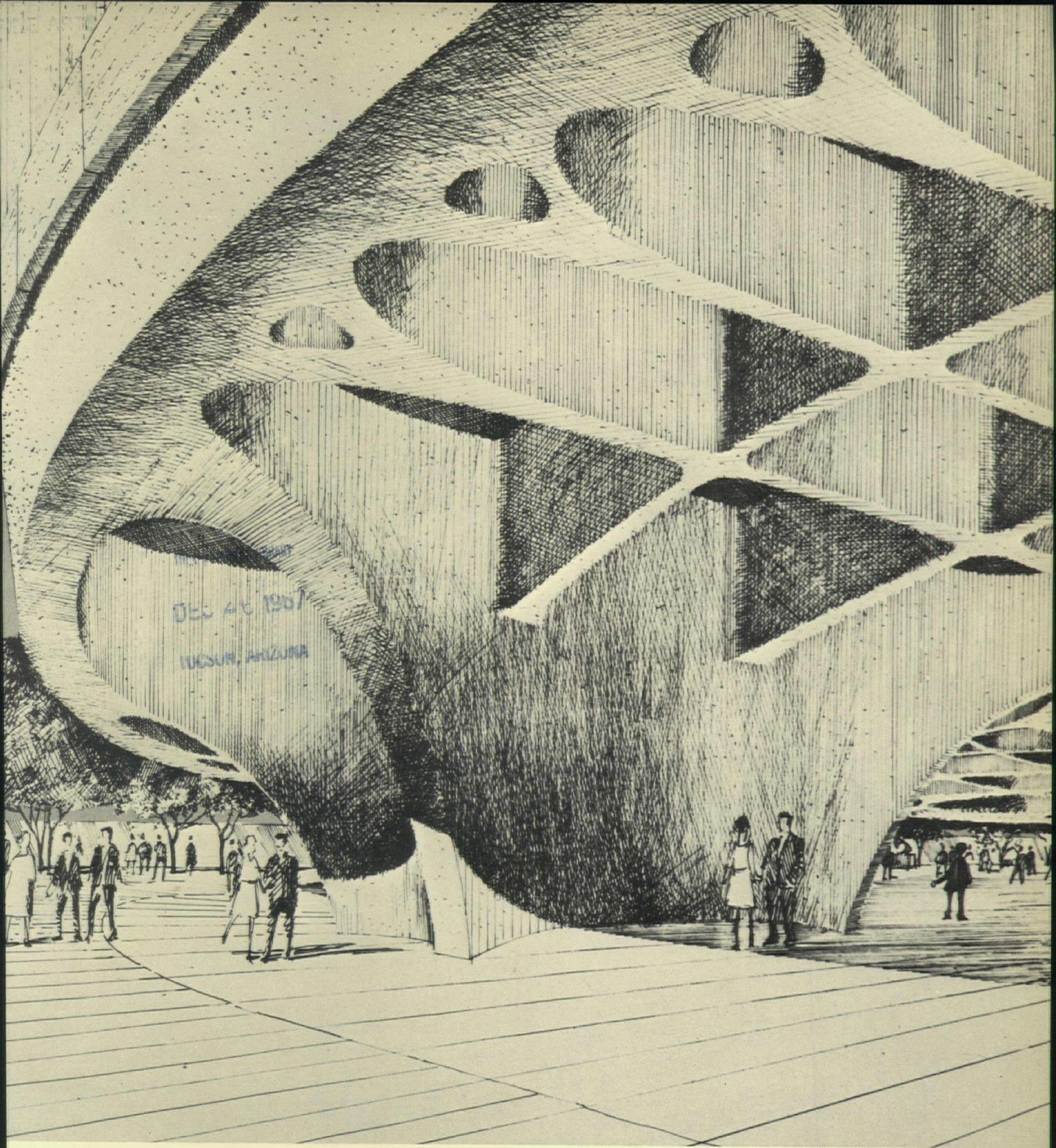

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BUILDING TYPES STUDY: CIVIC ARCHITECTURE

PLACE BONAVENTURE: MONTREAL'S NEW MULTI-PURPOSE COMPLEX

SEMI-ANNUAL INDEX

FULL CONTENTS ON PAGES 4 AND 5

ARCHITECTURAL RECORD

DECEMBER 1967 12 A McGRAW-HILL PUBLICATION TWO DOLLARS PER COPY

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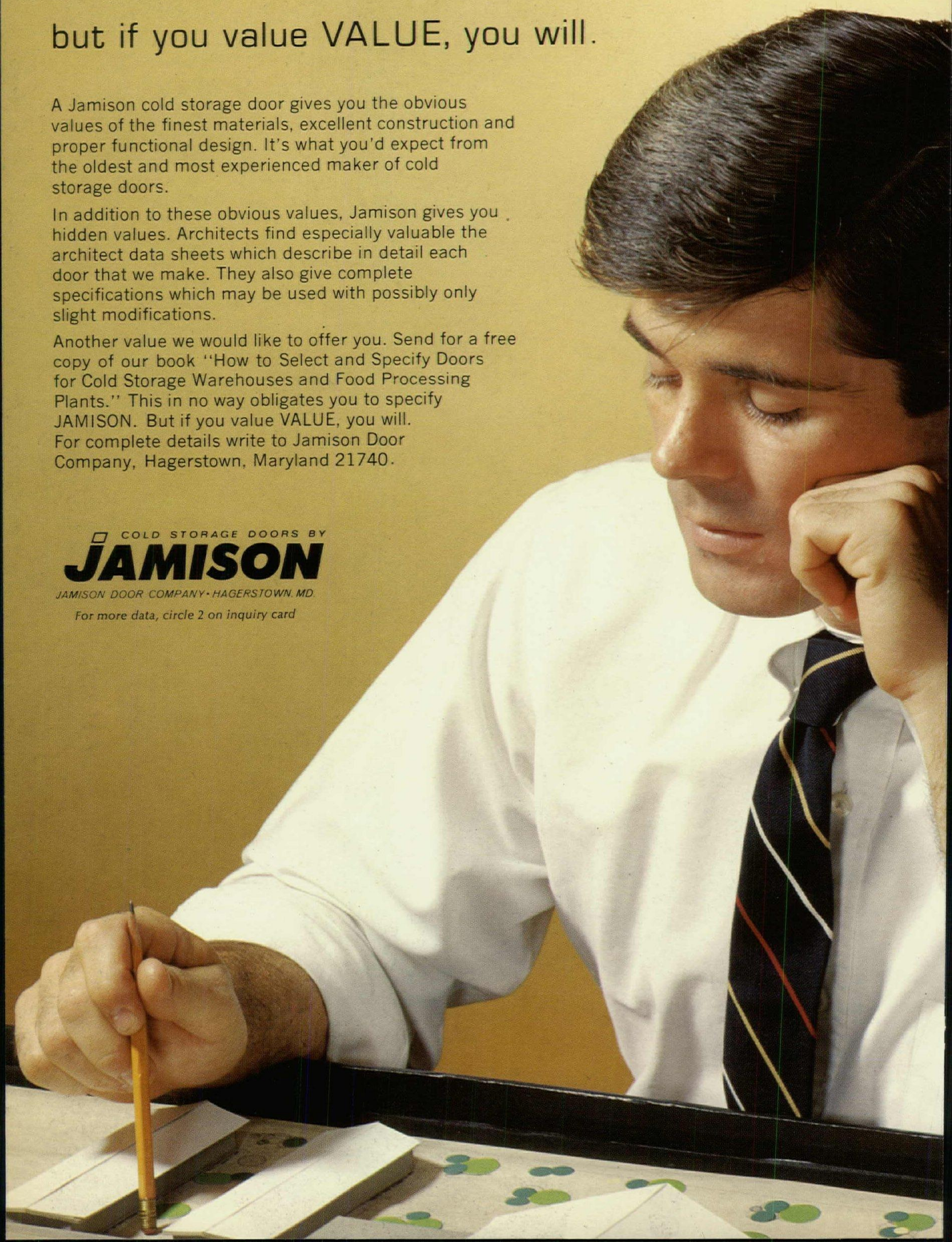

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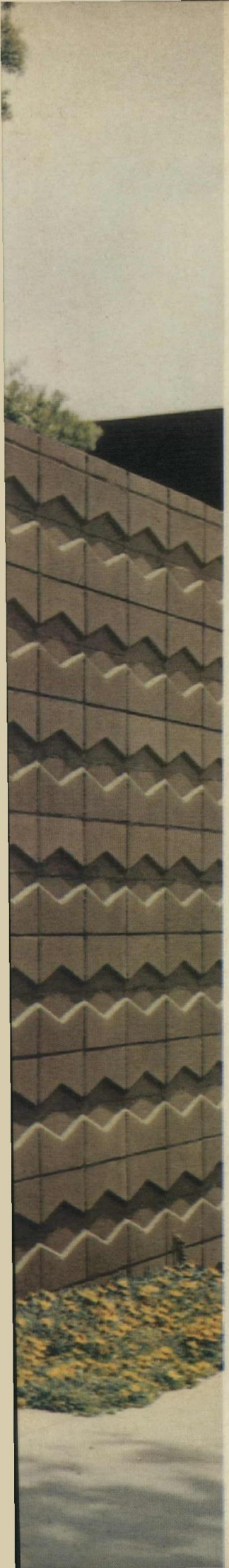

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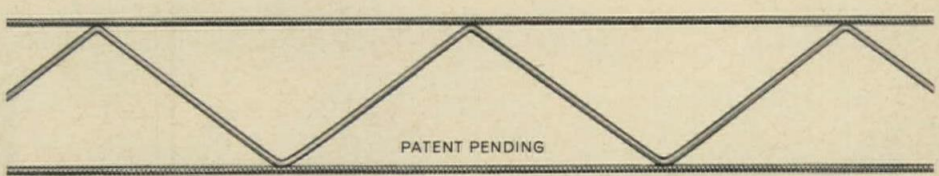

