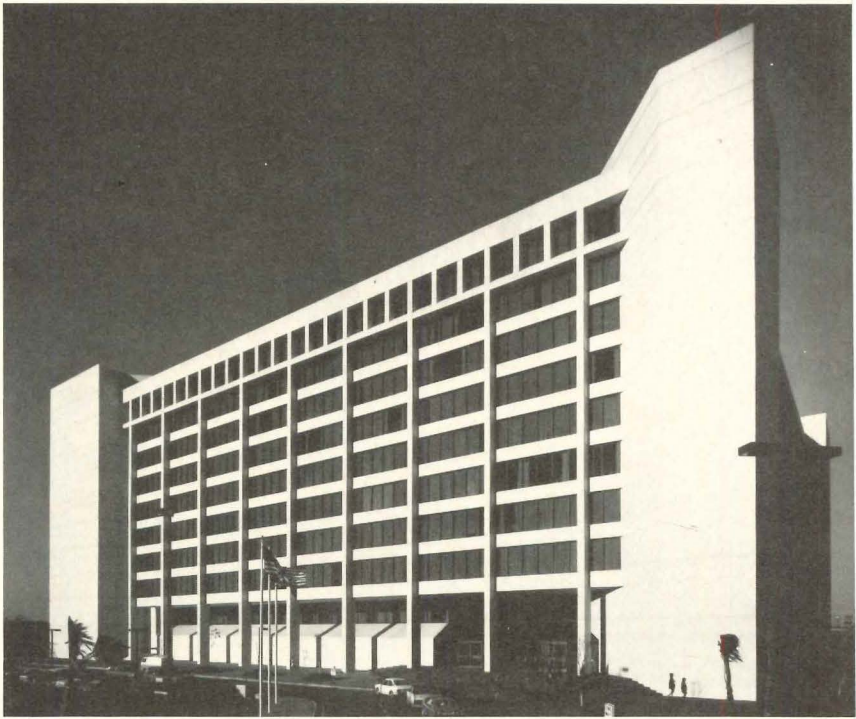
TENTH FLOOR
(TYPICAL FLOOR)

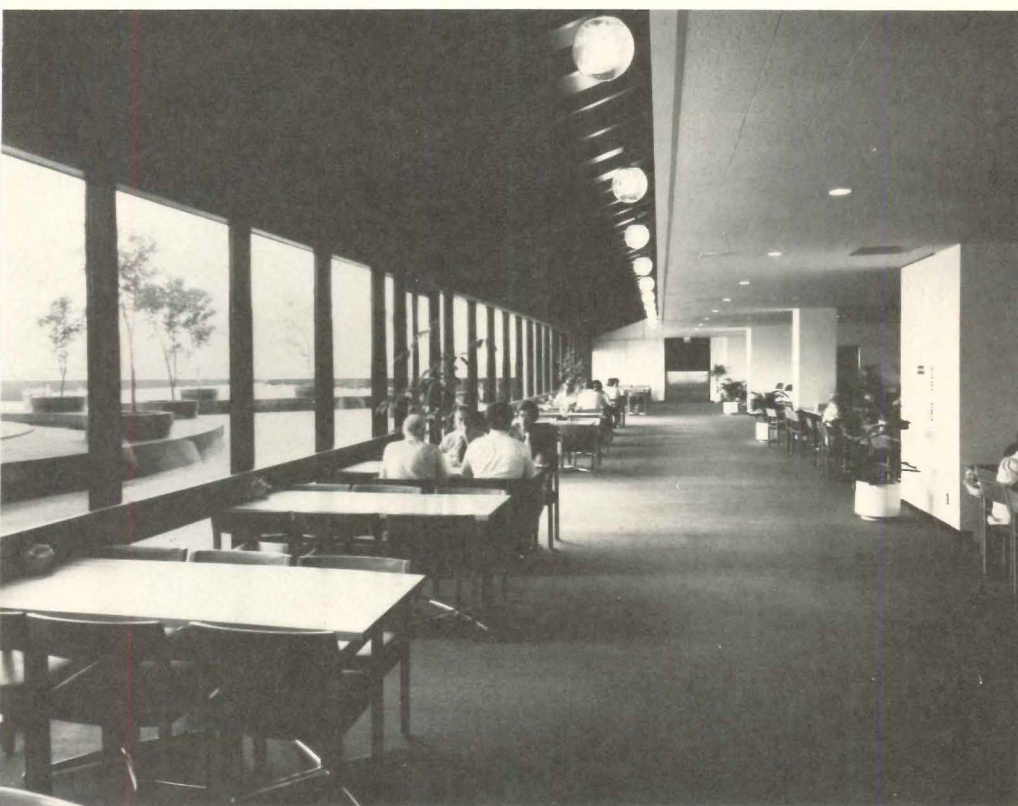
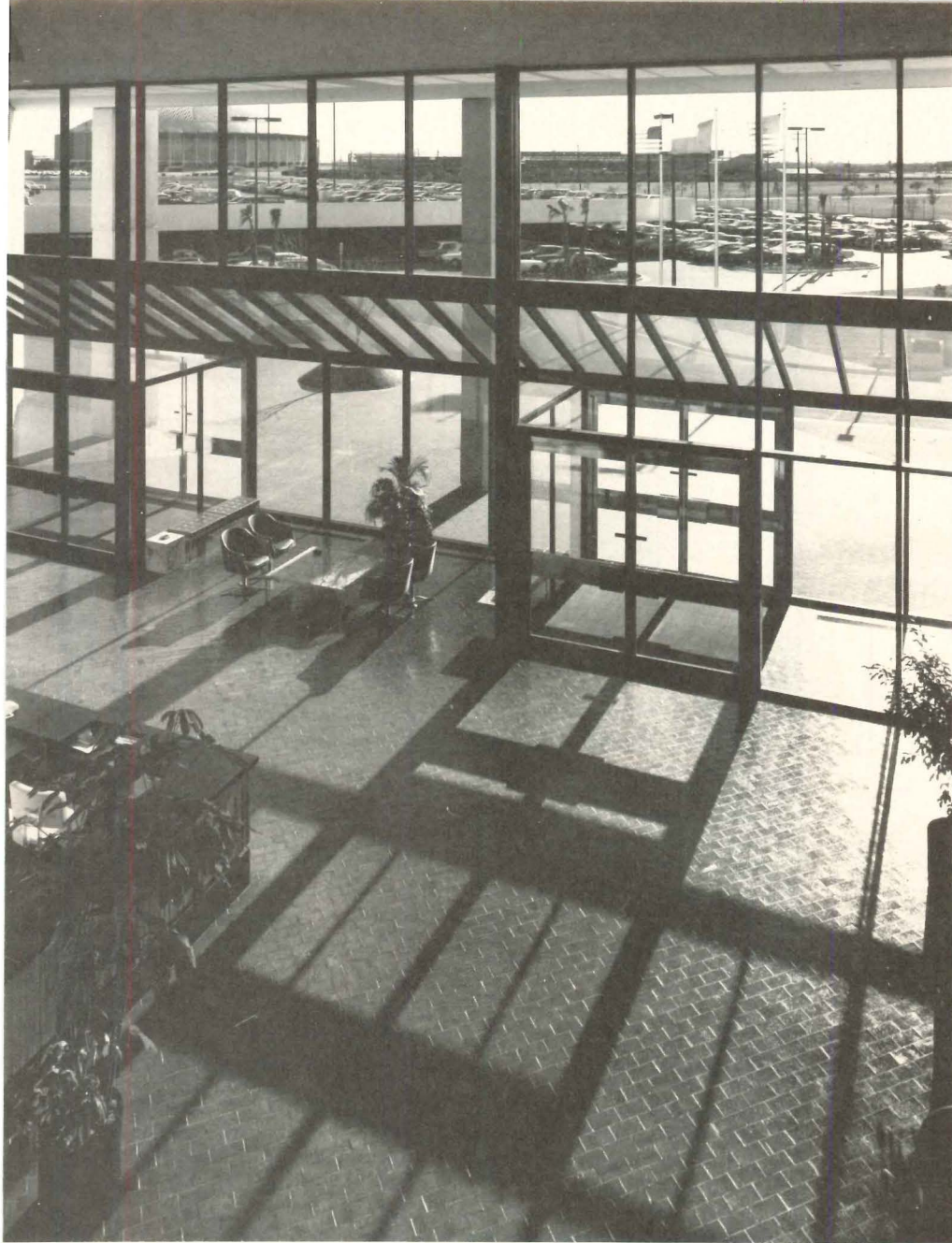


THIRD FLOOR



FIRST FLOOR

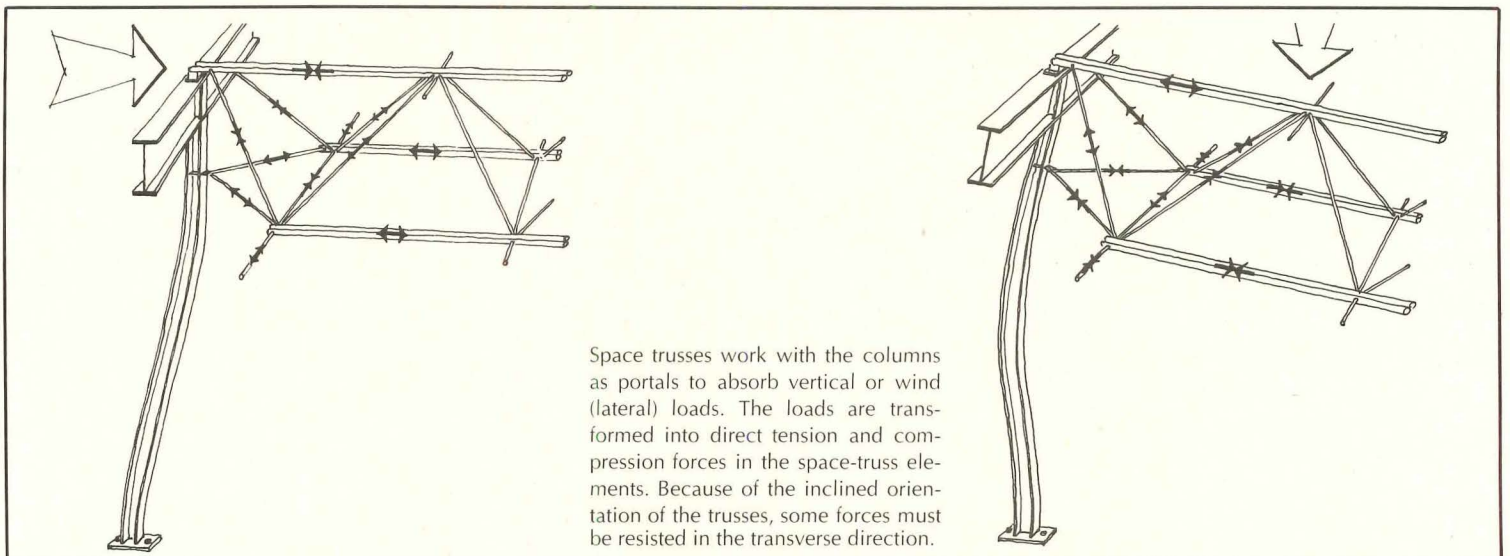
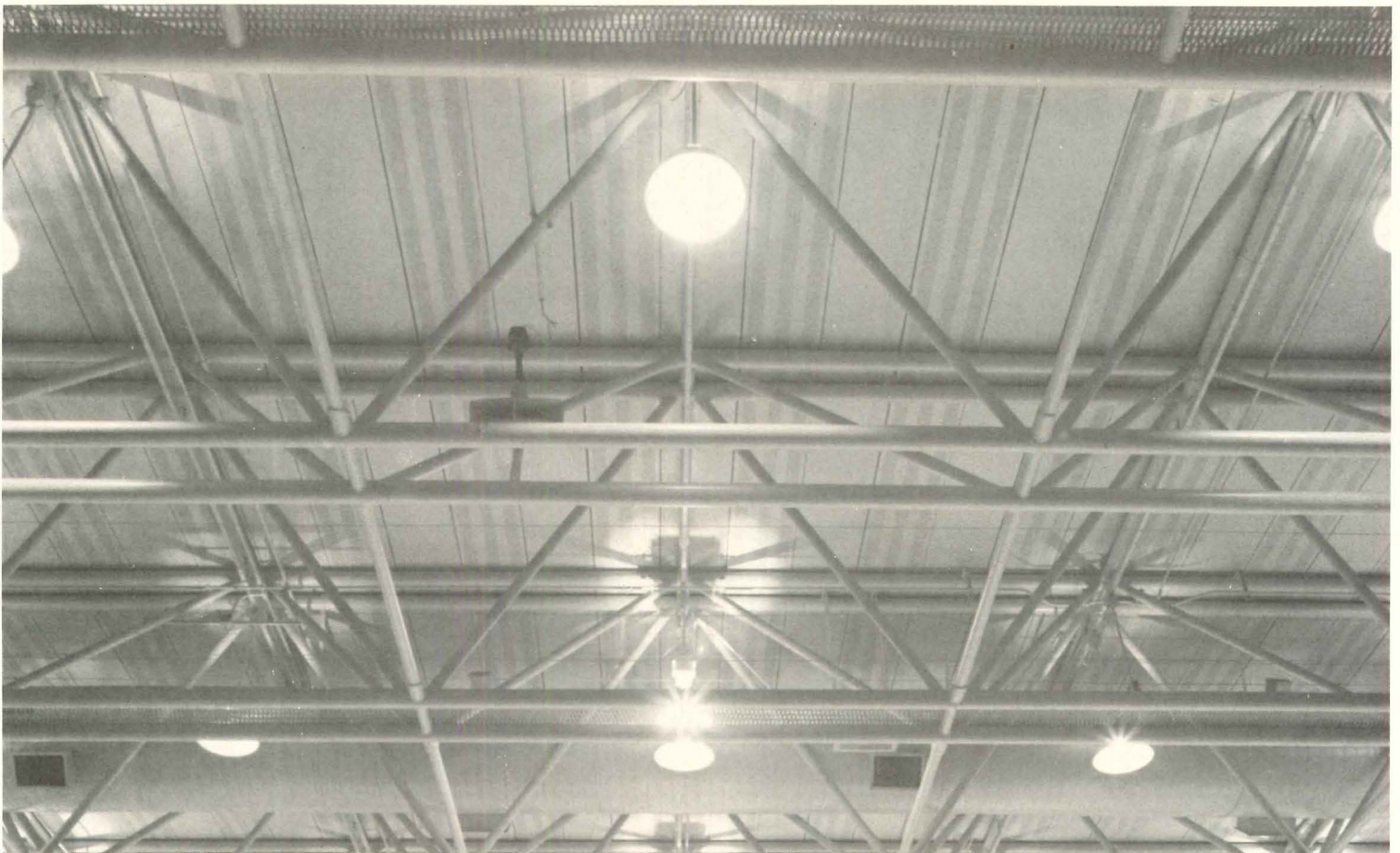


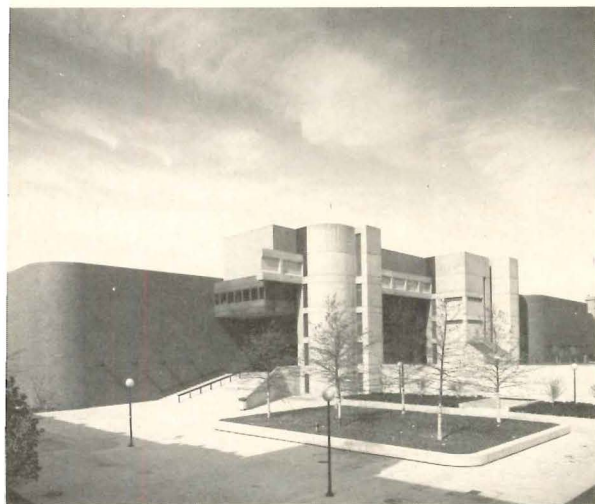


The two-story-high lobby (photo above, left) is paved with brick. A cafeteria for the employees is placed to have a direct relationship with the roof-top plaza (left). The offices (photo above) are largely internal and the occupants share outside views during transit in the corridors, which are placed against the building's exterior (plan at top of previous page). The arrangement suits the client's needs for flexible assignments of space according to fluid business requirements. Within the various internal spaces, a "landscape" arrangement of furniture and partitions reduces the confinement of windowless walls. The basic functions carried out here are accounting and the dissemination of information. The building is planned on a five-foot module. Parking is accommodated in a double level structure which is visible through the lobby's glass walls.

Automated fabrication enhances over-all space-truss economies

The spatial geometry of 120-ft-long pipe space trusses offers visual interest in the basically "empty" gymnasium and natatorium spaces of Cleveland State University's new Physical Education Building. The joints were kept "clean" through the use of automated equipment that made contour cutting of pipe elements and butt connections practical. Only a small amount of field connections were necessary. The openwork of the trusses simplified the installation of large-size ductwork.





All photos Thom Abel except as noted

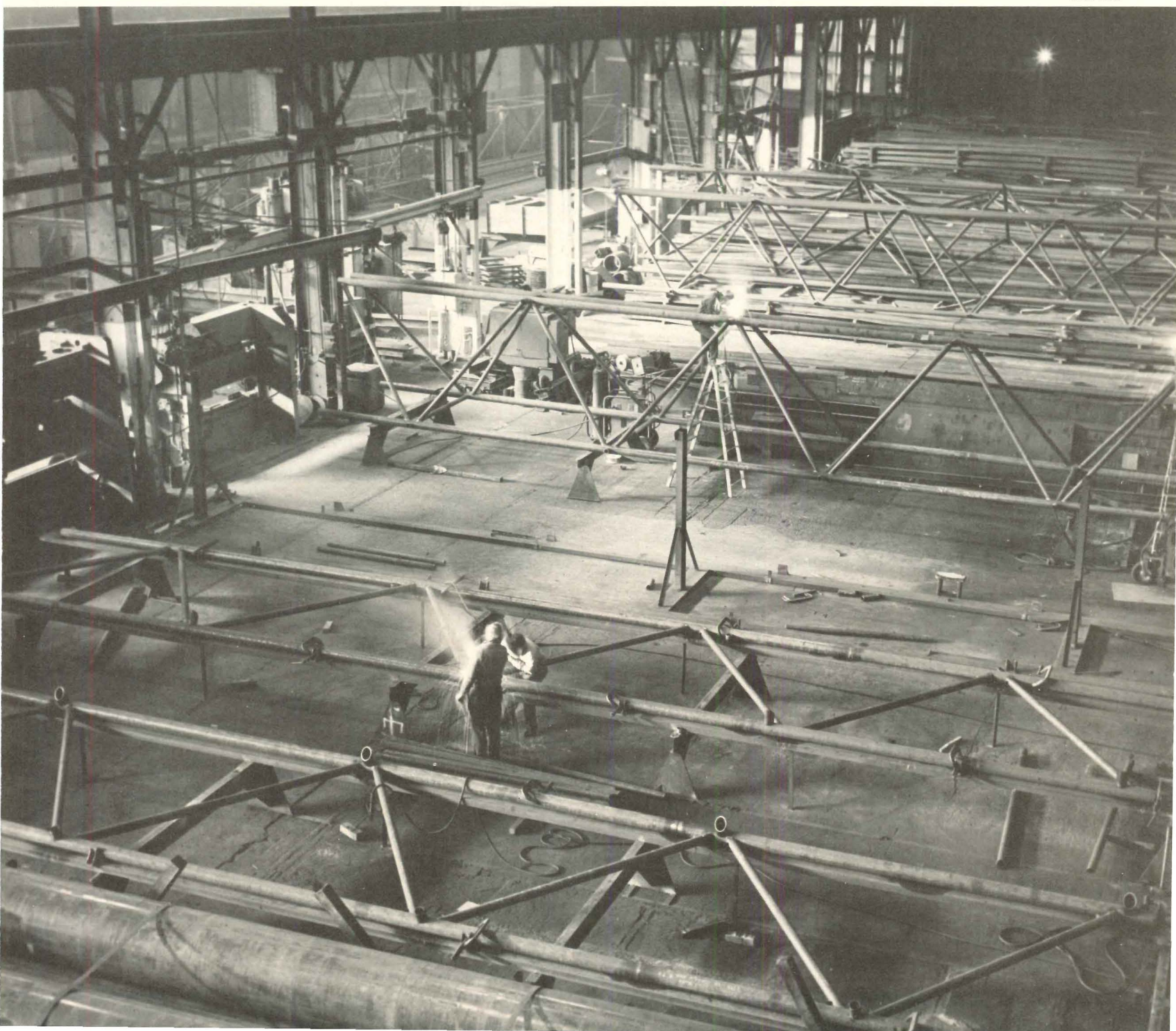
The space trusses, while three-dimensional in configuration, span primarily in one direction, and, in conjunction with the columns, act as portals in resisting lateral loads.

The trusses were first fabricated as single-plane elements, then inclined and tied together with transverse chord struts to make a three-dimensional truss with two top and two bottom chords. Once erected, they were easily connected laterally in the field, through use of chord struts welded to pipe saddles. The pipe elements and butt-welded connections meant that no ungainly gusset plates were necessary, as are common with many steel-truss designs. The smooth surfaces were a plus factor in the swimming pool area because they helped minimize corrosion potential.

The engineers designed the trusses with double chords at the top as well as at the bottom so that bidders could elect to fabricate either three-dimensional trusses in the shop, or single-plane trusses in the shop, joined in the field to form the three-dimensional units. An ancillary advantage of the three-dimensional units was that the hvac subcontractor could hoist the large circular ducts within the open space of the trusses.

