



INTERIOR OF ST. BENEDICT'S ABBEY CHURCH BY STANLEY TIGERMAN

RECORD INTERIORS OF 1973

ART CENTER BY I. M. PEI AND PARTNERS FOR CHOATE AND ROSEMARY SCHOOLS

BUILDING TYPES STUDY: THE ROLE OF THE ARCHITECT IN DEVELOPMENT HOUSING

FULL CONTENTS ON PAGES 4 AND 5

# ARCHITECTURAL RECORD

JANUARY 1973

1

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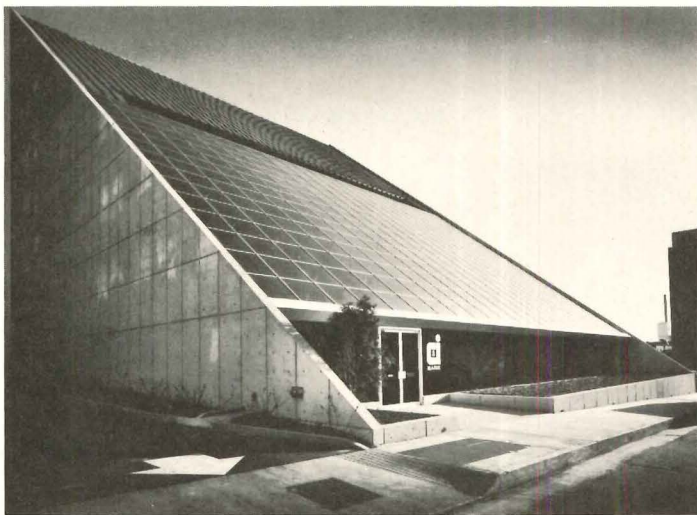


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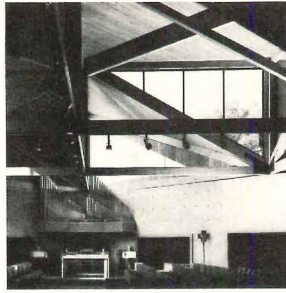


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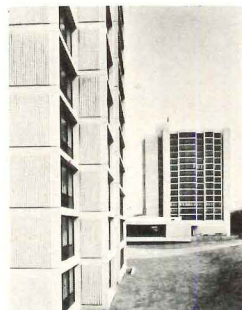
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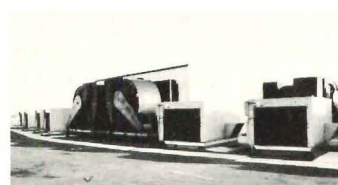
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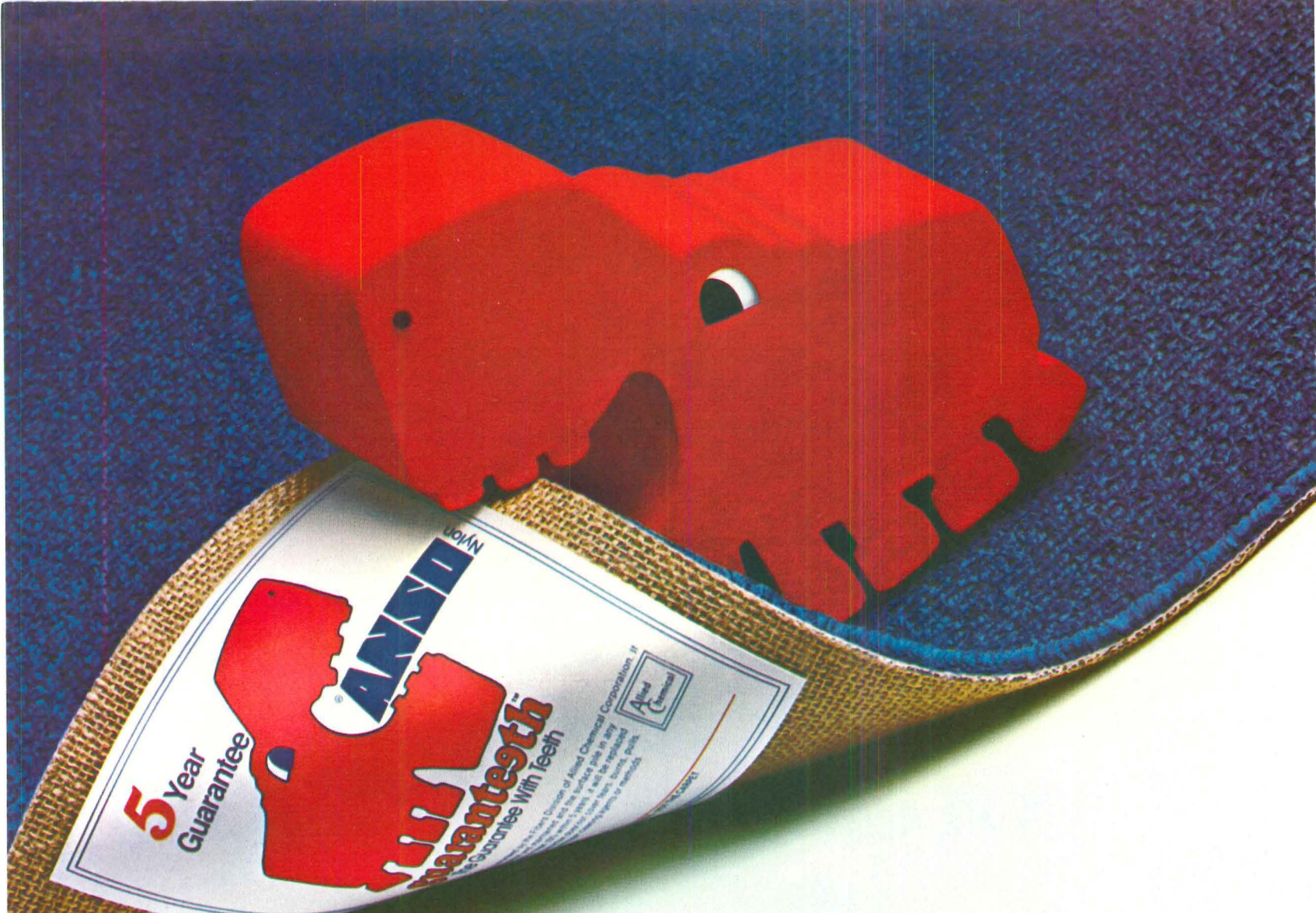
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## Happy New Year (with a little luck and a little help from our friends)

The January editorial is always a tough one to write. For one thing—since not just time and tide but printing presses wait for no man—it has to be written in the middle of the Christmas season. And while you have the feeling that you ought to deliver an especially insightful here-we-are-at-the-beginning-of-a-new-year pronouncement full of fresh hope for a fresh new year, you are in fact in every other respect winding up—winding up another year in which you didn't quite manage to do all the things you wanted to do with yourself (lose 20 pounds, write the book on why people should live in the house they want to live in instead of the one that's the best investment, learn to ski parallel not just in perfect conditions but on ice and through moguls); and another year in which you didn't manage to do all the things you wanted to do with the magazine. Being the editor of a national magazine is a truly groovy job, but it has one big drawback: Each month, you—and all the senior editors, and associate editors and assistant editors and editorial assistants and secretaries—know that you could, next month, put out the finest issue of any magazine that has ever been published. All you have to be is smart enough, and articulate enough, and sensitive enough. And every month (though with one exception I've liked this year's issues of the RECORD very much) you know you haven't quite accomplished what you set out to do.

But then neither, I suppose, does anyone else.

Nonetheless, while in a backward-looking mood (as I write this) herewith are some forward looks into the year (as you read this):

- Let us hope that 1973 is the year that we get back on the track of solving our urban housing programs. I was looking back (again)

and found that in an editorial on housing problems four years ago we quoted then HUD Undersecretary Robert Wood: "In the context of problem solving, governmental structure is no longer a pyramid of building blocks, arranged with due respect to a neat and tidy hierarchy. It must be viewed and managed as a system of many parts and relationships. It must be treated not so much in terms of legal prescriptions, authority, rules and regulations; as in terms of the capacity to define and solve problems."

Well, we haven't—despite the best of intentions—gotten too far along those lines, seems to me. Far be it from me to beat a dead Operational-Breakthroughing horse—but we *did* know it all along (see RECORD April 1968—i.e. before Secretary Romney—this page): "It is unrealistic to count on some magical breakthrough in technology to solve the problem . . . Yet industry leaders and government officials from [then] HUD Secretary Robert Weaver on down keep calling for the breakthrough—thus delaying a commitment to solve the problem with the building tools already at hand."

I thus offer as a Christmas present and/or New Year's resolution to our new HUD Secretary James T. Lynn a proposal from this page dated April 1968:

"In the face of the enormous volume of new housing and related construction that is needed, I feel certain that we should face the fact that housing costs more than the people who need it most can afford to pay, set up programs to fill that gap, attract the money needed to finance the construction into the capital pool, unwind the red tape, and start building the best we already know how."

- Let us hope that 1973 is the year that governments—Federal, state, and local—realize

that solving the housing problem must be done in concert with solving "the school problem"—especially, though not entirely, in the cities.

Let's take the suburbs first, because they are easier. I persist in believing that there would be much less suburban opposition to economic integration (and if it's appropriate in your area, you may read economic integration as racial balance) if the cost of new schools (or support for the existing school system) went along with new housing.

For example, around here, we see the state fostering low- and middle-income housing (through the Urban Development Corporation) in suburbs around New York; and we see (surprise, surprise!) massed opposition from the suburbs that would be affected. In other suburban towns, we see larger and larger-lot zoning—set up (for the record) "maintain the existing character of the town" but (in fact) to try and slow down growth.

It's easy to criticize these suburbanites on grounds of racism or intolerance or snobbery (and a lot of people do). And there's some of that to be sure. But I'd like to see whether that opposition to new residents couldn't be quieted by linking to that new housing sufficient classrooms and teachers to educate the children who would move into the new housing. Suppose that in addition to the housing subsidy (whether in the form of lower interest to the developer or rent supplements to the residents) we subsidized the school systems for the added educational costs. Since most states already heavily subsidize school construction, the added subsidy for the costs of housing and teaching the children of low- and middle-income families might not be excessive. I persist in thinking that most people in suburbs are not racist or intolerant or





"We overcame the tyranny of the cube, but watch your head!"

snobs—but simply sick to death of (and increasingly unable to) pay higher local taxes.

Mightn't the additional school subsidy be a small price for us as taxpayers to share in return for an at-least-partial solution to problems of housing and social inequity?

On the urban scene, of course, a major problem is the constant exodus of tax-paying middle-income families to the suburbs. I persist in believing that a lot fewer of them would flee if the urban schools met their standards. And that's not a matter of money—the New York City cost-per-pupil, for example, compares closely to the costs in many "upper-income" suburbs and exurbs. But it is a matter of school size—and administrators in many cities persist in building (presumably for reasons of administrative efficiencies) schools which are inhumanly large; and it is a matter of racial and economic mix. This may not be pleasant to talk about; or fair; or even socially just. It is hard to argue with anyone who insists that priority in new urban housing should be given to the poor, especially those forced out of areas by urban renewal. But, seems to me, all that does is create somewhat more modern ghettos. There's an uproar now among neighborhood groups in New York who wanted to develop a racially and economically integrated neighborhood. They had worked on an urban renewal project which, in agreements with HUD and city officials, was set up with 70 per cent non-Federally subsidized (and therefore moderate- and middle-income) units and 30 per cent low-income units. It is now alleged that the city has allowed 49 per cent of the apartments to be rented by low-income families and welfare clients. And what was to be a welcomed experiment has now become one more unpleasant hassle. On a larger scale, such efforts towards insuring heterogeneity in urban areas could attract hordes of middle- and upper-income families back into the city bearing tax money—but not if promises are not kept. Such promises of "ratios" are difficult to make—on both moral and political grounds—

but maybe we could experiment with some compromises that everyone could live with.

■ Maybe 1973 can be the year where we face up to the real problems of land usage. Scott Ferebee in his inaugural speech as new president of the AIA said it well: "Under the leadership of Bob Hastings and Max Urbahn, the AIA has stepped forward to play a leadership role in directing our future. The National Policy Task Force they appointed has come up with a bold new plan for urban growth. While recognizing the values and freedoms that Americans cherish, it faces up to the problems of land speculation, economic constraints, and the division of public and private responsibility in the rebuilding of America."

■ Maybe 1973 can be the year that—on both sides of the question: need and conservation—we can lower our voices and start using our heads and professional skills in the area of materials allocation. Somewhere between the point of view of some utility executives (who can do nothing but warn us that if we don't build new power plants lining half the country's remaining waterfront land we'll all be using candles) and the point of view of militant conservationists ("no more, nowhere") lies a compromise we can live with. Somewhere lies a compromise in timbering practice that will get us the lumber we undoubtedly need without despoiling our wilderness heritage.

■ And maybe 1973 can be the year that we stop arguing who is going to pay for cleaning up the pollution we have and continue to create. As was pointed out in a McGraw-Hill editorial that appeared in all our publications recently: "The responsibility of industry has been set, at the outer limits of the possible, by the President's Commission on Environmental Quality. . . . The total cost of the program is estimated at \$277 billion. Industry's share of the cost is \$195 billion—\$63.5 billion for capital equipment, the remainder for other costs. This imposes on industry an additional expense averaging \$24.4 billion a year. And

to put this figure into perspective, it should be noted that total before-tax profits of U.S. manufacturing in 1971 amounted to \$34.1 billion." Where then is the money to come from to clean up the damage that has already been done and pay for the equipment and extra costs needed to prevent more damage? From all of us, of course. No one doubts that extra costs incurred by industry will be passed on to the consumer. And when municipalities are required to change their habits of sewage disposal and incineration, there's nobody to pay but the taxpayer. Beyond that, conservative author William F. Buckley Jr. has made a proposal which (atypically) sounds good to me: "Why not propose to the American people that they make a present to themselves of clear water. Clear lakes, clear rivers, clear streams.

"Congress should empower a Bicentennial Committee to sell ten-year tax-deductible bonds at just-under-prevailing interest rates, the proceeds of which would begin instantly to be used to begin the great enterprise."

As Mr. Buckley points out, cleaning up our water is one thing that everyone from John Wayne to Jane Fonda can agree on. Further, if it is true that the project is one that deserves total participation (in the form of taxation), Mr. Buckley's scheme would nonetheless allow those of us who are really concerned about pollution to do our personal part about cleaning it up. It would, no doubt, be a very bad investment from a purely financial point of view; but wouldn't it be a swell investment from the point of view of the human spirit?

Finally, may 1973 be—for all architects—a year free of Justice Department injunctions, further suggestions from the GAO that when you've got one good hospital plan why not reuse it a lot, and quality-skinning consultants and clients. I wish for everyone a telephone call from a client who wants a fine building "done the way you think is best," and concludes by saying ". . . and cost is no object." Happy New Year. *W. F. Wagner Jr.*





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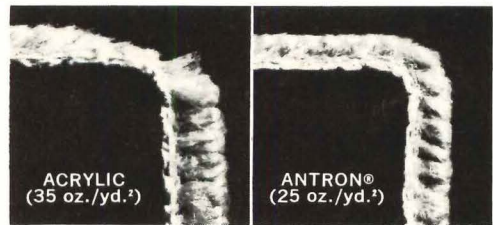
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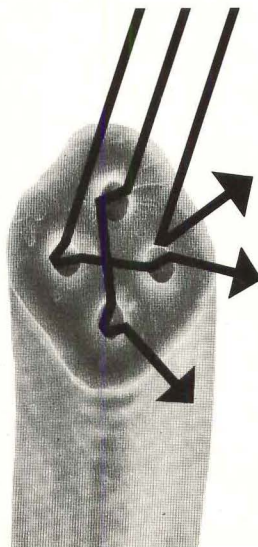
For any installation subject to heavy traffic, specify “Antron”. It has no equal in long-term appearance retention.

And for further information and a list of mill resources, write: Du Pont, Contract Specialists, Room 107AR, Centre Road Bldg., Wilmington, Del. 19898.



Abrasion test on simulated stair edges shows pile wear in level-loop carpets after equal exposure.

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**How “Antron” hides soil.** Its filament structure is unique, as shown in this magnified (650X) cross-section. The four precisely-placed holes in each filament scatter light like the facets of a diamond to minimize the dulling effect of soil, while helping to retain color clarity and luster.

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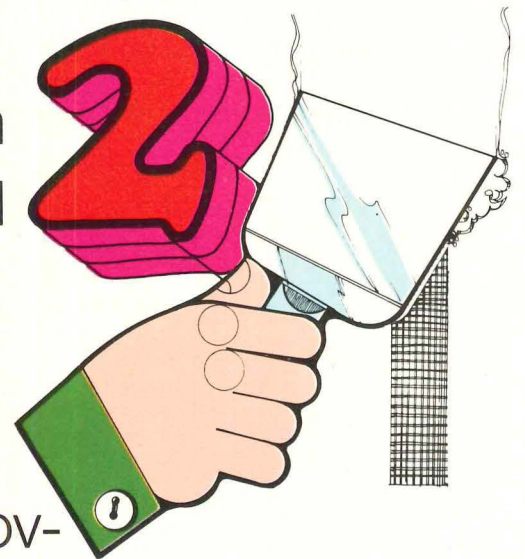
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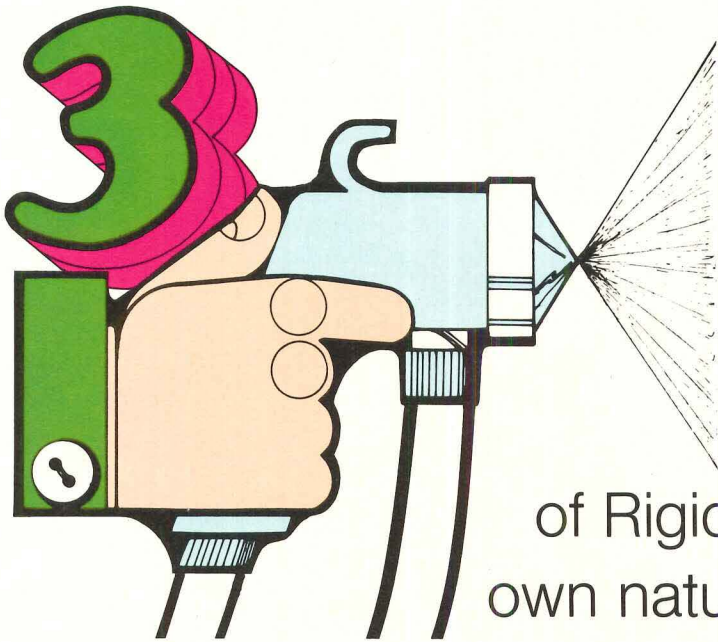
schools . . . and other large jobs. Although Rigidwall materials are slightly different, there is no major change from standard wallboard installation procedures.



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and early occupancy. Rigidwall is a low-maintenance material. It's tough and durable.

The washable finish will retain its eye-appeal, even after countless scrub-

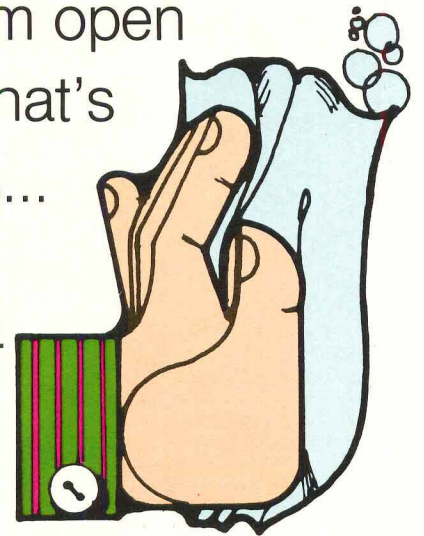
bings. For more information on the Rigidwall Gypsum System, see your Celotex representative or write to

The Celotex Corporation, P. O. Box 22602, Tampa, Florida 33622.

**Celotex\***  
BUILDING PRODUCTS

**Celotex understands the man who builds.**

A subsidiary of the Jim Walter Corporation

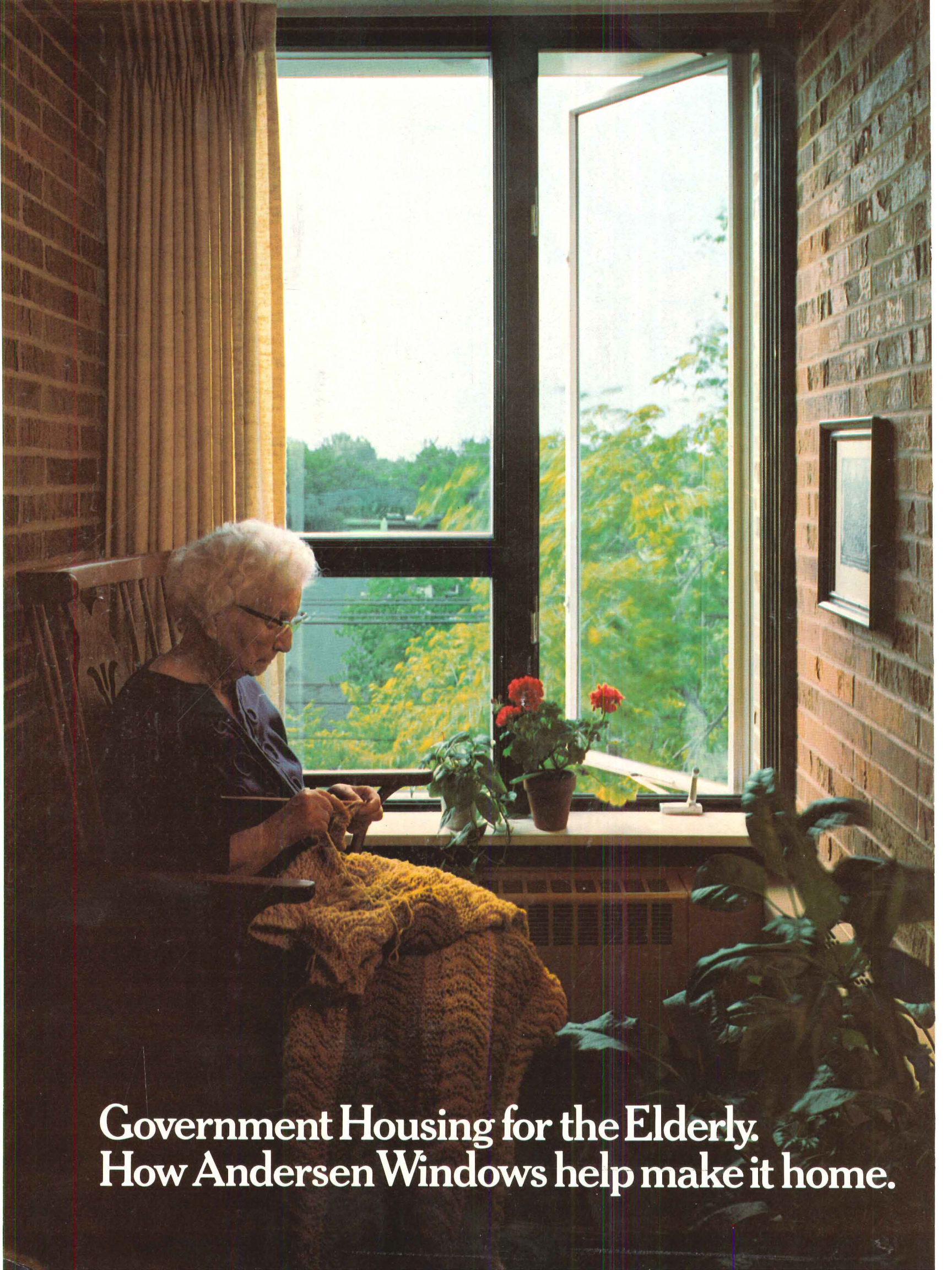


Rigidwall System is presently released for shipment in the following states only: Arkansas, Connecticut, Delaware, Kansas, Louisiana, Maryland, Massachusetts, Missouri, New Jersey, New York, Oklahoma, Pennsylvania, Rhode Island, Tennessee (County of Shelby only), Texas, Virginia and West Virginia.

\*Trademark

*For more data, circle 7 on inquiry card*





**Government Housing for the Elderly.  
How Andersen Windows help make it home.**



To be successful, housing for the elderly must feel like a real home to the residents, and avoid the aura of an "institution."

The architect who designed this unique project in Minneapolis began with this premise.

He gave it residential character and European flavor, and designed the whole project to function as a community within itself.

At the center of the complex there are comfortable recreation and visiting areas with a courtyard and fountain.

To help the residents feel even more at home, the architect specified Andersen Perma-Shield® Windows.

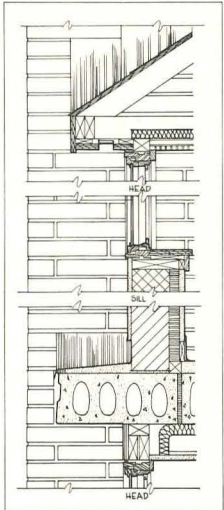
He wanted Perma-Shield for its tough, durable exterior vinyl sheath that doesn't need painting. And for the natural beauty and warmth of wood on the inside.

The natural insulating factor of wood and the extra-weathertight quality of Perma-Shield Windows are important in the bitter Minnesota winters. The welded-insulating glass option eliminated the need for storm windows.

In warm weather the Casements open wide, letting in lots of fresh air with top to bottom ventilation.

With 5 styles and hundreds of combinations to choose from, Andersen Perma-Shield Windows can add a touch of home to your next project without sacrificing low maintenance. And without straining the budget either, when total installed costs (including cost of painting) are figured.

For more information, check your Sweet's File. (Sections 8.16/An. and 8.6/An.) Or see your nearest Andersen distributor or dealer.



**Andersen Windowalls**  
ANDERSEN CORPORATION BAYPORT, MINNESOTA 55003 

For more data, circle 8 on inquiry card



Building: Housing Project for The Elderly, Minnesota 2-25.  
Architect: Bettenburg Townsend Stolte & Comb, Inc., Minneapolis, Minnesota





# Light takes on form. By day, as well as night.

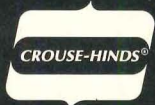
Burnish a brick facade. Splash safety on a footpath.  
Make bold a bas relief.

Shine security on parking areas.

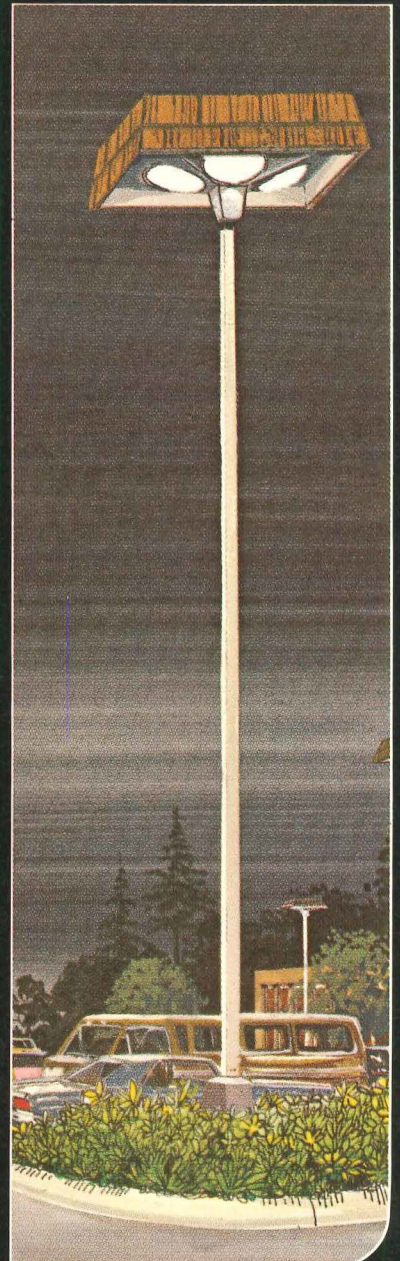
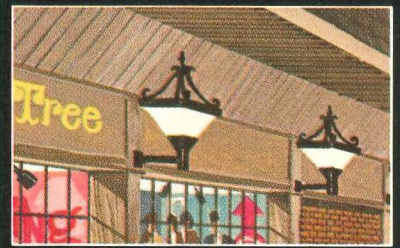
Until now that sort of lighting all too often came in ugly packages. The photometrics were nice. The esthetics weren't.

That's no longer true, as you can see on this page. Good looks by day complement good light by night. Now, fixture designs complement architectural creativity, complement landscape features, complement other lighting.

We've packaged lighting function inside lighting form in many new ways. Let us show you. And let's talk about creative custom designs, too. The coupon opens the conversation. Send it now.



**CROUSE-HINDS**



**Lighting Products Division,  
Crouse-Hinds Company,  
Syracuse, N. Y. 13201.**

Please have a sales representative contact me.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_



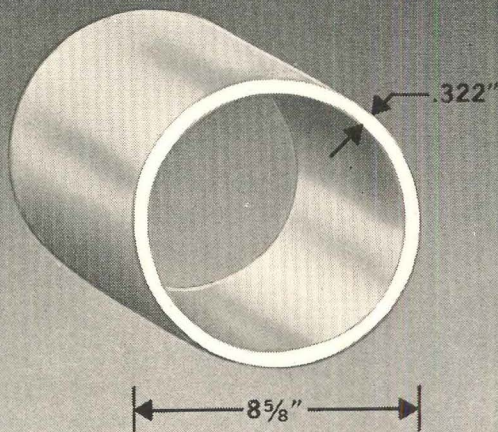
For more data, circle 9 on inquiry card



# All 3 of these structural columns do the same job. Which one would you specify?

PIPE

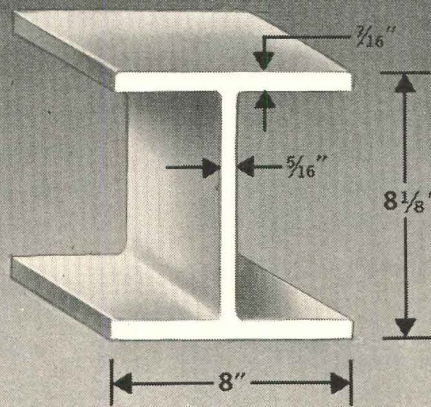
**\$3.52**  
▲ per foot



**29** lb/ft

WIDE FLANGE BEAM

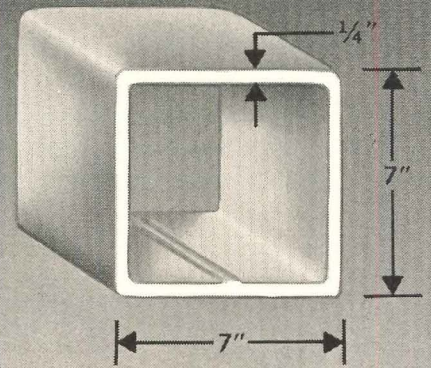
**\$3.03**  
▲ per foot



**35** lb/ft

WELDED SQUARE TUBE

**\$2.57**  
▲ per foot



**22** lb/ft

compare these price/weight advantages of square tubing over wide flange and pipe sections! Ask us for further facts and figures!

## MINIMUM YIELD STRENGTH

PIPE \_\_\_\_\_ 36,000 psi

WIDE FLANGE BEAM \_\_\_\_\_ 36,000 psi

WELDED SQUARE TUBE \_\_\_\_\_ **46,000** psi  
or **50,000** psi

ask for  
our new  
brochure



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# The other telephone

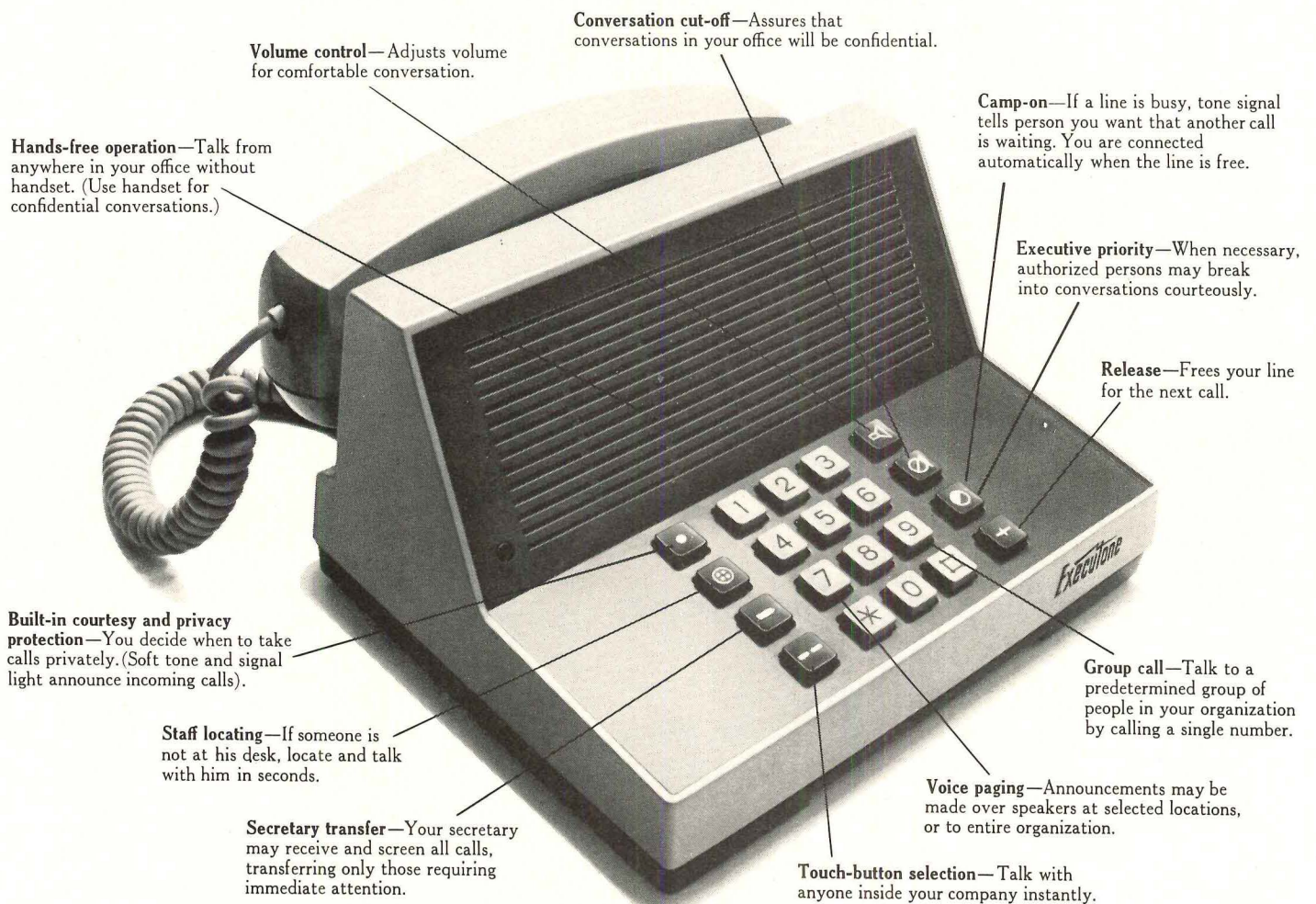
The other telephone is Executone Intercom—the better way to communicate with people *inside* an organization. Everyone continues to use his regular telephone, but for outside calls only.

An Executone system quickly pays for itself, because it helps organizations run more smoothly, cuts overhead, and improves customer service.

Pick up your regular telephone now to find out

more about the other telephone. Your Executone man will analyze your clients' present telephone setup and come up with specific recommendations.

Or write for free portfolio, "How to Save with Intercom." Executone, Inc., Dept. C-8, 29-10 Thomson Ave., Long Island City, N.Y. 11101. In Canada: 331 Bartlett Ave., Toronto.



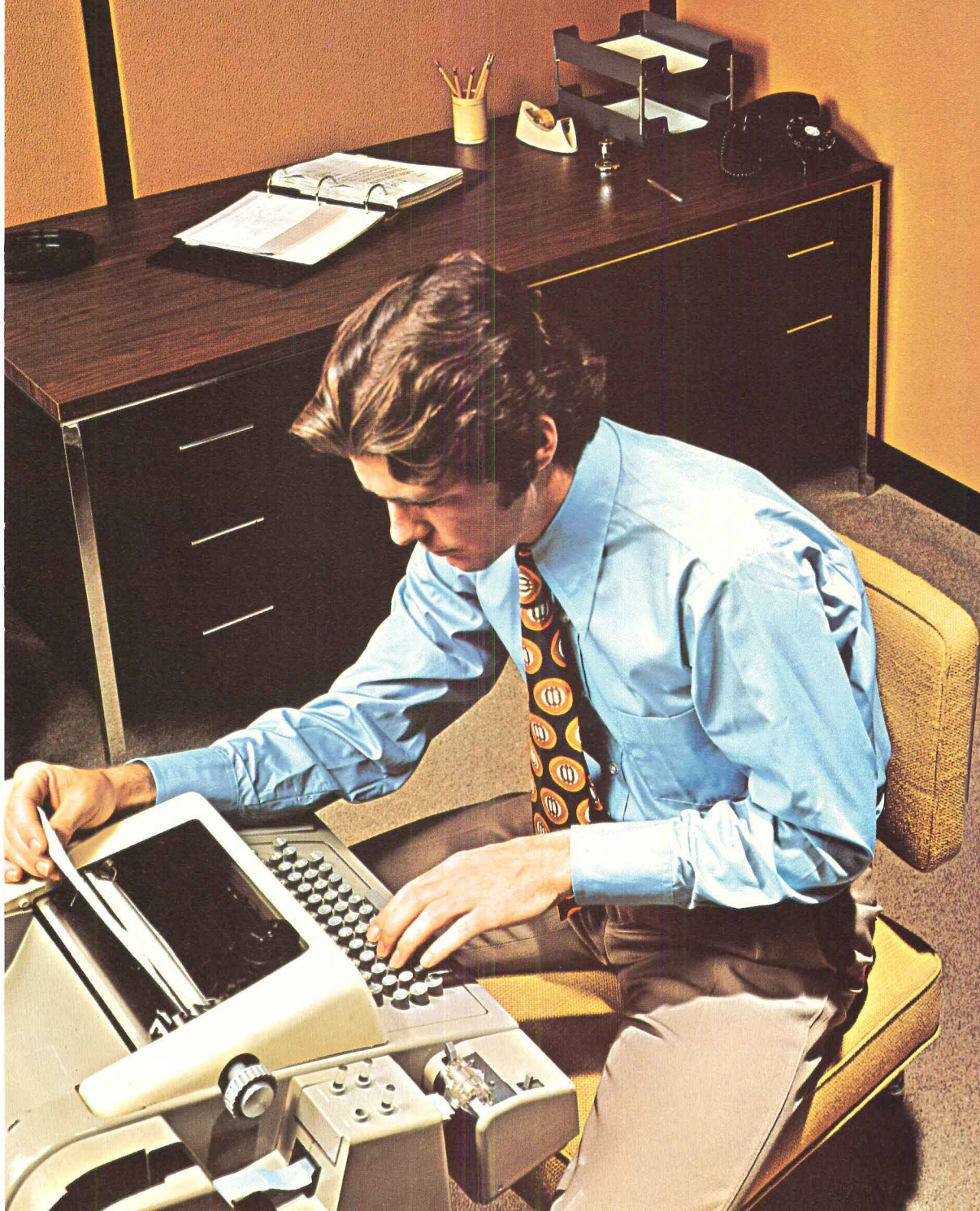
**Executone intercom**

For more data, circle 17 on inquiry card



# THE QUIET WALL.

THE BEAUTY SIDE...





# THE QUIET WALL.

## THE PRACTICAL SIDE.

**Vicracoustic® wall panels\* are durable and available in a wide range of sizes.** They're durable because they're pre-finished with perforated Vicrtex® vinyl wall covering. Vicrtex is an electronically fused vinyl-coated fabric. The color is an integral part of the Vicrtex vinyl so the colors stay fresh and true.

If you'd like to try our panels on for size, we'll be glad to accommodate.

We have two standard size panels: 4' x 8' and 4' x 10'. If you desire a smaller sized panel, we'll be glad to cut one of our panels down to the size you want. We provide a custom cutting service to take care of any size problems.

And there's more.

Vicracoustic wall panels combine the beauty and durability of Vicrtex with the sound absorbency of glass fiber. This means you can achieve improved acoustical environments and more desirable working conditions. The resulting wall panel system is both beautiful and functional.

All the different colors and unique patterns of Vicrtex are available in Vicracoustic wall panels. Add in a wide range of sizes, and our panels give you great design versatility.

Finally, Vicracoustic wall panels are easy to install. Once installed, they're easy to care for. A proven fact in installations in such places as data processing areas, auditoriums, cafeterias, bowling alleys, sound recording studios and executive offices. They really do the job.

So be practical. Pick up a pencil and fill out the following coupon.

\*Patent applied for.

**LE CARPENTER**  
AND COMPANY



A DAYCO COMPANY

964 Third Avenue, New York, N.Y. 10022 (212) 355-3080

Sir: I'm practical.

- I'd like to know more about Vicracoustic wall panels.
- I'd like more size and physical information.
- I'm involved in the following wall application:

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Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

- I'd like to have a salesman call.

AR

Distributed by Vicrtex Sales Division — Atlanta, Chicago, Los Angeles, New York.

*For more data, circle 18 on inquiry card*



# We just wrote the book on modular air conditioning.

And it's all about the basic modular building block for cooling (and heating) high and low rise buildings.

The Carrier Dual Moduline® System.

Twenty-eight pages detail everything you ought to know about this self-contained, variable volume ceiling unit. How it gives you complete flexibility in your ceiling design. Cost-savings like nothing else for interior changes—before and after the tenant is in. How it hides in your ceiling. Cools two rooms at once. Independently. And how it never uses more cool than it has to.

For your copy of this new modular air conditioning book (including schematics, cost charts, installation drawings), just clip out and mail in this coupon.



**No.1 air conditioning maker**

Carrier Air Conditioning Company  
Dept. AR  
Syracuse, N.Y. 13201

Please send me my free copy of the new Carrier Dual Moduline System book.

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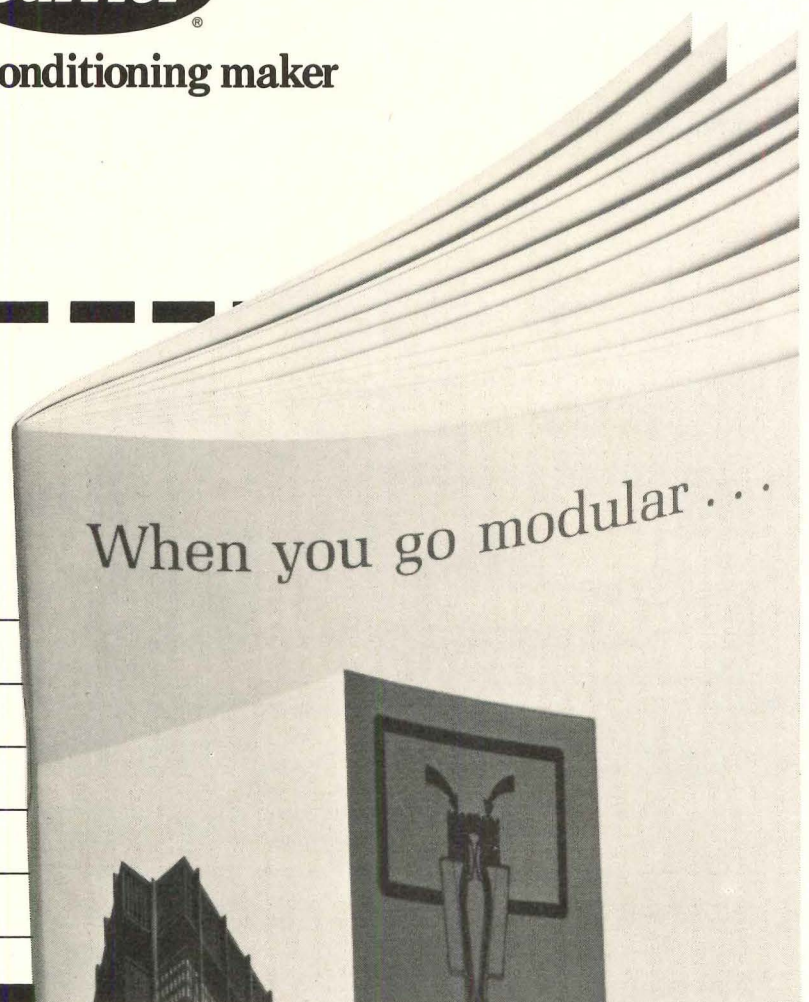
TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_





# The big new idea in track lighting is only this big.

New **Mini Track Lights by Progress**, the first and only miniature track lights scaled for homes, offices and other areas with 8-foot ceilings.

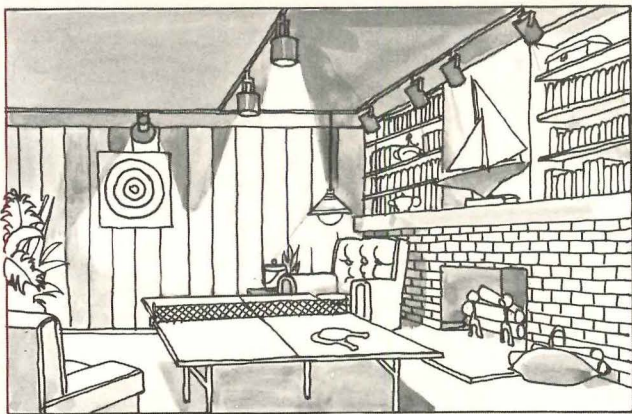
Use their wonderful flexibility wherever you need light for work, play or decorative effect.

Use them to dramatically accent art, sculpture, walls, furnishings.

The single-circuit track for Progress Mini Lights measures an unobtrusive 5/8" deep. Two-circuit track is only 1-1/8" deep. Each circuit has 20 amp. capacity. Both tracks come in 4- and 8-foot sections which go up easily on ceilings or walls. Insert Progress Mini Lights easily anywhere along the track. Swivel them, move them to new positions, switch them on or off individually.

Four styles, in antique brass, white, black or chrome. Models for high-intensity or 30/50W R-20 lamps.

Progress also offers a complete line of Maxi Track display lights scaled for stores, showrooms,



(actual size)

museums, galleries and other commercial uses.

For further information, contact your nearest Progress lighting distributor listed in the Yellow Pages under "Lighting," use the reader service card, or write to us.

*Mini Track Lights. Only from Progress.*

**progress**<sup>®</sup>

LIGHTING

DIVISION OF LCA CORPORATION  
PHILADELPHIA, PENNSYLVANIA 19134

## NAHB SHOW SAMPLE SPECIAL! A \$57 Value for only \$20

To familiarize you with this new lighting system, we are making a special offer of a 2-light Plug-in Track Kit to use in your own home. It comes complete with two high intensity Mini Lights, a 4 ft. track with 15 ft. plug set attached.

To order your kit, bring this ad to Progress

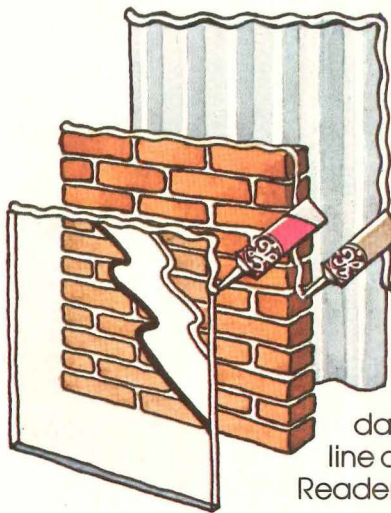


Lighting Booth 2566 at the NAHB Show. (If you aren't going to Houston, mail this ad with your name, address, and check for \$20, plus \$1.50 for postage and handling, to Progress by Jan. 31, and we'll send you a kit.) Limit, one per customer.



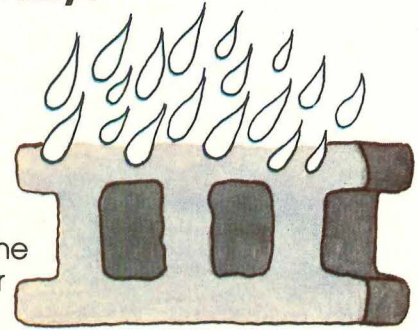
- Q.1 **What's the closest thing to a truly permanent sealant?**  
 Q.2 **What? Real weather protection for masonry?**  
 Q.3 **Outdoor finishes that last 10 years? Really?**

**A1** Any of General Electric's 12 silicone construction sealants can qualify. You see, they don't compromise anything. They're the most age and weather resistant sealants ever invented. They bond well to a wide range of materials, but some are especially tenacious on glass and metal, while others excel on concrete. Some are one-part silicones; others, two-part. And some are even cost competitive with polysulfide. Our two-part Silicone Sealant 1600, for example, is based on a technological breakthrough that puts it in the two-part polysulfide price range without sacrificing silicone's advantages. It needs no primer on concrete and other substrates. Applies easily at any temperature without sagging. Cures to a flexible seal that can expand 8 to 10 times its contracted size. (Which is at least twice as good as competitive sealants.)



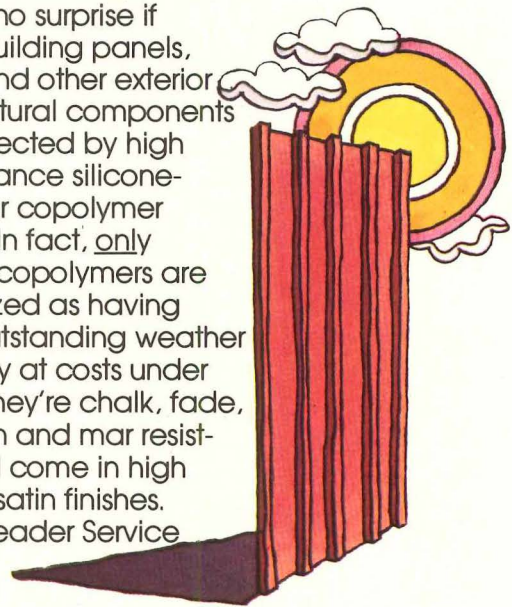
Joints won't fail even when cut, because 1600's knotty tear characteristic turns the tear in the direction of exerted force, which relieves stress at the point of puncture. For full data on the only full line of silicones, circle Reader Service No. 20.

**A2** Sure. If it's above-grade masonry, just coat the exterior with GE Dri-Film® silicone masonry water repellent.



Water can't penetrate this invisible coat, so powdery, salty-looking efflorescence can't get started. And freeze-thaw cycles can't cause spalling and cracking. Which means exteriors stay clean and new-looking for years and years. Circle Reader Service No. 21.

**A3** Definitely. A decade of maintenance-free, weather-durable performance is no surprise if metal building panels, siding and other exterior architectural components are protected by high performance silicone-polyester copolymer finishes. In fact, only silicone copolymers are recognized as having really outstanding weather durability at costs under 2¢/ft<sup>2</sup>. They're chalk, fade, corrosion and mar resistant. And come in high gloss or satin finishes. Circle Reader Service No. 22.



For all the details, write Section N1380  
 Silicone Products Dept., General Electric Co., Waterford, N.Y. 12188.

GENERAL  ELECTRIC

**GE silicones.**  
**The answer.**

See Reader Service numbers above.

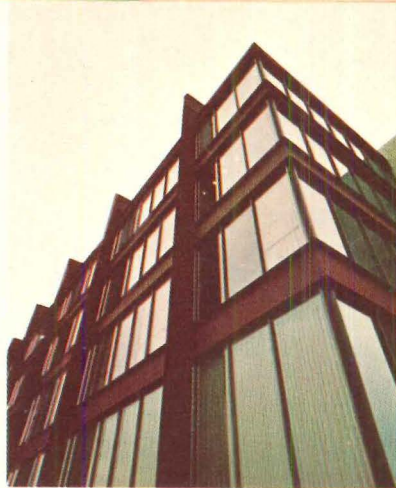


# USS® Cor-Ten+fluid-filled



In California, two separate architectural firms decided on boldly exposed USS COR-TEN Steel exteriors for two neighboring rental complexes in Newport Beach.

In order to retain the visual honesty of bare steel, conventional fire protection techniques were rejected, and both firms arrived at a solution that is gaining increased application across the country. The solution was hollow, fluid-filled columns of bare USS COR-TEN steel. Briefly, here is how the system works.



**Michelson Plaza:** A bold exterior and column-free first floor were two of the prime objectives for this four-story office building. Both were achieved by the use of bare fluid-filled USS COR-TEN Steel box columns and roof girders, and by suspension of the upper three floors. The girders are also filled with fluid and represent the first use of the internal fire-protection technique in a horizontal plane.

**Owner:** Michelson Associates, Newport Beach, Calif. **Architect:** Riley & Bissel, Newport Beach. **Structural Engineer:** Robert Lawson, Newport Beach. **Contractor:** B. H. Miller Construction Co., Newport Beach.



# columns=fire protection.



Should the columns be exposed to flame, the fluid inside the columns absorbs the heat, and convection currents circulate the water solution within the closed-loop system. Heated fluid rises and cooler solution replaces it, literally giving heat the run-around.

For information on fluid-filled columns or USS COR-TEN Steel, contact a USS Construction Representative through your nearest USS Sales Office or write United States Steel, Dept. 7566, Box 86, Pittsburgh, Pa. 15230.

USS and COR-TEN are registered trademarks



**Airport Business Center:** This handsome, four-building complex comprises two four-story office buildings and two one-story branch banks. All exterior steel is bare USS COR-TEN Steel, complemented by bronzed-tinted glazing. Perimeter columns of all four structures are 6-inch x 4-inch hollow structural tubes. Columns in the two larger buildings are fluid-filled.

**Owner:** The Irvine Co., Irvine, Calif. **Architects:** Craig Ellwood Associates/James Tyler and Robert Bacon, Los Angeles. **Structural Engineer:** Norman-Epstein, Los Angeles. **Mechanical Engineer:** (Liquid-filled column system design) Paul S. Bennett, Los Angeles. **General Contractor:** J. B. Allen & Co., Anaheim. **Fabricator/Erector:** Lee & Daniel, Azusa.

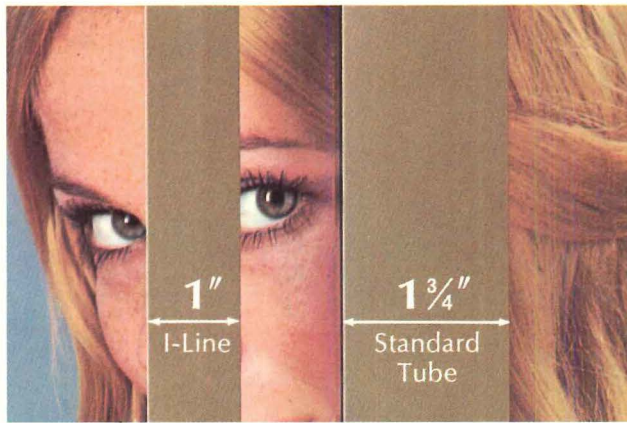
 **Cor-Ten Steel**

For more data, circle 23 on inquiry card



KAWNEER introduces

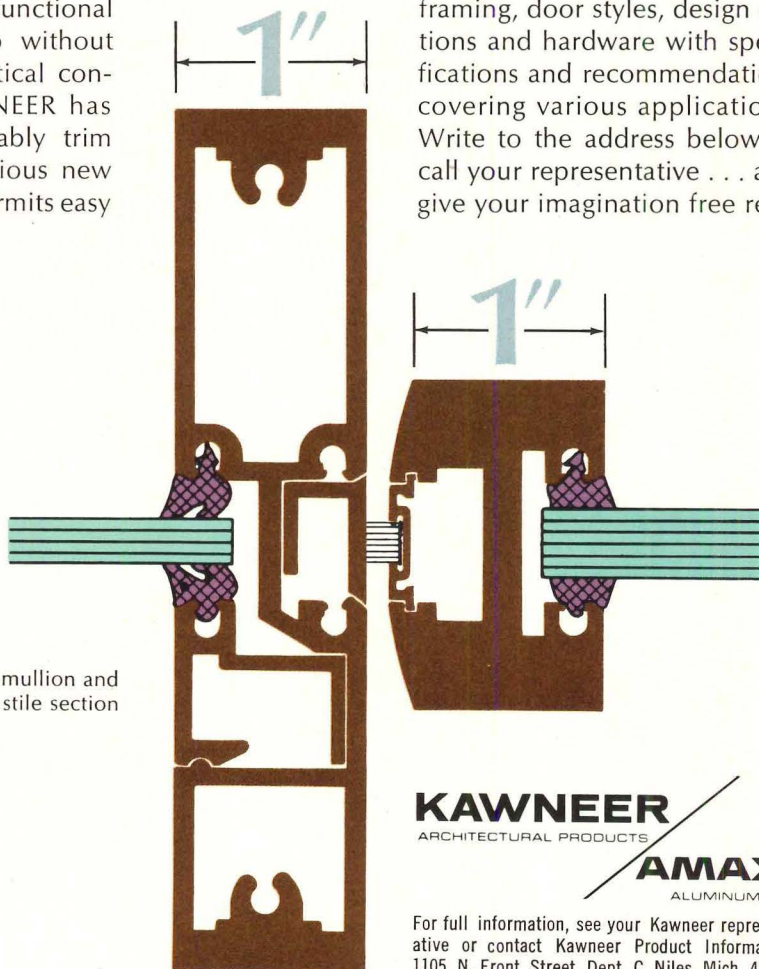
**i**line



## narrow profile aluminum framing and entrances

Now, for the first time, the clean, crisp drawing board concepts you have envisioned in your framing and entrance designs have been translated into aluminum . . . and can be realized in actual construction. □ KAWNEER's new *I-Line* narrow profile framing, with a 1-inch sight line, reduces by nearly one-half the face dimension of the traditional 1 $\frac{3}{4}$ " framing profile. The new system, with its many horizontal design options, and with complementary thin stile doors, opens new vistas in aesthetic and functional design—and does so without sacrificing other practical considerations. □ KAWNEER has achieved the remarkably trim profile with an ingenious new mullion design that permits easy

"in-line" flush glazing—without the extra mullion width normally required for setting the glass. Yet, the *I-Line* system equals the structural strength and provides the same glass bite as traditional framing systems. *I-Line* framing is 1" x 4 $\frac{1}{2}$ " deep and accommodates up to  $\frac{3}{8}$ " glass thicknesses. It is available in clear anodized aluminum or Permanodic® colors. □ KAWNEER's new brochure, *I-Line Narrow Profile Aluminum Framing and Entrance Systems*, fully describes and illustrates *I-Line* framing, door styles, design options and hardware with specifications and recommendations covering various applications. Write to the address below or call your representative . . . and give your imagination free rein.

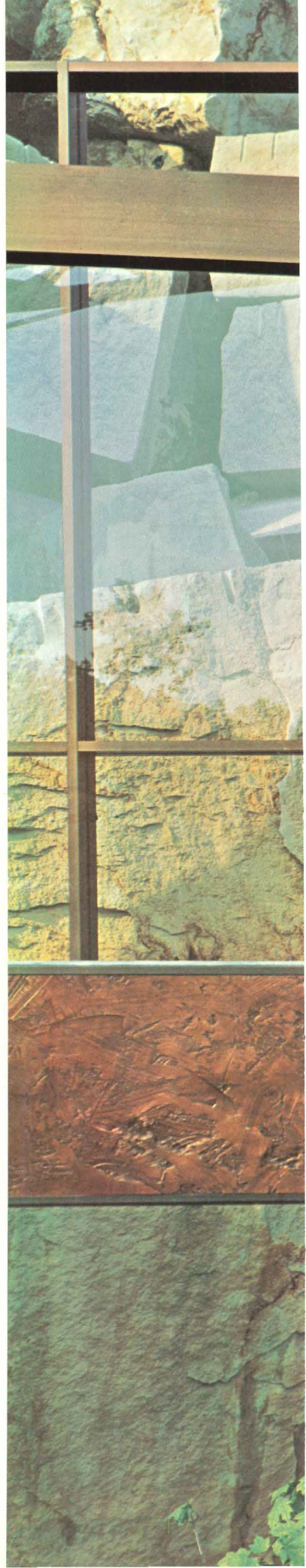


Typical vertical mullion and door stile section

PATENTS PENDING

**KAWNEER**  
ARCHITECTURAL PRODUCTS  
**AMAX**  
ALUMINUM

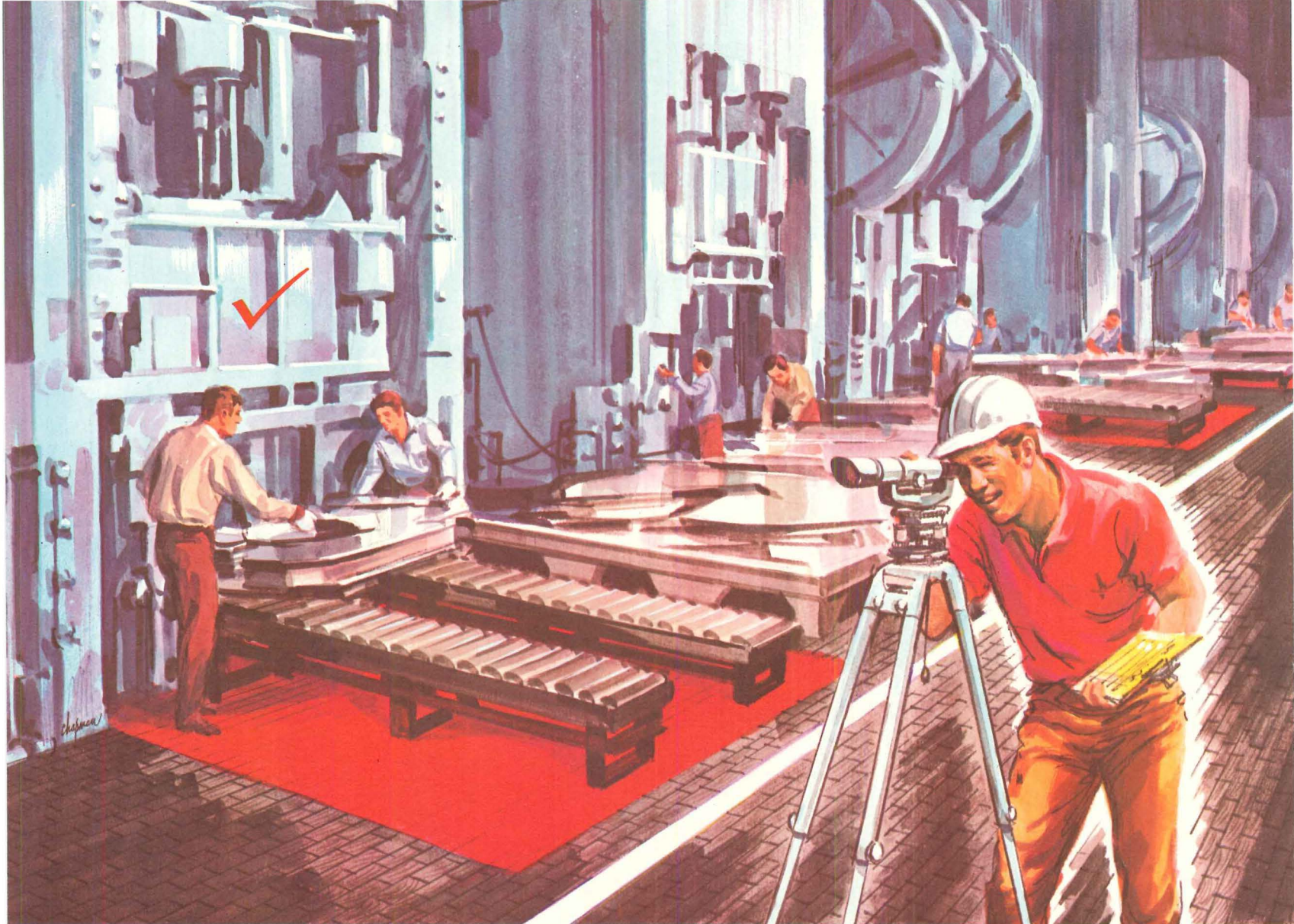
For full information, see your Kawneer representative or contact Kawneer Product Information, 1105 N. Front Street, Dept. C, Niles, Mich. 49120.







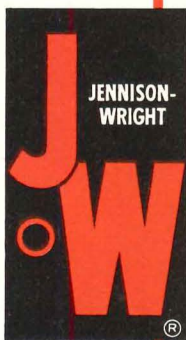




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*by Jennison-Wright*



### ADVANTAGES OF KREOLITE® FLOORS:

1. Easy relocation and concealment of service lines to machinery.
2. Speed and economy of replacement in aisles and other heavy wear areas.
3. Special finishes for absolutely dust-free surfaces.
4. Versatility in providing for in-floor conveyor systems, tow-lines, etc.
- ✓ 5. Measurable contributions to noise abatement.
6. Easy installation of oil dispersal and/or recovery systems.
7. Traditional properties of comfort through insulation.
8. Non-sparking surface in volatile areas.
9. Reduction of damage to dropped tools and products.
10. Priced for profitable production.

At first glance, wood blocks don't look sophisticated. It would be easy to assume that their installation requires a minimum of preplanning, but this is not so in most cases. Your flooring should be engineered to your requirements just as your factory was. Jennison-Wright Kreolite® End Grain Wood Block Floors have many advantages (see panel at left), but to take full advantage of their features, preplanning is most desirable. Our Design Engineers will gladly perform this service at no charge.

The Jennison-Wright Corp., P. O. Box 691, Toledo, Ohio 43694

*... you'll find us in Sweet's Catalog and in the Yellow Pages*

For more data, circle 25 on inquiry card



# DON'T PLAY WITH FIRE.

## CCC's New Naturalweave spongebonded carpet has a Class "A" Flamespread rating.

If you're looking at carpet for an office building and it doesn't have a Class "A" flamespread rating—25 or less in the Steiner Tunnel Test—you may be playing with fire. The danger of fire always exists, that's why fire safety standards are becoming more and more stringent. At CCC, we know all about fire safety. We've become experts, because we've installed millions of yards of carpet in offices, hospitals, schools and stores.

Since fire safety is a major concern to us, we've just introduced a fire-retardant, spongebonded carpet with a Class "A" flamespread rating. We call it NATURALWEAVE FLAMEGARD and it meets *all* governmental flamespread standards.

NATURALWEAVE FLAMEGARD is an addition to our heavy duty Densylon Carpet series. It has a five-year wear guarantee and is made of tightly-twisted, densely-packed ANSO nylon bonded to B. F. GOODRICH fire-retardant sponge rubber cushioning. This built-in cushion extends the carpet's wear-life by one-third compared to carpet without padding. It's

guaranteed not to lose resiliency, enhances the carpet's appearance retention, reduces leg fatigue and increases floor safety. Among its other benefits, NATURALWEAVE contains a static control system, is easy to clean and keep clean, and helps cut maintenance costs.

But you get more than just superior carpet from CCC. We're the largest manufacturer of commercial and institutional carpet systems in the country. With CCC, you get SINGLE SOURCE RESPONSIBILITY for every aspect of your carpet projects anywhere in the country, starting with product selection and guaranteed installation through a comprehensive maintenance program that gives you maximum carpet wear-life at minimum life cycle cost. We even know how to effectively integrate carpet with subfloor access systems and can show you how it's done with trench headerducts and handhole covers.

For more information, just fill out the coupon below. CCC's NATURALWEAVE FLAMEGARD...THE SPONGEBONDED CARPET WITH A CLASS "A" RATING.



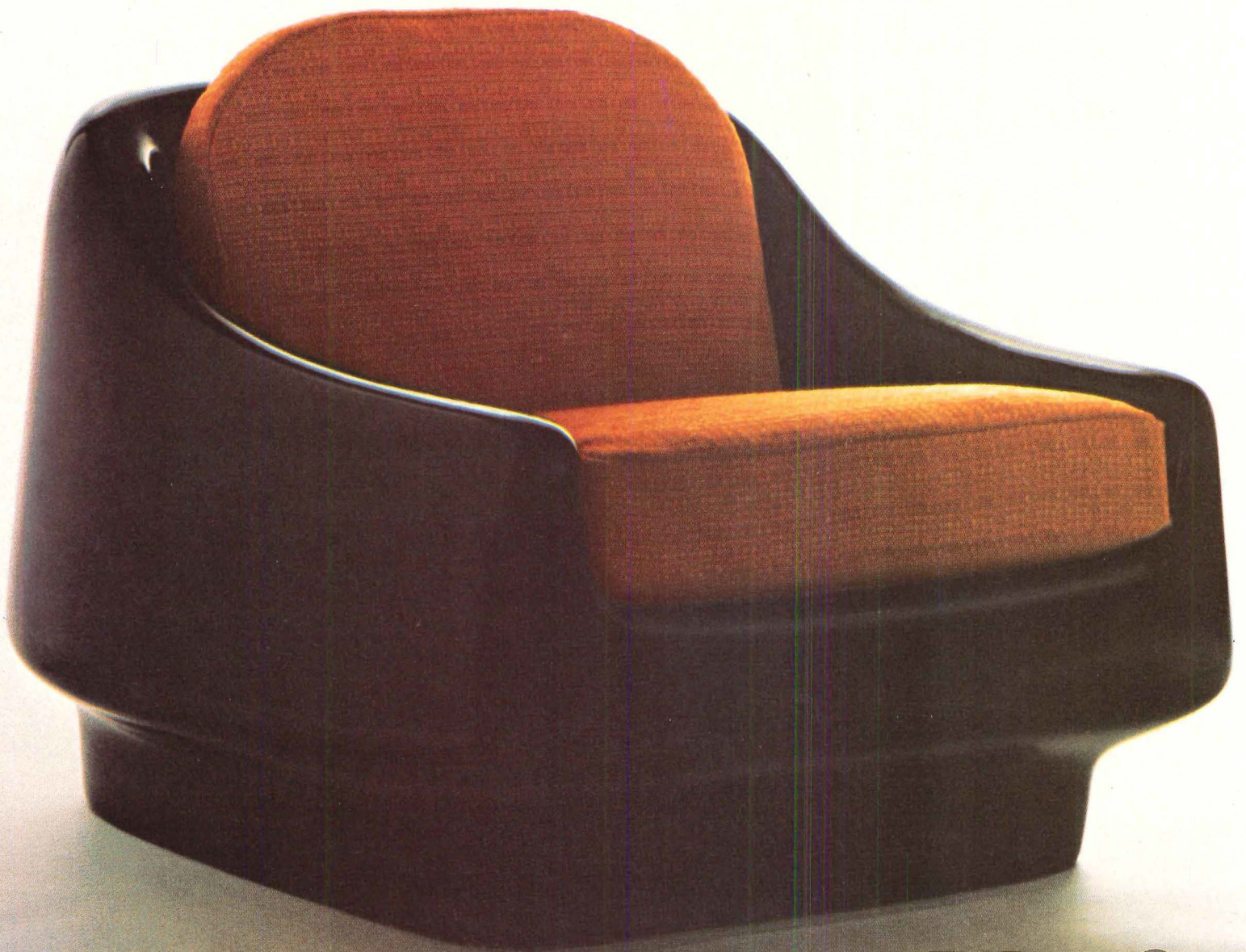
**CCC**  
**Not just carpet,  
 but complete  
 carpet systems.**

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 Los Angeles:  
 8899 Beverly Blvd. (213) 274-8171

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**The Thonet Saturna.** An exploration of curvilinear spacial concepts. The low radial corners of molded fiberglass cradle plump, upholstered cushions. Unusually imaginative. Durable. And easily maintained because the color is integral to the material. Saturna chair, two and three seaters with tables to match, in Cocoa, Ebon, Tangerine, Snow, Rouge, Gold, Navy and Butter. At the Thonet Center of Design. New York. Miami. Chicago. Los Angeles. San Francisco. Dallas. Or write Thonet Industries, Inc., One Park Avenue, New York 10016. Telephone: (212) 725-1100.