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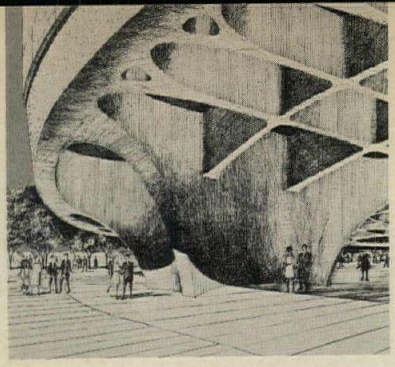

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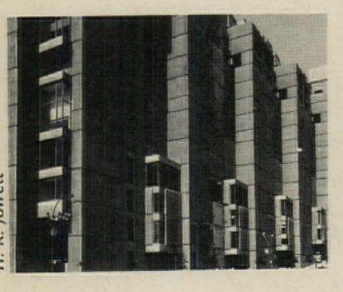

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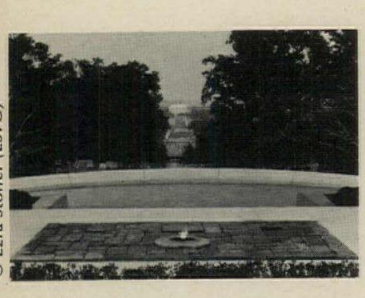

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ARCHITECTURAL RECORD, December 1967, Vol. 142, No. 6. Published monthly, except May, when se
monthly, by McGraw-Hill, Inc., 330 West 42nd Street, New York, New York 10036. CORPORATE OFFICE
Donald C. McGraw, Chairman of the Board; Shelton Fisher, President; John J. Cooke, Vice President and Se
tary; John L. McGraw, Treasurer. SUBSCRIPTION RATE: for individuals in the field served $6.00 per year in U
U.S. possessions and Canada; single copies $2.00; further details on page 6. THIS ISSUE is published in nati
and separate editions. Additional pages of separate edition numbered or allowed for as follows: Western Sec
32-1, through 32-4. PUBLICATION OFFICE: 1500 Eckington Place, N.E., Washington, D.C. 20002. Second-c
postage paid at Washington, D.C. POSTMASTER: Please send form 3579 to Fulfillment Manager, ARCHIT
TURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520.

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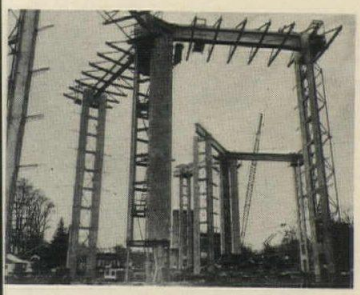

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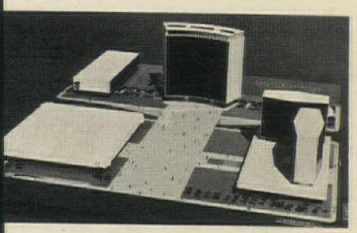

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A NATIONAL AQUARIUM

Kevin Roche, John Dinkeloo and Associates, in collaboration with Charles Eames, have designed an immense aquarium for Washington, D.C. which will be constructed by the General Services Administration in collaboration with the National Wildlife Service.

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

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Emerson Goble won't like this a bit, but...

t the beginning of his editorial last nonth, the editor dropped in a little hrase: "Yes, retirement has caught me." nd at the end of his (as usual) timely nd keenly-reasoned and beautifully-ritten essay, he wished, "in this valedic-ory, I might be more constructive . . ." nd signed his name.

Well, Emerson Goble has been one f the most constructive voices in the eld of architecture for all of the 26 years e has been a member of the staff of RCHITECTURAL RECORD. And for any of those years—17 as managing ditor and nine as editor—he has been aching and cajoling and propping up nd otherwise equipping those of us who ke this magazine on from here to do e job as well as he'd like it done. And is is what I'd like to talk about if—just is once—you'll forgive a personal note.

On Em's last official working day, it ll to Jonnie Davern—managing editor nd Em's long-time assistant—to express mething of our feeling. Part of what e said was this: "You never stopped arning when you worked for Em. He ok the care and training of editors very riously, and he always had time for any-ne who seriously wanted to understand. e never let any of us get away with miss-g the point, and I thought we might st assure him today that we will be eping in mind a couple of points he metimes felt we were in danger of for-tting: One, we will edit and write for r *readers* and not for *ourselves* (that's ten as hard for an editor as it may sometimes be for an architect to design for the client and not for himself) and two, we will always remember who our readers are."

Most often, Em reminded us of these "couple of points" by asking us, "How does it help the reader?" That simple question is at the heart of nearly everything we do, and I remember well some of the times Emerson asked it of me.

The first time was when I'd been entrusted with writing my first story for the RECORD. Since I was new on the staff, I figured I'd better do a pretty good job to show all the other editors (wrong audience, right?) that I knew my stuff. So I badgered the art department into putting together an elaborately designed layout, and spent a lot more time than anyone else gets around this office organizing and writing and reorganizing and polishing and rewriting until every word and argument shone like a new penny. And I turned it in to Em. First comment: "Pretty fancy layout." Long silence. Second comment: "You're selling me architecture. I already believe in it. Our readers are pretty fond of it, too." Then he read for quite a long time, sighing, as I recall, more than I thought necessary. Third comment: "Let's go to lunch." And at lunch he reminded yet another member of his staff never to let the design of the magazine pages get in the way of the design that's being shown on those pages, never to explain laboriously—even in your best words—what any architect can see in a glance at the photographs, and never—having made the key decision to publish something—to argue its worth or importance with readers who are eminently qualified to judge its worth or importance for themselves.

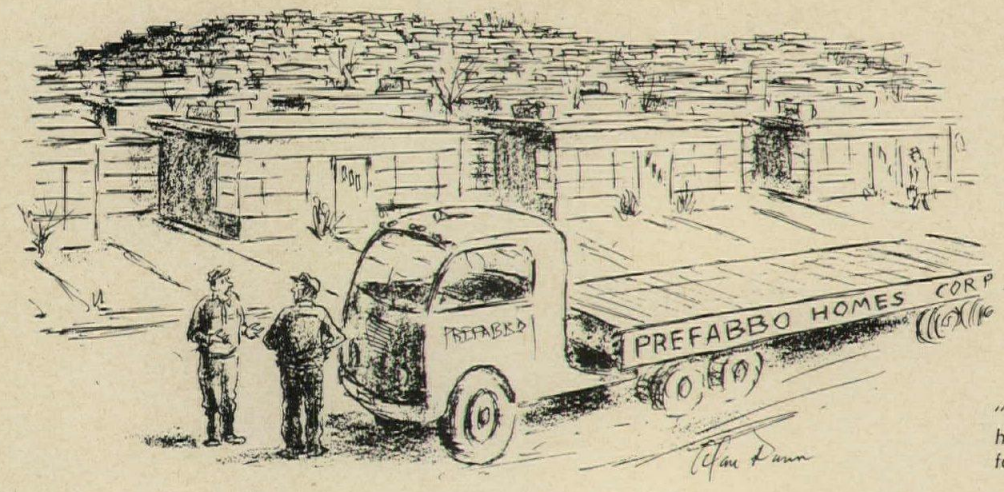
Another time, Em asked me "How does this help the reader?" when a change in printing processes made it possible for us to use much more four-color. All of us scrambled around collecting the most dazzling four-color transparencies we could find to illuminate our articles. I remember the first transparency I presented to Em as part of a projected layout. He shuffled through the photographs and told me to go ahead, but skip the color. Why? "I knew the building was white before I got to the color shot, and when I got there I couldn't see the architecture for all the blue sky and green grass." And so he reminded us that we must use color (just as we use black-and-white photographs and drawings and words) not for its pizzazz, but for its capability to help the reader understand something that he would not otherwise understand.

Not long ago Em wrote on this page that "we are increasingly conscious that architects and engineers, in growing numbers, are shoving out into space with an orbit-minded world, eagerly inventing an architectural approach to every problem the world can toss at them." For those of us who write and edit the RECORD, it's going to be a great trip. We'll be changing the magazine as architecture changes—and as the demands on and needs of our readers change. But one thing won't change, Emerson: We won't forget that our job as editors is to do all we can to help the readers do their job as architects and engineers.

If we ever do, write a nasty Letter to the Editor and I'll have it printed on everyone's forehead.

—*Walter F. Wagner, Jr.*

Drawn for the RECORD by Alan Dun



"Who's going to tell them 3,750 homes have to be recalled for defects?"

Never saw a Shafter cow never hope to see one

Mostly, I find I can take or leave what industrial corporations do to observe their corporate anniversaries. But what Kaiser Aluminum did to observe its 20th anniversary is something else.

It published—in a series of six issues of Kaiser Aluminum News—an extraordinary and evocative look at what the future might be like, written by the company's publications editor, Don Fabun. The illustrations in this series would make an art director weep for joy, and the copy is about this good:

"At exactly 5:13 p.m., the 18th of April, 1906, a cow was standing somewhere between the main barn and the milking shed on the old Shafter Ranch in California, minding her own business. Suddenly, the earth shook, the skies trembled, and when it was all over, there was nothing showing of the cow above ground but a bit of her tail sticking up.

"For the student of change, the Shafter cow is a sort of symbol of our times. She stood quietly enough, thinking such gentle thoughts as cows are likely to have, while huge forces outside her ken built up all around her and—within a minute—discharged it all at once in a great movement that changed the configuration of the earth, and destroyed a city, and swallowed her up. And that's what we are going to talk about now; how, if we do not learn to understand and guide the great forces of change at work on our world today, we may find ourselves like the Shafter cow, swallowed up by vast upheavals in our way of life—quite early some morning."

Well, that should give you an idea without spoiling anything; that is just page one of issue one. And I've tried to whet your appetites since you can now get a copy of these six issues, all bound in one handsome book, by sending $6.95 to Prentice-Hall, Inc., Englewood Cliffs, New Jersey, and asking for a copy of "The Dynamics of Change," by Don Fabun. It's worth your time and money.