Factory fabrication of the pipe space trusses was simplified through use of the automated cutting and welding equipment of Patterson Leitch of Cleveland. All pipe was contour-cut on programmed pipe-cutting equipment, and jigs and fixtures were built to ensure proper alignment during the various stages of

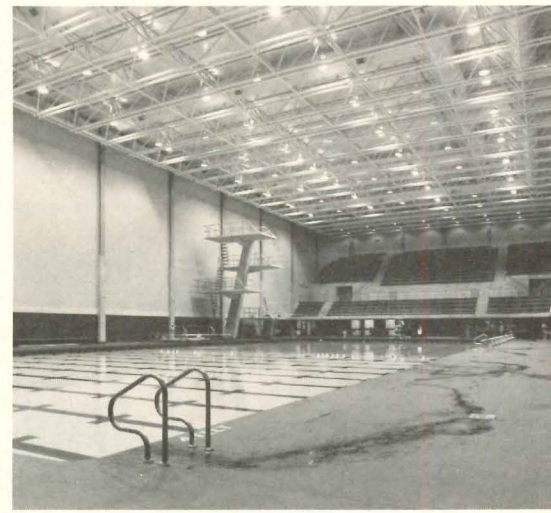
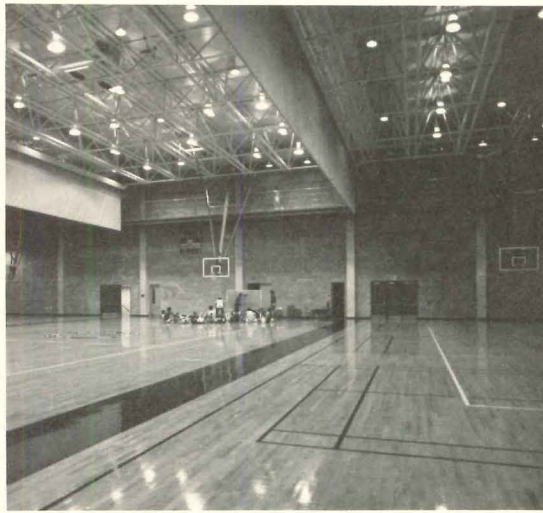
A. R. Theil



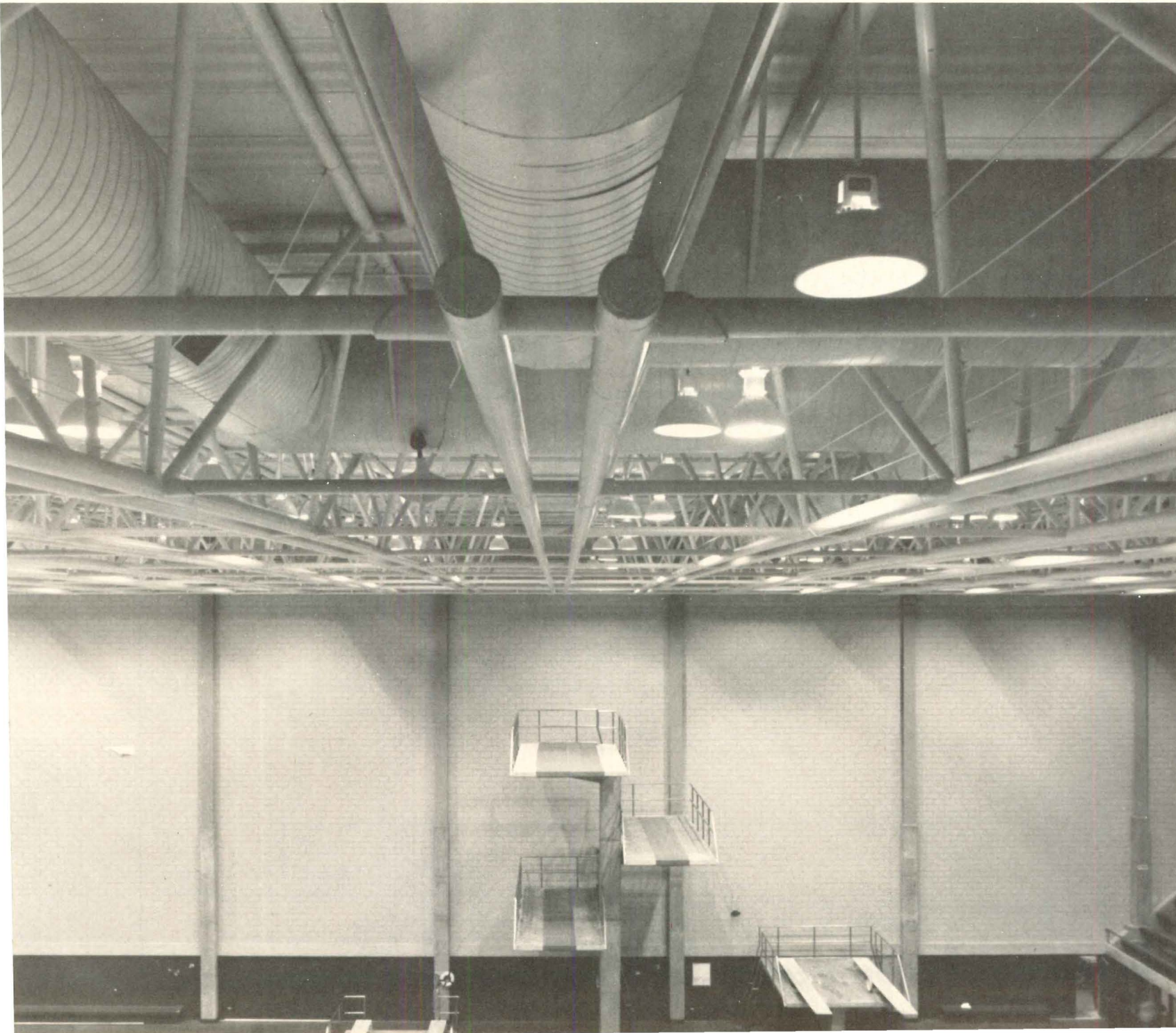
fabrication. Ultrasonic inspection was used to check each of the butt welds. The trusses were fabricated in half-lengths, with a final fitup for the total length being made just prior to moving them from the shop to the storage area.

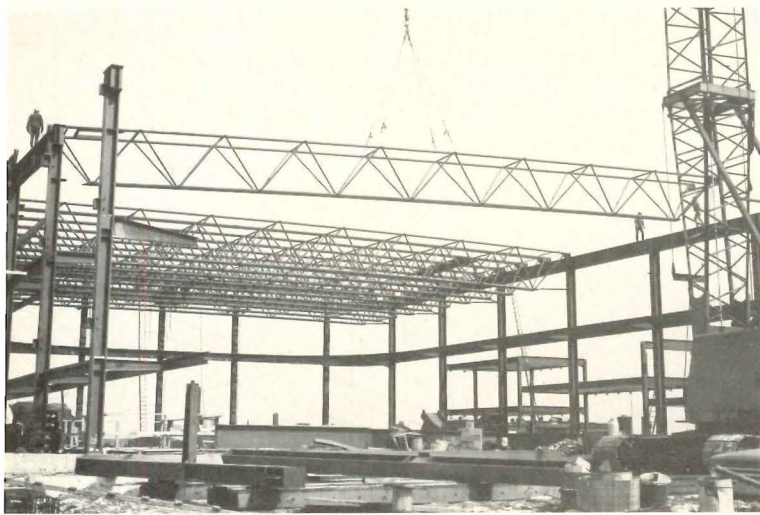
Altogether there are 46 trusses used for the gymnasium and natatorium, each of which is approximately 9 by 9 by 120 ft, and weighing about 9½ tons. The pipe ranged in size from 3-in. standard to 5-in. extra-heavy.

CLEVELAND STATE UNIVERSITY PHYSICAL EDUCATION BUILDING. Architects: *Dalton, van Dijk, Johnson & Partners*. Consultants: *Gensert Peller Associates* (structural); *Evans & Associates* (mechanical); *Eichmuller & Associates* (electrical); *William Behnke & Associates* (landscape architects). Contractor: *The Albert M. Higley Company*.

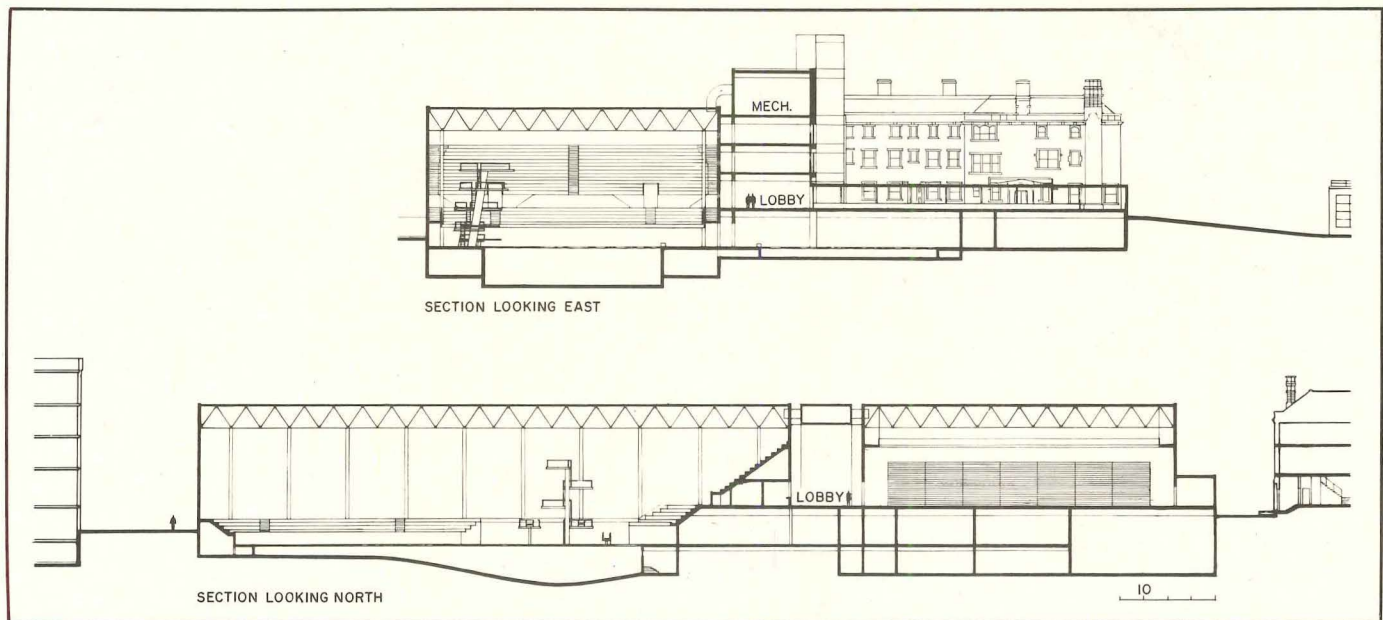
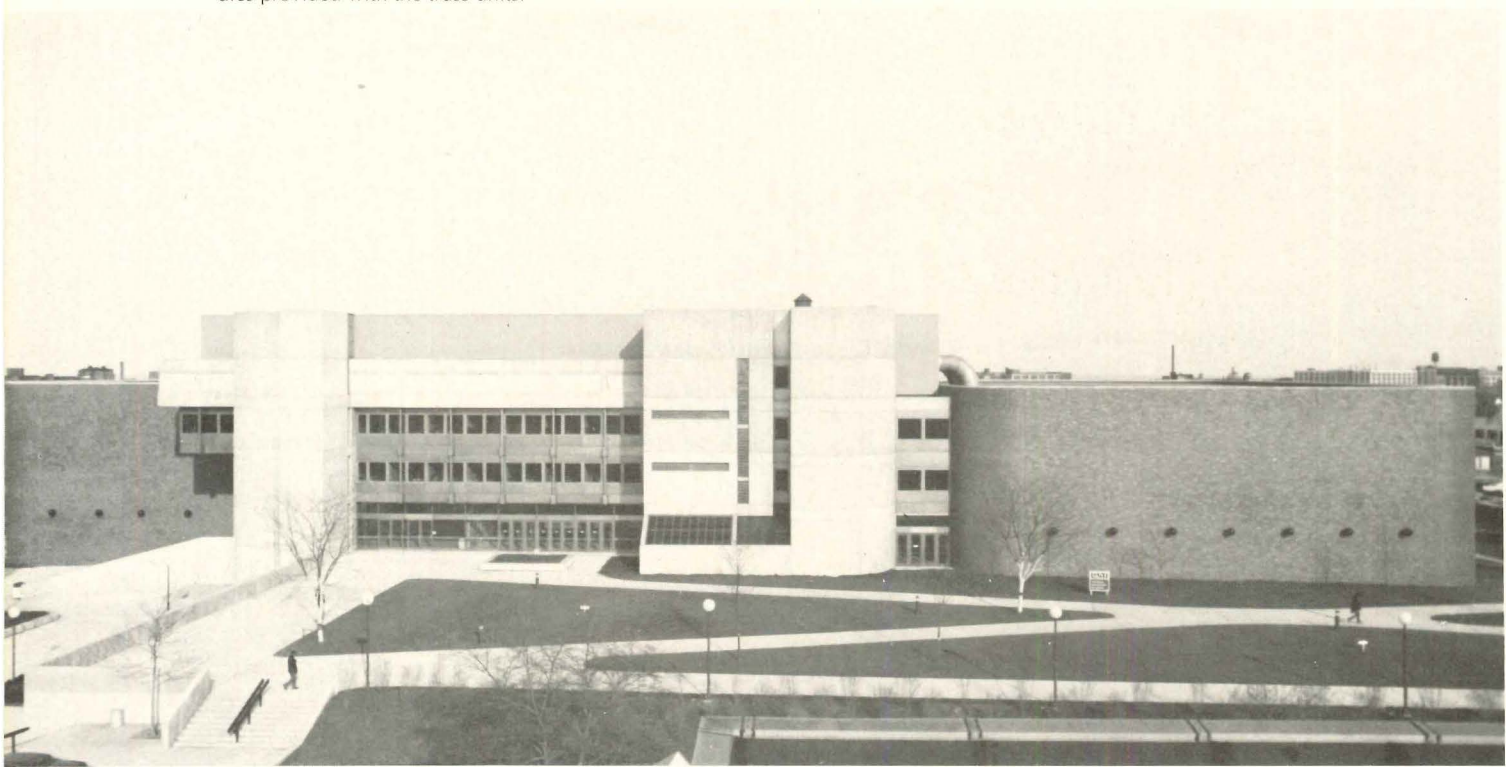


The two major spaces of Cleveland State University's physical education building, the gymnasium and the natatorium, are spanned by 120-ft steel-pipe space trusses. Because a local fabricator had automated contour pipe-cutting and welding equipment, the structural engineer could design the trusses for butt-welded joints. With this approach, neither special connectors or gusset plates were required for joining pipe elements.





The pipe space trusses were transported by the push-pull arrangement of truck tractors three miles from the fabricator's plant to the building site. Particular care was given to final assembly of the two half-sections of each truss in the plant to ensure there would be no problems with field connections to supporting beams. Trusses were connected transversely in the field by welding pipe struts to pipe saddles provided with the truss units.



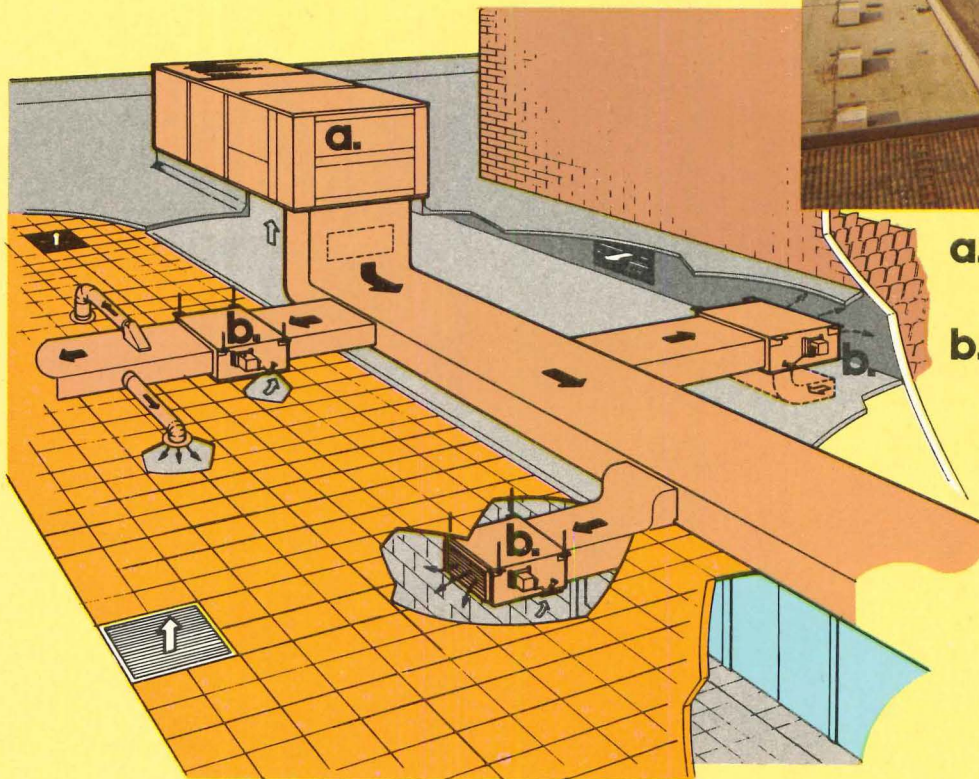
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Lennox says, "Yes," and shows you how.

The new Lennox POWER SAVER II™ concept—when used with ZDB, constant volume air blenders—is a heat reclaim/heat reject system that uses every available Btu generated inside a building for heating...and rejects unneeded Btu's during cooling...to conserve energy and save money.

"Free" heat (throw-away heat from lighting) is reclaimed and distributed to zones calling for heat.

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a. Central power supply.

b. Zone air blenders.

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The efficiencies of POWER SAVER II will actually eliminate the need for owners to amortize any additional HVAC investment. The energy savings per square foot effectively offset the cost of added ducts, dampers, exhaust fans and ventilating light fixtures. Usually, original equipment size can be reduced enough to allow up to 7%* lower first cost...with no sacrifice in comfort!

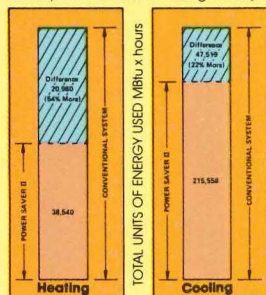
Lennox blower-powered air blenders (ZDB) give you individ-

ual zone control from a central single zone unit... with constant air volume to the space. Use them as cooling/ventilating or combination heating/cooling units. The central unit supplies conditioned air to a central supply duct. A thermostatically controlled blower-powered air blender in each zone pulls air from the duct and discharges it into the control zone. It takes only the amount of cool air needed to satisfy cooling demands—the balance of the constant volume is recirculated air.

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10,000 sq-ft. building with 3 zones. Mathematical model comparison of conventional economizer and POWER SAVER II. Kansas City, Missouri, climate: 9:00 a.m.—5:00 p.m. temperature occurrence frequency.

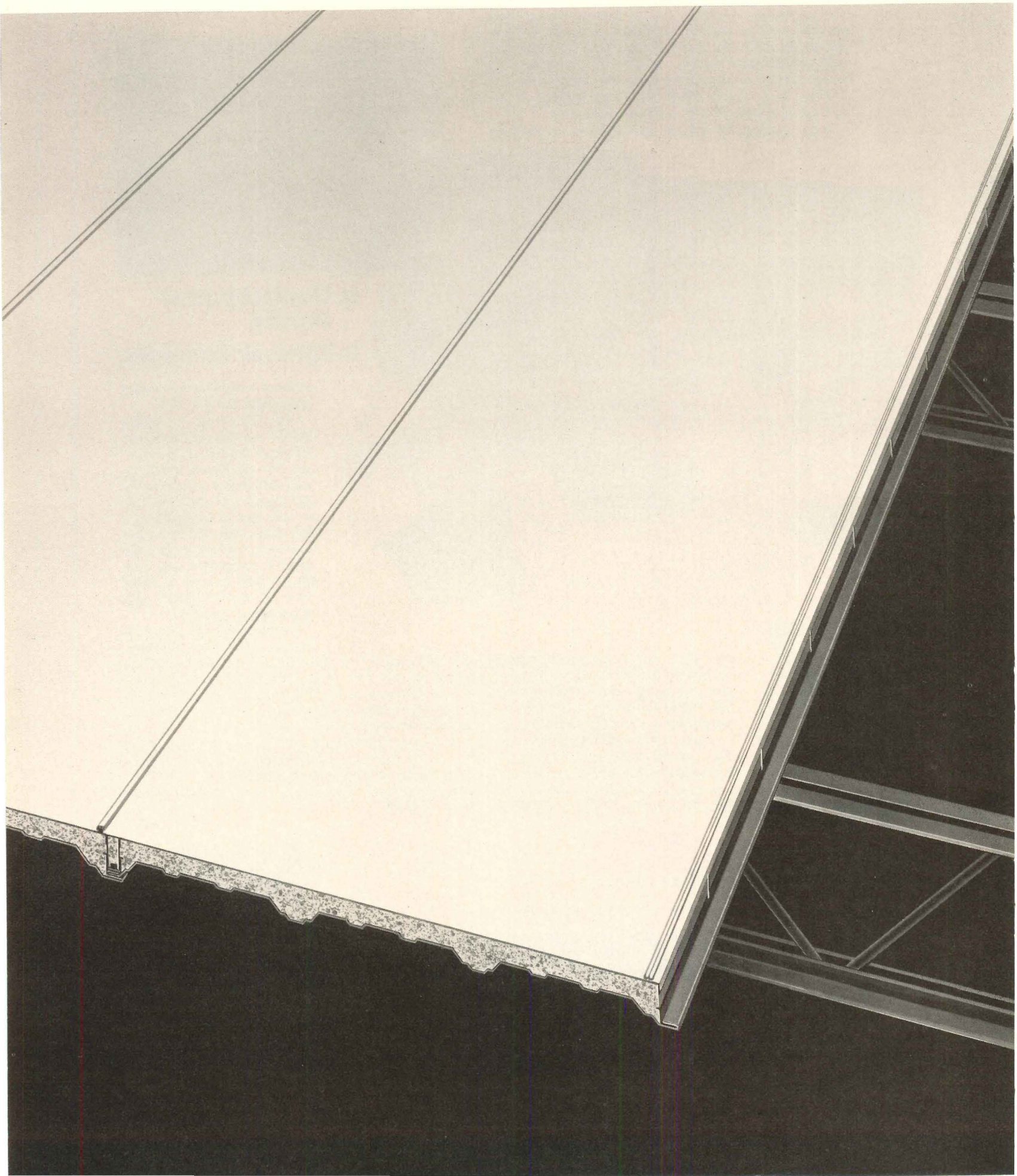
LENNOX
AIR CONDITIONING • HEATING

*Savings established on mathematical model.

Nifty problem-solving ideas from Lennox.

For more data, circle 75 on inquiry card

Introducing **PARMA**,



...the high priced roof system

Now, let us prove why it's the least expensive weather shield you can specify...or own.

What makes a roof expensive?

When it doesn't deliver the performance paid for over the period expected.

Getting down to basics, the roof performance which the building owner is paying for is protection. He is investing in an environmental shield to prevent the entry of bad weather and the exit of conditioned air. When damaging weather comes in, costs go up. When conditioned weather goes out the roof, so do costs. And, with the growing emphasis on energy conservation, protection against loss of conditioned air is becoming a predominant concern.

So it's really a case of ultimate cost, not initial price, which determines how expensive a roof may be. And, when it comes to cost, the value of the roof lies in the durability of its performance.

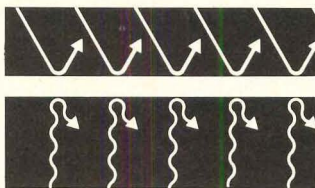
Why costs can build-up in a built-up roof system.

Because the conventional built-up roof isn't a system at all. More accurately, it's a method of field applying different roofing components... decking, insulation, membrane, flashing...in stages.



But too often, performance durability of the total roof is not achieved. Not because any of the roofing components or application techniques are necessarily faulty...but because the process of manufacturing the total roof out of its various components is done on the job site. And there are just too many uncontrollable variables in on-the-site manufacturing which can adversely affect the proper integration of the parts into durability for the whole.