**THONET**   
CENTER OF DESIGN

*For more data, circle 27 on inquiry card*



## News in brief

**The AIA is launching a \$600,000 fund-raising drive this month to continue a scholarship program** for minority disadvantaged architectural students. A brochure is being mailed this month to AIA members, seeking pledges to meet a goal of \$200,000 a year for three years. This program continues an AIA/Ford Foundation program in which 96 students have been given scholarships to 37 schools which report a high degree of student success.

**Bernard B. Rothschild, FAIA, of Atlanta, Ga., is the 1973 recipient of the Edward C. Kemper Award of the AIA,** given annually to an "AIA member who has contributed significantly to the Institute and the profession." Rothschild has been a member of the AIA's Documents Board since 1967 and played a key role in developing and updating the basic guides and contracts used in the construction industry and architectural practice.

**Fay DeAvignon of Wilmington, Mass., was re-elected national president of the Associated Student Chapters, AIA,** at the students' conference, in Tucson, Ariz., in November. Ms. DeAvignon was a fifth-year architectural student at the Boston Architectural Center when she was elected to her first term in 1971. Workshops in energy conservation, automation and cybernetics, transportation and ethnic cultures were carried out at the conference.

**The Second Annual Celebrity Suite Competition is now open to all students** enrolled in colleges and universities with accredited interior design or architectural courses. Sponsored by the NSID Educational Foundation, Simmons Company, and Allied Chemical Corporation, the design competition focuses on the use of space for multi-purpose living, stressing ease of maintenance. Cash prizes of \$2,500, \$1,500 and \$1,000 will be awarded. Deadline for entries is February 15, 1973. Details are available from: NSID Educational Foundation, 315 East 62nd Street, New York, N.Y. 10021

**The National Park Service is seeking A/E firms for the design and development of entire parks and groups of parks.** Use of Form 251 (see page 55) is encouraged. The Park Service is stressing design quality, and the firm's ability to manage interdisciplinary teams for sitework, building design, sanitary and highway engineering, and possible regional planning. Address replies to: Ernest A. Connally, National Park Service, U.S. Department of Interior, Washington, D. C. 20240.

**A design competition for low-rise buildings using architectural aluminum products has been announced by the Architectural Aluminum Manufacturers Association.** Eligible is any low-rise (five stories or less) new construction or rehabilitation project completed in the 24-month period preceding the cut-off date, July 31, 1973. Cash awards are offered. Details are available from AAMA, 410 North Michigan Avenue, Chicago, Ill. 60611.

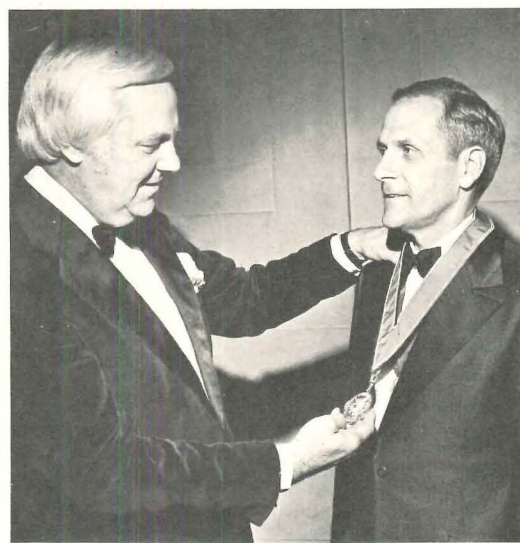
**The New York Chapter, AIA, is seeking applicants for this year's \$10,000 Brunner Scholarship Award** for a study that will advance the state of architecture in one of these areas: purposes of architectural education/training; access to the profession; environmental concern. The competition is open to all registered architects and proposals may be submitted up to January 31, 1973. Details are available from the New York Chapter, AIA, 20 West 40th Street, New York, N.Y. 10018.

**The Council of Mechanical Specialty Contracting Industries has joined AGC in refusing to endorse the 1972 edition of AIA's Subcontract Agreement, A-401.** CMSCI told AIA that it will continue to promote and use the new Standard Subcontract Agreement developed by CMSCI-AGC Joint Cooperative Committee.

**Assistant HUD Secretary Sam Jackson has reaffirmed the Department's codes policy** which seeks to force local code revisions that permit the use of nationally-recognized materials and construction methods. Traditional examples are plastic pipe and plastic-sheathed electric cable. Keeping pace with advancing building technology, says Jackson, is essential to qualifying for Federal aid.

**Douglas Trussell, director of government relations, National Association of Manufacturers, says Congress will press for a new land use policy this year.** Speaking before the National Conference of the Plumbing-Heating-Cooling Industry, Trussell noted that the Administration was directed by Congress in 1970 to develop such a policy and Congress can be expected to demand an explanation of Administration failure to comply.





## 1 MAJOR CABINET CHANGES PROMPT NEW FORECASTS

The surprising turnover of some top and next lower echelon officials in the Nixon administration as the second four years begin is expected to have little immediate effect on design and construction activity as planned Federal and Federally-assisted projects continue to flow onto the architects' boards from the momentum built up in recent years. The longer-range prospect is another matter.

Until the new 93rd Congress can get organized and into serious operation, the dimensions of new programs in the construction area will not be known. This could take many months, the clear, definitive lines not emerging until late this year. Meanwhile, the White House will keep a firm hand on spending and its continuing argument with Congress over the impounding of authorized (and some appropriated) funds should develop into a full blown fuss leading to a legislative, perhaps judicial, showdown during the upcoming session.

But in any event, design and construction activity is expected to change little in the near term. Beginning in 1974, the firm hand of the Executive will be evident in spending constraints, Congressional intentions will have been clearly defined, and the course for the following Nixon years.

In the area of housing and urban development, where organized architects constantly call for a better approach to land use and urban planning, the President selected James T. Lynn, (a) Undersecretary of Commerce, to head this Department. Lynn, 45, an attorney from Cleveland, is widely recognized for his managerial ability and this asset spurred his quick climb in the Commerce Department to the position of Undersecretary. He's had no specific experience in the housing and urban development sector.

Among the challenges Lynn immediately faces at his new desk are those concerned with the subsidy housing programs, which have been disasters in the minds of many observers, land use and general urban development patterns. He is expected

to follow White House direction closely in implementing further the restructuring of HUD programs to place still more responsibility in the regional and field offices away from Washington. This process, begun under Secretary George Romney, who agreed to remain until Lynn was confirmed by the Senate, has brought considerable discontent in industry circles as well as among HUD staff here. Some believe it has been a direct contributor to the subsidy program troubles, but the Administration-sponsored outflow of authority will continue under Mr. Lynn.

In transportation the continuing battle over use of the Highway Trust Fund—whether purely for roads or for roads and mass transit—proceeds under a new Secretary, Claude S. Brinegar, 46, senior vice president of the Union Oil Company. Architects, most of whom favor multiple use of the highway fund, will be watching for Brinegar's position as Congress approaches the subject early in the session. The Highway Action Coalition favors diversion of the trust funds for some non-highway purposes and immediately noted that Brinegar's California-based firm contributed to a campaign to defeat the 1970 proposition that would have permitted some of the state's gasoline tax to support mass transit.

Retiring Transportation Secretary John Volpe, named Ambassador to Italy, said Brinegar could be expected to press for opening the Highway Trust Fund for mass transit spending as the Administration advocates.

Watched just as closely by the architectural and engineering professions for new trends will be the Labor Department under Peter J. Brennan, (b) perhaps Mr. Nixon's most controversial nominee.

This selection brings to the Cabinet stronger pro-labor representation, since the 54-year-old union official comes to Washington directly from his post as president of the Building and Construction Trades Councils in New York City and the state. Frank Bonadio, president, and Robert Georgine, secretary-treasurer of the AFL-CIO

Building and Construction Trades department, were quick to note the President's "good judgment" and pledged total cooperation to Brennan.

Civil rights leaders were open in criticizing the Brennan choice, holding that construction workers had displayed a poor record in admittance of minorities to their ranks. Organized construction employers also were not happy with this selection, fearing they might lose some of the gains made during the Hodgson era.

Announcing that Interior Secretary Rogers C. B. Morton would be retained, the White House startled the engineering segment with the dismissal of Ellis Armstrong as Bureau of Reclamation Commissioner. Under Armstrong's leadership, the B of R had supervised billions of dollars worth of heavy works construction and engineering design.

The vast construction programs assisted by the Health, Education and Welfare Department, largely in the hospital and school fields, now come under Casper W. Weinberger, who moved from his position as director of the White House Office of Management and Budget. He succeeded Elliot L. Richardson, who moved to Defense. Roy L. Ash, president of Litton Industries, Inc., moves in as head of OMB.

The President is expected to try to achieve through reorganization the plan for a new Department of Natural Resources that he could not get Congress to approve directly. This would bring under one Secretary most of the construction and related activities of HUD, HEW, Transportation, the Army Corps of Engineers (its civil works) and civilian building of the Atomic Energy Commission. He believes such a reorganization could better serve the needs of cities and states by creating a central point to which they could turn for Federal program considerations.

In this connection, it has been suggested that the appointment of James Lynn as Secretary of HUD might be viewed as a holding action pending reorganization of that department into a new Cabinet unit.

—Ernest Mickel

## 2 S. SCOTT FEREBEE JR. INSTALLED AS NEW AIA PRESIDENT

Charlotte, N.C. architect S. Scott Ferebee (right), FAIA, was formally installed as the 1973 president of the AIA in ceremonies held in Washington, D. C., on December 8. He succeeds Max O. Urbahn (left), FAIA, New York City.

In addition to Ferebee, five other officers were installed. They include the new first vice president (president-elect), Archibald C. Rogers, FAIA, Baltimore; three vice presidents: Louis de Moll, FAIA, of Philadelphia; Van B. Bruner of Haddonfield, N.J.; and David A. Pugh, FAIA, of Portland, Ore. A secretary, Hilliard T. Smith Jr., FAIA, of Lake Worth, Fla., was also installed, with twelve directors.

Ferebee, who heads the Charlotte firm of Ferebee, Walters and Associates, has served AIA on the Institute's board as director of AIA's South Atlantic region; as chairman of the Commission on Professional Practice, and on numerous national committees.

## NSPE SERVED WITH COMPLAINT BY JUSTICE DEPARTMENT

The National Society of Professional Engineers became the third major organization in the architect-engineer field to be served with a complaint by the U.S. Justice Department. This seeks to force a change in the Society's code of ethics and policy regarding competitive bidding for engineering services.

The American Society of Civil Engineers and the American Institute of Architects, subjected to similar pressure from the Justice Department, agreed to and did change their codes to satisfy the Federal government's complaint charging violation of the Sherman Antitrust Law. NSPE, however, has decided to fight in court.

Society president James F. Shivler, Jr., said, "The issue is purely a legal one and we intend to uphold and defend the principle that competitive bidding for engineering services is contrary to the public interest and is not a violation of the antitrust law."





The Justice Department complaint alleges that NSPE's "combination and conspiracy," as reflected in its code, have had these effects:

1. Price competition among the members of the NSPE in the sale of their services has been suppressed and eliminated.

2. Customers requiring the services offered by members of the NSPE have been deprived of the benefits of free and open competition in the sale of such services.

This conspiracy, it is charged, leads to unreasonable restraint of interstate trade and commerce, an alleged violation of the Sherman Act.

Specifically, the government seeks to restrain the Society from operating under its current code of ethics which, in effect, forbids submission of competitive bids for engineering services.

In its fight against the Justice position, NSPE is preparing to cite the recently passed Brooks bill dealing with the selection of architect-engineer services on Federal projects. This new law prescribes a professional selection and negotiation procedure and the construction agencies are expected to begin publishing rules and regulations under it soon.

NSPE claims enactment of the law (P. L. 92-582) is consistent with achieving the best facilities at the least cost. Shivler commented that the legislative history of the measure, extending over a five-year period, established that Congress specifically rejected the concept of price competition for professional services.

3

#### ENERGY CONSERVATION GRANT AWARDED TO UNIVERSITY OF PENNSYLVANIA

The University of Pennsylvania was named winner of the PPG Industries Foundation competition for a \$25,000-grant to improve the education of architecture students in subjects related to energy conservation.

The Penn proposal calls for development of new and expanded courses and a much-needed comprehensive text, "Energy Conservation in Buildings," to introduce energy and

energy conservation concepts as "an integral part of the process of learning architecture." The book will be developed by architects and engineers of the architectural faculty, with major contributions by other faculty members of the Graduate School of Fine Arts and the University's National Center for Energy Management and Power.

The conditions of the grant require completion of the proposed work by July 1974. Invitations to compete were directed to the architectural departments of the schools involved, but it was stipulated that the school's engineering department also contribute to the proposal. The other schools submitting proposals were: Carnegie-Mellon University, Columbia University, Howard University, Massachusetts Institute of Technology, University of California at Berkeley, University of Detroit, University of Illinois and Washington University.

Judging the competition were: Robert F. Hastings, FAIA, (center) of Smith, Hinchman & Grylls Associates, Inc.; Gifford H. Albright, (left) Department of Architectural Engineering at Pennsylvania State University; and Sital L. Daryanani (right) of Syska & Hennessy, Inc.

4

#### HIGH-RISE FIRES BRING CONTROL CONTROVERSY INTO OPEN

Within 24 hours last November, two fires in separate cities (Atlanta and New Orleans) killed 17 persons and injured 28 others, focusing renewed and vigorous attention on a controversy ranging from the highest Federal level to local private groups: How to control and prevent fires in high-rise buildings.

Since both buildings—reinforced concrete—would be categorized "fire-resistive" leads some observers to state that such buildings are actually furnaces furnished in combustible materials and lacking in proper fire extinguishing systems. Neither building in question contained sprinkler systems, although the Atlanta building had a basement sprinkler system. The dangers of high-rise fires are further

emphasized by the fact that municipal fire departments are virtually unable to control fires above a hundred feet from the street, or about 8 to 10 stories.

Federal interest in the problem is increasingly evident in the activities of the President's National Commission on Fire Prevention and Control. Chairman Bland has become an arch supporter of Federal intervention, in the form of national codes if individual states fail to enact fire safety measures. Those in force are often flagrantly violated, according to Bland. He has loudly accused architects of being largely indifferent to providing a satisfactory level of life safety in their buildings. (See News Reports RECORD, November).

The 20-man Commission was set up in 1968 and will submit to President Nixon and Congress in July of 1973 a report of its findings and recommendations on effective ways to reduce the nation's life and property loss by fire. (The United States loses more than 12,200 lives and nearly \$3 billion in property by fire each year).

The AIA sees a greater portion of the responsibility falling to the Federal Government too, as evidenced in testimony given to the Commission last February by James R. Dowling, Director of the Institute's Codes and Regulations Center. Mr. Dowling said there is a need for a national policy directed primarily to organizing, interrelating and funding research by competent private and quasi-public research institutes.

Dowling further states the AIA suspicion that structural fire resistance has been comparatively over-stressed in proportion to negligence of control of contents or automatic extinguishing requirements. The AIA hopes for enforcement of well-founded (preferably performance-type) regulations by state or municipal governments which could be Federally supervised and subsidized.

At present, no big city has comprehensive code provisions covering the special problems of high-rise buildings, although New York, Chicago and San Francisco have revisions in the offing. New York is expected

to pass this month, a bill affecting all office buildings—old and new—10 stories and higher. The measure includes these requirements: a) radio-type fire alarm, triggered by smoke and fire detectors, with receivers and transmitters for voice instructions to any floor; b) alarm, would activate a device that would return all elevators to the ground floor for use by firemen; c) positive pressure would have to be maintained in stairwells to prevent smoke from infiltrating; d) open office spaces of 7,500 sq ft or more would have to be compartmentalized or else protected by a sprinkler system. Fire officials have held that fires in open areas of more than 7,500 sq ft are not controllable; e) A fire command station for the fire safety director of the building would have to be set up in the lobby. Also, a fire warden for each floor would be named to supervise fire drills. The regulations are elastic to permit alternative safety features.

In Chicago, the Committee on High-rise Buildings—working with the city—sponsored research and evaluation of fire protection criteria, comparing big-city codes across the country. As a result, the Committee and the Chicago Building Department have developed specific high-rise safety criteria to facilitate early detection, prompt fire department transmission, selective occupant notification and communications systems, fire containment, smoke control, evacuation and fire extinguishment and ventilation. The Committee does not advocate a single standard in each of the areas of fire safety, but recommends a choice of several alternatives which will meet the same objective. According to one member of the Committee's top echelon: "the architect may then select the alternative most appropriate in terms of cost and effectiveness for his particular building design."

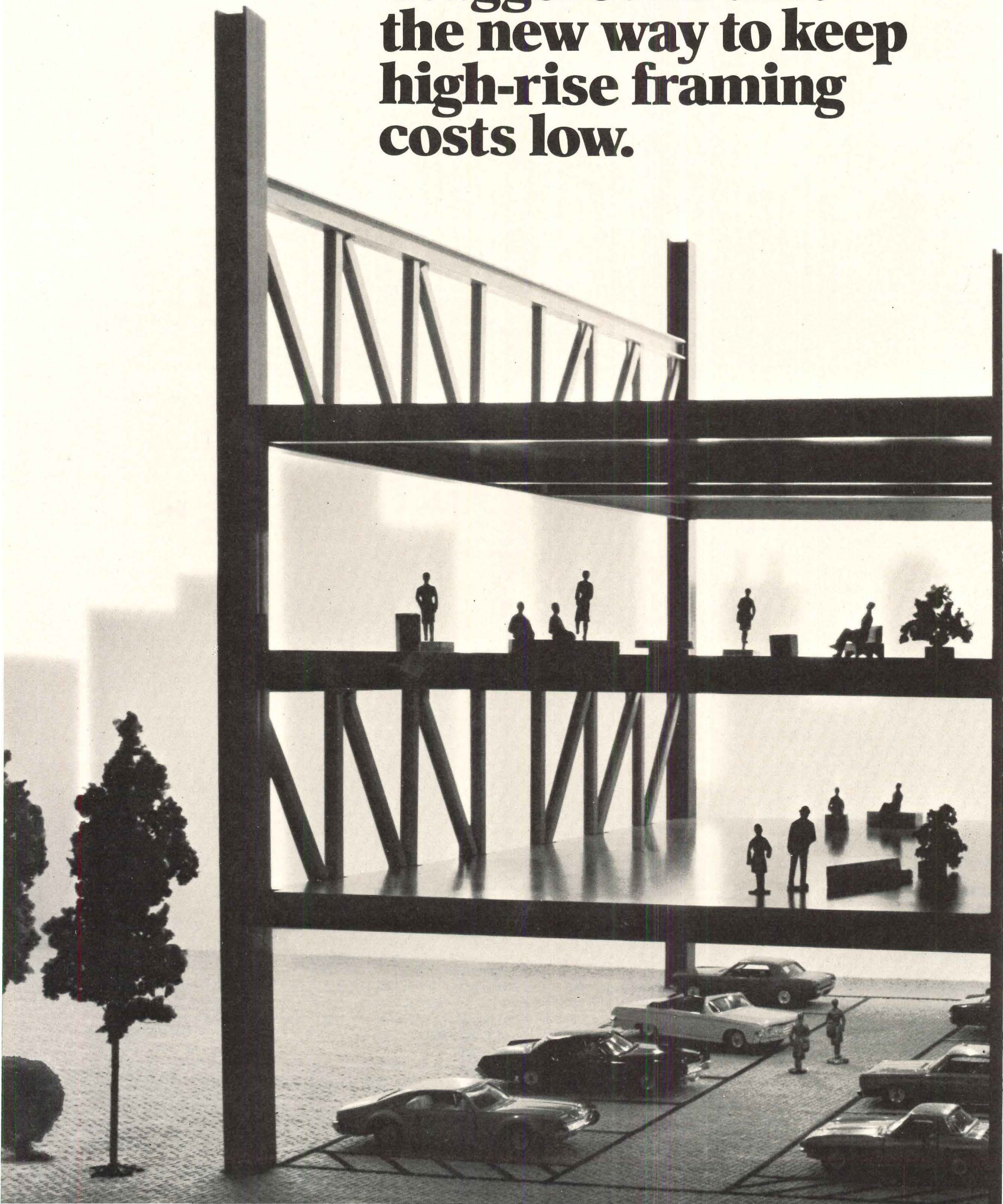
Actual code changes based on the Committee's results have been submitted to the Mayor's Advisory Committee. (Copies of the proceedings of the High-rise Committee's National Conference on Fire Protection are on sale for \$10 per copy, from the Committee, 10 S. Wabash, Chicago, Ill.)

United Press International





# Staggered Truss: the new way to keep high-rise framing costs low.





On your next light occupancy, high-rise building, the staggered truss can save your client time and money and generate earlier revenue for him.

Developed by M.I.T. for U.S. Steel, this system has undercut concrete framing bids in a number of recent buildings.

#### **How the staggered truss works.**

As the model shows, the staggered truss consists of story-high trusses that span transversely between exterior columns, and occur in a staggered pattern from floor to floor. The floor system acts as a diaphragm and transfers lateral loads in the short direction to the trusses. Lateral loads are thereby resisted by the truss diagonals and are transferred to direct loads in the columns. So the

columns receive no significant bending moment in the transverse direction.

#### **Design Flexibility.**

The staggered truss results in column-free interiors, providing almost unrestricted space utilization. Truss spacing can be varied to accommodate a number of unit sizes between them. The system can be used efficiently with a curvilinear plan, or in combination of offset rectangles—and it accommodates a wide variety of vertical stacking possibilities.

#### **How the staggered truss trims costs.**

First, the staggered truss requires surprisingly little

steel. Second, it requires simpler and less costly foundations. Third, the staggered truss speeds construction, resulting in earlier rental income and lower cost construction loans.

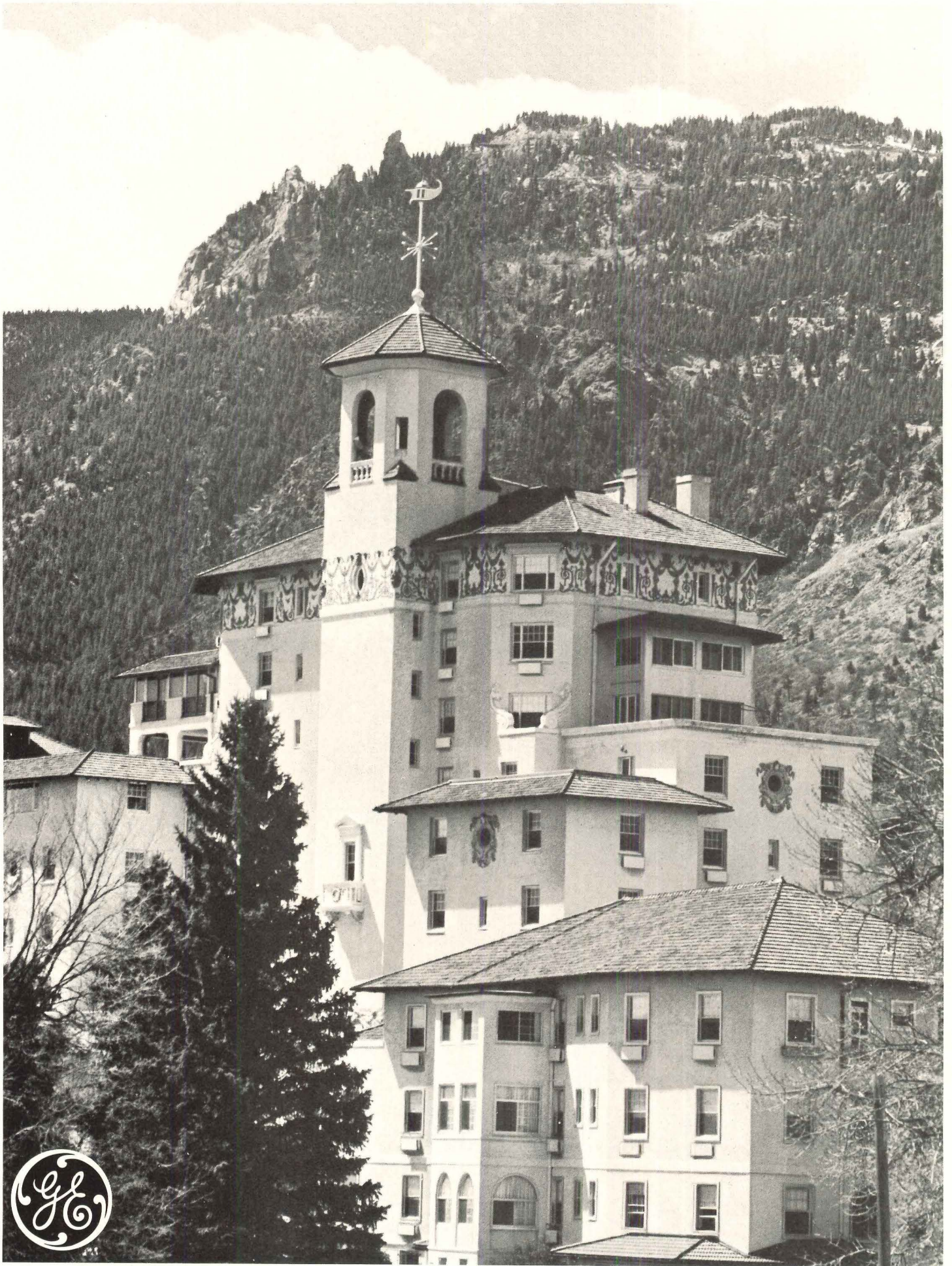
#### **Write for detailed information.**

Our new 26-page book works out a typical 20-story apartment building in detail. For your copy, call the nearest U.S. Steel District Sales Office and ask for a Construction Representative, or write United States Steel, P.O. Box 86, Pittsburgh, Pa. 15230.

**United States Steel**









# How General Electric Zoneline™ heating/cooling units helped the 54 year old Broadmoor keep its 1918 charm.

This is the Broadmoor Hotel in Colorado Springs, Colorado.

As you can see, it's also a picture of some of the 260 Zoneline heating and cooling units in the Broadmoor.

They didn't spoil the Broadmoor's Mediterranean style of architecture.

A lot of other things didn't happen when the Broadmoor's management chose Zoneline units.

The management didn't have to spend the million dollars that had been estimated for a ducted central air conditioning system. Zoneline units don't need ductwork, or a lot of machinery. All they need is an opening through the wall and an adequate power supply.

The hotel didn't have to be bothered with a flood of workmen. A local contractor was able to install

seven Zoneline units a day with a minimum of fuss.

The Broadmoor management didn't have to decide on the one temperature for all of the guest rooms. Each Zoneline unit has its own thermostat, so each guest can make his own choice.

The best thing was the cost: about \$300,000, roughly one-third the cost of a new two-pipe system.

All of this happened in 1963. That was when the Zoneline units were installed. Since then, they have delivered quiet, reliable air conditioning.

If you have an old-fashioned pipe system that needs replacing, call your local General Electric

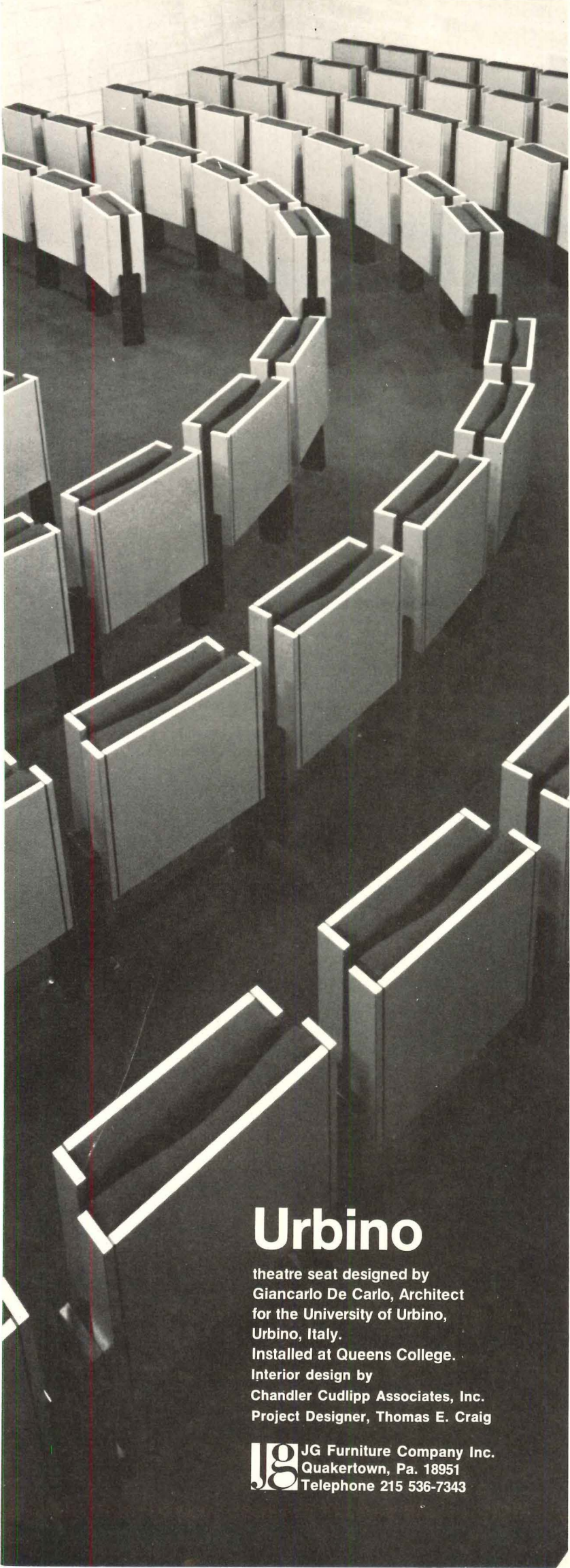
Contract Air Conditioning Representative.

He'll show you how easy and economical it is to modernize with General Electric Zoneline units.



GENERAL  ELECTRIC





## Urbino

theatre seat designed by  
Giancarlo De Carlo, Architect  
for the University of Urbino,  
Urbino, Italy.  
Installed at Queens College.  
Interior design by  
Chandler Cudlipp Associates, Inc.  
Project Designer, Thomas E. Craig

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# Carpets Don't Belong On The Floor.

Carpets wear out faster from the bottom than they do from the top. That's just one reason why you should never specify carpeting without separate padding.



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The most comprehensive inventory in America

From around the world, bold inventories of kiln dried hardwood lumber and veneer—ranging from domestic Ash to exotic Zebrawood.

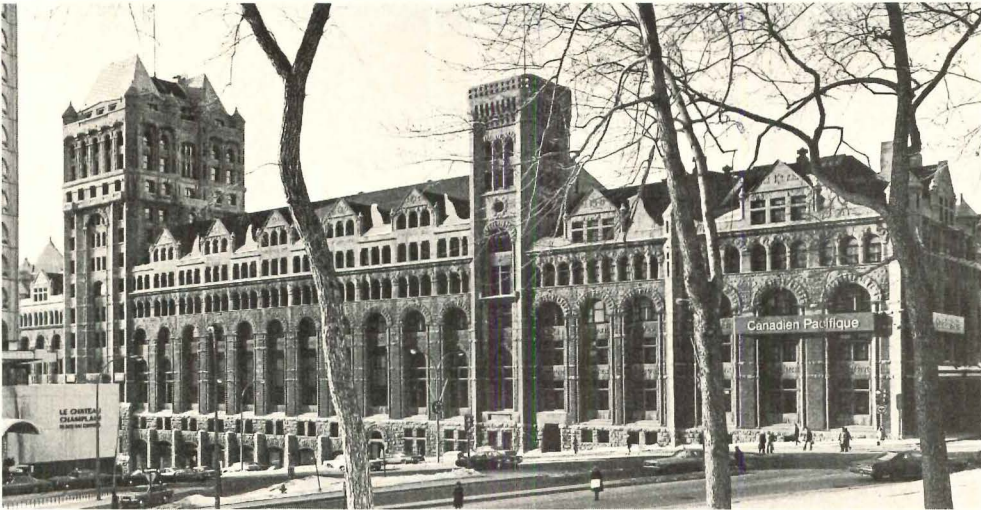
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Brian J. Merritt Photos

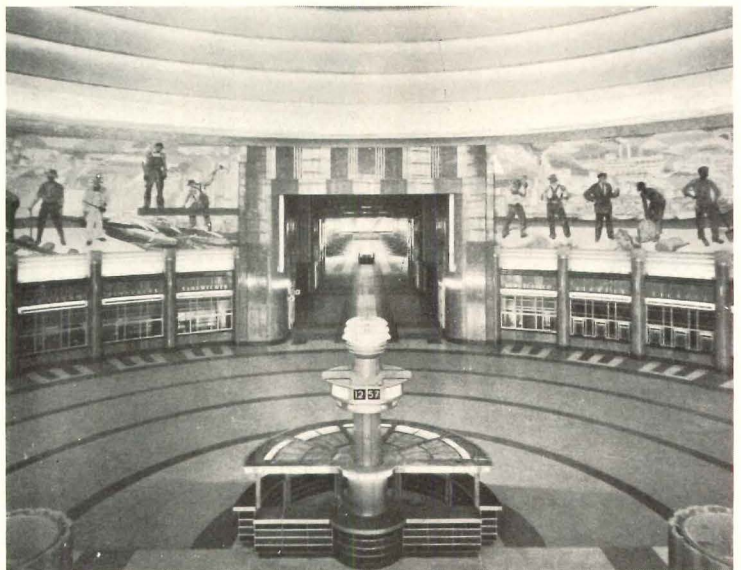
**Windsor Station**, Montreal, once the focus of a nineteenth century grand plan for the city's Dominion Square, may this year have to give ground for a twentieth century master plan being prepared for the Canadian Pacific Railroad by Minoru Yamasaki. The Romanesque Revival station has been called one of two remaining major Canadian buildings built in the uniquely North American style of H. H. Richardson; its American architect, Bruce Price, had worked in Richardson's office. As yet, the Historic Sites

and Monuments Board of Canada has not recommended to the government that the building be given landmark status. So, with only a few months until the new master plan is revealed—with its anticipated recommendation for razing Windsor Station—a private group is working to get the law needed to halt demolition. Ironically, because of its American architect, mass support is only half-hearted; these days, feeling runs high against the historic U.S. influence in Canada.



**Union Terminal**, Cincinnati, is one of many railroad stations with—as the RECORD noted in December 1971—a doubtful future. Now, a year later, as bids for demolition of the terminal's remarkable concourse are being received, private groups are meeting this month with Southern Railway Company officials, to present a plan that, if accepted, will at least postpone

demolition long enough for a new owner and new uses to be found. Architects in New York and Cincinnati have prepared proposals, along with students at the University of Cincinnati and these will be exhibited this month at the University. February 15, 1973 is the deadline set by Southern Railway for submissions of new-use proposals.





**1972 WINNERS OF THE PRESTRESSED CONCRETE INSTITUTE AWARDS PROGRAM.** Excellence in design using precast concrete and prestressed concrete to achieve esthetic expression, function and economy was recognized by a jury of architects and engineers in naming eight structures and two bridges as winners in the tenth annual PCI Awards Program.

Serving on the jury were Max O. Urbahn, FAIA, chairman of the jury; Herbert Beckhard, AIA, of Marcel Breuer and Associates; Jean-Louis Lalonde, FRAIC, president, Royal Architectural Institute of Canada; Thomas M. Niles, past president, American Society of Civil Engineers; and J. Caldwell Wilson, president, National Society of Professional Engineers.

**1 University of Lethbridge, Project 1, Lethbridge, Alberta, Canada.** Architects: Erickson/Massey. Structural engineers: Bogue Babicki and Associates, Ltd.

An educational complex for a 4-year university contains all teaching and laboratory facilities, administration and student residences within the single 410,000-sq ft building. Sited across an erosion valley, the building varies from six to nine stories and the width increases from 57 ft at the lowest level to 97 ft at the top.

**2 D. B. Weldon Library, University of Western Ontario, London, Ontario, Canada.** Architects: Ronald E. Murphy and John Andrews. Structural engineers: C. D. Carruthers & Wallace.

A 265,000-sq ft library. Stack areas requiring long spans were achieved with precast, prestressed single-tees and post-tensioned slabs spanning the tees.

**3 East Fork Chowchilla River Bridge, Mariposa, California.** Architect and engineers: California Division of Highways, Bridge Department.

This 720-ft long, high-level bridge includes clear spans of 227, 300 and 183 ft. The roadway is carried at a maximum height of 150 ft. Constructed of continuous, cast-in-place post-tensioned concrete.

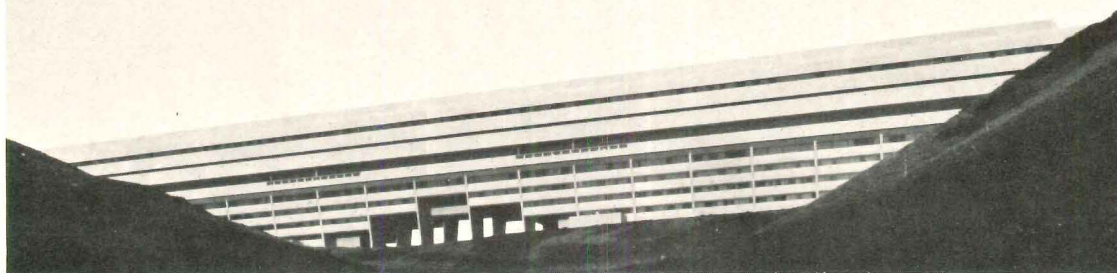
**4 Walt Disney World Monorail, Orlando, Florida.** Structural engineers: ABAM Engineers Inc.

Nearly three miles of double-elevated monorail guideways, plus a ¼-mile single guideway spur, represent careful attention to tolerances for riding comfort; smooth geometry and no discontinuities provides an esthetically pleasing structure.

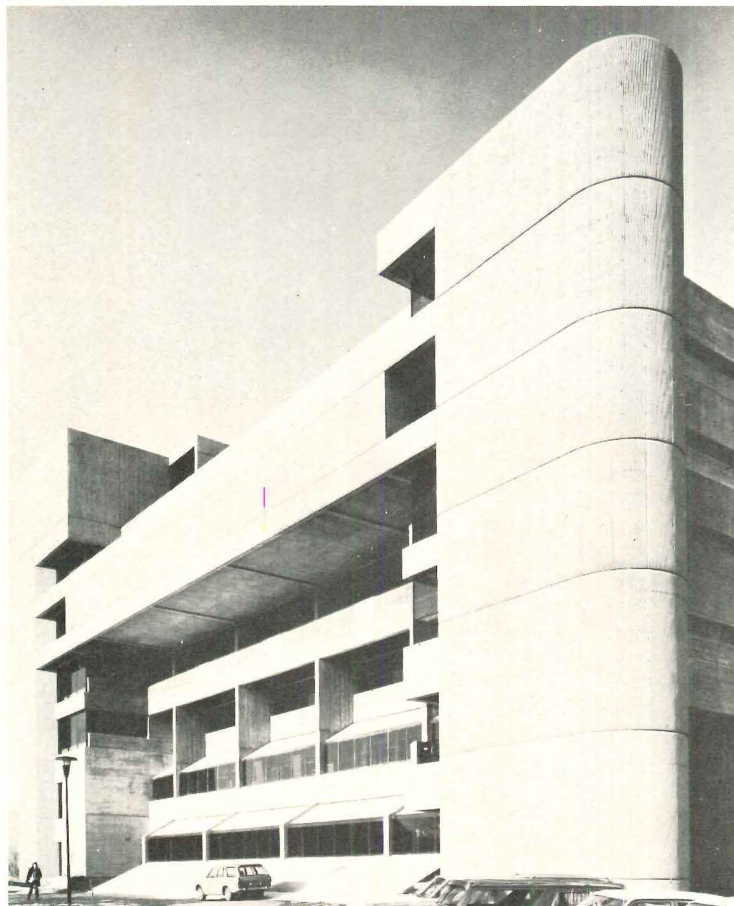
**5 Student Living Center, University of Delaware, Newark, Delaware.** Architects: Charles Luckman Associates. Structural engineers: Severud Associates.



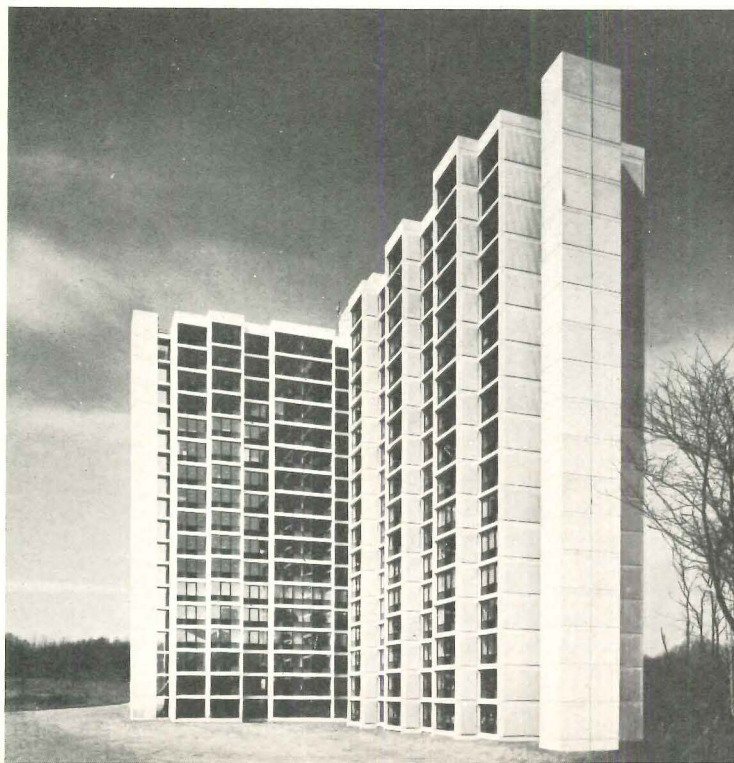
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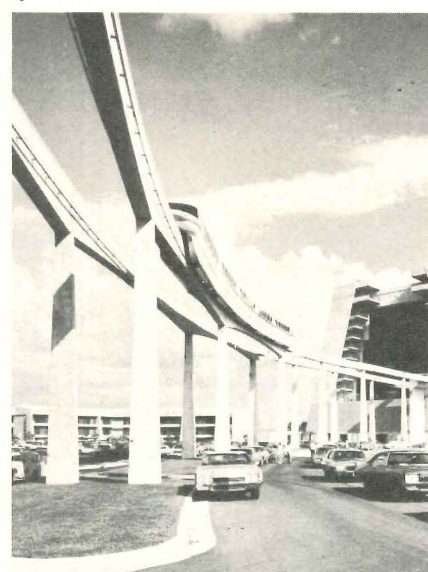
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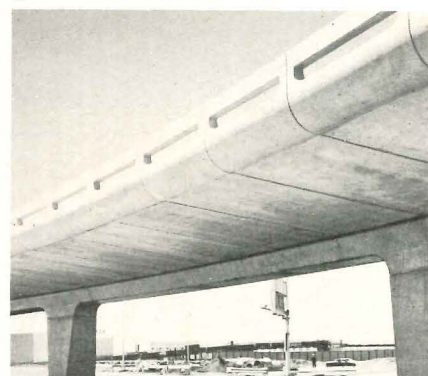
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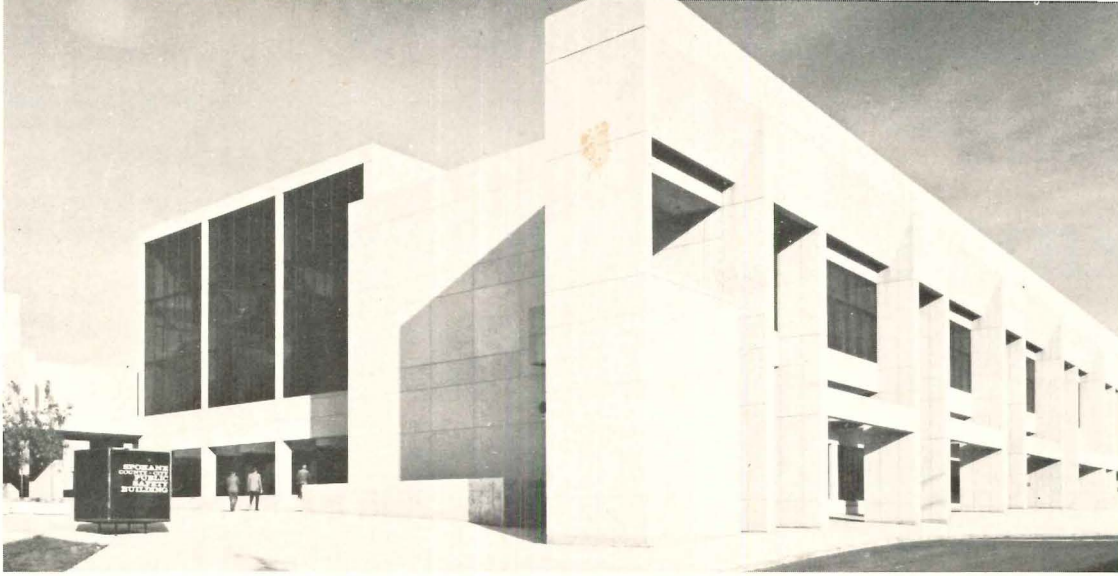
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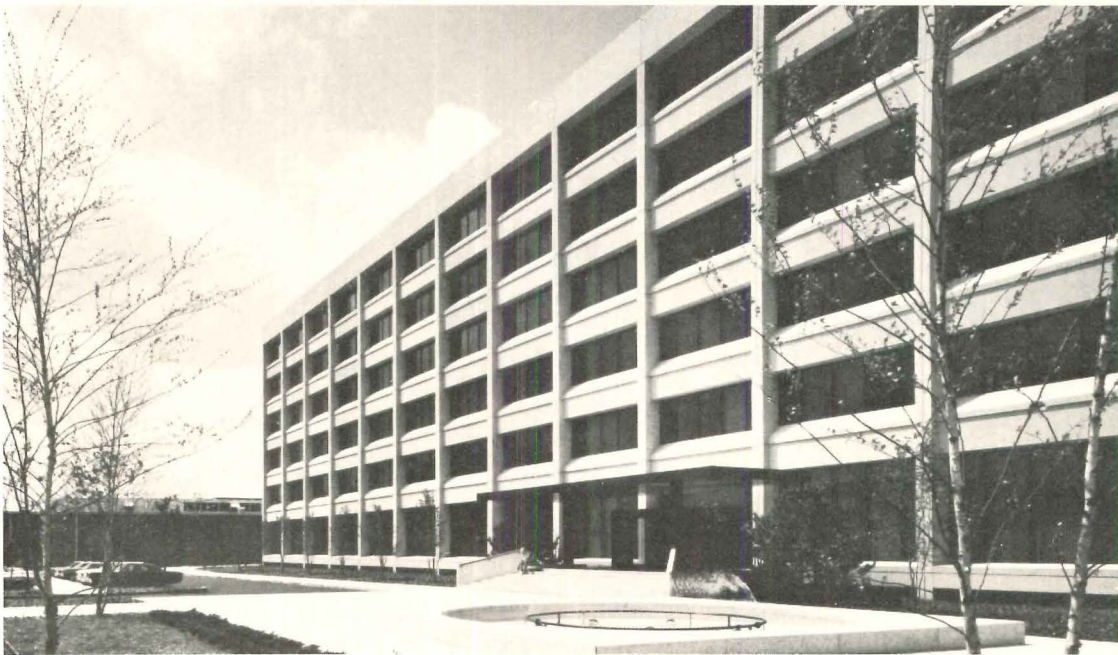


7

A 17-story and a 15-story apartment tower and an adjoining commons building comprise a living center for 1330 students. The apartment towers are completely fabricated using the Bison panel system.

**6 Elevated Roadway, San Francisco International Airport Terminal.** Architects: San Francisco Airport Architects, a joint venture of John Carl Warnecke and Associates and Dreyfuss & Blackford. Structural engineers: T. Y. Lin, Kulka, Yang & Associate.

A single row of cast-in-place columns support a cast-in-place post-tensioned continuous spine beam. The roadway is formed of precast inverted double-tees that cantilever on both sides of the spine beam. Precast parapet units are attached.



**7 Spokane County/City Public Safety Building, Spokane, Washington.** Architects and engineers: Walker-McGough-Foltz-Lyerla.

This 3-story building extensively uses architectural precast concrete for both exterior walls and inside public lobbies, stairs and corridors. The jury commended the building for its simplicity, controlled interiors and relationship to older buildings.

**8 Administrative and Research Center, Plough Inc., Memphis, Tennessee.** Architects: Gassner-Nathan-Browne, Inc. Structural engineers: Kenworthy Associates.

The 6-story structure uses architectural precast concrete on the exterior walls to create functional shadow patterns by day.



8

**9 Parking Garage, Cleveland Clinic Foundation, Cleveland, Ohio.** Architects: Flynn, Dalton, Van Dijk & Partners. Structural engineers: Barber & Hoffman Inc.

This 800-car structure features 56-ft long concrete double-tees enabling the parking aisles to be completely free of supporting columns. Prestressed floor units are suspended from the barrier walls that span exterior columns.

**10 Ross Humanities & Social Sciences Building, York University, Downsview, Ontario, Canada.** Architects and engineers: Gordon S. Adamson & Associates; Searle, Wilbee, Rowland, Shore, Tilbe, Henschel, Irwin.

At the core of the campus, this building is nine stories, containing 365,000 sq ft of staff offices, lecture halls and numerous class and seminar rooms. A link between the 170-ft north section and the 330-ft south section, opens at the second floor to a podium that connects with the adjoining plaza roof.

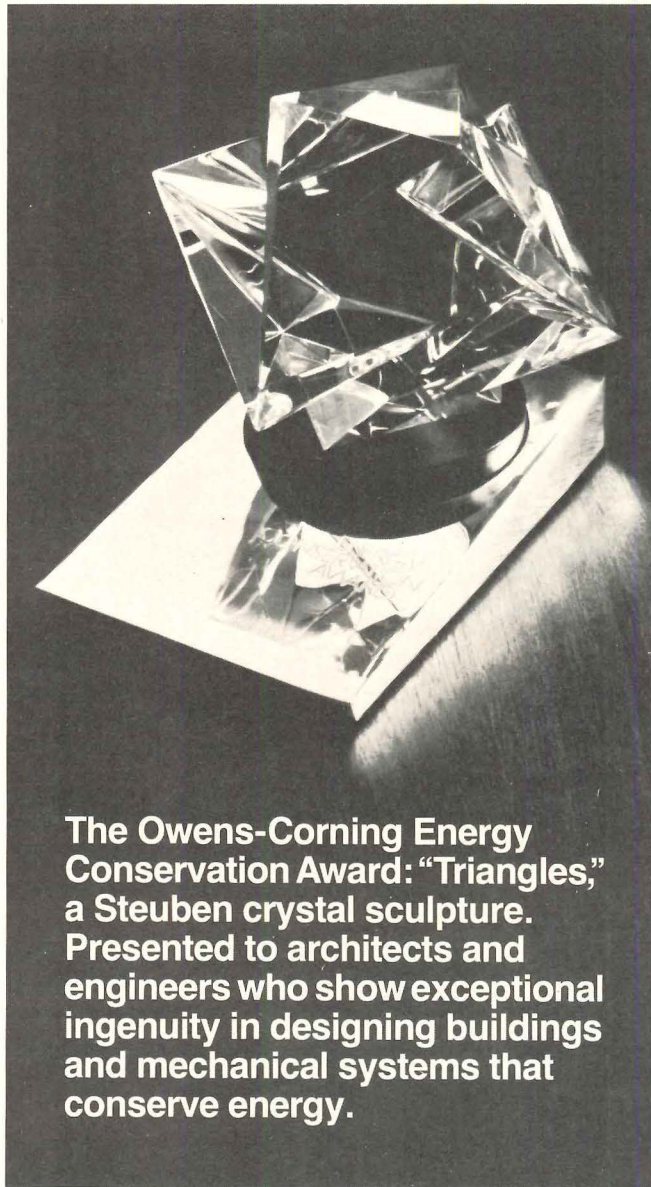


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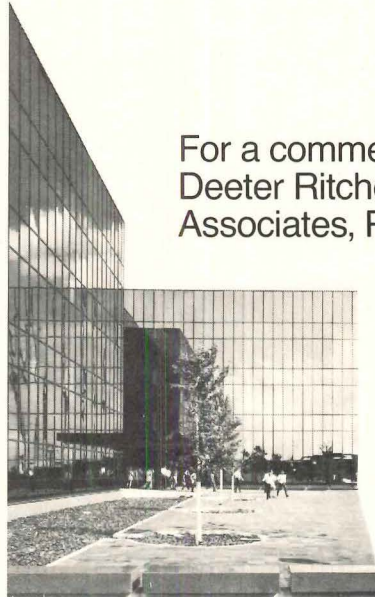
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# Announcing the winners of Owens-Corning's first Energy Conservation Award.



The Owens-Corning Energy Conservation Award: "Triangles," a Steuben crystal sculpture. Presented to architects and engineers who show exceptional ingenuity in designing buildings and mechanical systems that conserve energy.



The Westinghouse Nuclear Center

For a commercial building:  
Deeter Ritchey Sippel  
Associates, Pittsburgh.

Here's how their design for the Westinghouse Nuclear Center, Monroeville, Pennsylvania, conserves energy:

1. *No heating plant.* Heating and cooling are accomplished with a completely automatic heat-of-light recovery system.
2. *Mirror glass envelope.* Reduces air-conditioning requirements by 65 tons. Eliminates need for interior light controls.
3. *Insulation.* Keeps heat losses for entire building below level of heat generated by lights. Allows use of heat-of-light recovery system.

For an institutional building: S.C.Smiley Associates, Minneapolis.

Their design for Mercy Hospital II, Coon Rapids,



Mercy Hospital II



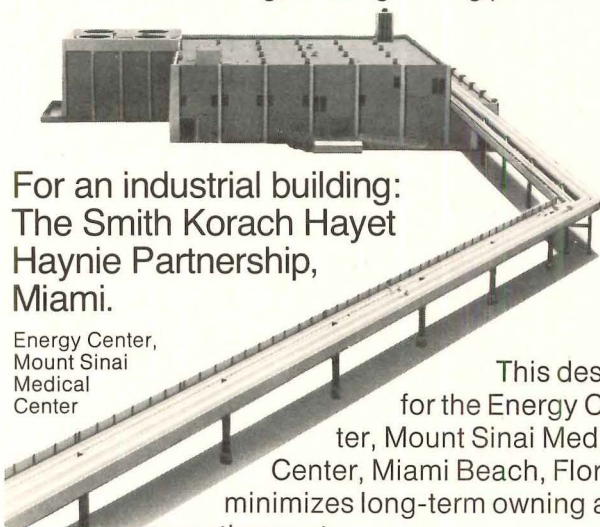
Minnesota, combines ideas which save 200 tons of cooling energy and 100 hp. of boiler heating energy. This adds up to 33⅓ percent reduction in energy consumption for the building.

1. *Building configuration.* Gives maximum building volume with minimum skin area. Reduces air-conditioning requirements.

2. *Solar bronze glass.* Cuts instantaneous peak heat gain by 18 percent.

3. *Enthalpy-type waste-heat recovery system.* Cuts boiler and chiller capacity requirements by 25 to 30 percent.

4. *Radiant heating/cooling ceiling panels.*



For an industrial building:  
The Smith Korach Hayet  
Haynie Partnership,  
Miami.

Energy Center,  
Mount Sinai  
Medical  
Center

This design  
for the Energy Cen-  
ter, Mount Sinai Medical  
Center, Miami Beach, Florida,  
minimizes long-term owning and  
operating costs.

1. *Life-cycle costing.* The initial cost of cooling and heating equipment was considered secondary in importance to costs over the long term.

2. *Separate plant concept.* More efficient than having smaller capacity equipment in individual buildings. Releases valuable working space.

3. *Insulation.* Piping and mechanical equipment were insulated to ASTM standards.



### Additional awards.

Honorable mentions go to Harberson Hough Livingston and Larson/William A. Amenta, Philadelphia. (Their design for the Children's Hospital of Philadelphia includes an energy reclaim system for heating and cooling.) And to Walter Krause Architects, Phoenix. (Their design for Drain Properties, Phoenix, uses water-cooled lighting and an ice bank system to cut energy consumption by 23 percent.)

### How the winners were selected.

Entries were judged principally on the extent and creativity of the energy-conserving ideas used, as well as on how much energy is actually saved.

Winners were selected by a distinguished awards jury: MacDonald Becket, Welton Becket Associates, Los Angeles; Harold S. Lewis of Jaros, Baum and Bolles, New York; Leander Economides of Economides and Goldberg, New York; Professor Charles E. Sepsy, Ohio State University; Herbert H. Swinburne, F.A.I.A. of the Nolan-Swinburne Partnership, Philadelphia.

### You could be a winner in 1973.

Do you have a new building design or idea that conserves energy? Enter it in Owens-Corning's Energy Conservation Award Program for 1973.

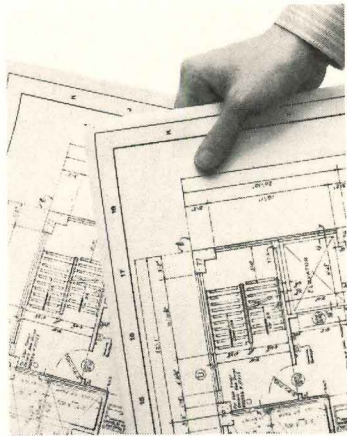
For details, or for more information about this year's winning designs, write: H. K. Meeks, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

Owens-Corning is Fiberglas

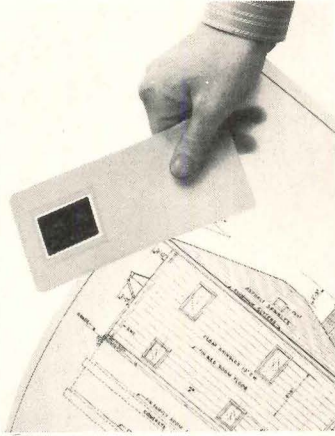
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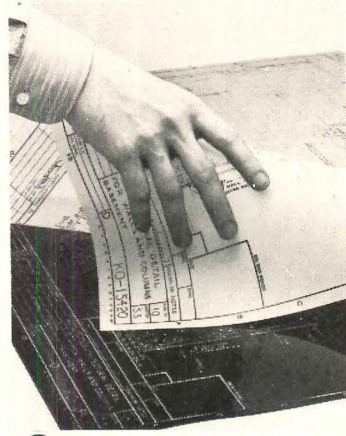
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**1.** Pos. to pos.



**2.** Small to big.



**3.** Contact.

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Kodak now has three KODAGRAPH Wash-Off Films that can save you hours of redrawing time.

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**1.** Now you can enjoy the benefits of KODAGRAPH Wash-Off Films for more of your drafting room work. With the new KODAGRAPH Wash-Off AUTOPOSITIVE Film, you get a positive reproduction from a positive original. Like all KODAGRAPH Films, it gives you high-contrast prints that make excellent second originals.

**2.** When you need a size-change of a drawing, or an enlargement from an aperture card, just ask for it on the new KODAGRAPH Wash-Off Projection Film. You can count on getting a sharp, positive reproduction. And, as with other

KODAGRAPH Wash-Off Films, you'll like its wet-erasable photo lines and excellent dimensional stability.

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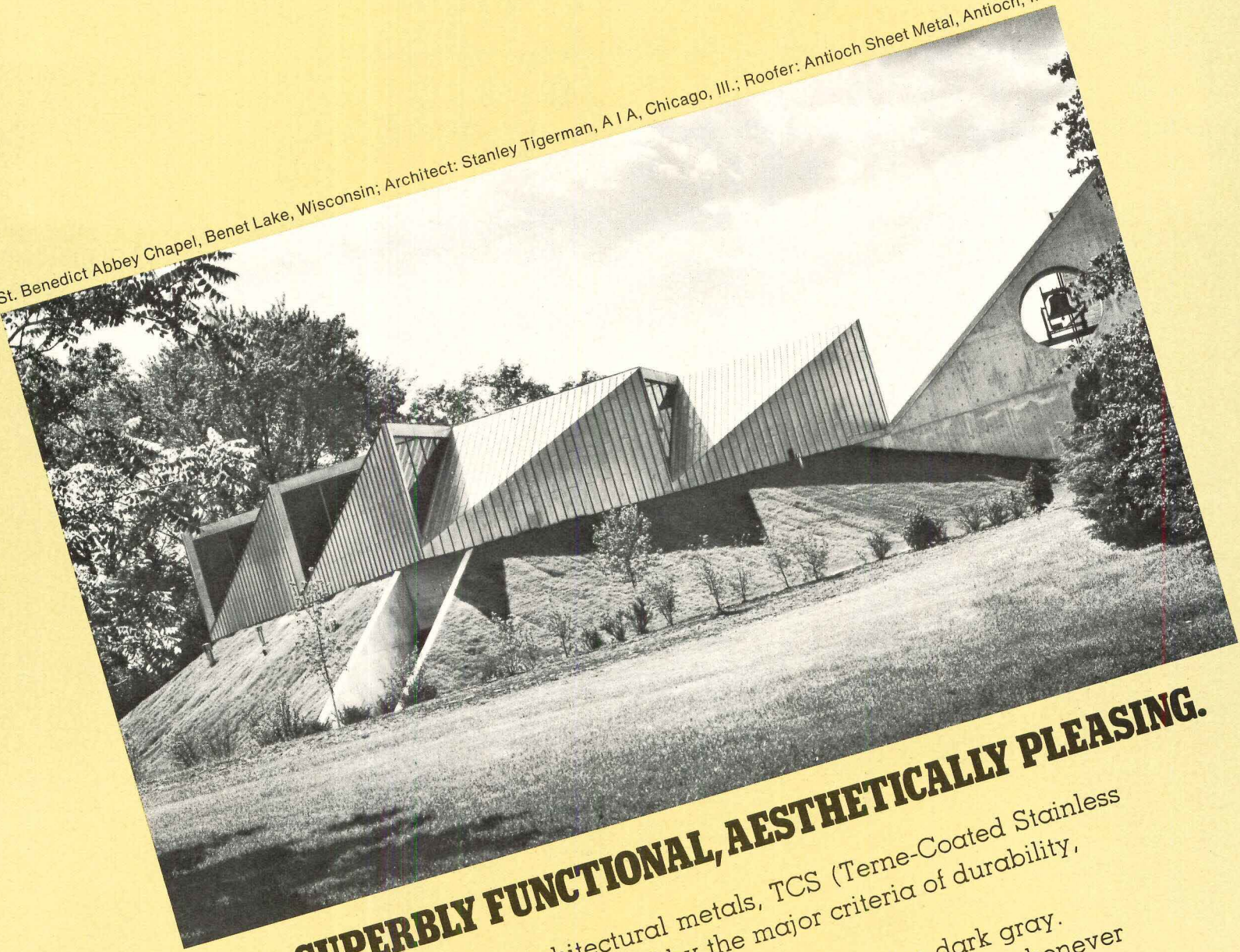


**Products for drawing reproduction**

For more data, circle 31 on inquiry card



St. Benedict Abbey Chapel, Benet Lake, Wisconsin; Architect: Stanley Tigerman, A I A, Chicago, Ill.; Roofer: Antioch Sheet Metal, Antioch, Ill.



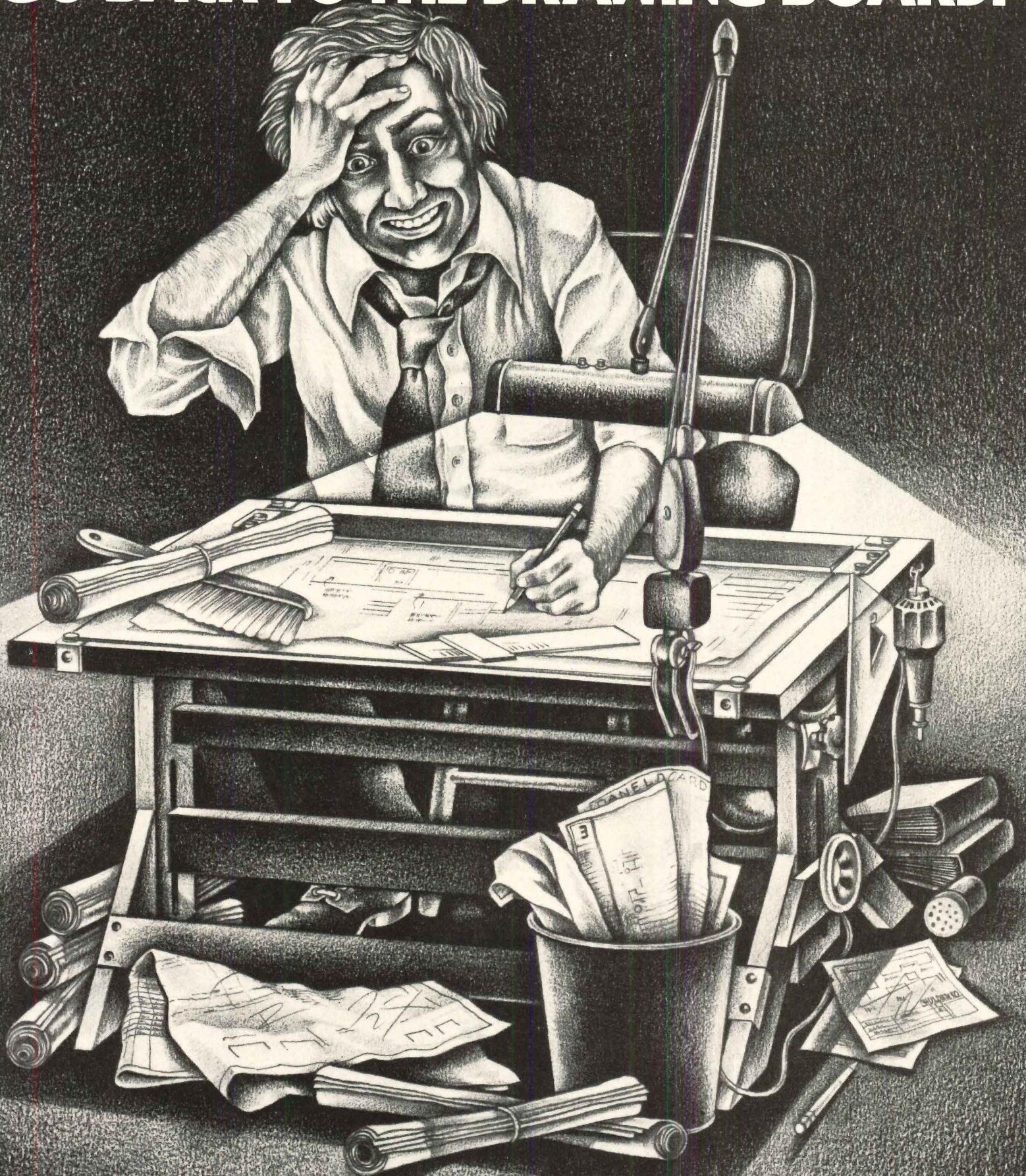
**TCS...SUPERBLY FUNCTIONAL, AESTHETICALLY PLEASING.**

Among the standard architectural metals, TCS (Terne-Coated Stainless Steel) has no equal when measured by the major criteria of durability, corrosion resistance and ease of soldering. It also weathers naturally to a uniform and attractive dark gray. On both counts, we believe it deserves your consideration whenever metal roofing or weathersealing is specified.

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**IF YOU JUST SPECIFIED I-BEAMS FOR  
A 10,000 SQUARE-FOOT ROOF,  
GO BACK TO THE DRAWING BOARD.**





And specify something better.  
Joist girders. A more economical roof-framing system for anything over 10,000 square feet.

Now in volume production at all five Vulcraft plants.

Joist girders. Simple supported joists that carry concentrated loads such as bar joists at top chord panel points and that incorporate a modified Warren truss configuration using hot rolled double angle sections for top and bottom chords and single and double angle sections for web members.

Which is harder to explain than I-beams.

But easier to specify and erect.

For example, the simple span design of joist girders makes ponding calculations easy.

It speeds design time. It makes larger bay sizes possible. And it reduces the number of foundations and columns required. In a most spectacular way.

So when you go back to the drawing board, you won't end up with writer's cramp.

Then, after the drawing and shouting and groundbreaking are over—even greater economy begins to emerge.

Economy from the high strength-to-weight ratio of joist girders.

Economy from fast erection of the simple span sections.

Economy from faster bar joist erection. With top chord panel points indicating joist location and making any measurements unnecessary.

Then, to make the trades happy, there's the fact that you can run ducts, conduit and piping through joist girders. Which even Houdini couldn't do with I-beams.

This could go on forever.

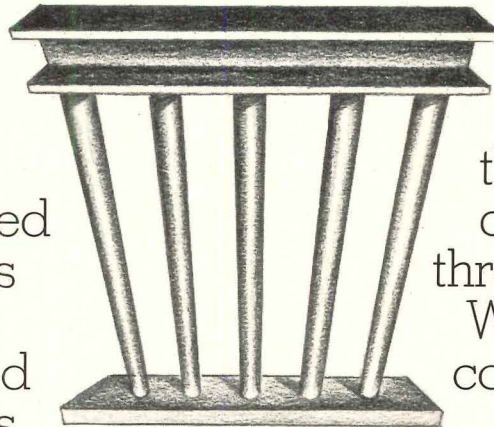
But you have to get back to the drawing board. And before you do that, you'll need our Joist Girder Specification Guide.

So let us tell you how to get one:

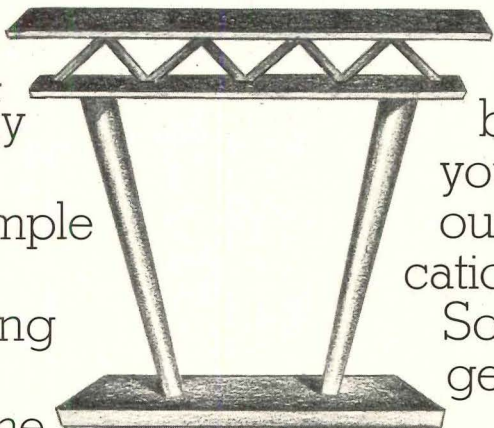
Contact your nearest Vulcraft sales office. Or write P.O. Box 17656, Charlotte, N.C. 28211. Or call us at (704) 366-7000. Do that. And simplify your design task, your structures, and your life.

Vulcraft. Division of Nucor Corporation. Florence, S.C.: Fort Payne, Ala.: Grapeland, Tex.: Norfolk, Neb.: Saint Joe, Ind.