The A.I.A. headquarters: a reasonable attitude

Whether you are personally for or against, you had to wonder pretty hard just how the A.I.A. board was going to handle the Fine Arts Commission's embarrassing rejection of the design of the new headquarters building. Heaven knows what got said behind closed doors at 1735 New York Avenue, N.W., but what's been said publicly seems to me pretty sensible.

Bob Durham reminds all A.I.A. members, in a recent Memo, that "The A.I.A. has worked closely with the Fine Arts Commission since its inception. In this case we feel that the Institute submitted an excellent design concept. . . . Nevertheless, because of our belief in the need for the Fine Arts Commission and comparable design review boards throughout the country, we are going to undertake the review of our current design." Not that there was much choice, of course. But there could have been a lot of public bickering, which would have made nifty newspaper copy and wouldn't do anyone any good.

Architects and mayors: advice and authority

Back in our 75th Anniversary Issue, we complained that, "There is still a political jungle between the architect's dream of 'cities of spacious beauty and lively promise' and what can be accomplished i dealings with local officials and polit cians and pressure groups." But we a gued that ". . . for the first time there is strong public and private climate of a ceptance for something new and better.

Some things happened in New Yo this month that give us hope that the ga is closing:

1. Mayor Lindsay appointed Phili Johnson and I. M. Pei to a nine-man U ban Design Council which, while it w not have any enforcement powers, w "advise Mr. Lindsay on design and pla ning for urban projects.

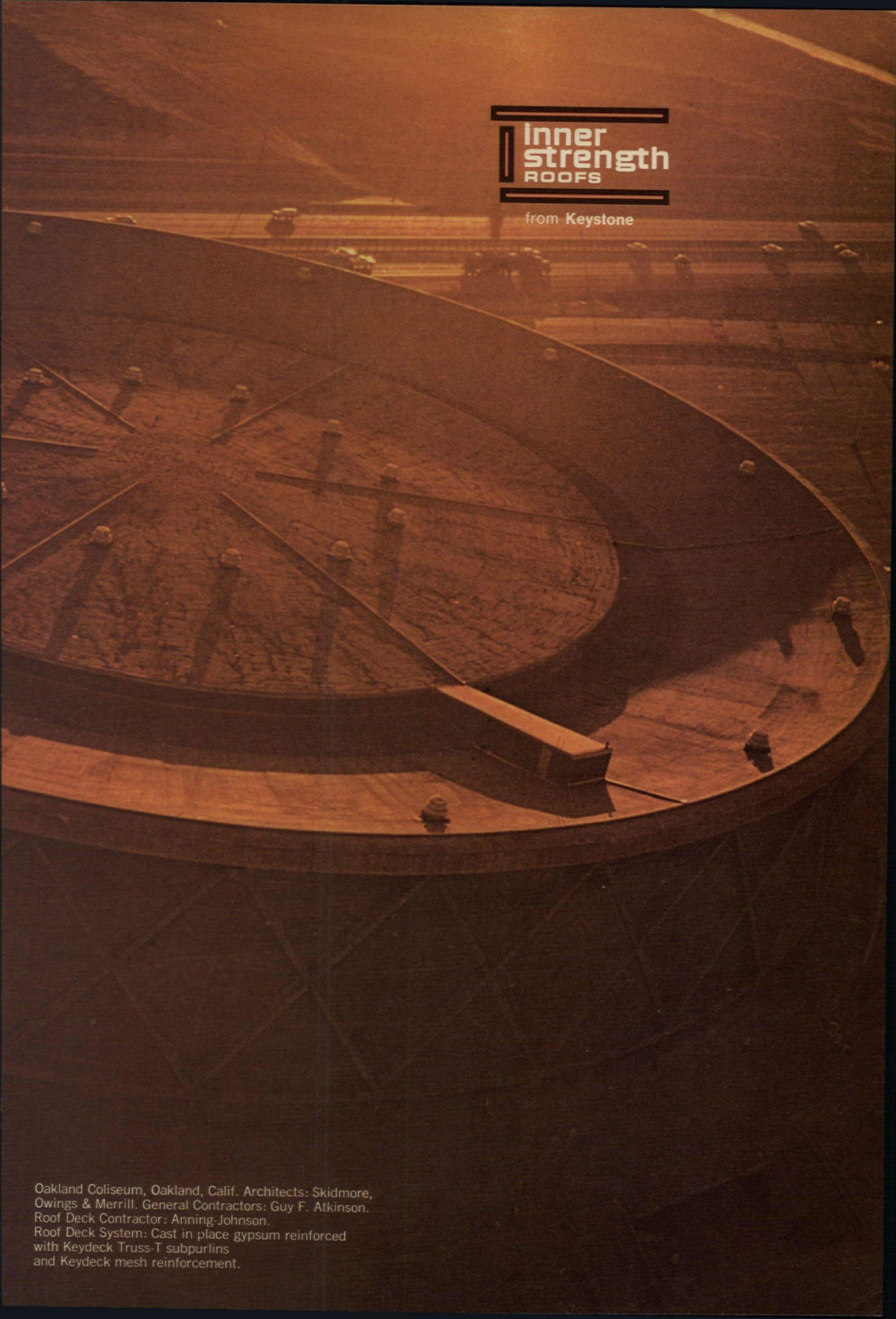
2. The mayor announced a ne "one-stop service" which will permit a architect to visit the Building Departme in his borough and complete the pap work formerly handled separately b seven different departments: Building Highways, Public Works, Real Proper Assessment, Fire, Health, and Air Poll tion Control.

3. Don Elliott, chairman of the Ci Planning Commission, in a speech to th New York Building Congress, said: "Us ally, when one of you has come to th Planning Commission, it was because yo were asking for special dispensation do something the zoning code did n permit. . . . Normally, when a public of cial comes to private enterprise, he seeking the financial support of the p vate sector.

"I am going to ask you to work wi us—for the benefit of the public and private enterprise."

It's probably realistic to assume th none of these steps will prove as effe tive as the mayor and the architects ho they will. But they might work a little, a that's something.

Bureaucrats in other cities, plea copy. —W.



Oakland Coliseum, Oakland, Calif. Architects: Skidmore, Owings & Merrill. General Contractors: Guy F. Atkinson. Roof Deck Contractor: Anning-Johnson. Roof Deck System: Cast in place gypsum reinforced with Keydeck Truss-T subpurlins and Keydeck mesh reinforcement.

The Keydeck Truss-T subpurlin,

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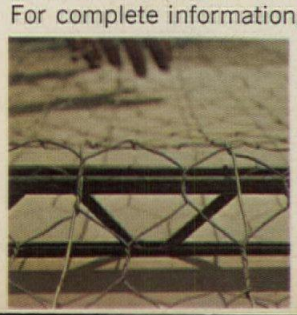
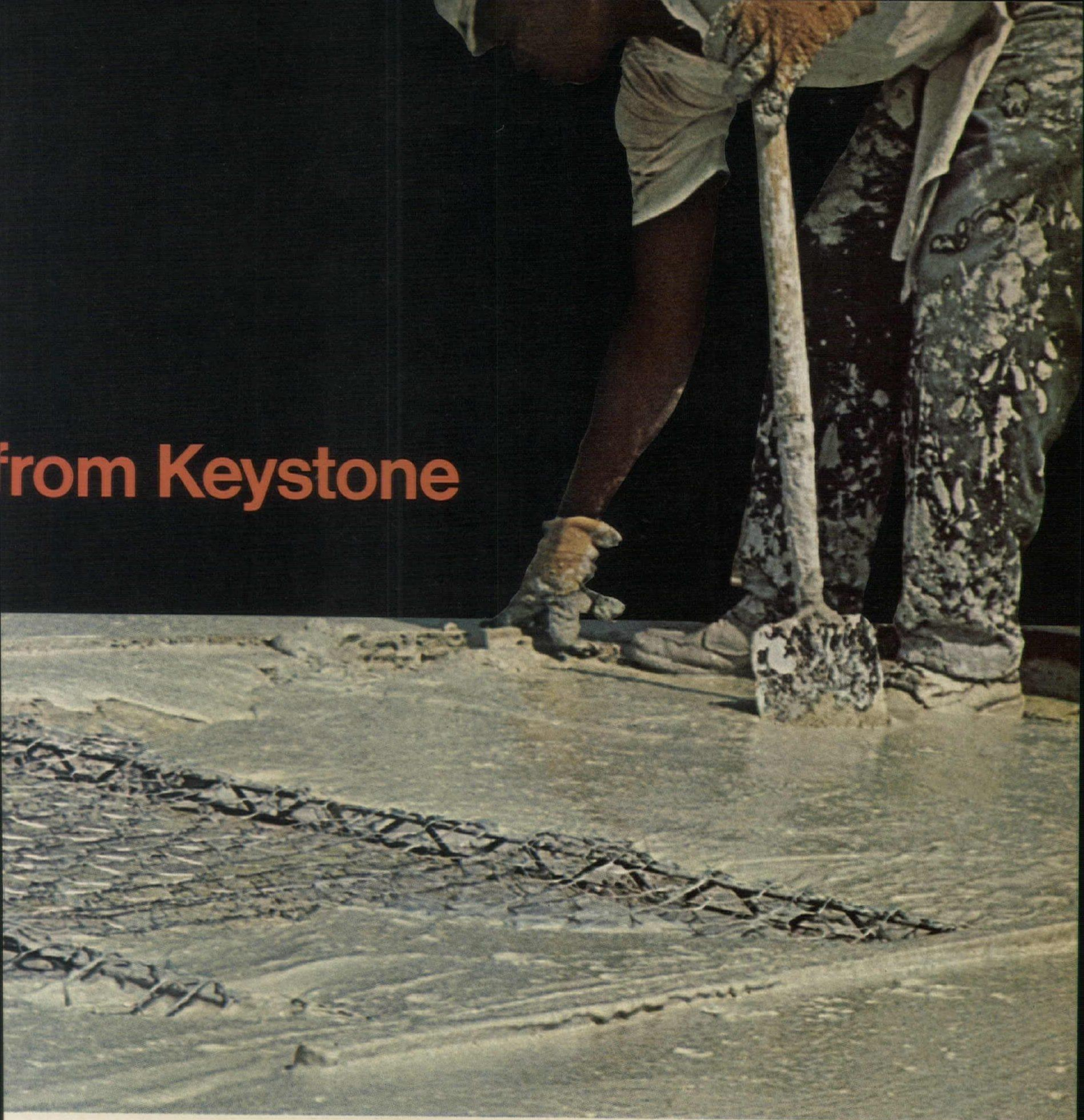


Keydeck mesh reinforcement is the other component of the Keystone roof deck reinforcement system. It has proved to be a superior reinforcement under stress, maintaining the integrity of decks subjected to hurricanes, tornadoes and earthquakes.