You know the story, *water soaked materials...missed schedules...leaky flashing...blistering or cracking membrane...high rate of callbacks and repairs.* And then the relatively low priced roof starts getting expensive...for everybody.



How costs can stay down with the PARMA Roof.* T.M.



Because the durability of the total roof is "built-in" at the factory, not "built-up" on the job. That's right...deck, insulation, membrane and sealing mechanism for joints and flashing are heat-bonded under factory controlled conditions... and delivered to the job-site in composite panel form.

When installed to roof structurals, these composite PARMA panels integrate into a continuous, uninterrupted environmental shield over the building. Panels, joints and flashing become a single unit...bonded together with a unique dry zipper joint.

Both the weathering surface and zipper joints are made of Hypalon,** which has proven virtually impervious to all the common weather problems which threaten conventional membrane materials. And PARMA is a "dry" roof system, requiring no mastics or sealants. It can be installed faster than conventional "built-up" roof systems and in any kind of weather.

When PARMA goes down, it stays down...and so do costs. When PARMA is sealed, it stays sealed...and so does value. That is why it has been called, "the most significant roofing advancement in 50 years." Find out for yourself how the PARMA Roof system can be the best performing, least expensive environmental shield you can specify...or own.

PARMA ...All things a roof has never been before.

COMPOSITE SYSTEMS

ARO

A Division of Star Manufacturing Company
Box 94910
Oklahoma City, Oklahoma 73109

Please send me additional information on the PARMA Roof System.

Name _____

Position or Title _____

Firm Name _____

Street Address _____

City _____ State _____ Zip _____

*Patent Applied For
**Hypalon* is a Registered Trademark of E. I. duPont deNemours & Co. (Inc.)

16TH ANNUAL COM



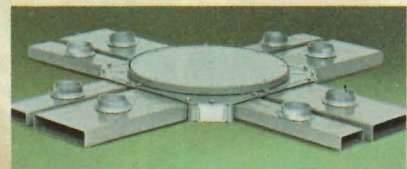
A communication problem isn't a ho-hum affair.

The communications boom isn't a bunch of boring statistics. Fact is, it's more phones and more new equipment than you ever dreamed of. With wires meeting all over the place. So don't get caught

napping. Put a Walkerdut Underfloor System in your building specs. It will help keep the income from dropping off.

By running all the communication, power and signal requirements under the floor inside Walkerdut, 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 floor. Without spending a small fortune.

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



walkerdut[®]
WALKER / PARKERSBURG
A **textron** Company

Alcoa EZ Wall. A vertically textured facing that adds zest to wall surfaces.

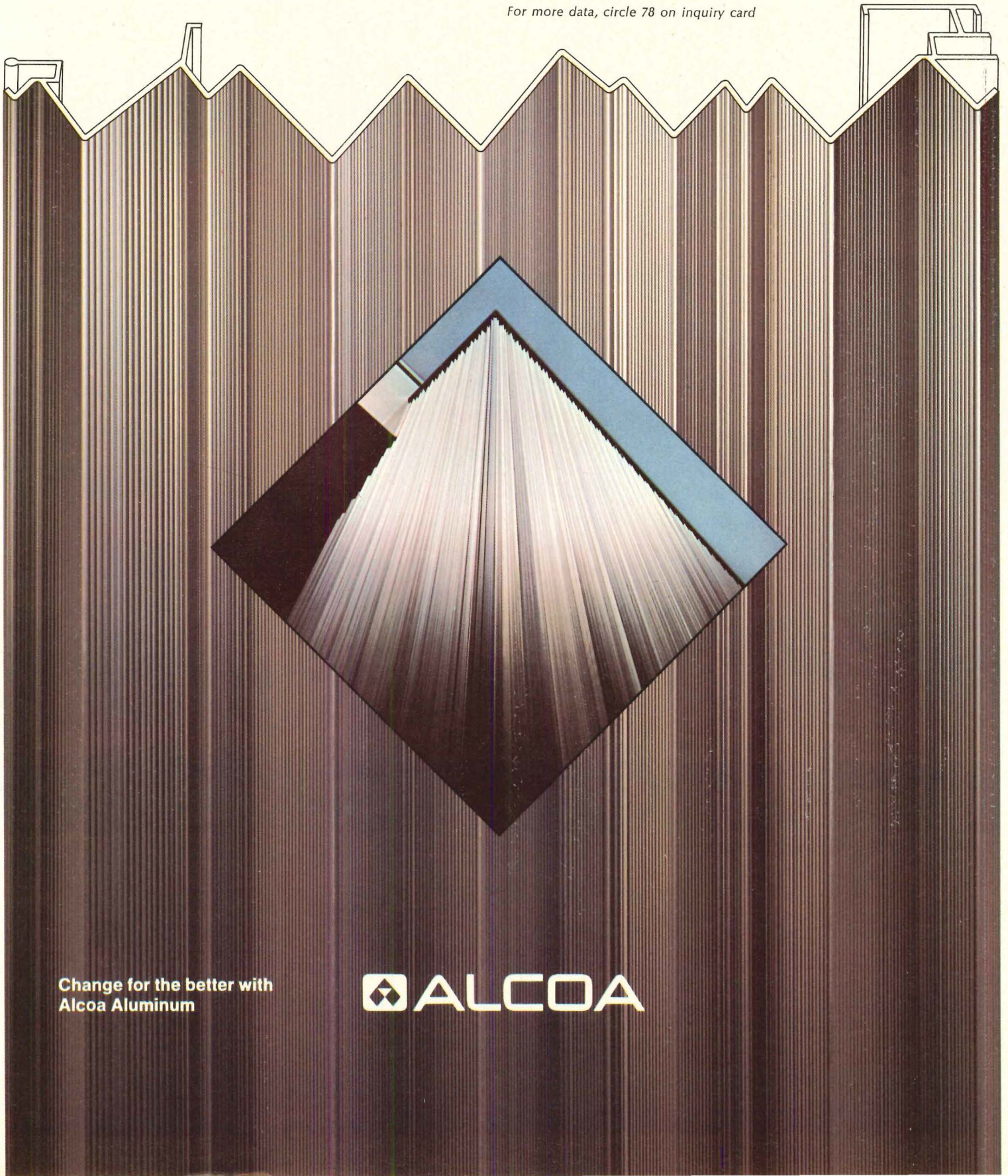
The basic unit is a 12-in. striated aluminum extrusion. But there's no stereotype, no standard effect of these ribbed planks. Do you want a random effect? Alcoa® EZ Wall achieves it for you on fascia, interior wall decor, spandrels, column covers, or as curtainwall facing. If you seek a highly disciplined pattern, EZ Wall can achieve that, too, depending on the modular mix of components and colors chosen by the designer. The point is, it's individual. Re-

strained or free. A modular surface that goes with you. Complements surrounding architecture. Enhances the vertical dimension of the building. Available in Alumilite* finish, Duranodic* bronze tones, or the brighter palette of Super Alomalure® colors. And, surprisingly low in installed cost.

For detailed information, send for our EZ Wall brochure. Write to Aluminum Company of America, 1035-K Alcoa Building, Pittsburgh, PA 15219.

*Trade Name

For more data, circle 78 on inquiry card



Change for the better with
Alcoa Aluminum

 **ALCOA**

PlanScape® Screens

choice of people who care!



PlanScape Installation at Ethan Allen, Inc., Danbury, Conn.

You believe that anything worth doing is worth doing right, and that the time you spend being selective is time well spent. You don't want something that's second best; you appreciate real quality and won't settle for less. You're the kind of person we had in mind when we designed our system of acoustical office screens. We think you'll like what you see when you take a close look at our PlanScape Screens. Please write for our full color brochure.

VOGEL·PETERSON CO.
DEPT.515, ELMHURST, ILLINOIS 60126

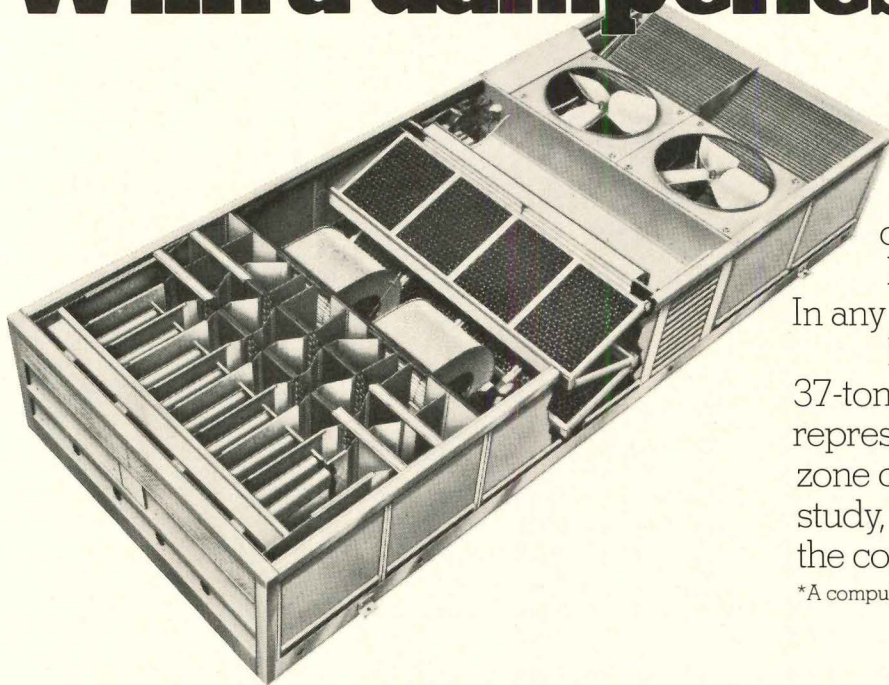
THE MERCHANDISE MART, SPACE 1689, CHICAGO

NEW YORK SHOWROOM, 205 LEXINGTON AVENUE

For more data, circle 79 on inquiry card

**Atlanta, Boston, Charleston,
Chicago, Dallas, Denver,
Kansas City, Los Angeles,
Minneapolis, New Orleans,
Phoenix, Portland, Spokane,
and Washington, D.C.
can save more energy.**

With a damperless multizone.



energy-wasting hot and cold air mixing, as well as the tricky and troublesome dampers.

Plan on it for your next low-rise design.

In any city.

For details on all six of our 15-through-37-ton Modular Multizones, see your Carrier representative. For details on our 14-city multizone comparison study, send in the coupon.

*A computer simulation.

Number One
Air Conditioning
Maker

Carrier



Division of Carrier Corporation

A six-month study* completed this year, compared the energy usage of the Carrier Modular Multizone with the three other most widely-used multizone units. All under *year-round* climate conditions in 14 cities.

Conclusion: The Carrier Multizone is the lowest energy-consuming multizone air conditioning unit on the roof today.

Because it's the only damperless multizone you can specify. Has a separate cooling coil and heating element for each zone. Eliminates the

Carrier Air Conditioning Division
Dept. AR
Syracuse, N.Y. 13201

Please send me my free copy of the 14-city multizone comparison study.

Name _____

Title _____

Company _____

City _____ State _____ Zip _____

Redwood.

Here today. Here tomorrow.

On and on they stretch...the redwood forests of California...an infinitely renewable resource for today and tomorrow.

The redwood industry begins its second century with its commercial forests in a full cycle of growth...from vigorous seedlings through healthy young trees to harvest-ready stands of timber.

Unpredictable market conditions may create temporary shortages. But the architect can count on long-term availability of redwood lumber. Just as he can count on long-term recognition and counsel from the redwood industry.

Our publication, REDWOOD NEWS, for example, has been a showcase for noteworthy redwood architecture and design for twenty-five years. You'll find the current issue facing this message.

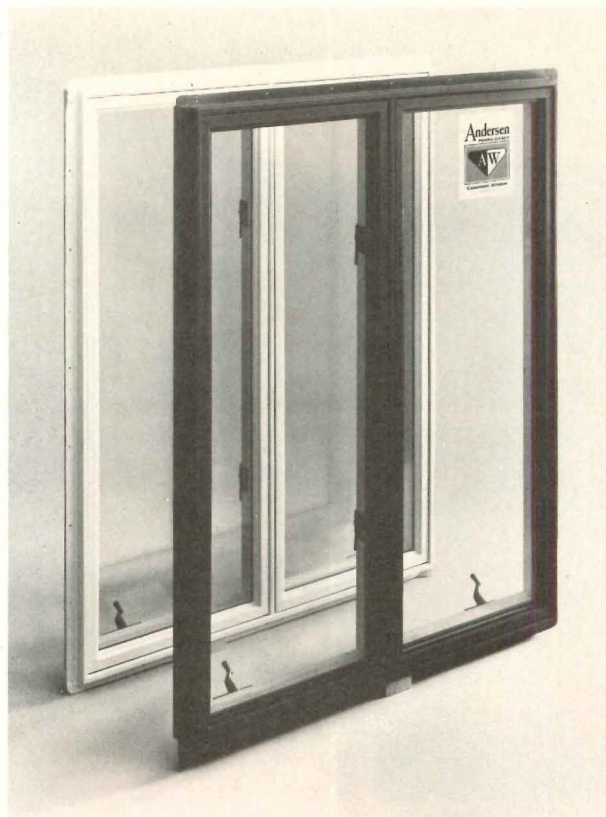


CALIFORNIA
REDWOOD

ASSOCIATION 617 Montgomery Street, San Francisco, California 94111.

For more data, circle 80 on inquiry card

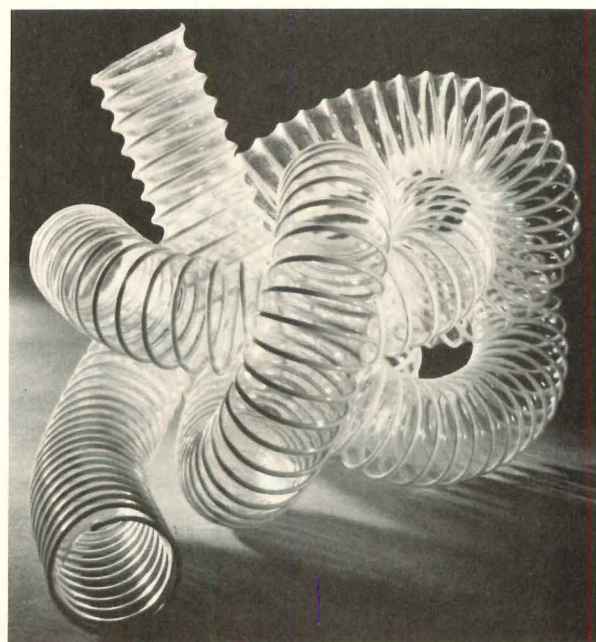
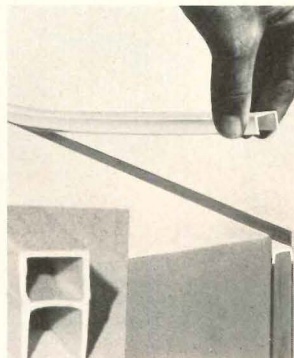
For more information, circle item numbers on
Readers Service Inquiry Card, pages 213-214



Plastic expansion joint cap

This removable plastic expansion joint cap provides a uniform, straight 1/2 by 1/2 in. groove for joint sealing compound in concrete slab construction. It slips over the edge of the expansion joint material, eliminates the need for joint backer rods, and remains in place throughout pouring and finishing. The upper half is said to strip off in seconds. ■ Concrete Tie, Compton, Cal.

Circle 302 on inquiry card



Clear plastic wire-reinforced hose announced

The company suggests decorative applications for the product in addition to its present application as a vehicle for low pressure air movement. Hoses are available in diameters ranging from 5/8 to 2 1/2 in., in lengths up to 250 ft. ■ Dayco Corp., Dayton, Ohio.

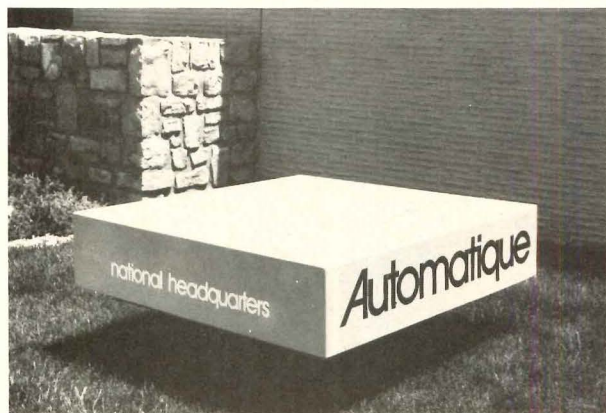
Circle 303 on inquiry card

Earthtone color introduced to window line

The new color is being added to the company's Perma-Shield casement and awning window units. Up until now, the windows have been available in white only. The line features

rigid-vinyl cladding over preservative-treated wood core sash and frames. Double-pane insulating glass is standard. ■ Andersen Corp., Bayport, Minn.

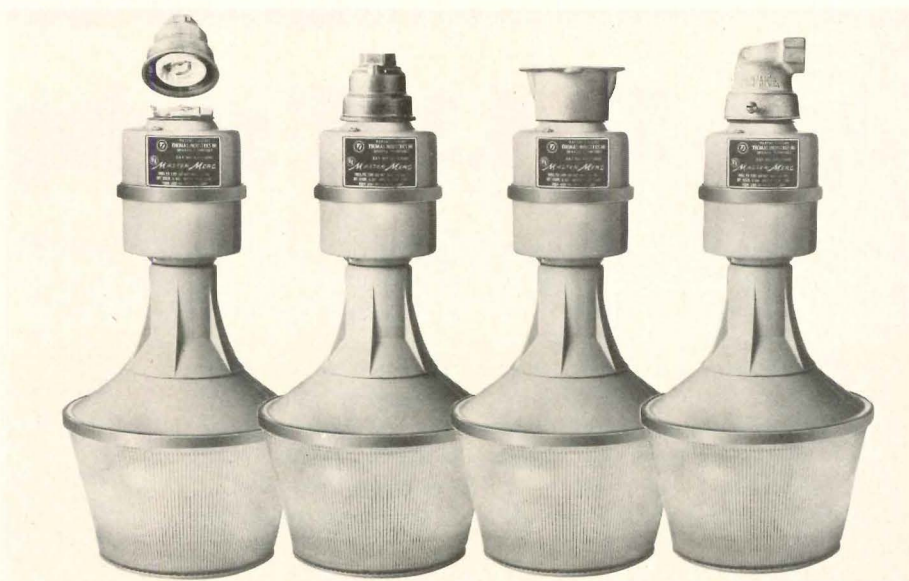
Circle 300 on inquiry card



Exterior signage offered on molded fiberglass

Signage and graphics can be permanently engraved in custom molded fiberglass forms, according to the company. The process is said to offer complete design flexibility. ■ Best Mfg. Co., Kansas City, Mo.

Circle 301 on inquiry card



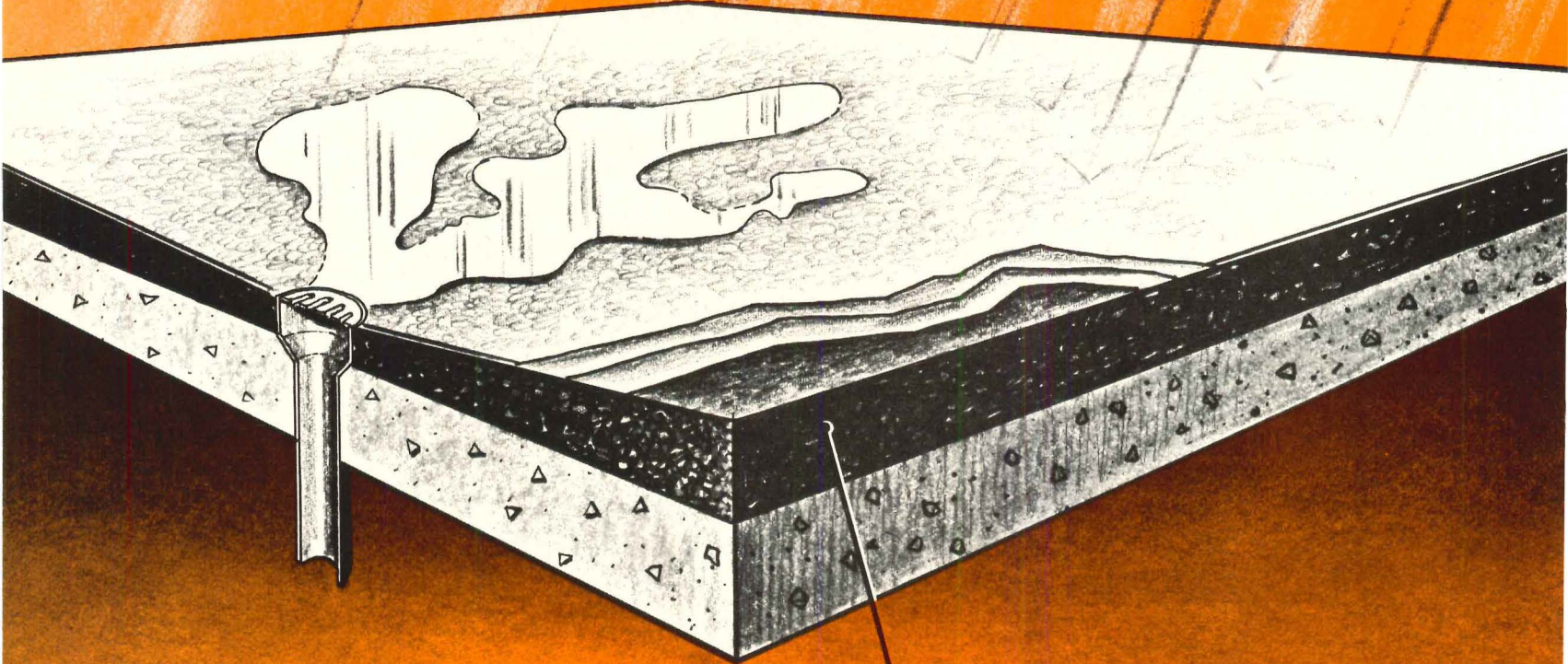
Vandalproof mercury vapor fixture converts incandescent lighting

For converting incandescent to mercury lighting without rewiring, this line of luminaires features enclosed Lexan lens and cast aluminum components. One 175-watt mercury vapor unit is said to give 100 per cent more illumination than a 200-

watt incandescent unit. Each unit is pre-wired. Master-Merc units are said to use lamps with 24,000 hours of average life. ■ Thomas Industries, Inc., Sparta, Tenn.

Circle 304 on inquiry card
more products on page 167

the roof deck that conserves energy!



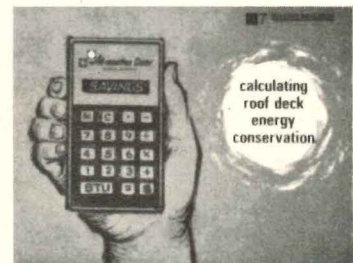
 **All-weather Crete**[®]
INSULATION

Up to \$134,340* savings in 20 years!