Members of the Steel Joist Institute. **VULCRAFT.**

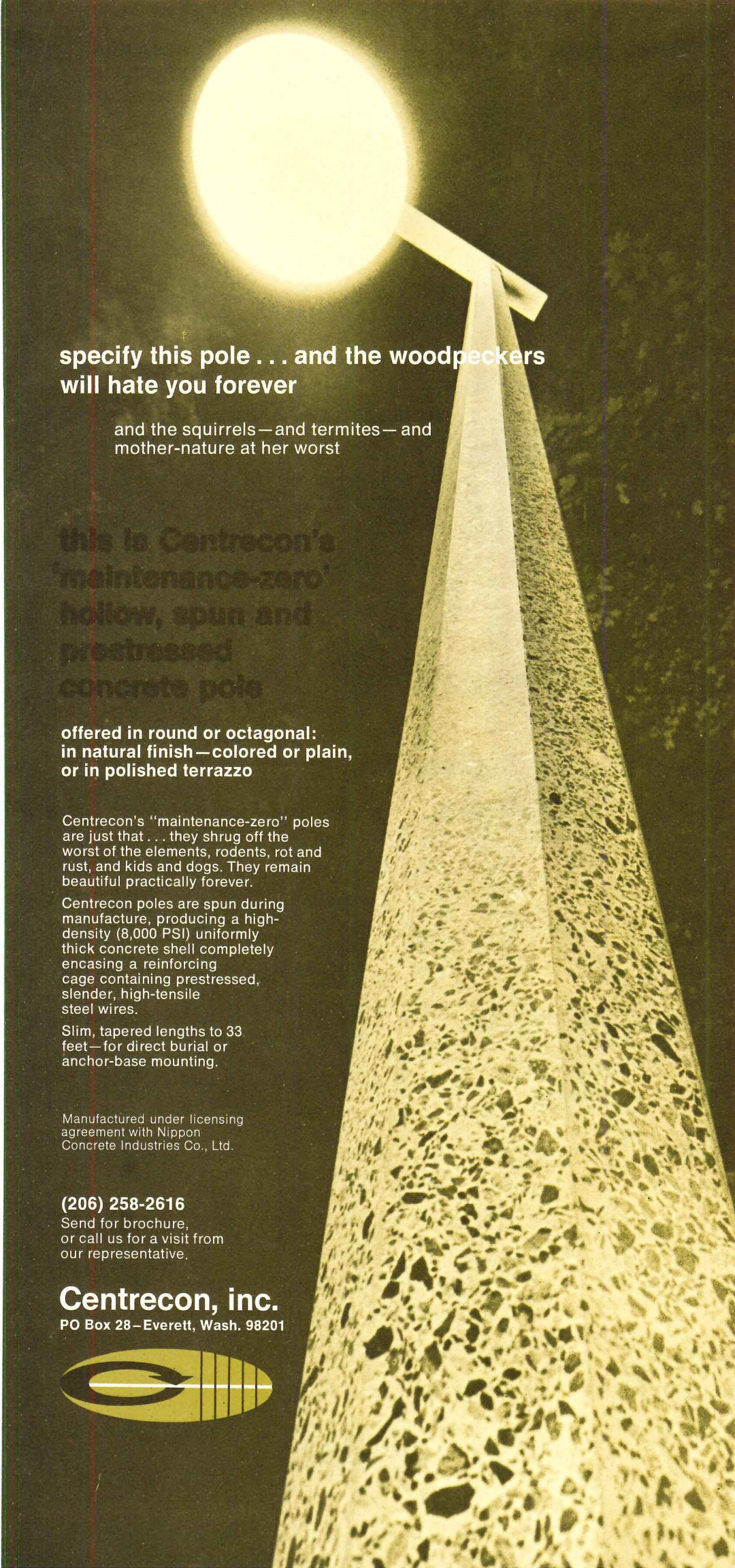


**I-BEAMS**



**SOMETHING BETTER**





**specify this pole . . . and the woodpeckers  
will hate you forever**

and the squirrels—and termites—and  
mother-nature at her worst

This is Centrecon's  
maintenance-zero  
hollow, spun and  
prestressed  
concrete pole.

**offered in round or octagonal:  
in natural finish—colored or plain,  
or in polished terrazzo**

Centrecon's "maintenance-zero" poles are just that . . . they shrug off the worst of the elements, rodents, rot and rust, and kids and dogs. They remain beautiful practically forever.

Centrecon poles are spun during manufacture, producing a high-density (8,000 PSI) uniformly thick concrete shell completely encasing a reinforcing cage containing prestressed, slender, high-tensile steel wires.

Slim, tapered lengths to 33 feet—for direct burial or anchor-base mounting.

Manufactured under licensing agreement with Nippon Concrete Industries Co., Ltd.

**(206) 258-2616**

Send for brochure,  
or call us for a visit from  
our representative.

**Centrecon, inc.**

PO Box 28—Everett, Wash. 98201



## BOOKS RECEIVED

*GUIDE D'ARCHITECTURE CONTEMPORAINE EN FRANCE*, by D. Amouroux, M. Crettol and J.P. Monnet. This handy, just-published paperback is a blessing for travelers determined to seek out and visit some of the newer buildings in France—a process that, heretofore, has often required a singular perseverance to find out exactly where many of them are located. The guide briefly covers 476 contemporary architectural works, most of which were built since 1960. However, there are a few of the better known earlier buildings included, such as Le Corbusier's 1932 Pavillon Suisse in Paris, and some still under construction, such as the Roissy-en-France airport scheduled for 1974 completion. Most of the buildings are illustrated with a photograph, and some with a plan or section; each has a brief text giving pertinent data and a short critique. Though written in French, anyone with the vaguest smattering of the language should have no trouble in using the book, with its very simplified maps and cross-indexing, as a travel guide or as a concise introduction to what is happening architecturally in France. The guide may be ordered directly from *L'Architecture d'Aujourd'hui*, 5 rue Bartholdi, 92-Boulogne-Sur-Seine, France.

AA Technic-Union, Paris, France. Paperback, 408 pages, illus. \$11.00.

*MOVEMENT AND DISTRIBUTION OF CONCRETE* by J. R. Illingworth. "If only we could pump the concrete," were the words of a construction engineer in difficulties 45 years ago. Now it is done universally, with ease, but this does not mean it is the smart way to move concrete in any situation. Barrows and prams, dumpers, skips, hoists and cranes, conveyors and pneumatic placers all are in use in addition to pumps and concrete guns. This is a practical book for the man on the site, and the first book devoted exclusively to the subject. It will also be useful to students of civil engineering building construction.

McGraw-Hill Book Company, New York, 1972, 239 pages, illus., \$16.50.

*SPACE GRID STRUCTURES* by John Borrego. This book is mostly drawings (beautifully done) and photographs of the various three-dimensional space structures available or possible today. It includes flat skeletal double-layer grids, stressed skin space grids drawn or photographed in their over-all configurations and showing the individual parts and joints of which they are made. The remarkable rigidity and economy of three-dimensional space structures has long been realized, but only during the last decade have they begun to come into widespread architectural use. Their simplicity of manufacture, ease of transportation and speed of erection are one reason, but more important, the ratio of weight to area covered can be greatly reduced through their use, and they allow the construction of long-span structures with a smaller number of intermediate supports than other construction techniques. The best use of the book is as a pictorial catalogue of space grid geometrics.

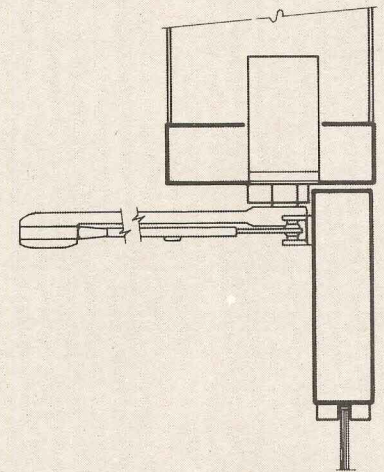
*continued on page 68*



Aloha High School, Portland, Oregon  
Architects: Hewlett, Jamison & Atkinson, Portland

## DOORWAY NOTES . . .

GLASS-PANELLED CUSTOM DOORS REQUIRE FULL CONTROL OF OPENING AND CLOSING SWINGS. CONCEALED CLOSERS ANSWER THE NEED FOR OUT-OF-SIGHT CONTROL AGAINST ABUSIVE TRAFFIC AND UNUSUAL DRAFT CONDITIONS. LCN ALLOWS THE WIDEST CHOICE OF CLOSERS. CATALOG ON REQUEST. SWEET'S, SEC. 8.



LCN 5010 Series closers provide the necessary concealed door control. General speed, latch speed and spring power all adjustable. Hydraulic back check standard.



LCN CLOSERS, Princeton, Illinois 61356

For more data, circle 35 on inquiry card



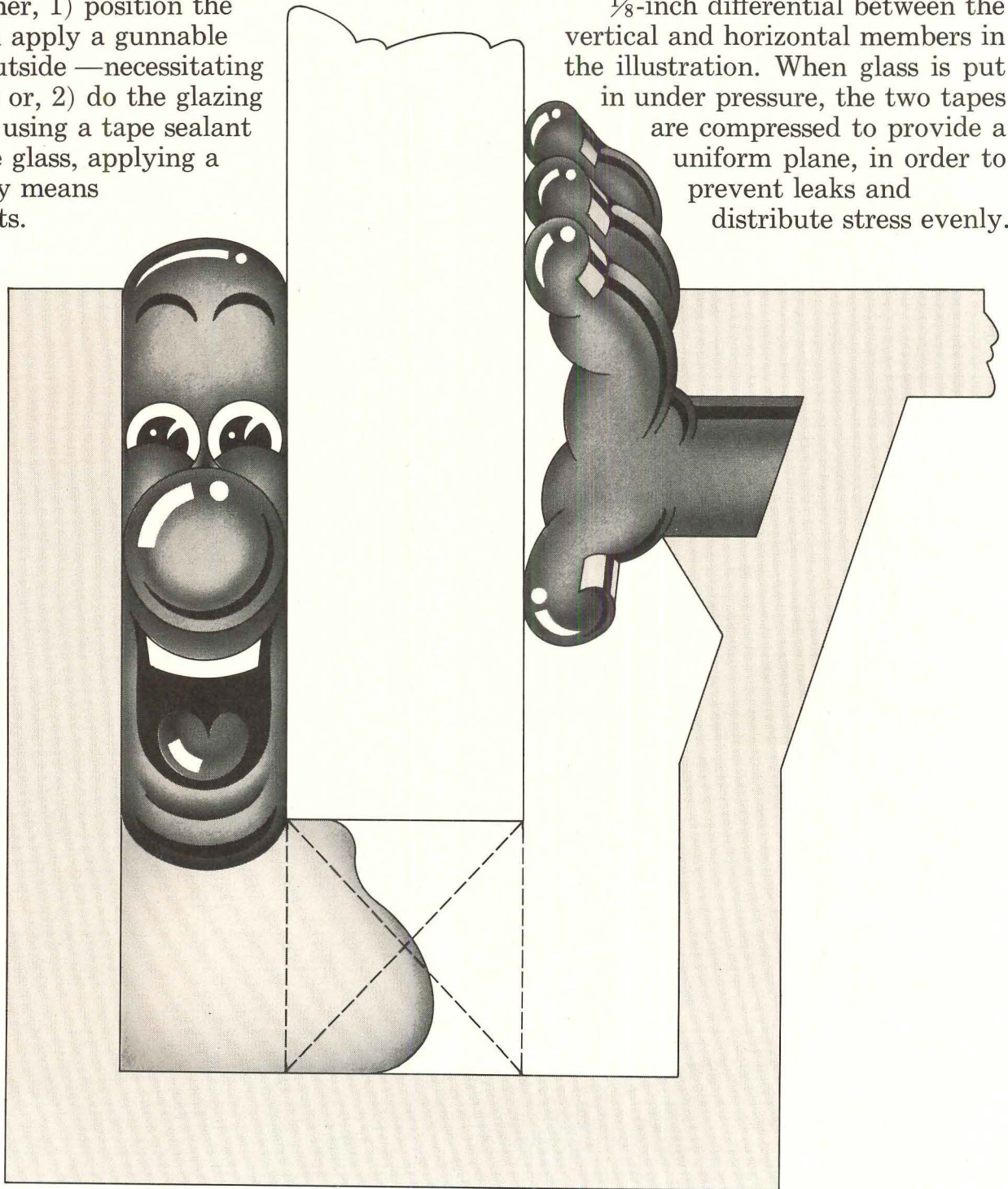
# Some sash designs need to put the pressure on glazing tape.

Stick curtainwall systems and pocket-glazed windows provide structural economies in many applications. But they also present you with some formidable glazing problems.

For one thing, the pocket channel allows the glazer very limited working space. This means he must either, 1) position the glass first and then apply a gunnable sealant from the outside —necessitating costly swing stages or, 2) do the glazing from the inside by using a tape sealant and then insert the glass, applying a positive pressure by means of wedges or gaskets.

This tape sealant must be 25%-50% compressible, yet must not squeeze out of the channel despite the pressure.

Another problem — illustrated on the opposite page — is the offset condition of channels in stick system glazing. As you can see, there is a  $\frac{1}{8}$ -inch differential between the vertical and horizontal members in the illustration. When glass is put in under pressure, the two tapes are compressed to provide a uniform plane, in order to prevent leaks and distribute stress evenly.

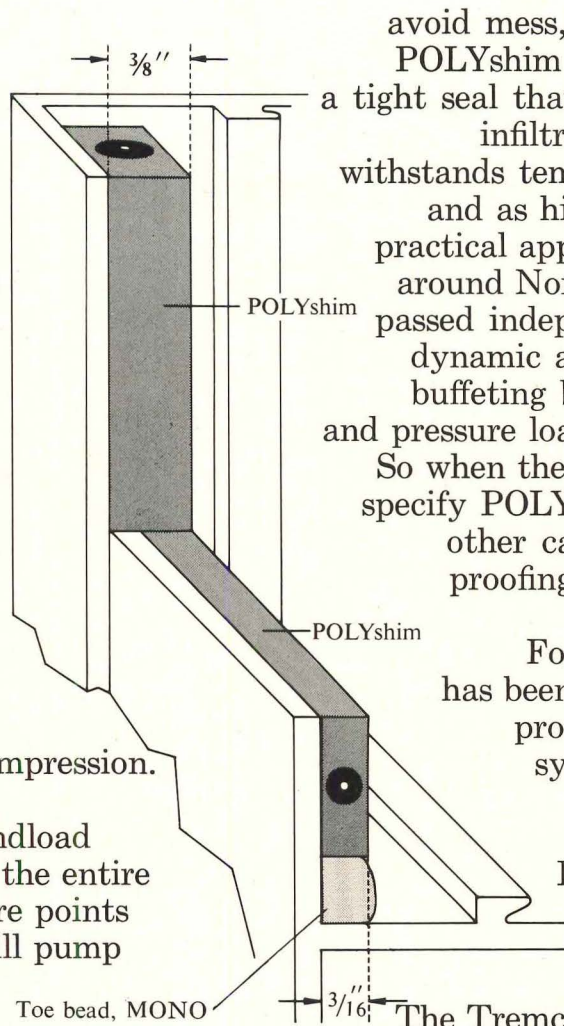




Besides the design problems just mentioned, you and your glazing contractor are faced with increasingly critical glazing conditions as buildings go higher and higher. For example, larger lights of glass, greater pressure differentials and higher windloads all put a bigger burden on glazing techniques. Omitted, misplaced or incorrectly chosen shims compound these problems and raise the possibility of leaks and glass breakage.

All these conditions call for something special in the way of glazing tape. And Tremco has it. It's called POLYshim.™ And it's designed for use wherever design conditions call for 25% to 50% compression. It contains a continuous, integral reinforced shim that transfers windload from glass to sash evenly around the entire perimeter. This eliminates pressure points or any danger that the sealant will pump out of the sash.

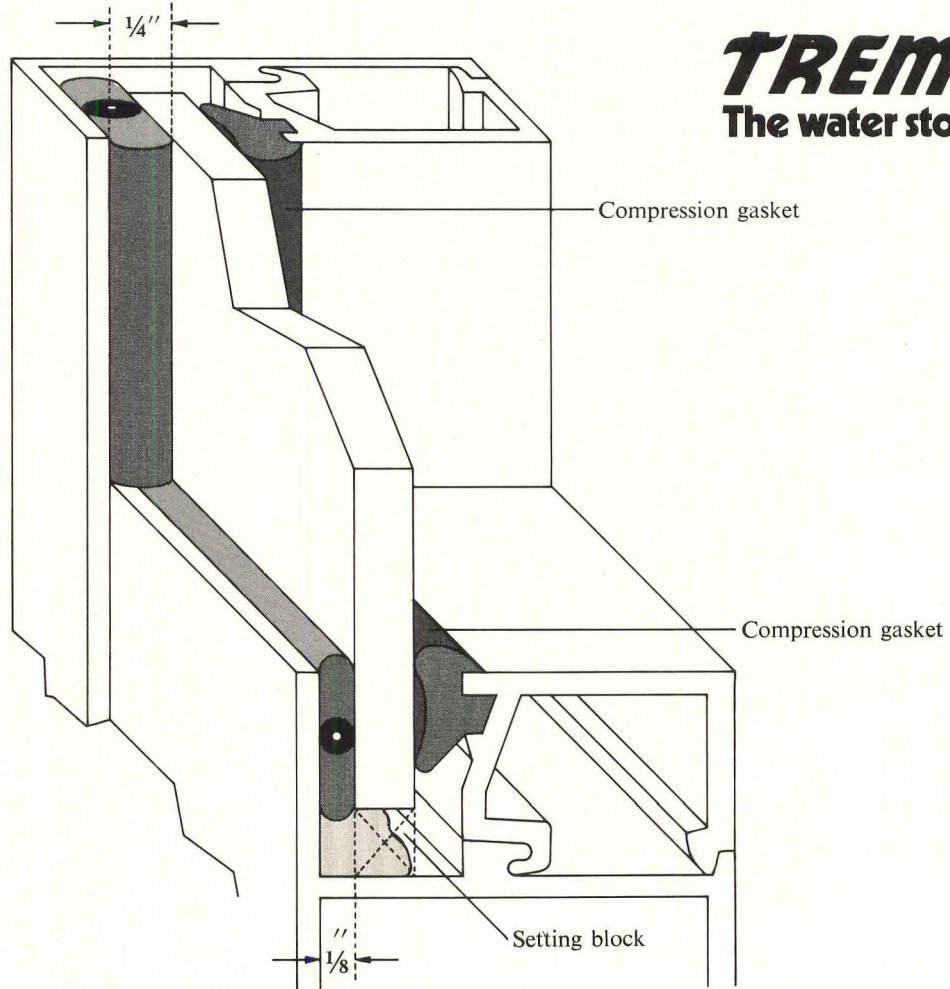
POLYshim can be installed from the inside quickly, easily and accurately. It comes on a specially-treated instant release paper backing that helps



avoid mess, waste and tape distortion. POLYshim is self-adhering and forms a tight seal that effectively prevents water infiltration, resists ultraviolet and withstands temperatures as low as  $-65^{\circ}\text{F}$  and as high as  $220^{\circ}\text{F}$ . In addition to practical applications in major buildings around North America, POLYshim has passed independent laboratory tests for dynamic and static water infiltration, buffeting by wind and water, thermal and pressure loading and accelerated aging. So when the pressure's on glazing tapes, specify POLYshim. And if you have any other caulking, glazing or weather-proofing problems, remember your Tremco man can help.

For over 40 years, our business has been solving these problems and providing top-quality leakproof systems and products, such as our job-proven sealants MONO, DYmeric and Lasto-Meric, liquid polymer Tremproof waterproofing and our new roof edging system, Tremline.

The Tremco Manufacturing Company, Cleveland, Ohio 44104. Toronto 17, Ontario



**TREMCO**  
The water stoppers.

For more data, circle 36 on inquiry card



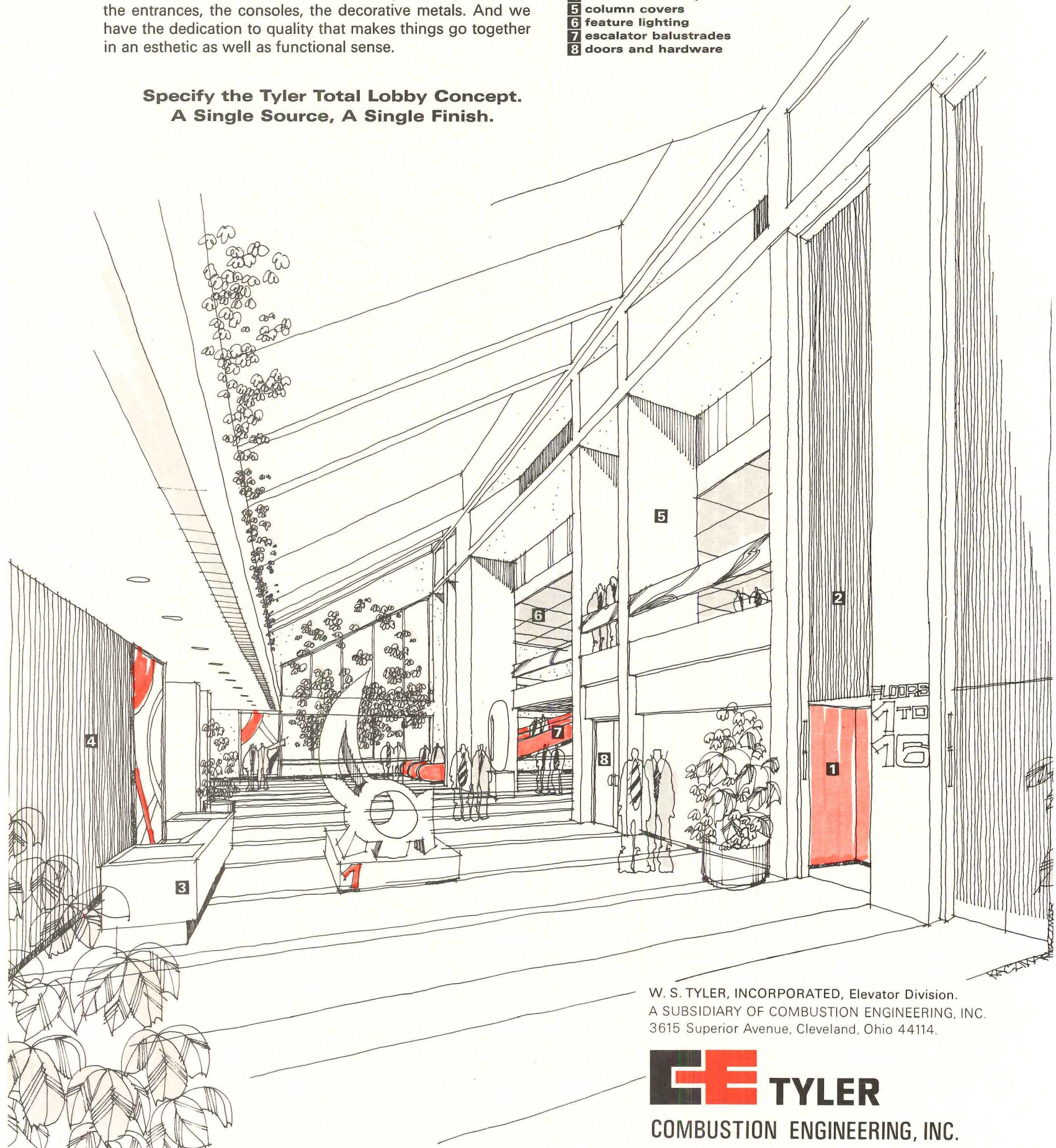
# Tyler puts it all together

Tyler can execute your lobby in the unified concept you seek.

Because Tyler has the metal fabrication and finishing expertise in the diverse elements that make up a lobby. The cars, the entrances, the consoles, the decorative metals. And we have the dedication to quality that makes things go together in an esthetic as well as functional sense.

- 1 elevator cars
- 2 elevator entrances
- 3 lobby consoles
- 4 decorative wall panels
- 5 column covers
- 6 feature lighting
- 7 escalator balustrades
- 8 doors and hardware

**Specify the Tyler Total Lobby Concept.  
A Single Source, A Single Finish.**



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A SUBSIDIARY OF COMBUSTION ENGINEERING, INC.  
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For more data, circle 37 on inquiry card



## How design firms should approach government agencies

A primary key to getting federal or other government A/E work is the formidable but potent Form 251. The following tips on how to fill out and use this form are extracted from the b.i.d.s. Jobletter for December, 1972, second issue of a monthly business acquisition newsletter, copyright Building Industry Development Services, Washington, D.C.

Many knowledgeable architects, engineers and planners are convinced that government bodies at all levels—city, county, state and national—will be the primary targets for business development efforts within this decade. One reason for this conviction is the increasingly important role of government in the financing of design and construction projects, whether or not the governmental unit is the primary client.

The principal of a large East Coast A/E firm suggests that the unhappy alternative to quick adaptation by professional firms to the intricacies of the paperwork, rigid fee schedules and the bureaucratic pitfalls of government work is a full-scale return to in-house design staffs in government departments and agencies. Before 1938, for example, all A/E work for the Department of Defense was done in-house by the Corps of Engineers, unless the employment of an outside design firm was specifically authorized in the legislation funding the project.

While government design projects can be frustrating, subject to unconscionable delays and not very profitable, the fact remains that, if they are to become the biggest if not necessarily the only game in town, one must learn to cope. The first step in coping is to apply for the work. And the first step in applying is to fill out the ubiquitous Standard Form 251.

This is the U.S. Government Architect-Engineer Questionnaire and is perhaps one of the most forbidding of government forms, from the standpoint of graphics, general esthetics and length. It is, however, a useful summary of any firm's history, resources and potential, and it can be prepared with individuality in ways that will be described. Many firms use copies of it to supplement their regular office brochures for all types of clients, non-governmental as well as governmental.

### Tips on preparing U.S. Government Form 251

The first step is to get a supply of blank sets of Standard Form 251. The basic form consists of nine pages, but the completed questionnaire may run to several hundred sheets in some cases. The blank forms may be obtained from government agencies or the headquarters of most professional societies. They also are available in pads of 20 sets from the Government Printing Office in Washington, D.C.—price \$1.00 per pad.

The information asked for in Form 251 concerns key staff members and principals, associates and consultants, current and past (completed) work, types of projects for which the firm is particularly qualified and a few miscellaneous questions on such things as security clearances and location of branch offices, if any.

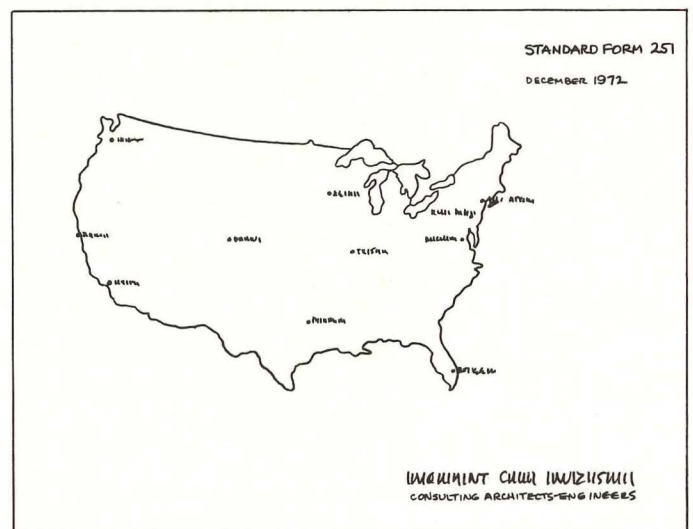
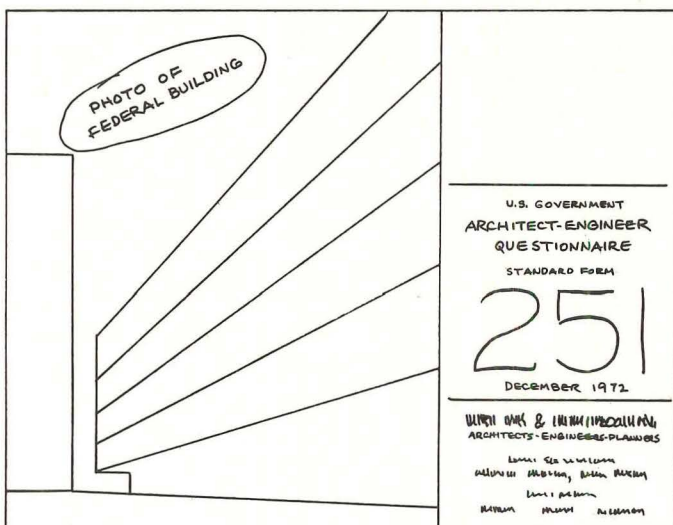
While it is acceptable practice to merely fill in Form 251 and Xerox a few copies for distribution, as long as the basic format is followed and all of the questions answered, there seems to be no real limit to the modifications and innovations a firm may incorporate into its 251.

Where a firm uses a brochure "system", the 251 is usually given a front and back cover to make it fit in with other brochures in the series. The assembled Form 251 may be top- or side-bound with tape or plastic spiral binding.

Even when the 251 is not intended to match or complement other system brochures, a distinctive cover is often used. Some of the most effective covers are lightweight cardboard stock and feature a photograph or drawing of an important project, the firm's name and date. If a project photo is used on the cover, it should show a government job. This may seem obvious but some firms who should know better have used office buildings for corporate clients, stadiums and even condominiums to dress up the 251 cover.

One consulting firm uses an outline map of the United States showing the location of its several offices and laboratories; an A/E firm uses the same kind of map to show where it has done work for various Federal agencies around the country.

A few other practical additions to the Form 251 are a table of contents, tabbed dividers to index the several sections of the questionnaire and photographs of completed projects. Surprisingly few firms incorporate photographs into the 251. Among the instructions for completing the Form (Section 20) appears this statement: "Unless specifically requested, submissions of photographs is optional. Where submitted furnish one exterior and one interior photograph of five examples of completed architectural work that are listed in items 18 and 19. (This refers to the list of completed projects.) On the back of each photograph give the following information: 1)





Name of your firm; 2) Name and address of client; 3) Type of structure; 4) Location of structure; 5) Cost of specific structure. Photographs of electrical or mechanical facilities and other components of a decided engineering character are not necessary."

Question 13 asks for an indication "in order of precedence, using '1', '2', '3' etc., the types of projects in which your firm specializes." Personnel of Federal agencies who use the information in Form 251 files as a basis of selecting designers and consultants point out that any number other than a "1" by one of the 28 categories listed will normally cause the firm to be rejected for a specific project. In other words, there is nothing to keep a firm from placing second, third and even fourth rankings by some of the categories, but it is a rather futile exercise in getting new business from the government.

### Be specific about services of your firm

Immediately following Question 13 is a block 9½-inches wide by ¾-inches deep (Question 14). Here one is asked to "indicate the scope of services provided by your firm without use of outside associates or consultants on types of projects indicated in Item 13."

Far too many firms answer this question with something like "normal architectural services" or "Regular engineering services." Others, feeling that the space allowed for this answer is too confining, say "See attachment" and then use a page or two of inserts to explain in great detail the scope of their services.

Neither of these approaches is guaranteed to accomplish much in selling your firm, although the second method is far better than the first one. Here are examples of how two A/E firms answer Question 14:

1. "We are a total service organization, encompassing all of the pre-architectural and engineering phases, architectural and engineering professional services, and advanced methods of construction management and building techniques."

2. "The firm provides all services within the disciplines of architecture and engineering needed to define and execute the requirements of a building program. These include: complete architectural; landscaping; interior design; mechanical; electrical and structural engineering; planning; estimating; inspection; value engineering and construction management."

Other troublesome blanks in the 251, because they are often overlooked and omitted, are:

1) The box for the date (unnumbered) in the top righthand corner of Page 1. There is another space for the date on which the 251 is submitted under Question 23 on the last page, and both blocks should always carry the date.

2) Signature of the person responsible for the information in the Form 251, attesting that the information therein is a true statement of facts. Strangely enough, many 251's get sent out without this signature.

3) Pages 5 through 8, which ask for current and completed work of the submitting firm. At the bottom of each of these pages is a block asking for the number of projects listed on the

page and the total of the estimated construction costs represented by the projects. If these figures are not supplied, as is the case in an unbelievable number of 251 submissions, then someone at the agency must do the compilation if the form is among those being considered for a specific job. As might be imagined, this chore is not calculated to endear the offending firm to the Civil Service employee who has to complete your job.

When the Questionnaire becomes a booklet—as in the case of some large firms—it is worthwhile to include a table of contents. Some offices use light-weight stock dividers to separate the various sections of the 251. Full-sheet dividers usually have index tabs along the right side, which should earn that firm a vote of thanks in government selection offices.

Use normal judgment in submitting a Form 251 in connection with a specific project in a governmental agency. If it is a Veterans Administration facility, for instance, you know that the client's primary interest will be in the firm's experience with medical facilities—clinics, hospitals, medical schools, rehabilitation facilities, doctors' office buildings and nursing homes. Always try to put yourself in the potential client's position in preparing any special brochure; then customize the brochure to fit the client, project and special circumstances.

Remember that some of the larger agencies and departments have literally thousands of copies of the Architect-Engineer Questionnaire on file at any given time. Anything you or your firm can do to make the selection process easier and more pleasant will never hurt your chances for serious consideration. Because of the quantity of 251 Forms most government offices must deal with, occasional personal visits are desirable—even necessary—to keep agency personnel familiar with your firm and its qualifications.

Make it a point to revise the Form 251 on a regular basis; schedule the revision for a specific time period. Most agencies automatically clear their files of all 251's over a certain age, on the premise that the information is out-dated after a year or so. The preference seems to be for six-month revision, and no firm should ever allow its 251 to get over two years old. This is a primary reason for including the date in a prominent spot on the cover; it is a constant reminder to the firm to revise and re-submit the Architect-Engineer Questionnaire.

A few Federal agencies have begun using a supplementary page 2a to the Form 251. This extra page is to allow easy computerization of the material in block 13. This is in the form of a numbered tabulation by discipline and project types. It should be supplied to all agencies, whether or not specifically requested, because the progress toward computerization may overtake your 251 without prior notice. The Corps of Engineers furnishes a two-page "Guidelines to A/E firms for Preparation of Standard Form 251" with the page 2a inserts. A typical instruction reads as follows:

"Blocks 16 & 18. 1) 1st & 2nd columns: Under name and type of project and location describe the project briefly, e.g., new 3-story perm.

dorm, 100,000 SF; 60-ton incinerator auto-feed; underground 2,000' outfall to ocean-grade, etc; indicate any special features of design (a description is not necessary for each job; use only where needed to show design expertise); 2) 4th column, ext. const. cost—also show fees only for master planning, surveys, etc., by typing "(fee)" after the monetary value; 3) indicate at the bottom of the page (last page for multiple pages in this category) the total number of projects and the total dollar amount of estimated construction costs. For government projects show as owner the agency with whom contracted."

After the Form 251 is completed, sufficient copies should be printed to enable a firm to supply all of the Federal offices, agencies and departments to which it might look for work. Make up at least 20 extra copies to use for governmental bodies other than Federal, and for clients to whom you want to give a complete listing of your work over the last 10 years. Used as a companion piece to the regular brochure, the 251 often works as an excellent supplement.

When distributing copies of Form 251 to government agencies, err on the side of oversupply. If an office should get more than one copy, the extra ones can be disposed of, but if there are no copies on file then the design firm is nonexistent as far as the Federal office is concerned.

In summation, there is no prohibition against an application of good design, pleasing graphics and organization in completing the U.S. Government Architect-Engineer Questionnaire—Standard Form 251; a typical, deadly, all-text form which may be vastly improved by a little applied imagination.

Following is a partial list of government offices where current Form 251's should be kept on file. Ask for publication 12-72-251. If you would like a copy of the Corps of Engineers "Guidelines", mentioned above, ask for 12-72-251a.

**Domestic projects:** Departments of Agriculture, Commerce, Defense, (Office of Chief of Engineers, Director of Military Construction), Health Education and Welfare (Facilities Engineering and Construction Agency), Housing and Urban Development, the Interior, Justice, Labor, State, Transportation, Treasury.

U.S. Postal Service, Atomic Energy Commission, Environmental Protection Agency, General Services Administration, National Aeronautics and Space Administration, Tennessee Valley Authority, Veterans Administration.

**International projects:** Some of the agencies primarily involved in foreign project development and financing require a form similar to Standard Form 251, but adapted to their own information needs, A.I.D. and the I.-A.D.B. are two examples of agencies with their own version of the 251 Form. A.I.D.'s form, aptly enough, is called "Exception to S.F. 251." Following are typical agencies: Agency for International Development, Inter-American Development Bank, Export-Import Bank of the United States, Overseas Private Investment Corporation, International Bank for Reconstruction and Development (World Bank), U.N. Development Program.



# BIG ORDER

## PROFESSIONALS AT WORK

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*Consulting Engineer:* Jaros, Baum & Bolles, New York  
*Mechanical Contractor:* Economy Mechanical Industries, Skokie, Ill.  
*General Contractor:* Diesel Construction, Chicago  
*Owners:* Sears, Roebuck and Co., Chicago

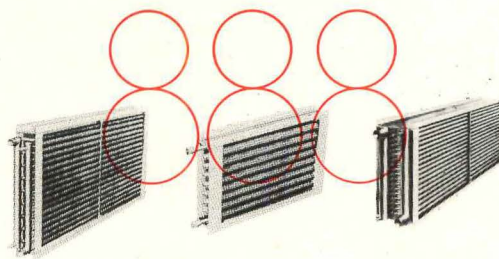
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**AEROFIN HEAT TRANSFER COILS**  
in the world's tallest building

COIL DATA: 245 Type C chilled water cooling coils — 635 Type CH hot water coils — 8 Type MP hot water booster coils . . . for a total of 888 AeroFin coils.



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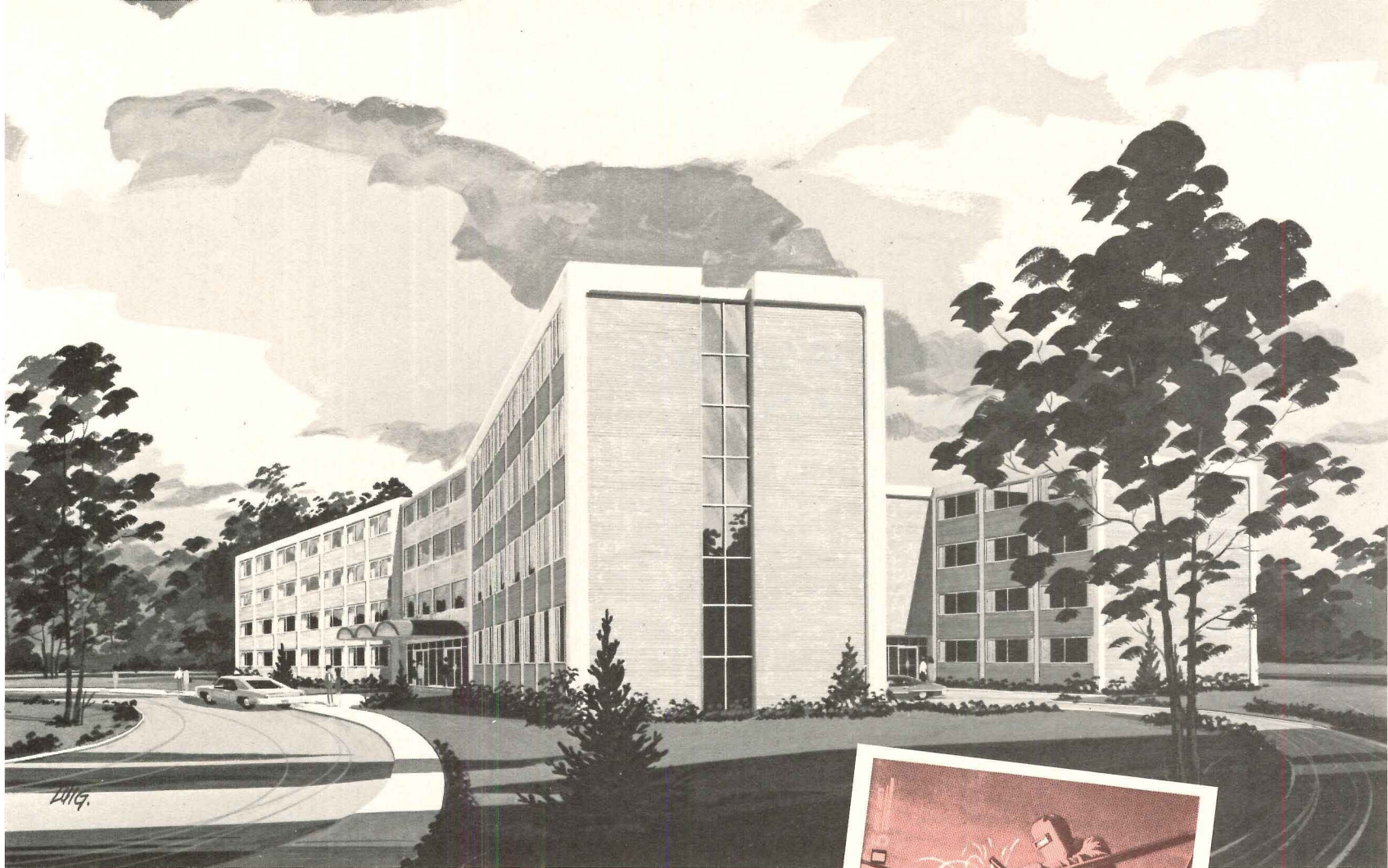
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*Why steel joists were the right answer to this building need*

## STEEL JOISTS PRESCRIBED FOR HOSPITAL CONSTRUCTION SPEED AND ECONOMY

Modern design, functional efficiency, building speed and economy were all blended in the planning and construction of Warminster General Hospital in Warminster, Pa.

Consisting of four floors and basement, the new 150-bed medical facility is located on a 20-acre tract not far from Philadelphia.

Open web steel joists were specified for the building, and approximately 140 tons of these structural members were used, with construction speed and economy the prime consideration in their selection. "Naturally, we are delighted by the savings resulting from the use of joists," says Dr. Bernard B. Rotko, president of R H Medical Services, Inc., owner of the facility. "These are advantages that any building owner would warmly welcome."

Speed and economy are only two of the many benefits offered by strong, lightweight, versatile open web steel joists for today's construction needs. For the full story, send today for your free copy of the current Specifications and Load Tables for Open Web Steel Joists and Longspan steel joists.



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

## Financing nonresidential building: some new sources in 1973

The efforts to keep housing, the undisputed hero in last year's construction arena, in a robust state of health during the year that lies ahead have generated a lot of interest lately. Several new proposals, variable mortgage rates, the creation of a viable secondary market for conventional mortgages and the establishment of a futures market for mortgages generally, for instance, are vying to join the list of financial innovations that have been so successful in helping to push housing to the top over the past two years. And, these proposals have been getting a lot of notoriety in the process.

There have been some changes taking place in the means by which nonresidential building is financed too, though. And, while they might not be getting much attention, this does not diminish their potential impact on construction.

Just six months ago, in June, 1972, the Government enacted a law amending the Public Building Act of 1959, a measure that spells out the financing rules for the acquisition, construction and maintenance of public buildings. The amendment took a cue from the success of the turn-key concept in the government housing program. With a section granting purchase contract authority, the drafters did for public buildings generally, what they had done previously for public housing. In effect, the law enables the General Services Administration to obtain what amounts to private mortgages of up to 30 years for its buildings, rather than as in the past, having to rely solely on congressional allowances. The mortgages can be paid off from rents charged to the GSA's Federal tenants, another new wrinkle.

With this freer financial hand, the GSA is expected to plunge ahead with the task of reducing the backlog of federal building needs. This new program should work especially well with office buildings, which are easily converted to nongovernment uses. But, attempts to finance structures with little alternative use value on the private market by this means may meet with some reluctance on the part of lenders.

The Revenue and Expenditure Control Act of 1968, was a three-part measure that limited Federal spending in certain areas, amended the social security act, and revised the internal revenue code all at one time. In the process it also removed the federal tax exempt status of industrial development bonds issued by municipalities. Without the tax-exempt status,

and the resultant low interest rates that these instruments could then carry, this source of new construction financing was soon reduced to a trickle. From a figure of around \$1.5 billion in 1968, industrial development bond issues fell to only a few million dollars in 1969. Contract awards for new industrial plants, on the other hand, reached an all-time peak that year.

The 1968 Act did not apply, though, to bonds issued when "substantially all of the proceeds of which are to be used to provide . . . air and water pollution control facilities." This fact has resulted in a rebirth of the industrial development bond under a new name, the pollution control bond. With a private industry facing strict pollution control standards, this means of financing improvements has become a popular one. Up to a billion dollars in industrial pollution control facilities is expected to be financed in this way during 1973.

Revenue sharing is another potential source of construction money this year. \$2.6 billion in checks were mailed out to states, counties, and municipalities in December, and another \$2.6 billion is set to go out this month. It's a good bet that some of this money will find its way into construction projects. But how much? That's the problem, there's really no way of knowing. The only restriction on this money is that it be used for "priority expenditures": capital expenditures that are authorized by law or maintenance and operating expenditures in the areas of public safety, environmental protection, public transportation, health, recreation, libraries, social services for the poor and aged, and financial administration. How much will go into each of these areas is really anyone's guess at this point.

Nonresidential building can expect some plusses from the more traditional financing channels during the year ahead too.

The latest McGraw-Hill survey of business capital spending plans for 1973 shows a gain of 11 per cent over the 1972 amount, with the manufacturing area, ahead 14 per cent, posting the biggest increase. Under manufacturing, some groups like iron and steel and the rubber industry are looking for increases of as much as one-third. And, with plant capacity utilization rates now pushing up over the 80 per cent rate, its certain that a significantly larger share of these investment funds will be going into new plants than was the case through 1972. See table.

In the middle of the wage freeze, and living with an economy still sputtering along in its recovery phase, the nation's voters pulled the bond issue levers with an extremely tight fist on election day, 1971. They were much more receptive to bond issues during 1972, approving about 75 per cent of what was on the ballot—in percentage terms, almost as much as they rejected in the previous year. This augurs well for areas like school construction, which, because of defeated bond issues, lagged severely in many areas during 1972. And sewer and water construction, while hardly a laggard last year, also got a big boost from the voters in the recent election.

From this brief overview of the ways in which nonresidential building types are financed, it's apparent that there's a lot of potential for growth in the months ahead. But, in this respect, it's best to keep the distinction between the *method of financing*, and the *availability of funds* straight. With the exception of revenue sharing, where the funds will be turned over automatically, and voter approved bond issues, where authority to float the issue has been granted and will proceed regardless of market conditions in most cases, radical shifts in interest rates could punch big holes in even the best of building plans. While the prospect of severe credit tightening sometime in 1973 appears remote just now, it's always best to temper the optimism just a bit.

Plans for capital spending  
 (Billions of Dollars)

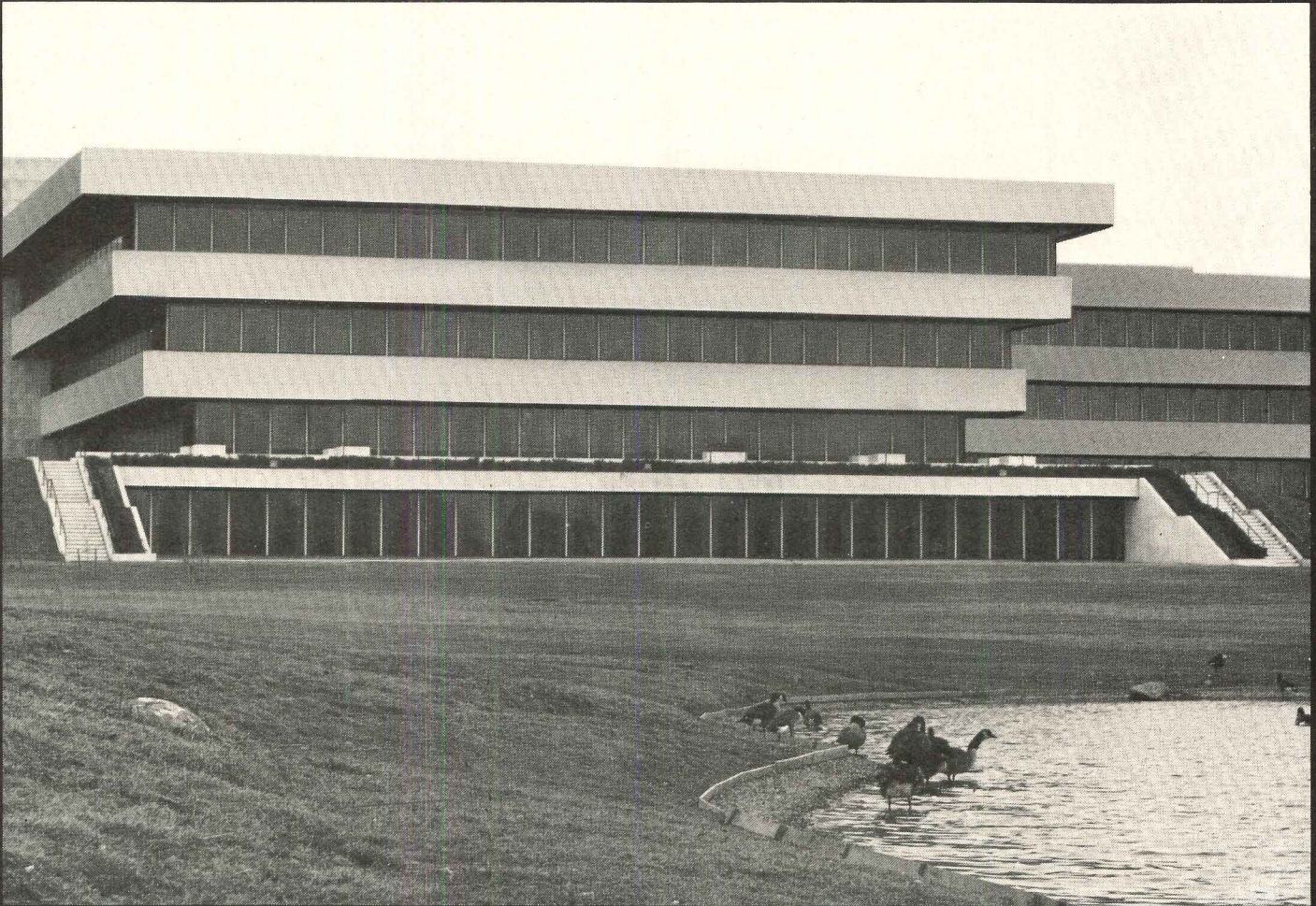
| Industry              | 1972         | 1973         |
|-----------------------|--------------|--------------|
|                       | Estimated    | Planned      |
| Iron & steel          | \$ 1.60      | \$ 2.16      |
| Nonferrous metals     | 1.28         | 1.24         |
| Electrical machinery  | 2.28         | 2.39         |
| Machinery             | 2.84         | 3.23         |
| Autos, trucks & parts | 1.83         | 2.25         |
| Aerospace             | .46          | .55          |
| Other transportation  | .27          | .37          |
| Fabricated metals     | 1.54         | 1.59         |
| Instruments           | .76          | .84          |
| Stone, clay & glass   | 1.19         | 1.52         |
| Other durables        | 1.65         | 1.96         |
| Chemicals             | 3.39         | 3.97         |
| Paper & pulp          | 1.39         | 1.70         |
| Rubber                | .97          | 1.26         |
| Petroleum             | 5.67         | 6.29         |
| Food & beverages      | 2.60         | 2.93         |
| Textiles              | .75          | .68          |
| Other nondurables     | 1.19         | 1.09         |
| <b>Total</b>          | <b>31.66</b> | <b>36.02</b> |



What's standing between a noisy county airport and PepsiCo's quiet corporate headquarters?

1,809 insulating glass windows.

And a 20 year old proven performer—a sealant based on LP<sup>®</sup> polysulfide polymer.



Such a move makes indisputable sense. And has done so for nearly 20 years, the period during which insulating glass manufacturers have been assembling their units with sealants based on LP polysulfide polymer from Thiokol.

In the case of the new corporate headquarters of PepsiCo, Inc., Purchase, N.Y., such a sealant proved itself because it eliminated moisture condensation and practically all outside noise.

Which happens to be exceedingly important in this particular case because the headquarters building is only a mile and a half from busy Westchester County Airport, right in the flight path.

Now we're not attributing all of the success to the sealant—a two-part polysulfide-base compound. But we are claiming that this sealant played an extremely important role.

Here are the facts upon which this claim is based: For one thing, after careful evaluation, this sealant based on our polymer was found to give the best seal between the window's neoprene gasket and aluminum. And between neoprene and glass. And between one piece of aluminum and another.

This resulted in a firm seal that helps prevent fissures or ruptures that could substantially impair the window system's sealed-in atmosphere. Hence, the threat of sweating and fogging is eliminated.

What's more, this sealant proved to have the capability of withstanding all sorts of vibrations and atmosphere turbulence caused by the heavy traffic at the nearby airport.

As a result, it was ideal for the window design which included a special

pressure-compensating system that eliminates barometric and thermal differences within the 3½ inch air space.

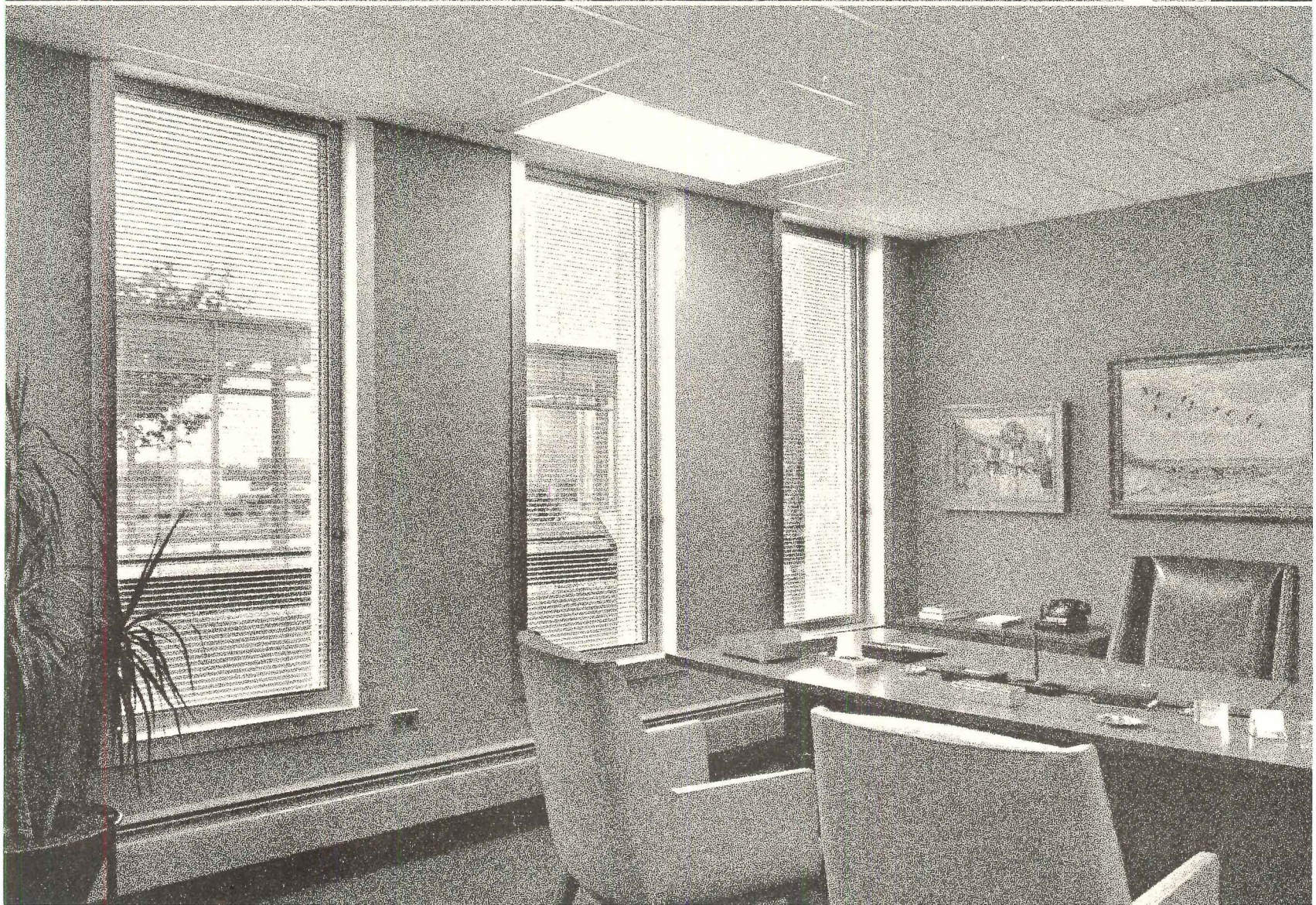
Besides, this sealant also proved it could measure up to sealing out noise. Right now, in fact, the sealed double-glazed window units screen out more than 80 percent of the sound which would come through ordinary single-pane units.

Again, this is another example of how a sealant based on LP polysulfide polymer comes through with flying colors. For more information, write Dan Petrino, Thiokol Chemical Corporation, P.O. Box 1296, Trenton, N.J. 08607.

*Thiokol*

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**GAO PROBES HOSPITAL COSTS**

The U.S. General Accounting Office sent to Congress in mid-November a massive study of health facilities construction costs in which Comptroller General Elmer B. Staats once more enters the lists of controversy with the design professions. The tenderest point at issue with those professions, architecture and engineering, may be the report's suggestion in its opening digest that: "An opportunity may exist for the reuse of designs, in whole or in part, which would provide the potential to reduce design time and project costs." The report does explain later, on page 19, that: "Reuse of designs is not intended to mean the development and use of what is often referred to as stock or standard plans which would result in a common facility being repeated many times with little or no regard to an individual hospital's needs." Stressing "lifetime costing," the report observes that design and construction costs are generally exceeded by the first three years' operating costs.

Individual hospitals' needs were, in fact, stressed implicitly in three other observations of "weaknesses and potential opportunities for improvement in the preconstruction planning process." These were: 1) lack of attention to advance analysis of health care needs; 2) deficient cost estimates and funding identity; 3) delays by Federal review procedures.

The study, ordered by the comprehensive Health Manpower Training Act of 1971, has two other significant aspects: 1) It makes GAO the watchdog of criteria, other than financial, of other agencies. 2) It urges Federal unity in procedural matters.

1941 average for each city=100.00  
(except as noted)

| Metropolitan area      | Cost differential | Current Indexes |             |         |       | % change last 12 months |
|------------------------|-------------------|-----------------|-------------|---------|-------|-------------------------|
|                        |                   | non-res.        | residential | masonry | steel |                         |
| U.S. Average           | 8.3               | 391.7           | 367.9       | 383.6   | 373.7 | + 6.47                  |
| Atlanta                | 7.9               | 504.1           | 475.4       | 490.1   | 479.4 | + 8.38                  |
| Baltimore              | 8.2               | 427.9           | 402.4       | 417.6   | 404.3 | +10.14                  |
| Birmingham             | 7.4               | 363.3           | 338.0       | 350.9   | 346.0 | + 8.05                  |
| Boston                 | 9.1               | 399.9           | 377.9       | 396.9   | 384.2 | + 8.95                  |
| Buffalo                | 9.0               | 431.5           | 405.2       | 426.3   | 412.5 | + 3.66                  |
| Chicago                | 8.4               | 450.9           | 428.8       | 437.2   | 428.6 | + 6.09                  |
| Cincinnati             | 8.6               | 416.4           | 391.9       | 404.8   | 394.8 | + 6.37                  |
| Cleveland              | 9.3               | 435.7           | 410.1       | 424.8   | 414.8 | + 3.30                  |
| Columbus, Ohio         | 8.3               | 412.4           | 387.3       | 400.1   | 392.6 | + 4.31                  |
| Dallas                 | 7.7               | 390.5           | 378.1       | 382.9   | 374.8 | + 8.02                  |
| Denver                 | 8.2               | 420.4           | 395.5       | 415.5   | 401.2 | + 5.73                  |
| Detroit                | 9.5               | 438.3           | 417.6       | 439.9   | 422.6 | + 5.71                  |
| Houston                | 7.5               | 370.0           | 347.5       | 361.5   | 353.8 | + 4.74                  |
| Indianapolis           | 7.9               | 364.2           | 342.0       | 355.1   | 347.6 | + 6.19                  |
| Kansas City            | 8.2               | 372.1           | 351.7       | 362.7   | 353.1 | + 6.47                  |
| Los Angeles            | 8.2               | 434.0           | 397.0       | 421.3   | 412.8 | + 5.89                  |
| Louisville             | 7.7               | 390.4           | 366.7       | 381.0   | 372.2 | + 7.64                  |
| Memphis                | 7.6               | 370.3           | 347.8       | 357.5   | 351.7 | + 8.15                  |
| Miami                  | 8.0               | 411.7           | 392.2       | 400.6   | 392.8 | + 5.64                  |
| Milwaukee              | 8.4               | 440.4           | 413.7       | 434.2   | 421.7 | + 4.05                  |
| Minneapolis            | 8.8               | 417.8           | 393.2       | 411.5   | 399.7 | + 4.08                  |
| Newark                 | 8.7               | 381.4           | 358.2       | 376.0   | 366.7 | + 4.04                  |
| New Orleans            | 7.4               | 374.8           | 353.9       | 368.3   | 359.8 | + 8.16                  |
| New York               | 10.0              | 433.2           | 402.9       | 420.7   | 409.8 | + 6.95                  |
| Philadelphia           | 8.9               | 424.5           | 404.5       | 420.5   | 408.8 | +11.90                  |
| Phoenix (1947=100)     | 7.8               | 223.5           | 209.9       | 215.9   | 212.0 | + 7.58                  |
| Pittsburgh             | 8.8               | 384.8           | 362.1       | 378.9   | 367.3 | + 5.03                  |
| St. Louis              | 8.7               | 408.1           | 385.3       | 401.4   | 390.1 | + 7.19                  |
| San Antonio (1960=100) | 7.5               | 151.1           | 142.0       | 147.4   | 143.7 | + 4.78                  |
| San Diego (1960=100)   | 7.9               | 153.7           | 144.4       | 150.3   | 147.0 | + 5.58                  |
| San Francisco          | 9.4               | 573.9           | 524.4       | 568.2   | 550.6 | + 9.51                  |
| Seattle                | 8.5               | 381.5           | 341.5       | 377.9   | 363.2 | + 3.66                  |
| Washington, D.C.       | 7.9               | 373.9           | 351.2       | 362.1   | 354.6 | + 7.72                  |

Cost differentials compare current local costs, not indexes.

**HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL NON-RESIDENTIAL BUILDING TYPES, 21 CITIES**

1941 average for each city = 100.00

| Metropolitan area | 1962-1970 |       |       |       |       |       |       |       |       |       | 1971 (Quarterly) |       |       |       | 1972 (Quarterly) |       |       |  |
|-------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|-------|-------|-------|------------------|-------|-------|--|
|                   | 1962      | 1963  | 1964  | 1965  | 1966  | 1967  | 1968  | 1969  | 1970  | 1st   | 2nd              | 3rd   | 4th   | 1st   | 2nd              | 3rd   | 4th   |  |
| Atlanta           | 298.2     | 305.7 | 313.7 | 321.5 | 329.8 | 335.7 | 353.1 | 384.0 | 422.4 | 424.0 | 445.1            | 447.2 | 459.2 | 472.5 | 473.7            | 496.1 | 497.7 |  |
| Baltimore         | 271.8     | 275.5 | 280.6 | 285.7 | 280.9 | 295.8 | 308.7 | 322.8 | 348.8 | 350.3 | 360.5            | 362.5 | 381.7 | 388.1 | 389.3            | 418.8 | 420.4 |  |
| Birmingham        | 250.0     | 256.3 | 260.9 | 265.6 | 270.7 | 274.7 | 284.3 | 303.4 | 309.3 | 310.6 | 314.6            | 316.4 | 331.6 | 340.4 | 341.6            | 356.7 | 358.3 |  |
| Boston            | 239.8     | 244.1 | 252.1 | 257.8 | 262.0 | 265.7 | 277.1 | 295.0 | 328.6 | 330.0 | 338.9            | 341.0 | 362.0 | 377.3 | 378.5            | 392.8 | 394.4 |  |
| Chicago           | 292.0     | 301.0 | 306.6 | 311.7 | 320.4 | 328.4 | 339.5 | 356.1 | 386.1 | 387.7 | 391.0            | 393.2 | 418.8 | 422.8 | 424.0            | 442.7 | 444.3 |  |
| Cincinnati        | 258.8     | 263.9 | 269.5 | 274.0 | 278.3 | 288.2 | 302.6 | 325.8 | 348.5 | 350.0 | 372.3            | 374.3 | 386.1 | 399.9 | 401.1            | 400.1 | 410.7 |  |
| Cleveland         | 268.5     | 275.8 | 283.0 | 292.3 | 300.7 | 303.7 | 331.5 | 358.3 | 380.1 | 381.6 | 391.1            | 393.5 | 415.6 | 415.2 | 416.4            | 427.7 | 429.3 |  |
| Dallas            | 246.9     | 253.0 | 256.4 | 260.8 | 266.9 | 270.4 | 281.7 | 308.6 | 327.1 | 328.6 | 341.4            | 343.4 | 357.9 | 364.9 | 366.1            | 385.0 | 386.6 |  |
| Denver            | 274.9     | 282.5 | 287.3 | 294.0 | 297.5 | 305.1 | 312.5 | 339.0 | 368.1 | 369.7 | 377.1            | 379.1 | 392.9 | 398.3 | 399.5            | 413.8 | 415.4 |  |
| Detroit           | 265.9     | 272.2 | 277.7 | 284.7 | 296.9 | 301.2 | 316.4 | 352.9 | 377.4 | 379.0 | 384.6            | 386.8 | 409.7 | 416.9 | 418.1            | 431.5 | 433.1 |  |
| Kansas City       | 240.1     | 247.8 | 250.5 | 256.4 | 261.0 | 264.3 | 278.0 | 295.5 | 315.3 | 316.6 | 329.5            | 331.5 | 344.7 | 348.7 | 349.9            | 365.4 | 367.0 |  |
| Los Angeles       | 276.3     | 282.5 | 288.2 | 297.1 | 302.7 | 310.1 | 320.1 | 344.1 | 361.9 | 363.4 | 374.2            | 376.4 | 400.9 | 407.8 | 409.0            | 422.9 | 424.5 |  |
| Miami             | 260.3     | 269.3 | 274.4 | 277.5 | 284.0 | 286.1 | 305.3 | 392.3 | 353.2 | 354.7 | 366.8            | 368.9 | 384.7 | 391.5 | 392.7            | 404.8 | 406.4 |  |
| Minneapolis       | 269.0     | 275.3 | 282.4 | 285.0 | 289.4 | 300.2 | 309.4 | 331.2 | 361.1 | 362.7 | 366.0            | 368.0 | 417.1 | 401.7 | 402.9            | 411.3 | 412.9 |  |
| New Orleans       | 245.1     | 284.3 | 240.9 | 256.3 | 259.8 | 267.6 | 274.2 | 297.5 | 318.9 | 320.4 | 327.9            | 329.8 | 341.8 | 350.9 | 352.1            | 368.1 | 369.7 |  |
| New York          | 276.0     | 282.3 | 289.4 | 297.1 | 304.0 | 313.6 | 321.4 | 344.5 | 366.0 | 367.7 | 378.9            | 381.0 | 395.6 | 406.5 | 407.7            | 421.5 | 423.1 |  |
| Philadelphia      | 265.2     | 271.2 | 275.2 | 280.8 | 286.6 | 293.7 | 301.7 | 321.0 | 346.5 | 348.0 | 356.4            | 358.4 | 374.9 | 394.2 | 395.4            | 417.9 | 419.5 |  |
| Pittsburgh        | 251.8     | 258.2 | 263.8 | 267.0 | 271.1 | 275.0 | 293.8 | 311.0 | 327.2 | 328.7 | 338.1            | 340.1 | 362.1 | 364.5 | 365.7            | 378.7 | 380.3 |  |
| St. Louis         | 255.4     | 263.4 | 272.1 | 280.9 | 288.3 | 293.2 | 304.4 | 324.7 | 344.4 | 345.9 | 360.0            | 361.9 | 375.5 | 385.5 | 386.7            | 400.9 | 402.5 |  |
| San Francisco     | 343.3     | 352.4 | 365.4 | 368.6 | 386.0 | 390.8 | 402.9 | 441.1 | 465.1 | 466.8 | 480.7            | 482.6 | 512.3 | 535.3 | 536.5            | 559.4 | 561.0 |  |
| Seattle           | 252.5     | 260.6 | 266.6 | 268.9 | 275.0 | 283.5 | 292.2 | 317.8 | 341.8 | 343.3 | 347.1            | 349.0 | 358.4 | 363.0 | 364.5            | 369.9 | 371.5 |  |

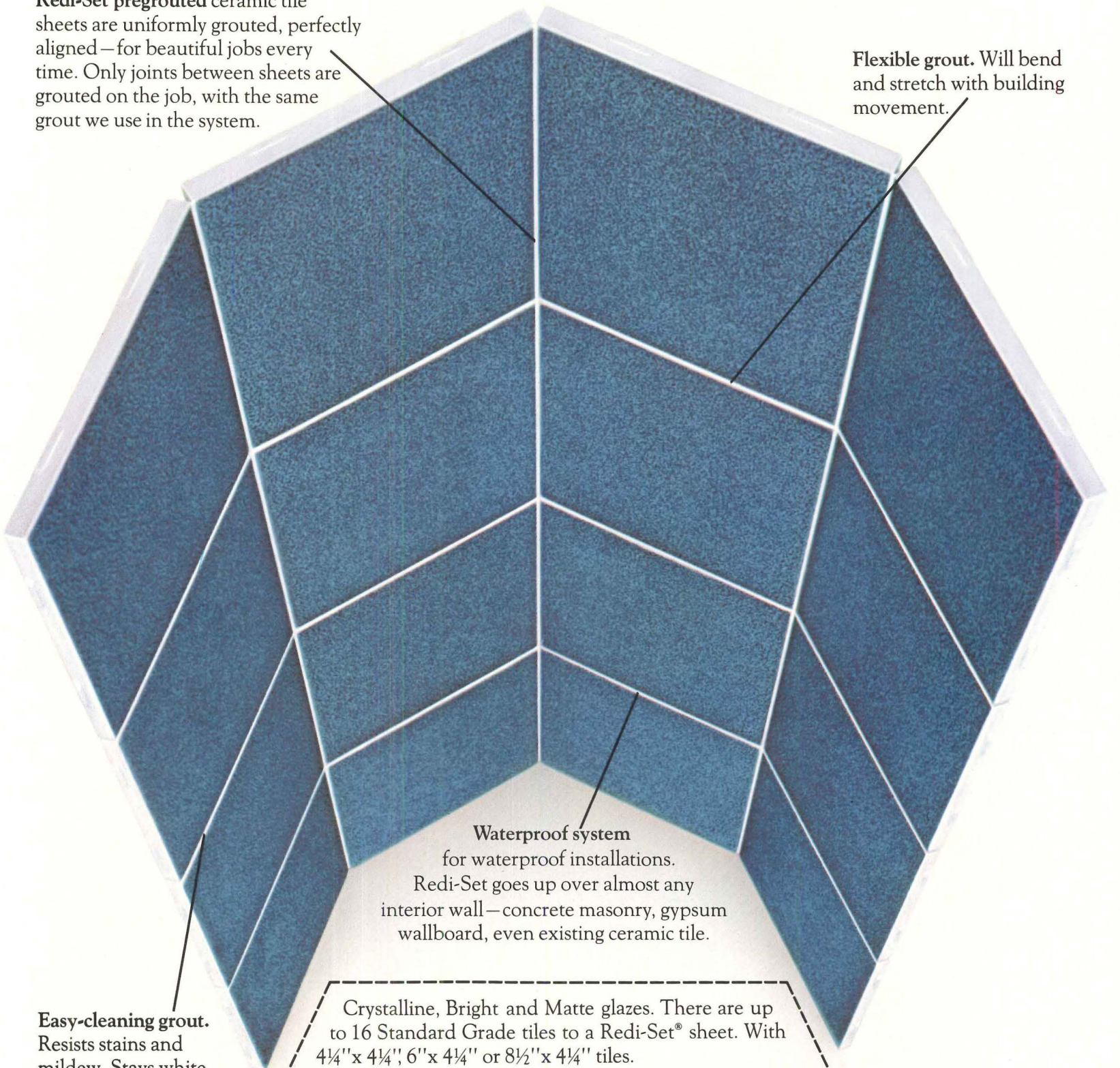
Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.0) divided by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other.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



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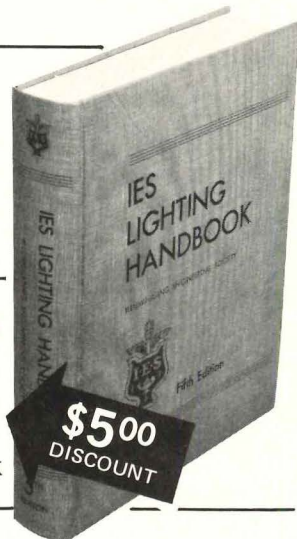
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### BOOKS RECEIVED

continued from page 50

The networks are shown both isometrically and from the top. In addition to the top layer, the bottom layer, and the interconnecting vertical and diagonal webbing are diagrammed.