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The "OVERHEAD DOOR" electric is tougher than a tribe of Apaches

Fully transistorized, portable transmitter opens and closes garage door automatically by radio control from your car.

Sterling qualities, these. However, they don't tell the whole story of why more and more architects are specifying The "OVERHEAD DOOR" electric for their custom home and industrial building designs. We know why they are, though. Why?

Quality construction. The "OVERHEAD DOOR" and electric operators are made of the finest materials available, and are built by us in our own factories equipped with specialized production machinery.

Manufacturing experience. Overhead Door Corporation invented the sectional door, and has built over eight million of them. It's not surprising that we know more about the application of doors and electric operators than anybody else.

Professional assistance. Our engineers are always ready to confer with you on any standard or special door requirement. We stand ready to assist you on any industrial, commercial, or residential specifications.

and as dependable as the Sheriff.

Versatility.
The "OVERHEAD DOOR" electric can be designed for almost every conceivable application. Specify The "OVERHEAD DOOR" and get the industry's widest selection of materials, sizes, and designs.

Nationwide service.
There's a distributor of The "OVERHEAD DOOR" within minutes of nearly every job site in the country. America's largest network of factory-trained door specialists is at your service. Just look for your nearest distributor's name under "OVERHEAD DOOR" in the white pages of your telephone directory.

Maybe you're a bit past your prime for a fast game of Cowboys and Indians. But you can still prove yourself one of the good guys by always specifying The "OVERHEAD DOOR" and electric operator.

For more information about the men who stand behind The "OVERHEAD DOOR", please turn the page.

THE "OVERHEAD DOOR" TRADE MARK
SINCE *the original* 1921

OVERHEAD DOOR CORPORATION
General Offices: Dallas, Texas 75202
Manufacturers of The "OVERHEAD DOOR"
and electric operators for residential and commercial buildings

For more data, circle 8 on inquiry card

The men standing in back of The "OVERHEAD DOOR" also stand behind it.

Next to the product we sell, these men are our pride and joy. They're door men, factory-trained specialists who are eminently qualified to help you select the door or doors best suited for any application; commercial, industrial, or residential. We make doors of wood, steel, aluminum, and fiber glass in any size to fit any opening. Specify The "OVERHEAD DOOR" electric and you put the vast technical knowledge and experience of these men to work for you. Your client will appreciate it. And he'll remember it. Always specify The "OVERHEAD DOOR". It's the door you can stand behind, because we do. For full details call your local distributor. He's listed under "OVERHEAD DOOR" in the white pages of your phone book. Or, refer to our catalogue in Sweet's Architectural File. Another open and shut case for The "OVERHEAD DOOR". For more information about The "OVERHEAD DOOR", please turn back one page.

Sales · Installation · Service

THE "OVERHEAD DOOR" TRADE MARK

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OVERHEAD DOOR CORPORATION • General Offices: Dallas, Texas 75202 • Manufacturers of The "OVERHEAD DOOR" and electric operators for residential and commercial buildings

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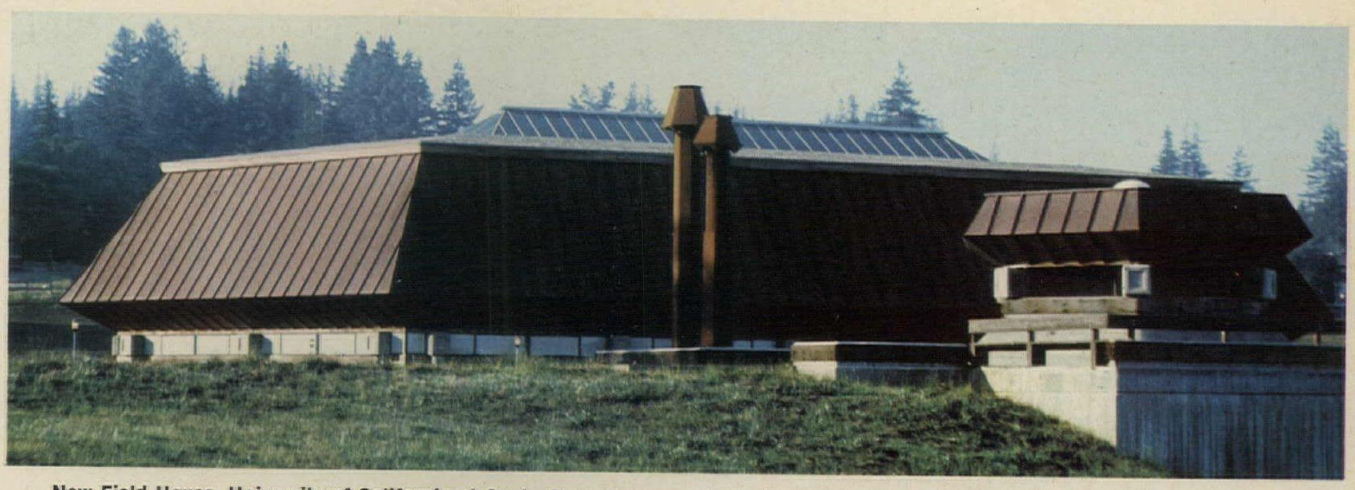
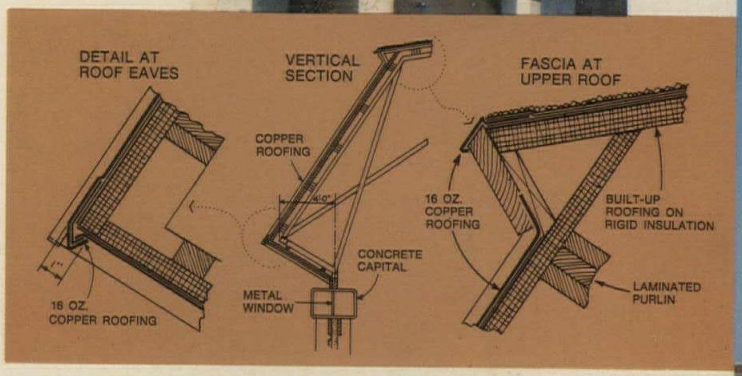
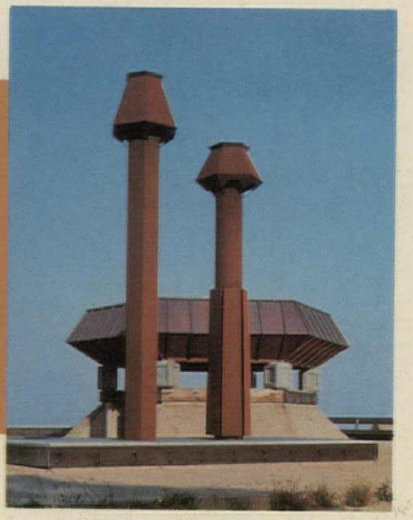


New Field House, University of California at Santa Cruz. Copper encloses the terminal chords of the two-way steel truss that spans the large main area of the building. Repetition of copper above an open stairway unites the design. The unusually prominent drip created at the eave gives strong definition to the roof.

The workability and rich color of sheet copper were used to good advantage by architects Callister, Payne and Rosse in the design of this college athletic building. Copper combined perfectly with the buff of the concrete and deep color of the redwood. A few years of weathering should make them harmonize even more beautifully. The ease of joining and forming sheet copper simplified the installation. And the enduring copper roofing, flashing and fascia should require no maintenance for many, many years.