Even though the dollar and thermal savings for every building are different, similar dramatic savings are achieved on every All-weather Crete insulated building. It's important! Many owners are now requesting architects to figure costs for the construction process and also costs on yearly operation. All-weather Crete not only provides exceptional fuel/energy savings, but the added thickness provides positive slope to drains. It is also completely seamless — it is applied dry and it transmits vapors. These are all aids to longer roof life.

*This represents the total 20 year savings when using 4" of All-weather Crete in lieu of 1" of rigid or 2" of wet-poured insulation on a 50,000 sq. ft. deck. Therms saved - 288,400; KW/Hrs. saved - 890,000. These figures were taken from an engineering study developed by a professional engineer at a prominent university. Source available upon request.

Figure the thermal and cost savings on your next job. Compare insulations. Do this with the technical workbook, "Calculating Roof Deck Energy Conservation". It's free to architects and engineers. Contact Silbrico Corporation.



 **SILBRICO**
CORPORATION

6300 River Road, Hodgkins, Illinois 60525, (312) 735-3322

For more data, circle 81 on inquiry card

For more information, circle numbers on
Readers Service Inquiry Card pages 213-214.



Stop noise from leaping over sound-rated walls with ACOUSTILEAD®

Even sound-rated walls won't keep an office quiet unless you plug the leak in the plenum barrier—the space between a hung ceiling and the slab above. All it takes is a curtain of Acoustilead— $\frac{3}{64}$ " thick sheet lead.

Nothing else stifles noise so effectively with so little weight or thickness. Acoustilead doesn't just strain noise like porous materials. It stops noise effectively because it's limp and dense.

Acoustilead is easy to install. Cuts with scissors or knife. Crimps around ducts and vents for an airtight seal.

For our how-to booklet on plenum barriers, or the name of an Acoustilead distributor near you, write Sound Attenuation Department, Asarco, 120 Broadway, New York, New York 10005.

75 Years of Progress in Metals

ASARCO⁷⁵

American Smelting and Refining Company
FEDERATED METALS DIVISION

For more data, circle 82 on inquiry card

FLOATING STRUCTURES / Industrial and recreational uses for floating structures are described and illustrated in a 12-page "Flotation Planning Guide." Applications shown are floating marinas, pipelines, docks, floating amphitheatres, sewage waste pump-out modules, soil erosion curtains, oil and trash skimmers (diversion and containment booms), dredgeline floats, plug work floats and pump platforms. ■ United Flotation Systems, Columbus, Ohio.

Circle 401 on inquiry card

POOL FINISHING / A six-page brochure on the waterproofing and finishing of concrete masonry or gunited swimming pools tells how to prepare the surface for a finish coat, gives waterproofing techniques, and outlines finishing systems. ■ Standard Dry Wall Products, Miami, Fla.

Circle 402 on inquiry card

FINNISH SAUNA / This 400-page book deals with the genuine sauna: what it is, what it does, how it is constructed, and how it is used. The authors have considered the recommendations of the Association of Finnish Architects and the book is factual, regarding the sauna technique, both the architectural and thermal techniques. Included in the table of contents are: origins and ritual; sauna room materials; design and construction; heating, siting, layout and ancillary facilities; and prefabricated sauna and buyers' guide. Price: \$15.95. ■ Halsted Press Div., John Wiley & Sons, Inc., New York City.

Circle 403 on inquiry card

SPECIAL-PURPOSE ENCLOSURES / An 8-page illustrated catalog covering environmental enclosures manufactured for X-ray, nuclear, and radio-frequency applications includes performance test data and a special section on built-in enclosures; custom designs, RF accessories, penetrations, filters and ventilation. Rayproof protection against X-rays through panels, walls, doors, floors and ceilings as well as gamma-ray shielding in hospitals and industrial structures is also covered. ■ Keene Corp., Norwalk, Conn.

Circle 404 on inquiry card

ALUMINUM POOLS / An eight-page brochure discusses aluminum olympic, rooftop, therapy and reflecting pools. It also provides information on pool liners and bulkheads, and features a section on pool specifications, with photos and detail drawings. ■ Overly Mfg. Co., Greensburg, Pa.

Circle 405 on inquiry card

MATERIAL HANDLING / A 12-page catalog features material handling equipment, with specifications and buying information on manually propelled lift trucks, elevating tables, and drum handling equipment. ■ Economy Engineering Co., Bensenville, Ill.

Circle 406 on inquiry card

VERTICAL CONVEYORS / Selective vertical conveyors for transporting information, communications and materials from any floor in multi-storied structures are described in this brochure. Up to 60-lb loads can be carried at a rate of up to 20,000 lbs/hr. Features include visual monitoring of all functions from a master control panel; independent power units at each floor which eliminate load-unload strain on the chain and drive; and automatic alignment of pivoted carriers to prevent spillage from containers. The brochure shows typical system layouts and provides installation requirements, operating capacities, and specifications. ■ American Chain & Cable Co., Inc., Bridgeport, Conn.

Circle 407 on inquiry card

UNIT LOAD HANDLING / Unit load handling live-roller air-controlled accumulation conveyors and a complete line including gravity conveyors, powered roller and chain conveyors, powered curves, turns, and transfers, vertical conveyors, flow rack, and a range of accessories are described in this brochure. ■ Rapistan Inc., Grand Rapids, Mich.

Circle 408 on inquiry card

HYDRAULIC ELEVATORS / Unlike cable elevators, the company's hydraulic does not need a hoisting machine, supporting beams, sheaves and other equipment located above the car. Overhead clearances are kept minimum, and a penthouse is not required. The elevator car is said to be solidly supported and precisely controlled at all times for smooth up and down travel. A bulletin giving information on the characteristics of these elevators is available. ■ Reliance Electric Co., Toledo, Ohio.

Circle 409 on inquiry card

PRESSURE SEWER SYSTEM / Intended for use by municipalities; rural, suburban and resort communities; motels, trailer courts, etc., the manual outlines conditions which must be considered in system planning, construction and operation. Among subjects discussed are design flow line sizing, friction losses, scouring velocity; line alignment, burial and slope; system pressures, power supply, controls, appurtenances and system maintenance. All data are in a form which can be included in engineering specifications, according to the company. ■ Hydr-O-Matic Pump Div., Hydr-O-Matic Pump Co., Inc., Ashland, Ohio.

Circle 410 on inquiry card

ROOFTOP AC / Designed to conserve electrical energy, units are said to provide power requirement economies ranging from 20 to 29 per cent, depending upon tonnage capacities. All major components are contained within a galvanized steel cabinet internally supported with heavy, angle-steel structure. All steel frame and cabinet components exposed to condenser air and water flow are covered with insulating plastic to prevent corrosion. Self-cleaning spray nozzles are used throughout. A six-page technical brochure containing detailed information on sizes, capacities, specifications and cost-of-operation comparisons is available. ■ Governair Corp., Oklahoma City, Okla.

Circle 411 on inquiry card

STORAGE WATER HEATER / Standard oil-fired and gas-fired water heaters, plus a gas-oil fired unit are discussed in this brochure. Dimensional and capacity data are provided for all three types of units, which offer recovery capacities from 375-2100 gph and storage capacities from 310-4000 gallons. ■ Patterson-Kelley Co., E. Stroudsburg, Pa.

Circle 412 on inquiry card

ELECTRIC HOT WATER BOILERS / A six-page bulletin describes applications, construction and specification details with selection format for engineers, contractors and owners. ■ Brasch Mfg. Co., Inc., Maryland Hts., Mo.

Circle 413 on inquiry card

ROOFTOP UNITS / A six-page brochure describes the Series 301 single package year-round rooftop heating/cooling units. In addition to a description of commercial application features, the brochure includes cooling and blower performance, and dimensional and physical data for specification purposes. ■ International Heating & Air Conditioning Div., Weil-McLain Co., Inc., Utica, N.Y.

Circle 414 on inquiry card
more literature on page 176

Vertical casings

A Clark exclusive that makes our doors an even better value.

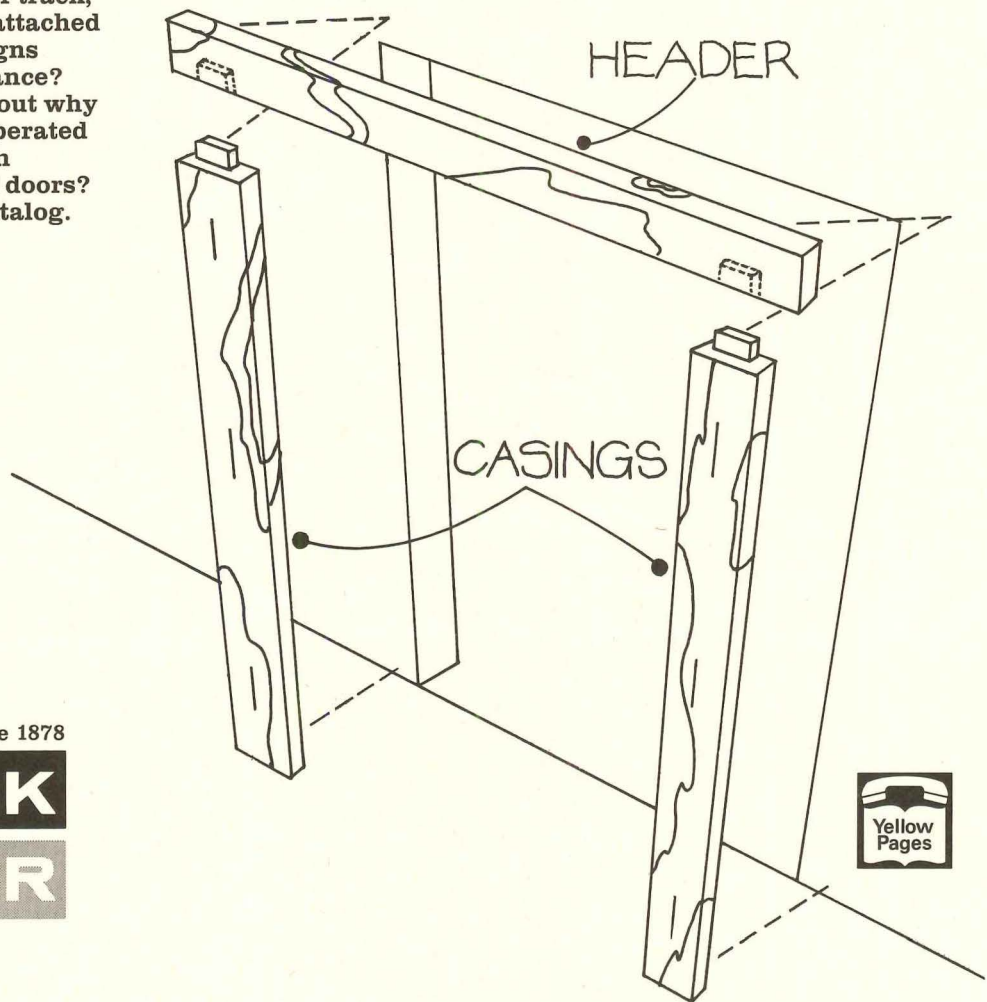
Because a Clark Door is hung on a header supported by pre-drilled vertical casings, it goes up quickly and properly. Job-fitting is eliminated. And because the casings create a smooth, level plane for door closure, they assure an all-around tight seal while preventing the door from dragging against the wall.

Perhaps even more important, vertical casings relieve the wall of most of the weight of the door and operator.

But the casings and header aren't our only exclusive advantages. Who else ships doors with all hardware already installed? Who else supplies drive track, door track, and power operator already attached to the header? Who else designs doors for minimum maintenance?

Isn't it time you found out why Clark's manual and power-operated designs are your best value in industrial, fire, and insulated doors?

Write today for free catalog.



Doorway specialists since 1878



69 Myrtle Street
Cranford, N. J. 07016
(201) 272-5100 Telex 13-8268

"See us in Section 8, Sweet's Catalog."

For more data, circle 83 on inquiry card

To Copy Is Human. To Create Is Thonet.

If there is one category of contract furniture which, at its very mention, identifies a source ---it's bentwood. And Thonet.

Small wonder. History documents the reason.

Michael Thonet created the first bentwood chair in 1840. He also perfected the process by which bentwood furniture could be produced in volume. And we've been using the same techniques ever since. In fact, no other company has been bending wood for furniture for so long.

Ever since the World's Fair in London in 1851, Thonet's been receiving prizes for its bentwood designs. And you can see many bentwood classics by Thonet in museums around the world.

Or at Thonet Centers of Design in New York, Chicago, Los Angeles and Dallas. Is it any wonder that we say---to copy is human. To create is Thonet.

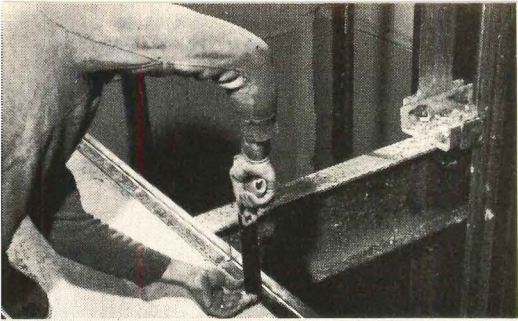
Thonet Industries, Inc., 491 East Princess Street, York, Pa. 17405 Telephone: (717) 845-6666.

THONET
CENTER OF DESIGN



For more data, circle 84 on inquiry card





1. Installing floor track.

Here's why G-P Shaft Liner is saving time, and money, for architects and many building owners, operators, and specifiers. First, solid gypsumboard Shaft Liner is much lighter than masonry. So it's easier to handle. And no scaffolding is needed: Shaft Liner installs from the shaft exterior. Shaft Liner is non-progressive. A panel can be

replaced at any time before the face layers are applied. There's a minimum of clean-up with Shaft Liner. Finally, it can be spliced and still meet all fire codes.

Georgia-Pacific has 11 systems designed to meet any of your



2. Installing core panel.

code requirements. All are UL labeled. So, if you're figuring specs for elevator shafts, stairs,



3. Attaching core to T-spline.

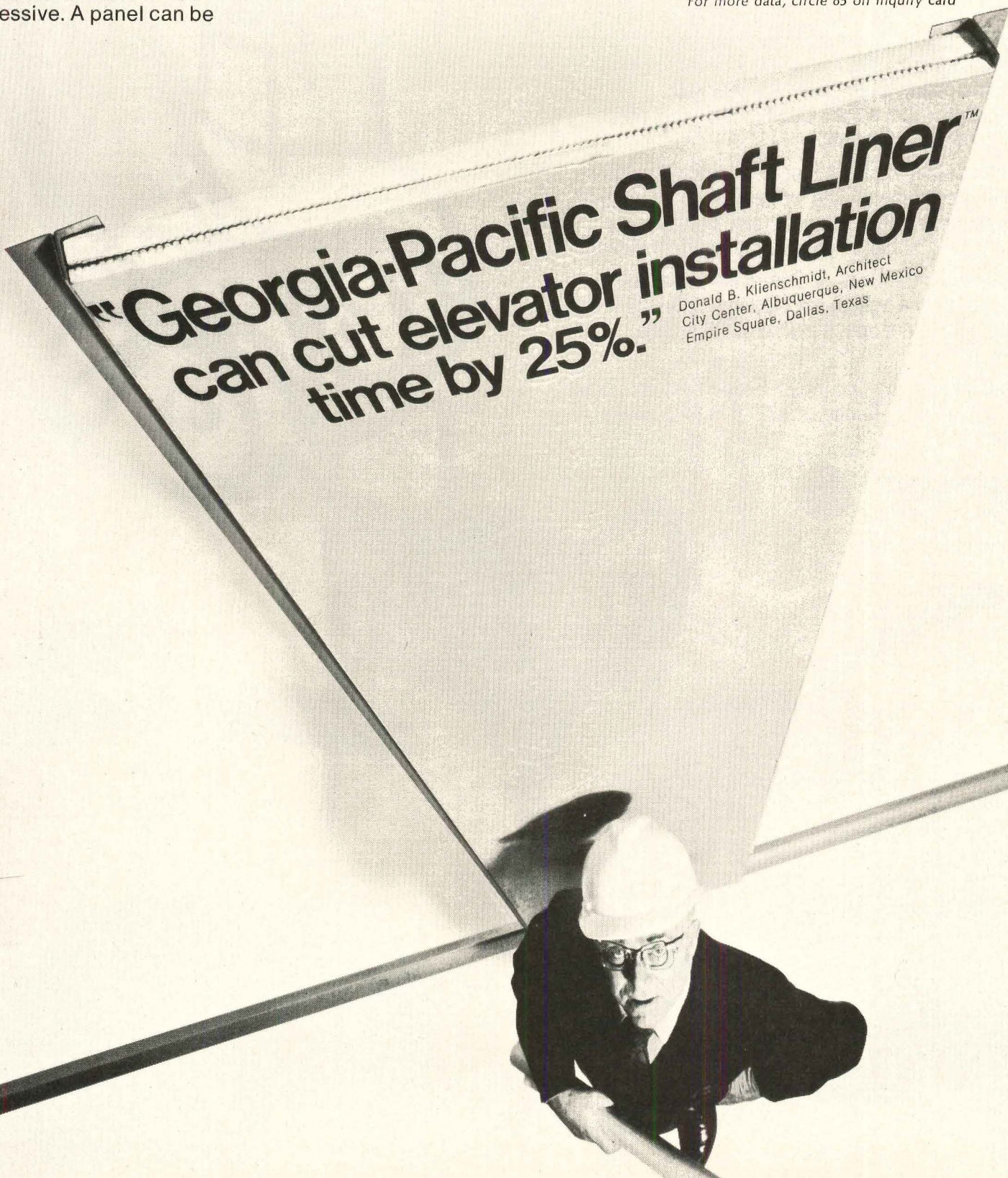
4. Applying finish layers.

smoke towers, or air ducts, take time to look into G-P Shaft Liner. Spend a few minutes now, and you can save months on the job. Call your G-P representative for details or look in the G-P catalog in your Sweet's file.

Georgia-Pacific



Gypsum Division Portland, Oregon 97204
For more data, circle 85 on inquiry card



Georgia-Pacific Shaft Liner™
can cut elevator installation
time by 25%.

Donald B. Klienschmidt, Architect
City Center, Albuquerque, New Mexico
Empire Square, Dallas, Texas

HIGH CAPACITY AIR HANDLING / Systems may be designed for simple heating and ventilating or for complete air conditioning in "draw-thru," "blow-thru," single duct, dual duct or multi-zone types. Available components are mounted on a welded tubular steel framework, and shipped ready for installation. ■ Buffalo Forge Co., Buffalo, N.Y.

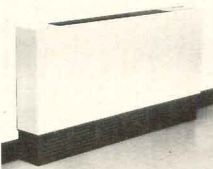
Circle 305 on inquiry card

WORKER ORIENTED HVAC / **FACTAIR** provides for the ducting and independent regulation of pre-conditioned air—either cooled or heated—to individual industrial work stations. The system outlet is fabricated of galvanized steel for duct sizes 4 through 12 in. ■ United Sheet Metal Div., United McGill Corp., Westerville, Ohio.



Circle 306 on inquiry card

THERMAL AIR CONDITIONERS / Packaged "hydronic" terminal air conditioners utilizing hot water or steam as the heat source, feature heating capacities ranging from 17,500 to 22,000 Btuh and cooling capacities of 8,500-11,500 Btuh at 230/208-volts. ■ Air Conditioning Contract Products, General Electric Co., Louisville, Ky.



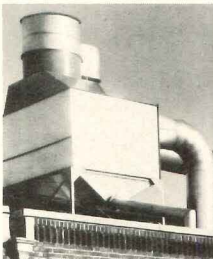
Circle 307 on inquiry card

OFFICE CHAIRS / Improved seating comfort for the office worker is offered as a result of a design that uses components of different sizes that conform to the individual human body. There are seven basic models, three armed and four armless, in three basic sizes that expand into nearly 700 different chairs. ■ Westinghouse Electric Corp., Architectural Systems Dept., Grand Rapids, Mich.



Circle 308 on inquiry card

AIR WASHER / The *Mistair* was developed from a lint collector line of equipment which has been used in laundries and textile plants. The air washer uses a wet spray principle to capture particles and convert them into a non-flammable mass. ■ ECI Air-Flyte Corp., Fairfield, N.J.

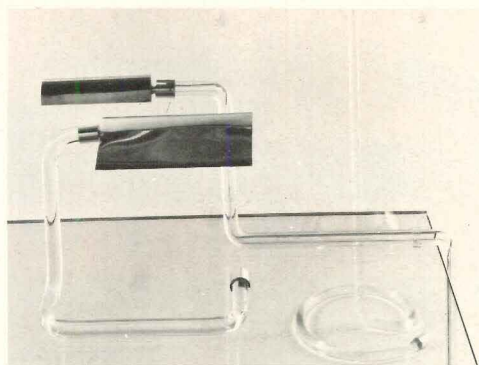


Circle 309 on inquiry card

CENTRAL AIR CONDITIONER / Model TA930E with coil XA942A has a cooling capacity of 32,000 Btuh and produces 10 BTUs of cooling for each watt of electricity it consumes. It features a two-speed automatic fan. ■ Central Air Conditioning Product Dept., General Electric Co., Louisville, Ky.

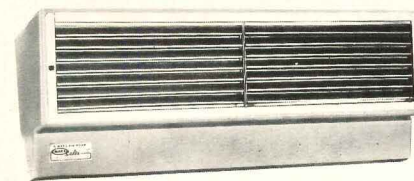


Circle 310 on inquiry card



DECORATIVE LAMPS / A new collection of desk and floor lamps, designed for homes and offices, uses patented clear acrylic tubing, which contains concealed wiring. ■ Knoll International, New York City.

Circle 311 on inquiry card



AIR DOORS / The air doors may be used singly or in multiples. They contain velocity and directional controls. Heavy duty motors are resilient mounted and protected by an automatic thermal overload switch. The compact design makes it possible to easily mount the units over all doorways. ■ Mars Sales Co., El Segundo, Cal.

Circle 312 on inquiry card

more products on page 169



"It is amazing the time that can be saved"

Mr. Joe Blanton, President, Publix Super Markets, Inc.

Prestressed concrete was the time-saver.

Publix' new 230,000 square foot warehouse in Jacksonville, Florida, was originally planned to be a steel frame and concrete block structure. But they switched to stressed concrete because space was needed quickly. The property was purchased in July, 1973 and by April, 1974, goods were being stacked on brand new shelves.

Mr. Blanton had some other nice things to

say about prestress . . . "We saved on labor costs. And, a big saving in maintenance because we will not have to paint or stucco the building."

Yes, "time is money"; and, Publix new paper recycling plant at Lakeland . . . their warehouse expansion in Miami, both will use prestressed concrete.

Prestressed concrete — rustproof, pestproof, erosion proof and an excellent fire-rating.



Florida Wire and Cable Company

P. O. Box 6835, Jacksonville, Florida 32205

MEMBER: PRESTRESSED CONCRETE INSTITUTE

For more data, circle 86 on inquiry card

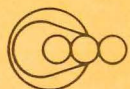
DOUBLE IMAGE



Flawless: No surface-mounted controls jeopardize the appearance of these striking double doors . . . tempt vandals, present housekeeping problems.