The MIT Press, Cambridge, Massachusetts, third printing, 1972. 197 pages, illus., paperback, \$4.95.

**KATSURA: TRADITION AND CREATION IN JAPANESE ARCHITECTURE**, text by Kenzo Tange, photographs by Yasuhiro. Built in 1620-47 for an imperial prince, the country villa Katsura is at once the crown of the Japanese aristocratic tradition and a reflection of emergent popular elements. The foreword by the authors explains the reasons for this revised edition of the 1960 book: "... we realized that various details of Katsura had undergone changes during the course of repairs over the years. This, coupled with the fact that we could not expect conditions for photography to improve, made it clear that the original photographs that Mr. Ishimoto took 12 years ago are getting more precious and valuable. It was therefore decided to make new plates entirely from new photoprints and also to revise completely the layouts ..."

Yale University Press, New Haven, 1972. 196 pages, illus., \$22.50.

**STRUCTURAL DESIGN GUIDE TO THE ACI BUILDING CODE**, by Paul F. Rice and Edward S. Hoffman. This book is intended to save valuable time in applying complex criteria of the 1971 ACI building code to reinforced concrete design. "Put this handy reference book to work for you in situations such as combining torsion and shear design; applying two-way slab design to flat plates and slabs, waffle flat slabs, and slabs with beams; or utilizing new methods for crack control in one-way slab and joist systems, beams and girders, and two-way slabs."

Van Nostrand Reinhold, New York, 1972. 435 pages, illus., \$19.95.

## OFFICE NOTES

### NEW FIRMS, FIRM CHANGES

**Derr, Steuber & Cornachione, Architects** announce the appointment of **W. Prentiss Brown** to the position of partner in the firm. Their offices are located at 500 South Depeyster Street, Kent, Ohio and 2830 Copley Road, Akron, Ohio.

**John Carl Warnecke and Associates**, internationally known architects and planning consultants, announce that **Frederick A. Rehkopf** has joined the firm as senior associate.

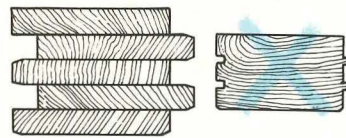
**Schweizer Associates Architects, Inc.** of the Environmental Design Group announces the addition of interior designers **Ann Brandt** and **James A. Ferguson II**, to their firm at 174 Comstock Avenue West, Winter Park, Florida 32789.

**Campbell and Friedland, Engineers, P.C.** announce that their office is now located at 220 Hillside Avenue, Williston Park, New York. **Giffels Associates, Inc.**, Detroit-based architects-engineers-planners, announced the election of **Alfred M. Entenman, Jr.** as president. He succeeds Carl A. Giffels, who has retired after 46 years with the firm.

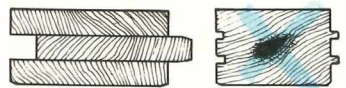
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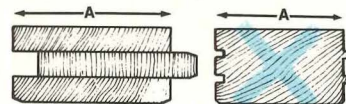
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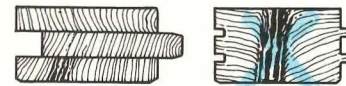
**LESS LABOR:** Lock-Deck installs quicker, using ordinary nails. Solid decking requires spikes, special fasteners or spines.



**LESS WASTE:** Offset end matches, absence of twisting and few unusable shorts keeps waste well below that of solid decking.



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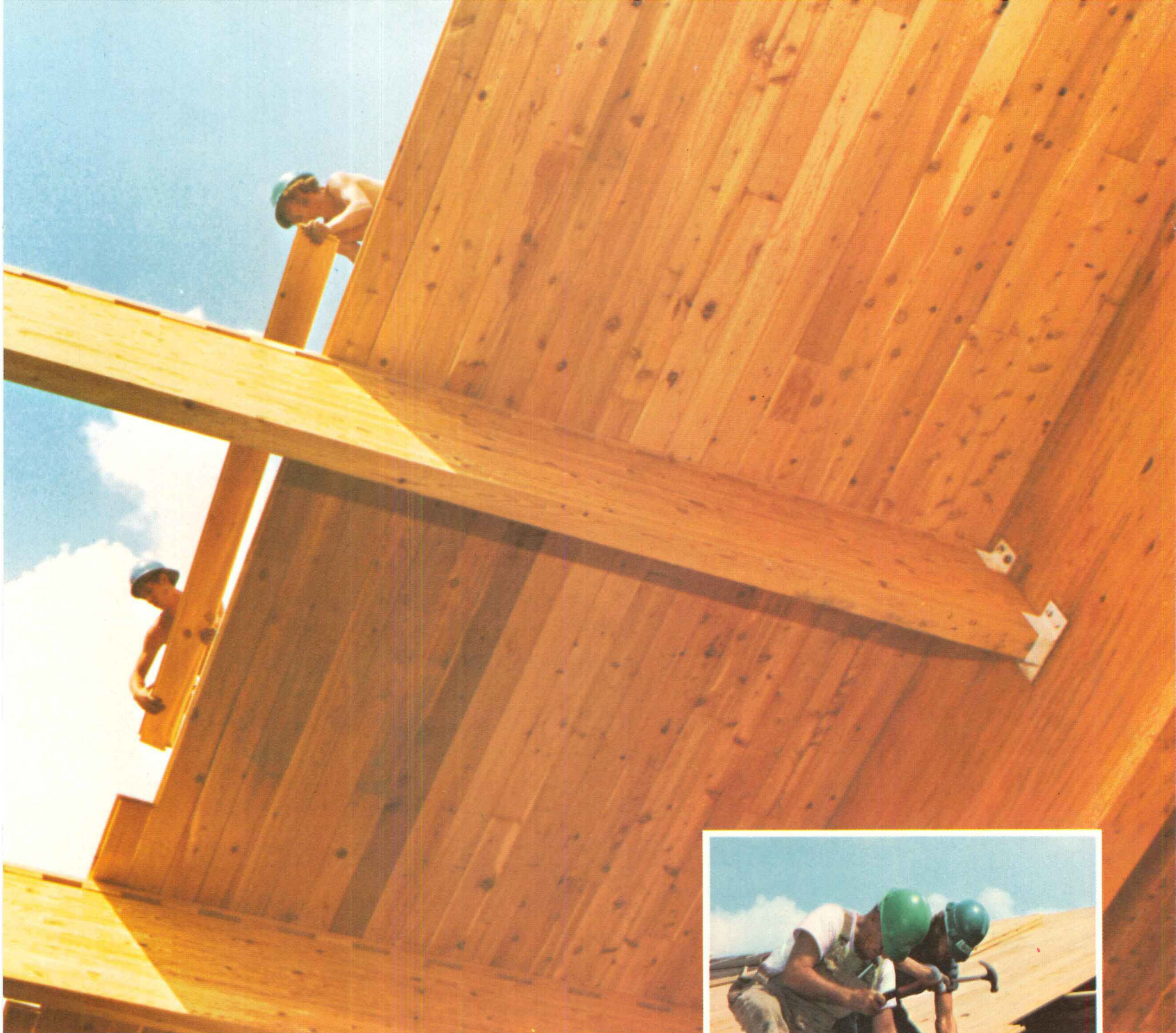


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Richmond High Natatorium, Richmond, Indiana. Architects: R. W. Clinton & Assoc.

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# Potlatch





Owner: National Airlines. Architect: I. M. Pei & Partners, New York. Building Contractor: John Lowry, Inc., New York. Glazing Contractor: Collyer-Sparks Company, Inc., New York.

## LOF helps National Airlines

There's a lot to see at Kennedy International. And the architects who designed the National Airlines terminal make sure visitors see it all—through suspended clear plate glass.

To support this hanging glass curtain—more glass. Vertical glass mullions that keep the facade of the building light and transparent. Which is in keeping with architects I. M. Pei & Partners concept of the terminal: one of classic simplicity, an anti-

dote to the visual hodge-podge of unrelated structures at the airport.

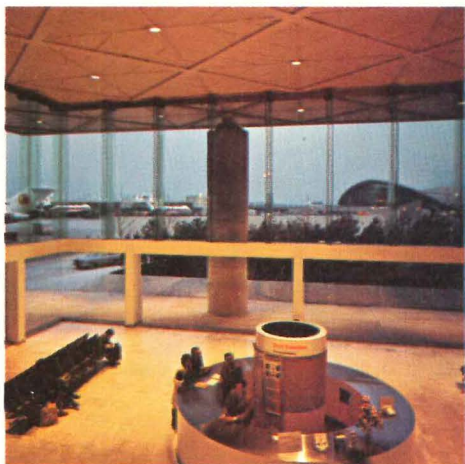
Suspended glass braced by more glass is a new idea for an airline terminal, where jet blasts and high winds can raise havoc with a design concept.

The architects proved the terminal's "airworthiness" to the New York Port Authority by testing a full-scale mock-up against 140-mph winds. It passed with flying colors.





# enjoy maximum visibility.



We supplied the heavy-duty plate glass for this "glass pavilion," in  $\frac{1}{2}$ "  $\frac{5}{8}$ "  $\frac{3}{4}$ " and  $\frac{7}{8}$ " thicknesses. As well as Tuf-flex<sup>®</sup> tempered glass for doorways and high traffic areas. The next time you're at this airport, give National's Sundrome Terminal a longer look. We think it represents an exciting new design concept for architects—and shows how glass walls work under somewhat adverse environmental conditions. Libbey-Owens-Ford Company, Toledo, Ohio 43695.

Making progress  
in architecture



For more data, circle 46 on inquiry card



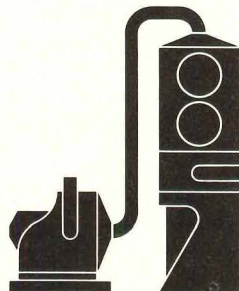
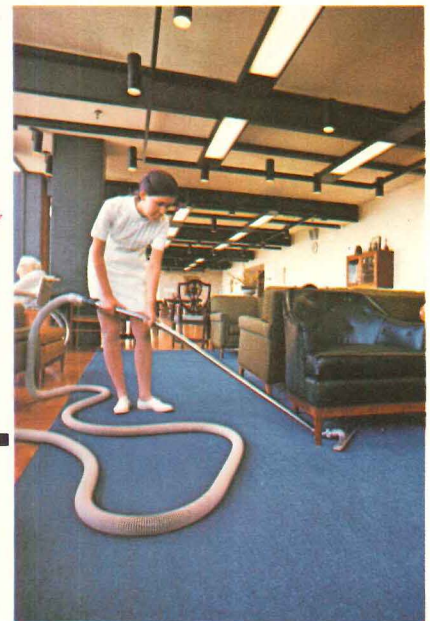
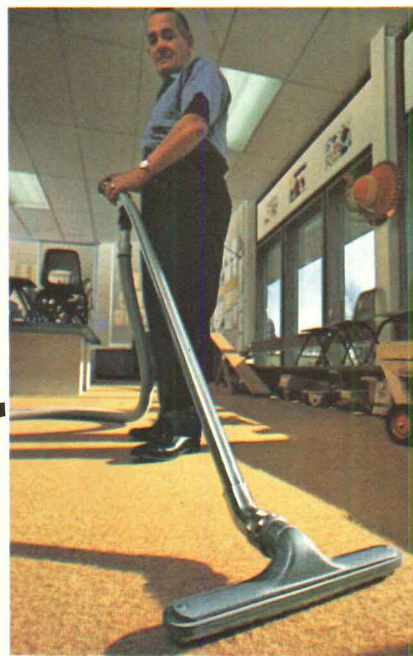
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Only experienced licensed applicators are allowed to apply All-weather Crete. It's your assurance of performance. Compare the facts in the 134 pages shown above with other insulations. Check any of the 4,000 or more installations.

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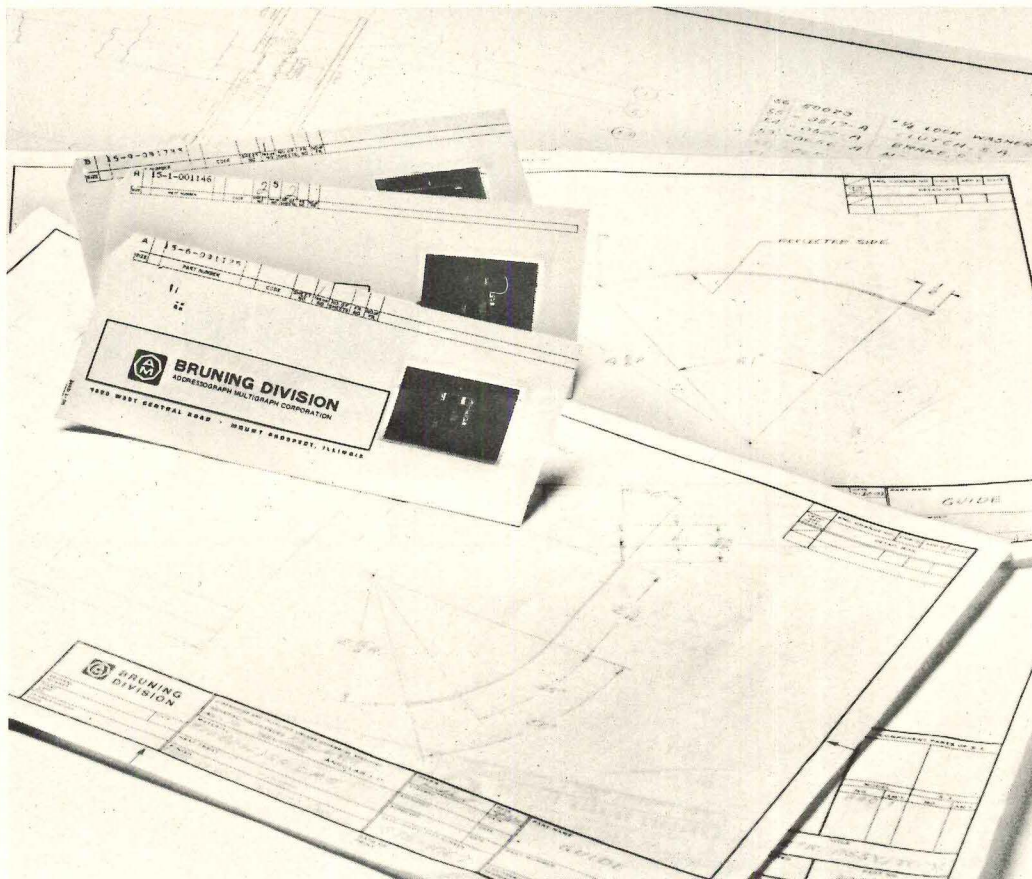
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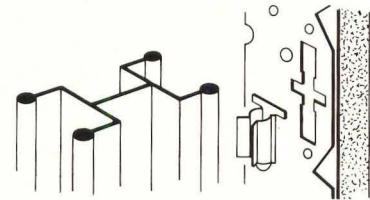
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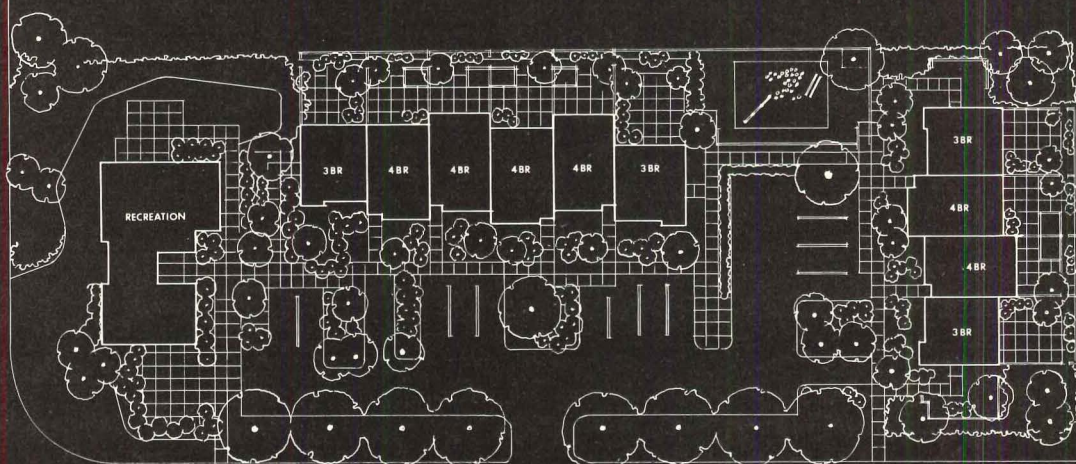
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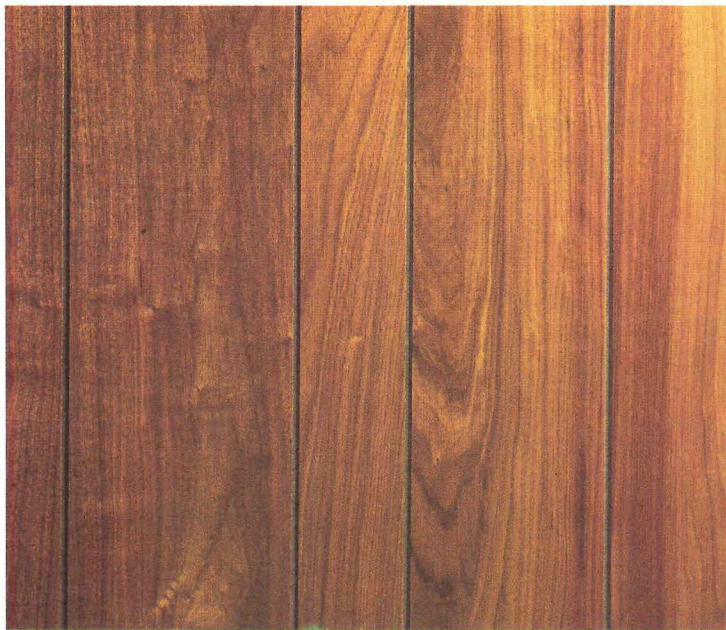
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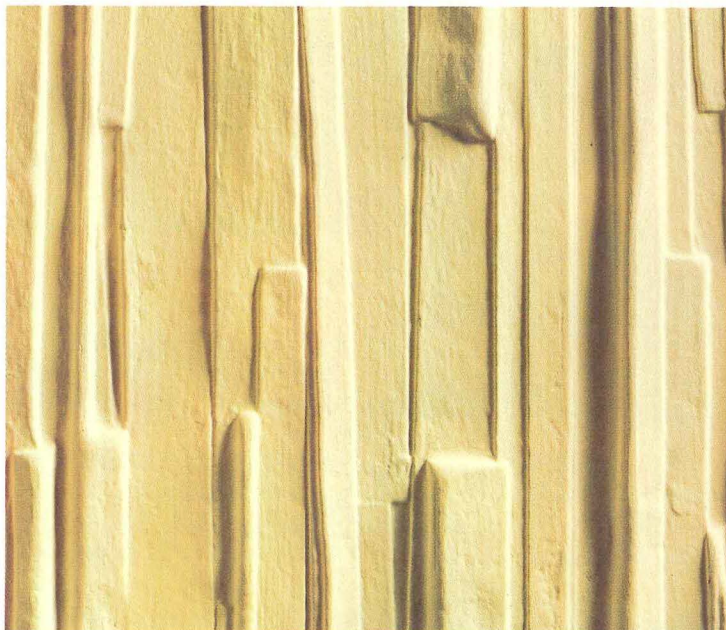
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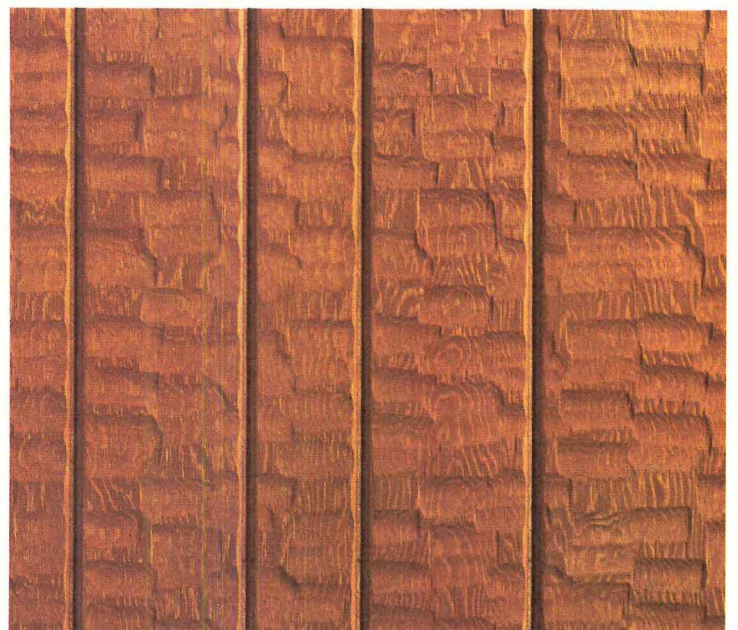
**1. The paneled wall.**



**2. The stone wall.**

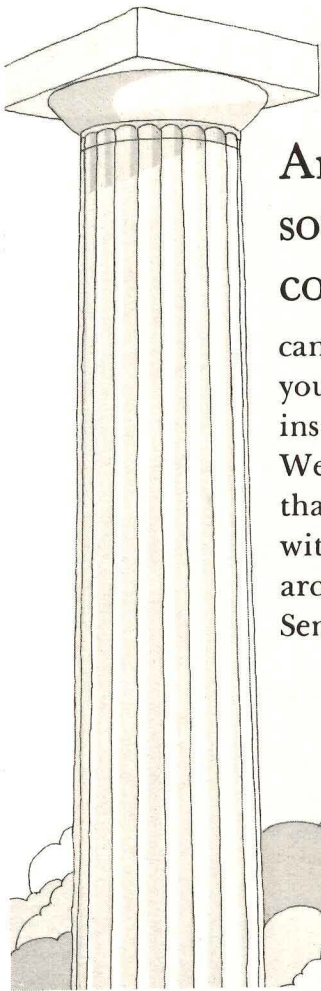


**3. The sculptured wall.**



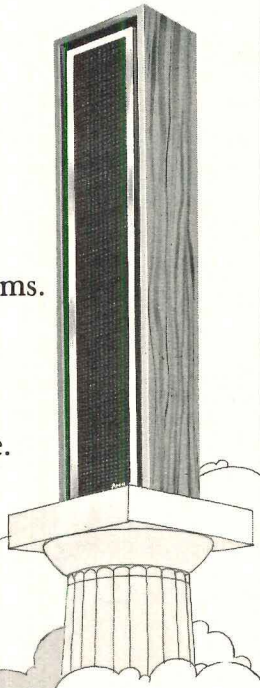
**4. The textured wall.**





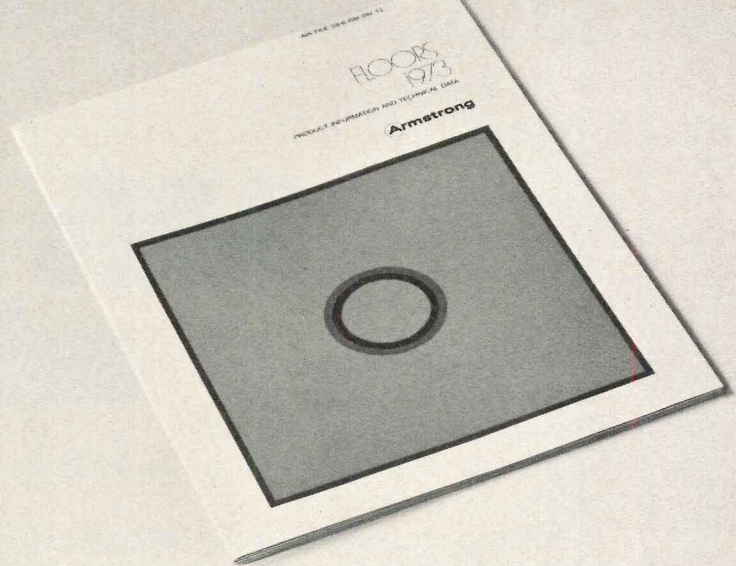
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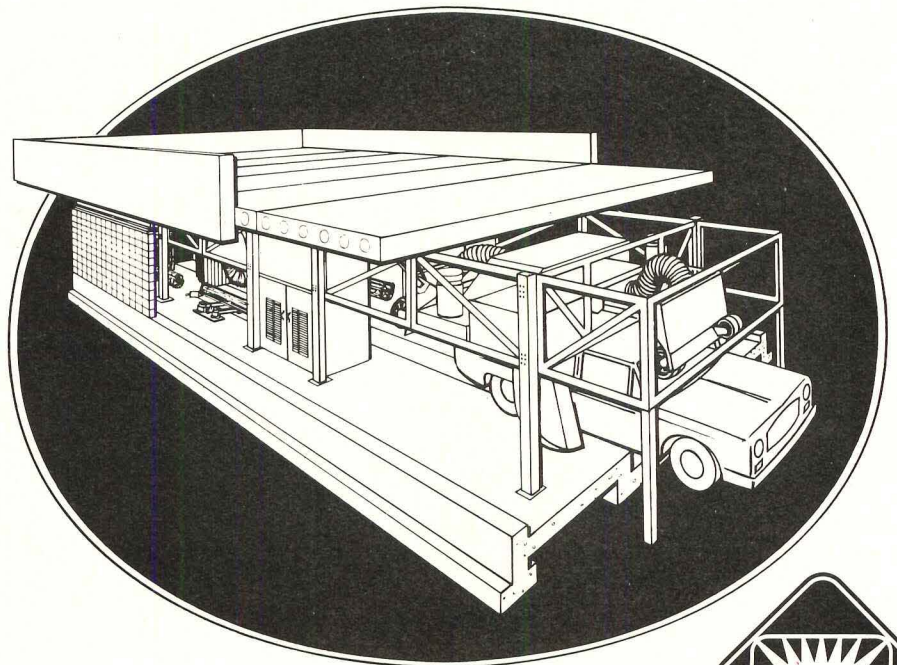
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But, if not, that's okay, too. You still get our recommendations at no charge. In the long run, we get a lot of business this way.

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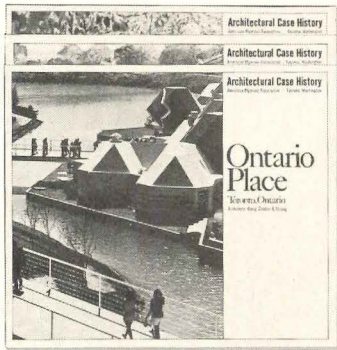
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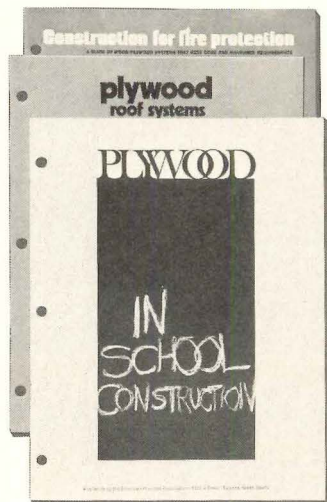
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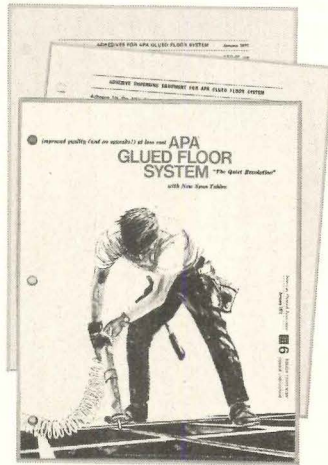
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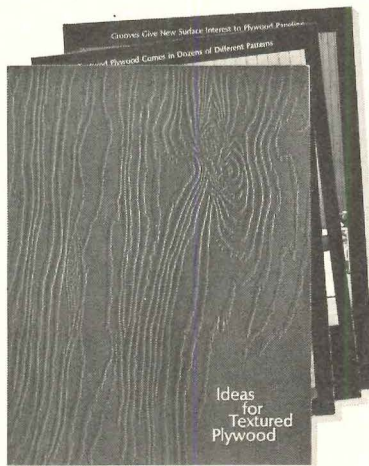
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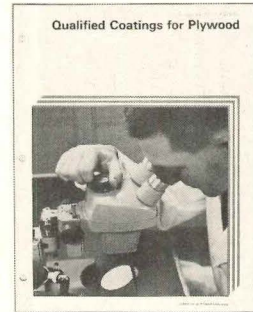
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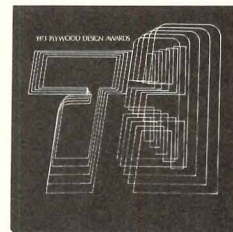
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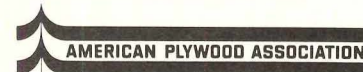
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Saab-Scania of America, Inc., Orange, Conn. Architects: Douglas Orr, de Cossy & Winder

*For more data, circle 65 on inquiry card*





E. R. Squibb & Sons headquarters by Hellmuth, Obata & Kassabaum

ARCHITECTURAL RECORD JANUARY 1973

# RECORD INTERIORS OF 1973

Ten outstanding interiors, designed by architects across the continent, are winners in ARCHITECTURAL RECORD'S 1973 Interior Design Awards Program. The editors were gratified by the number of excellent submissions in a wide variety of building types, and took special pleasure in conferring awards on four firms whose work appears on these pages for the first time. The number of good renovations submitted was also a source of special satisfaction. As in previous years, much good work could not find space. We look forward to publishing a number of the runners up, as space permits, in future issues.—*Barclay Gordon*





## E. R. Squibb & Sons Headquarters, Lawrenceville, New Jersey, by Hellmuth, Obata & Kassabaum

As the photographs on these pages amply reveal, the interior of this corporate headquarters for a pharmaceutical company received more than the ordinary degree of design attention. The 90 by 90 foot clusters of offices (see plan) are laid out on a regular grid but brightened with color-coded carpeting, upholstery and graphics. The dining areas include a self-service cafeteria developed with white walls, polished stainless steel fitting, and deep cylinders for lighting as well as a more intimate space with cylindrical banquettes for small groups.

At the heart of the design is

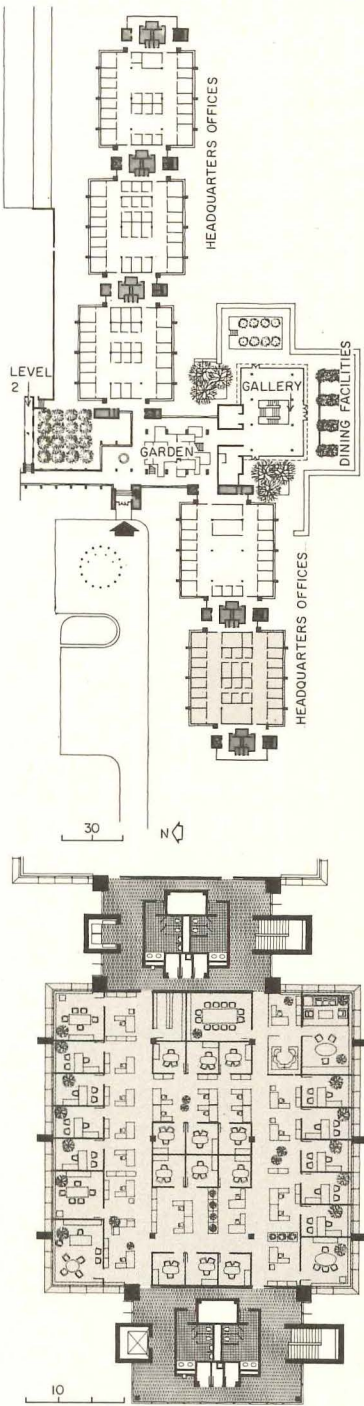
a gallery (photo, upper right), an enlargement of the circulation lobby. This spectacular multi-story space is skylighted, enriched with planting and detailed in a striking palette of handsome finish materials.

Throughout the building, the architects have established strong visual connections between inside and out.

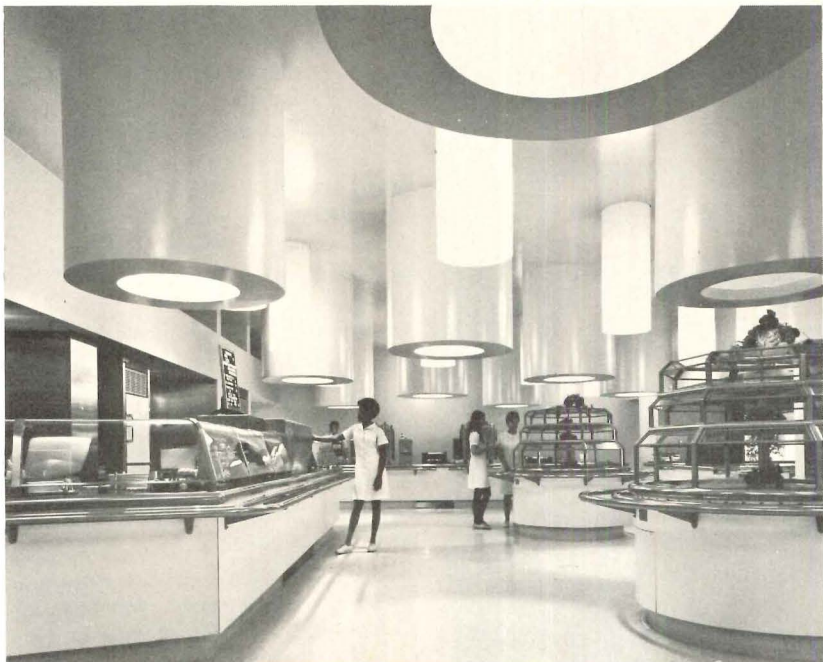
E. R. SQUIBB & SONS, INC., Lawrenceville, New Jersey. Architects: *Hellmuth, Obata & Kassabaum, Inc.* Engineers: *LeMessurier & Associates* (structural); *J. Loring & Associates* (mechanical and electrical); contractor: *Huber & Nichols, Inc.*



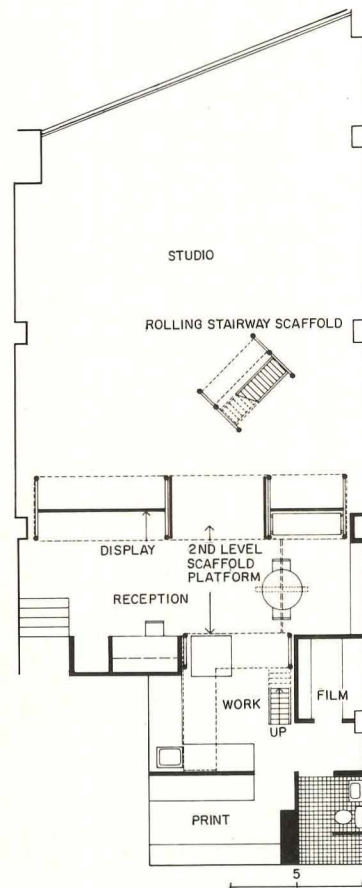




Alexander Georges photos







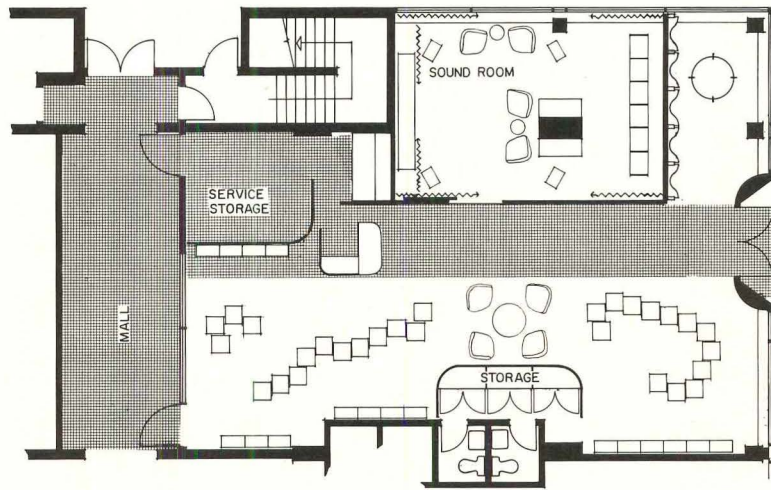
**Photographer's studio  
New York City  
by Mayers & Schiff**

This arresting photography studio was converted from double-height loft space on Lower Fifth Avenue in New York City. The reception, conference and photo processing areas are painted white and fitted out with metal scaffolding adapted by the architects to a variety of special uses. On the mezzanine level, scaffold bridges lead to storage areas, a small office and model change room. Throughout the interior, the steel pipe provides flexible, clamp-on lighting set ups and varied possibilities for display.

The pipe scaffolding has a strong linear quality that moves the eye to every corner of the space and back again. The elements are inexpensive and demountable, and, in many cases, easily rearranged as new needs arise in the future.

PHOTOGRAPHER'S STUDIO, New York City. Owner: Joseph Reynolds. Architects: Mayers & Schiff; contractor: Glenn Partition Company.





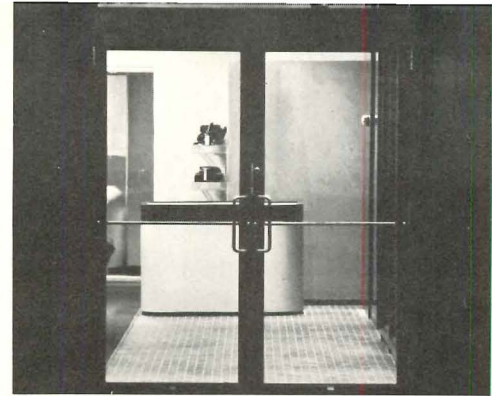
### Showroom for Sony Products, Winnipeg, Canada by GBR Associates

This showroom is located in ground floor commercial space at the intersection of two heavily traveled streets. The architects (who had to work around an existing column system and exit stair for the apartment block above) developed, by the simplest of means, a drama-charged display system. Electronic equipment is

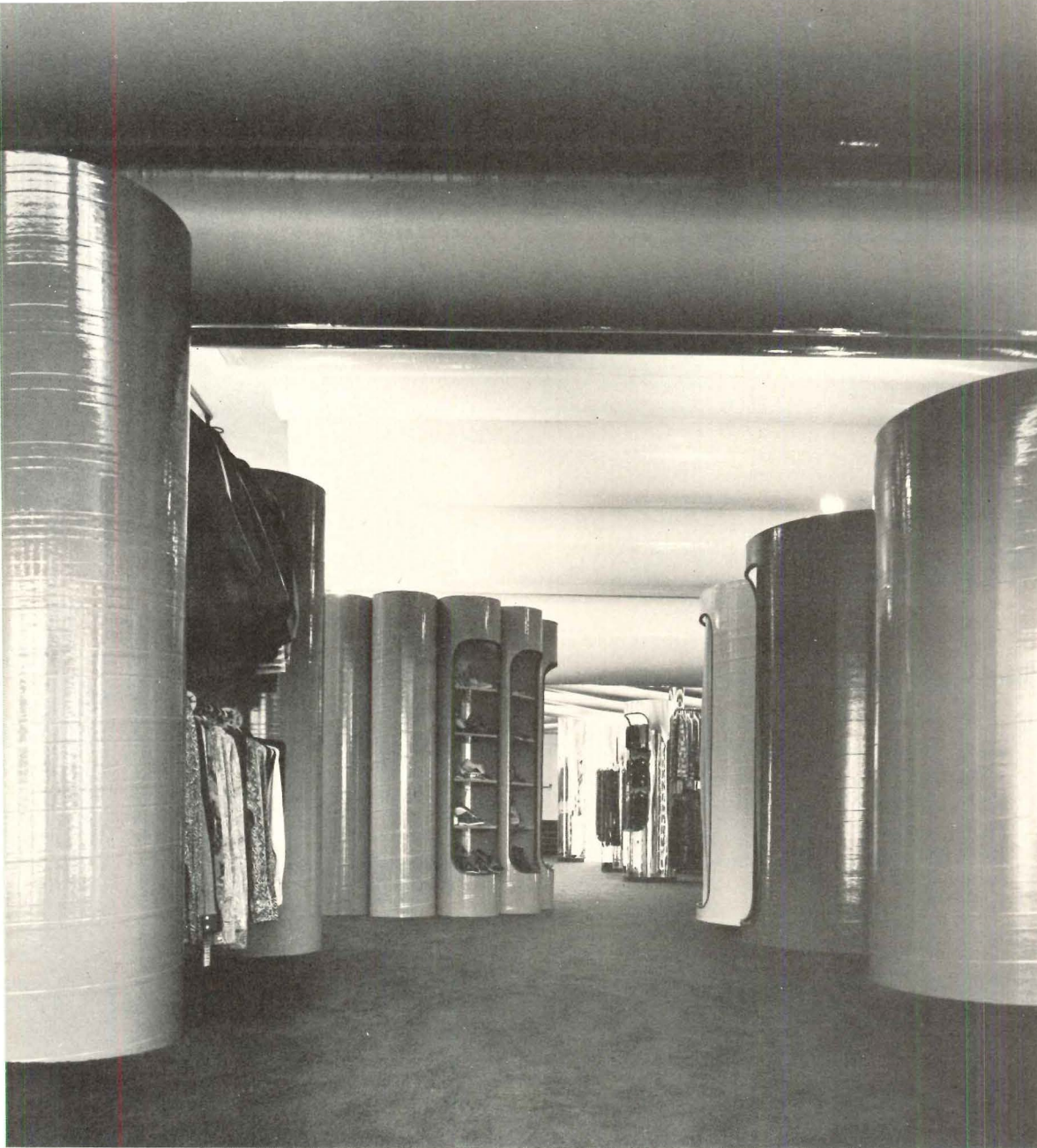
the thing here and there is no wasted motion in showing the products off to advantage. The floor and ceiling plane are kept dark and muted. Display shelves and pedestals are executed in clear plastic to give them lightness and neutrality. Directional down-lighting is concentrated in a flexible, overhead track system. Color

is reserved for partitions and furniture where it is applied boldly. Mirrors and reflective panels heighten the sense of a transparent spatial envelope.

SONY SHOWROOM, Winnipeg, Canada. Architects: GBR Associates—David F. Thordarson, design architect, Arthur M. Blankstein, interior designer; contractor: Suzuki Bros. Ltd.







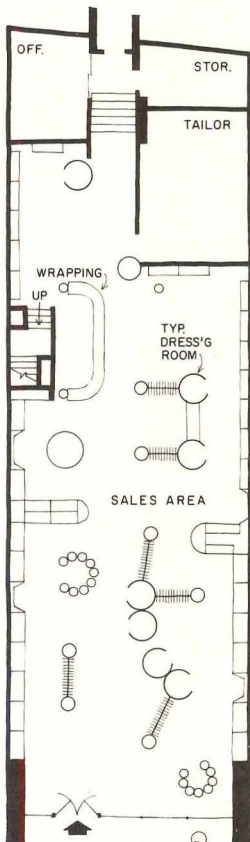
**Alandales Men's Store,  
Westwood, California  
by Zimmerman, Robin  
and Associates**

Working with a very old existing building and making a minimum of structural changes, the architects utilized brightly-colored reflective surfaces and soft, voluptuous curves to create this high-style, flexible shopping environment. The element used again and again is a cardboard sono-tube, normally employed as a form in pouring concrete columns, but here serving as display case, dressing cubicle and space modulator. The tubes are finished in red, orange and blue lacquer or wrapped in chrome Mylar. Other finish materials include textured plaster, glass, stainless steel and wool carpeting over glazed quarry tile.

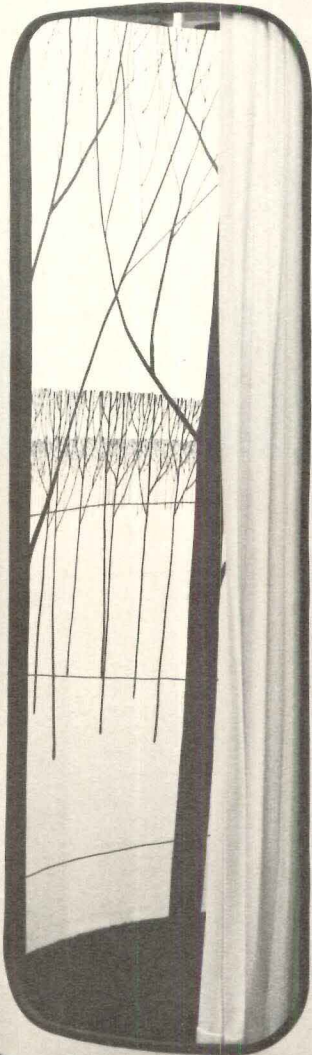
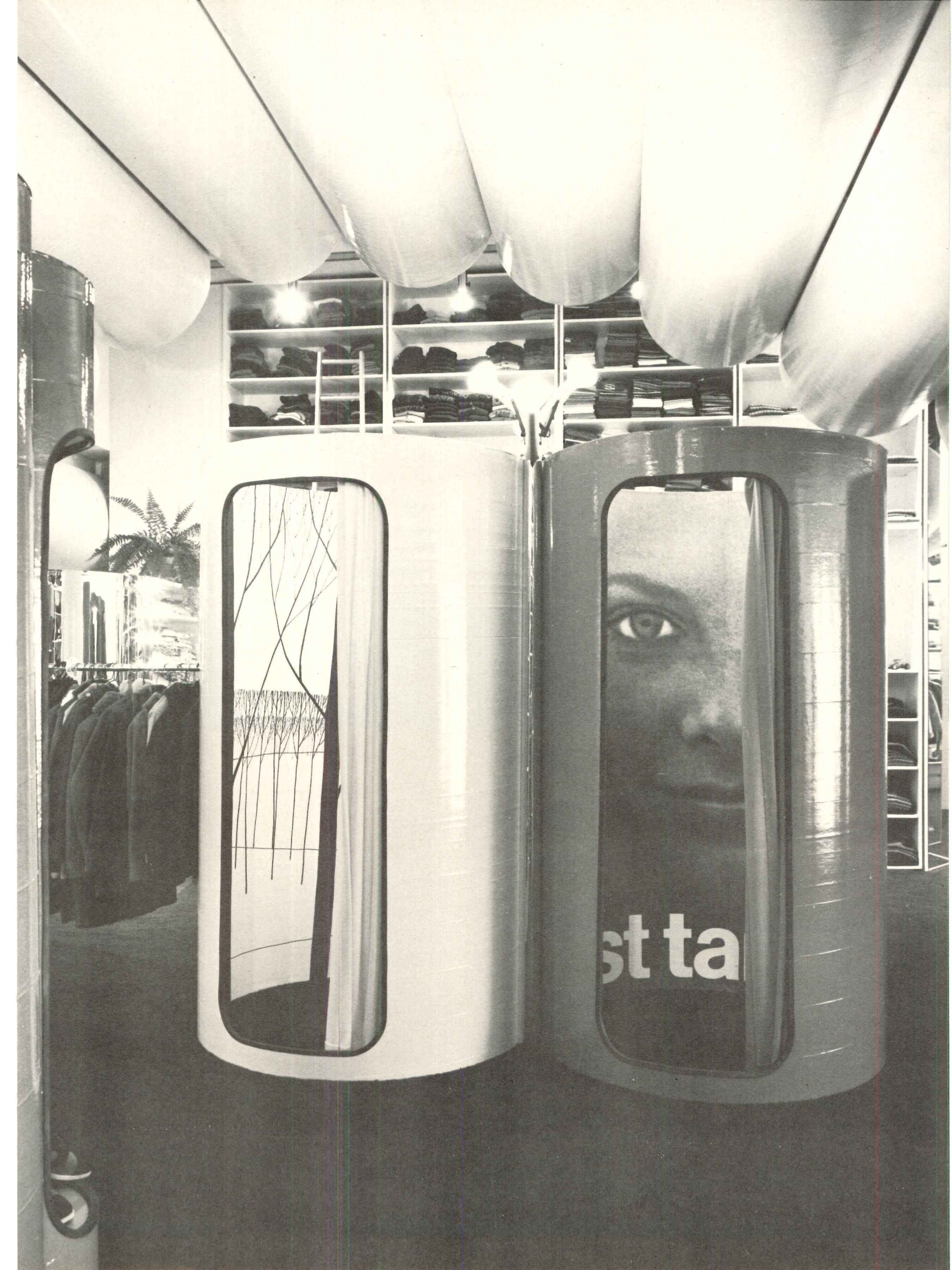
The architects were responsible for all design, including graphics, logos, shopping bags and boxes.

ALANDALES MEN'S STORE, Westwood, California. Owner: *Glen Lai-ken*. Architects: *Zimmerman, Robbin & Associates*—project designer: *James Stafford*; graphics: *Roger Kennedy*; artist: *Theresa Woodward*; structural engineer: *Norm Epstein*; contractor: *Aaron Kommel*.

Marvin Rand photos







st ta





## Shearson Hammill's regional headquarters, Chicago, by Booth & Nagle

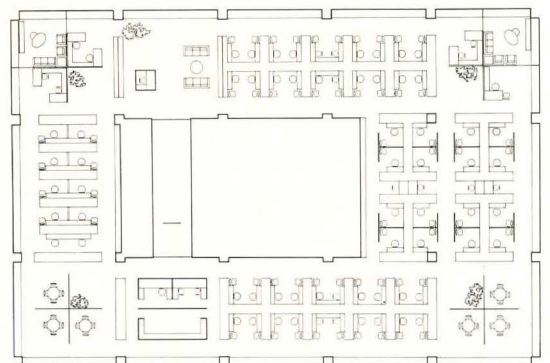
This investment brokerage office is one of a number that the architects have designed for the same client in cities across the country. All are dignified and contemporary. All are planned to minimize the visual distinction between front office and back. Each office has its own distinctive design personality.

For this midwest regional office, the architects worked with the building standard but introduced furniture (trading desks and cases) of their own design. Glass partitions and entry doors are also

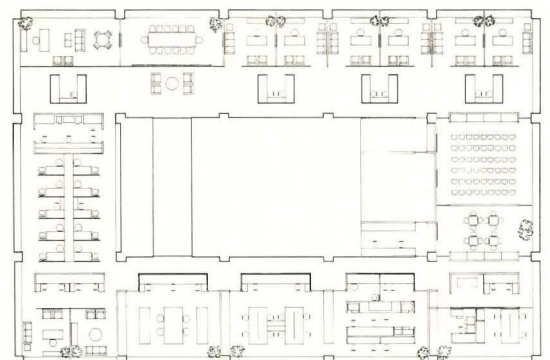
customized. The offices are carpeted throughout.

What the architects achieved by sound planning and refined detailing is a pleasant openness and easy spatial flow. Certain corporate values, though present in the hierarchical allocations of space, are not reinforced in the design vocabulary. The result is crisp and formal but not rigid or authoritarian.

SHEARSON-HAMMILL REGIONAL HEADQUARTERS, Chicago, Illinois. Architects: *Booth & Nagle*; contractor: *Gust K. Newberg Company*.



29TH FLOOR



28TH FLOOR

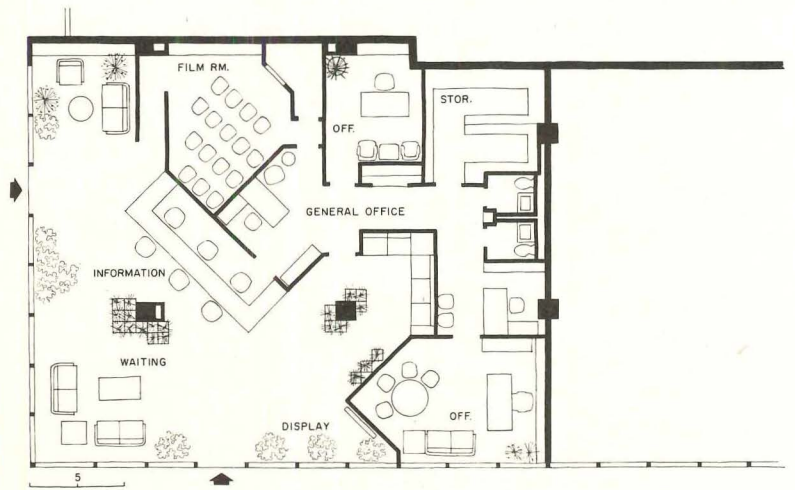




*Hedrich-Blessing photos*







**Virgin Islands Information Center, Washington, D.C.,  
by Deupi, Freidin, Kleiman Space Designers, Ltd.**

The sun rising through the letter "V" is the official emblem of the U.S. Virgin Islands. For their tourist information office in Washington, D.C., the symbol has been enlarged to supergraphic scale (photo left) and used as a powerful device for drawing potential vacationers in from the street. Working with ordinary rental space at a downtown intersection, the designers have created an exciting space that is supercharged with color. The office is

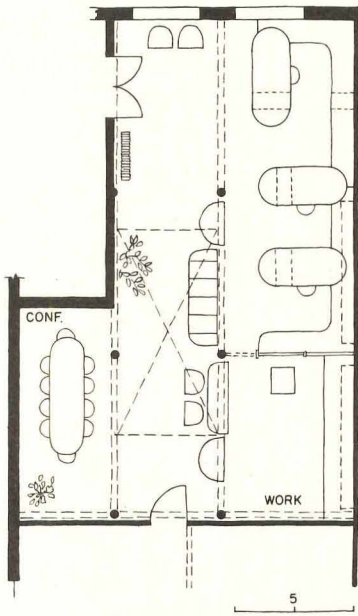
organized on a diagonal axis to relate equally to entrances from both streets. Seating is brown leather on white plastic frames, finished floors are vinyl asbestos tile under blue carpeting, and ceilings are acoustical tile.

VIRGIN ISLANDS INFORMATION CENTER, Washington, D.C. Architects: Deupi, Freidin, Kleiman—Theresa Hynes, project designer; mechanical engineer: General Engineering Associates; contractor: Charles E. Smith Company.

Lewis Coetz photos



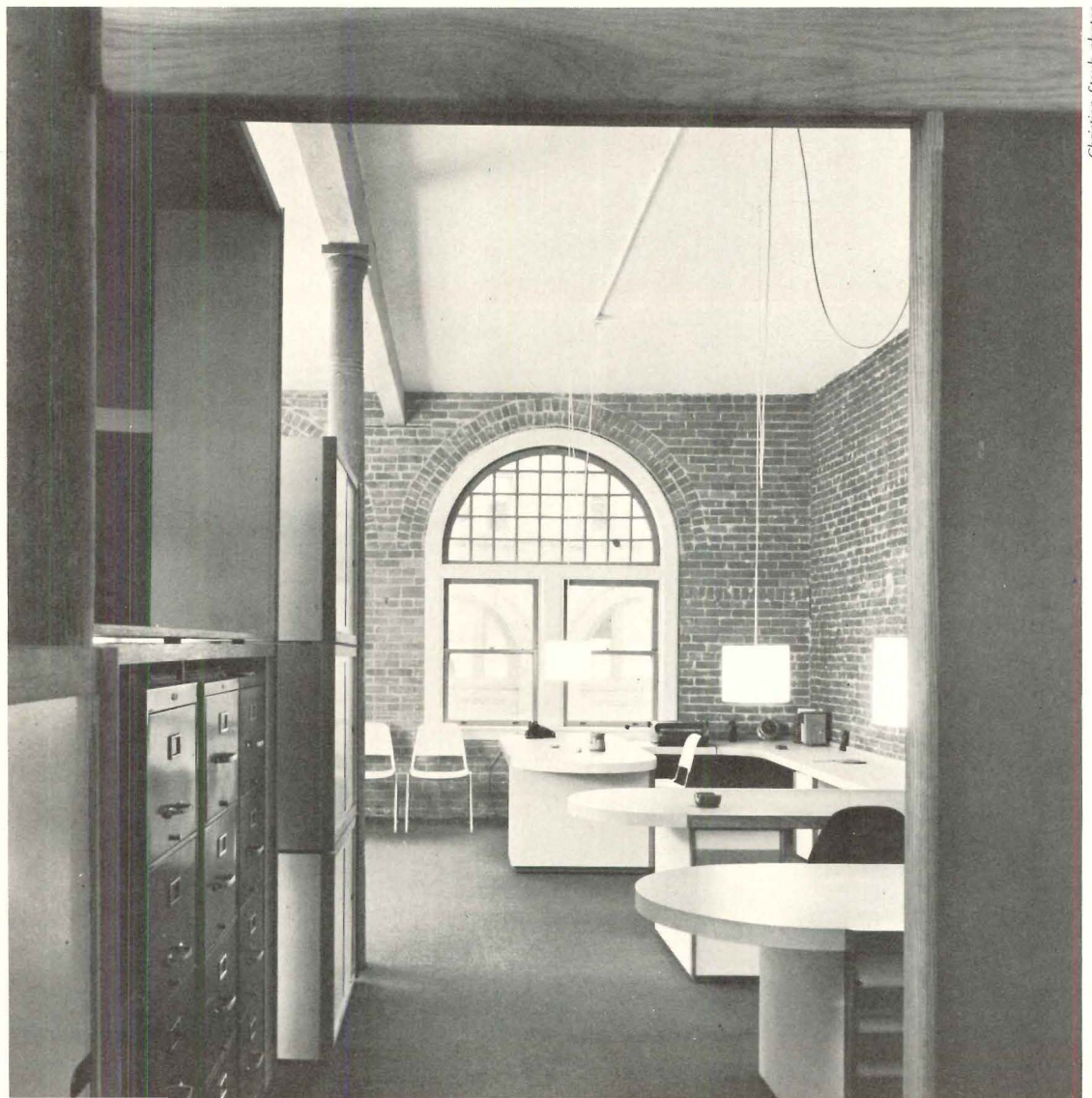




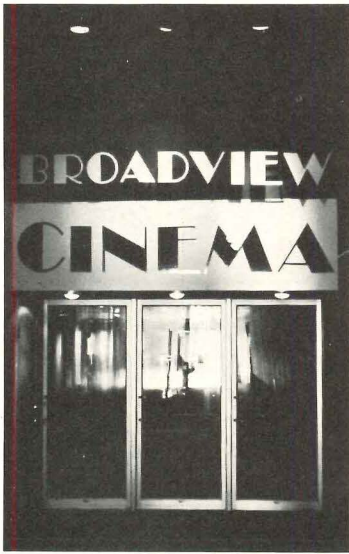
## AIA Chapter offices Seattle, Washington by Wendell Lovett

When the Seattle AIA Chapter decided to move, new quarters were selected in an old brick structure in the city's historic Pioneer Square district. The allocation of space for the major functions was fixed. Lovett then defined the secondary spaces with demountable furniture—desks, storage and filing units, a table for board meetings and pendant lighting. Each element was designed by Lovett to be disassembled and reassembled if the Chapter decided to move again. Plastic laminate was used extensively as a veneer on work surfaces and as a self-supporting structural element in the free-standing units. (The edges of these elements are stiffened with oak strips.) And in laminating a new layer of experience to this old building, Lovett has emphasized the contrast between old and new with clarity, sensitivity and skill.

AIA CHAPTER OFFICES, Seattle. Architect: Wendell Lovett; contractor: Northwest Millwork, Inc.







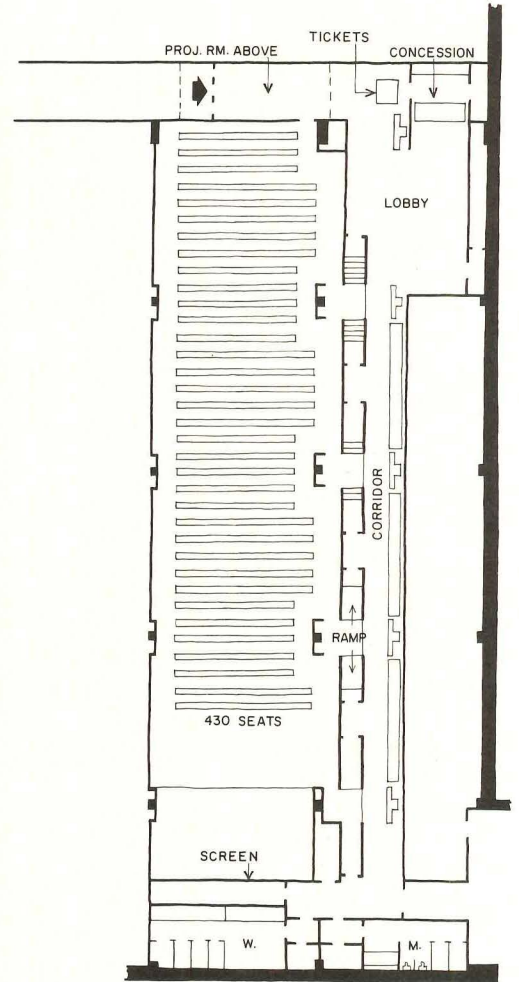
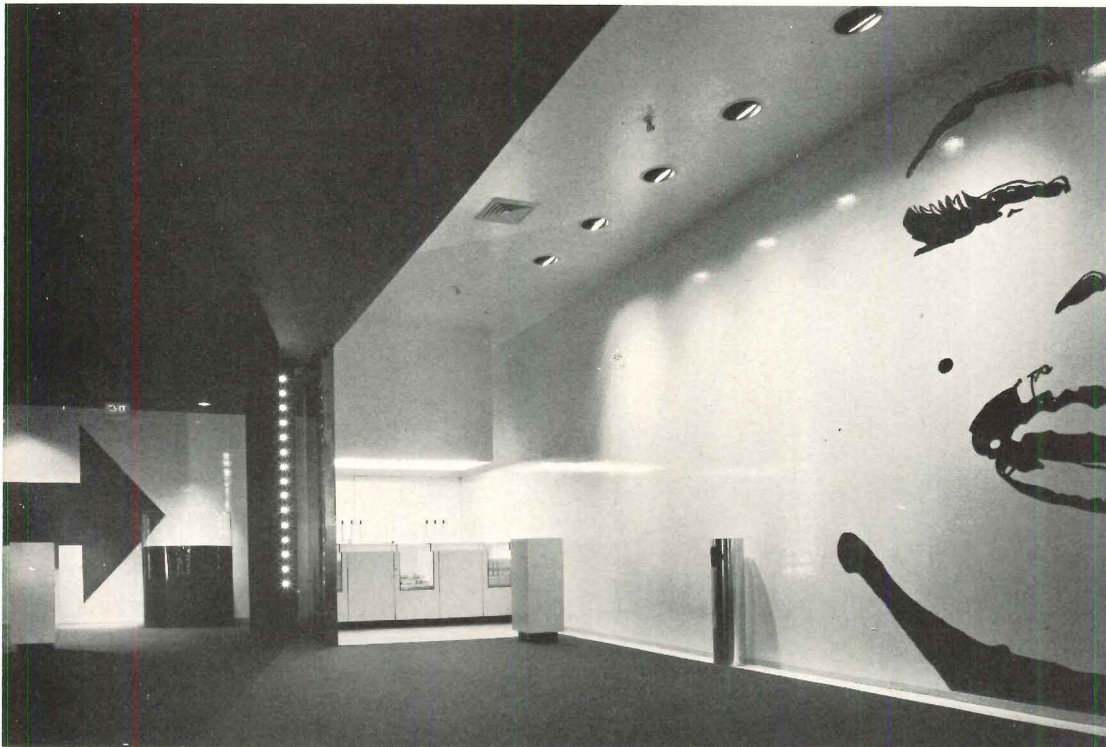
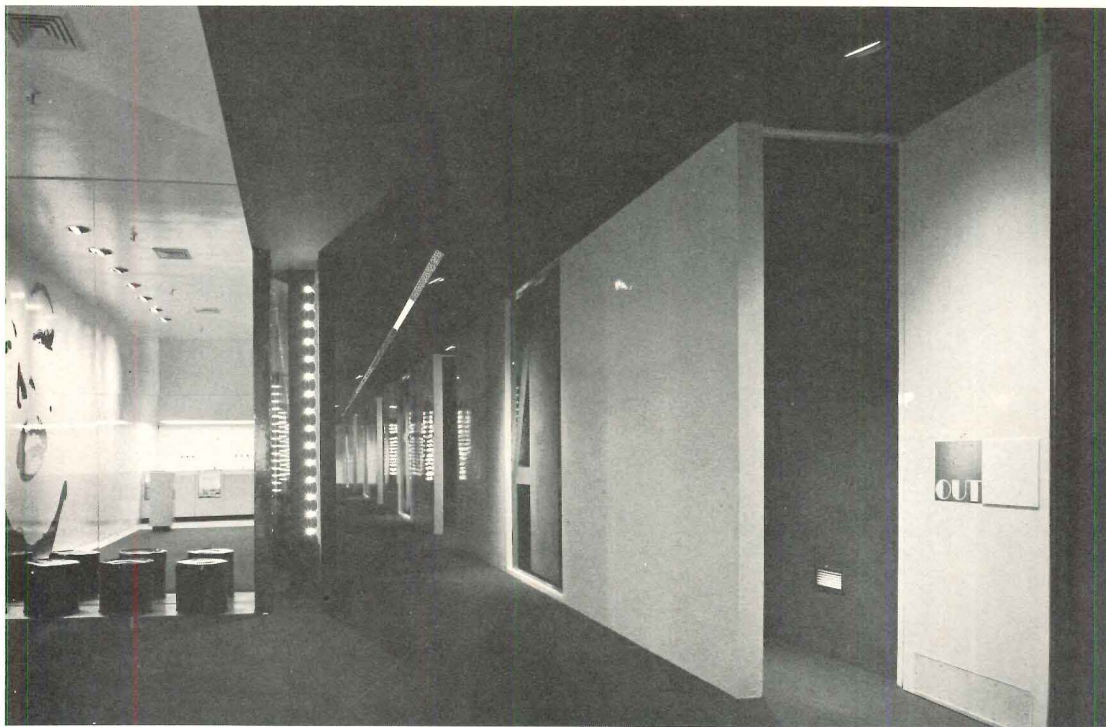
**Broadview Cinema I, Savannah by Arkhora Associates, Inc.**

Located at the rear of a neighborhood shopping center, this movie theater utilizes long, narrow spaces effectively to control circulation and dampen sound transmission. To psychologically reinforce the need for quiet, the architects have used dark colors (deep blue and charcoal gray) in the waiting areas. Bare bulbs, reflecting off Mylar surfaces, are used to extend the space visually

and to create an exciting pattern of lighting accents. A wall mural in the lobby, abstracted into black and white by the removal of all gray tones, depicts a smiling face familiar to a recent generation of movie goers. Supernumerals, in an *art deco* style, mark the sections of the theater and recall for an earlier generation of moviegoers the glamorous stars of Hollywood in the 1930s.

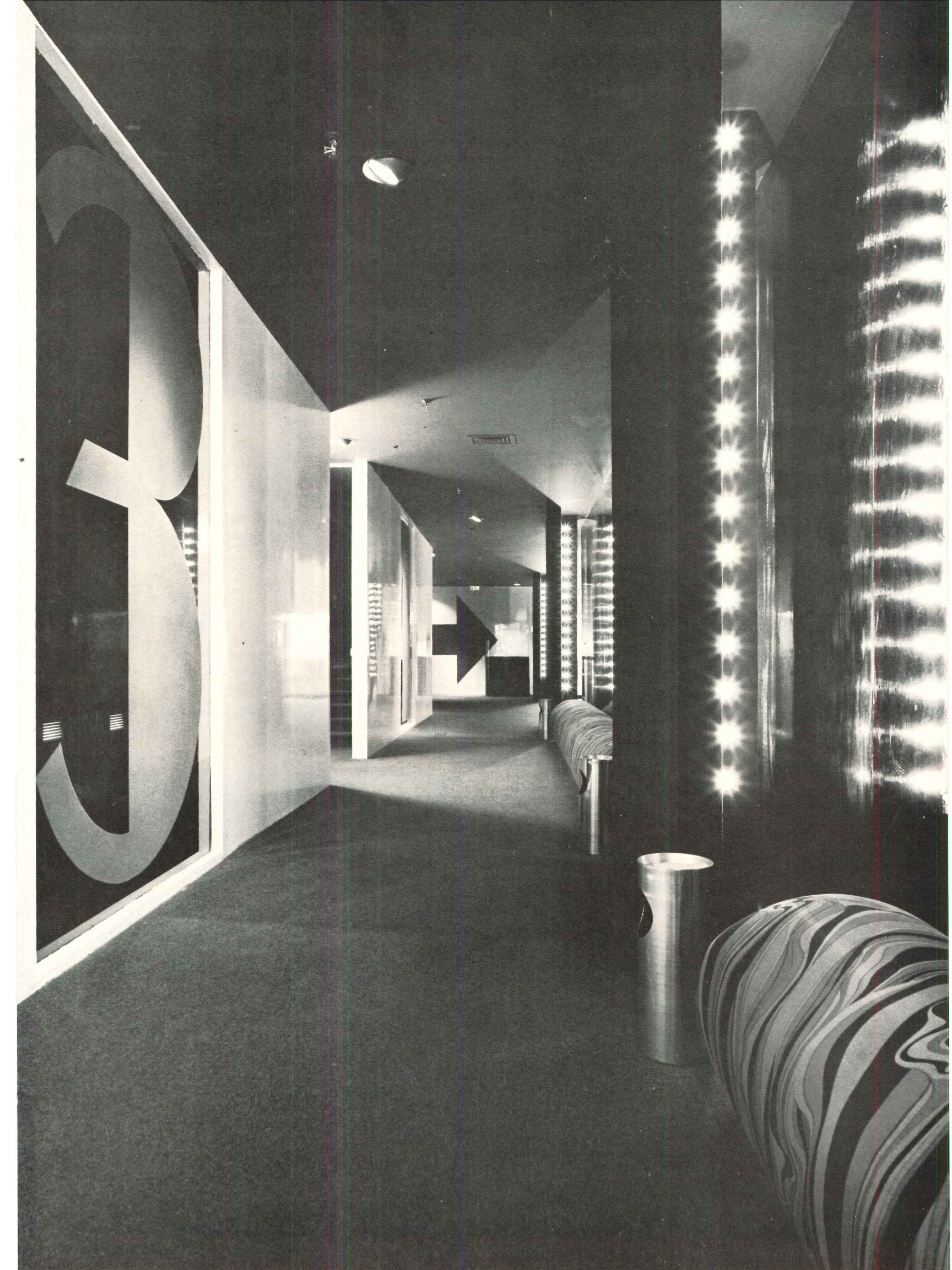
The happy combination of light, color and graphics, all used inventively, stimulates immense visual interest and prepares the viewer for the world of mystery and romance he is about to enter.