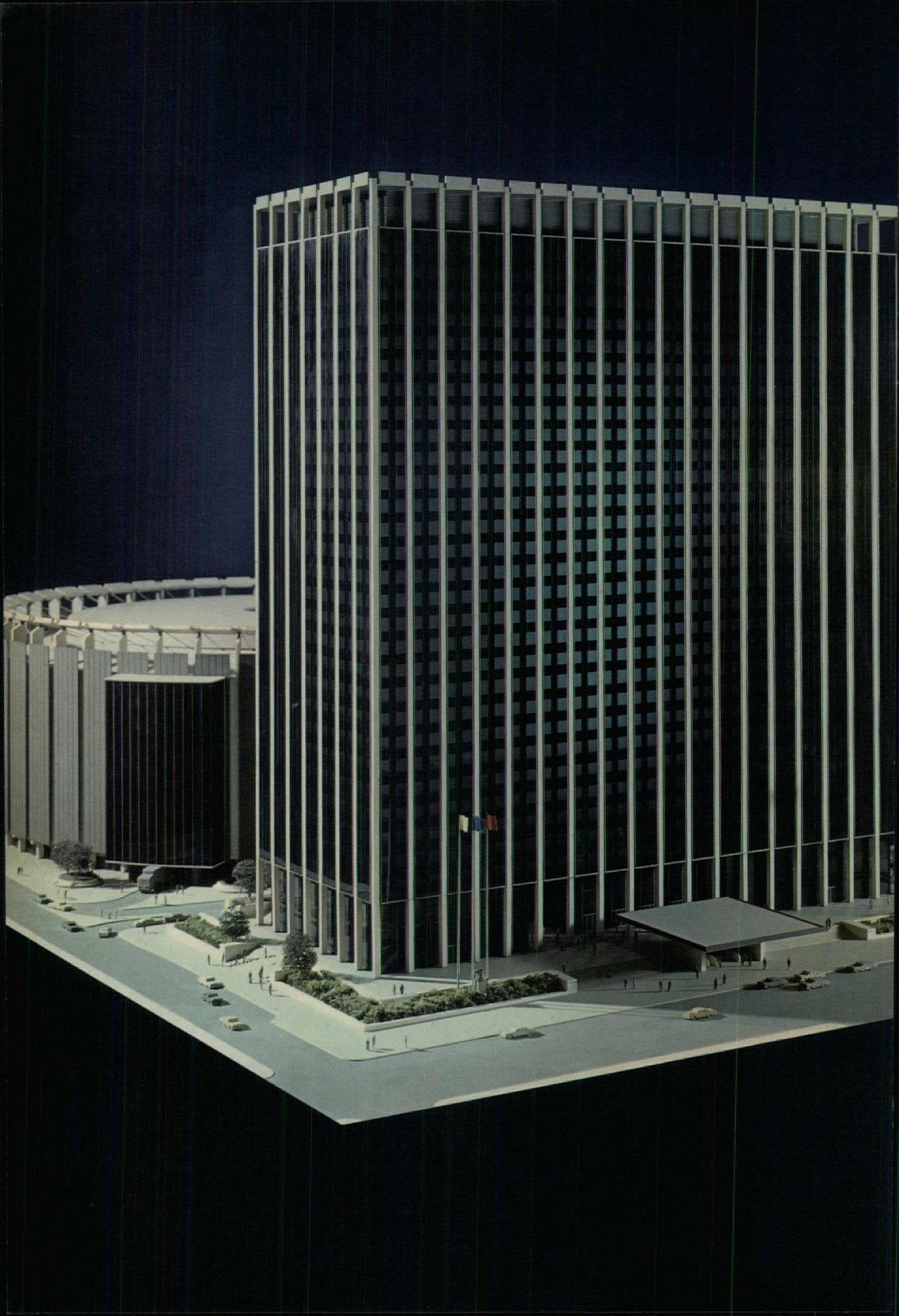


Details of the roof eaves and upper roof fascia are shown above. For a new 96 page handbook of sheet copper fundamentals, design details and specifications, write for "Contemporary Copper".

407/7

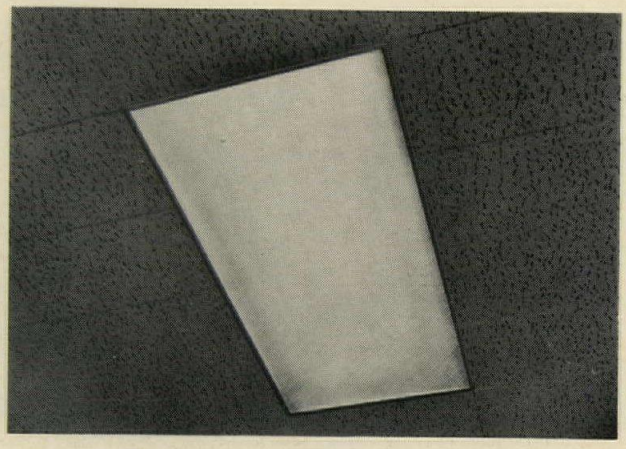
Copper Development Association Inc., 405 Lexington Avenue, New York, N.Y. 10017

For more data, circle 9 on inquiry card



Architect: Charles Luckman Associates. General Contractor & Owner's Representative: Tishman Realty & Construction Inc.

When you enter the office building in the new Madison Square Garden Center, look up



You'll see Holophane's unique solution to an unusual lighting problem

Designers of Two Pennsylvania Plaza, the office building adjoining New York's new Madison Square Garden, faced a lighting problem months before construction even started. They wanted the clean, unobtrusive good looks and superior lighting performance of Holophane frameless lenses throughout the structure. Yet the fixture called for by the building's easy access ceilings required a lens with a frame.

Holophane specialists developed a solution. Through an ingenious modification of Holophane's 2′ x 4′ frameless Controlens®, they adapted lens to fixture and totally eliminated the need for a metal frame. Nearly 20,000 of these special lenses, specified as building standard, provide a high level of uniform, glare-free illumination throughout the 29-story skyscraper.

Holophane has been helping architects and builders solve lighting problems like this for years. Big lighting problem? Let Holophane help. Just fill in the coupon.

Dept.H-12
Holophane Company, Inc.
1120 Avenue of the Americas
New York, N.Y. 10036

My architectural lighting problem is:

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☐ Send literature
☐ Have Holophane representative call

Name_____

Firm_____

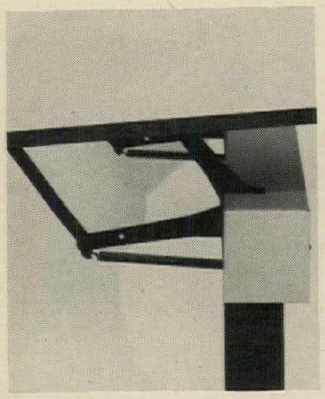
Street_____

City_____ State_____ Zip_____

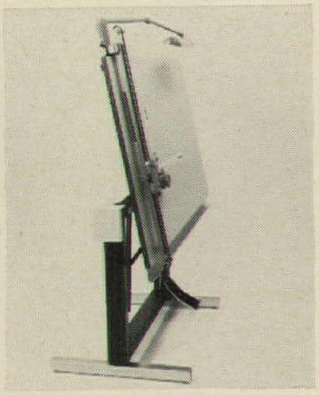
Architectural lighting solutions from **HOLOPHANE**

GF TOUCH-A-MATIC Drawing Unit

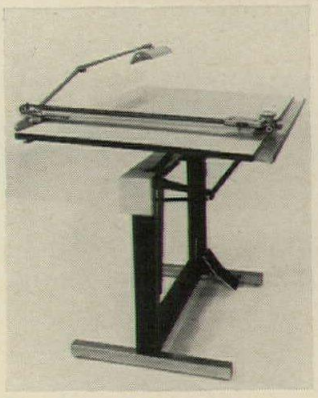
Drawing platform adjusts to any angle and height simultaneously, and it takes only fingertip pressure.



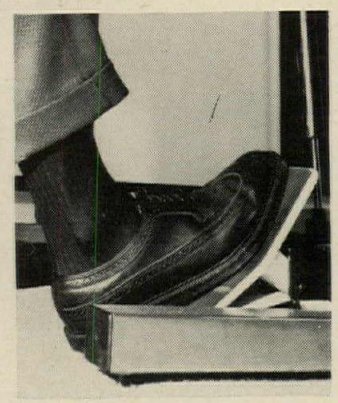
Moves on two springs and parallelogram mechanism
The patented Lift-o-Mat® mechanism operates through two slender, unobtrusive counterbalanced pneumatic cylinders.



From almost vertical
Adjust it to just 12 degrees off vertical to make it easy to move through narrow doorways, easy to store in limited space.



To almost horizontal
For use as a table or desk, move it to within three degrees of horizontal, adjust it to desired height.



At the touch of a toe
Press the foot pedal lightly and the board will move freely to any position. Touch the pedal again and a parallelogram brake system locks the board in place.

Plan a Touch-a-Matic work station. Use matching chairs, bookcases and desks for inline or L-shaped work stations. For day-long comfort, choose the draftsman's favorite—the Model 6025-D GF chair, which tilts slightly forward. The General Fireproofing Company, Dept. AR-27, Youngstown, Ohio 44501.

GF BUSINESS FURNITURE 65 years 1902/1967

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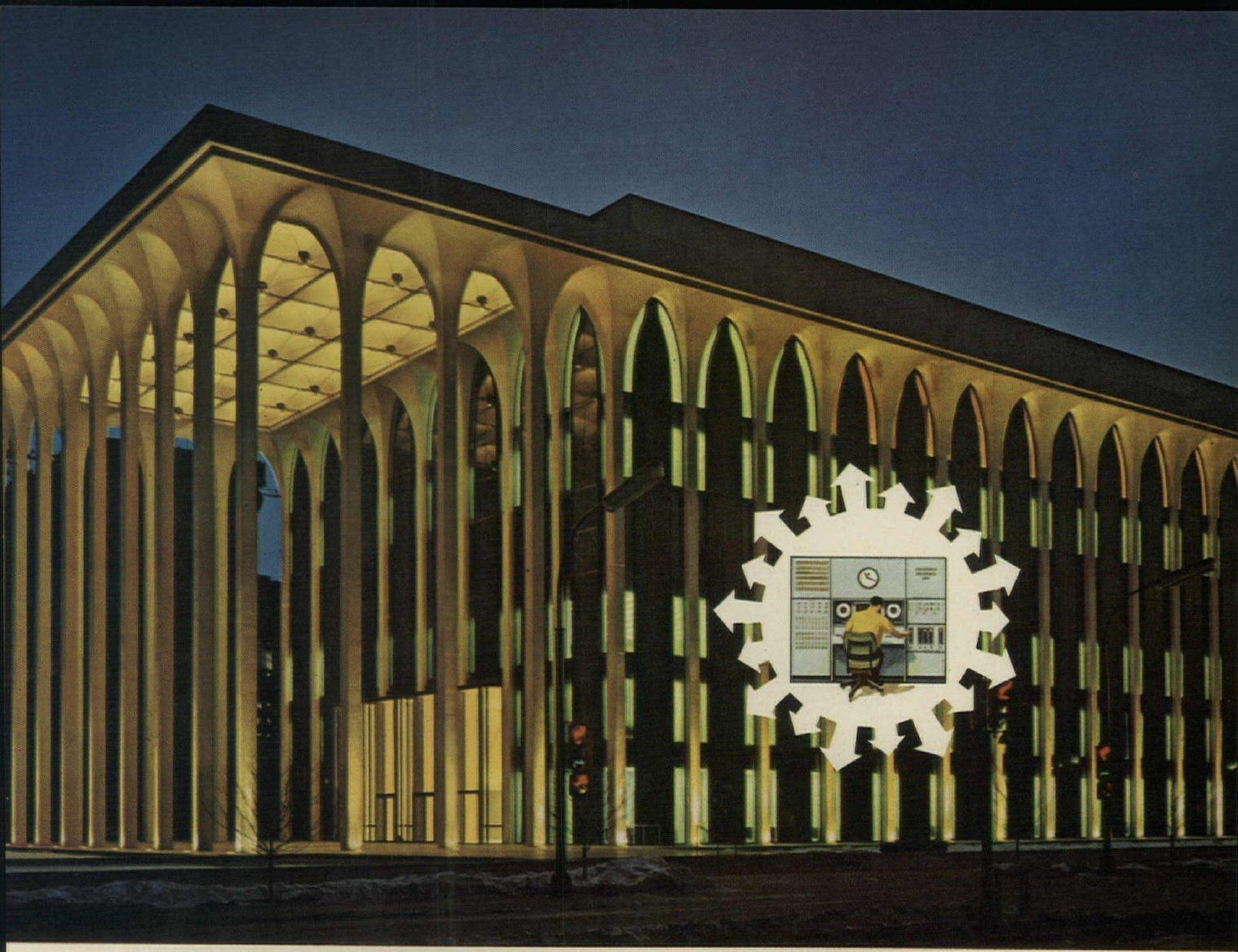


One man operates the Honeywell automated control center that sees, hears, records, reveals, checks, adjusts, alarms, remembers, analyzes, monitors, starts and stops almost everything in a modern building. Shown here: Northwestern National Life Insurance Company, Minneapolis, Minn. Architect: Minoru Yamasaki & Associates.