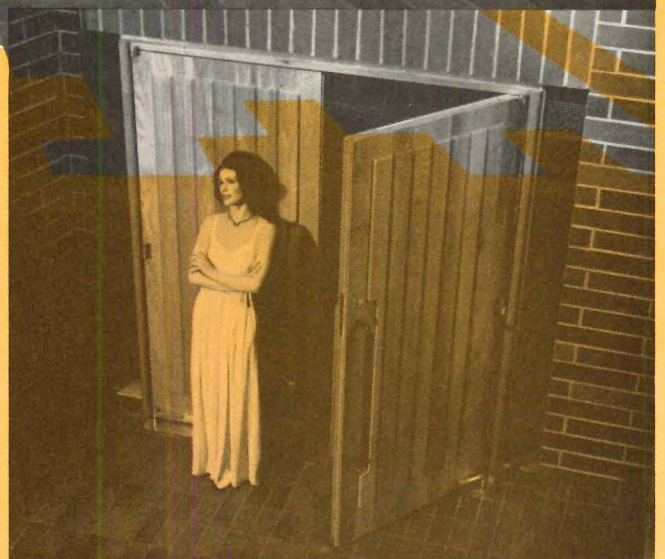
Here*, concealed under floor tile, reliable control is provided by easy-maintenance Rixson No. 510 Series closers.

From the specialists in concealed door control:



RIXSON-FIREMARK, INC.

9100 W. Belmont Ave.
Franklin Park, IL 60131
In Canada: Rixson-Firemark (Can.) Ltd.



*Provincial Judges Court, Calgary, Alberta, Alberta Public Works Ministry
J. W. Long & Associates, Planners & Architects
Western Canada Hardware Ltd., Contract Hardware

RECESSED DOWNLIGHTS / Recessed incandescent fixtures are available in 45-degree open aperture models (ellipsoidal and downlight); door-and-frame enclosed squares, and door-and-frame enclosed rounds. Open units may have aluminum baffles with clear or black finish. ■ Keene Lighting, Denver, Colo.

Circle 313 on inquiry card

POWER MONITOR / Designed to control energy consumption in schools, monitor governs maximum power use according to predetermined priorities, automatically shedding load in noncritical areas in case of overload. Standard model can be furnished for four or eight sheddable loads. ■ MKM Corp., Chagrin Falls, Ohio.

Circle 314 on inquiry card

OUTDOOR LIGHTING / Available in aluminum or cast bronze, watertight luminaire can be sunk in earth or in any paving material; anti-siphon barriers exclude moisture entering from conduit. Fixture accepts incandescent lamps to 500 watts, mercury lamps to 175 watts, or 12-volt pencil beam lamps. ■ Kim Lighting, Inc., Industry, Cal.

Circle 315 on inquiry card

COMBINATION LOCK SWITCH / To prevent unauthorized access to power switches, lock switch must be operated by four-digit or seven-digit combination. Standard model is inactivated by pressing clearing bar; automatic model inactivates itself after predetermined lapse of time. ■ Presomatic Lock Co., Inc., Ft. Pierce, Fla.

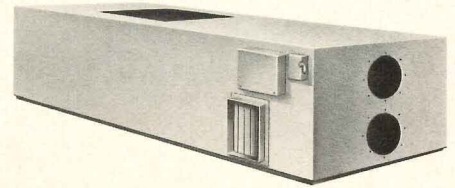
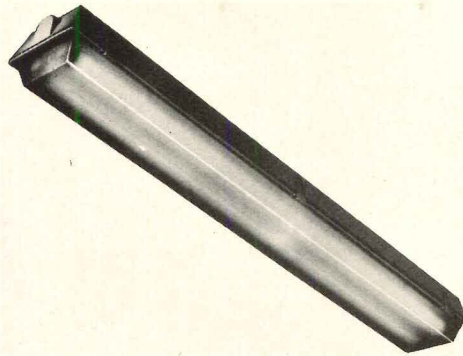
Circle 316 on inquiry card

COMPACT DIMMER / The application of thick-film microcircuitry reduces the depth of the new *Trimatron* dimmer to 25/32 in. Designed to fit standard single gang switch boxes, the 600-watt dimmers can also be ganged in any combination using standard wall plates. UL listed. ■ Leviton Manufacturing Co., Inc., Little Neck, N.Y.

Circle 317 on inquiry card

FLOOR BOX / Fully adjustable stamped steel floor boxes accept a flush duplex receptacle. Available in depths of 1½ in. and 2½ in., the boxes are welded to a flat steel leveling plate. ■ Midland-Ross Corp., Pittsburgh, Pa.

Circle 318 on inquiry card



SEALED FIXTURE / Designed for environments of high humidity, enclosed, gasketed fixtures have clear acrylic diffusers, nylon latches, and chassis molded of impact-resistant plastic. ■ American Louver Co., Skokie, Ill.

Circle 319 on inquiry card

PACKAGED HEAT RECOVERY / The *Thermotran* is pre-engineered and packaged for minimum on-site installation work; it will recover up to 75 per cent of otherwise wasted heat energy from building or exhaust air systems, according to the company. ■ Industrial Air Inc., Amelia, Ohio.

Circle 320 on inquiry card

more products on page 171

the features, the safety, the control, essential in Apartment Buildings

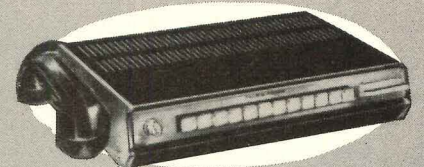
1 or 2 talking circuits
1 or 2 door opener buttons

TALK-A-PHONE INTERCOM

Provides instant and direct 2-way conversation between any Apartment and Vestibule . . . Greater Performance with Exclusive Talk-A-Phone Features:
• Ample Volume—Whispers, shouts and normal voice are heard clearly without "boom" • Automatic Privacy—On all Apartment Units • Volume Selector—Each Apartment selects own volume. Concealed yet easily accessible • Built-in Buzzer—Pleasant sound, in each Apartment Unit • With one or two independent talking circuits and one or two independent door opener buttons.

Distinctively styled. Quality Engineered. Built to withstand continuous use.

TALK-A-PHONE . . . the accepted symbol of quality and dependability in Intercommunication for over a third-of-a-century. With Exclusive "Dynasonic Selector." "Has Everything, Does Everything."



Intercom for the Home. Enjoy comfort, convenience and peace of mind. You can: • Independently originate and receive calls to or from any other room • Answer outside doors from any room • Enjoy radio in any room • Listen-in on children, baby or sick room from any room, yet other rooms can have complete privacy. Distinctively styled. Easily installed.

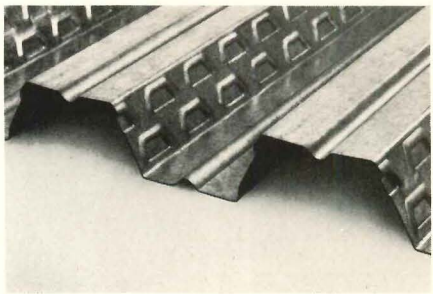
Intercom For Office, Industry, Institutions. Instant and direct 2-way conversation between any 2 points. Saves thousands of man-hours, simplifies routine. Distinctively styled, ruggedly built for continuous day and night use. From 2 to 100-station systems, you can do it better and more economically with Talk-A-Phone. Pays for itself many times over.

Send for Free Catalogs . . .

Dept. AR

TALK-A-PHONE CO., 5013 N. Kedzie Ave., Chicago, Illinois 60625

For more data, circle 88 on inquiry card



The unique double embossing technique used on new COMDEK sheets is the key to the strong composite action that makes construction move fast.


Efficient construction savings is what Granco's new COMDEK is all about. You save time because COMDEK's wide 36" coverage means fewer welds, less labor. You save again because no positive reinforcing steel is added. And you save concrete because the deep, double embossed rib indentations provide super positive composite action. Thus your pouring form becomes an integrated structural unit as concrete sets.

And, for greater economies, COMDEK is available in both 2" and 3" depths. Lengths to 45'.

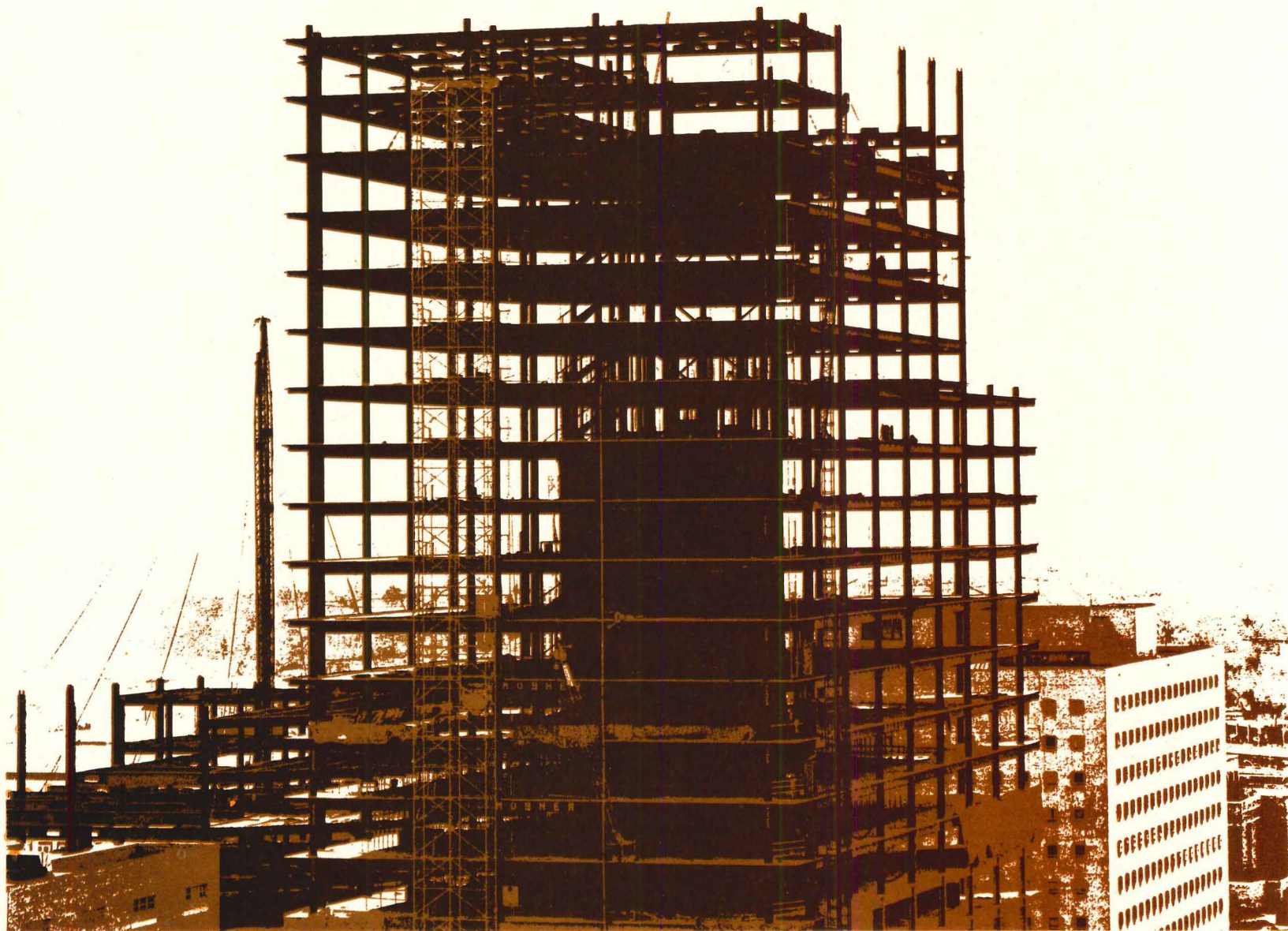
Like to get down to specifics? Send for the new Granco COMDEK Catalog. Complete specs, fire ratings, and load tables. Write Granco, P. O. Box 40526, Houston, Texas 77040.

For more data, circle 89 on inquiry card

Granco[®]
Building products that perform

 Granco Steel Products Co.
Subsidiary of
National Steel Corporation

New COMDEK[™] by Granco may simply be the simplest, most efficient composite deck system available today.





Pleasant under glass.

Bring the great outdoors indoors with Lord & Burnham glass enclosures.

There's something special about the pleasant living or working environment created by the addition of a glass enclosure. Whatever it's used for, solarium, skylight, greenhouse, living room, working or recreation area, Lord & Burnham glass enclosures add an extra, functional dimension to any design, any building application.

Lord & Burnham has been involved in the greening of American architecture for more than 117 years, so we speak your language when it comes to cost control or custom designs. And while a glass enclosure is pleasant for your clients, we go all out to make your planning pleasant by providing complete architectural consultation services at no extra cost.

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- OHIO North Ridgeville 44039 / (216) 327-5622
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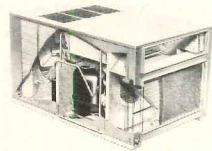
For more data, circle 90 on inquiry card

RECESSED SPRINKLER / A fast-operating, automatic sprinkler that is recessed into a ceiling and enclosed is UL-listed. The enclosure plate is offered in a variety of finishes and is attached to the sprinkler at three solder points. ■ Grinnell Fire Protection Systems Co., Inc., Providence, R.I.



Circle 321 on inquiry card

PACKAGED HEAT PUMP / A new line of packaged heat pumps, the CHP9 series is available in sizes from two to five tons. Cooling capacities range from 23,000 to 56,000 Btuh and heating from 25,000 to 63,000 Btuh.



They are U.L. listed, ARI certified and meet NEC safety standards. ■ Lennox Industries Inc., Marshalltown, Iowa.

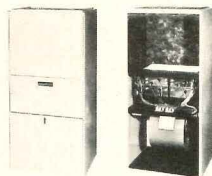
Circle 322 on inquiry card

OUTDOOR LUMINAIRE / Aluminum *Tenni-Sun*, a fluorescent luminaire with impact-resistant prismatic lens, can be mounted directly on fence post. Swivel mount allows accurate adjustment. ■ C-E ElSCO Lighting Products, Stockton, Cal.



Circle 323 on inquiry card

ELECTRIC FURNACE / Residential furnaces incorporate integrated fusing against overcurrent. UL approval allows installation with "zero" clearance on all sides. Available in capacities of 68,260 BTU/hr, 85,325 BTU/hr, and 102,390 BTU/hr. ■ Fasco Industries, Inc., Fayetteville, N.C.



Circle 324 on inquiry card

"FLYING" DECK FORMS / Telescoping action of the shore legs permits forms to "fly" over spandrel beams and other obstacles which stop rigid-leg deck forming systems. Legs can be equipped with casters to allow directional movement around columns, floor openings and obstructions. The *Flight Deck* system "I" is fully adjustable vertically and horizontally. ■ Symons Corp., Des Plaines, Ill.



Circle 325 on inquiry card

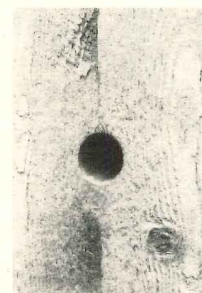
CHILDREN'S FURNITURE / All furniture features rounded surfaces and lightweight design to eliminate the danger of pinches, scratches and bruises. Chairs, in four colors, are one-piece molded of sturdy, mar-scratch- and static-resistant *Luran S*. The tables combine a red high-pressure melamine insert with a white rounded frame and matching legs. Colorfast colors permeate the plastic. Tables and chairs stack or nest. ■ Krueger, Green Bay, Wis.



Circle 326 on inquiry card

more products on page 173

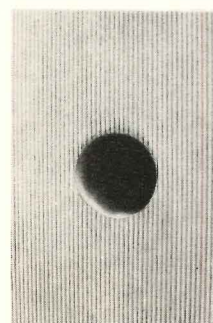
You can do beautiful things with our holes



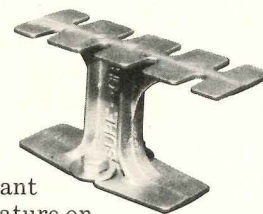
Those nice round holes left in exposed concrete when you specify Dayton Sure-Grip® form ties with cones. Combine the holes with a plain or textured surface for

added beauty. If you don't like holes, we can supply ties that leave a small hole that's grouted quickly.

For positive protection against rust stains, specify Sure-Grip stainless steel ties ... and rebar supports.



Designing a Stadium or Gym?



You'll want our literature on ductile iron and aluminum seat brackets. It describes the most complete line of architecturally styled seat brackets available.

Check the reader service card now for free literature on Sure-Grip accessories for architectural concrete.

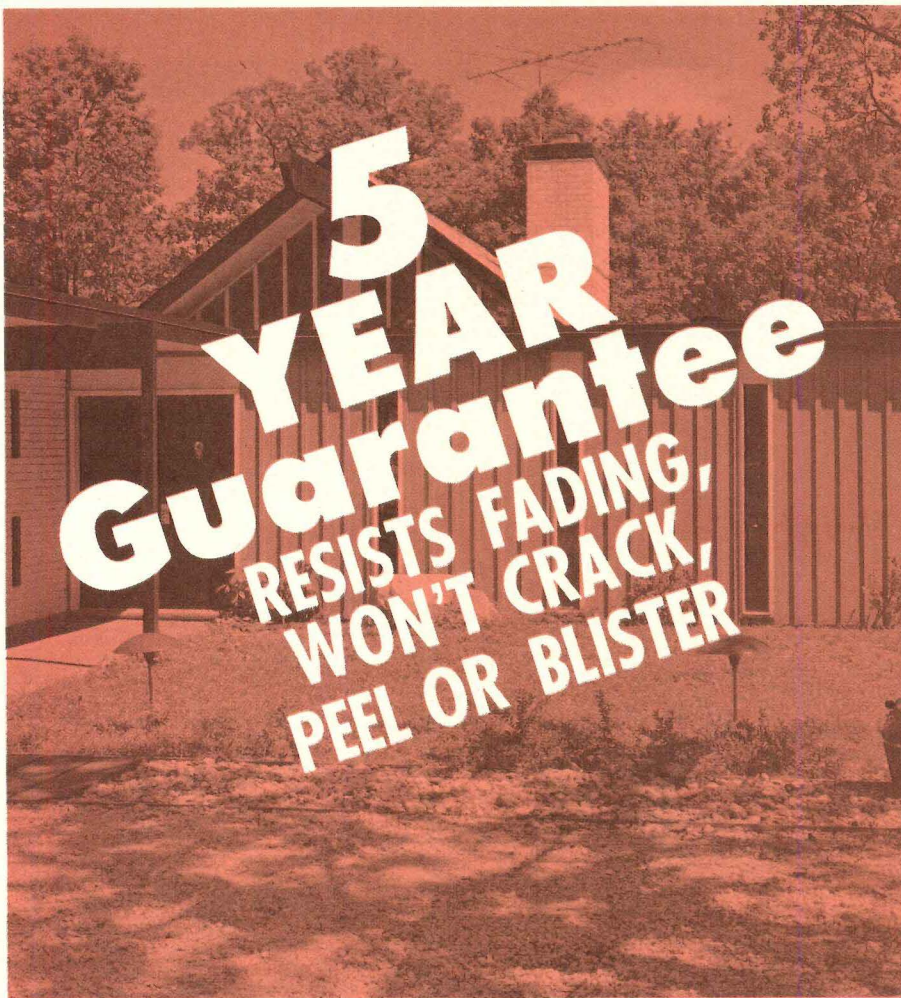
THE DAYTON SURE-GRIP & SHORE COMPANY



721 Richard St.
Miamisburg, Ohio 45342
Phone 513-866-0711

Additional offices and plants in Birmingham, Al.; Hialeah Gardens, Fl.; Folcroft, Pa.; Torrance, Ca.

For more data, circle 91 on inquiry card



Rez®

Solid Color Latex Stain

On exterior or interior wood surfaces, REZ Latex Stain forms a tough, flexible film—so tough that we **guarantee*** that it won't crack, peel or blister for 5 years. And the color stays "like new."

There are other advantages, too—like easy application with less spattering, fast dry, and soap and water cleanup. Choose from 38 vogue solid or semi-transparent colors.

Detailed information on REZ Natural Wood Finishes can be found in Sweet's Catalog (9.9/Re). Or write to The REZ Company, One Gateway Center, Pittsburgh, PA 15222.



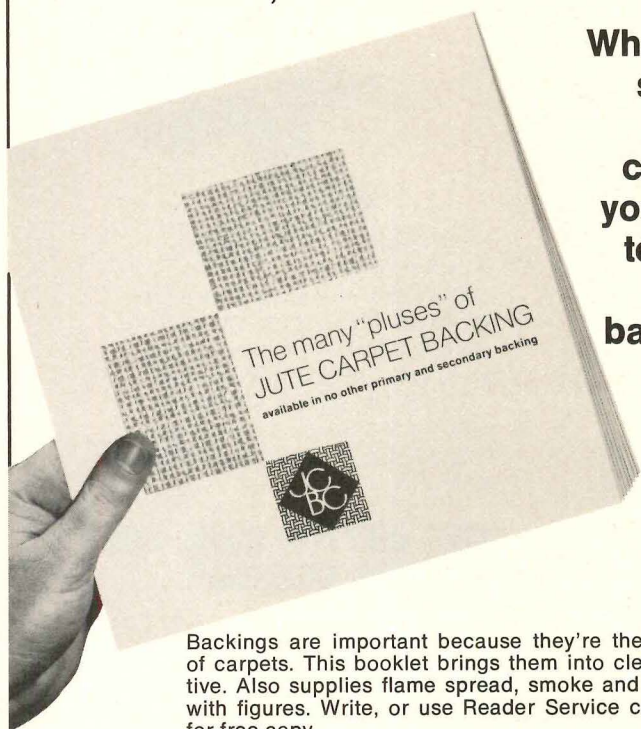
*** Guarantee**
REZ Latex Stain is guaranteed for 5 years to resist fading and not crack, peel or blister if applied according to the instructions on the label. If REZ Latex Stain fails to perform as stated in this guarantee, replacement stain will be furnished without cost or a refund will be made of the purchase price.