BROADVIEW CINEMA I, Savannah, Georgia. Owner: Weis Theaters, Inc. Architects: Arkhora Associates, Inc.—H. Anthony Smith, partner-in-charge; graphics consultant: Nanci Williams; contractor: Nelson-Smith.

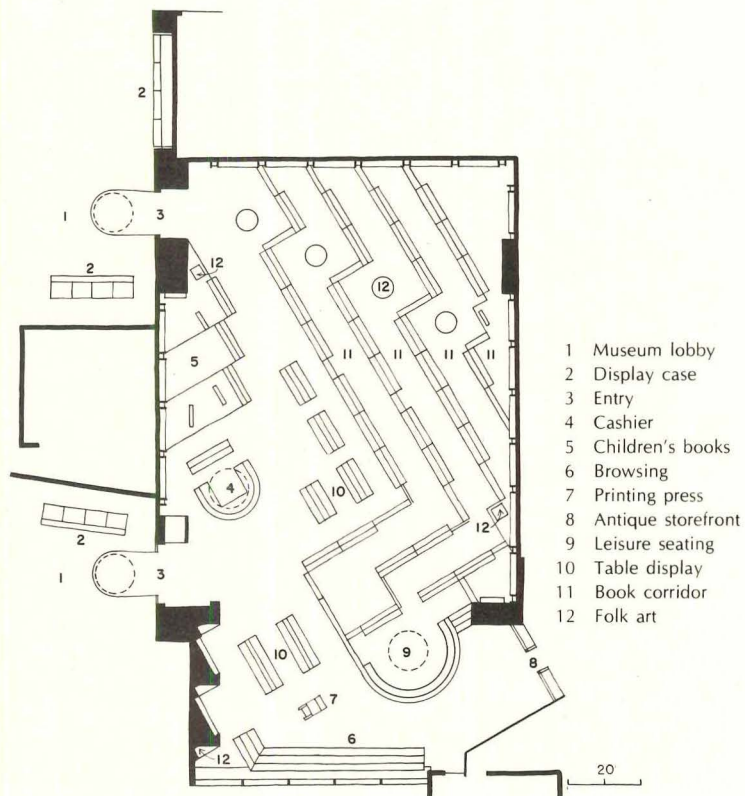


Robin Johnstone photos









## McGraw-Hill Bookstore, Smithsonian Institution, Washington, D.C. by Warner Burns Toan & Lunde

Americana is the subject here; and in this bookstore for the Smithsonian's Museum of History and Technology the titles bear on nearly every aspect of our national culture past and present. Objects of historic interest—old printing presses, eagles, regional quilts and model ships—are freely interspersed amid the books to quicken the pulse and to reinforce the store's special museum identity. A pair of iron gates, designed by Louis Sullivan and recovered from the Chicago Stock Exchange, flank the store's main entrance.

But quite apart from its historic and cultural flavor, the book-

store generates considerable spatial interest. Organized on seven levels, the spaces for browsing, resting and play are unified by continuous orange carpeting and oak shelving stained dark. White lighting canisters march across the ceiling in ordered rows causing a visual busyness but producing a comfortable level of general lighting that requires only occasional accenting around areas of special use.

McGRAW-HILL BOOKSTORE, Smithsonian Institution, Washington, D.C. Architects and engineers: Warner Burns Toan & Lunde; contractor: Associated Builders, Inc.



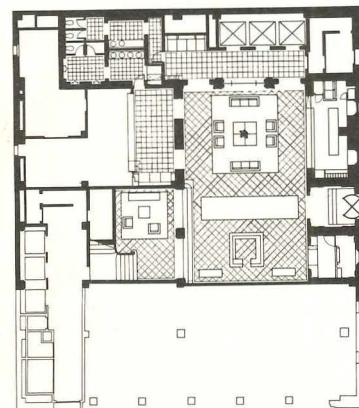




Robert Lautman photos







### Yale Club renovation New York City by Warren Platner Associates

Just over a year ago, the Yale Club of New York renewed its land lease, extended membership privileges to women and embarked on a program of upgrading its physical facilities. The present structure, built in 1914 by James Gamble Rogers, includes 22 floors of varied club use, much of it in gradually deteriorating condition. Platner's task was to solve certain functional problems in the main lobby, to dress the space up, but to leave its dignified and classically conservative character undisturbed.

Much of the period architecture is new and replaces similar, but deteriorating, construction. All counters, furniture, and lighting is new—almost all of it designed by the architect. Enameled wood, leather and polished brass are the principal materials of renovation.

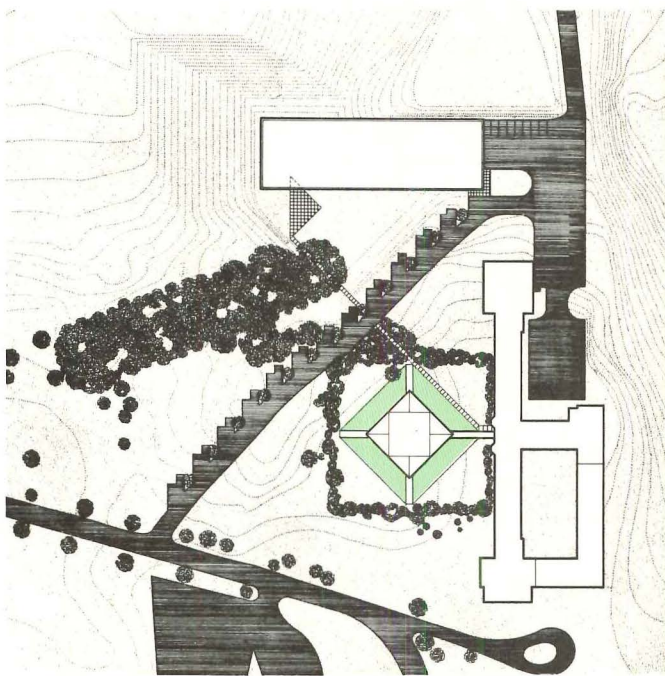
The architect's determination to care for the symbols and appurtenances of the past seems especially praiseworthy and the skill and sympathy with which he has introduced the present—when necessary—should not go without notice.

YALE CLUB OF NEW YORK, New York City. Architects: Warren Platner Associates—associates on this project: Mark Morgaridge, Piers Ford, Paul Sargent; mechanical and electrical engineers: Arthur Edwards; contractor: S. Di Giacomo & Sons, Inc.



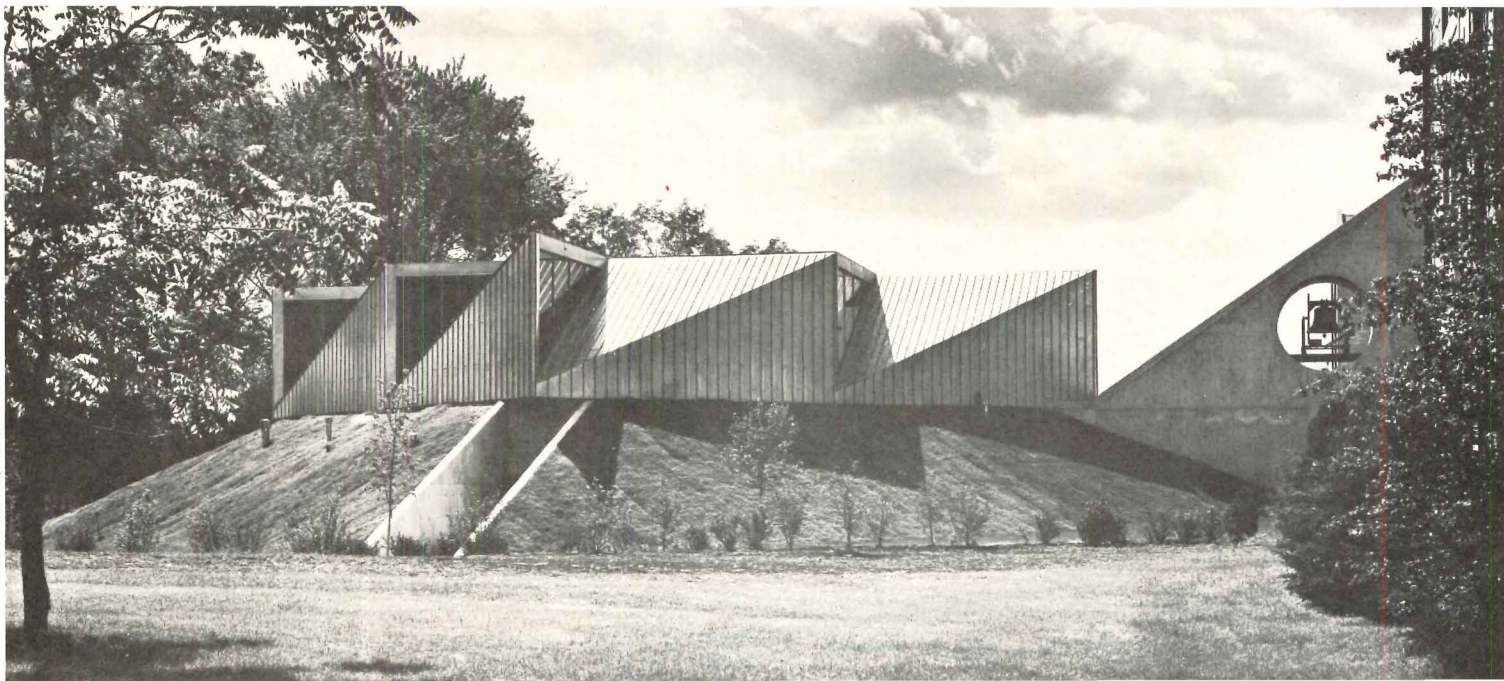


# AN UNDERGROUND CHURCH FOR BENEDICTINE MONKS BY STANLEY TIGERMAN

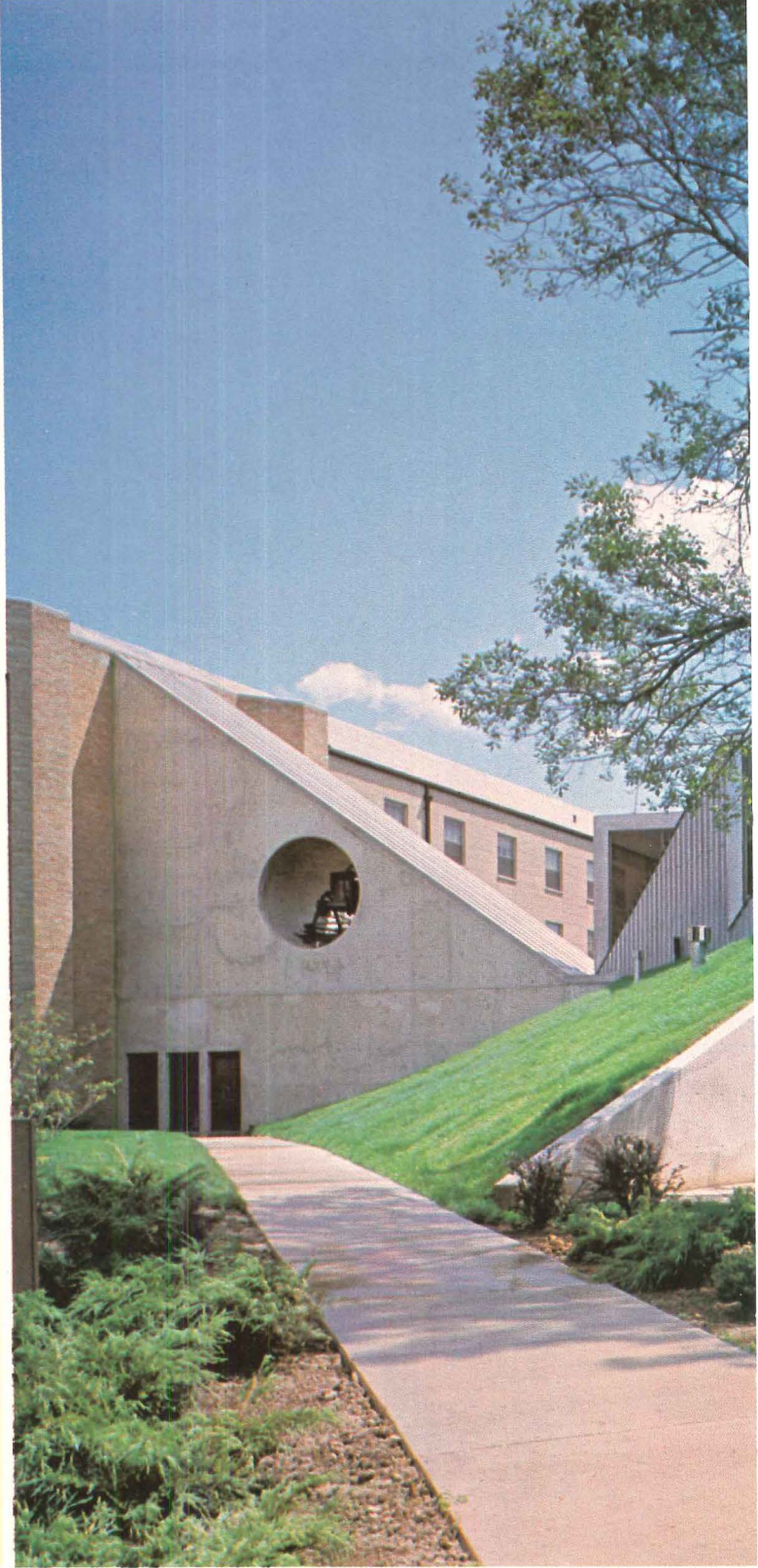
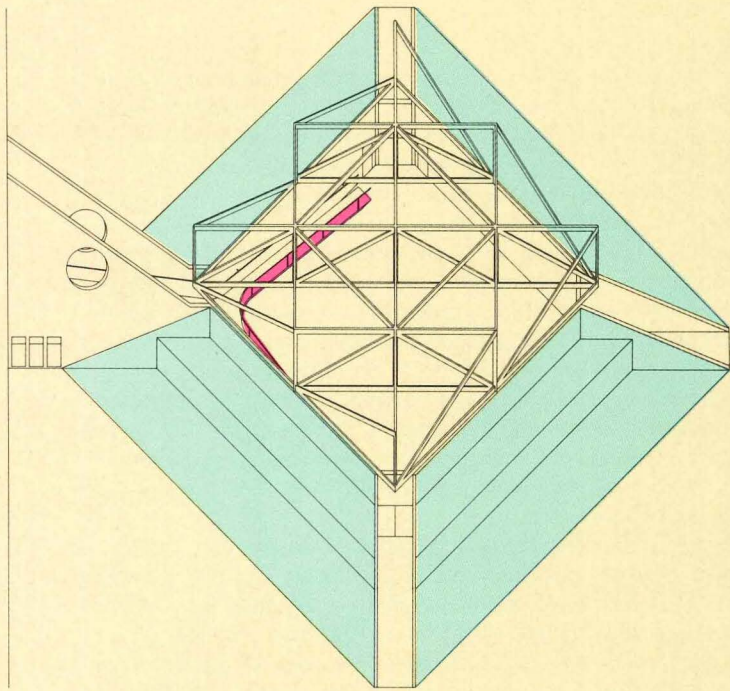
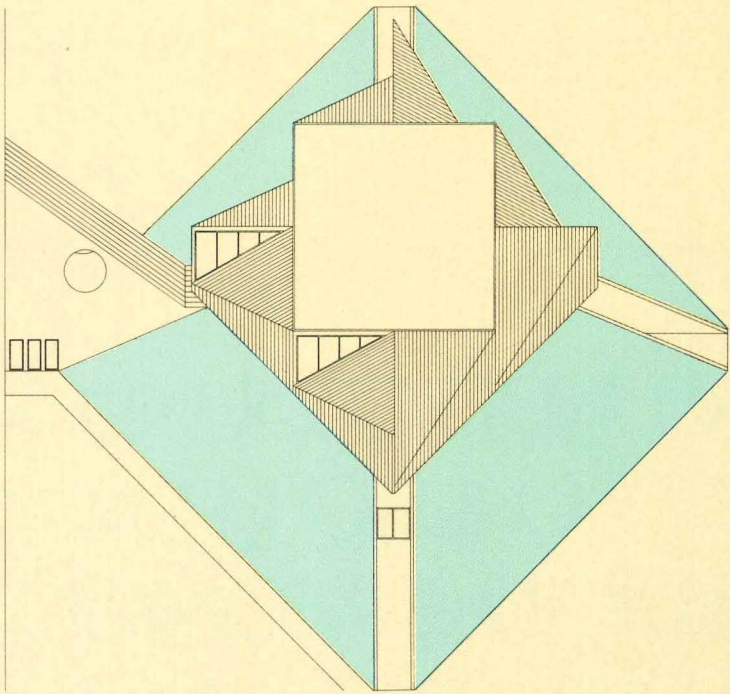


The exterior of St. Benedict's Abbey Church in Benet Lake, Wisconsin refocuses the eye and challenges one's preconceptions about how a church should look. In essence the structure appears to be a roof and a base with no building in between—rather like one of sculptor-painter René Magritte's somber images of hats perched on shoulders instead of heads. There is something curiously dissatisfying in the lack of transition between the terne-coated stainless steel roof and the sodded grass berms which surround the chapel. The only unity between roof and berms is a common geometry of triangular and trapezoidal planes. The building appears scaleless, due in part to the fact that the doors are hidden in deep reveals and other elements which clarify scale are invisible or absent. Acquaintance with architect Tigerman's sculptures (page 110) might cause one to suspect that their creator has too eagerly and inappropriately seized the opportunity to inflate one of his tetrahedral constructs to church size.

Such first thoughts are soon followed, however, by the realization that Tigerman was purposefully attempting to create exterior forms of indefinite scale which are at the same time modest and unpretentious. The triangular-shaped vertical walls and sloping roof planes were carefully sized to diminish the scale of the four-story tudor-style monastery structure to which the chapel is attached. It becomes clear also that Tigerman deliberately strove for a spare







economical look which would not at the same time appear mean and stingy. What could be more eloquently and generously simple than a building for worship sheathed in metal, glass and grass?

The new church is sited on rolling land which overlooks Benet Lake. The main sanctuary seats 300 laymen with choir stalls for a maximum of 36 monks. The altar is at the far end, although the plan would also function well if the altar were at the center. The church serves as a principal entry to the monastery proper. Access to and from the monastery is by means of a double ramp and connecting corridor which passes through the exposed concrete wedge-shaped link, passing under the hollow cylinder in which the bell is hung.

The plan provides for two different kinds of ceremonial processions, and its two major axes form a cross which is expressed in the roof truss system as well as the plan.

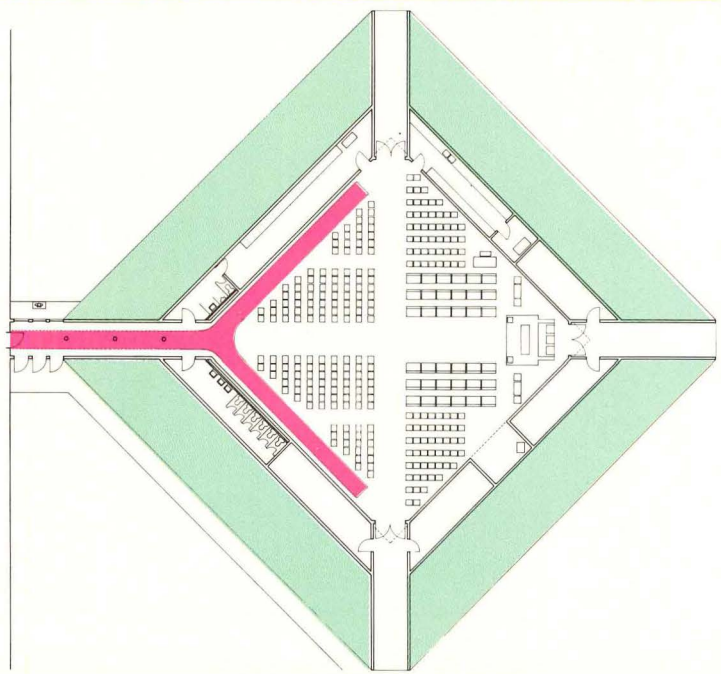
No actual Cross appears on the church exterior, but one of



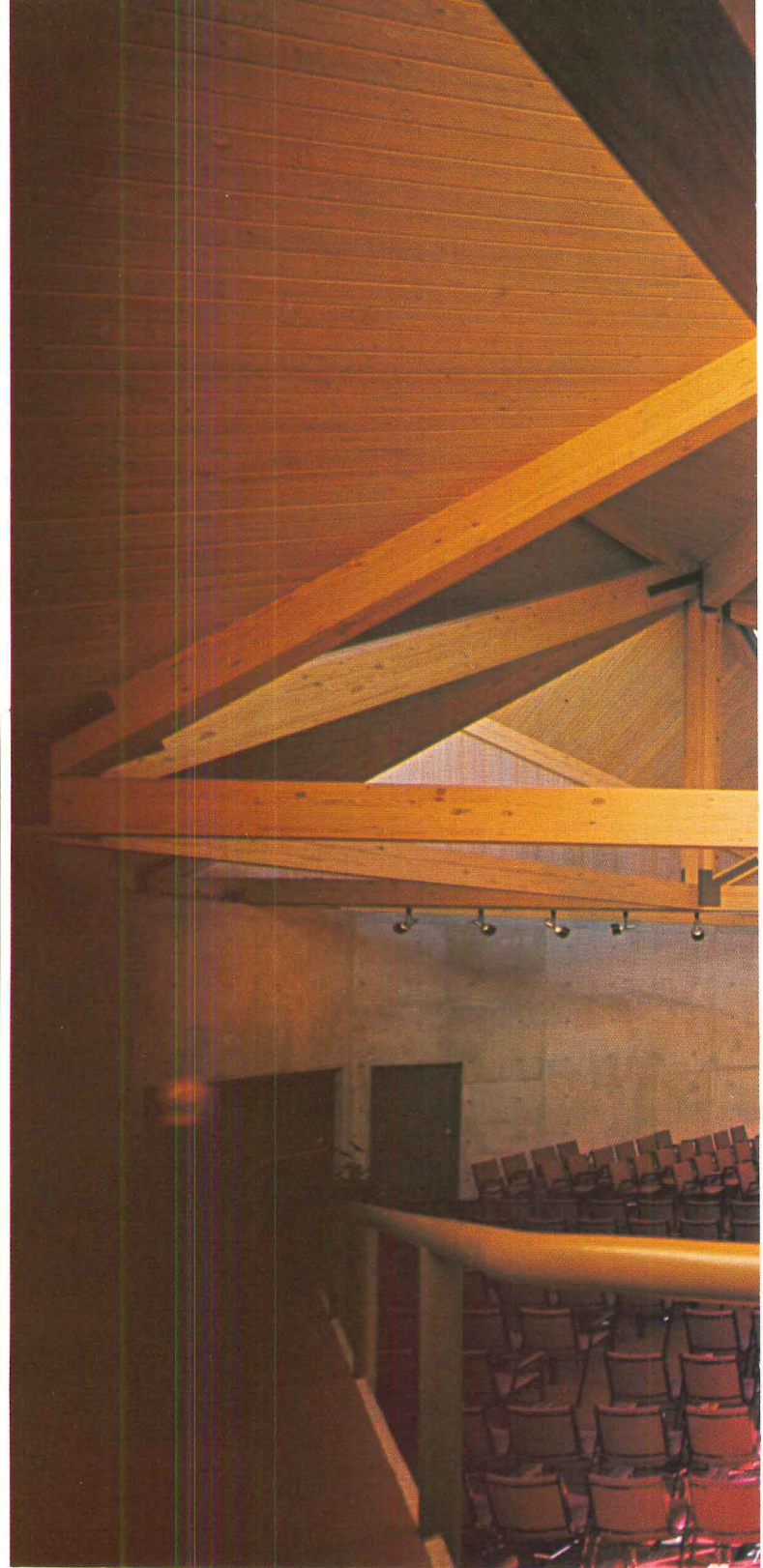
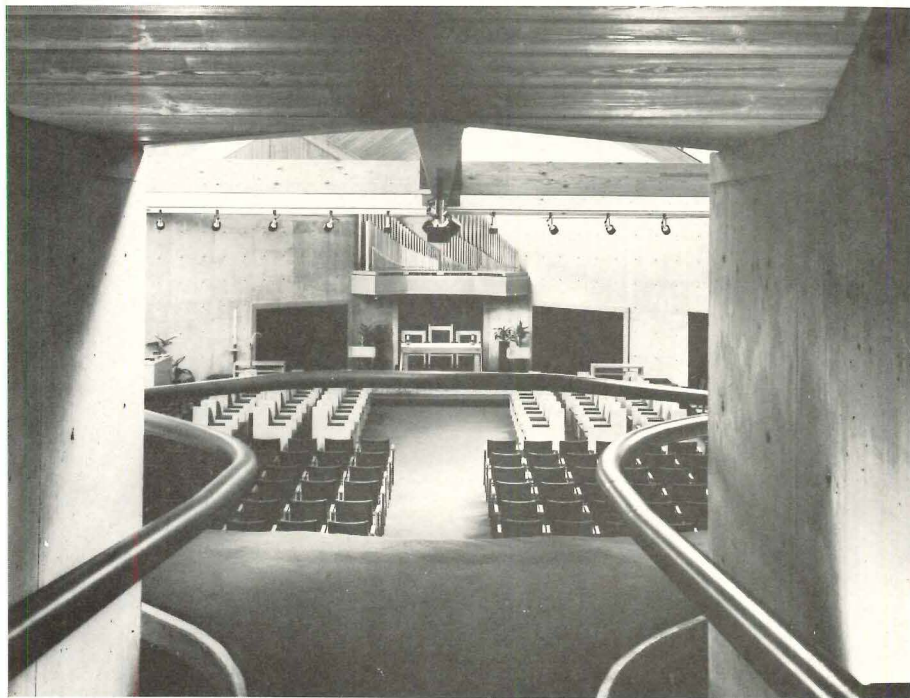


rusted metal, made by a member of the Order can be seen in the photo above. Tigerman intended his building to resemble a church only in the sense that it functions as a church. By avoiding a linear hierarchic plan with an overwhelmingly dominant axis he created a more intimate space that tends to surround and embrace the congregation. The plan shape encourages active community and lay participation in the service.

The church is basically a 68-foot square concrete box concealed by an 8-foot-wide sloping earth berm. The geometrically ingenious roof is not as complex as it appears at first glance. It consists of ten simple trusses of laminated beechwood. Tigerman has created his sloping planes by leaving out the top horizontal chords of the perimeter trusses as the diagram (left middle) indicates. The vertical planes on the perimeter are surfaced in metal. The others are glazed with solar bronze glass forming clerestories which dramatically light the main sanctuary. The interior of the church is as simple and direct



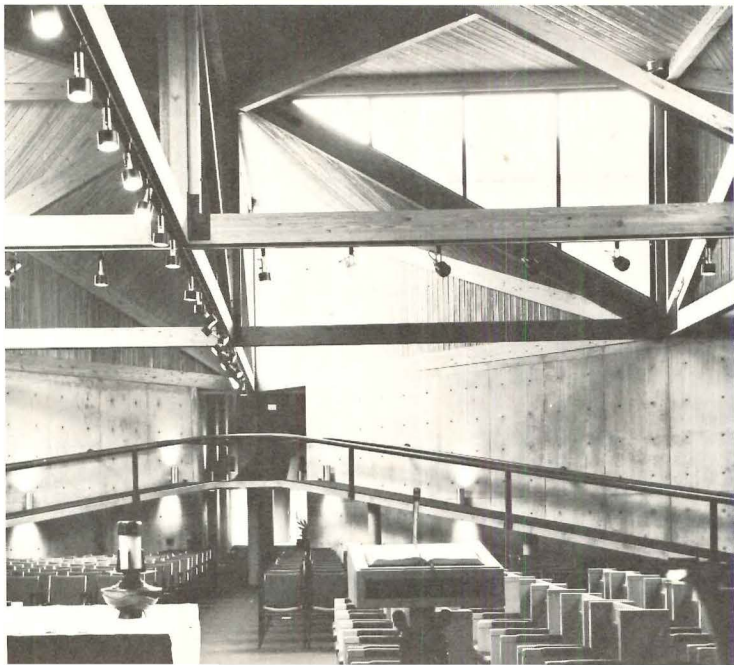
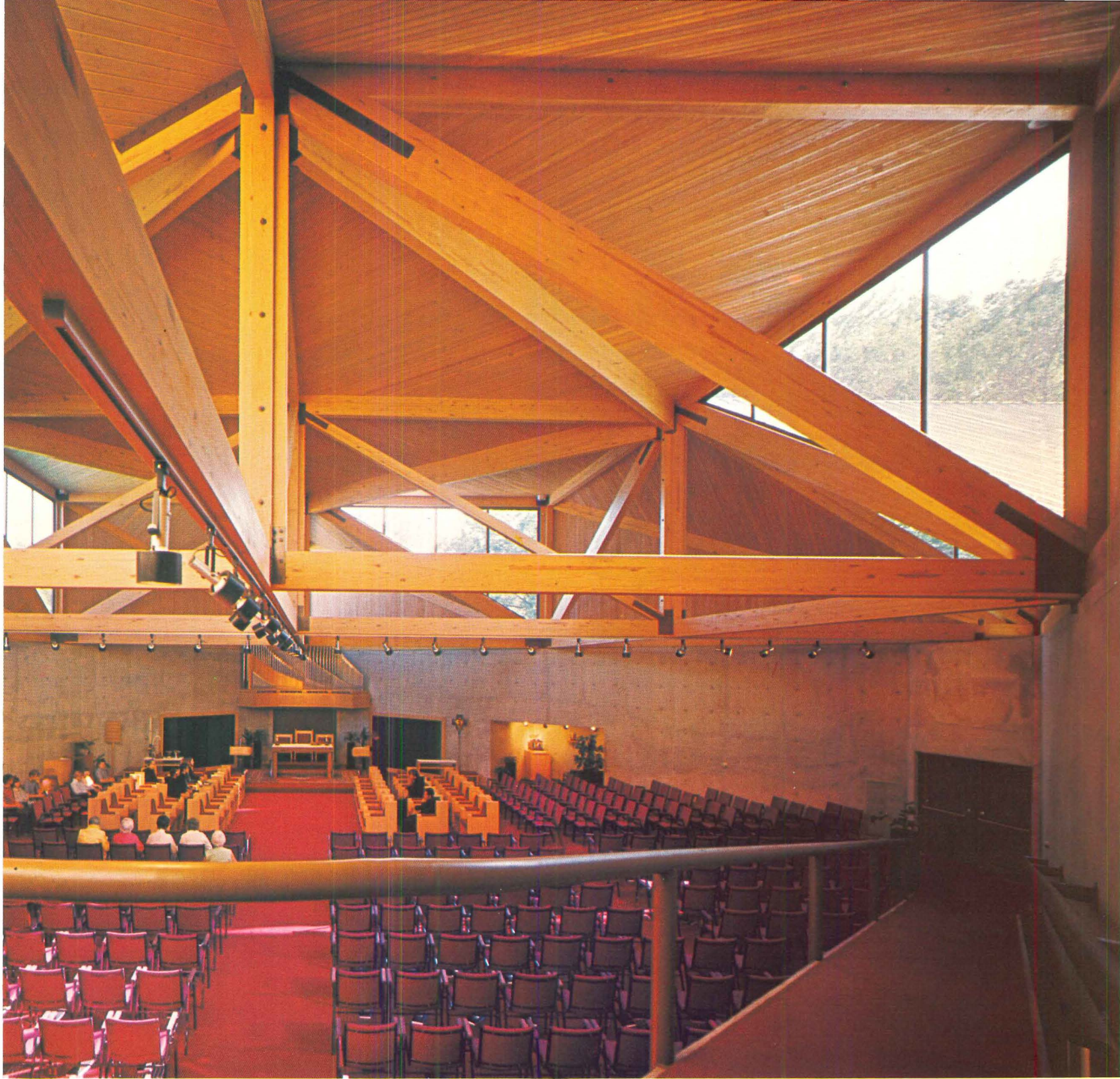




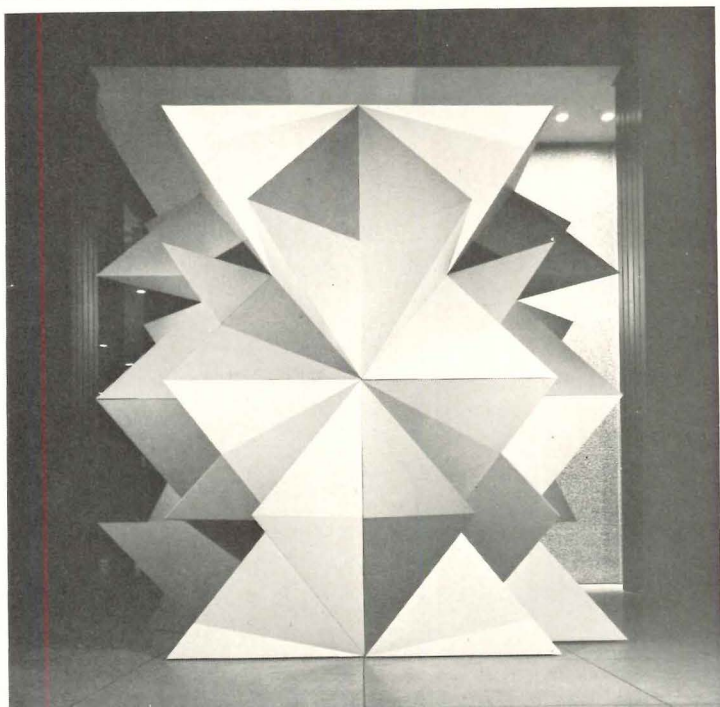
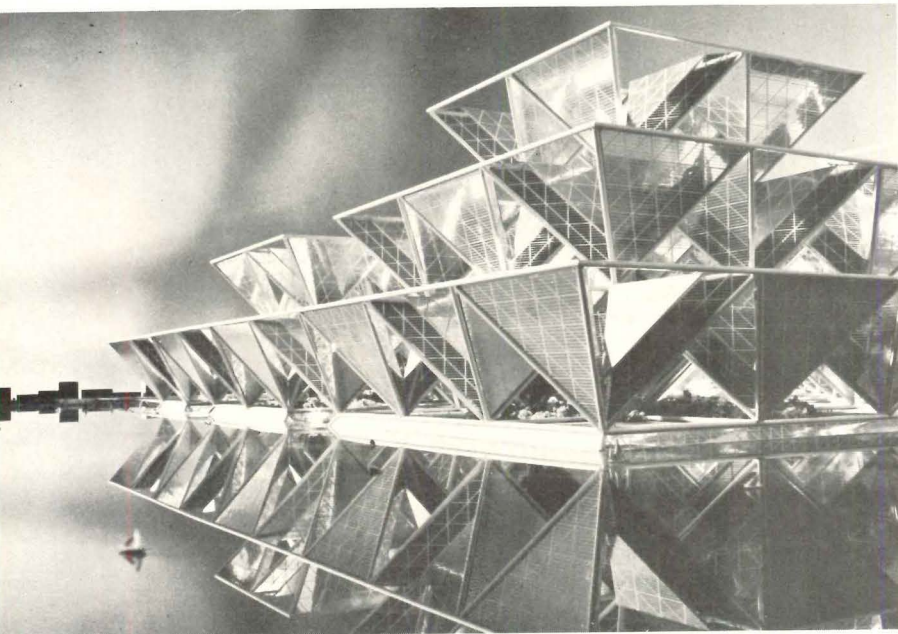
in its juxtaposition of functional elements and its use and joining of materials as is the exterior. The connecting bridge from the monastery appears in the three photos at left. Like the double ramp to which it connects, it is emphatically separated from the adjacent exposed concrete walls. These walls thus appear as continuous surfaces which adjoin the remaining walls of the sanctuary to form one unbroken concrete envelope. The ceiling is sharply defined from the walls by the straightforward use of beechwood trusses and interior decking, as well as by the solar glass. Even the carpet has its own clearly articulated edge.

The total cost of the church including site work, landscaping and a new road was \$340,000. The per square foot cost was \$37.98 for a total of 8,950 square feet. The principal structural materials are exposed and no veneers or facings have been used. Since the bulk of the building has been constructed below ground, heat loss or gain is minimized and energy thus conserved. Prototypes







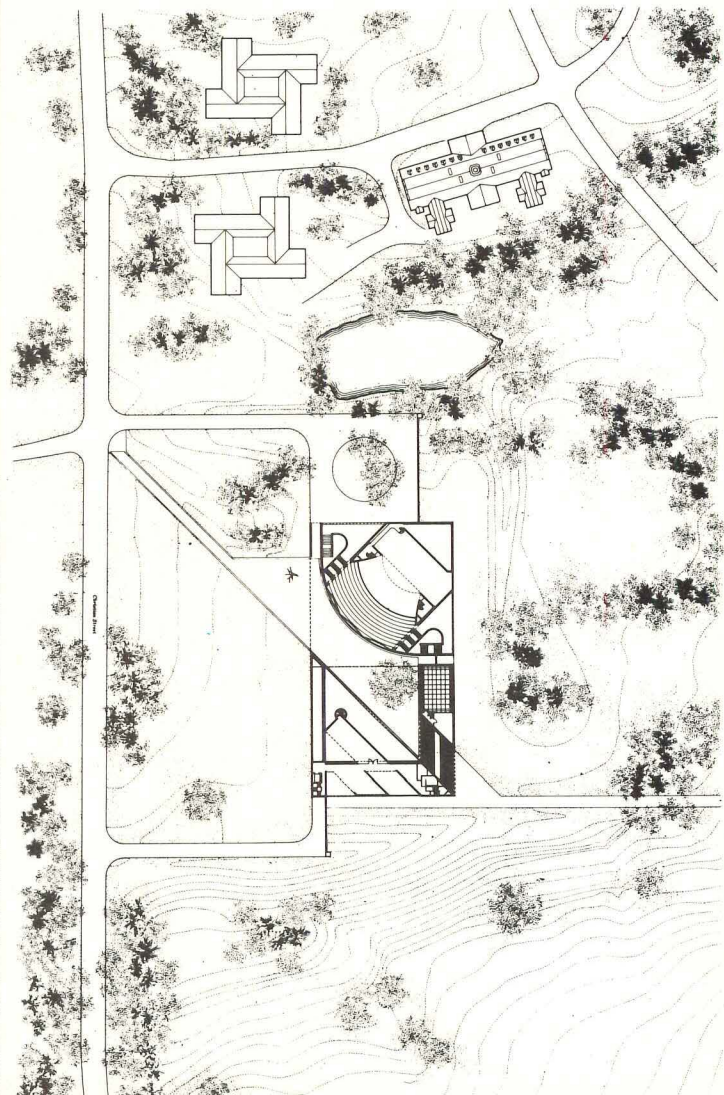
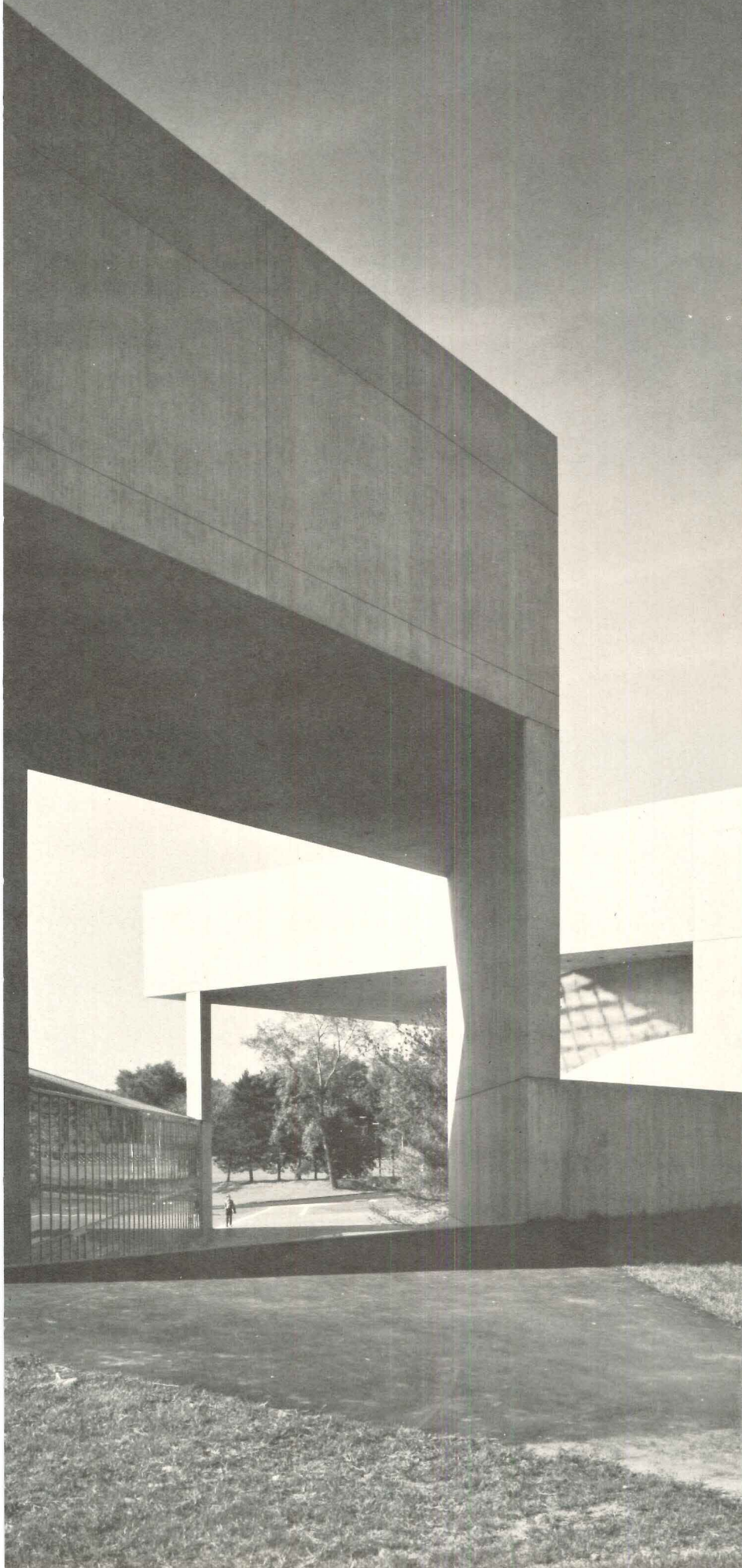


for the triangulated St. Benedict's Abbey Church are easy to find in architect Tigerman's work as a painter and sculptor, as well as in some of his earlier visionary projects. His "Urban Matrix" (top) proposes inverse pyramids for habitation on water. Shown below is "Instant City," a grouping of self-contained housing and office pyramids which would span expressways. St. Benedict's would seem to be most truly pre-figured however by "Modsculp II" (middle) which is made up of cube-octahedrons which can be arranged in a number of configurations.—Mildred F. Schertz

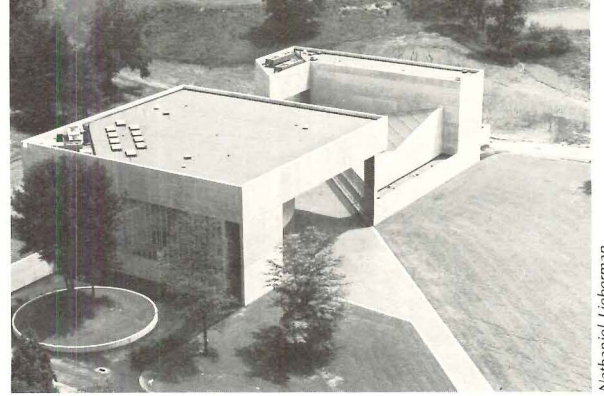
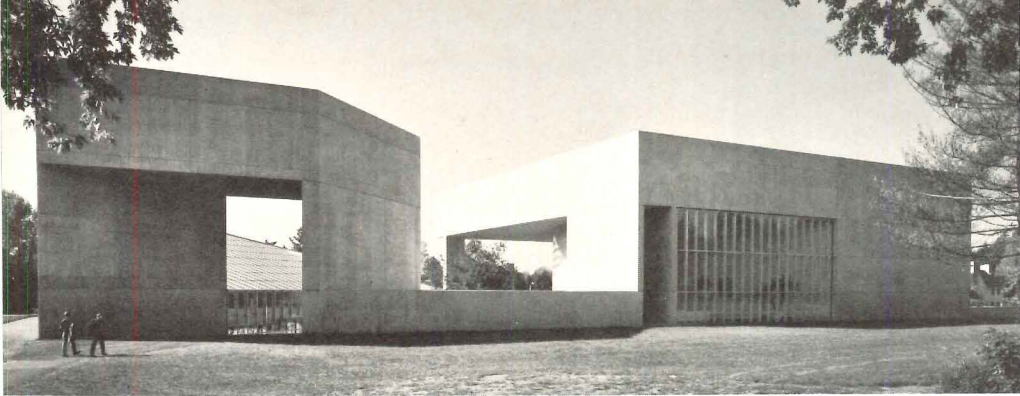
ST. BENEDICT'S ABBEY CHURCH, Benet Lake, Wisconsin. Owner: *The Benedictine Fathers*. Architects: *Stanley Tigerman of Stanley Tigerman & Associates*—associates: *John F. Fleming and Anthony Saifuku*; engineers: *The Engineers Collaborative* (structural); *Walter Flood & Company* (foundation and soils); *Wallace & Migdal* (mechanical and electrical); general contractor: *Pepper Construction Company*.



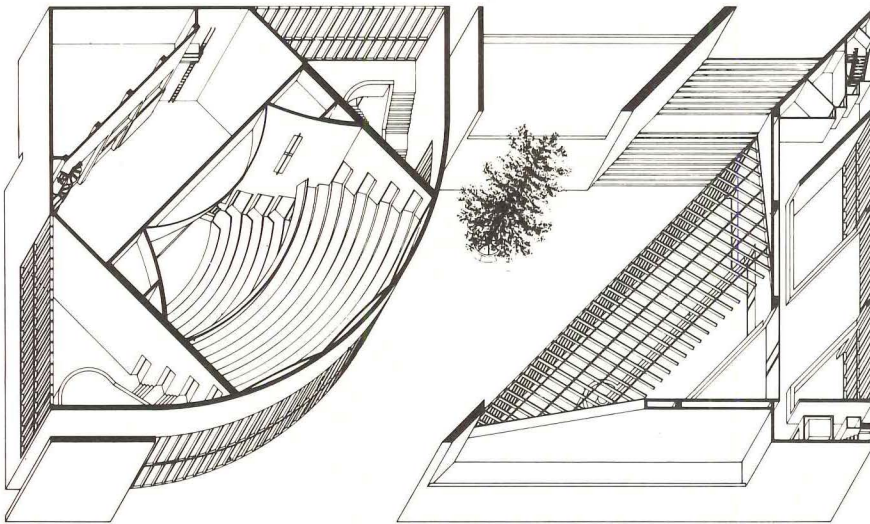
AN ARTS CENTER  
BY I.M. PEI  
DESIGNED TO BE  
A GATEWAY AND  
CAMPUS CENTER  
LINKING TWO  
PREP SCHOOLS







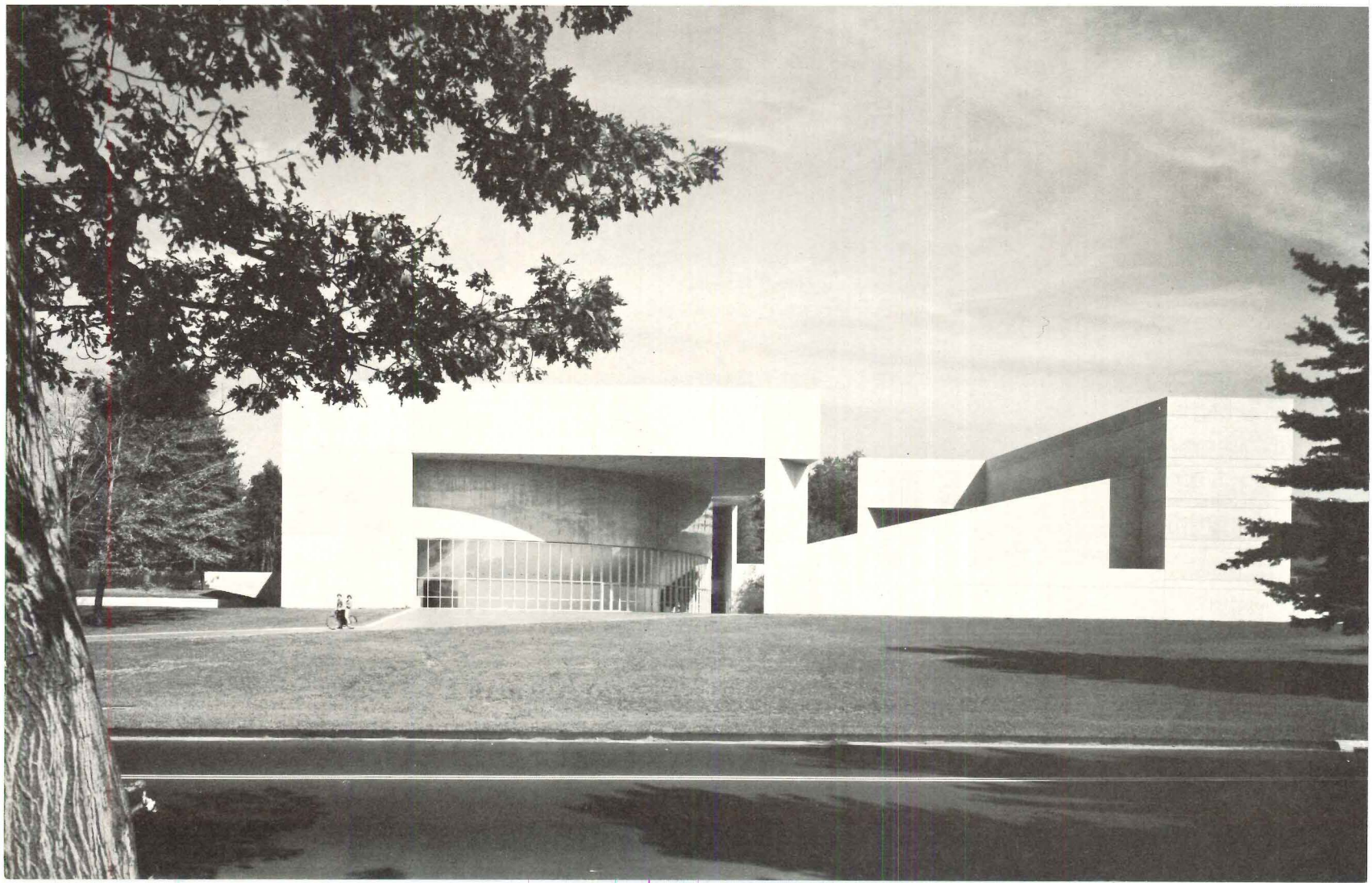
Nathaniel Lieberman



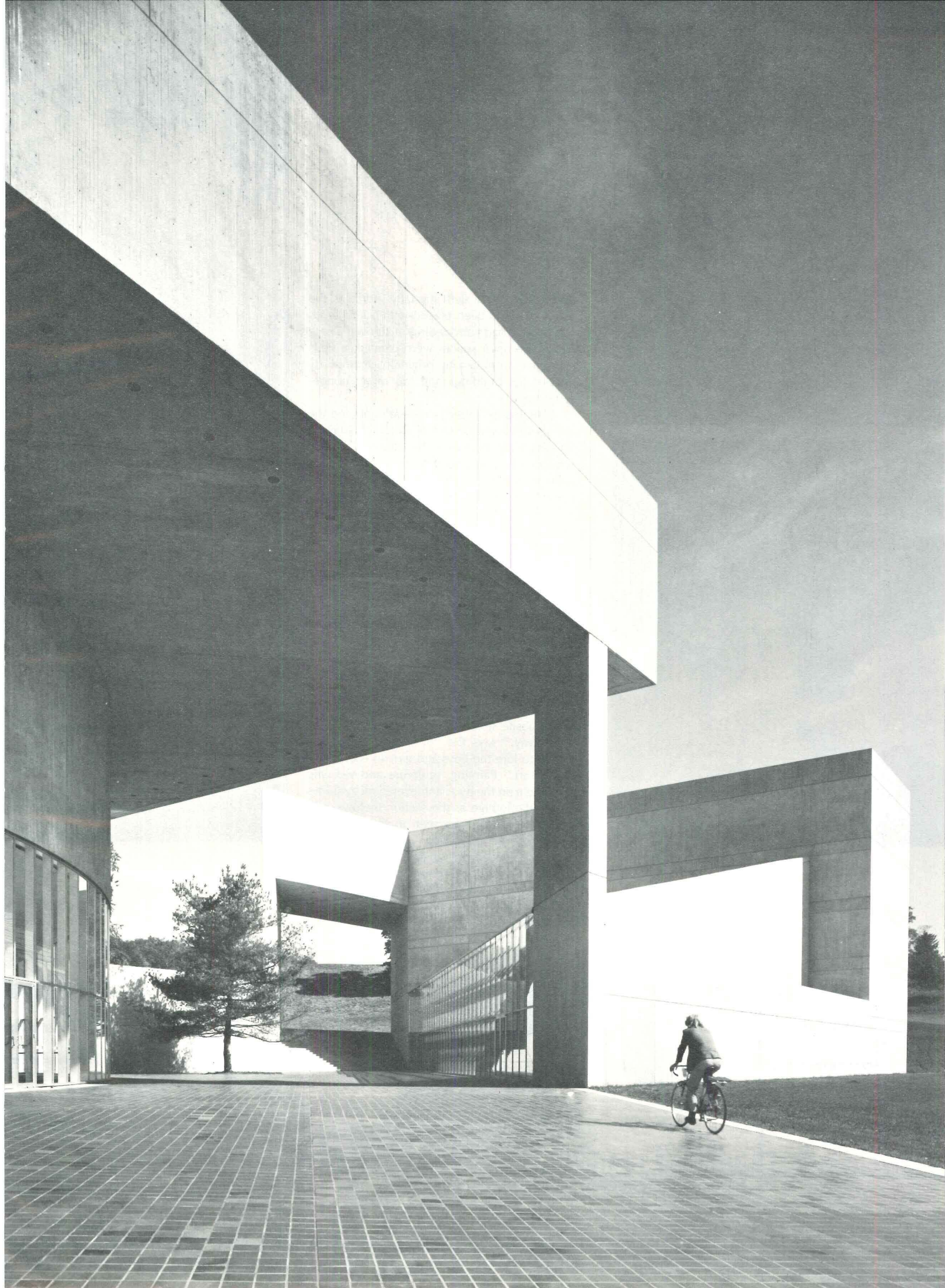
The Paul Mellon Center for the Arts has been conceived both symbolically and literally as a gateway between two Connecticut prep schools—Choate and its newly adopted sister Rosemary. The girls' school moved from Greenwich to become Choate's neighbor at Wallingford in September 1971. While sites for the new building were under consideration, architect Pei urged that the proposed structure become a principal means by which the about-to-be-built campus for girls would be linked to the older campus for boys.

Pei's solution can be quickly grasped by studying the axonometric projection (left) and the bird's-eye photo (above). The new arts complex is essentially two buildings, diagonally bisected by a broad curving pathway surfaced with tile and partially open to the sky, which culminates in a broad staircase. The juxtaposition of the curved and straight transparent walls, the portals and the stair produce an exciting spatial sequence. En route to Choate (top left) the interpenetrating asymmetric design produces a quite different but still intriguing plastic effect.

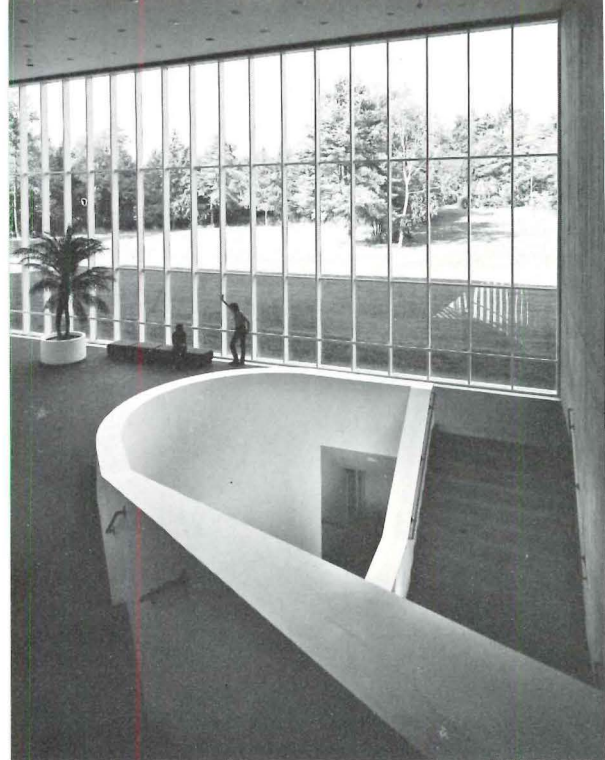
Joseph W. Molitor photos except as noted







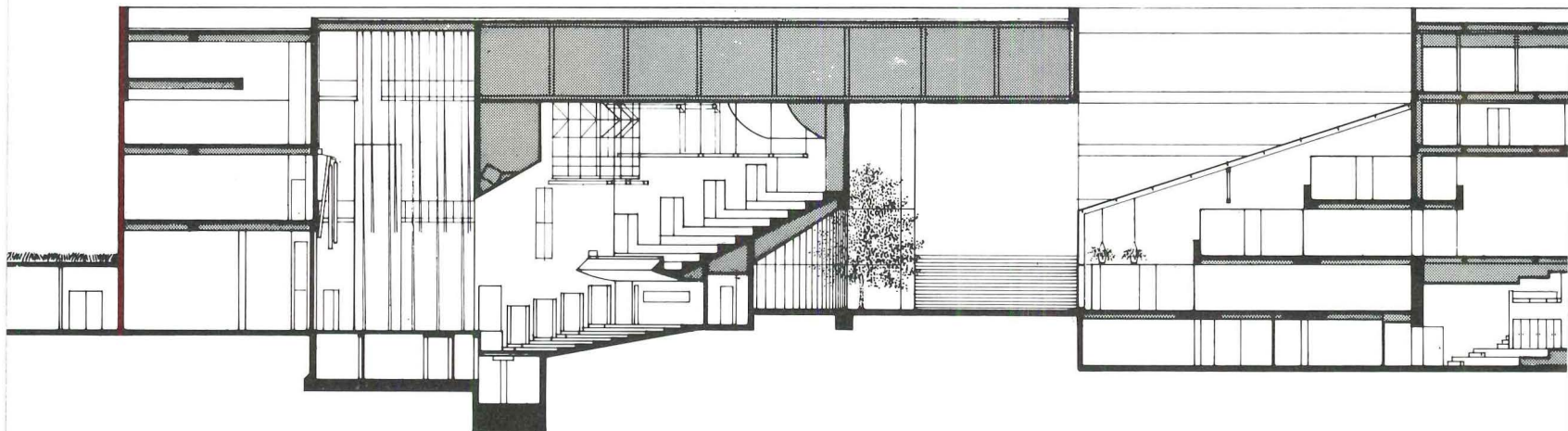
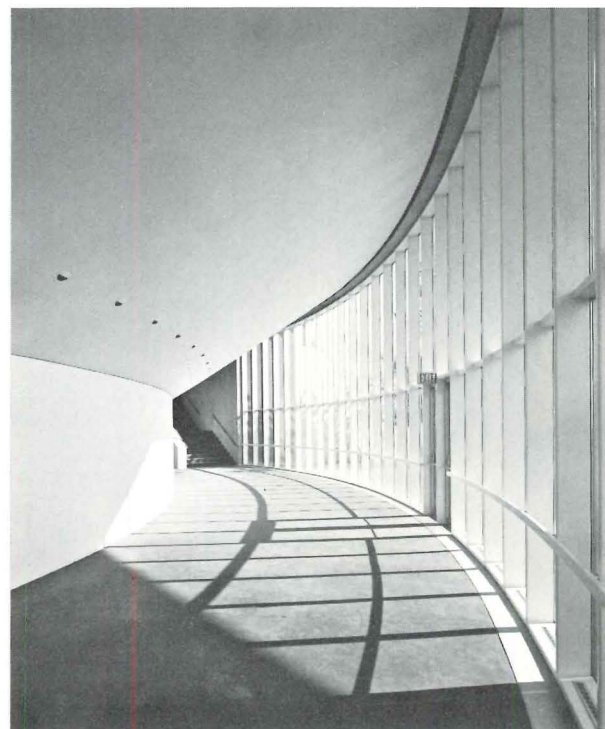
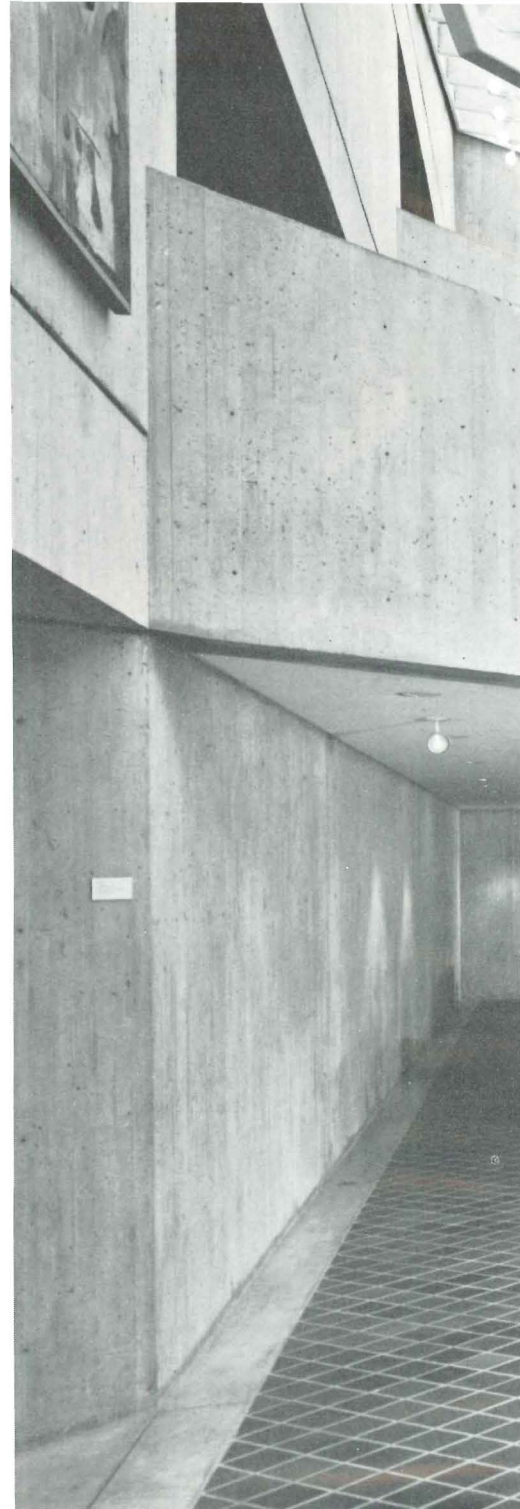




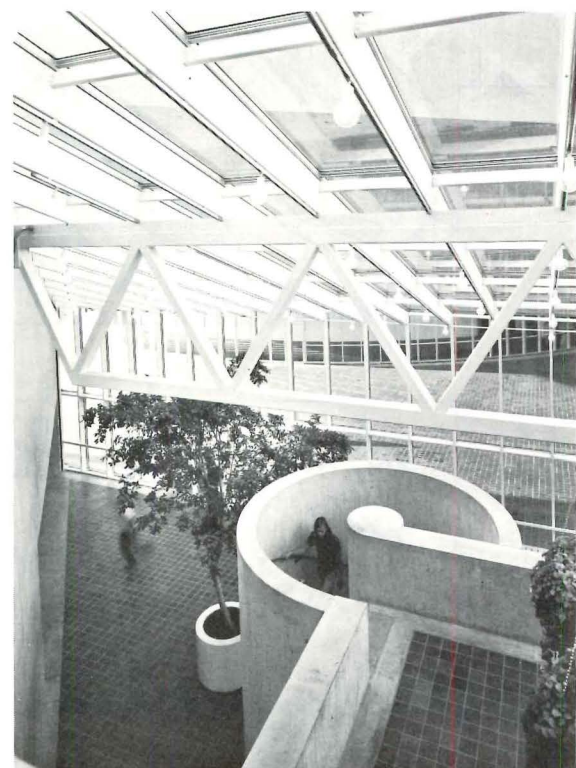
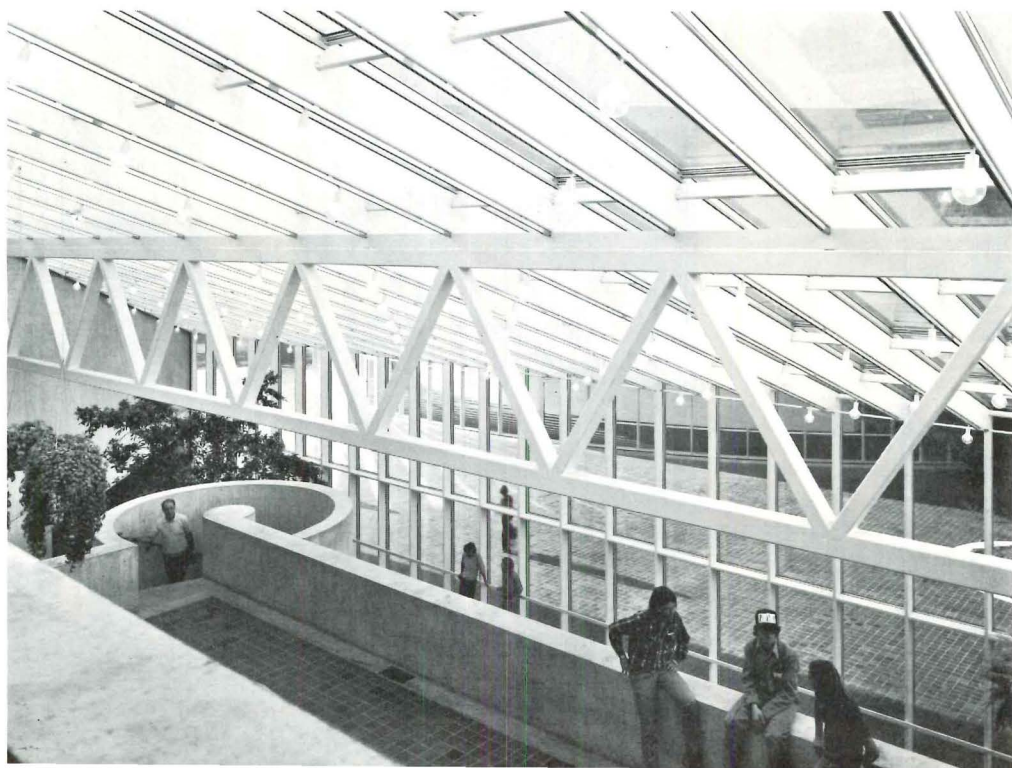
As the top photo (left) partially indicates the arts center has been placed within and looks out upon broad surrounding meadows. These handsome open spaces were created at Pei's insistence from a site originally marred by inferior out buildings and too many nondescript trees.

The lounge (three photos at right) and the auditorium foyer (bottom photo at left) play an important plastic role in the diagonal spatial sequence linking Choate to Rosemary. Physically separated from the path by their transparent glass enclosures, these areas, nonetheless, are strongly connected to the center of things. Students in the lounge and visitors to the auditorium are never out of touch with what is going on along the path.

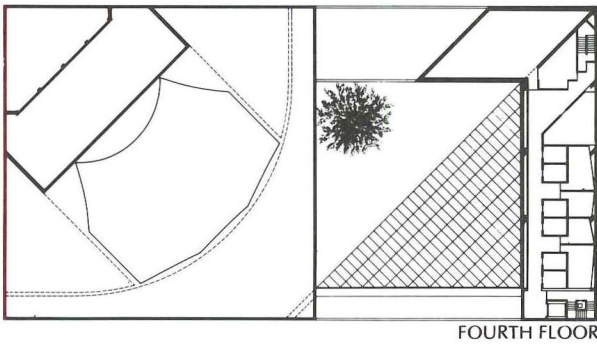
Originally the lounge was not in the program. Architect Pei, however, thought that the Choate and Rosemary students would need a special place to get together and that the projected arts center would be ideal for this purpose. If a lounge were made adjacent to the theater, art studios and practice rooms, a typical student's interest in art might grow from a first shy attempt to find common ground with the opposite sex. "The building is more than a gateway," says Pei. "It is also a trap, designed to lure the boys and girls to each other and to art." Painting, sculpture and weaving take place on the two cantilevered mezzanines within the lounge as the section (below) indicates. As can also be seen in the section, a portion of the auditorium is underground to bring the roof of the stagehouse in line with the well proportioned cornice height. The auditorium roof, although sheathed in concrete and originally intended to be framed by concrete Verendiel trusses, was finally constructed in steel because of time and budget.