Now Honeywell 1-man Building Control gives you 33⅓% annual return, microelectronic circuitry plus...

. these reasons to specify Honeywell:

Only Honeywell offers 5 different ystems to automate clients' buildgs . . . ranging from one so simple eir secretaries can run it to new stems that let one man control an tire building complex. They get hat they need. No more. No less.

Only Honeywell offers microelecnic circuitry . . . the next state-ofe-art advancement in control techlogy. Integrated circuits in new oneywell building control systems ovide infinite life expectancy and liability.

Only Honeywell maintains a field aff of Building Automation Systems Engineers to help you deliver the payoff your client deserves. He can call on 8 other Honeywell divisions for help . . . taking advantage of Honeywell know-how in process control and space guidance to keep your system from becoming obsolete.

Add to this the fact that Honeywell has 112 offices around the country to give you 24-hour service and you can only conclude: *Only Honeywell can design, build, install, guarantee and service the complete system your client needs.*

Make us prove these strong statements. Ask for examples of operating economies in building projects like yours. Send coupon.

FREE BOOKLET!
☐ Send for copy of "Honeywell Building Automation Planning Guide"

☐ Have a Building Automation Systems Engineer call with examples of operating economies.

Honeywell, Dept. AR12-101
Minneapolis, Minnesota 55408

Name_____

Title_____

Firm_____

Address_____

City_____ State_____ Zip_____

Honeywell

automation systems help make people more productive

Design Architect: Edward Durrel Stone

Architects: Shannon & Clark Associates; McLoney & Tune; Watkins, Burrows & Associates

General Contractors: Foster Creighton Company; Haggett Construction Company

Aluminum Applicator: Whalen Erecting Company of Kentucky, Inc.

Fabricator: William Bayley Company

It had to be more than aluminum.

It had to be Alcoa.

At Lexington, Ky., the architect of the University of Kentucky's proposed 11-unit dormitory-dining complex had to select a window-wall system that would be immune to mildew problems and also offer maximum insulation values. To meet these needs, he specified Alcoa * Alply Panels. Made of polystyrene foam laminated between aluminum sheets, Alply Panels offer excellent resistance to rot and mildew. In addition, the polystyrene-aluminum combination provides a 3-in.-thick panel that imparts the insulation value of a 15-in.-thick masonry wall.

The handsome and durable bronze finish that lends such dignity to the light metal components is Alcoa Duranodic† 300 finish. Its rich color, like all Duranodic 300 finish colors, is not a dye or a pigment but an integral part of the metal itself.

Other reasons why aluminum was specified: Its versatility and compatibility permitted clean, crisp detailing of the bays. The 11-unit dormitory-dining complex reflects the architect's imaginative use of Alply Panels and aluminum extrusions.

Scheduled for completion in September, 1967, the project includes eight three-story structures, two 23-story, high-rise buildings, and a separate dining facility.

From concept to completion, Alcoa can smooth the way for an architect. Get the benefit of fresh, imaginative Alcoa architectural thinking. Call your local Alcoa sales office and talk to Alcoa early at the talking tissue stage.

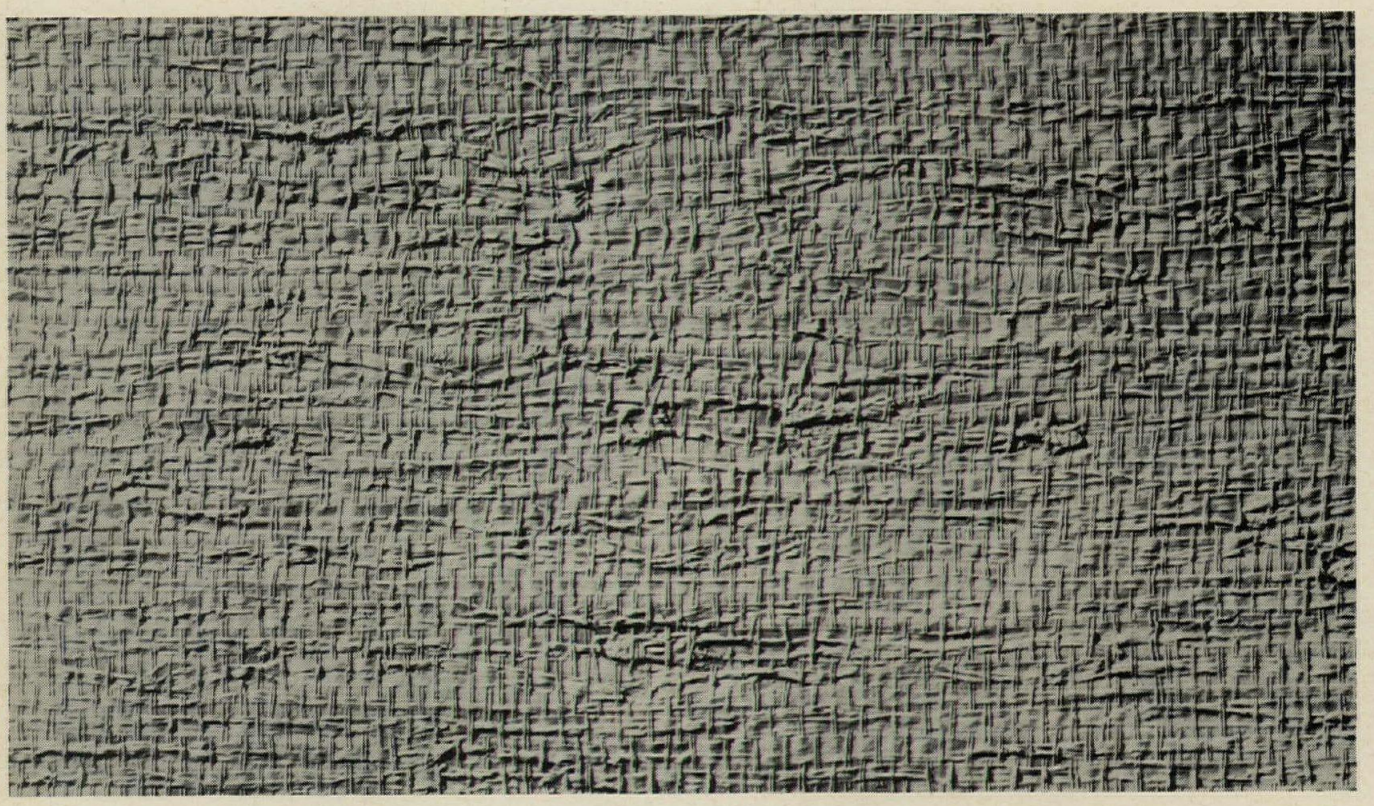
*Registered Trademarks of Aluminum Company of America

†Trade Name of Aluminum Company of America

Change for the better with Alcoa Aluminum

ALCOA

We've improved grass cloth.



We call ours Tamara. It's a Koroseal vinyl wall covering.

It gives you the same expensive look of natural grass cloth, but there the similarity ends.

Koroseal is economical.

It resists smudges, scratches, stains and all the other perils that ruin the real thing. It won't shred, chip, flake, yellow, fade or crumble.

It's easy to hang, too. To keep clean. It's washable, over and over again. Even flame-resistant.

Koroseal grass cloth comes in Pure White, Bone White, Tea Leaf Green, Eggshell, Ivory, Opal, Oriental Blue, Bamboo, Limed White, Natural, Hemp (a few shades darker than natural), Olive, Ming Red, Taiwan Tan, and Char Brown.

We've improved other natural wall coverings as well. Burlap. Split cork bark. Silk. Linen. Handwoven straw. Tapestry.

If you like the real thing, you'll like our improved version of it even more.

So next time, use Koroseal vinyl wall covering. 30 patterns. 500 colors. Write B.F.Goodrich Consumer Products, Akron, Ohio 44318.

B.F.Goodrich

Koroseal—T.M. Reg. U.S. Pat. Off.

For more data, circle 11 on inquiry card

Bright idea

Corridor-installed Bradley Washfountains make supervision a snap, save money in schools! They get students out of toilet rooms quickly. There's no reason for loitering and possible horseplay. And one teacher can supervise wash-up and monitor the corridor at the same time. What's more, Washfountains serve up to 8 people with one set of plumbing connections. So they reduce installation costs up to 80%. In 36 and 54-inch diameter circular and semi-circular models. Available in widest choice of colors and materials. Corridor-installed Washfountains. A bright idea you can use—from Bradley! For complete details, see your Bradley representative. And write for latest literature. Bradley Washfountain Co., 9109 Fountain Drive, Menomonee Falls, Wisconsin 53055.

from Bradley!

BRADLEY

For more data, circle 12 on inquiry card


THOMAS Pride MILLS INC.