Rez® Natural Wood Finishes
by
PITTSBURGH® PAINTS

For more data, circle 92 on inquiry card

If you "go by the book," make it this one

When you specify or buy carpets, you need to know about backings

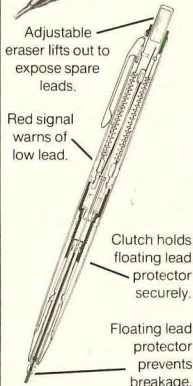
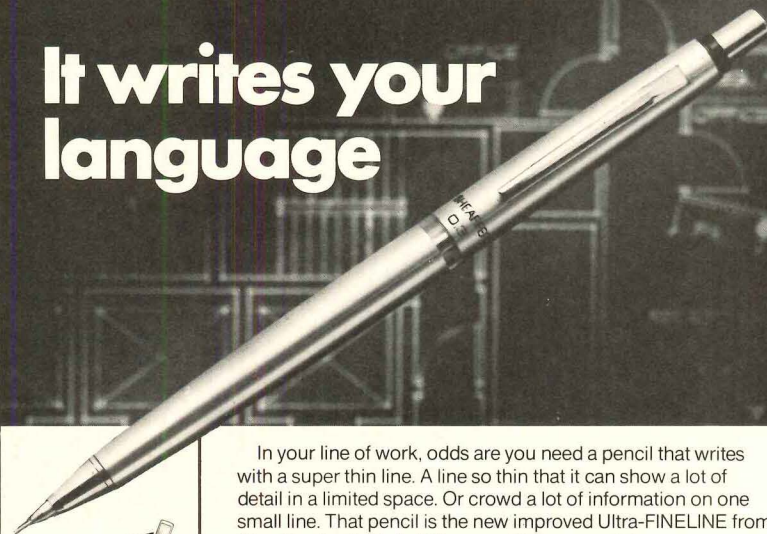


Backings are important because they're the foundation of carpets. This booklet brings them into clear perspective. Also supplies flame spread, smoke and fumes data with figures. Write, or use Reader Service card in back for free copy.

JUTE CARPET BACKING COUNCIL, INC.
30 Rockefeller Plaza • New York, NY 10020

For more data, circle 93 on inquiry card

It writes your language



In your line of work, odds are you need a pencil that writes with a super thin line. A line so thin that it can show a lot of detail in a limited space. Or crowd a lot of information on one small line. That pencil is the new improved Ultra-FINELINE from Sheaffer. Available in 0.3mm and 0.5mm models.

It's a mechanical pencil you can get technical with. The exclusive Floating Lead Protector won't wobble or allow the lead to rotate... or break off. If it ever gets jammed with broken lead, you simply replace the Protector. You never need to repaint a lead or adjust the amount of lead exposed. And the Ultra-FINELINE even signals you when it's getting low on lead.

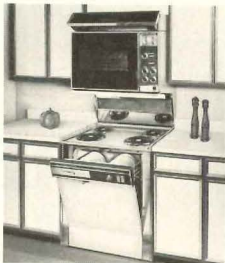
The Ultra-FINELINE. It makes designing and technical drawing so much easier, we sometimes wonder how we designed it... without it. 0.3mm and 0.5mm models. Just \$2.98 to \$5.98. (How's that for talking your language?)

Floating Lead Protector
replacements now available...
6 for \$1.

ultra
finesline
SHEAFFER®
WORLD-WIDE. A **TEXTRON** COMPANY

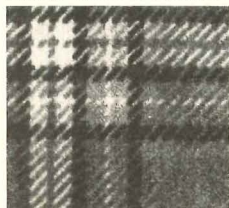
For more data, circle 94 on inquiry card

KITCHEN CONSOLE / This kitchen appliance combines a 30-in. range, eye-level oven and full-size dishwasher in one unit. Available in either gas or electric, the kitchen console features continuous cleaning oven which requires less than 1,200-degree temperatures. ■ Speed Queen, McGraw-Edison Co. Div., Elgin, Ill.



Circle 327 on inquiry card

PLAID WOOL CARPET / By utilizing the Zimmer continuous printing technique this 100 per cent virgin staple nylon 5/64 in. cut pile will withstand traffic and still maintain its colors and designs according to the company. Extra tight construction of the non-absorbent nylon fibers keeps spills on top of the carpet. The primary backing is 100 per cent moisture barrier polypropylene with a pile height of 7/32 in. ■ Wellco Carpet Corp., Calhoun, Ga.



Circle 328 on inquiry card

STENO CHAIR / The upholstered seat and back are now removable for easy recovering. The seat is protected by a vinyl extrusion that prevents damage to the fabric or the desk when the two come in contact with each other. The same protection is afforded on the back that is now attached to a black molded plastic shell. The base of the chair is produced in die cast aluminum, and is built close to the floor to prevent scuffing up shoes and tearing stockings. Width is 19 in., depth is 17 in., and the seat height is adjustable. ■ Hank Lowenstein, Inc., Fort Lauderdale, Fla.



Circle 329 on inquiry card



COFFER DOORS / "Coffer Doors" for finishing-off poured-concrete exposed-beam ceilings fit inside cavities formed by the beams and obscure lamps and other overhead appurtenances. In sizes and shapes to accommodate given coffer dimensions, they consist of diffuser glass framed in bright dipped aluminum, and have spring-loaded corner bolts which fit into holes in the beams. ■ Neo-Ray Lighting Systems, Inc., Brooklyn, N.Y.

Circle 330 on inquiry card

For more data, circle 95 on inquiry card

T-100

JG Furniture Company Inc. 121 Park Avenue
Quakertown, Pa. 18951

Auditorium seat designed by Dave Woods. Installed at the Guggenheim Auditorium, The Institute of Man and Science, Rensselaerville, New York. Architects: Prentice & Chan, Ohlhausen.

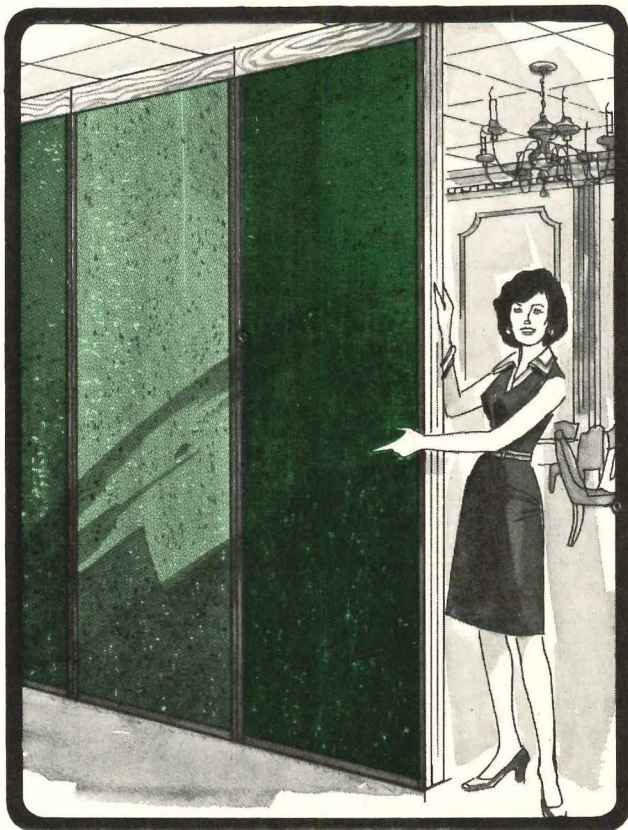


JG

New-Carpeted

AirWall[®]
PATENTED

PARTITIONS PRICED COMPARABLE
TO VINYL PANELS



Exclusively yours with Air-Wall partitions: the luxurious decor, outstanding sound retardation and long-life of carpeted panels, all at an attractive price comparable to vinyl surfaces ■ New "First Dimension" Series won't scratch, become marred or unravel even when bumped by chairs, carts or tables ■ Carpeting on both surfaces provides a full height tack board surface; nail or tack marks will not show ■ Colorfast and easy to keep clean with all conventional methods.

Ask your R-W Salesman to show you color swatches and tell you about the economical pricing

FREE BULLETIN



Richards-Wilcox
MANUFACTURING COMPANY

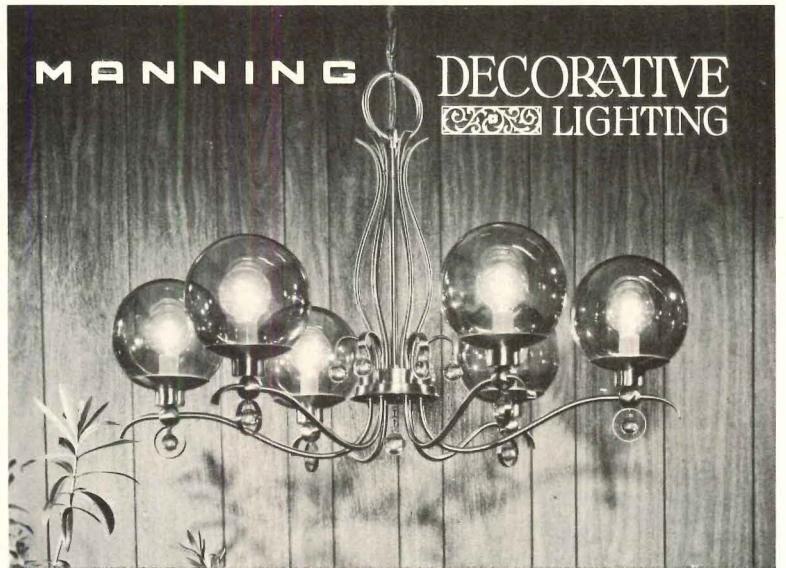
116 Third Street, Aurora, Ill. 60507
Phone: 312/897-6951

One of the White Consolidated Industries
WCI

For more data, circle 96 on inquiry card

MANNING

DECORATIVE
LIGHTING



NEW

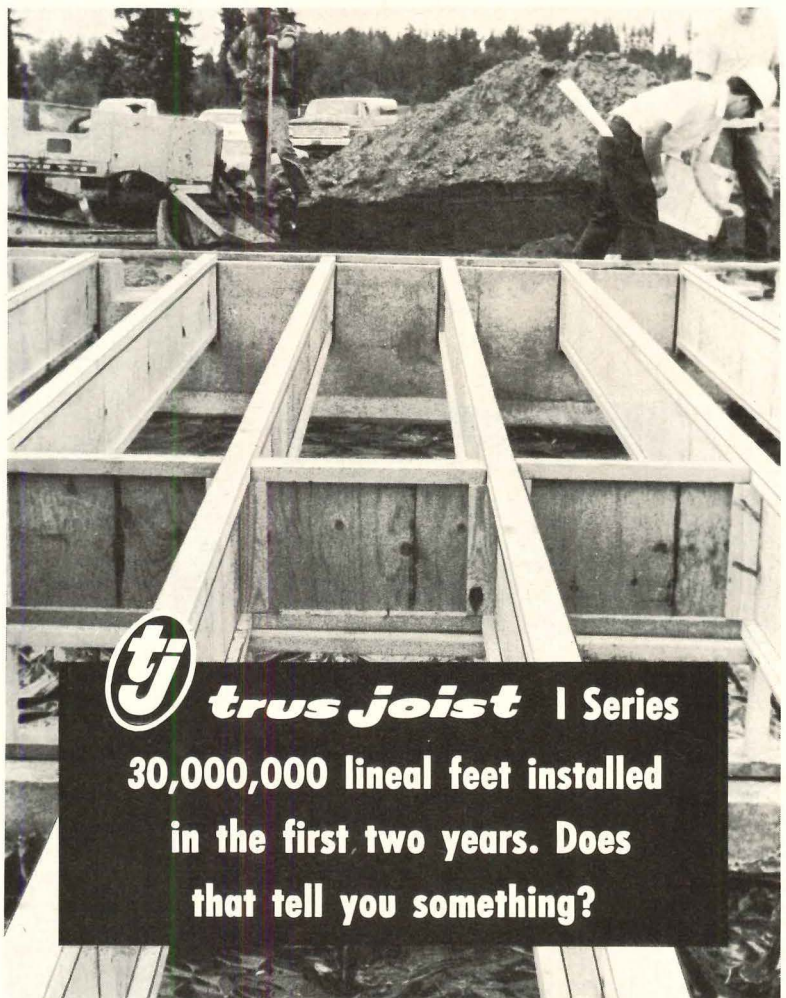
Complete line of decorative lighting equipment—specifically designed for commercial interiors.

REQUEST FULL COLOR CATALOG "M"

R.A. **MANNING** COMPANY INC.

P.O. BOX 643 SHEBOYGAN, WIS. 53081

For more data, circle 97 on inquiry card



trus joist | Series

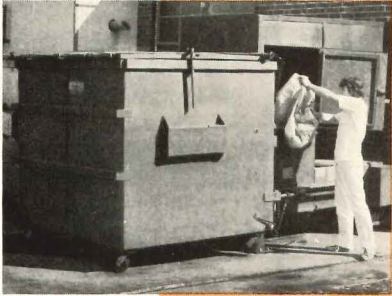
30,000,000 lineal feet installed

in the first two years. Does

that tell you something?

For more data, circle 98 on inquiry card

WASTE DISPOSAL... Big Volume or Small Dempster Wrote the Book on REFUSE PACKERS



Small Dempster Refuse Packer saves space and packs into many types and sizes of refuse containers.



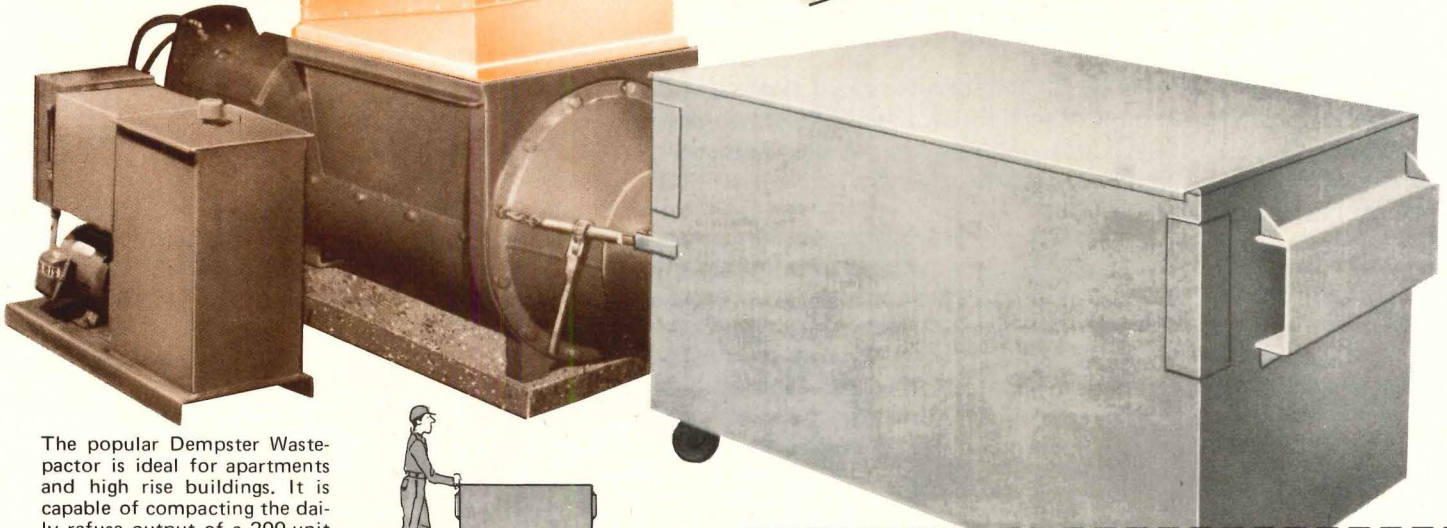
Through-the-wall loading into a Dempster Packer provides a convenient, all-weather refuse disposal system.

Whatever the installation, Dempster can give you a choice of models with varying packing capacities so you can pick the packer that is best for your application, refuse volume, and type of material.

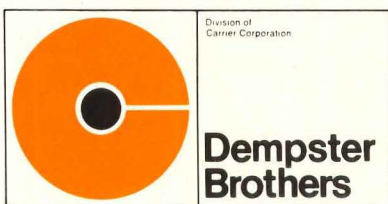
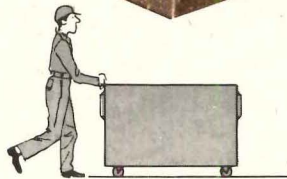
Dempster has the know-how to help you set up your stationary packer as a component in a total system . . . as simple or as exotic as your needs and economics dictate.

Your nearby Dempster Refuse Consultant helped write the book. He is a walking, talking encyclopedia on the subject of refuse handling and his counsel could save you hours of work. Write today for his name or for the name of a well-equipped private hauler who provides dependable service near you.

Send for Free Literature



The popular Dempster Wastepactor is ideal for apartments and high rise buildings. It is capable of compacting the daily refuse output of a 200 unit apartment complex into a one cubic yard container.



Home Office: P.O. Box 3127, Knoxville, Tennessee 37917
Western Division: P.O. Box 5703, Compton, California 90221

For more data, circle 99 on inquiry card

- Yes . . . I would like Dempster to help me plan a packer installation. (please check)
- Please send information and literature on Dempster Wastepactor.
 - Please send information and literature on larger Dempster Packers.
 - Please send name of Dempster Refuse Consultant.
 - Please send name of nearby private hauler.

AR 10-74

Name _____ Title _____

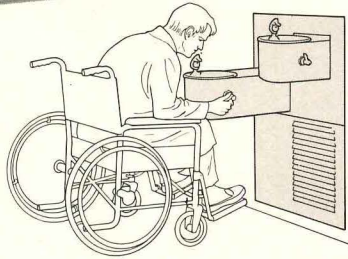
Company _____

Address _____

City _____ State _____ Zip _____

Phone No. _____

Mail to: Dempster Brothers, P.O. Box 3127, Knoxville, Tenn. 37917



Haws Models HRWC-5 or 10

Haws has a Water Cooler for everybody.

Haws has electric water coolers for persons in wheelchairs and the general public, to help you comply with Public Law 90-480, which says buildings constructed, leased or financed by the Federal Government must provide facilities suitable for use by the physically handicapped.

Haws Models HRWC-5 or HRWC-10 have dual fountains and are entirely of stainless steel. Haws Model HWC-6* features a compound-action bubbler valve that operates from a push on the side or top.



Haws Model HWC-6

For more information, contact Haws Drinking Faucet Company, 4th and Page Streets, Berkeley, CA 94710.

*Pat. Pend.

Haws

WATER COOLERS

For more data, circle 100 on inquiry card

SEQUENTIAL LIGHT / A booklet describing three variable speed multiple circuit timers for the control of electric lamps in signs, displays, exhibits and theater marquees, and for timing any series of sequential electrified operations involving equal time increments provides details, specifications and electrical requirements. ■ Bayside Timers, Inc., Flushing, N.Y.

Circle 415 on inquiry card

LIGHTING PRODUCTS / A 44-page catalog offers contemporary lighting fixtures for the residential and commercial markets. Featured are chrome, acrylic, and combination chrome and polished brass and acrylic fixtures. ■ Auralume, Bronx, N.Y.

Circle 416 on inquiry card

TRANSFORMERS / A four-page color brochure features a line of underground distribution transformers, and descriptive text is said to outline pertinent information applicable to each product. ■ Wagner Electric Corp., St. Louis, Mo.

Circle 417 on inquiry card

EMERGENCY LIGHTING / A four-page brochure provides information on rechargeable battery-powered emergency lighting equipment in sizes from a 6-volt series up to a 12-volt system for larger buildings. Also described are *Decor-Lite* heads which may be used in a variety of positions. ■ Tork Time Controls, Inc., Mt. Vernon, N.Y.

Circle 418 on inquiry card

GROUND FAULT PROTECTION / A data sheet on temporary service panels with ground fault protection for construction sites covers various safety and reliability features provided by the panel's circuit breakers for power tools and lighting. A wiring diagram is included along with the panel's engineering and application information. ■ I-T-E Imperial Corp., Spring House, Pa.

Circle 419 on inquiry card

STANDBY POWER / A brochure highlighting the use of rechargeable nickel-cadmium batteries for standby power applications contains charts and graphs to illustrate certain performance characteristics, ratings and dimensions of batteries. ■ General Electric Co., Gainesville, Fla.

Circle 420 on inquiry card

PENETRATION SYSTEMS / *Multi-Cable Transit* is used for making fire- and water-tight penetrations with cable, conduit or pipe through walls, floors and ceilings. The four-page manual shows step-by-step procedures for vertical (floors and ceilings) penetrations and has general instructions for making horizontal (walls) penetrations and installing the transit frames. ■ Nelson Electric Div., Sola Basic Industries, Tulsa, Okla.

Circle 421 on inquiry card

OUTDOOR LIGHT FIXTURES / Catalog shows the fixtures on a proportioned scale so the specifier can more readily coordinate his lighting accents both inside and outside. Art illustrations are used in the catalog to show the actual lighting fixtures in relationship to entryways. Product line ranges from hand-crafted fixtures designed for residential use or commercial establishments to mercury vapor and other high-intensity discharge luminaries for residential and light commercial use. ■ Hadco Products, Inc., Littlestown, Pa.

Circle 422 on inquiry card

LAY-IN WIREWAY / The new bulletin provides specifications and dimensional details on lay-in wireway, manufactured in 2½, 4, 6, 8 and 12-in. square sizes and in lengths of 1, 2, 3, 4, and 5 ft. ■ Square D Co., Lexington, Ky.

Circle 423 on inquiry card
more literature on page 181

AIR CONDITIONERS / The technical brochure includes descriptions and specifications, capacities and electrical data for heating and cooling, cooling capacity correction factors, dimensions, options and warranty information on water cooled self-contained air conditioners. ■ American Air Filter Co., Louisville, Ky.

Circle 424 on inquiry card

FIRE EXTINGUISHANT / A six-page illustrated brochure describing a smoke and fire confinement system shows the installation, operation and use of the *Insta-Wall* system which employs extinguishants such as *Halon 1301* and CO_2 . The system consists of 16-gauge steel cabinet units in choice of pressure operated trip release or electromagnetic release mechanisms. Cabinets are available in 3-, 4-, 6- and 8-ft lengths. Descriptive specification-table on *Insta-Wall* cabinets, four available flame-resistant curtain materials and assembly accessories are also included. ■ Singer Safety Products, Inc., Chicago, Ill.

Circle 425 on inquiry card

ROOFTOP HVAC / Units featuring capacities increased to 40 through 70 tons are described and illustrated in this 12-page bulletin. Models discussed have electric cooling/natural gas heating, electric cooling and heating, and electric cooling only. They are available in nominal cooling capacities of 40, 50, 60 and 70 tons. Equipment selection, blower performance, dimensions, electrical data and installation requirements are detailed and information on options and accessories is also included. ■ Hasting Industries, Inc., Omaha, Neb.

Circle 426 on inquiry card

AIR CONDITIONING / A rotary compressor—an integral component of the company's *Climator 938-1* line—is described in this brochure on models with cooling capacities from 18,000 to 60,000 Btuh. Btu per watt or energy efficiency ratings (EER) for the entire line are given with ratings up to 11.00. Operating cost savings and installation data are discussed. ■ Mueller Climatrol Corp., Piscataway, N.J.

Circle 427 on inquiry card

SPEAKER MOUNTING / A 12-page brochure contains selection information, dimensional data and installation instructions on all company components needed to mount speakers. The brochure covers four types of baffles: square architectural units, decorator wood designs, round steel and economy models. Information on plaster rings, back rings, back boxes and a variety of accessories is also included. ■ Touch-Plate Electro Systems, Inc., Paramount, Cal.

Circle 428 on inquiry card

SHARED AIR CONDITIONING / A bulletin describing an option which permits air from one self contained air conditioner to be divided between two rooms, includes descriptions and dimensions, examples of installations and suggestions for use in various types of structures. ■ American Air Filter Co., Louisville, Ky.