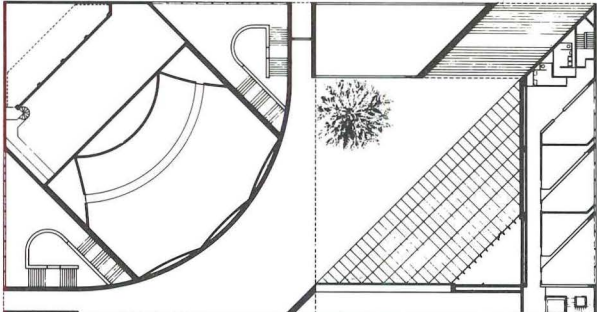




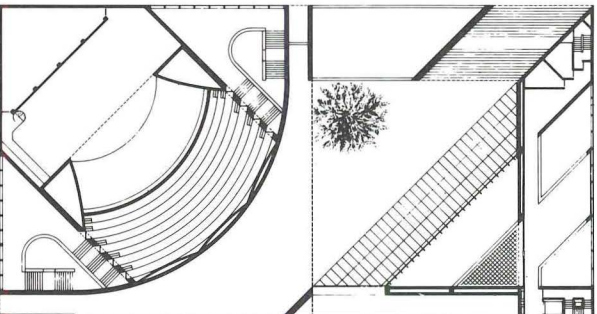




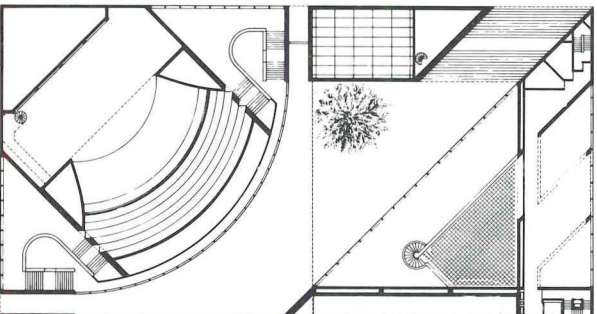
FOURTH FLOOR



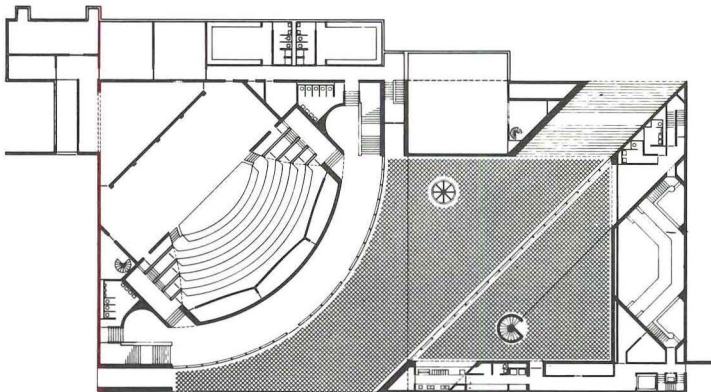
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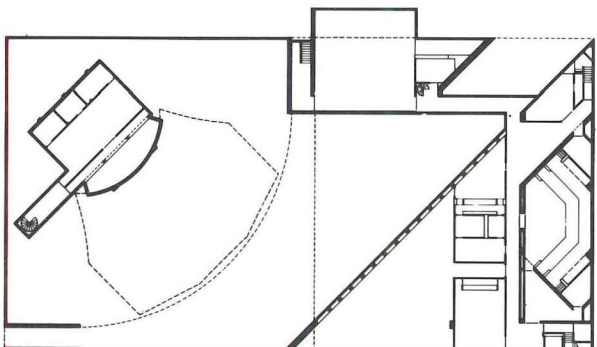
SECOND FLOOR



FIRST FLOOR



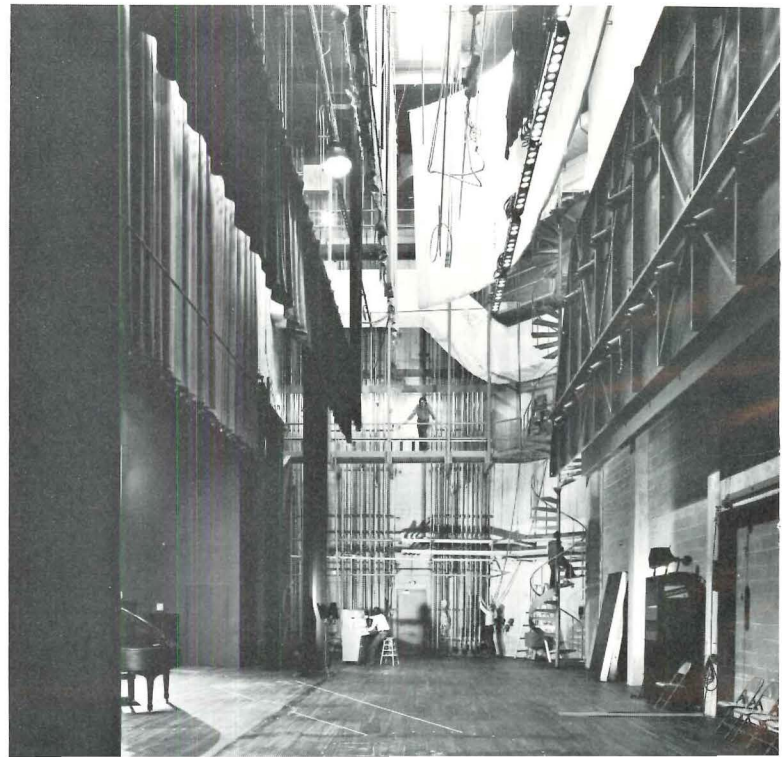
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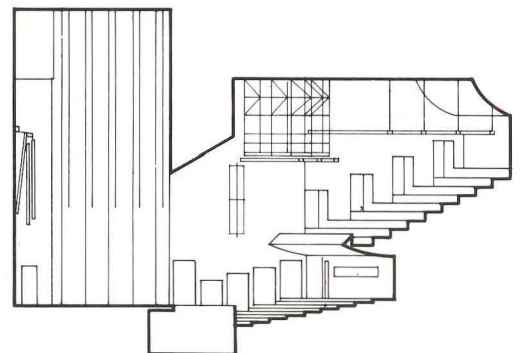
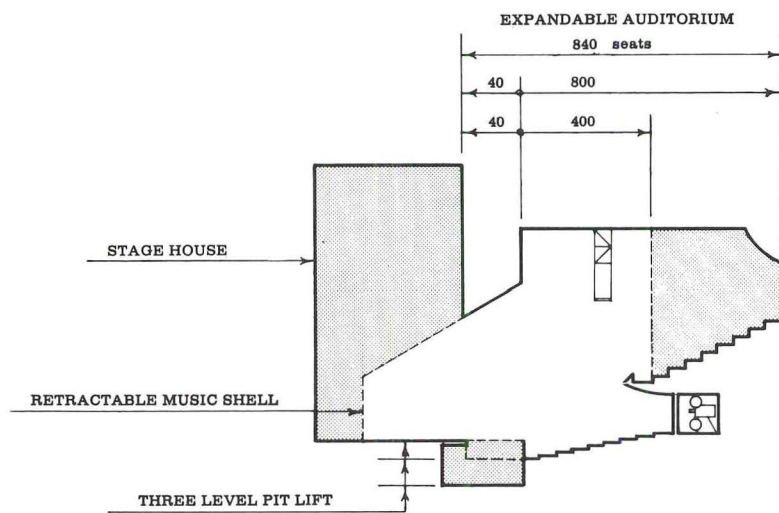
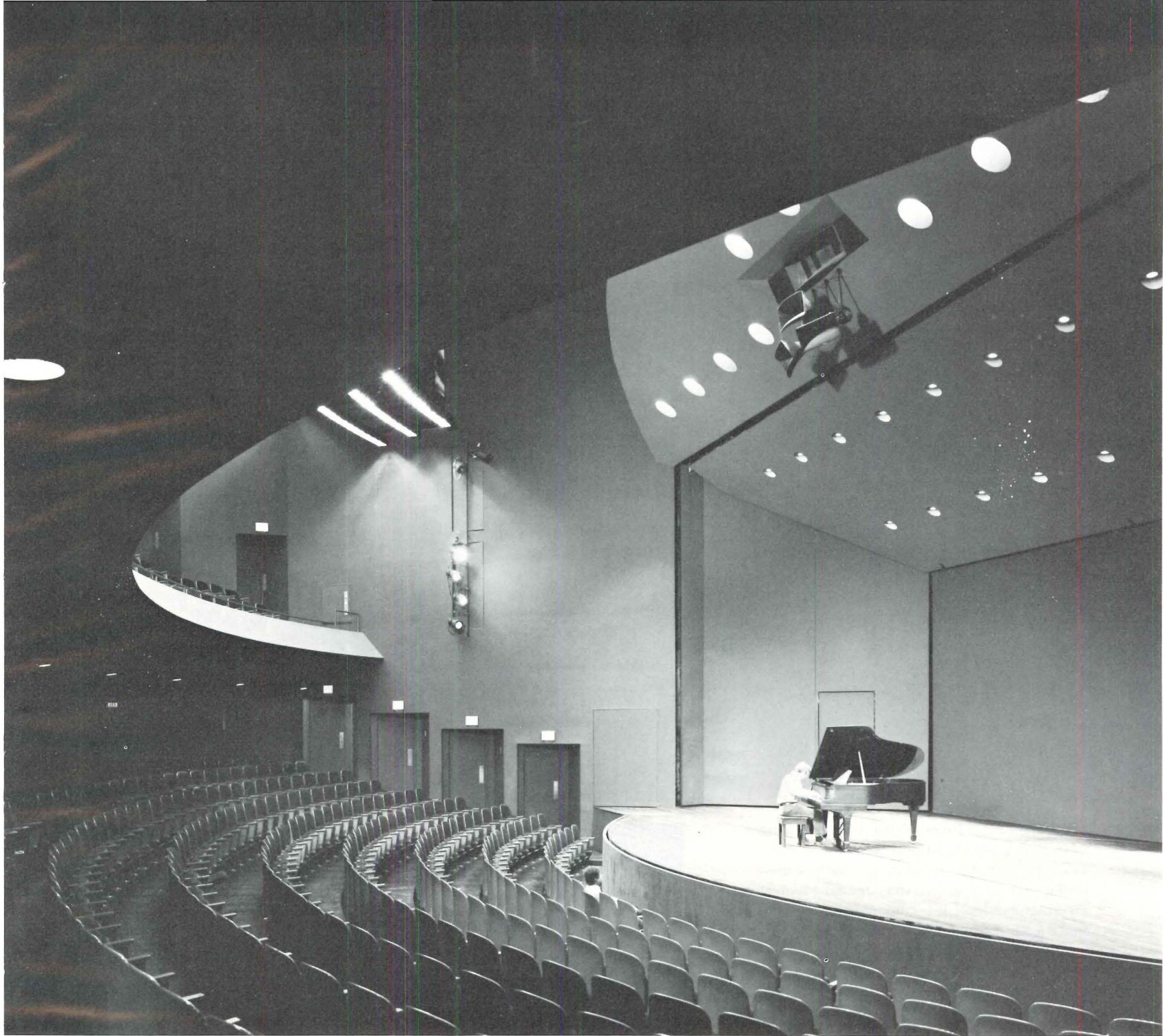
BASEMENT

The arts center has six levels. In the basement of the theater wing are equipment and storage space, the trap room and the orchestra pit. In the teaching wing are the experimental theater and its storage, the recital room, a storage and mechanical room, miscellaneous office spaces and a small library. At the ground floor level are the court or pathway, the orchestra seating, stage and ancillary spaces in the auditorium, the upper level of the recital room in the teaching wing, and the main floor of the lounge. The first floor contains the balcony and its lobby, the first of two lounge mezzanines and the art studios. The second floor consists largely of the upper levels of the first floor spaces and includes the second lounge mezzanine. The third floor has class and seminar rooms in the teaching wing and a mechanical room behind the stage house. The latter room was improperly insulated from the stage because of unfortunate budget cuts, and presently is a source of objectionable noise during rehearsal and performance. On the fourth floor of the teaching wing are music practice rooms and the skylight.

Apart from the difficulties with the mechanical room, the auditorium acoustics work quite well. The room is flexible and expandable. For drama the auditorium seats 840, but the balcony can be closed off to create an intimate 400-seat theater. For music three configurations are available: an 800-seat theater with orchestra pit and full stage house for musicals, an expanded stage with retractable shell for orchestral performances, and a 400-seat intimate hall for recitals and chamber music using the retractable shell.





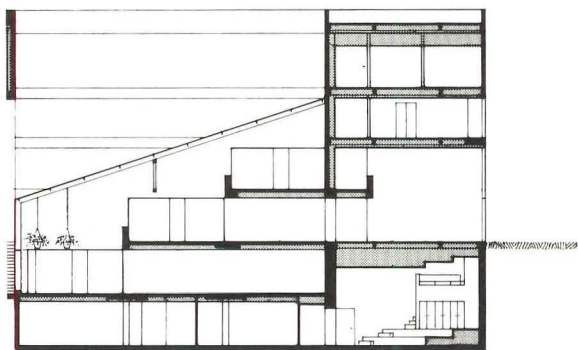






The upper mezzanine of the teaching wing (above) is used for art and weaving. It overlooks the principal two-story art studio shown in the section. The two-story recital room at the basement level is a compact and intimate space with it's own small balcony.

THE PAUL MELLON ARTS CENTER, Choate School and Rosemary Hall, Wallingford, Connecticut. Architects: *I.M. Pei & Partners—architect-in-charge—Ralph Heisel*; project managers—*John Scarlata and Paul Veeder*; resident architect: *Murray Kalender*; interiors: *Robert Lym*; engineers: *Olaf Soot* (structural); *Campbell and Friedland* (mechanical); theater consultants: *George Izenour Associates*; landscape architect: *Joseph R. Gangemi*; general contractor: *George B. H. Macomber Company*.





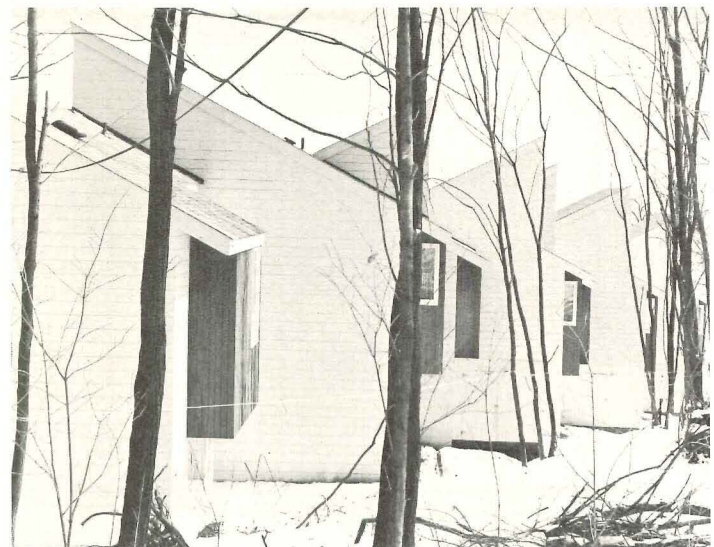


# WHAT IS THE BEST ROLE FOR ARCHITECTS IN "THE HOUSING DEVELOPMENT GAME"?

## A CAUTIONARY TALE:

Let me tell you, it's no "game." Ten years ago this month I started a practice of architecture in Gambier, Ohio, a village of 700 souls and seat of Kenyon College. I found at once that there was virtually no housing for me and my family available in the village. So with encouragement from a friend who had a little money to invest, I started to put together a project of family-sized faculty housing in April, 1963. The college said it would only pay \$100 per month to lease a unit, no matter how big. Those were the parameters: build three- and four-bedroom houses to rent for \$100 per month. "Impossible," everyone said. And they were right. Oh yes, that's the completed building (below), but it was built by an architect who was too naive to understand that "impossible" can mean something which isn't worth the effort it takes to accomplish. First I found a sloping, wooded piece of land. It was well-situated but no one else could figure out how to build on it. So it was cheap. Then I got a zoning variance for ten houses connected (four was the limit at the time) and designed the building (that took about one week). Full of spirit I went to the FHA to discuss a 90 per cent mortgage. Their lack of interest was monumental. They suggested I try conventional financing. Of course, there I could get no more than a 70 per cent loan but I went from banker to banker full of hope. In the meantime, I was also asking anyone I knew to buy stock in the corporation that would put up the equity. Rich people, I soon found out, are the least likely investors. The financial statement I carried around got less and less favorable as each banker in turn told me of some expense I had not counted on. But somehow

it still looked workable in May 1964, a year after I had begun looking for money, and with 16 others (my \$5000 fee was my equity), I founded Gambier Housing Inc. A local savings and loan had finally agreed to give us a \$70,000 mortgage—the cost was estimated at \$10,000 for each of the ten units or \$100,000. The banker looked me in the eye at the time and said, "We don't trust you but sure are impressed by the class of people you've convinced to join you." The building was finished by January, 1965, having been built with lots of shortcuts and compromises to keep it near the original price. So it looked like I had pulled off quite a deal: I'd gotten a free house for myself and won a couple design awards to boot. But that was just the beginning. For three years, to keep things solvent, I was janitor and manager and rental agent all in one. Furthermore, I was watching unwise construction details deteriorate practically everytime it rained. It was an architect's nightmare. The biggest problem—and HUD now sees it too—was management and the building's architect is the worst possible substitute. One vacancy for a year ate up all our profits. Replacement and redecoration costs were enormous. Gambier Housing Inc. goes on, ten families have good housing that would not have existed otherwise, but rents are still very low. There have been no profits at all in eight years. The moral is this: if the project looks like an impossibly difficult financial situation to begin with, it probably is. Furthermore, I found that my emotional involvement in this case caused personal conflicts that professional developers do not have. But don't let me discourage you. Read on.—*Jim Morgan*





The architect's involvement with housing development as an equity participant or as the developer in fact is no longer news. Ten years ago it was a rumor; five years ago it was unusual. Today it is the hottest, the most significant new aspect of the architect's place in housing.

And the issue has a startling quantitative side too. According to recent and detailed research by RECORD:

Fully 60 per cent of architectural firms are now doing housing and of those, perhaps as many as half are involved in the development process itself. In fact, based on projections of 870,000 multi-family housing starts for 1972,

80 per cent were designed by architects. Perhaps as many as 100,000 units were done by architects as developers in one form or another. Therefore, the issue is no longer whether it ought to be done, but how best to do it. How best to maximize the architect's control over design. How best to assure financial programming and planning when the architect is new in those areas.

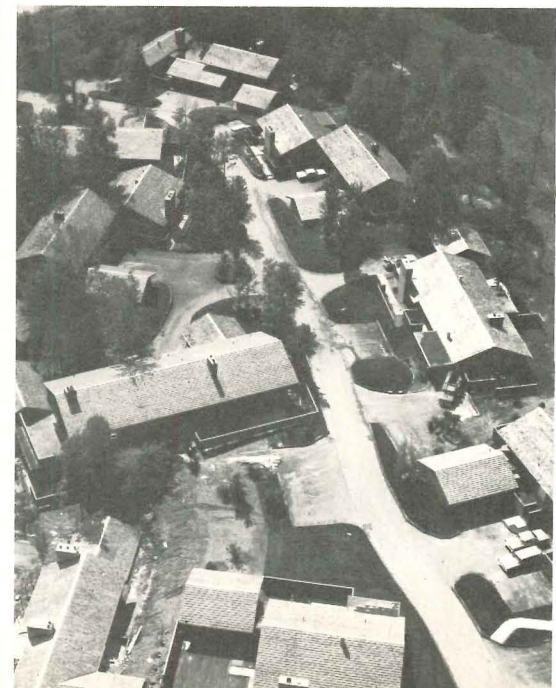
It is very significant that the AIA, once the Code of Ethics was revised three years ago, has moved with uncommon speed to provide leadership in helping its members master the mysteries of the development process. At the Houston convention, the meetings devoted to

discussing the architect's role as developer or at least as part of the development team were jammed. And the most articulate members there were not asking how to do it, but looking for answers to sophisticated questions that no one in their chapter or region could supply.

The housing picture in general these past two or three years has, of course, been responsible for the dynamic growth of interest in development housing by our profession. When the financing blockade of the late sixties had reduced to a fraction of the amount called for in President Johnson's famous message of 1966—2.6 million units needed each year for the next decade—architects began to feel a

### Rural condominium housing

Walden is a planned community for 8,000 people set in rolling hills southeast of Cleveland in Aurora, Ohio. The main emphasis, says William B. Morris of the Architectural Design Partnership, is preservation and development of the 1000-acre site's natural beauty. The architect and the developer, Manny Barenholtz, have a comfortable relationship that grows out of mutually successful accomplishment. There are no densities set beforehand. As Morris approaches each new multi-family segment (which are in blocks of ten to one-hundred acres), he works to preserve the natural terrain. That sets the density for that particular segment. In the first ten-acre area, for instance, a stream and two heavily wooded slopes were the natural features in which 38 units were set. For the buildings, Barenholtz has asked that each unit have maximum privacy; that there be no more than three suites per building (so that local, not state codes might govern); and that the buildings not have a multi-family look. All structures are factory-built in wall, floor and roof sections, then field-assembled.





responsibility to raise housing production in any way they could. Since the problem was substantially financial (as opposed to land use or construction technology problems), the issue was focused for architects on a matter which previously they had ignored. Some architects ignored it because they felt it was dirty and some because they couldn't understand it. But by 1970, they could not deny its central importance. The entire issue of building less costly housing through technological innovation, for instance, was torpedoed when it became clear that the two points difference in mortgage money, the jump from 6 per cent to 8 per cent that had taken place a couple

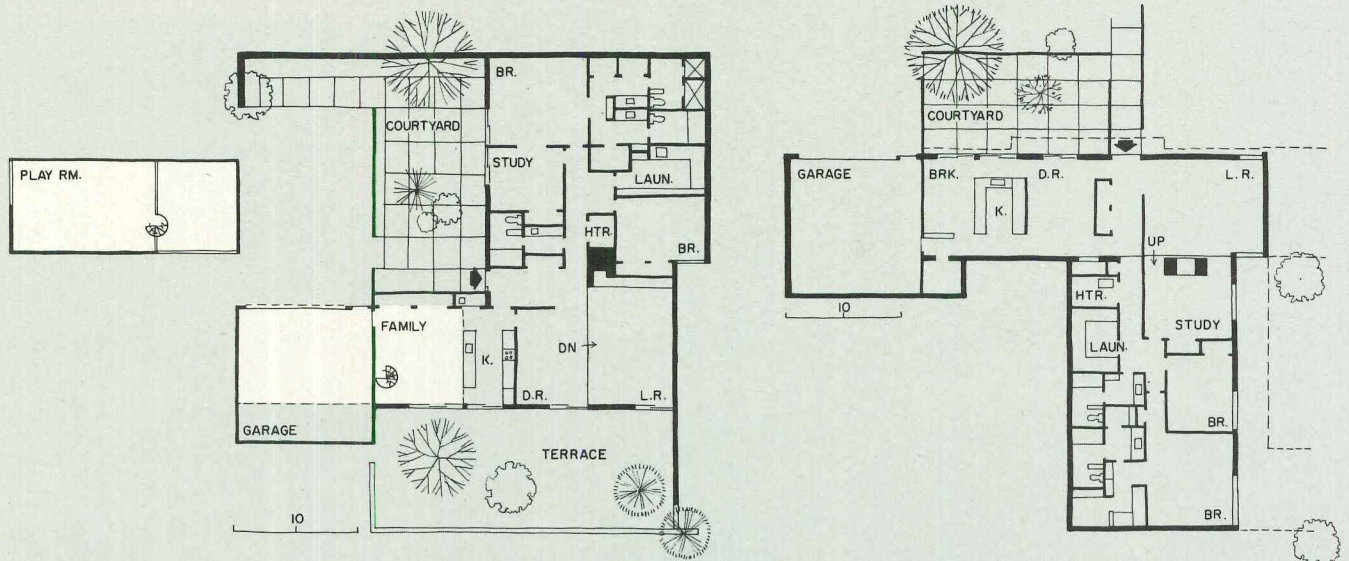
of years earlier, added far more to the cost of a building over its operating life than could ever be saved by any shortcuts in the building process.

Furthermore, because institutional commissions have been slowing down over the last four years, while housing production has been accelerating, architectural firms which never had to worry about having high quality work—both in amount and scope—saw that they must shift gears or cut back their staffs to the principals and associates. Usually, because such management decisions are made by people who do not like to face unpleasant possibilities (architects are not the only ones

guilty of that either!), the decision to seek housing development work was usually made after the staff cuts had occurred and there was no other alternative. It will not be a surprise if, when institutional work begins to be commissioned again, some of the firms famous for it are no longer able to get the jobs, for they will have new competition from young firms which have faced and solved the problems of building development housing well and within the constraints that the financial and legal parameters place upon it. They will have been toughened by the experience and will be able to prove, to conservative boards of trustees, that they can deliver solid buildings for rea-



*Erol Akyavas photos*





sonable prices. That, it may be worthwhile to add here, will be partly because institutional boards will have a far larger proportion of members with sharp business sense than ever before. The most pragmatic and savvy firms will get the nod from such clients.

Perhaps you will say that firms more concerned with money than design have always gotten too much institutional work as it was. That leads to the best point to be made in such an essay as this: The new firms which are doing most of the work in housing today are committed to combining design with understanding of the economic operations in a way that few architects have done before. Few firms

in which the principals are more than 45 years old have enthusiastically embraced the possibilities for building good housing that equity participation provides.

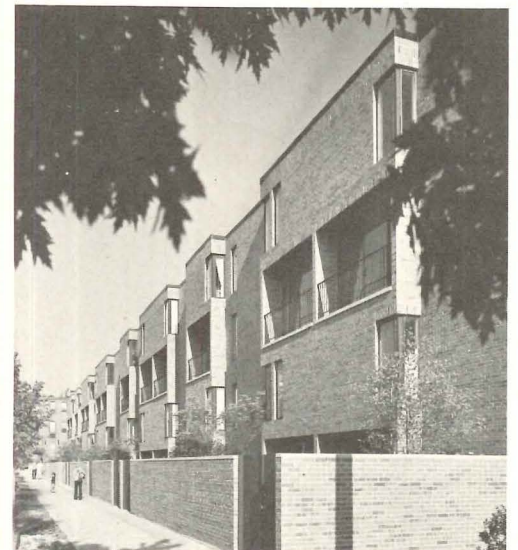
Enthusiasm is the key to successful involvement in housing development. It is not easy nor is it smooth as institutional jobs often are. There is no respite from concern about how money is being spent. There is no place to sneak in "architecture" as some people like to describe the details that we all love to include for no real reason except that they look good. There is endless paperwork. It takes commitment and enthusiasm to see such work through. And the only reward is in feeling that

the housing would either not be there or would not be as well designed if the architect had not been deeply involved.

This is not a "how-to-do-it" article therefore. So many architects are now involved that detailed discussions of cash flow and equity position are now beginning to be understood by everyone who cares. Furthermore, the AIA has recently published a clear and comprehensive manual on the process, *Development Building: the Team Approach* by C. W. Griffin published by Wiley and AIA. This essay is intended, rather, to go beyond the question of "Should the architect be involved?" to exploring the best role for that involvement. Among

### Urban high-density housing

This group of townhouses on Chicago's North Side has an unusually high density for low-rise housing: slightly more than fifty units per acre. Instead of building the 206-unit high-rise that was allowable on the site, the developer, I. Simon and Son, Inc., chose to downzone so that low-rise construction, which was proper for the area, was possible even though land costs became extremely high (about \$11,000 per unit). It is to the credit of Booth and Nagle that not only is the street elevation (below) absolutely compatible with the neighboring walkups and townhouses, but the complex has a remarkably open feeling in its courtyards (left). Because of set-back requirements, the dimension across the central space is only 28 feet. But by using two unit plans (shallow and deep), diagonal corners, rounded stair towers and railings-in combination with substantial plantings, a pleasant continuous urban mall—which will become more pleasant as plantings mature—has resulted. The A and B duplex units are stacked two high for a total of four floors with a concrete floor separating them.

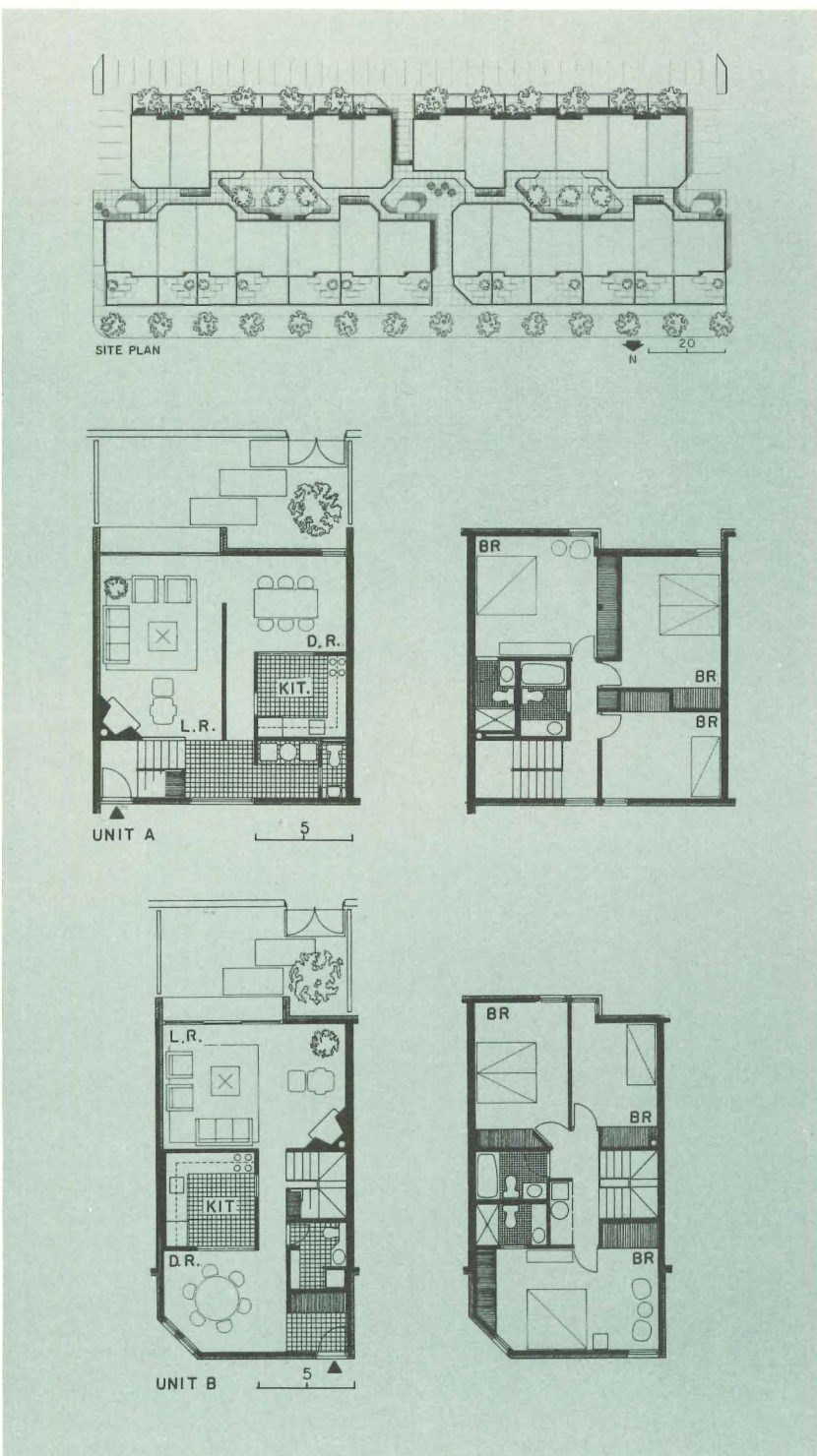
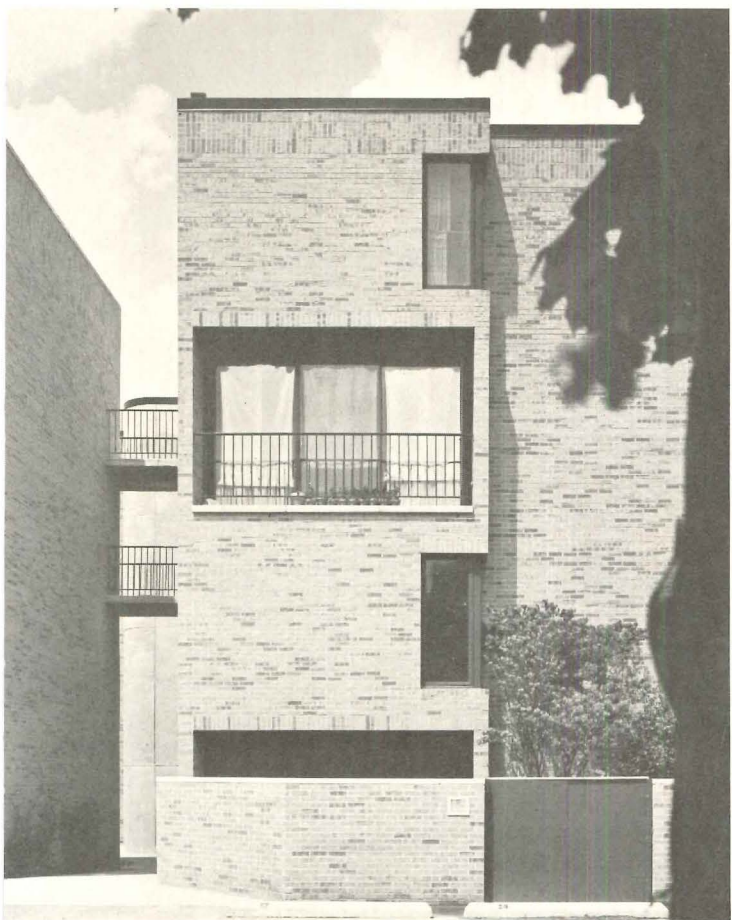




architects who have been involved for the last few years there is a wide divergence of opinion. Louis Sauer of Philadelphia, for instance, is doing almost nothing but development housing now—but emphatically insists the architect has better things to do (namely to work for good design) than to try to master the intricacies of finance. Robert L. Wilson, a black architect with offices in Stamford, Connecticut and New York City (see page 132) takes the opposite position and says that he is less concerned with maximizing design than with expediting construction of housing and facilities for his people and with giving them jobs building it.

Our intention was, therefore, to ask architects around the U.S. who have had solid experience in the field to comment on half-a-dozen questions to see if there is any pattern of agreement on the best role for the architect in the housing business. In addition, we hoped that they might be willing to share information on other ideas and problems that have come out of their experience. Six questions (although one has two distinct parts and is presented that way) which attempt to explore the various possibilities were sent out with a letter that asked, not for long or definitive answers, but the kind of gut response one might give if asked such a question in a lively conversation.

Most of those asked have responded. Their answers are rich with the urgency of men who are busy doing it, not just hoping to be involved someday. Most of the people who will be quoted in answer to the six questions are represented in the photographs which accompany this text, but some are not. Barry A. Berkus, for instance, is a principal in Environmental Systems International, Inc., an organization which offers comprehensive professional services to building developers. While he is not a registered architect, his organization employs several, including John L. Schmidt who was until recently architectural consultant to the United States Saving and Loan League.





One or two of the quotations come from other sources than those solicited but otherwise the answers given here are from the architects asked.

**What do you visualize as the ideal relationship between architect and developer?**

"An intense personal relationship is a must between architect and developer. It is the best and quickest way to communicate. A developer's concerns and reservations must be weighed much more closely than any other private clients'. He can only *sell* units that he truly likes—the others won't sell."—*William B. Morris (Architectural Design Partnership)*

"There is none. There is a conflict of interest. Developers want to make money. We, as architects, are seeking truth and beauty. The ideal relationship is one where this tension is put up front and, recognizing it, work can be done."—*Norman Jaffe*

"Our best relationships with developers have occurred when we have been able to work in close contact with an imaginative autocrat who participates directly in the design and execution of the project. Working with a committee of people all of whom are reluctant to make decisions produces chaos and waste. The good relationships have become stronger as we have worked on successive projects with

the same developers."—*Rodney F. Friedman (Fisher-Friedman Associates)*

"The ideal relationship between architect and developer is having the architect independent of the organization but able to influence the outcome of the project to the last detail. In other words, maintain the same sort of control over the finished product as he would with a typical client."—*James L. Nagle*

"Ideally architect and developer must visualize their relationship as part of a team effort. There must also be mutual respect for and understanding of the contributions that each can make toward completion of a successful development."—*Robert L. Wilson*





**Under what conditions would you be a developer yourself?**

"Conditions as they exist today go a long way toward moving me as an architect into the development arena: erratic commissions and fees which have created a 'feast-or-famine' situation in architectural practice; inability of architects to have a significant voice in basic developmental decisions that affect project budget, location, and design. One of the more serious situations facing the practitioner today is the 'design/build' project which tends to usurp the architect's traditional role. Architects have to change the way we have traditionally done business."—Robert L. Wilson

"Only in ventures with a client having expertise in the construction phase."—Barry A. Berkus (*Environmental Systems International Inc.*)

"I would be a developer only as a last resort—it's hard enough being an architect. Mixing the professional and business interests would be difficult although I can imagine developing something that no one else would do."—James L. Nagle (*Booth and Nagle*)

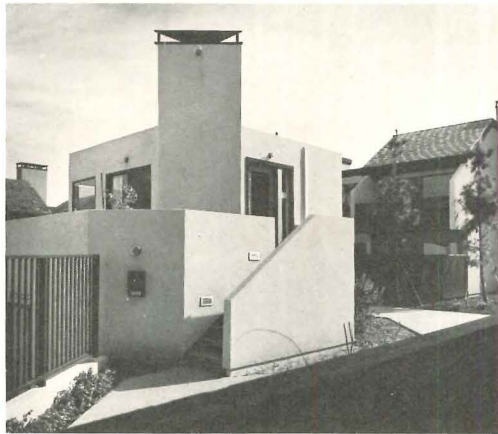
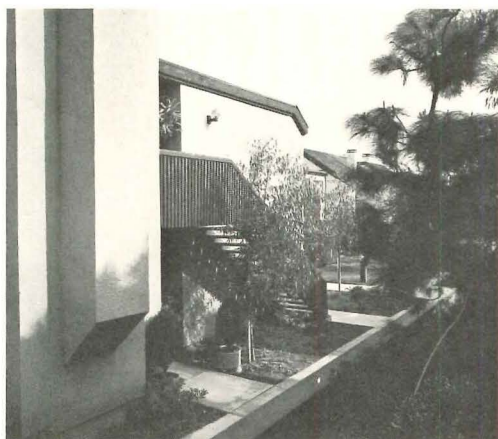
"None. I want to wake up in the morning and think about roof lines and massing—not about interest rates."—Norman Jaffe

"Under no conditions would I want to be a developer. The idea of ultimate control does

not intrigue me at all. However, the ability to sell ideas and concepts through others is where the excitement is."—William B. Morris

**If you have been a developer yourself, what have been the main advantages to you? What have been the biggest problems?**

"Our earlier experience, as developer, taught us the developer's problems, which are numerous and difficult. As a result of this experience we get along well with other developers; we are very sympathetic to their needs. But we have learned that the responsible architect has only two choices. Either he is his own developer or he works with a developer who

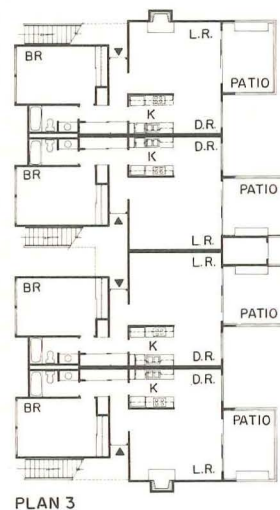
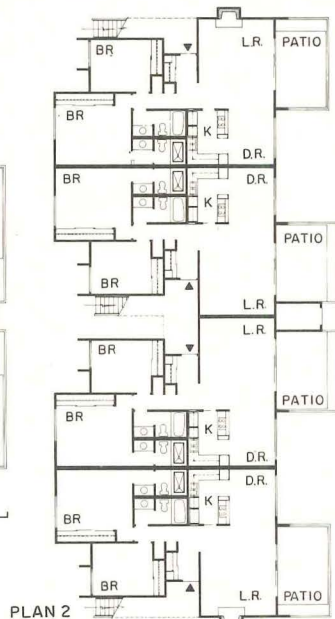
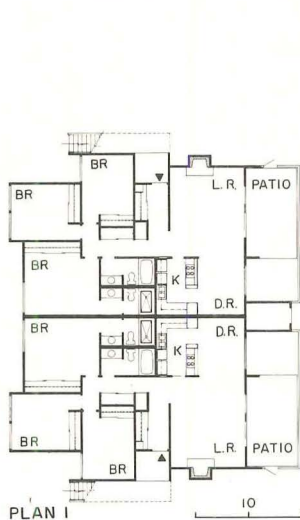
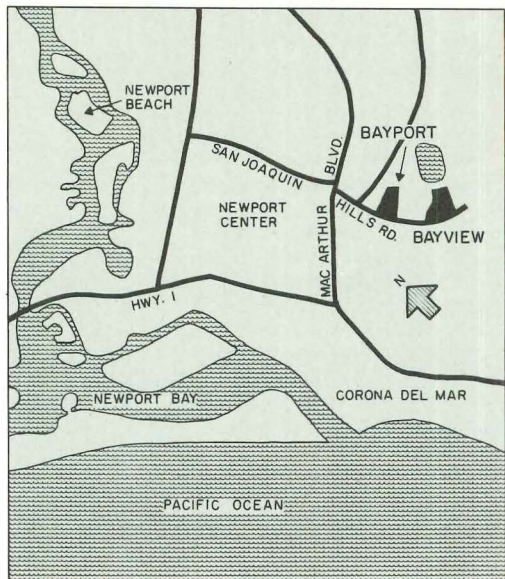


**Two moderate-income housing complexes**

Bayport and Bayview are two garden apartment complexes in Newport Beach, California developed by the Irvine Company. They were built simultaneously but are separated by a school and a church. Fisher-Friedman Associates has had a great deal of experience in working on such projects and have produced two similar neighborhoods each of which, however, is aimed at a different group of tenants. Bayport has 104 one- and two-bedroom units oriented toward residents whose children are grown. Its central recreation area (right) is organized around a swimming pool and gazebo (left). Bayview (across page) has 64 two- and three-bedroom apartments. It is aimed at young families and, although it has similar residential units to those at Bayport, it has much more space devoted to children's play areas. In each case, the small rambling buildings with individual entrances, rich textures and extensive landscaping combine to create a humanly-scaled environment. Yet the crisp detailing and clarity of form has produced a thoroughly architectural result.



Joshua Freiwald photos





shares the same basic goals and values. Even these two choices involve compromise, but to me, they are more realistic compromises. And this is the fine line, the line between realistic compromise and sellout. Experience in the development field is invaluable in drawing this line. One can't know when one is right, but one can at least make a better guess."—*Art Klipfel (Unihab, Inc.)*

"I have been (15 years ago) a 'two-bit' developer. The advantages are that everything I do today is buildable and I do have an empathetic reaction to field problems. The biggest problem, when I was developing, was that in spite of 18 hour working days I couldn't

make any money."—*William B. Morris*

"I am just starting in the role of developer and so far about all I have are great expectations. However, I have found it extremely easy to initiate projects. The biggest problem is financing: first, to understand its intricacies and second, to secure it being an unknown and therefore untried developer."—*Robert L. Wilson*

"We have shied away from performing development services because no firm encompasses all of the necessary talents to plan, design and build. We have chosen to remain entirely in the field of professional service."—*Barry A. Berkus*

**What is the most important thing you have learned working with developers?**

"I've learned to 1) never do any 'free' preliminary sketches; 2) do no contingency work at all; 3) get paid at least monthly for work in progress."—*Robert L. Wilson*

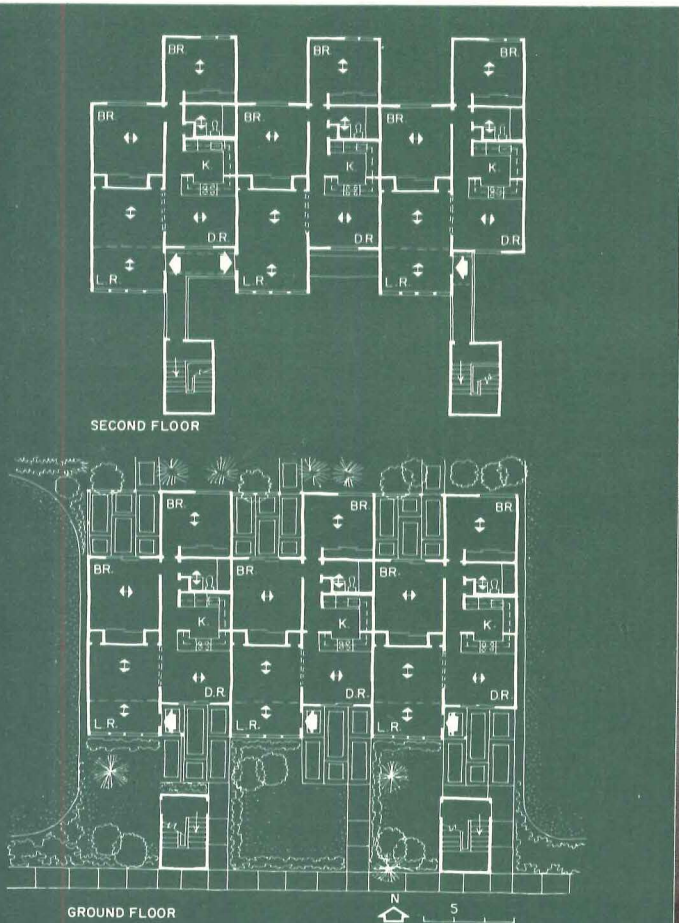
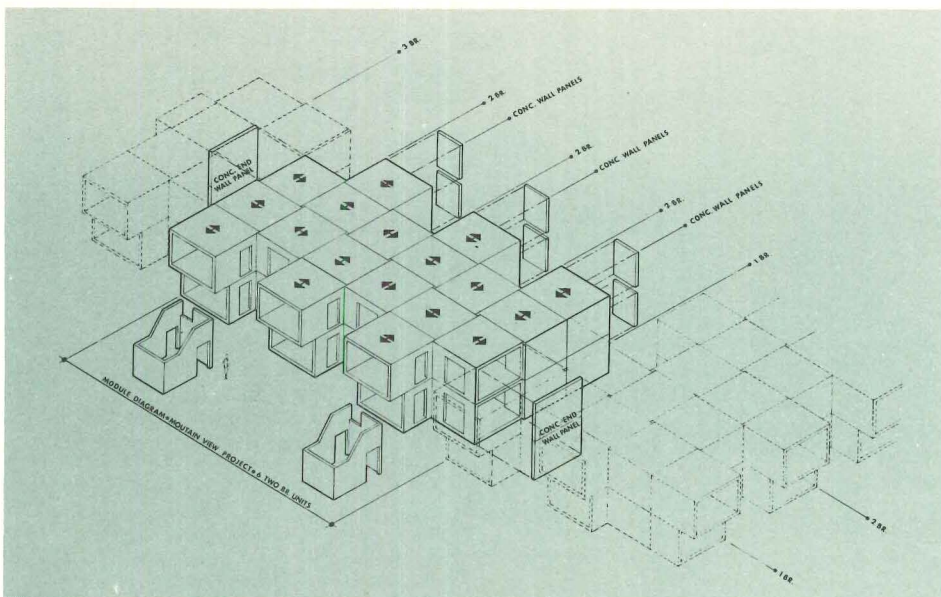
"To subordinate my ego—which has helped the design of my buildings. I am a hell of a lot better architect today because of the three year's experience that our office has had doing housing with developers."—*William B. Morris*

"We have learned to think like a developer, to get beyond architecture for architects, but I believe we have retained the architect's

**Industrialized housing system prototype**

Mountain View Apartments in Fremont, California is a prototype structure for an industrialized housing system. The two architects, George Klett and Bart A. Jones are members of the Building Block Investment Group which produced and finished the six two-bedroom units shown here in its own factory. The goal was to provide a system which would use BBIG's standard 12- by 12-foot open-ended concrete modules to allow mixing of one- to three-bedroom apartments up to three stories high. The arrows on the drawings indicate the direction of the open ends of the box. Very little additional construction is necessary to produce quite reas-

onable plan arrangements. The apartments in this example have an average of 850 square feet each. Seven types of modules, including the wet units, and two types of wall panels were required. The modules are made of three-dimensional reinforced concrete four inches thick all around. The floor and ceiling slabs, doubled where modules stack, span between load-bearing walls, which are rigid enough to bear on only four points at the foundation. All electrical work, including heating which is by wall units with fans, was done before the modules left the factory. A central hot water system was used in this project.





insight in bending the developer's economic energy toward more thoroughly satisfying human needs."—*Art Klipfel*

"I think our firm has learned that the architect must respond to the market—that is, find out what sort of lifestyle the housing should be and develop that. These are functional responses, not stylistic, and could lead to new unit types and planning principles."—*James L. Nagle*

"How to nickel-and-dime every item of input in a floor plan and section in order to have something left for architecture. We learned that—unlike institutional and custom work—production housing is built by men

who use hatchets rather than hammers and that therefore one must design accordingly."—*Norman Jaffe*

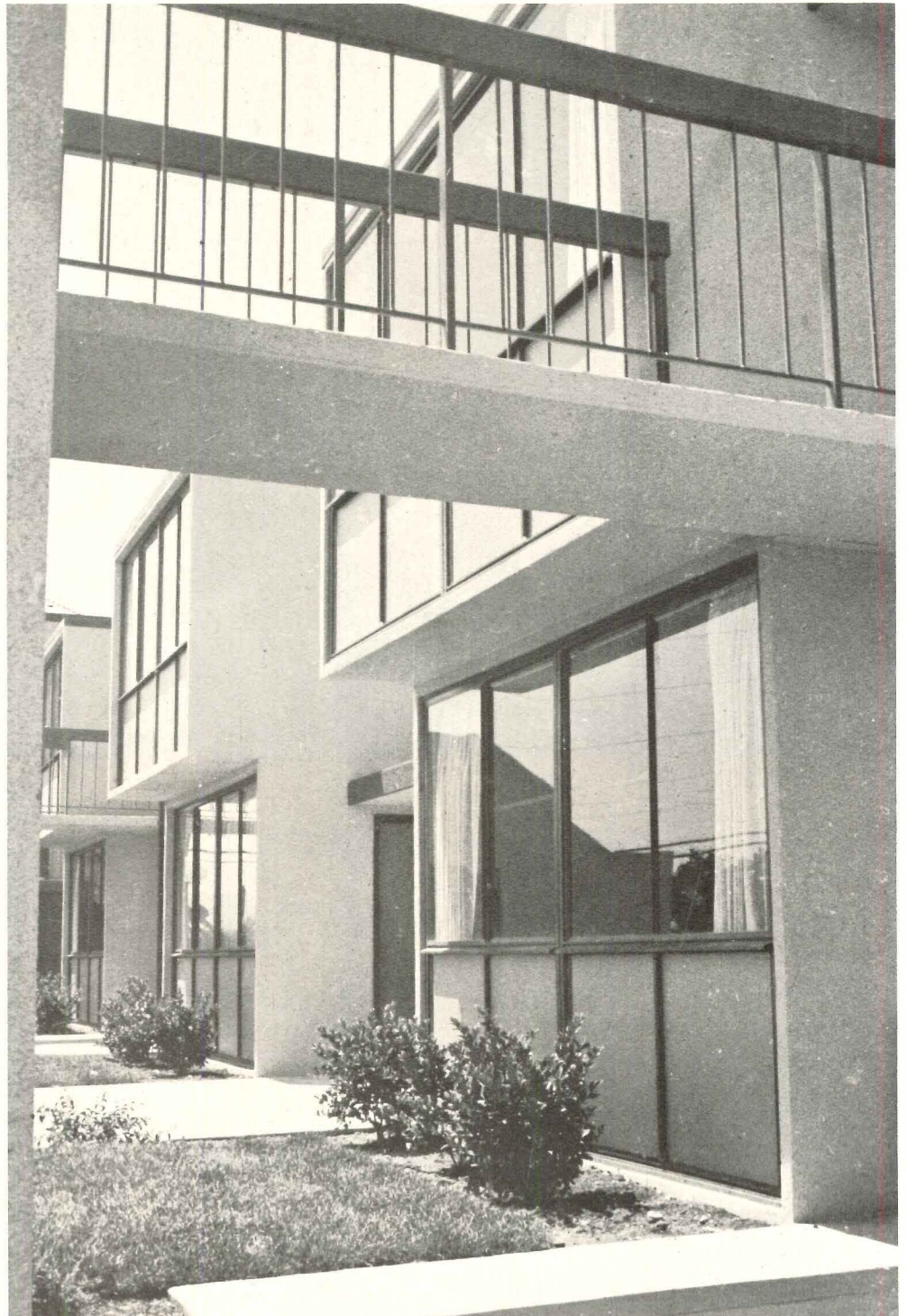
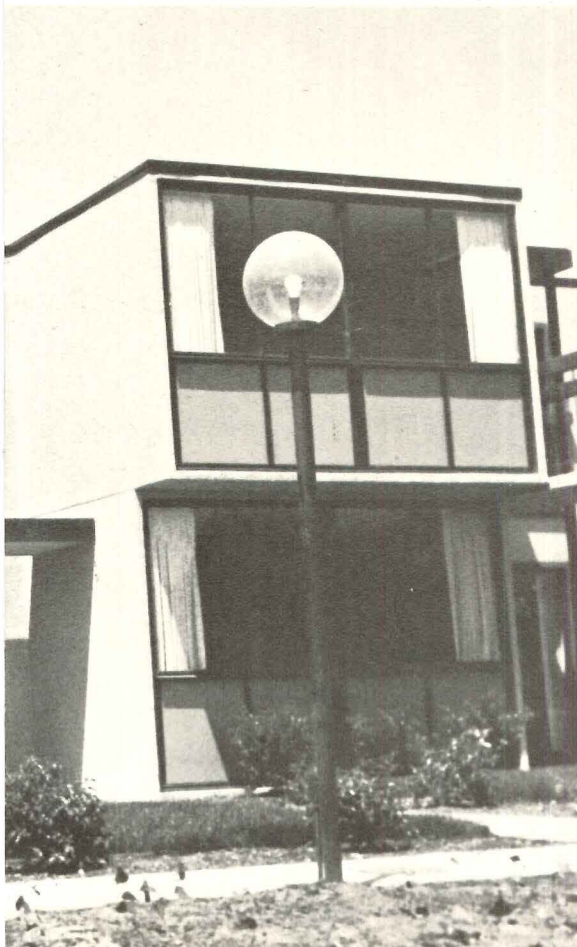
**What are the problems in doing buildings under the Turnkey Program?**

"HUD's recent strong emphasis for Turnkey has resulted in a downgrading of quality—both design and construction. Although there have been some satisfactory Turnkey projects, without question the concept of the process emphasizes cheapness and de-emphasizes quality—and for a product with a minimum life expectancy of 40 years, that is expedient and stupid! Believing that possibly our original

opinion might be wrong, we involved ourselves in a Turnkey—and found out for certain that Turnkey produces housing in no 'less time' not at 'less cost,' than conventional, if evaluated on a comparable basis, and taking all relevant factors into account."—*D. Coder Taylor (Coder Taylor Associates)*

"The constant fight to produce a better environment when both government and the developer/builder seem to look upon the Turnkey housing program as a down-and-dirty solution to the problem."—*Robert L. Wilson*

"Minimum flexibility is the great problem. For example, if under construction one finds a little more money will vastly improve the





product—one cannot add this in a Turnkey project since the price is frozen.”—*Norman Jaffe*

“Turnkey organizations generally have the profit motive in mind first of all and there are few checks and balances. The result is that the quality suffers.”—*James L. Nagle*

**What are the problems in dealing with non-profit sponsors (235 and 236 programs)?**  
 “Working on 235-236 projects and with non-profit sponsors are financially extravagant and wasteful forms of development. The enormous bureaucracy connected with these types of projects most often produces mass mediocrity

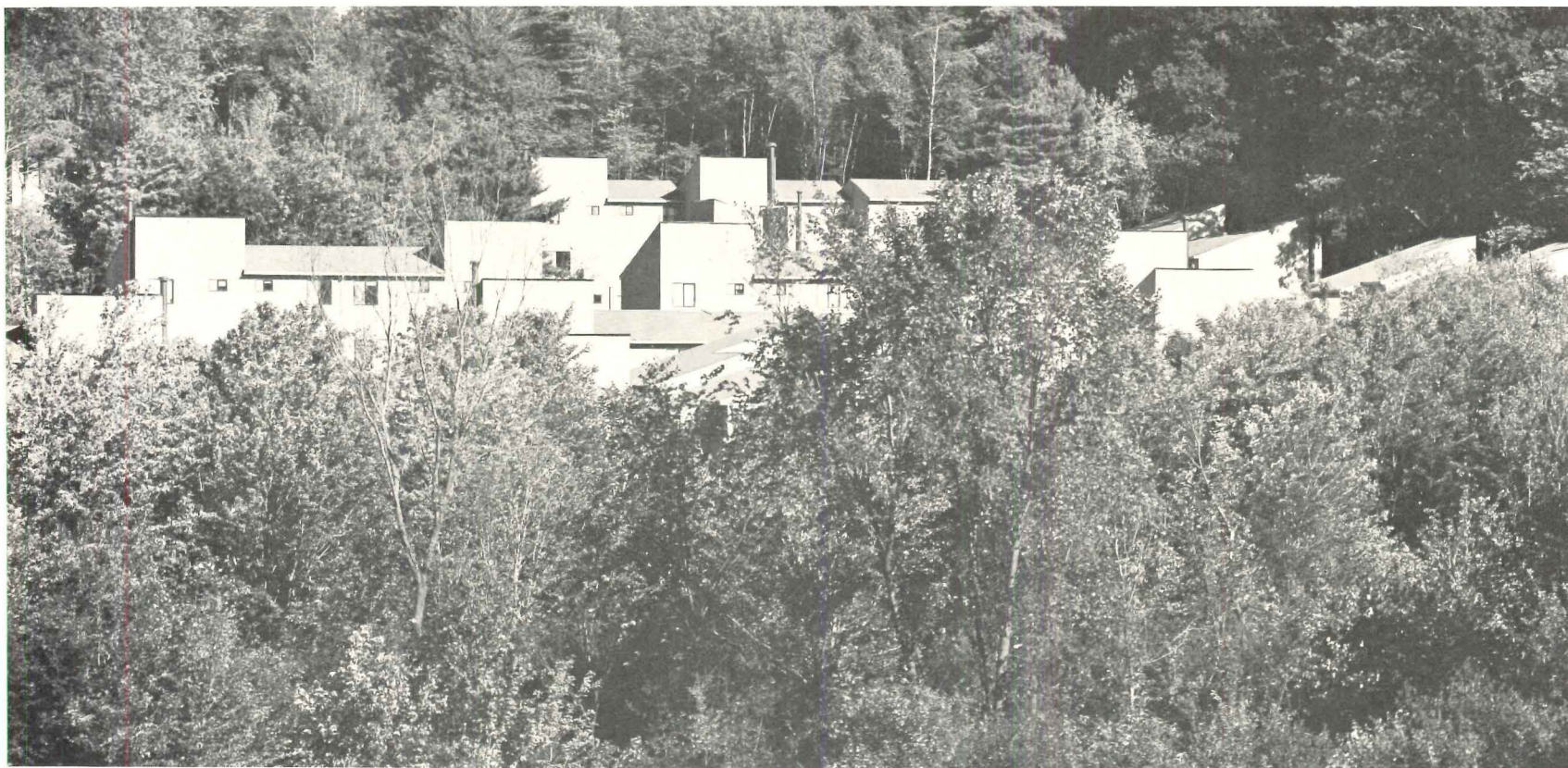
at premium costs.”—*Rodney F. Friedman*

“A fictitious budget develops a product with no imagination, thus creating future slums. Quality of lifestyle and stimulating environment are of more importance in this income level than that of the more affluent.”—*Barry A. Berkus*

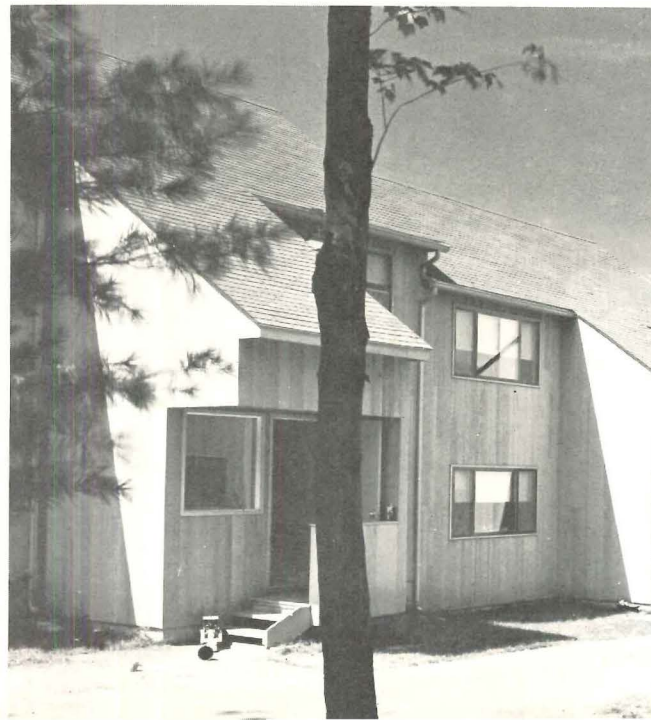
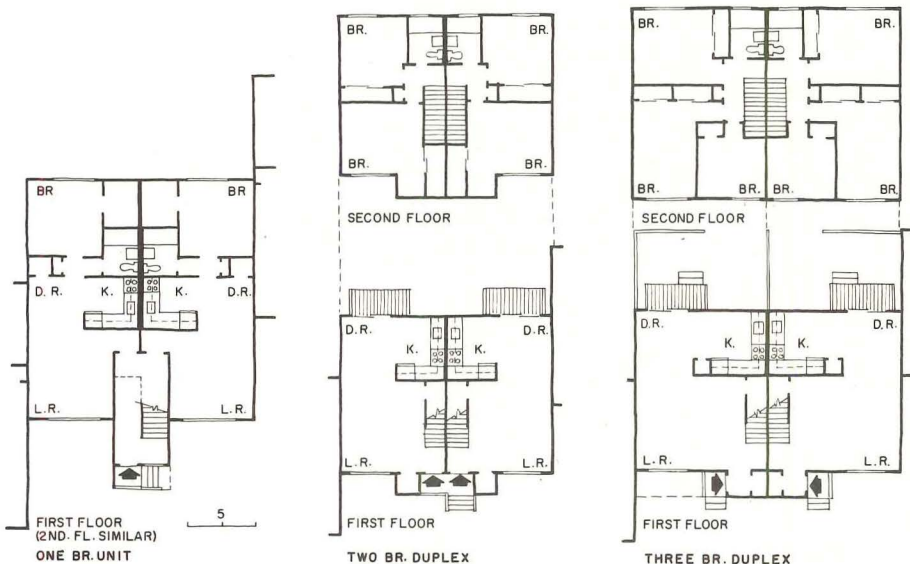
“The basic problem in dealing with non-profit sponsors under the 235 and 236 programs is their constant state of poverty. An architect is usually asked by them to design a project but wait until initial closing to get any compensation. The average wait is two to three years. This situation, for an architect, can be disastrous.”—*Robert L. Wilson*

**Besides his capacity to provide “good design,” what other special capabilities does the architect bring to the field of housing? What are the architect’s hangups that get in the way of this effectiveness?**

“The architect cares. A sense of continuity, building to building, space to space. It’s not just design but the presence of *Zeitgeist*, the spirit of time and place. The architect will respond to each site problem individually, rather than just warming up some frozen food. Our hangups are not being able to sell ourselves to profit-oriented, cigar-smoking entrepreneurs who are covering America without us.”—*Norman Jaffe*



Steve Rosenthal photos





"I think the architect's capacity to provide 'good design' is most important, especially if that term includes good land planning. Other capabilities would include inventing new housing forms or reinventing older ones with appropriate attention to detail, coordination of inputs (civil engineer, landscape architects, mechanical trades, graphics, lighting, etc.), and providing the developer an objective viewpoint and pressing for the 'best' solution. As far as hangups, I expect that most architects worry too early about 'style'."—James L. Nagle

"A good architect brings community feeling to his projects, far beyond the realm of good design, that produces profits for the de-

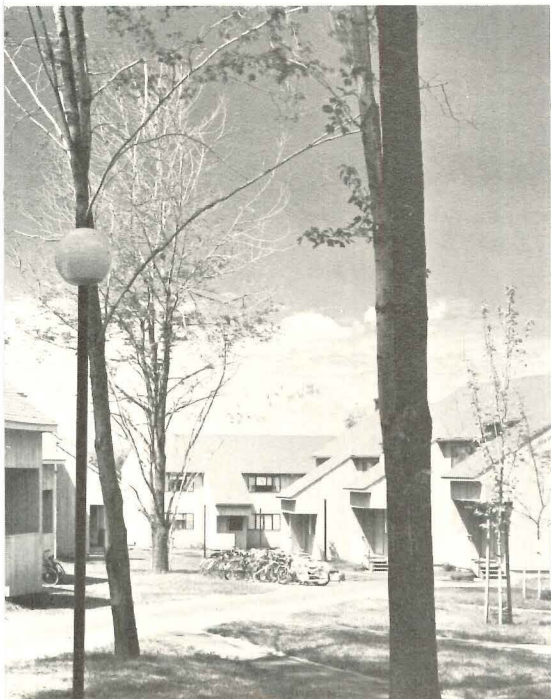
veloper, the citizenry and the environment. It is important to enhance lifestyle in the proper design of projects, and also to bring financial reward to the developer. The responsible architect can avoid hang-ups by carefully setting the design parameters and criteria in the early programming stages and then carefully monitoring the design and production efforts through completion."—Rodney F. Friedman

"Consideration of site, marketing sensitivity, and stimulus may be the architect's special capabilities. A posture of inflexibility and inability to interface with the developer's philosophy may be the architect's greatest hang-ups."—Barry A. Berkus

"Most architects bring nothing to the field of housing because they have spent so many years working on monumental public buildings. The best background for housing is housing. For the past 300 years in America, that has meant single-family housing. If you want to know how families live—design houses. Families living in multi-family units live no differently. The hangups are: Greediness—i.e. inability to understand how to charge a fee to a developer. Architects can only be adequately paid for services out of developer profit—not "out-front." Personality—failure to work as a team with the developer and others."—William B. Morris

### Housing in a university town

Village Park in Amherst, Massachusetts is an uncommonly handsome solution to a common problem in small university towns which have experienced enormous growth in the last few years. It is housing financed under FHA 236 and owned by Interfaith (a non-profit corporation) of Amherst and Development Corporation of America, Boston. Stull Associates placed the 200 units of the first phase on an existing meadow at the west end of the 42-acre site. Another 200 units will be built at the east end, preserving a large woods in the center. Only ten of the units in the first phase have three bedrooms because the FHA was unsure of their acceptance in an untried market. But Stull reports there will be a much higher proportion of them in the second group. A pedestrian street connects all the units and is designed to take advantage of good views to the west. Project architect was John Olsen. Engineers: Souza & True (structural); Lesburg Associates (mechanical); Goodall Shapiro Associates (electrical). Landscape architects: Shurcliff Merrill & Footit.





**Modular units and the developer**

Art Klipfel also had interesting comments about the advantages of using modular units when working with a developer. As shown in a specific project for Burlington, Vermont (see page 134), he notes the advantages to both developer and architect:

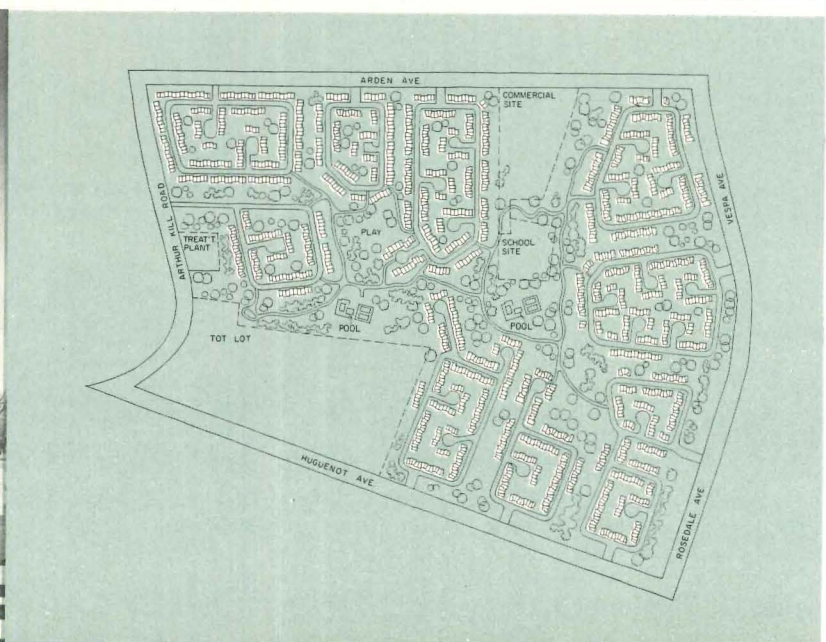
"From the developer's side, a fixed price, fixed time frame and a defined product to market, both to financial institutions and to prospective buyers, is established very early in the development process. Front-end time and money is minimized and the viability of a product can be established with very little guesswork.

"From the architect's side, we are free to make adjustments in design, cost and quality, using our experience in developing as a guide, without bending to any special interests of a particular developer. Thus, we are able to be responsible to the needs of the people who will eventually inhabit the project. The financial success of our projects is a testimonial to our ability to make correct judgments in balancing human needs with cost."

**Experience with Turnkey and non-profit housing: no enthusiasm.**

The remarkably consistent negative attitude toward the Turnkey and non-profit sponsor

housing programs of HUD by most of the respondents was one of the most noteworthy results of this survey. Their remarks, and others not included, dwell mostly on the matter of reduced quality in the final product and much less on the time-consuming bureaucratic maneuvers that are so often noted as the chief problem in doing such work. The only architect in the group questioned who has any positive feelings at all about such programs is Bob Wilson. His practice is built, in effect, on getting projects financed by Turnkey and 236 money built. Not only has he pushed the paperwork through HUD for his clients, but in the case of Coleman Towers and New Hope





Towers (pages 132 and 133), personally found the seed money with which to begin each project by soliciting corporations based in Stamford for their support. But even his entrepreneurial enthusiasm could not minimize the enormous amount of time required to close the two jobs—three years for the former and almost six years for the latter. And as he pointed out, that delay can be a disaster for the architect who must wait until the closing for his fee. But insofar as he was assembling all the required input to get these projects off the ground, he was serving as the developer. In fact, for 236 housing Wilson thinks the architect makes the best developer.

### HUD-Assisted Housing Conference revealed deep interest in development

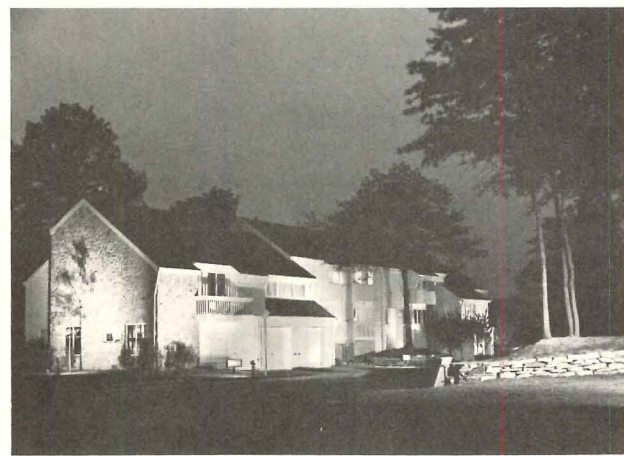
To encourage more architects to understand that, by doing the paperwork required by HUD, they could serve as developers and realize profits and/or tax shelters for themselves (as well as getting better housing built), AIA organized and sponsored a conference on HUD-Assisted Housing Programs in Washington this past October. More than 200 architects attended, many of those present being the greying heads of prominent firms who previously had done little housing, but who could read the handwriting on the wall. The key to making this approach work—and it was

spelled out in detail at the two-day meeting—is that by lumping together the architect's fee for the project and an item called Builder's and Sponsor's Profit and Risk Allowance (BSPRA)—ten per cent of project cost except for land—the project can be built without any cash outlay. In most such cases, the cost of the land can be included in the 90 per cent HUD mortgage. Because of the long delays in receiving payment for work done, however, this procedure is not recommended for firms with modest capital (see page 119). But for those who wish to keep a staff busy, who could use a tax shelter or who have enough reserve funds to survive the period before the project



### Large-scale condominium housing

Village Greens on Staten Island in New York City is the project of a California developer, Jerry Snyder. With architect Norman Jaffe, he has tried to break the prevailing pattern of row on row of single-family housing going up there. Nine clusters of 2,025 units placed on the 165 wooded acres represent a gross density of 12 units per acre but allow much of the site to remain as woods for all residents to enjoy. The houses themselves are an attempt to maximize the individuality of each unit while in fact building compact, simple structures. As is especially evident in the model buildings (right), devices such as projecting garages, decks, bays, and articulated roof lines thoroughly break up the composition. In the actual clusters (left and below), several of which are now occupied, the compositions are not quite as artful as in the models, but they still have a refreshing variety. Unfortunately, some of the smaller, livelier model units did not sell well and were dropped. James Romeo served as consulting engineer and Leonard Colchamiro was associate architect on the project.





closed, it seems a very good idea.