Thomas Pride Mills Inc. presents "Starpoint" and "Rockpoint" the new public-image carpets with Zefkrome® E.S.P.*

*E.S.P. Engineered for Superior Performance

Look into the carpet with the innovations of Zefkrome acrylic, Engineered for Superior Performance. You'll find the advantages worth your time.

Color: multichromes, a new color concept developed for greater clarity of color.

Durability: unusual wear power, tested by 2 million footsteps, or 54 years. Outwears other acrylics by as much as 50%.

Superior color retention: lasting color, safe in sunlight because the color is locked in when the fiber is made.

Superior cleanability: "Starpoint" and "Rockpoint" return to their original appearance after on-location cleaning better than any other acrylic carpet.

Dirt resistance: Zefkrome is a smooth circular acrylic fiber that doesn't hold soil the way other acrylic fibers do. Both carpets are moth and mildew proof. Perfect for installation anywhere in the world, wherever fine carpeting is a part of protocol.

DOW BADISCHE ZEFKROME® ACRYLIC

Zefkrome® is a trademark of Dow Badische Company

Specifications.

70% Zefkrome acrylic, 30% modacrylic

"Rockpoint"	"Starpoint"
2.14 yarn size	2.4 yarn size
7/32 pile height	5/32 pile height
1/8 gauge	1/8 gauge
20 tufts per inch	15 1/2 tufts per inch
42 oz. face yarn weight	31 oz. face weight
4 oz. polyback Polypropylene primary back	4 oz. polyback Polypropylene primary back
24 oz. latex	24 oz. latex
8 oz. jute secondary back	8 oz. jute secondary back
15 lb. pull tuft bind	15 lb. pull tuft bind
78 oz. total weight	67 oz. total weight

Thomas Pride Mills Inc.
Calhoun, Georgia 30701

Gentlemen: Please send me details on colors, specifications and prices of "Starpoint" and "Rockpoint."

Name_____

Company_____

Address_____

City_____

State_____ Zip Code_____

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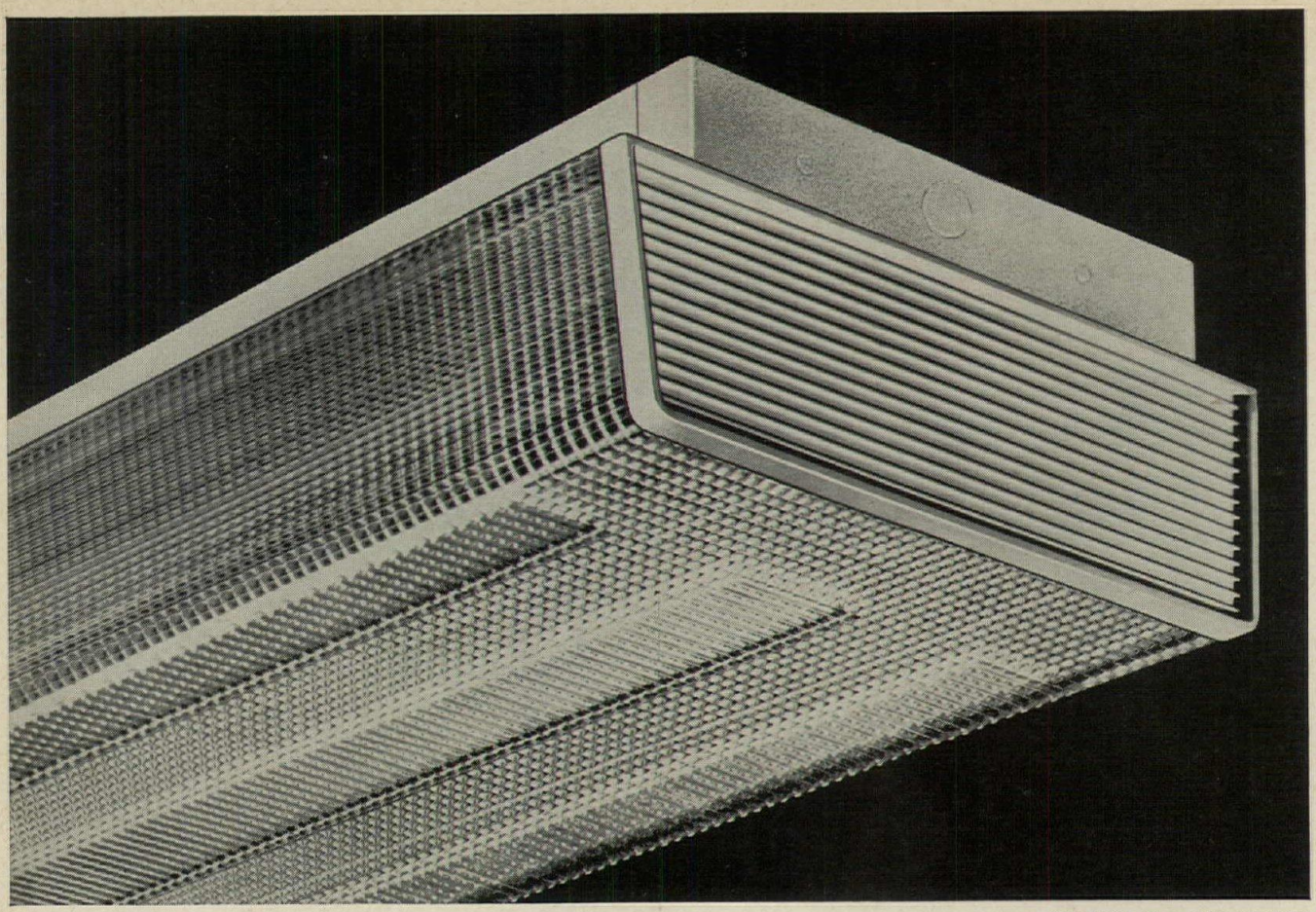

"HOLOPHANE" and "CONTROLENS" are trademarks of Holophane Company, Inc.

Everything's beautiful about LPI's new surface-mounted 7100 Series fluorescent luminaire. Want more than just our word? Ask Holophane.®

They make the lens. Around this lens we've designed a special luminaire. And it's a real beauty—both in its slim silhouette styling and in its superior illuminating characteristics achieved through precision prismatic design.

You may have already guessed—LPI's new luminaire was designed for Holophane's finest injection-molded, clear acrylic lens: the 7100 CONTROLENS.®

This is the lens that combines maximum illumination with the control you need to light an area economically with fewer fixtures. Light is directed upward and outward as well as downward. Lighting efficiency like this gives you total uniform illumination. The kind of illumination that cuts off most glare and eliminates dark spots from ceilings. Along with the kind of beautiful design that keeps the hinges off the diffuser so that they're not visible. Practical design, too. With no hinges on the diffuser, there's no pressure that could cause damage when it's swung open from either side for relamping.

LPI did some beautiful things, too. (However at first glance, they may seem too practical to be beautiful.) The best example is the way we control ballast heat rise in the new 7100 Series. It's controlled so well that the 7100 Series is *U.L. listed for surface mounting without spacer brackets on combustible cellulose low density fiber-board ceilings in the two-lamp, four-foot and in the four-lamp, eight-foot series* Now is that practical or beautiful? When you really examine our new 7100 series you'll find LPI's basic quality and simplicity of design throughout this luminaire. Ask your LPI representative, or write to us, for complete information on the new LPI 7100 Series luminaire. It's a beautiful buy.

LPI FLUORESCENT LIGHTING

Lighting Products Inc., Highland Park, Illinois 60035

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Metal walls go up faster ...and last and last with finishes of Kynar® 500!

Metal walls go up nearly 10 times faster than brick or masonry walls, and cost ⅓ to ½ as much. They can be taken down quickly for easy access or plant expansion.

What's the best protection for the metal? Finishes of Kynar 500! They come in a wide selection of colors; assure perfect color match panel for panel. They're durable: won't crack or craze, take abrasion in stride. Accelerated tests by Pennsalt, plus years of exposure data project 30 years of maintenance-free life!

For your next industrial building, consider metal walls highlighted by a colorful finish of Kynar 500. For more information, contact Plastics Department, Pennsalt Chemicals Corporation, 3 Penn Center, Philadelphia, Pa. 19102. (215) LO 4-4700.