Circle 429 on inquiry card

ENVIRONMENTAL CEILING / The brochure is designed to give architects, engineers and contractors a comprehensive view of a complete environmental ceiling installation, with photos covering the basic components and their assembly. Additional information includes details of the system's design from the insertion of safety sprinkler systems to the air supply and relocation of partitioning. ■ Guth Lighting, St. Louis, Mo.

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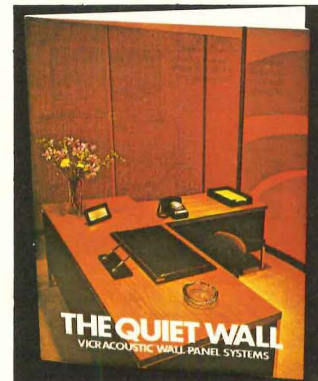
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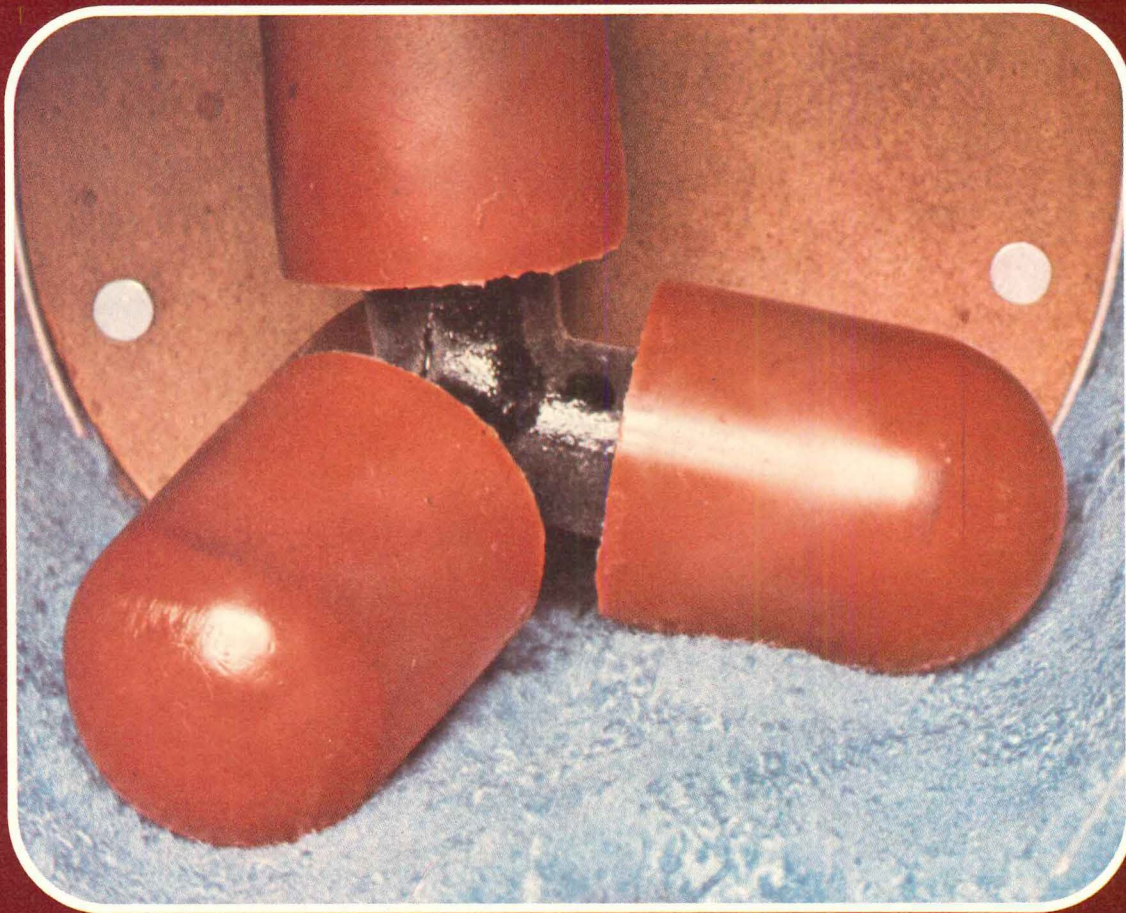


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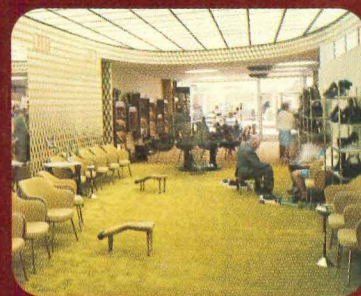
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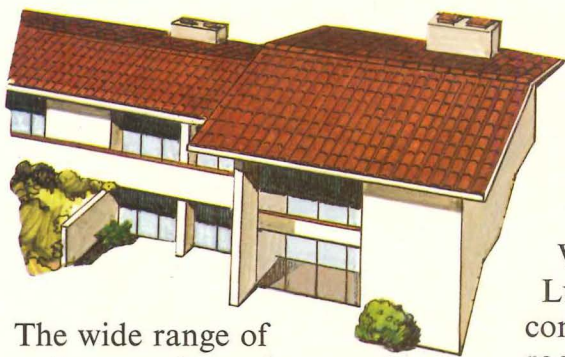


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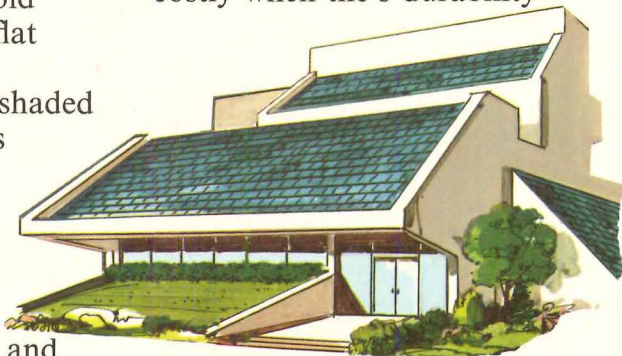
Ludowici tile resists the elements. Rain, snow and sun will not affect it. Time merely seasons the appearance,



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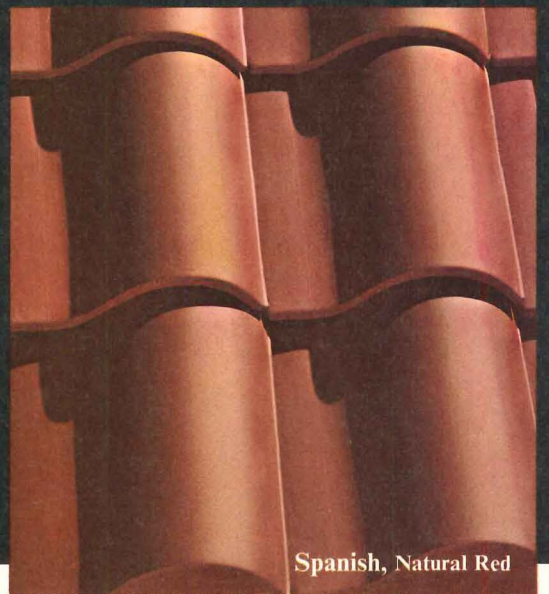
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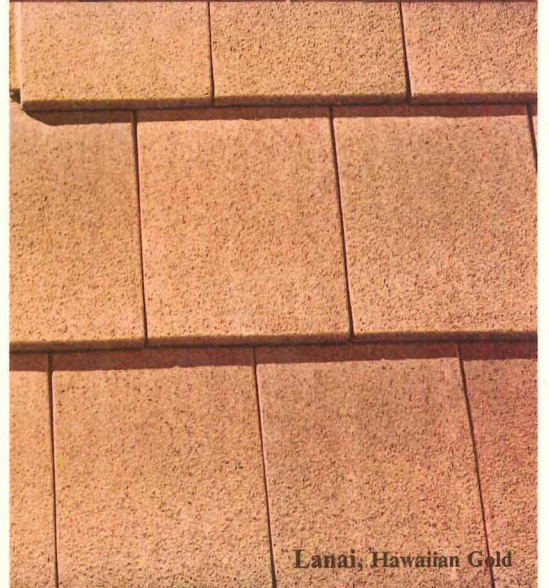


and economy are projected over the life of the structure.

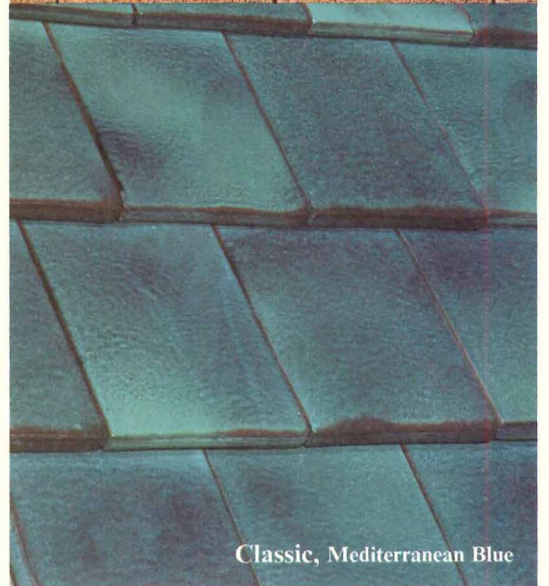
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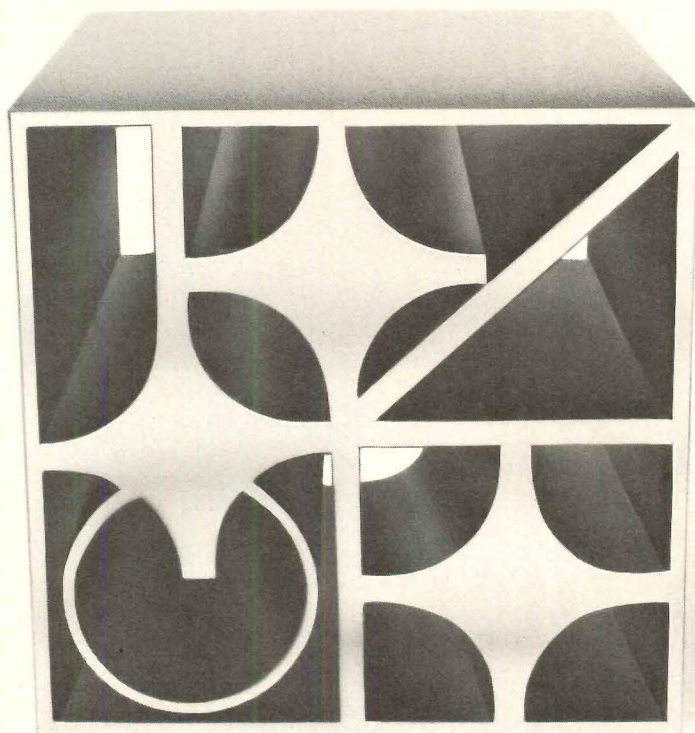
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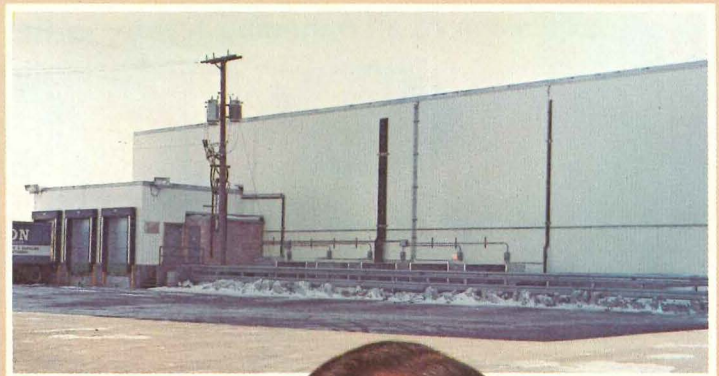
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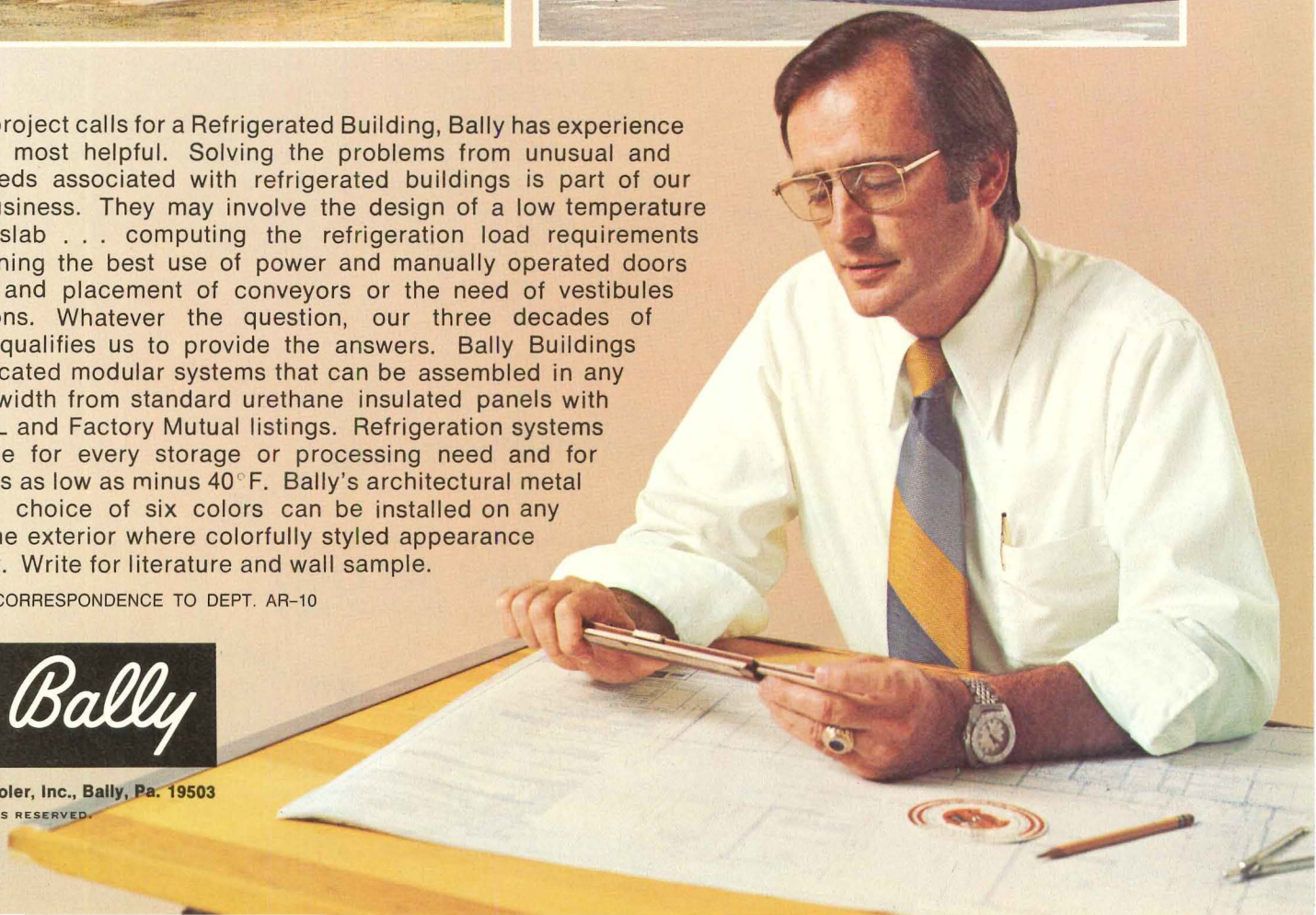
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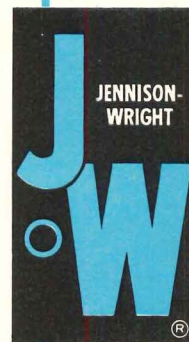
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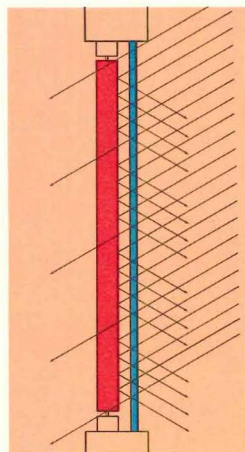


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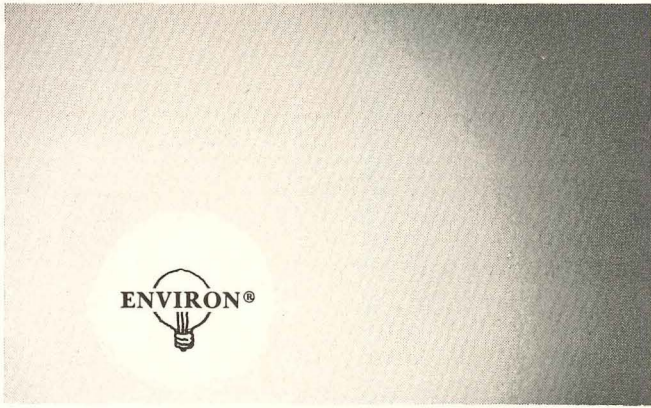
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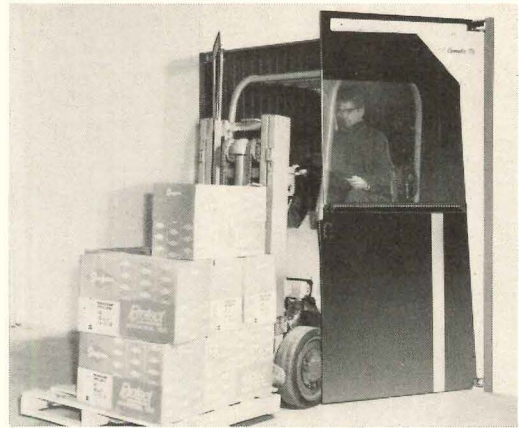
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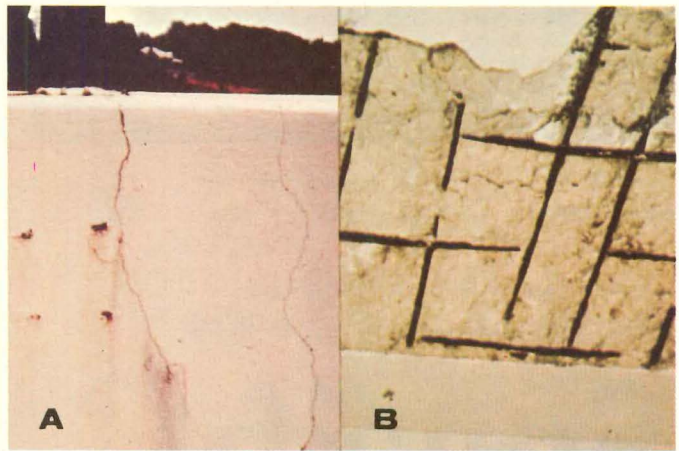
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PREVENTION



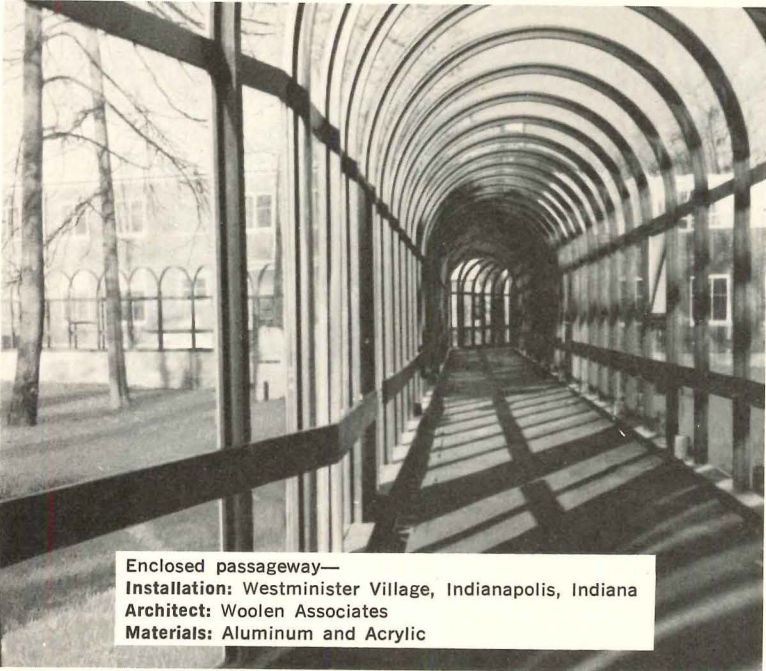
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ZN-640

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Materials: Aluminum and Acrylic

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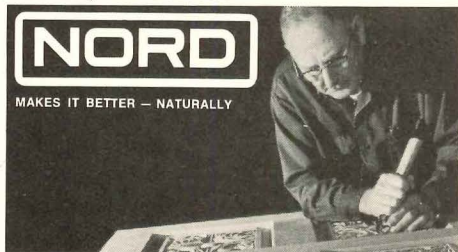
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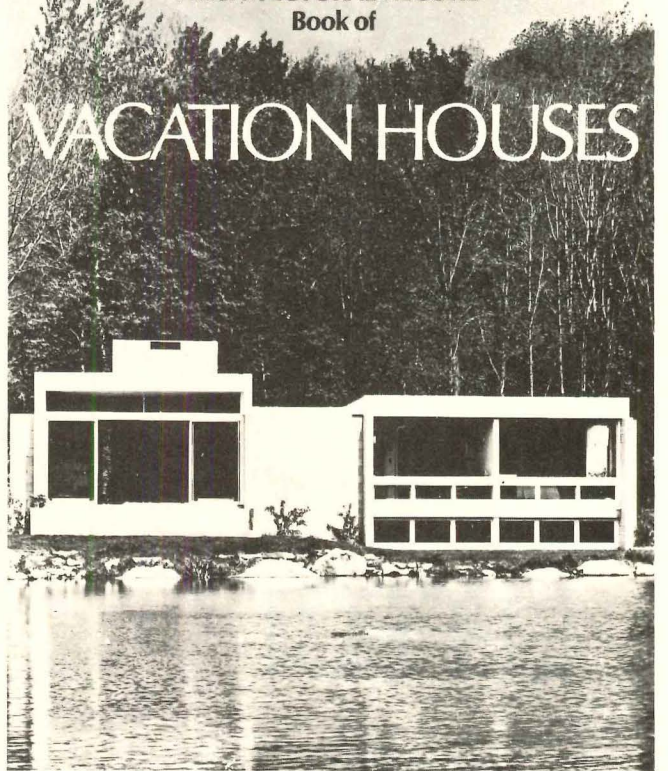