The AIA conference closely followed the format of a manual entitled *A Practical Guide to Low- and Moderate-Income Housing*, prepared by Charles L. Edson and Bruce S. Lane, which is available from the Bureau of National Affairs, Inc., 1231 25th Street, N.W., Washington, D.C. for \$45.00. Edson and Lane, lawyers who have been deeply involved in the mechanics of producing HUD-assisted housing, were on hand at all the meetings so that questions were answered clearly and precisely. One session was devoted to explicit instructions for filling out the 2013 application, the basic form filed with HUD when applying

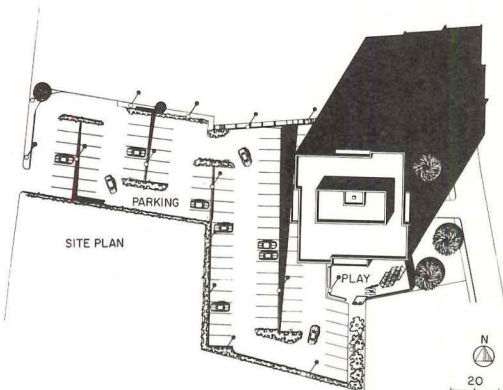
for any project mortgage insurance. But the manual, a loose-leaf notebook, covers much more than nuts-and-bolts procedures. It is divided into six sections which include a history of HUD, information on subsidized private housing programs, public housing programs, site policy and zoning, taxes and finance, and related programs and problems such as the Farmers Home Administration, new town programs and industrialized housing. It will be updated as policy and procedures change.

*Development Building: The Team Approach* by C. W. Griffin is another very useful book published by the AIA itself. Shades of 1963—the old “club” has gone a long way

since then! The premise of this book, which is extremely pleasant to read, stops short of the architect as a developer himself. But it does encourage early and thorough participation by architects in the team doing the development. By early, it means in the programming and financial planning stage which, in the conventional approach to development, is the place where the decisions that so deeply affect design are made, whether an architect has yet been chosen or not. The book is heavily biased, in fact, not toward helping architects make more money nor toward getting government-assisted housing built for social reasons, but toward helping the architect achieve max-

## High-rise subsidized housing

Coleman Towers, in Stamford, Connecticut, is the first of several 221(d)3 projects that architect Robert L. Wilson helped non-profit sponsors get built. In this case he approached Clairol, Inc., a national corporation based in Stamford, and got them to provide seed money so that the planning could begin. He also was instrumental in securing necessary zoning changes. The 13-story building is located on a hillside site, and automobile access is by a winding drive that brings cars under the building (right) where unloading can take place under cover. There are 88 units with from one to three bedrooms. There is a child care facility, meeting room and professional offices on the lower floors. The structural system uses brick walls and precast concrete floor slabs. Each apartment, as a result of structural savings, has air-conditioning and carpeting.





imum design control throughout the development process. It therefore should be as palatable to the purest esthete among us as it will be valuable to those architects who are looking for ways to get more money out of their practice.

#### Architects can lead the development team

The conclusion of this Building Types Study seems to be that although the architects may not be well-suited to be a developer by himself, he can be an aggressive and creative member of the development team. He can be its leader. In other words, *he can create his own projects*. But he can do it without having

to cope with all the paperwork if there are other specialists involved as well. The architect-developer is a beautiful idea, perhaps, but it combines two such disparate abilities that few in our profession will be able to achieve the latter function successfully without weakening the former to an unreasonable degree. As most of the architects polled for the study indicate, their primary concern as designers makes them unwilling to spend time on the financial and legal matters. Yet, and this is the happy note on which to end, the option now exists for the architect to become involved however he pleases in the development process—without feeling he has compromised

himself as a professional. And the result of that involvement will surely be a more informed, more sympathetic, and far more useful role in the housing development game than he could ever have played in the past.

#### It's time to shift the rent subsidy from buildings to people

Finally, there seems implicit in this study as a whole, a question that goes beyond the degree of architect's participation in the development process. It also transcends matters of the architect's contributions to housing through better design.

The general success of the private devel-

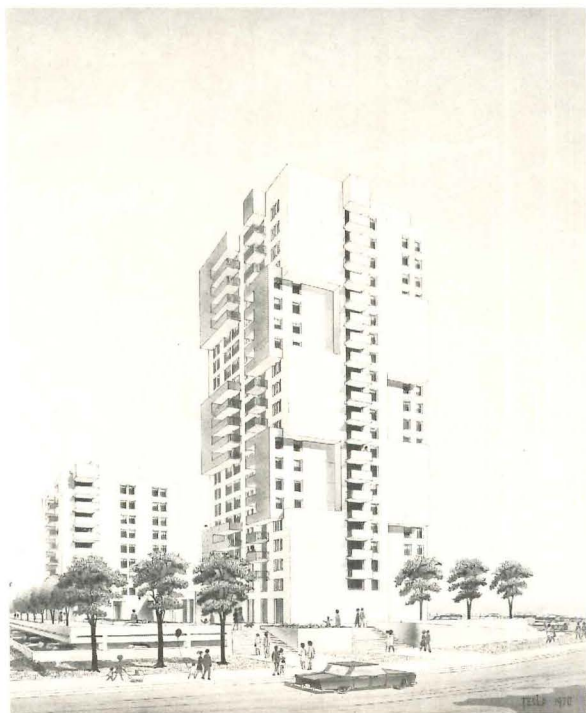
## Low-rise Turnkey housing in Manhattan

Mariana Bracetti Plaza is Turnkey housing at Third Street and Avenue C in Manhattan that Wilson did with the Coalition for Human Housing, a Puerto Rican community organization, and the New York Housing Authority. He served, as he puts it, as the community's advocate when pressures were brought to bear by the developer and the Housing Authority to cut corners. Wilson steered it through the Housing Authority's bureaucracy in two years (the average for closing projects is much longer) and it is now under construction. The seven-story building has masonry bearing walls and will provide 108 badly needed apartments, the majority of which have from three to five bedrooms. It is in a neighborhood which has had very little new construction in recent years.



## High-rise subsidized housing

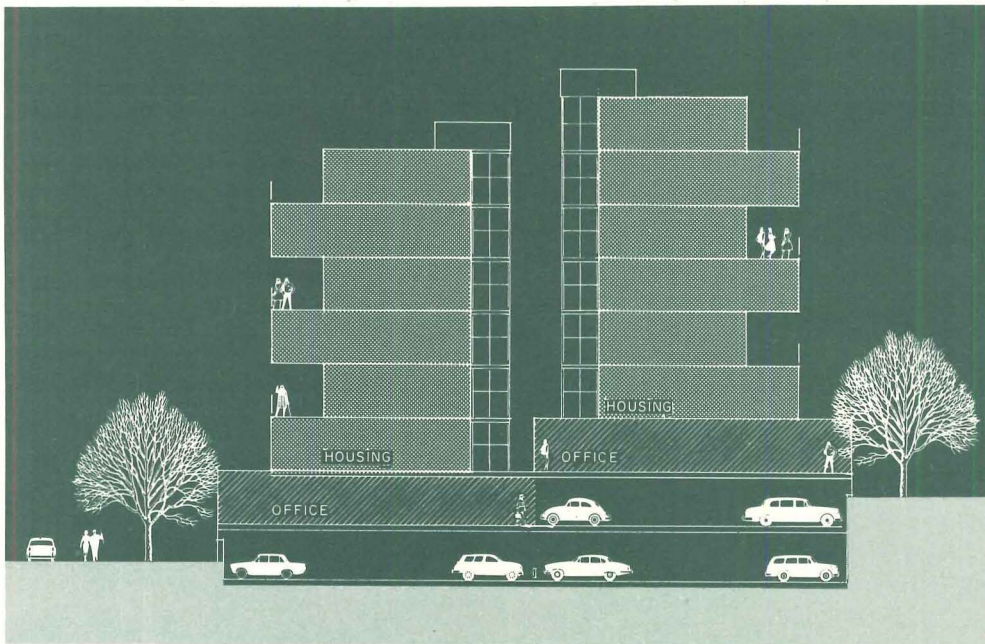
New Hope Towers, also in Stamford, consists of two buildings, one ten stories and the other twenty-two stories tall, which are now under construction and will be completed later this year. It is also a 221(d) 3 project, this time begun with seed money donated by Pitney-Bowes, another Stamford corporation. Because of difficulties in obtaining the urban renewal site, this job took six years to get final HUD approval. During that time the construction cost jumped from \$3 million to \$6.2 million. Wilson says he feels more pride in this kind of work than regular jobs, partly because of overcoming severe economic constraints: these jobs had to be 25 to 30 per cent below building market prices. In both Stamford jobs, Wilson has been in effect the developer.





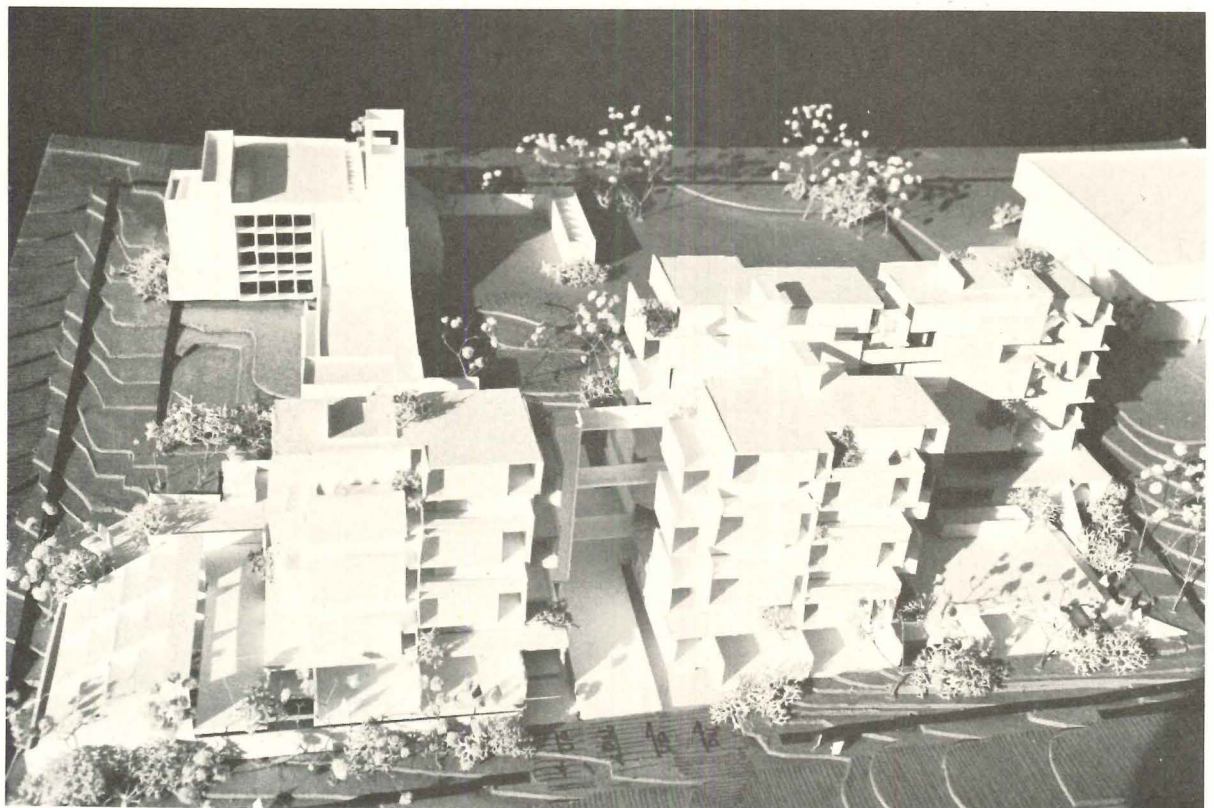
oper to provide good housing and the general failure of government programs to encourage equally good housing at equal costs seems to support the growing idea that we should end subsidy of buildings and instead focus on a subsidy of people. Give people who need it the money for their housing and then let them decide how they want to spend it. Such subsidy—as now—would primarily benefit the low-income families but could—as interest subsidies have done since World War II—encourage new housing patterns among all families. This pattern of subsidy would cause developers to compete for those dollars in the market place—not Washington.

In a recent report commissioned by HUD itself, *Publicly Provided and Assisted Housing in the U.S.A.*, John Macey, who formerly was Director of Housing for the Greater London Council, called for much more involvement in housing on the local level and much less by the Federal government; and for an end to limits on income and occupancy. Build public housing if necessary, Macey argues, but let anyone—including those who must be subsidized—live there who wants to for as long as he wishes. By this means the concentration of low-income families in building complexes that cannot—no matter how well designed or built, avoid becoming slums might end.—J.M.



### Modular project for multi-purpose use

Using a standard 14 by 38 foot steel-framed modular box to be built in its own factory, Unihab, Inc., architect and fabricator, has designed a multipurpose building for downtown Burlington, Vermont. The owner of the land and the developer, St. Paul's Catholic Church, is less interested in a high-return investment than one which makes best use of the land. The project includes 48 units of housing (six levels) over one level of office space which in turn is stacked over one and a half levels of parking. "Our floor plans," says Art Klipfel, the architect-president of Unihab, Inc., "specifications and prices are fixed; therefore, the first step in working with the developer is preparation of a market study to ascertain whether our product fits their projected market. In this case, compatibility was established and we proceeded with a design and design development program".

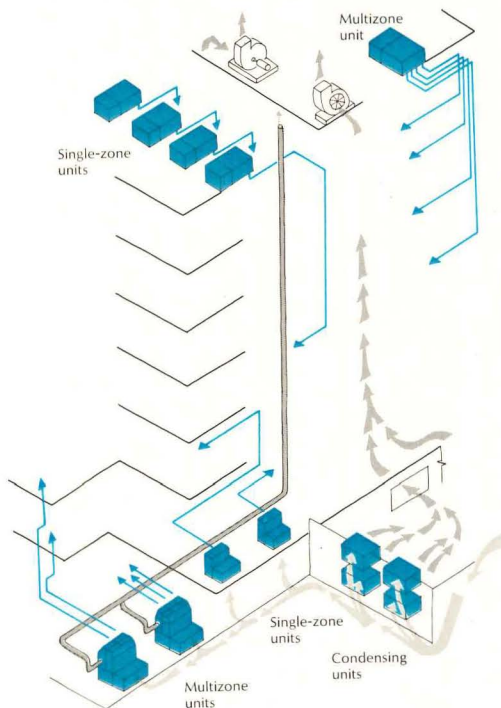
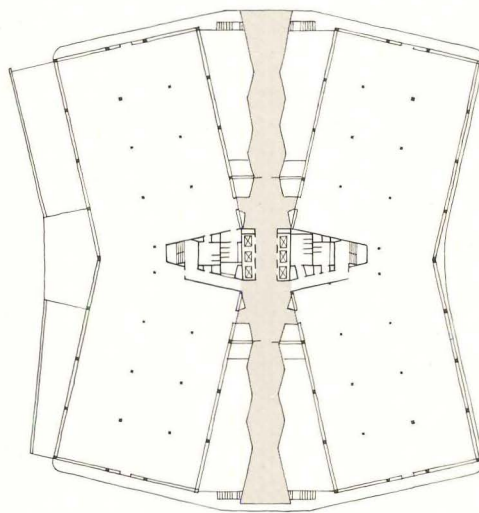




## Package hvac units for large office buildings: a new approach

When only roof-top equipment is used application is limited to buildings of only several stories. But application can be extended to higher buildings if their design allows the self-contained packaged heating-cooling equipment to be located inside so that none of the units serve more than three or four stories. Major advantages include: low initial cost; ability to handle partial occupancy economically; ability to account for energy usage by individual tenants; reduction of on-site labor; single source responsibility.

ONE OLD COUNTRY ROAD OFFICE BUILDING, Carle Place, Long Island. Architect: Theodore E. Bindrin, A.I.A.; mechanical engineers: S. M. Limogio Associates; owner-builder: Garden City Plaza Corporation.



apply in terms of equipment mounting and provisions for service space. Furthermore, because the equipment is on the roof a number of functions are easily handled: 1) heat rejection from air-cooled refrigerant condensers; 2) supply of combustion air to and removal of flue gases from direct-fired heat exchangers; 3) supply of fresh air and removal of spent air from occupied spaces. A significant limitation is, however, that presently available roof-top equipment, for the most part, cannot be used in buildings higher than three, or at the most four, stories.

### A unitary package designed for interior application extends use to taller buildings

Medium- and even high-rise buildings can use unitary equipment for year-round air conditioning if the equipment is designed specifically for inside-equipment-room installation. The extent of its applicability depends largely upon what provisions can be made in the building design (shafts and openings) for rejection of heat from the air-cooling process, for the intake and discharge of ventilation air, and for equipment-room space.

Recently, an inside-machine-room type of multizone (or double-duct) unit of larger size has been made available that reduces floor-space requirements—compared with an assemblage of separate units—and that, therefore, increases the range of application. Because this equipment is direct-fired, there is no need for separate heating units or heating plant that would take additional space.

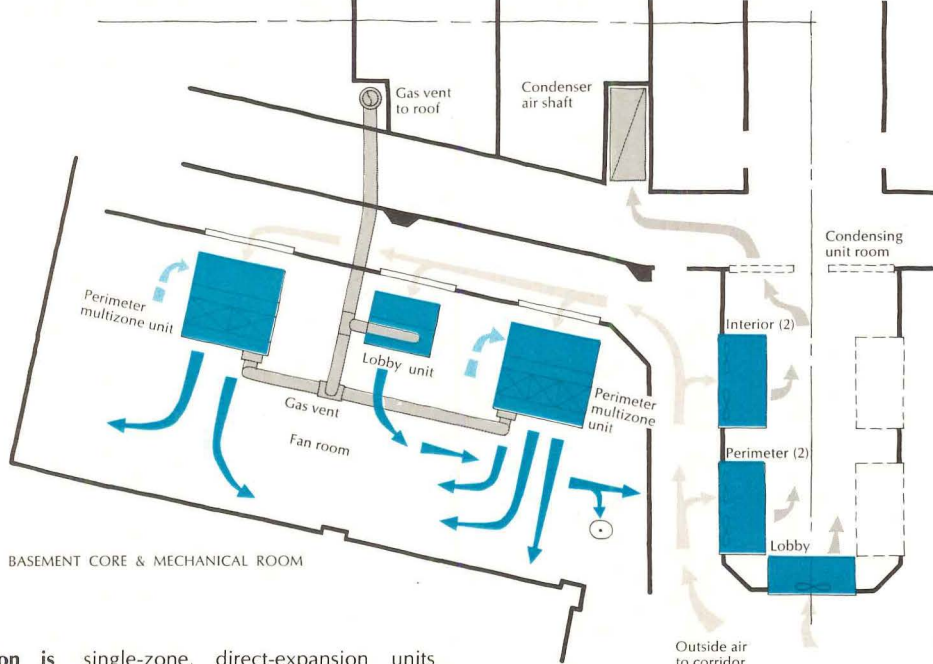
Basically the same type of unit is being used for the RAS systems' school project in Montreal. The reason they are being used for

For a variety of reasons—many of them economic—self-contained, year-round package air conditioners are being used in more different types of building, and in larger buildings than ever before. Roof-top equipment of both the single-zone and multizone types has become very popular. (While both types can have cooling and heating components, the multizone unit accommodates variation in zone requirements via multiple dampers that mix hot- and cold-deck air in response to demands from zone thermostats.)

Major economies in initial cost have been made possible because the equipment, almost exclusively, has been direct-expansion refrigerant cooling and direct heating (oil-fired, gas-fired, or electric-resistance).

In addition to its favorable initial cost, roof-top unitary equipment is fairly easy to

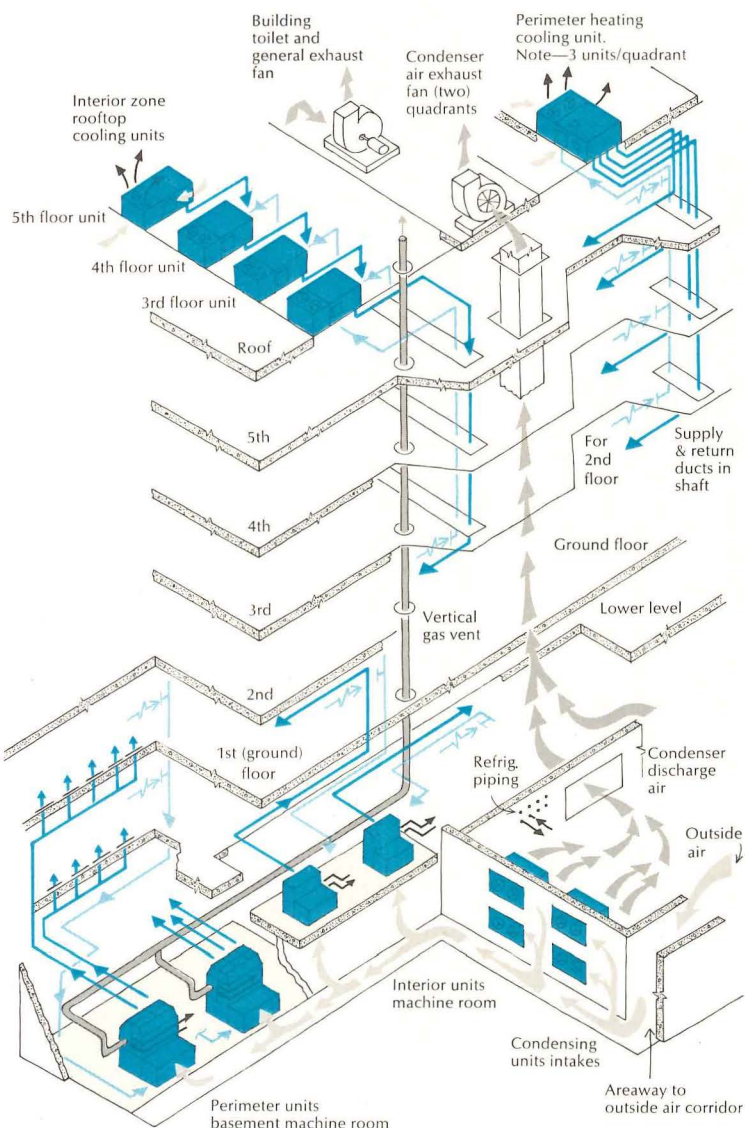
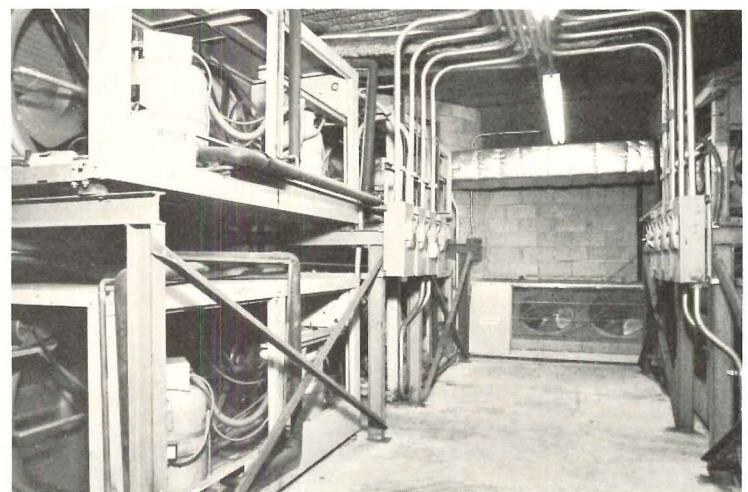
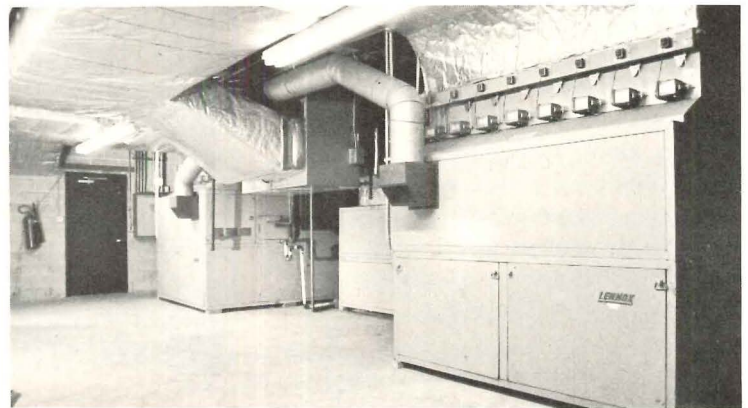




BASEMENT CORE & MECHANICAL ROOM

Architect-engineer collaboration is needed to work out practical mechanical equipment-room space and air supply and return shafts. The limits on number of stories served are fan capacities of the units and an economical utilization of floor area for shaft penetrations. In this building, multizone units using direct-expansion refrigeration and gas-fired heaters take care of perimeter heating and cooling; and

single-zone, direct-expansion units handle interior zone cooling. The roof-top packages (12 multizone; 16 single-zone) serve the second through the fifth floors. The interior packages (8 multizone units and 2 single-zone units in the basement; 8 single-zone units on the lower level) serve the lower level, ground and first floors. The photos and floor plan show basement equipment.



SCHEMATIC VIEW OF SYSTEMS FOR TYPICAL QUADRANT OF BUILDING

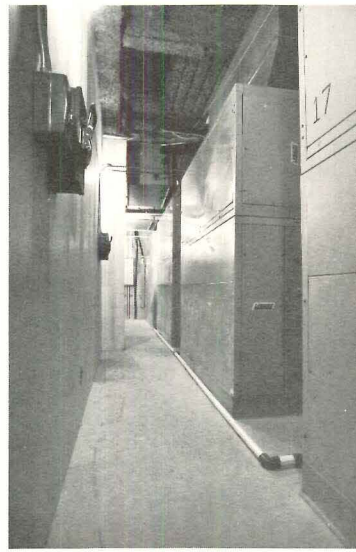
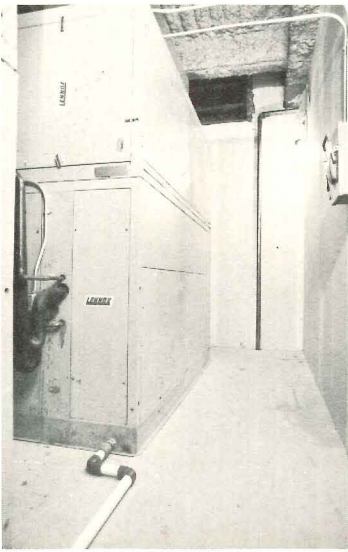
these low-rise schools is that roof-top equipment would be more difficult to maintain in the cold, snowy weather of that region. Most other inside multizone and double-duct units are custom-selected assemblies, and not standard packages.

**Large-area, five-story building one of the first to use all-direct heat-cool packages**

The hvac installation for a 5-story office building, nearly 300,000 square feet in area, in Carle Place, Long Island has year-round unitary packages on the roof and on the two lowest levels of the building.

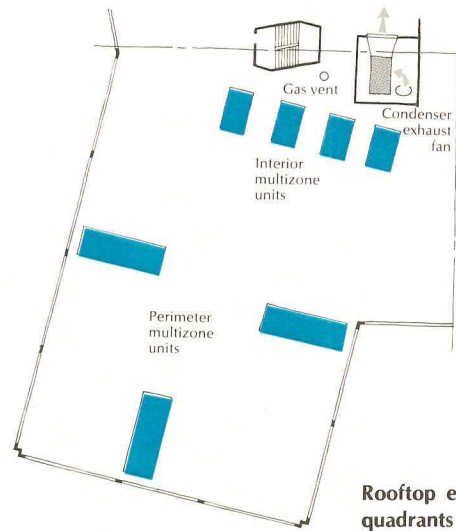
The system had to meet several important criteria that the owner-builder, Garden City Plaza Corporation, established, in consultation with the architect and consulting mechanical engineer:



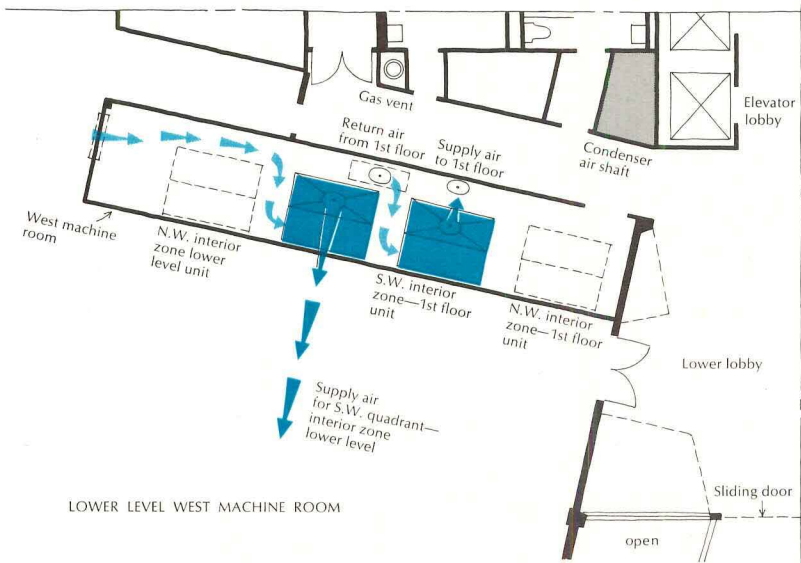


Two levels are utilized within the building for multizone and single-zone equipment. Condensing units for all interior unitary equipment are located at the basement level. Additional space was excavated outside the building to allow outdoor air to be admitted for removing refrigerant heat from the condensing units and for providing fresh air to the air-handling sections of the unitary equipment. The

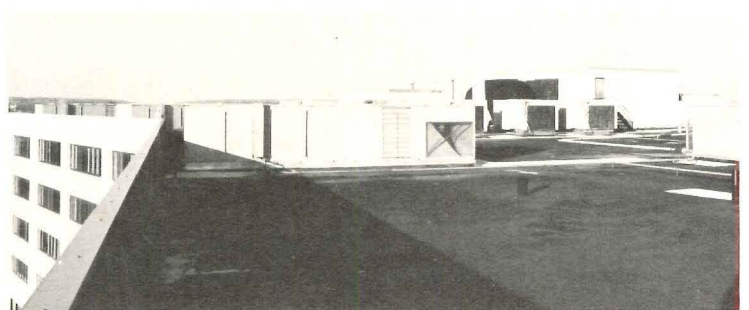
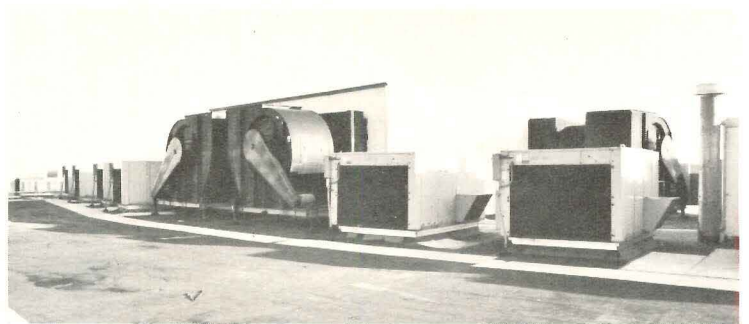
photos above are of the single-zone units on the lower level. The photos across page are of the multizone units and the condensing units at the basement level. The plan across page shows equipment layout at the basement level. The plan below shows equipment layout on the lower level. The photo at the bottom of the page shows return air inlets on the single-zone equipment. The



Rooftop equipment divides into the quadrants that the units serve, as shown on the plan—single-zone near the core, and multizone near the perimeter zones served. Exhaust fans are in the center. Because of the height of the building and the use of a parapet wall, the equipment cannot be seen from the street. How all the equipment relates to the building, functionally, is diagrammed across page.



LOWER LEVEL WEST MACHINE ROOM



1. The system must be capable of staged installation (various units to be made operable in stages during construction and occupancy).
2. The system must provide completely independent operation for each basic rental area (one quadrant of a single floor). Perimeter zoning by exposure was considered to be satisfactory.
3. The installation cost must be comparable with, or lower than, that for competitive multi-tenanted office buildings in the same area.
4. The system must be simple to understand and to operate.
5. Centralized control must be provided for stop-start, monitoring of basic performance, and recording hours of operation of equipment with respect to basic rental units.
6. Complete planned service and maintenance

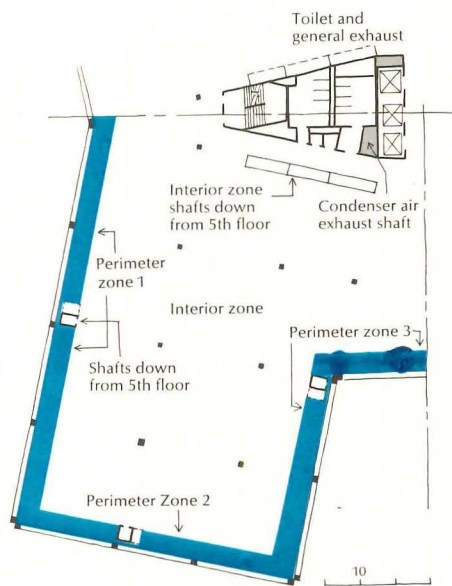
must be available at reasonable cost by mechanics factory-trained by the hvac-equipment and the control-equipment manufacturers.

7. Hvac equipment should be located on the roof or in basement areas. Duct-shaft or equipment space on any rental floor must be kept to a minimum. Air-intake or air-discharge openings on the exterior of the building should be avoided or made inconspicuous.

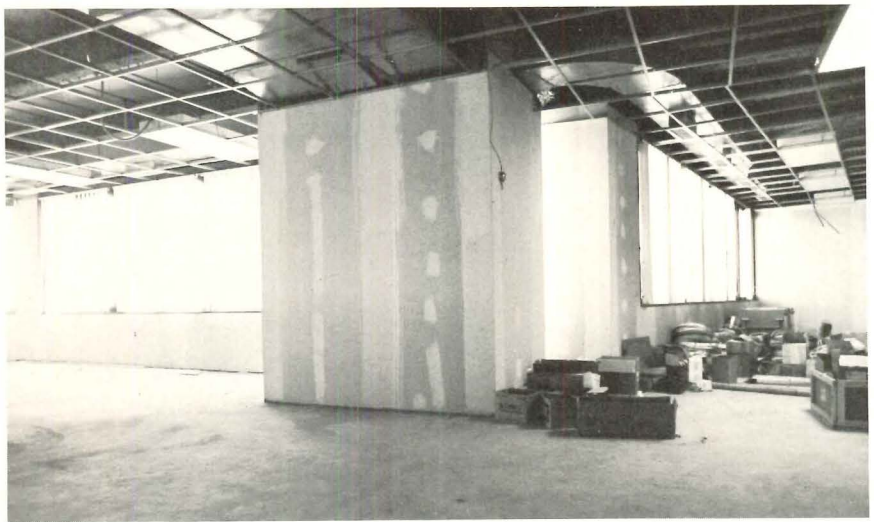
While these criteria are hardly unique, any simple design solution obviously would require the use of separate fan systems for each quadrant of a single floor—at least for the interior zone. How much centralization of heating and cooling effect there should be was a major engineering economy consideration.

In a building such as this one, as well as in other similar low- and medium-rise office





TYPICAL QUADRANT ZONING AND DUCT SHAFT LOCATIONS—FLOORS 2-5



Supply-air distribution is provided via vertical shafts located near the zones served, as shown on the typical floor plan and in the photos above and below, left. Air is returned through shafts in each area. The interior zone of each quadrant is served by one single-zone unit, which is the smallest area that can be air conditioned at any time. Air supply to the perimeter-zone

space on the top floors is by overhead distribution (photo above), while at lower floors it is by continuous sill distribution (photo, below right). Centralized control is provided (photo, bottom right) for stop-start, monitoring of performance, and recording hours of operation of various units for determining tenant charges. Central fire alarm is in the same room.

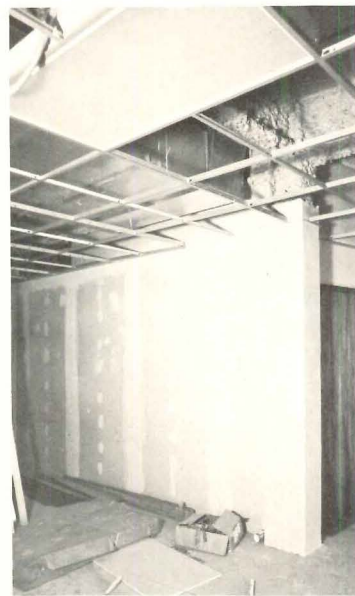
buildings, standard package hvac unitary equipment—either single package or split system—may always be considered, inasmuch as the fan systems typically would be within such a range as to handle 15-40 tons of refrigeration. Obviously, unitary equipment with both heating and cooling direct (i.e., direct-expansion, air-cooled refrigeration, plus direct-fired heating—oil, gas or electric) offers simplicity and maximum independence in operation. Low first cost also can be expected.

Cost projections and shaft space layout allowed a maximum of four floors to be handled by roof-top units. Ground conditions were not a problem, so it was possible to provide both a lower level and basement below grade, with machine room spaces being provided on both levels (see perspective drawing and part-floor plans).

The consulting engineer for the project shown here considers the direct-heating-cooling package approach he has used to be applicable to buildings as low as two stories and as small as 10,000 square feet per floor. He says that this size of building still allows economical use of separate multizone units just for the perimeter areas—a requirement for minimum energy usage with this thermal-control system.

The base cost per ton of refrigeration (1970) for this building was \$650, including everything except the interior duct runouts from main trunk ducts which ran \$200 per ton based upon an area of 300-350 square feet per ton. Estimated total saving over a built-up central system was half a million dollars.

In addition to the central start-stop and monitoring control system, individual package units, both roof-top and interior, have the manufacturer's standard electrical control system in a pre-wired package. This includes:



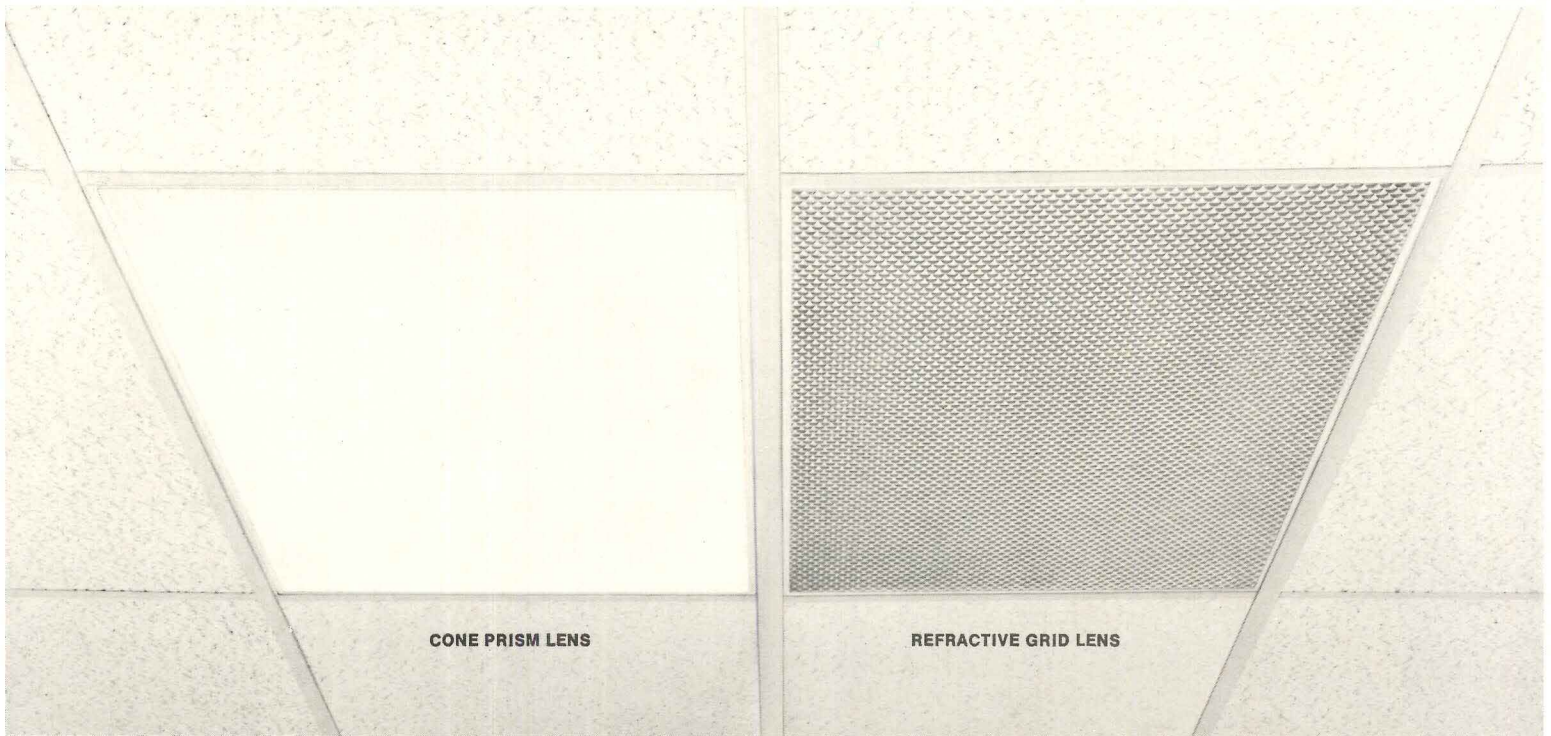
mixed-air economizer control for use of outdoor air; two-stage control of dual compressors for mechanical cooling; two-stage heating control; low-ambient-temperature control of refrigerant condensing for each unit.

The central condenser-air fans have variable inlet vanes to match total air requirements, but these do not close completely, allowing individual condensing units to run at night without requiring the central fans to operate. Central fan operation is initiated by a rise in temperature at the thermostat in the intake duct. Vanes are controlled by another thermostat to open them as the temperature rises higher above a set-point.

The manufacturer took complete responsibility for the design of as-built refrigerant piping systems between interior evaporator-blower-heater fan units and condensing units. The refrigeration contractor had to be approved by both the consulting engineer and the unit manufacturer. Also, start-up, initial operation, and follow-up service and maintenance were required from the same contractor.







CONE PRISM LENS

REFRACTIVE GRID LENS

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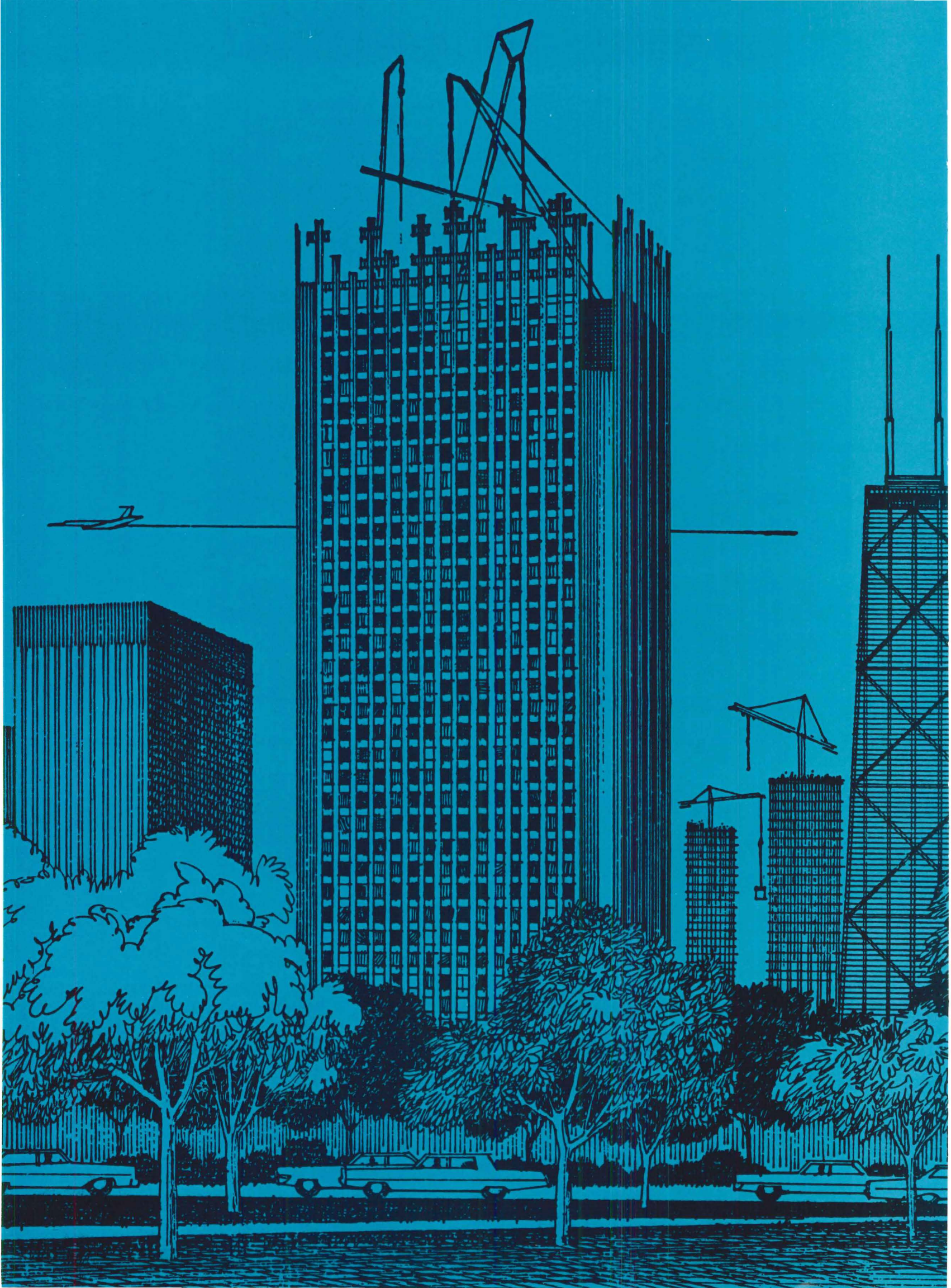
It's easy to see that REFRACTIVE GRID has set new standards for both visual comfort and appearance. It's the lens against which future optical device designs will be measured. And it's an important lighting advance you really ought to know more about.

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#### PARTITIONS:

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Plaster and drywall assemblies; cavity or solid construction; sound ratings up to 51 STC; 2 and 3-hour fire ratings to meet job requirements.

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#### WALLS:

Masonry or stucco exterior; drywall or plaster interior; assemblies offer up to 4-hour fire resistance.

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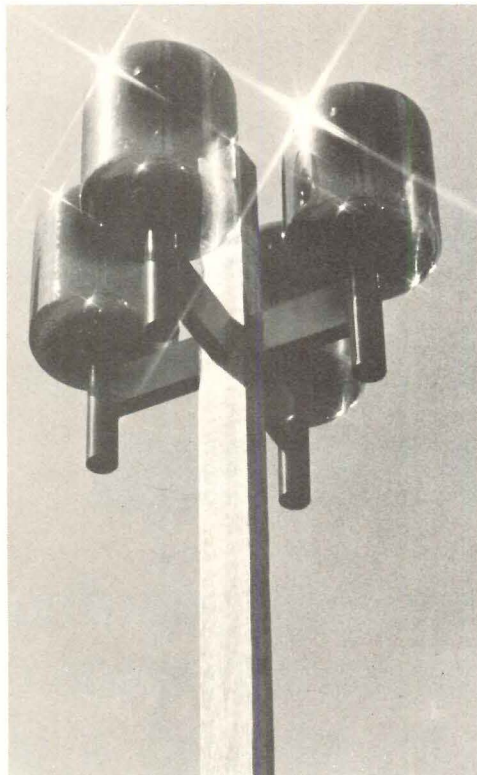


# PRODUCT REPORTS

For more information circle item numbers on Reader Service Inquiry Card, pages 201-202



**OUTDOOR LIGHTING-FURNITURE /** Called the *Designer Group*, this concept features 13 lighting groups and 5 furniture systems that can be combined for a total look in residential developments, commercial parks, shopping malls, etc. Luminaires range



from low wattage acrylic spheres, cubes and cylinders to 1000-watt HID area lights. Aluminum, wood and steel pole-bracket assemblies are available. ■ J. H. Spaulding Co., Cincinnati, O.

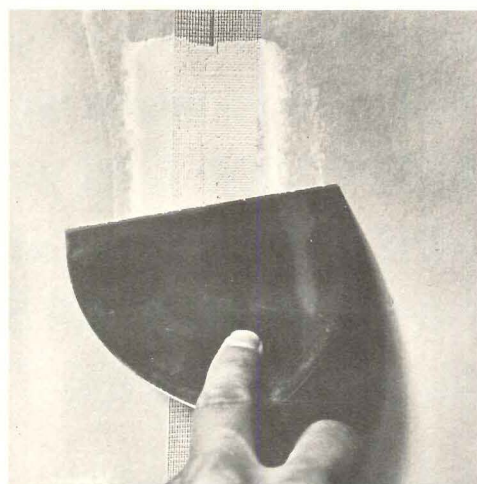
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**INSULATING WINDOW /** A custom-built window for new residential, commercial and institutional use features dual panes of glass with an insulating air space, and tilt-in sashes for indoor cleaning of outside surfaces. *Thermal-Gard's* main attraction lies in encasing heavy-gauge aluminum extrusions in rigid vinyl extrusions, eliminating the metal-to-metal contact of aluminum windows, usually responsible for heat loss and condensation. The white or bronze vinyl needs no maintenance. Any size can be custom-built and the window is recommended for replacement purposes. ■ Season-all Industries, Inc., Indiana, Pa.

Circle 301 on inquiry card

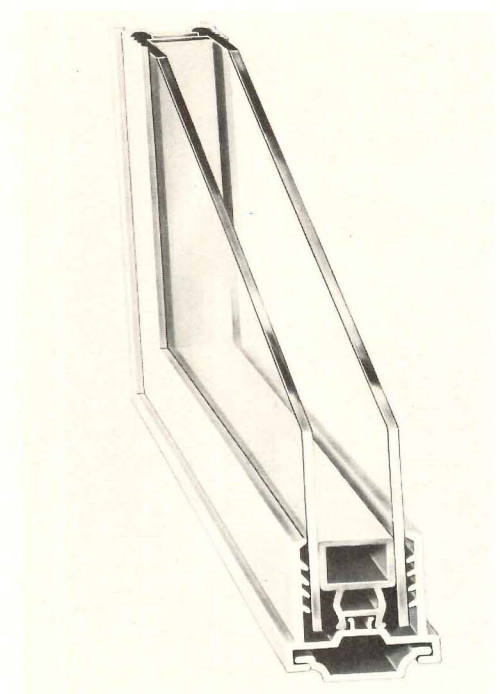


**GYPSUM SYSTEM FOR HOUSING /** For on-site and manufactured housing, *Rigidwall* can cut total installation and finishing time from six days to as little as a day and a half, according to the company. A new edge joint profile, using an open glass-fiber reinforcing mesh, a new joint compound and a self-prim-



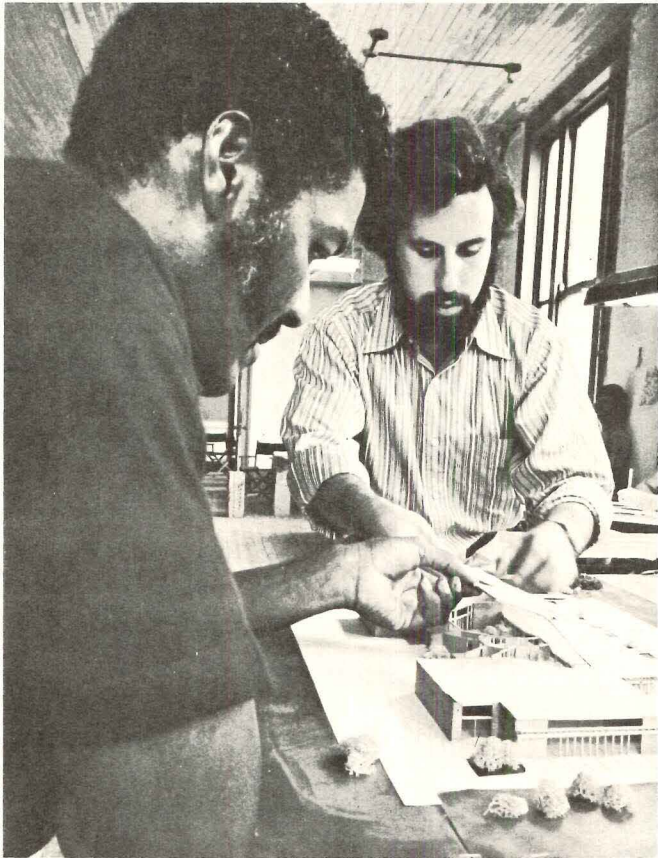
ing, spray-on vinyl acrylic coating, is the main feature. This profile requires one-third less compound than a conventional wallboard joint. A single coat dries in one hour, needs no sanding. ■ Celotex Corp., Tampa, Fla.

Circle 302 on inquiry card  
more products on page 150B





# You can improve how people live by improving where people live



*VISTA Volunteer Zachary Weiss (right) discusses plans for the New Orleans Metro Link with Andy Levy (left) Director of the project.*

In today's world of rapid urbanization, people are only as well off as the city in which they live.

When cities are plagued with slums, inadequate housing and poor planning, it's the people who suffer. So VISTA and Peace Corps architects are trying to ease that suffering by using their training to bring these problems under control.

That requires more than a knowledge of architecture. It requires working with people, facing frustration, sometimes accomplishing a lot, and sometimes accomplishing a little.

In Baltimore, VISTA volunteers working with the American Institute of Architects have helped to generate projects ranging from neighborhood parks to housing and



*Peace Corps Architect Wayne Miller (right) checks construction plans for a Colombian school with a co-worker.*

health facilities. In Tunisia, Peace Corps volunteers are helping Tunisians to train their own architects. In Albuquerque, New Mexico, VISTA volunteers are working on housing rehabilitation. And in Iran, Peace Corps workers are helping meet a housing shortage.

None of them are building beautiful homes or designing revolutionary office buildings. But all of them are making the cities meet the needs of its people. If you're an architect and that sounds like the kind of work you'd like to be doing, write ACTION.

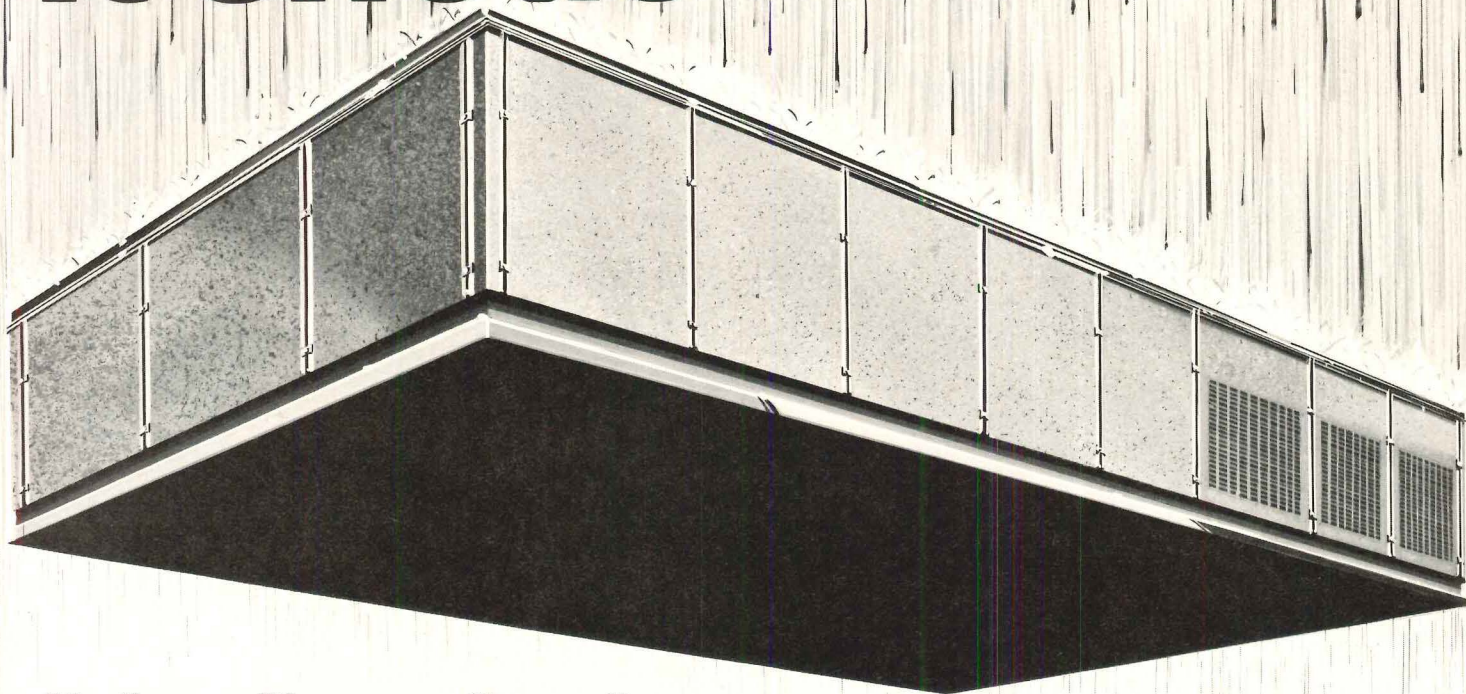
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There's a lot more. Our larger, more



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| <input type="checkbox"/> hot water heating | <input type="checkbox"/> electric heating/cooling           |
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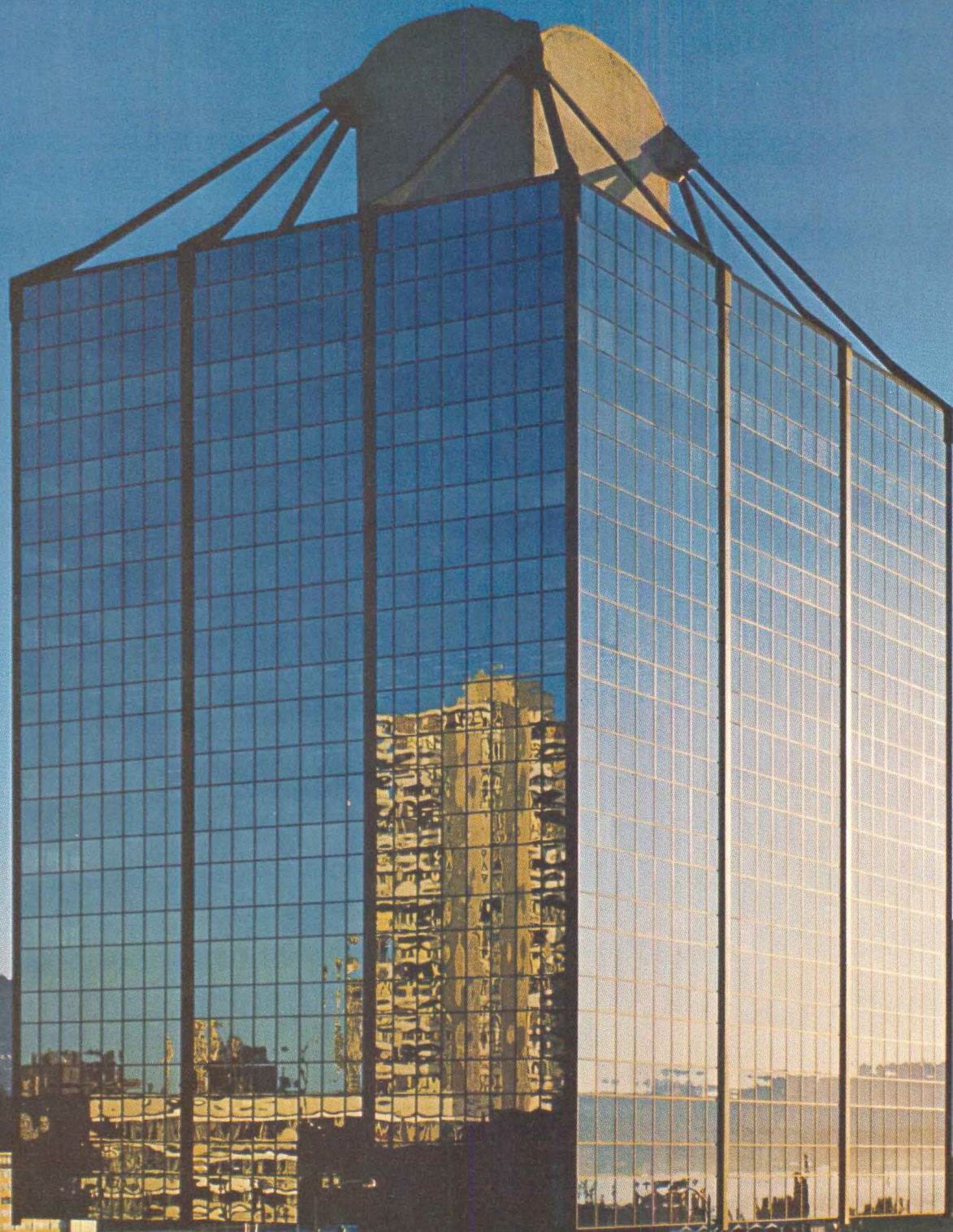
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Westcoast Transmission Company wanted an office building that reflected its pioneering nature. So the architects and the consulting structural engineers created a lively, contemporary structure—a unique cable-suspension design. In addition to its dramatic esthetics, this design had other advantages. It allowed the architects and engineers to raise the building as high as necessary to take advantage of a spectacular view. And since the building was hung on a central core and raised several stories above ground level, passers-by could look under the building to catch a glimpse of the harbor and mountains.

To complement their light, "spidery" design, the architects selected PPG's LHR Solarbronze Glass for its high

reflectivity. The result is a beautiful facade that provides a constantly changing mural of the varying patterns of sky colors and clouds. City officials have said: "The Westcoast Building is a great esthetic contribution to the urban fabric of Vancouver."

See PPG about your next building. Early in the design stages. There's a PPG Environmental Glass that you can use as an active design medium to meet esthetic considerations, help solve environmental control problems, and contribute to significant cost savings for your client. Write PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

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**PPG: a Concern for the Future**



Owner: Westcoast Transmission Company Limited, Vancouver, B.C.  
Architect: Rhone & Iredale, Vancouver, B.C.  
Structural Engineer: Bogue Babicki and Associates, Vancouver, B.C.





continued from page 142

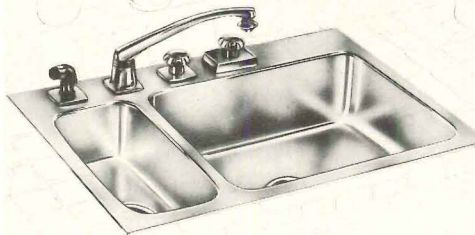


**SPLIT SHAKE PANEL** / For roofs of homes and apartments, these 24-in. shakes have a split face 10 to 12 in. from the butt and are sawn the rest of the way to form a uniform extra heavy tip. The shakes are bonded to plywood sheathing to form an 8-ft panel that is quickly applied to rafters. Panels are applied in a spaced-sheathing method for either a 7½ in. exposure or 10 in. exposure. ■ Shaker-town Corp., Cleveland, O.

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**TWO-BOWL SINK** / Where space is limited, this stainless steel sink features a special side compartment that can be utilized as a waste disposer. Color-coded selector dial permits pre-selection of desired water temperature. ■ Elkay Mfg. Co., Broadview, Ill.

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**RELEASING, FIRE ALARM CONTROL** / The CR-1 panel can be used directly to release smoke barrier doors, shut down equipment, actuate smoke exhaust blowers, etc. It can also be connected to existing UL-listed fire alarm systems to upgrade systems with early-warning ionization-type fire and smoke detectors. Each panel can accommodate any number of manual stations and thermal detectors, as well as up to 30 ionization detectors. ■ Pyrotronics, Cedar Knolls, N.J.



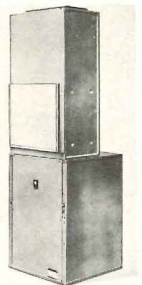
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**FACTORY-BUILT FIREPLACE** / This wood-burning fireplace installs without masonry foundation, framing, finishing or remodeling. The triple-wall construction totally insulates the unit, allowing it to be placed directly against walls and on any flooring. Designed to accommodate ceilings in the 7 ft to 8 ft range. Firebox opening is 32 in. Various types of chimney housings are available. ■ Majestic Co., Huntington, Ind.



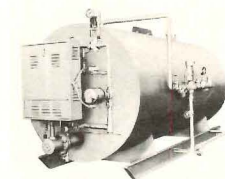
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**CENTRAL HEATING-COOLING** / For apartments requiring through-the-wall installation, a compact heating and cooling package is provided in the TC-K unit. Available in 18,000, 24,000 and 29,000 BTUH cooling capacities, and heating from 3.84 to 15.36 KW at 240 volts, the units are factory-wired and internally-fused for simple, single circuit hook-up. ■ General Electric Co., Louisville, Ky.



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**OFF-PEAK WATER HEATER** / The product is designed to reduce power costs by heating water only in low-demand or off-peak periods. Design permits stratification of water, causing the hotter water to remain at the top of the storage section. Required hot water storage volume is reduced for space-savings. Completely factory-packaged, the unit is UL-listed. ■ Patter-son-Kelly Co., Inc., East Stroudsburg, Pa.



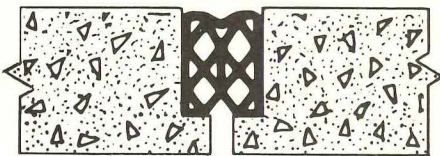
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# They've done away with joint maintenance at Denman Place



From parking basement Expansion Joints to Siesmic Joints in floors, ACMASEAL® virtually eliminates routine joint maintenance and repair at Denman Place in Vancouver, B.C. The Neoprene compression seal keeps water, corrosives and dirt out . . . won't give in to weather, abrasion, oils, salt solutions or temperature extremes. Easy-to-install ACMASEALS are designed to accommodate joint movements from 3/32" to 3" in parking ramps, sidewalks and roof, traffic bearing and control joints, and joints for perimeter, vertical, horizontal interior and exterior walls. For the long term economy of the most permanent, watertight seal available, specify ACMASEAL. Write for Data File SJ-1 or see our insert in SWEET'S ARCHITECTURAL CATALOG FILE 7.11/Acm.

Design: Jones, Haave, Delgatty — Architects.  
Installation: General Contractor — Dawson-Hall Ltd.

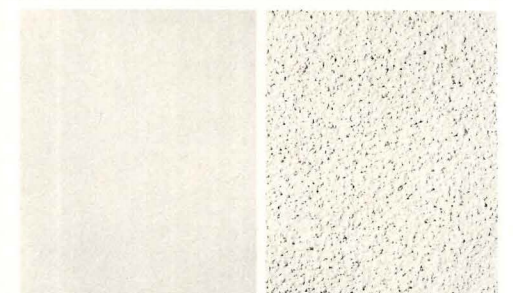


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**INTERIOR-EXTERIOR ACRYLIC LATEX** / In a single application (over-all and close-up shown) to surfaces, Tex-Guard can minimize surface irregularities in concrete, plaster, exterior-grade plywood and filled concrete block. Mildew-resistant, it can be sprayed or rolled on. ■ Glidden Maintenance Coatings, Cleveland, O.

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more products on page 164



The advertisement features a collection of toilet seats and bowls in various colors: green, orange, yellow, light blue, and pink. The seats are shown in different positions, some up and some down. The background is a dark blue gradient. The text is in white and red, with a red box containing the company name.

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Modern colors! Unique designs! Unlimited selection! Unbeatable quality! That's Beneke . . . as a result of some 75 years of experience in this field. Beneke has water closet seats for every type of installation—or our engineers will help you design to your special needs. Choose from the industry's widest range of solid plastic and composition models. They complement all water closet designs and install securely. All seats have metal hinge posts. Replaceable bumpers are secured in raised pods for easier cleaning. In colors, we can blink your eyes or soothe you with pastels. There's a seat model to meet any building budget need. Beneke offers more. We can prove it.

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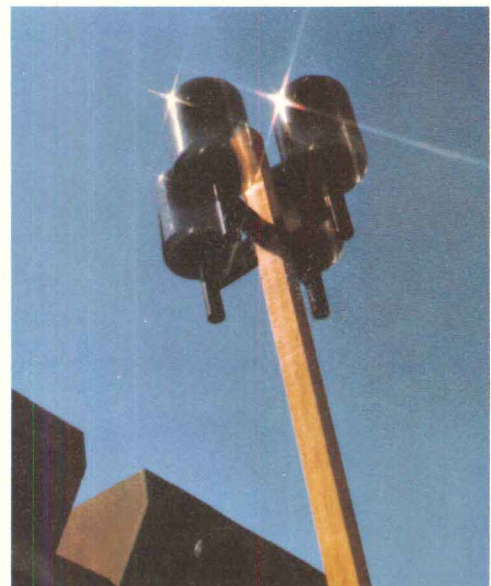
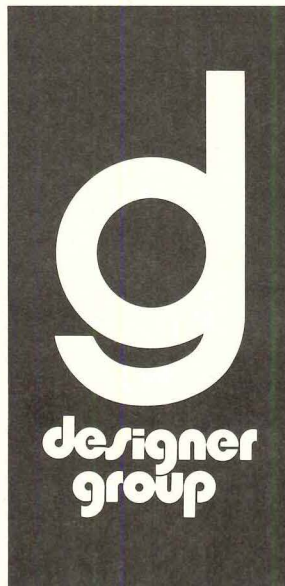


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An imaginative ensemble of light  
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from Group Sculptura — changing dimensions;  
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from Group Moderna — the present look of the future;  
from Group Lanterna — ageless shapes;  
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Division of **LCA** Corporation  
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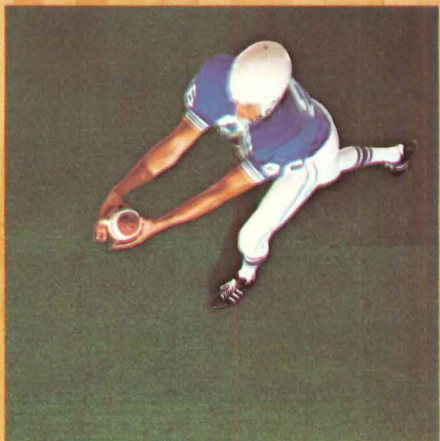
See us in Sweet's Section 16.8/SP.



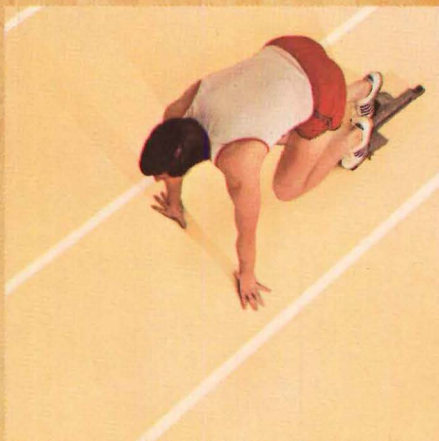
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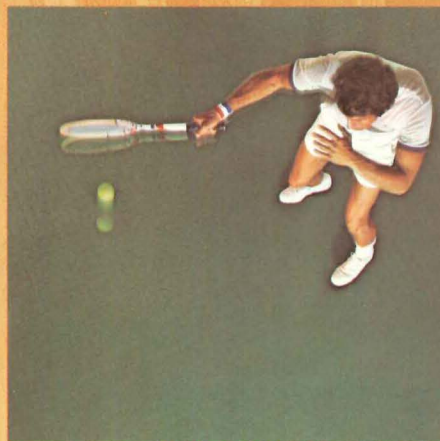
# Whatever the sport, Robbins has the surface.



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Please send me full information on Robbins  
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 I would like to consult with one of your specialists.

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## Don't turn the truck— turn the floor

How do you solve the problem of truck traffic in confined urban sites? In more and more buildings throughout the country, architects do it with Macton vehicle turntables. With a Macton turntable, you don't turn the truck, you turn the floor. Vehicles move straight in, straight out. Loading and unloading are faster and more efficient. Traffic snarls just don't happen. And the increase in usable space is dramatic.

That's why smooth, reliable Macton turntables were chosen for such recent projects as the Christian Science building in Boston, U. S. Steel's Pittsburgh headquarters building (shown above), and the Celanese and McGraw-Hill buildings in New York City.

*Our new brochure describes how Macton turntables increase truck-handling efficiency in buildings of all types. Write to: The Macton Corporation, On-the-airport, Danbury, Conn. 06810. Tel: (203) 744-6070.*

# MACTON TURNTABLES

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# Kelley

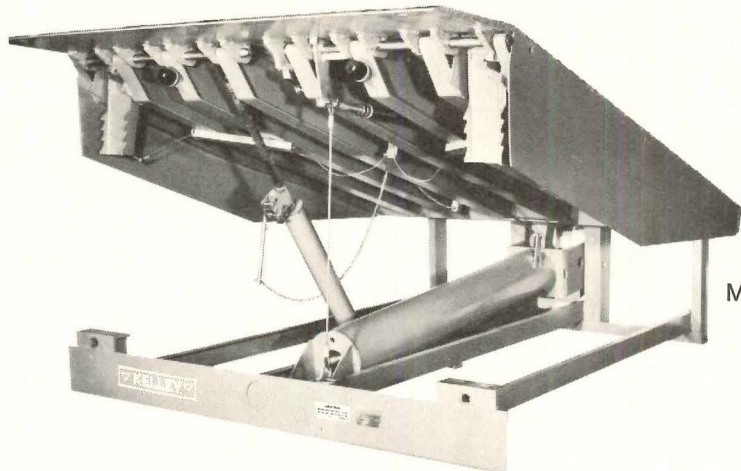
## WHY A 30,000 LB. CAPACITY DOCKBOARD?

Because 20,000 lb. capacity dockboards may not be adequate for 10,000 lb. GVW loads.

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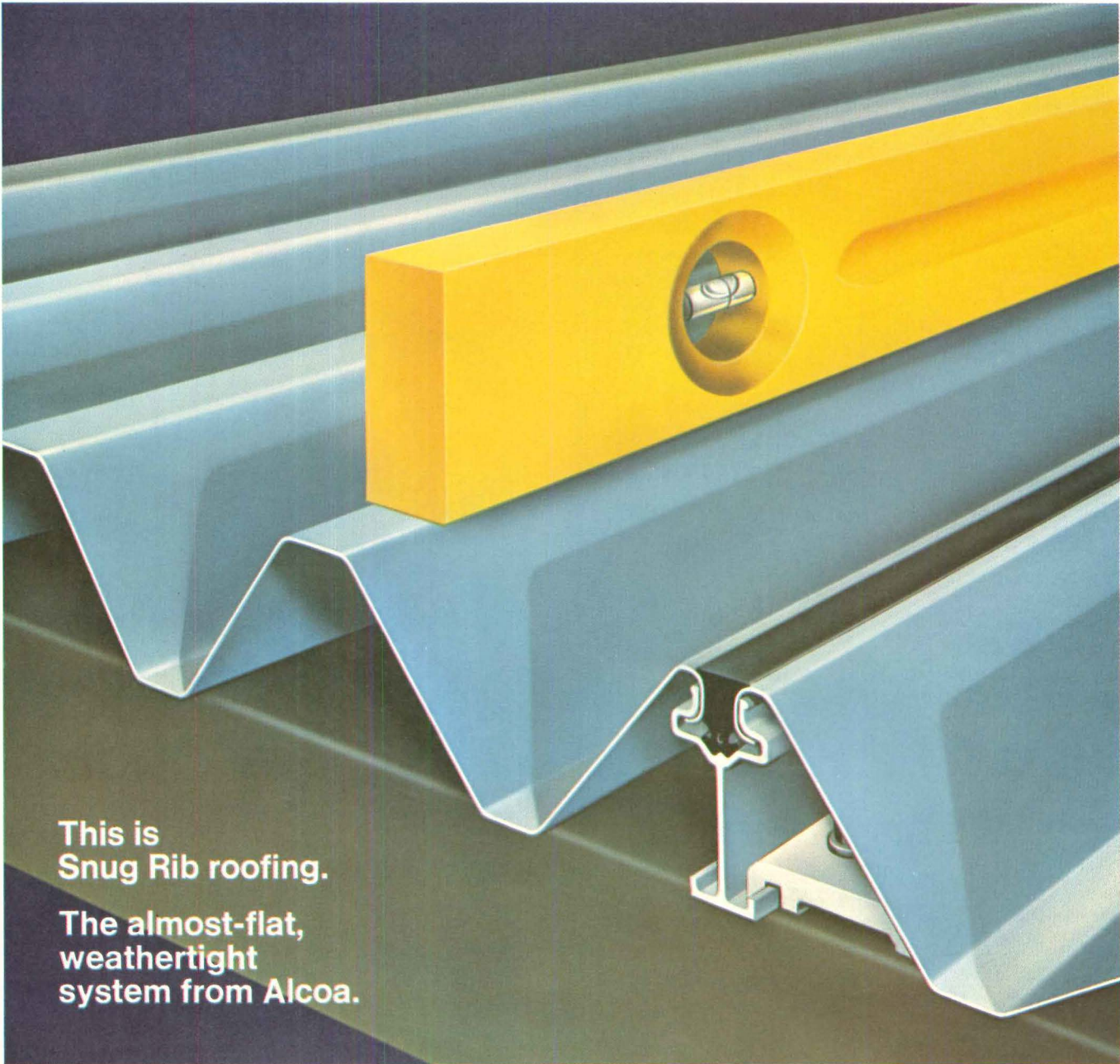


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55-560

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**This is  
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The Alcoa® Snug Rib roofing system gives you all the advantages of a low-pitch roof, plus excellent leak resistance, long-term maintenance savings and attractive appearance. Slopes as low as ¼ in. in 12 in. are possible, so there's less dead space to heat or air-condition. Snug Rib roofing is a floating, weathertight system. Because it floats, it is free to move under thermal cycling, so locked-up thermal stresses are eliminated. The patented Snug Seam®

joint holds panel edges securely in place to create a weathertight seal. No through-fasteners penetrate the weathering membrane. On most buildings, end laps can be eliminated because lengths are limited only by shipping conditions.

Snug Rib roofing saves you money several ways compared to conventional metal roofs. Less roofing material is required in relation to floor space. Steel trusses can be lighter. Fast erection cuts construction

costs and completion time. And long-term maintenance costs are reduced because aluminum takes care of itself. For manufacturing plants, port warehouses, airport facilities, recreational buildings, grandstands and sports complexes, Alcoa Snug Rib roofing is handsome, weathertight and economical. For more information, write Aluminum Company of America, 1130-A Alcoa Building, Pittsburgh, Pa. 15219.



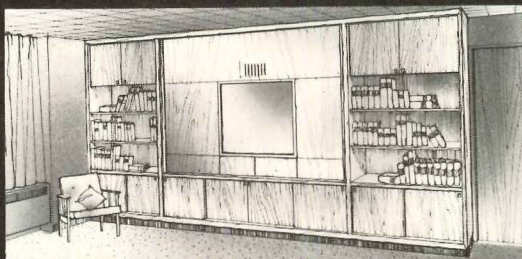
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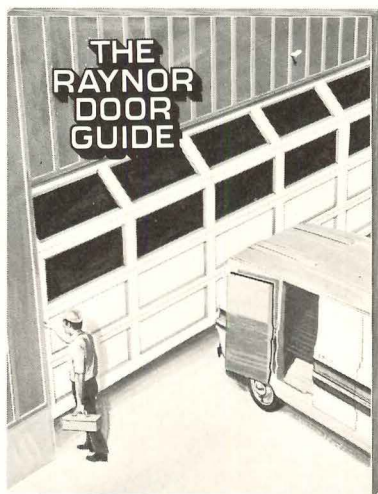
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All the facts you should know about garage doors can be found in this complete Raynor reference guide. Garage door styles, materials, mountings, applications, specifications (including handy door and track selection guides),... **PLUS** information on Raynor's new deep-ribbed, good-looking 'Security Line' steel doors. See why Raynor builds better doors.

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RADA'S THERMOSTATIC HOT AND COLD WATER MIXERS.



Neither pressure drop nor temperature rise can upset the steadiness of Rada control. That's the kind of double-pronged safety you can count on with our thermostatic mixing valves.

Rada has a bimetallic brain which automatically adjusts for both temperature and pressure fluctuations in the hot and cold water lines. Scalding or freezing bursts are things of the past and Rada-safety becomes a built-in fact.

Specify Rada for your next job. It's the doubly safe mixing valve for showers in schools, hospitals, nursing homes, hotels and recreational shower rooms as well as industrial plants.

You'll find Rada valves are available in a variety of sizes, and flow rates. With connections sized from 1/2" to 2", they are designed to meet all specific requirements for shower, tub/shower, or gang-shower installations.

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can do  
more things  
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Whatever you want your glass to do, C-E Glass has the light, heat, glare, sound or safety control qualities, plus the colors and patterns to blend beauty with function and to open new horizons for structural design possibilities.

POLARPANE® insulating glass units with 20-year warranted moisture-free construction.

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Architects: Neuhaus + Taylor  
Polarpane Gold #2016







Robert Friessen, Partner  
Preferred Painters, Inc.  
308 West Lotta Street  
Sioux Falls, S. D.

## “My two-man painting team covered 12 apartments in 3 hours with *Hide-A-Spray*™”

### New improved *Hide-A-Spray*, now with rust control added

A rust control additive in this water base paint protects small scratched rust free areas on metal, as well as unprimed nail heads, from flash rusting and consequently staining the newly painted surface.

For Painting Contractor Bob Friessen, and for the Developer and General Contractor, and the Project Owner, *Hide-A-Spray* High Build Interior Flat Latex Paint was the answer at the Meadowland Apartments. According to Mr. Friessen, “The *Hide-A-Spray* Coating covered interior surfaces in one 8-10 mil wet coat at a rate of one to one and a half gallons per minute, without priming, ghosting or sag. Taped and spackled joints in the drywall construction disappeared in one pass of the airless spray gun. And, it dried uniformly to a 4-mil dry coat in just two hours. It would have required 150 hours for two men with brush and roller to do the same 12 apartments, using conventional paint.”

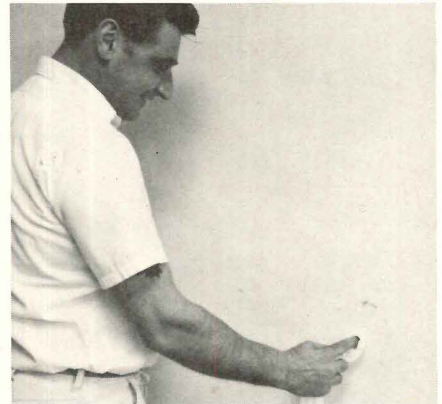
Painting contractors and builders everywhere are turning to *Hide-A-Spray* High Build Interior Flat Latex as the top quality, competitively priced, airless spray paint system that provides maximum coverage, saves time and money, and returns a handsome profit. Cover yourself with the facts by writing PPG Industries, One Gateway Center, 3W, Pittsburgh, Penna. 15222.

PPG: a Concern for the Future

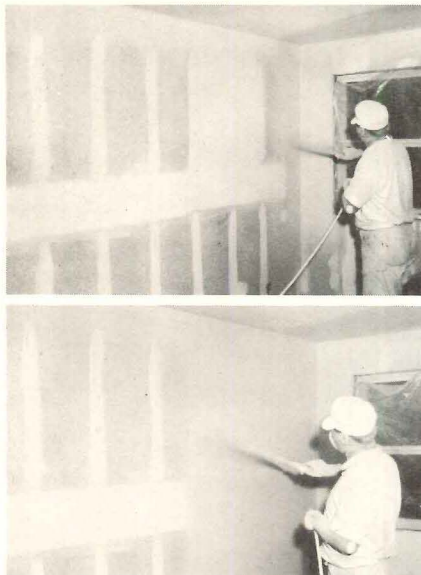
## PITTSBURGH® PAINTS



The Project:  
Meadowland Apartments  
Sioux Falls, S. D.  
Ten 12-apartment units.  
Developer & General Contractor:  
Lloyd Construction Co., Mankato, Minn.  
Architects: Koch Hazzard Associates,  
Sioux Falls, S. D.



Incidental marks and dirt came off quickly and easily with a damp cloth.



*Hide-A-Spray* Latex paint completely covered taped and spackled joints in drywall in one pass of the airless gun.



*Hide-A-Spray* paint dried in two hours. Contractor installed cabinets and floor covering the same day. Walter Scharfe, left, Job Superintendent for Lloyd Construction, commented, “Conventional two-coat paints would have meant a week’s time between painting and any such installation.” PPG Paint Center Manager, Eugene Lee, is shown at right.



For more data, circle 81 on inquiry card





**PROBLEM:** Design a set of uniquely-beautiful custom door pulls to accent the wood-paneled entry of a luxurious, new, seafood restaurant in Washington, D.C.

**SOLUTION:** The craftsmen in SCHLAGE'S Custom Hardware Division welcomed the challenge. Using a freshly-cooked lobster as a model, they created the magnificent, gleaming bronze crustacean shown above.

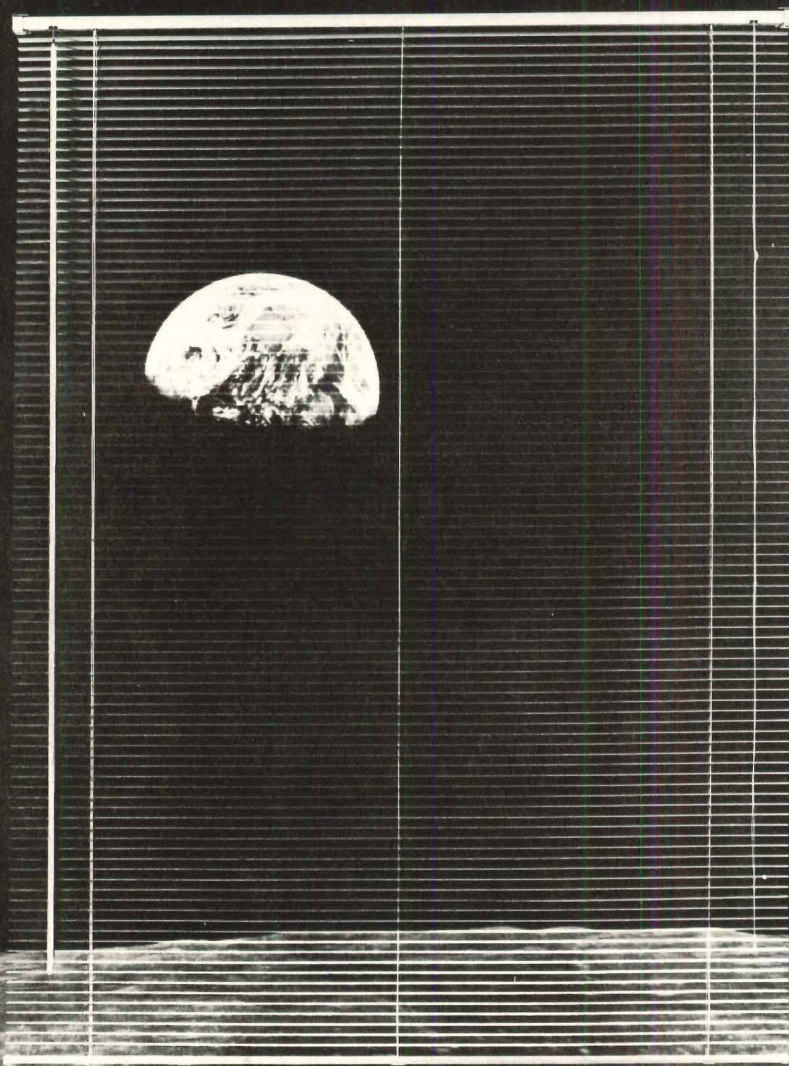
Forty-seven years of leadership has placed SCHLAGE in the forefront of every designer's mind as the company uniquely qualified to solve any and all design problems concerned with ornamental door hardware and locks. Call SCHLAGE for your custom door requirements. It's the only place to go!

**SCHLAGE** THE WORLD'S MOST RESPECTED NAME IN LOCKS



New from Alcan

# The Venette Mark II™



## The one-inch blind with the space-saving one-inch head.

The new, Venette Mark II offers all the aesthetic advantages of crisp, slim, unobtrusive 1-inch louvers . . . topped by an equally slim, unobtrusive 1" x 1" headrail which should *not* be confused with a simple "shrunken head." The Venette Mark II headrail assembly has been engineered for full scale ruggedness and reliability. Your first "hands-on" operation reveals a tilt action that's perfectly smooth, quiet, and responsive to your lightest touch.

We've also engineered the Venette Mark II to be responsive to your tightest installation re-

quirements. Mounted between today's shallowest mullions, it presents a more uniform, flush appearance. Even mounted *on* mullions, it can only protrude one scant inch into the room. And the slimmest head pockets simply swallow it up.

See full details in Sweets or Spec-Data. Or, write Alcan Building Products, Division of Alcan Aluminum Corporation, 100 Erieview Plaza, Cleveland, Ohio 44114.

ALCAN ALUMINUM





# Square D solid state adjustable speed pump control delivers water on demand for U.S. Steel.

The dramatic new United States Steel building in Pittsburgh is equipped with Square D solid state adjustable speed pump controls. Four 100 HP squirrel cage motors drive the house water pumps to maintain constant pressure—from the 64th floor on down, regardless of the water demand. This pumping system is the most advanced and reliable system available.

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If you're faced with a pumping problem, be it pressure or level control, the versatile solid state system from Square D can be your answer. For specific engineering data, contact your nearby Square D field office. Or write Square D Company, Dept. SA, Sumter Highway, Columbia, S.C. 29209.



*For more data, circle 84 on inquiry card*



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*Wherever Electricity is Distributed and Controlled*



# The low-down on glue-down!

**"Jute is the key to successful glue-down, we have found from long experience."**

... says Gary Feverston (standing), sales manager, Don Mendenhall's CarpeTalk, Dayton

## Double Jute-backed carpet glued down in H.E.W. \*facility

Don Mendenhall's CarpeTalk met rigid standards with this H.E.W. installation. Double Jute-backed carpet adhered directly to subfloor without attached or separate pad passed all tests with flying colors.

Initial cost was lower than other carpet systems. Easy mobility for wheels and casters was gained, with no pads under secretarial chairs. Overall adhesion ruled out split seams and "bubbling." Carpet's advantages in sound absorption, maintenance savings, aesthetics, insulation, comfort underfoot and improved morale were preserved.

Mr. Feverston stressed that "Jute is the key" for these and other reasons:

- Jute's mesh weave and fibrous composition accept and retain adhesive, for secure bond to subfloor or previously installed hard-surface flooring.
- Jute is over twice as thick as other no-pad back-

ings. Cracks in old flooring aren't felt underfoot or outlined. Area for sealing seam edges is double.

- Unmatched dimension stability, vital with floor cut-outs.
- Carpet comes up cleanly, intact for re-installation.
- Helps carpets otherwise qualified meet fire safety codes.
- When carpet is rolled out, some floor adhesive penetrates the Jute mesh to the primary backing, for additional tuft bind and protection against delamination.
- For "stretch" installation in selected areas, jute hooks permanently taut on tackless gripper pins.

**Write for free architectural guide specification and editorial report**

\*In new Montgomery County Administration Building in Dayton. Architects: Brown & Head, Dayton; Edward Durell Stone, New York

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*For more data, circle 85 on inquiry card*



# Until you know all about ASG'S REFLECTOVUE®, you don't really know how good reflective glass can be.

Reflectovue does everything reflective glass is supposed to do—but with one dramatic difference: Reflectovue does it better.

Here's how.

Used with Tru-Therm® insulating units, Reflectovue has been proven a superior heat reflector. It has the best thermal performance, the lowest thermal "U" value, and the lowest shading coefficient when compared, color to color, to any other reflective glass in the industry.

On the practical side, it can cut costs by controlling heat loss and heat gain. So less equipment is needed for heating and air conditioning. Less fuel. Creating less pollution.

Take a look at the chart. See for yourself how good Reflectovue really is. And how it compares with your specification requirements. You'll get an introduction to the benefits of Reflectovue. And for the rest of the story, just call or write your nearest ASG office.

Then specify ASG's Reflectovue. It can make your building more than a building. More like a landmark to mirror

your world. Sparkling. Dramatic. Changing with the day. Open. But still private. America's looking glass.

#### FOOTNOTES TO CHART:

(1) All given value of 1.1 for calculations. Different thicknesses of glass interlayers and metallic coatings will have insignificant effect on "U" value.

(2) No indoor/outdoor shading—Summer Value.

(3) 216 total solar BTU's—(Based on 1967 ASHRAE Handbook of Fundamentals—July 21—4 p.m.—west exposure—32° North Latitude)—Times shading coefficient. Average temperature for July 21—4 p.m.— is 93.6 degrees, with 72 degrees inside air temperature, there are 21.6 conductance BTU's to be added—Times the thermal "U" value of 1.1 = 23.76. Maximum BTU gain per square foot of vision lites—west exposure.

(4) ASG performance values taken from published data and authenticated by test reports from recognized testing laboratories. Names of specific data and laboratories provided on request.

#### ASG REFLECTOVUE®/TRU-THERM® HIGH EFFICIENCY INSULATING GLASS

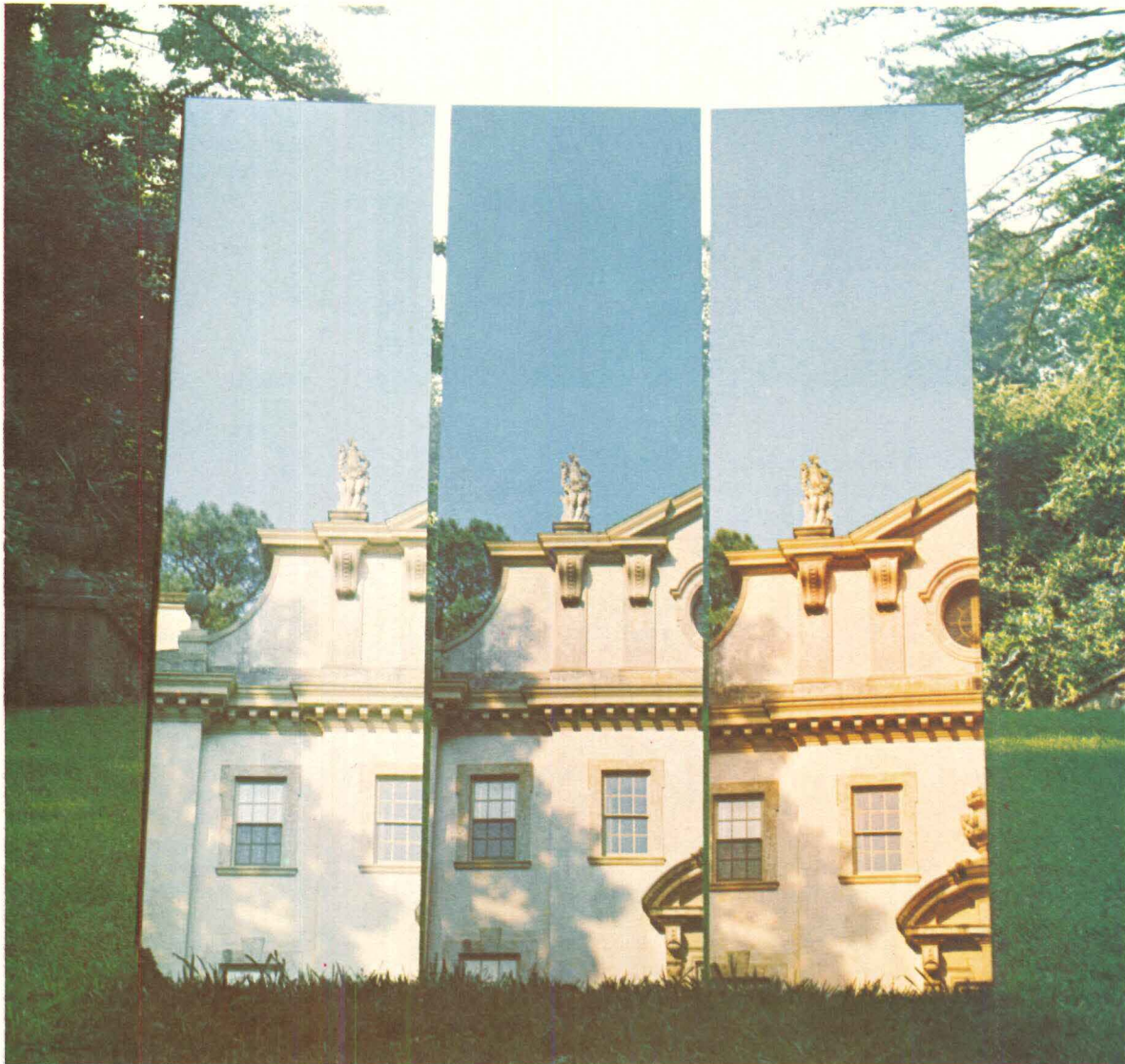
|             | Visible Light Trans. % (Summer) | Thermal Value | "U" Shading Coefficient (2) | Total Solar Heat Gain in BTU's (3) |
|-------------|---------------------------------|---------------|-----------------------------|------------------------------------|
| 10GI—Gold   | 8                               | .28           | .07                         | 21                                 |
| 20GI—Gold   | 17                              | .30           | .13                         | 34                                 |
| 35GI—Gold   | 32                              | .32           | .26                         | 63                                 |
| 10AI—Silver | 8                               | .30           | .12                         | 32                                 |
| 20AI—Silver | 17                              | .31           | .24                         | 59                                 |
| 10CI—Chrome | 8                               | .46           | .19                         | 51                                 |
| 20CI—Chrome | 17                              | .48           | .34                         | 83                                 |

#### ASG REFLECTOVUE®/LAMINATED HIGH EFFICIENCY LAMINATED GLASS

|             | Visible Light Trans. % (Summer) | Thermal Value | "U" Shading Coefficient (2) | Total Solar Heat Gain in BTU's (3) |
|-------------|---------------------------------|---------------|-----------------------------|------------------------------------|
| 10GL—Gold   | 10                              | 1.1           | .15                         | 56                                 |
| 20GL—Gold   | 20                              | 1.1           | .24                         | 76                                 |
| 35GL—Gold   | 35                              | 1.1           | .47                         | 126                                |
| 10CL—Chrome | 10                              | 1.1           | .31                         | 91                                 |
| 20CL—Chrome | 20                              | 1.1           | .46                         | 123                                |



**ASG Industries Inc.**  
P.O. Box 929, Kingsport, Tennessee 37662

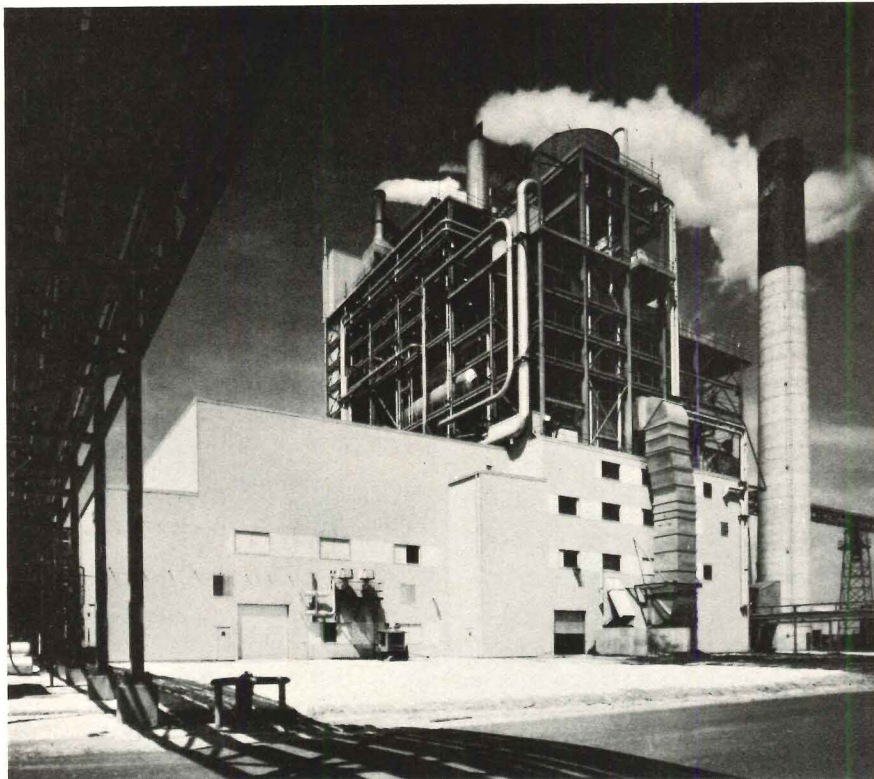


Ambient light was eliminated in the rear of the glass to show actual appearance as glazed in a building facade. Left to right: Silver, Chrome and Gold.

For more data, circle 86 on inquiry card



# Boise Cascade fights back corrosion. With Reynolds Aluminum Building Products.



Water is the life blood of a paper mill—but it can be murder on siding. So Boise Cascade's new mill in DeRidder, La., is protected from red rust by 200,000 square feet of Reynolds Aluminum Commercial Siding. The special Fluoropon Blue Colorweld® finish means the mill will stay new-looking for years. And economical. Maintenance costs—like installation costs—are minimal. The big, strong, lightweight panels see to that.

Reynolds Aluminum Commercial Building Products. The ones that never red rust. Write or phone today for Reynolds new "Products in Action" portfolio. Reynolds Metals Company, Architectural and Building Products Division, 325 W. Touhy Avenue, Park Ridge, Illinois 60068, (312) 825-8811.

Catalogs in Sweets 1973 Architectural, Industrial Construction and Plant Engineering Files.



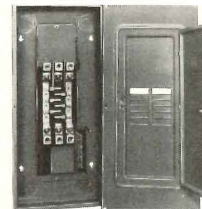
**REYNOLDS**  
for better building products in  
**ALUMINUM**

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## PRODUCT REPORTS

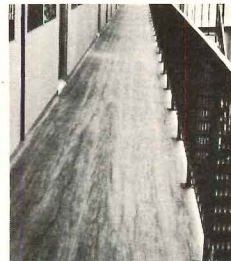
continued from page 150

**FEED-THROUGH LOAD CENTER** / Compared to extended side gutter devices, the company claims the feed-through riser load center eliminates the need for costly tap kits or split bolts to tap riser conductors. Length of riser conductors is reduced since conductors are pulled only from two adjacent floors rather than the entire length of the riser. Also, standard width boxes that fit between 16-in. centers can be used. ■ Square D Co., Lexington, Ky.



Circle 310 on inquiry card

**SEAMLESS VINYL FLOORING** / Lonleum is a resilient sheeting for both interior and exterior installation. It can withstand outdoor elements without fading, shrinking or rapid aging and is recommended for direct-exposure areas. A special heat-welding tool permits completely-seamless installation. Available in skid-resistant, textured surfaces as well as smooth, in a variety of colors and marbled patterns. ■ Lonseal, Inc., Torrance, Calif.



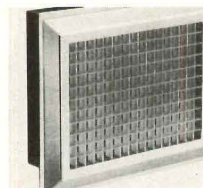
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**INTUMESCENT PAINT** / Fire Fighter is a fire retardant paint for interior surfaces of plaster, drywall, hardwood, wood, metal, masonry, brick, wallboard and acoustical tile. This latex base coating dries to a flat finish. It meets all requirements of Class A and carries the Underwriters Seal of Approval. ■ Masury, Baltimore, Md.



Circle 312 on inquiry card

**NOISELESS VENTILATION** / Available for bathrooms, kitchens and any small rooms, this product has been designed specifically for high-rise and low-rise multiple unit structures such as apartments, motels, hospitals, etc. Units tap into vertical duct risers or ceiling ducts and are operated by the room light switch with a time delay to provide for ventilation several minutes after occupants have left the room. ■ ILG Industries, Inc., Chicago, Ill.



Circle 313 on inquiry card

**CHUTE-FED COMPACTOR** / Designed specifically to meet the new ordinances for apartment houses, the Model 3800 is activated by waste and refuse passing an electric eye inside the chute feeding through the back of the compactor. Waste and refuse can also be loaded from the front. A warning light notifies the custodian when the box or bag is filled. Unit operates from 220-volt, 60 cycle current. ■ The Tony Team, Inc., Minneapolis, Minn.



Circle 314 on inquiry card

more products on page 170



# After decades of footsteps, SCOPE® will appreciate portland cement terrazzo even more.



The theater center is one of the most heavily-trafficked areas at Norfolk, Virginia's SCOPE.

SCOPE is a massive, two-building complex designed for cultural events, conventions, sports, and very heavy foot traffic. Because of the polishing effect that traffic has on terrazzo, the floors will look even better decades from now.

Other advantages? Terrazzo with a white cement matrix will last the life of the complex. It has a sensible initial cost. It's 100% fireproof. It offers abundant opportunity for creative design. And it's simple and inexpensive to keep clean.

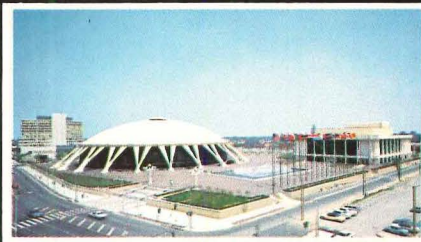
For all these reasons, terrazzo made with Trinity White was specified for the upper concourse of the domed portion of SCOPE, and for the lobbies and reception areas of the theater center.

The choice of portland cement terrazzo was particularly suitable to a multi-purpose structure such as SCOPE, since it's one of the few building materials whose beauty improves with time.

After a comprehensive evaluation, Trinity White concrete was used extensively at SCOPE, for precast, cast-in-place and terrazzo applications. It helped insure color uniformity and consistency throughout the complex.

We'd like to show you additional ways of using terrazzo with Trinity White, plus information on new Trinity Warmtone®. Our architectural consultant will talk to you if you wish. Or write Box 47524, Dallas, Texas 75247, for

a free terrazzo booklet showing 24 colorful samples.



*Trinity White*

Creativity in Concrete



**General Portland Inc.**

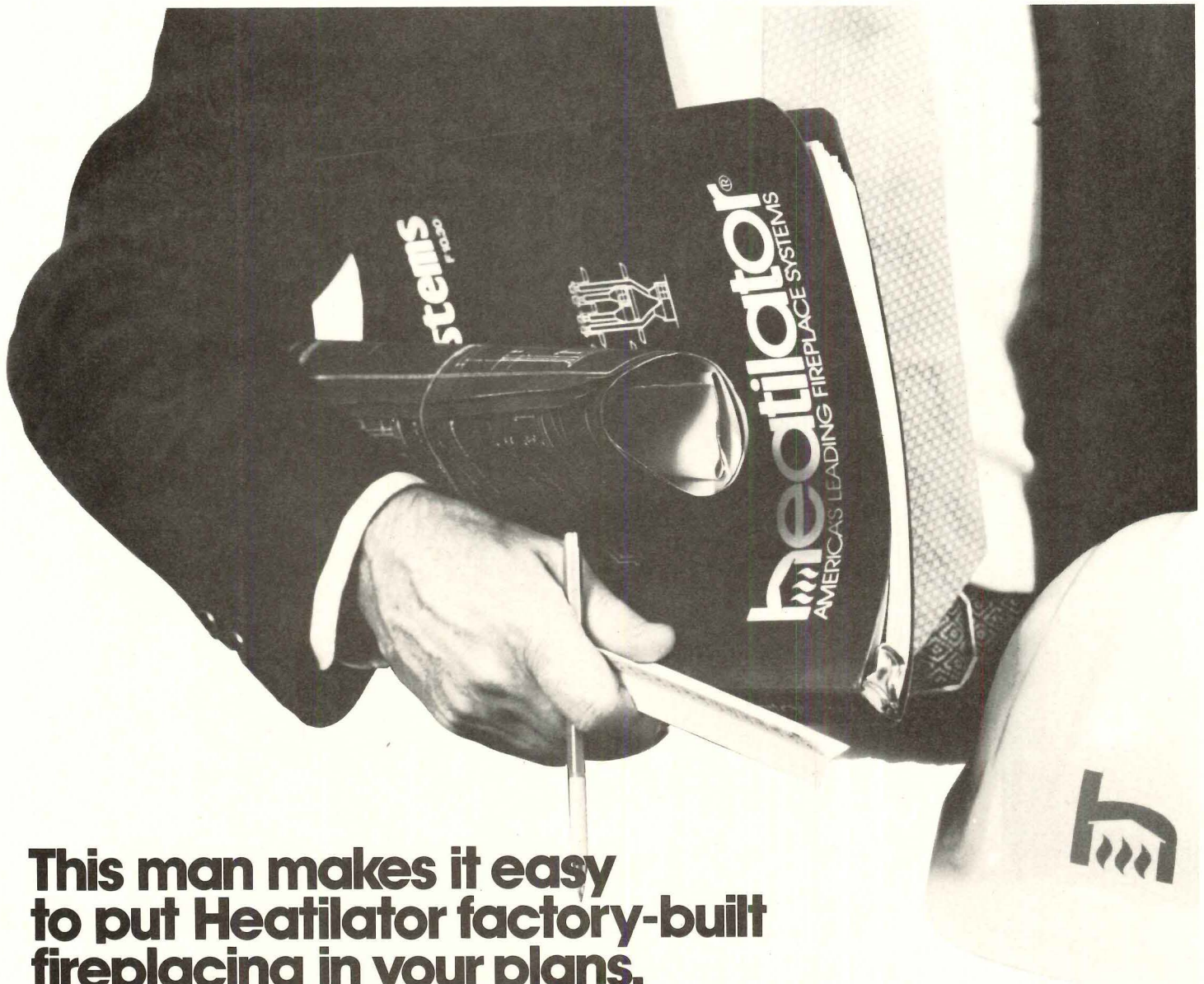
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Fort Wayne • Kansas City, Kan. • Los Angeles

Credits: /Architect: Williams and Tazewell & Associates, Norfolk, Va./General Contractor: Daniel Construction Co. of Virginia, Richmond, Va./Precast and ready-mixed regular and Trinity White concrete: Lone Star Industries, Inc., Cement & Construction Materials Group, Norfolk, Va./Terrazzo Contractor: Bay Tile Corporation, Portsmouth, Va.

For more data, circle 87 on inquiry card





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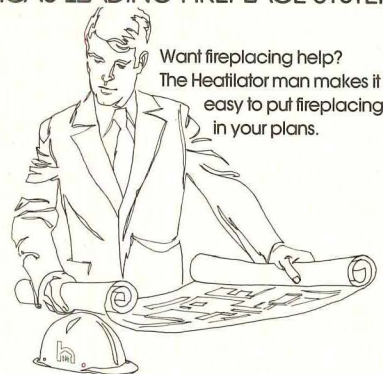
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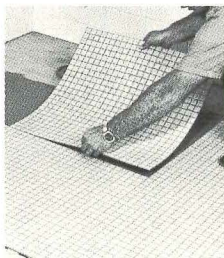
continued from page 164

**ACRYLIC-WOOD FLOORING** / New 2 in. by 12 in. units have been added to the company's *Perma-Grain* line of flooring in herringbone, brick, ashlar and square patterns, in a choice of six colors. Units are made from oak hardwood fully impregnated by acrylic plastic which has been permanently hardened. The resulting material is highly resistant to indentation, abrasion and staining. ■ ACRO Chemical Co., Philadelphia, Pa.



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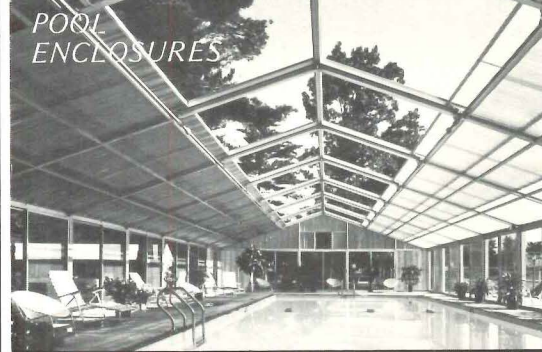
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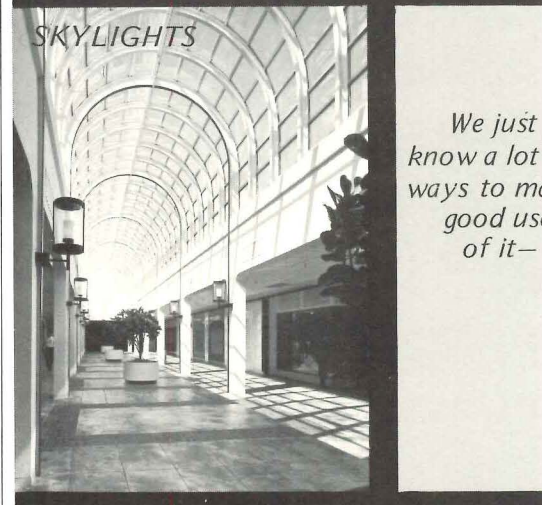
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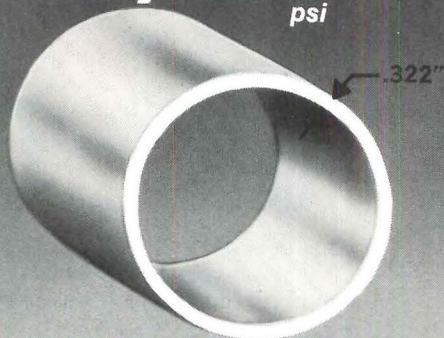
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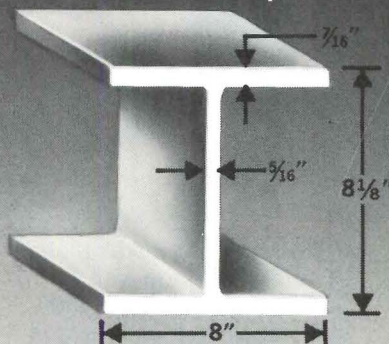


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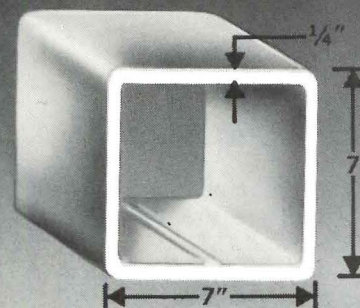


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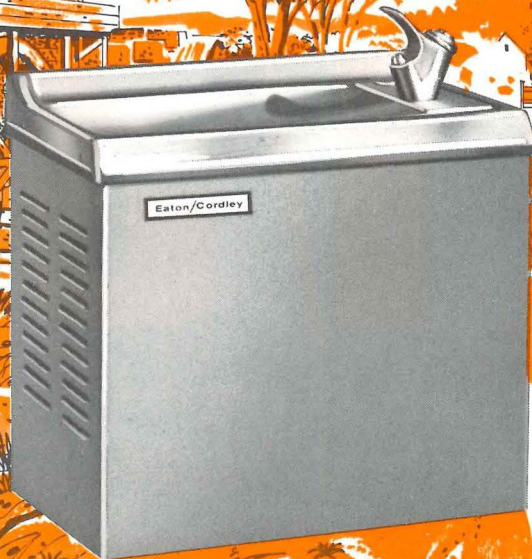
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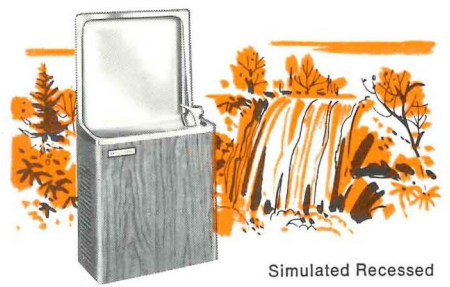
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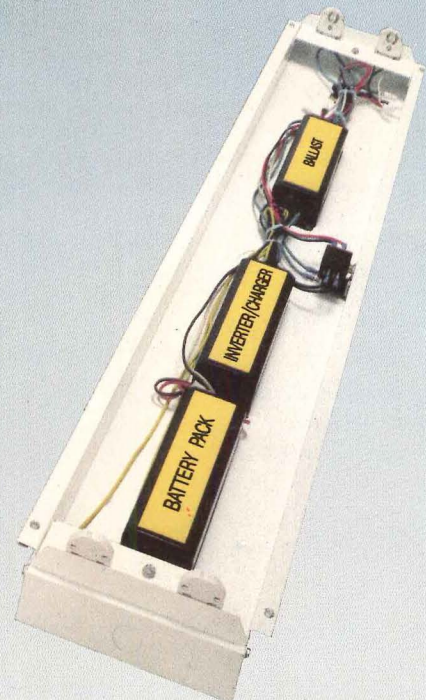
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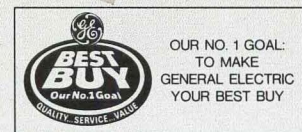
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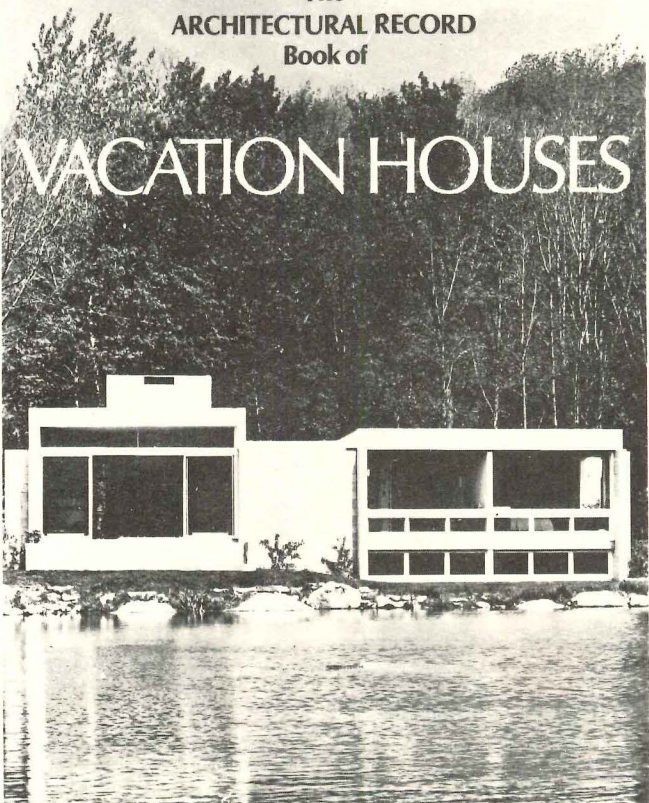




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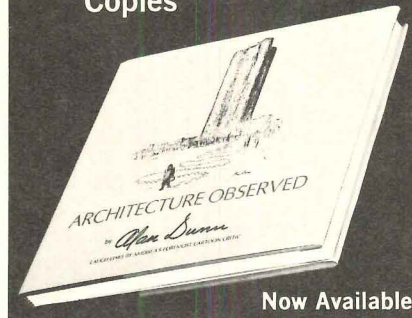
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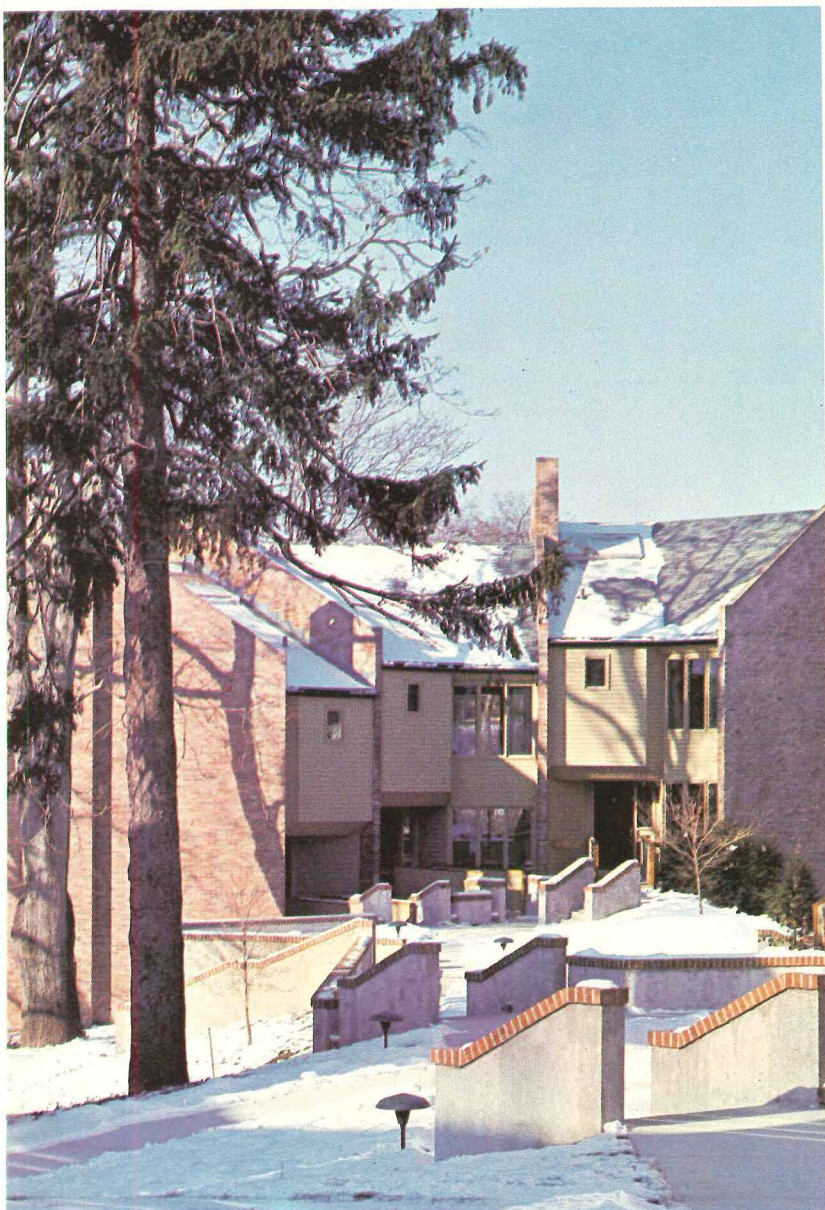
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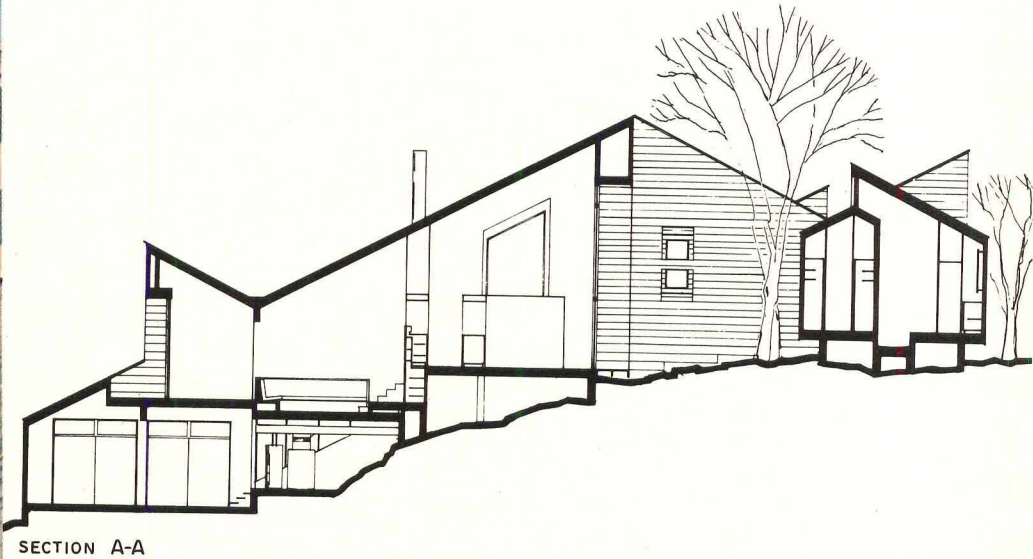
Top: Ocean House Apartments. Architects: Donald Sandy, Jr. and James A. Babcock. Photographer: Thomas A. Abels.

Above: House in Lincoln, Mass. Architects: Joseph Maybank and Arthur Cohen. Photographer: Nick Wheeler.

Left: Meadgate Condominiums. Architects: Allen Moore, Jr., John B. Rogers and James M. McConnell. Photographer: Carol Rankin.

Right: House in Huntington Bay, N.Y. Architect: Richard Henderson. Photographer: William Maris.





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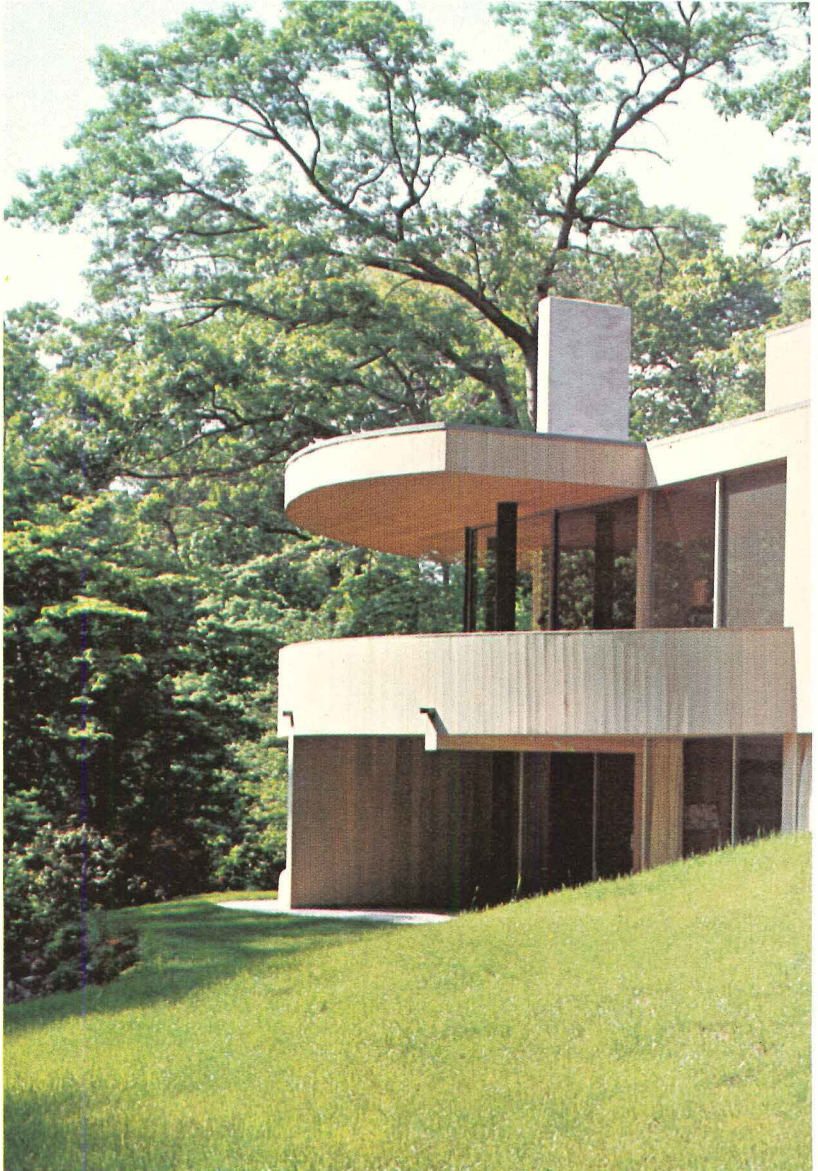
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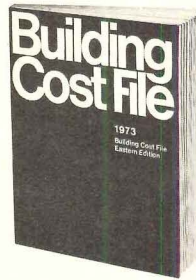


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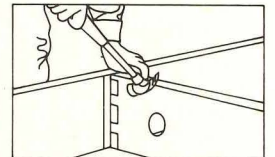
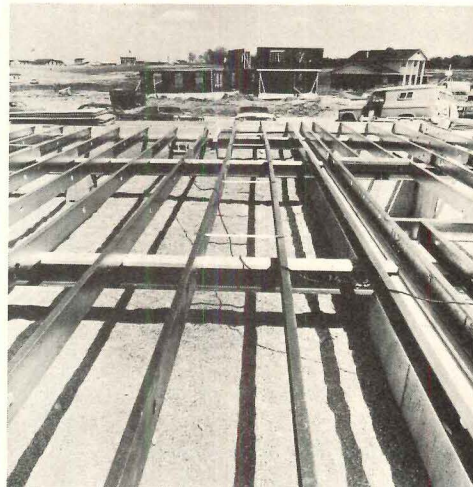
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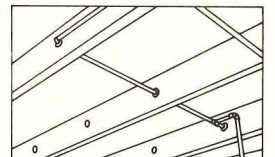
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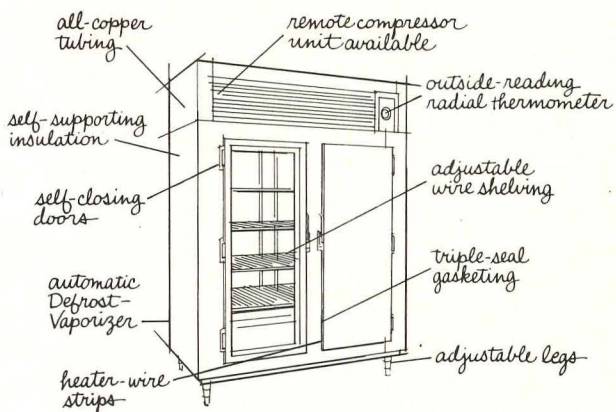
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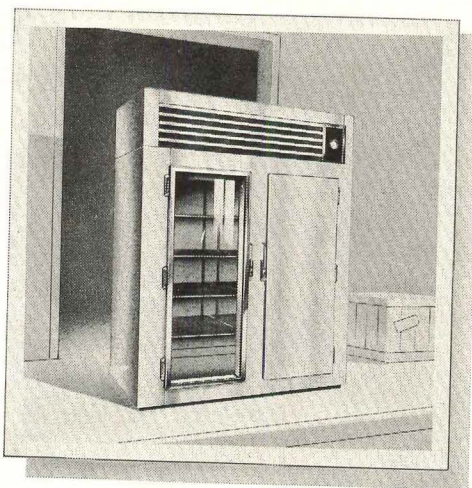


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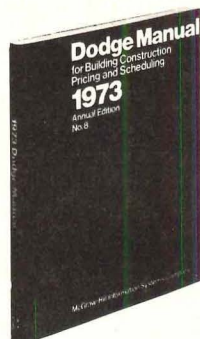
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MILSTAR Corporate Squares at The Chatterbox Restaurant in Jefferson Square office building and shopping center complex, Columbia, S. C.

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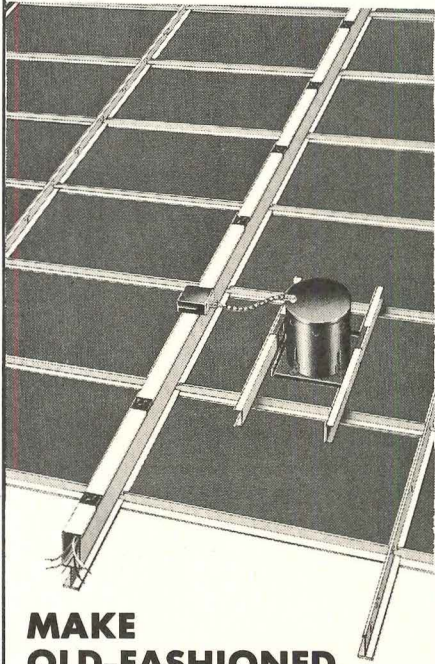
Floor Covering Business, LaGrange, Ga.



For more information circle selected item numbers on Reader Service card, pages 201-202

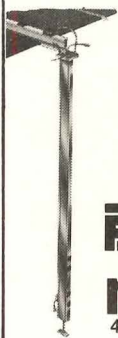
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**TERRAZZO FLOORING** / Application and specification data on terrazzo flooring and the types of dividing strips for conventional and monolithic terrazzo are featured in this 8-page brochure. It also contains information on expansion-type dividing strips and base beads. ■ Manhattan American Terrazzo Strip Co., Niagara Falls, N.Y.\*

Circle 400 on inquiry card

**APARTMENT INSULATION STANDARDS** / A detailed study of how to comply with new Federal insulation requirements for multi-family residences has been released, applying to heated or cooled buildings, regardless of the type of fuel or energy used. Maximum permissible U values are set for various types of constructions. ■ National Mineral Wool Insulation Assoc., New York City.

Circle 401 on inquiry card

**ROOM COMFORT CONTROL** / Climazone thru-the-wall cooling units for motels, apartments, hospitals etc., are described in a bulletin covering over 35 models. Independent modular systems include electric heating and cooling, cooling and hot water heating, cooling and steam heating and cooling only. Capacities range up to 19,000 Btu. ■ Mueller Climatrol Corp., Milwaukee, Wis.\*

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**KITCHEN & BATH FAUCETS** / An illustrated catalog showing the complete line of faucets and accessories for the kitchen, bath and lavatory is now available. Featured is a pressure-balancing shower control, as well as a series of showerheads. These faucets are solid brass construction and triple-chrome plated. ■ Moen, Div. of Stanadyne, Elyria, O.\*

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**STREET FURNITURE** / Wood, combined with fiberglass, is featured in this design kit to help the architect plan mall and street furniture installations. Designed by landscape architect John Chipman, the series contains six basic bench designs plus ten different styles of fiberglass pedestals and two of metal. This variety allows 78 different seating forms. Planters and trash receptacles are in oak, fir or redwood. ■ Landscape Forms, Inc., Kalamazoo, Mich.\*

Circle 404 on inquiry card

**STAINLESS STEEL ROOFING** / Flashing, copings, facias, gravel stops, roofing systems and roof-drainage components made of stainless steel are the subjects covered in this manual for architects. Drawings detail various designs, and charts compare stainless with other nonferrous architectural products and provide data on expansion coefficients of 15 building materials. Finishes, gauges, fabrication and maintenance are also discussed. ■ American Iron and Steel Institute, New York City.

Circle 405 on inquiry card

**BUILT-IN FIREPLACES** / A fact sheet covering a new line of low-profile "custom" model fireplaces for built-in installation is now available, complete with dimension drawings, chimney details and installation photos. Recommended for use in residential, apartment and condominium applications. ■ Preway, Inc., Wisconsin Rapids, Wis.

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**TILE CATALOG** / A 36-page catalog illustrates a complete line of glazed, quarry and ceramic tile. Featured are the silicone rubber factory-grouted Redi-set ceramic tile systems for tub surrounds, showers, walls and floors. Brochure also introduces the 3 by 6 Caribbean in eight hot, bright glazes. ■ American Olean Tile Co., Lansdale, Pa.\*

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\* Additional product information in Sweet's Architectural File

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*Charles A. Lindberg*

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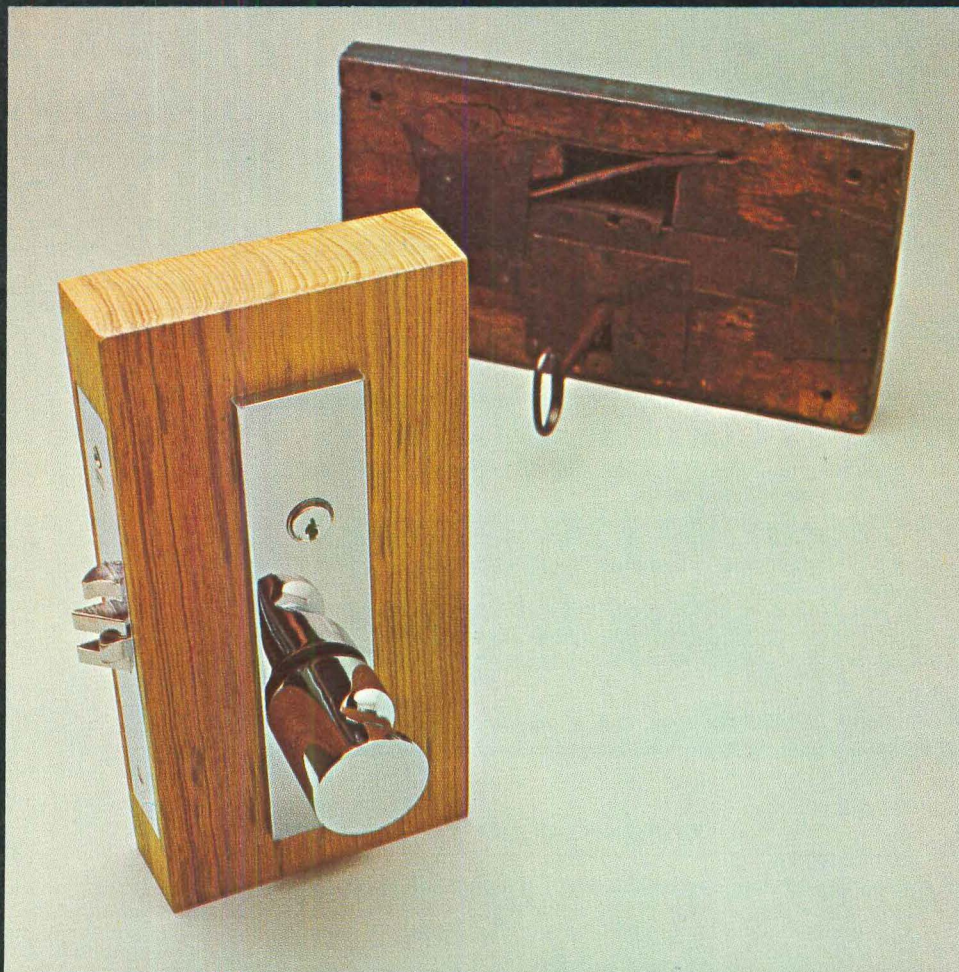
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**Architect: Expanding architectural/engineering firm** seeks a young design oriented architect capable of assuming the position of architectural department head. Must be registered, 6 years experience and be capable of handling all phases of the architectural discipline. Projects include schools, office buildings, medical facilities, apartments, others. Advancement and salary commensurate with ability. Send resume or call-in confidence. P.N. Shaffner; Sheretz & Franklin, Architects/Engineers; 612 First Federal Building; Roanoke, Virginia 24011; 703-344-6664.

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**HORIZONTAL METAL DOORS** / The 1973 catalog covering an entire line of horizontal metal doors is available. It contains architectural specifications, gauges and weights for spring-operated roof scuttles, automatic fire vents ceiling access vents and residential basement doors. ■ The Bilco Co., New Haven, Conn.\*

Circle 408 on inquiry card

**RESIDENTIAL BOILERS** / The *Ultratherm* series of residential gas-fired boilers are described in literature covering design features in both hot water and steam models. Capacities and dimensions are included. ■ Automation Industries Inc., Norwood, N.J.

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**RAILING SYSTEMS** / Color installation photos as well as sectional drawings and engineering data are included in this literature for durable and economical handrailing systems: aluminum and plastic *Colorail* in 11 colors; and *Connectorail* nonwelded pipe railing system in aluminum and stainless steel. Pre-finished acrylic/wood handrail systems are offered in five shapes and three hardwoods. ■ Julius Blum & Co., Inc., Carlstadt, N.J.\*

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**ENERGY-CONSERVING HVAC** / Variable air volume systems that conserve energy by utilizing heat produced by people, machines and the sun are described in this brochure. Drawings and graphs illustrate how total heat requirements in a building can be reduced with nine different systems. Cost savings are also compared. ■ Barber-Colman Co., Rockford, Ill.

Circle 411 on inquiry card

**GROUT SELECTION** / An 8-page booklet covers the company's full line of *Embeco* non-shrink grouts and mortars, including performance characteristics, applications and information on where to use individual products. ■ Master Builders, Cleveland, O\*.

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**ORNAMENTAL SCREENING** / Design ideas for screens, facings, railings, panels and grilles are included in this brochure, along with application illustrations for *Curtainscreen* and treillage patterns in aluminum and malleable iron. ■ Julius Blum & Co., Inc., Carlstadt, N.J.\*

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**SPIRAL STAIRS** / A full-color brochure describes a complete line of spiral stairs, including a new 6-ft diameter. Stairs have adjustable treads to fit ceiling heights up to 10 ft floor to floor. Available in standard 4-ft diameters. ■ Logan Co., Louisville, Ky.

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**ILLUMINATE CEILING DESIGN** / A handbook for architects and engineers describes and illustrates a time-saving three-phase approach to illuminated ceiling design, including budget control. Portions deal with ceiling areas that are square, round and irregular; suspension systems that create unbroken, modular or parallel visual effects; and perimeter terminations that are wall-to-wall, soffit-to-soffit, or floating. All specification data are included. ■ Neo-Ray Lighting Systems, Inc., Brooklyn, N.Y.

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**CEMENT & CONCRETE REFERENCE** / A 39-page booklet describes all technical and semi-technical literature and computer programs for sale by PCA to the construction professions. Single copies are available without charge. ■ Portland Cement Assoc., Skokie, Ill.\*

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\* Additional product information in Sweet's Architectural File



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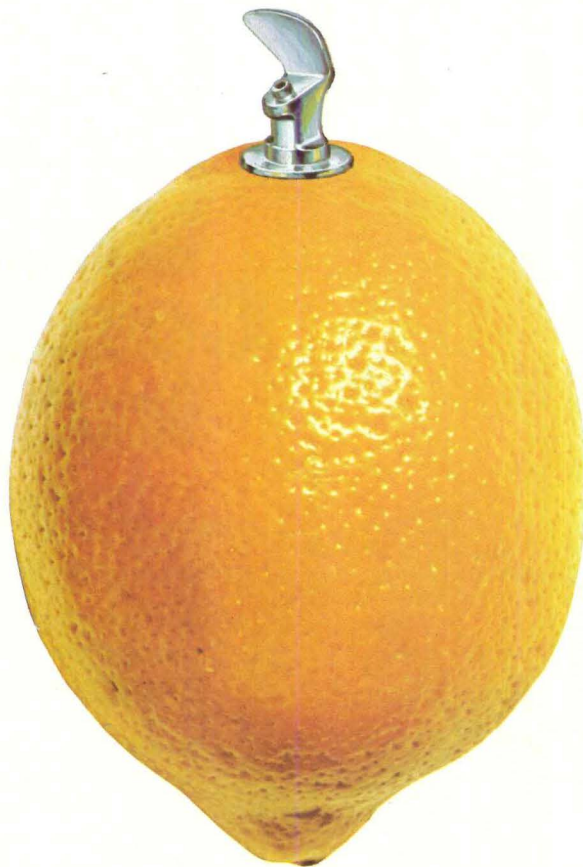
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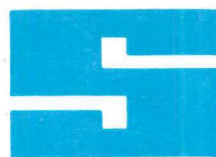
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