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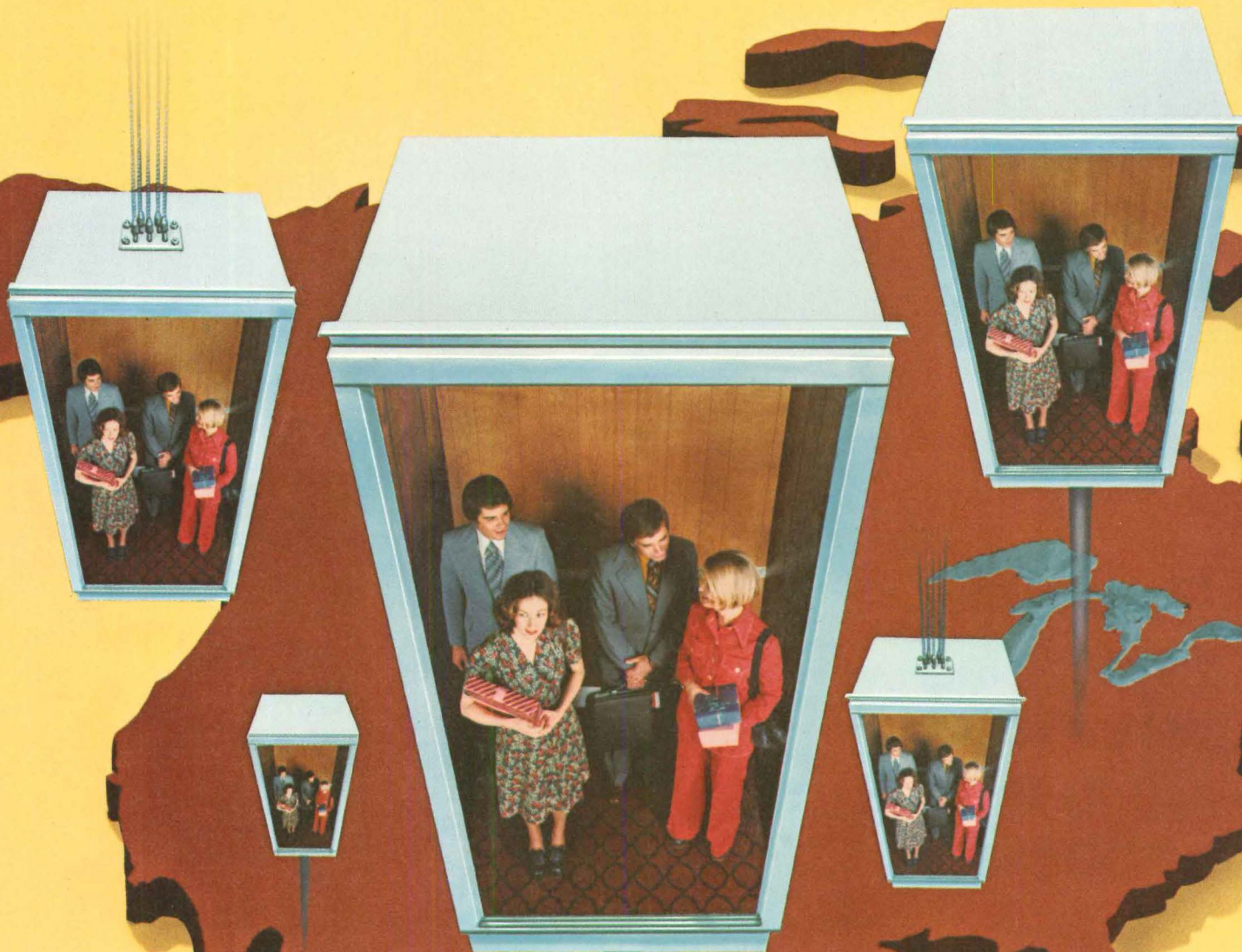
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February	6- 7	Miami, Florida
March	6- 7	New York, New York
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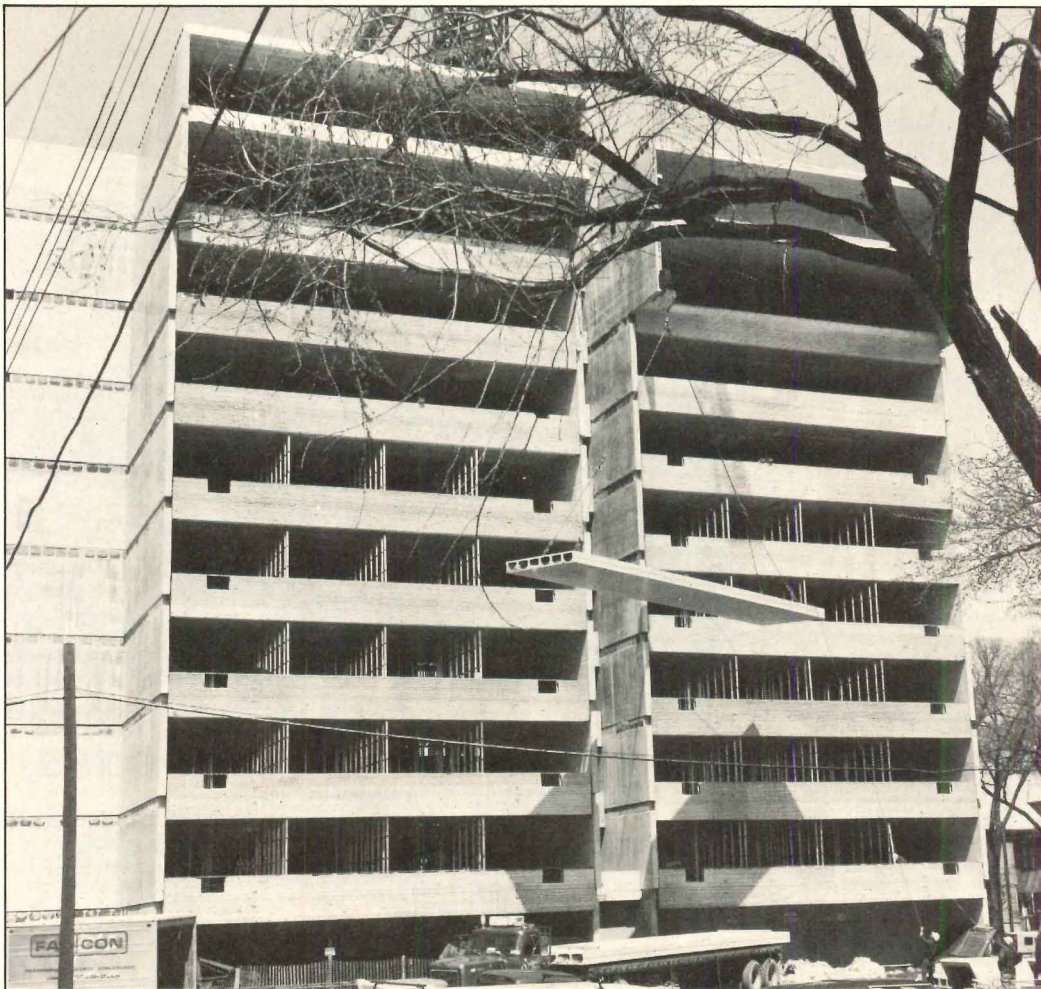
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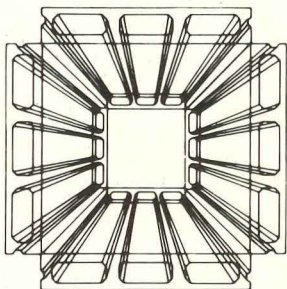
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*Architectural Record and L'Architecture d'Aujourd'hui announce
the formation of The International Architectural Foundation, Inc. for the purpose of conducting . . .*

An international design competition for the urban environment of developing countries focused on Manila

Desirous of helping the developing countries of the world to meet the challenges of unprecedented urban growth,

Inspired by the United Nations Resolution 3001 to hold a major United Nations Conference-Exposition on Human Settlements (Habitat '76) in Vancouver, Canada from May 31 to June 11, 1976, and wishing to contribute to its success,

The International Architectural Foundation, Inc. (IAF) has been formed for the purpose of organizing an International Design Competition open to the professions of architecture and planning throughout the world.

The IAF proposal has been described as "exciting and innovative" by Helena Z. Benitez, Coordinator, Preparatory Planning Group for Habitat '76. And Eric Carlson, its Deputy Director, has stated, "the IAF Competition has great potential for providing useful inputs to the important Vancouver meeting." In addition, prominent architects, planners and government officials around the world have expressed their enthusiasm and encouragement.

The Competition, scheduled to start in late 1974, when full details will be available to entrants, proposes to challenge the design professions to address themselves to a problem of grave and growing international concern: the human and environmental problems of *accelerating urbanization*. The challenge will be to design within a largely pre-existing urban-regional context a new and beneficent cell of urban growth—one that will foster human well-being and development and one that will be fully considerate of environmental impacts.

A site for a human settlement of 3,500 persons has been selected in the Dagat-dagatan area in the heart of Manila. This will be the relocation area for some 200,000 squatters now living in sub-slum conditions in the Tondo Foreshore of Manila. It is the

hope of the Philippines Government that the world-wide competition to design this initial neighborhood will be instrumental in improving conditions for all inhabitants of the grim Tondo area and, at the same time, bring forth ideas that will be helpful to community development in all other developing countries. To this end, the best work generated by this world-wide creative effort will be displayed at the Vancouver Conference-Exposition, featured in the world's leading architectural magazines, and published in book form.

Funds needed to meet the Competition budget will be contributed by a small number of philanthropic sources, and by interested business firms and individuals. The IAF is pleased to announce that The Graham Foundation, The International Development Research Centre (Canada), The Johns-Manville Fund, and The Asia Foundation have already pledged their financial support.

If you would like to consider the possibility of joining a small group of financial sponsors, and being identified over a three-year period with a major effort to help developing countries find creative and practical solutions to some of their crucial problems of human settlements, write (in the U.S.) Blake Hughes, The International Architectural Foundation, Inc. (41), 1221 Avenue of the Americas, New York, N.Y. 10020, or (in France) Jean-Louis Servan-Schreiber, The International Architectural Foundation, Inc., 10 Rue Lyautey, Paris 16.

1221 AVENUE OF THE AMERICAS, NEW YORK, N.Y. 10020.



A change in course

And an urgent plea—to you—for help

A message from The International Architectural Foundation, Inc.:

The change in course: In lieu of an international design competition conducted simultaneously for three cities in the developing world, all efforts will be concentrated at this time on generating creative plans for a 3,500-person neighborhood in the heart of Manila.

The reason: This change results from the recent visit of our professional advisor to the Philippines, where an intensive effort is underway to ameliorate the sordid living conditions of over 200,000 squatters in the Tondo Foreshore area. Philippines authorities have expressed hope that The IAF Competition for the design of a neighborhood in Dagat-dagatan, a relocation area near the Tondo, will generate ideas that ultimately will benefit *all* inhabitants in the area—as well as contributing to solutions in other developing countries.

A tremendous challenge and opportunity!

We need your help now. To open the Competition by year end, we need approximately \$125,000 more than has been pledged to date. To achieve this goal, we are inviting contributions from individuals as well as institutions and establishing four categories for donors:

Sponsors (\$20,000 and over)
Contributors (\$5,000 to \$20,000)
Contributors (\$1,000 to \$5,000)
Contributors (\$100 to \$1,000)

This is your opportunity to be associated publicly with this unique effort to bring the skills of architects the world over to bear on the problems of the urban poor.

Please send us your check today, payable to The International Architectural Foundation, Inc. Your gift will be used exclusively for purposes of the Competition. For additional information, see Editorial, pages 13 and 14 of this issue; or telephone Blake Hughes, 212/997-4685.

To date, pledges of financial support have been received from: The Graham Foundation, The International Development Research Centre (Canada), The Johns-Manville Fund, and The Asia Foundation.

Problems of excessive population growth, unemployment, environmental decay, disease, alienation and urban squalor are all interrelated—rooted in ignorance and disability, breeding despair and desperation. Nowhere are these ugly problems more clearly focused than in the urban slums of the developing world. Nowhere is there a greater need for human solidarity and creative contributions.

The International Design Competition is a modest means to these ends and aims to

- alert architects and planners to the gravity of the accelerating urban crisis in developing countries;
- increase the fund of talent and expertise available for planning human habitations;
- involve architects and planners in the design of a demonstration project in a major city of the developing world;
- contribute to the success of the important United Nations Conference-Exhibition on Human Settlements (Vancouver, 1976);
- act as a catalyst for further contributions by individuals, institutions, organizations, and governments to the solution of the multi-faceted problems of housing the urban poor.

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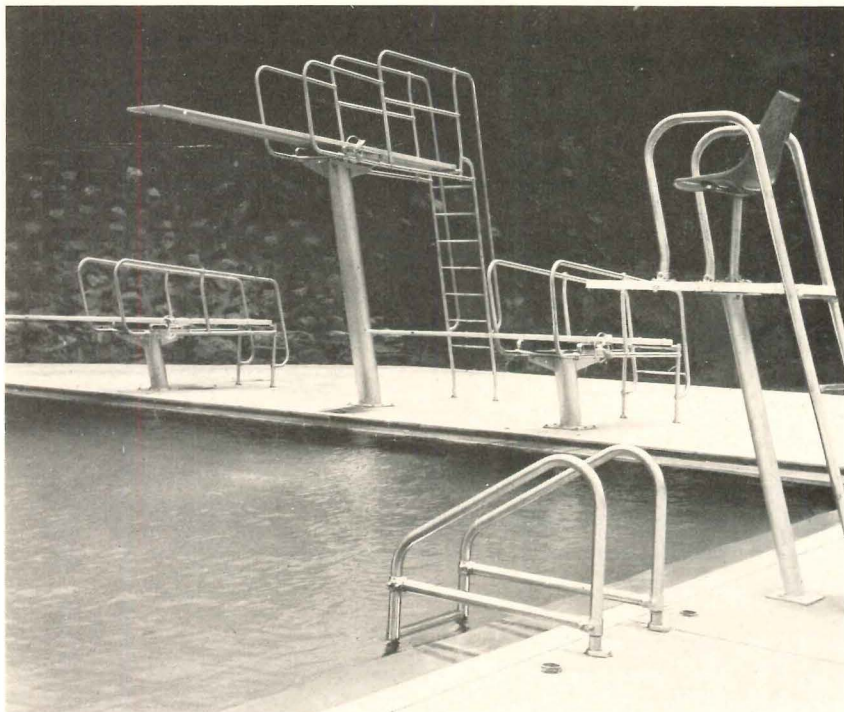
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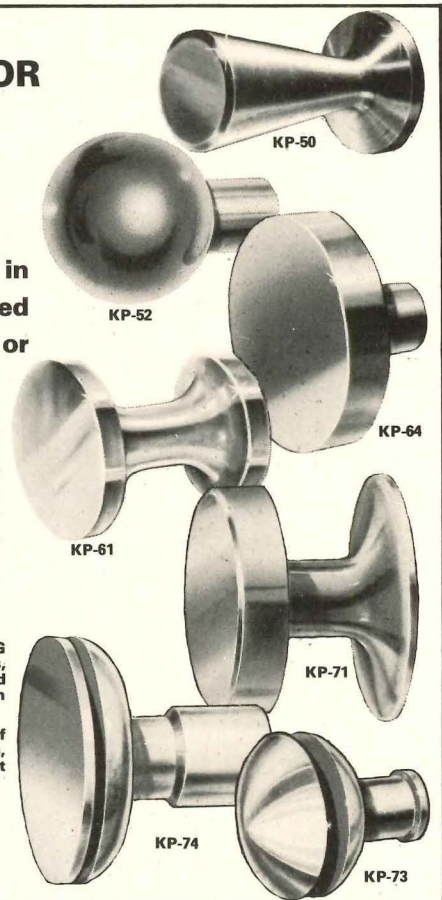
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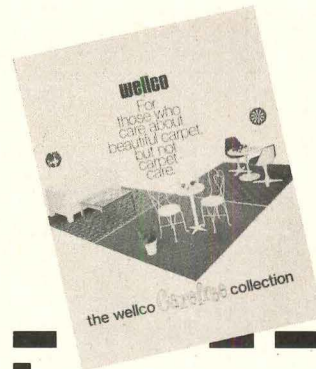
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A recent example is the First American National Bank Building of Nashville, Tennessee. The bank occupies the first 10 stories of a 28-story office tower—the top 18 stories being available for rental. Public banking space is located in a connected four-story structure designed with a large column-free open area in keeping with its function of providing a distinct customer service entity. The building would have been far more costly if such a facility had to be located on the ground floor of the tower.



During construction, steel was delivered to the bank's location in the heart of Nashville by truck—on an extremely tight schedule—and lifted directly into place. Careful planning and speedy erection made occupancy of the 600,000 sq. ft. building possible in less than two years after start of construction—a remarkably short time for a building of this size.

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Project Cost!**

In another mid-South city, two bank/office rental

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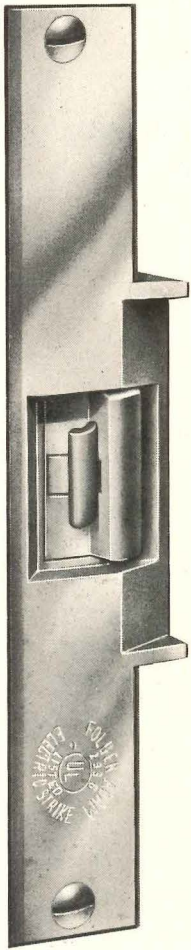
No wonder banks' interest in steel is growing all the time!

For a copy of our structural Report on the First American National Bank & Office Building (ADUSS 27-6246-01) and for more information, contact a USS Construction Marketing Representative at your nearest U.S. Steel Sales Office, or write: United States Steel, Room C276, 600 Grant Street, Pittsburgh, Pa. 15230.



United States Steel

Owners: First American National Bank, Nashville, Tennessee; The Equitable Life Assurance Society of the United States, New York, N.Y. *Architects:* John Charles Wheeler and Associates, Inc., Nashville, Tennessee. *Associated Architects:* The Perkins & Will Partnership, Chicago, Illinois. *Structural Engineers:* Angus R. Jessup, Inc., Nashville, Tennessee. *General Contractor:* Foster & Creighton Company, Nashville, Tennessee. *Steel Fabricator:* Volunteer Structures, Inc., Nashville, Tennessee. *Steel Erector:* Allied Steel Construction Company, Oklahoma City, Oklahoma.



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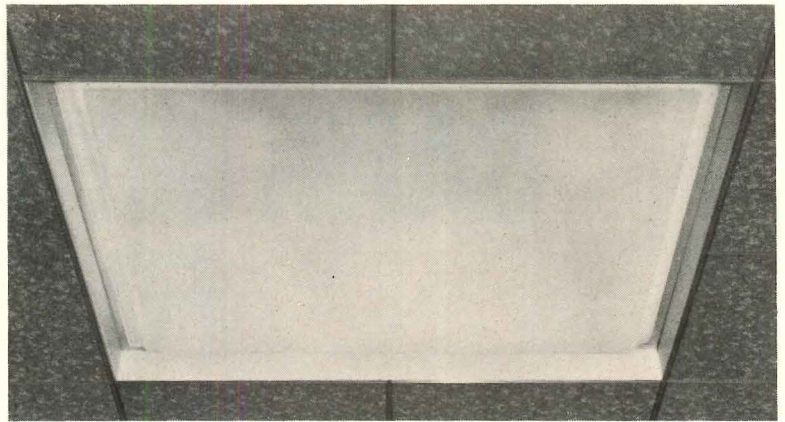
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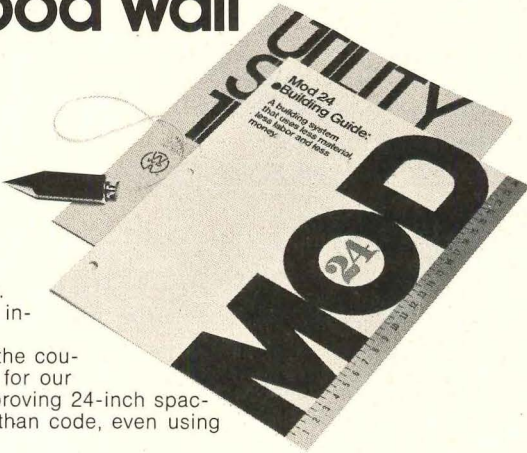


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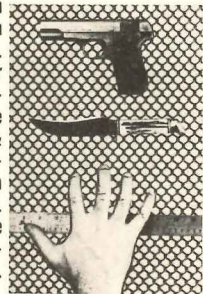
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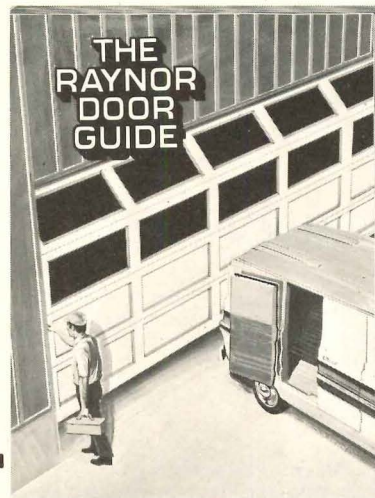
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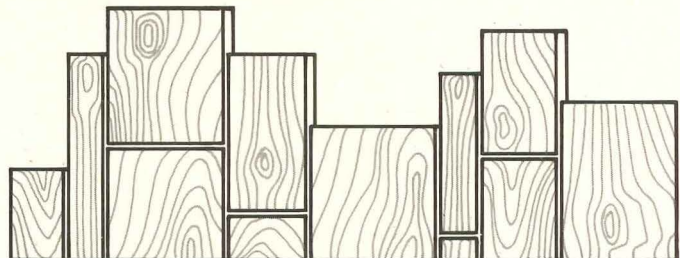
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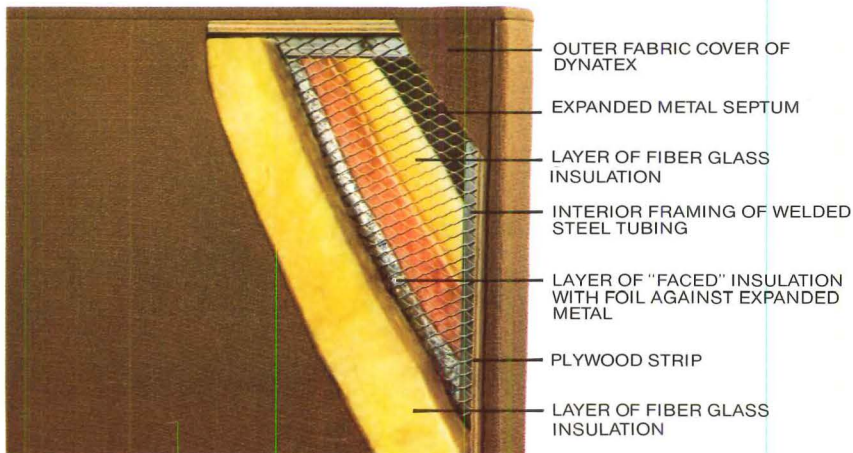
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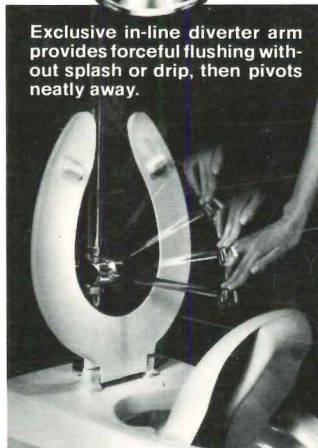
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