Make your base specification Kynar 500! PENNSALT®

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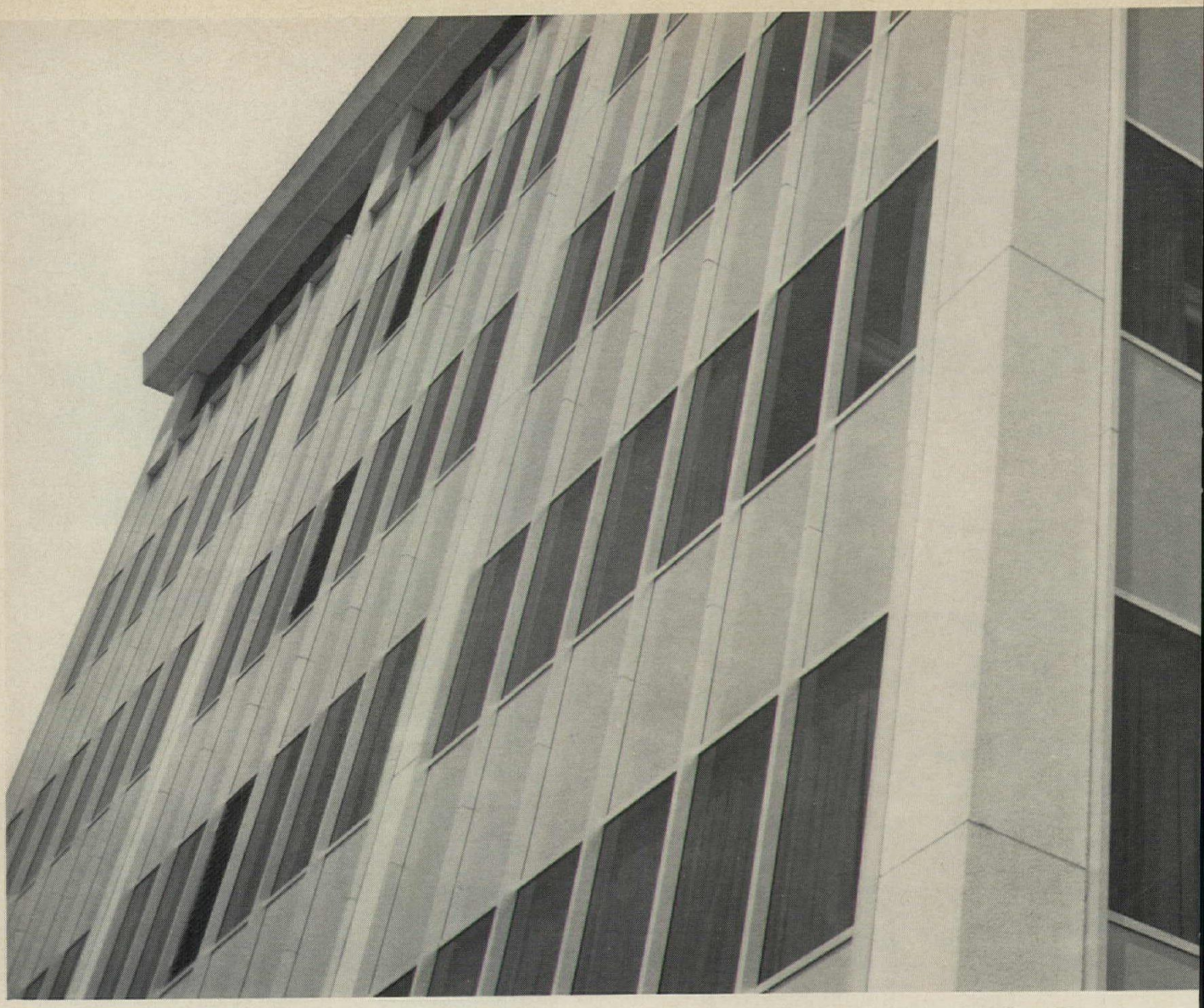


Lower initial cos in Union Bank Square

Union Bank Square, in Orange, California, is a dramatic example of the economy of All-Electric buildings.

The All-Electric Central Tower is a six story office building, steel curtain wall construction, with 84,000 sq. feet of gross space. It was completed in August of 1966.

Right next door is the North Tower, a non-All-Electric building of similar construction and the first building in the complex to be erected.

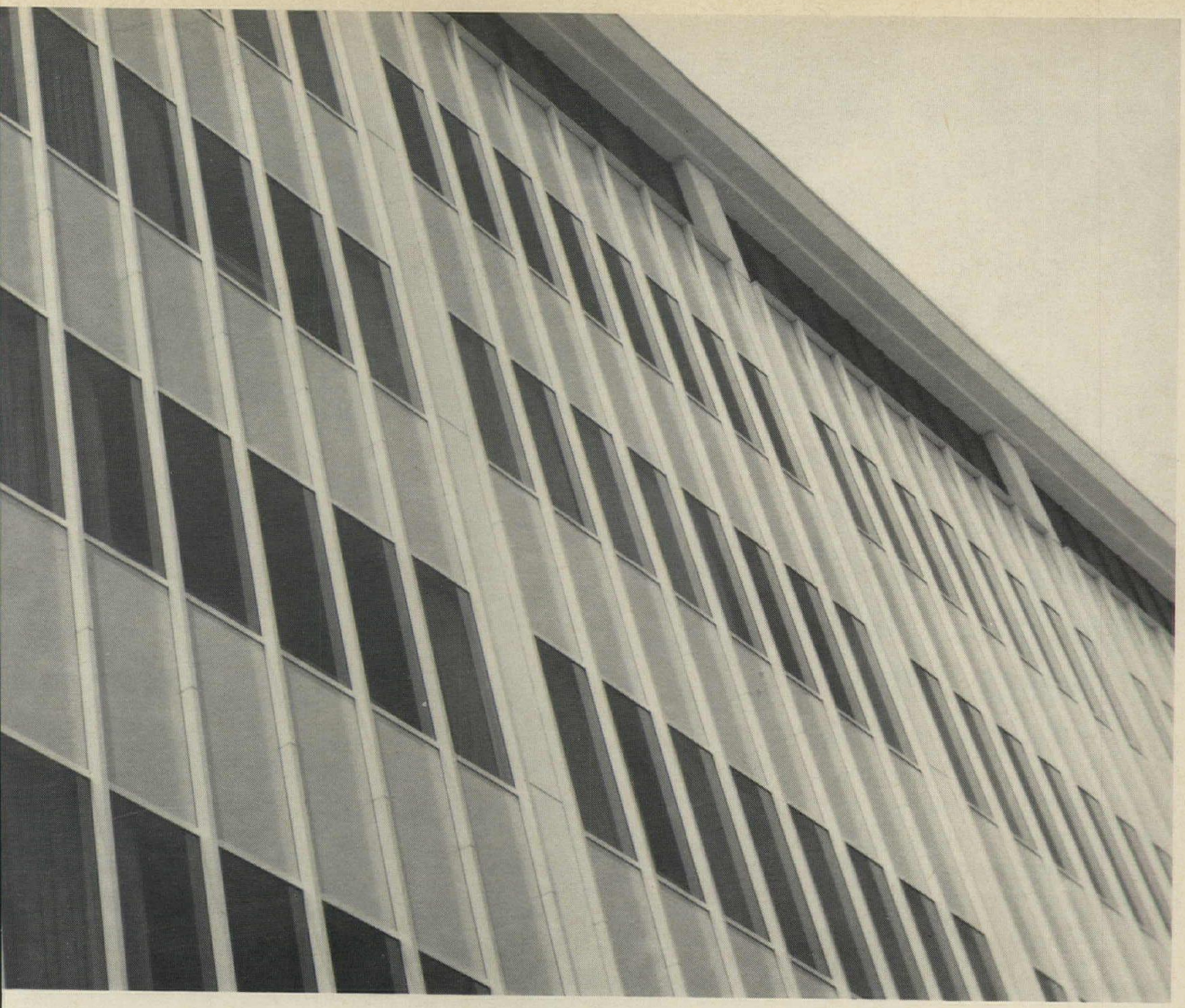
Calculated on a per-square-foot-basis, the combined overall initial, operating and maintenance costs for the All-Electric Central Tower are lower. Electric strip heaters in the ducts and refrigerated electric air conditioning accounted for significant savings in first cost.

Annual operating costs are just under 25 cen per sq. ft. per year. Maintenance time on the spac conditioning system in the Central Tower is tw thirds less than in the North Tower.

Canal-Randolph Corporation, owner and ope ator of Union Bank Square, has found that clain for All-Electric buildings are proven in practic

That's why the third building in the comple the twelve story South Tower, will also be all ele tric. Scheduled completion date is July of 196 and leasing operations for space in this luxu office building have already begun.

We can give you hundreds of other case hist ries of low annual cost of All-Electric building Write Marketing Engineering, P.O. Box 62, Te minal Annex, Los Angeles 90051.



nd total annual cost
ll-Electric Central Tower

Central Tower, Union Bank Square, Orange, California. A Canal-Randolph Property

Building Profile

GENERAL DESCRIPTION
- Six-story building
- 84,000 square feet office tower
- Steel curtain wall construction

OPERATING COSTS
- Total electric Operating Costs – 25¢ per sq. ft. per year

ELECTRIC LOAD
- Connected lighting and miscellaneous load – 250 KW
- Electric space conditioning equipment –
  - Cooling – 300 Tons
  - Heating – 374 KW
- Electric Water Heating – 15 KW

SPACE CONDITIONING
- Double-duct electric heating and cooling system

uthern California Edison SCE

"All I know is one evening in our living room, my wife and I decided it was a good idea to join the Peace Corps. So we did."

What the David Kadanes did puzzled and puzzles a lot of people. Maybe because the Kadanes weren't anywhere near twenty years old anymore. Maybe because they gave up two years' worth of a lot of salary, two years' worth of a big job as General Counsel for the Long Island Lighting Company, two years' worth of a life they had spent their whole lives building ...just to join the Peace Corps.

But what a lot of people don't realize is that the Peace Corps isn't just a place for just-out-of-college kids with strong arms and heads and good-size hearts. The Peace Corps is a place for people who want to do something and can do something. It's a place for people who want to see things and do things firsthand and closeup. People who want to give other people a chance to get to know and understand their country and themselves as they really are. People who care about the world and other people maybe even as much as they care about themselves.

And, maybe more than anything, the Peace Corps is a place for people who, for some reason, are willing to give up whatever they have to give up to do something they feel they have to do. And the David Kadanes are two of those people.

Write: The Peace Corps, Washington, D.C. 20525.

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Start a small revolution in the bathroom.

The new American-Standard Compact/Vent-Away* has a remarkable built-in ventilator— to keep the bathroom always fresh. Why not specify Vent-Away on all your new home and motel projects?

The revolution is on at American-Standard.

AMERICAN STANDARD

Call your American-Standard representative for details or write:
American-Standard, 40 W. 40th St., N.Y., N.Y. 10018
Attention: Advertising Department

I'd like complete specifications, available styles and colors for your Vent-Away toilet.

My name_____

Address_____

City_____ State_____ Zip_____

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. . . and the first patient hasn't even arrived.

Sure, it's designed to take the best possible care of patients. The construction is totally sound. And facilities include everything modern medicine could ask for.

But if communications aren't the most modern available, a hospital is obsolete before it's even begun.

Modern hospitals need all the communications consideration you can give them.

So they can take full advantage of the telephone. Bring in Tele-Lecture or closed-circuit TV. Even tie into a computer with Data-Phone* service or teletypewriter.

And that's where a Bell System Architect and Builder Service Representative comes in. He can help make your next hospital—and every building—as modern as modern communications can make it. And insure that communication needs of the future will fit in without expensive alterations.

Just call 212-393-4537 collect. We will send you a complete list of our Architect and Builder Service Representatives.

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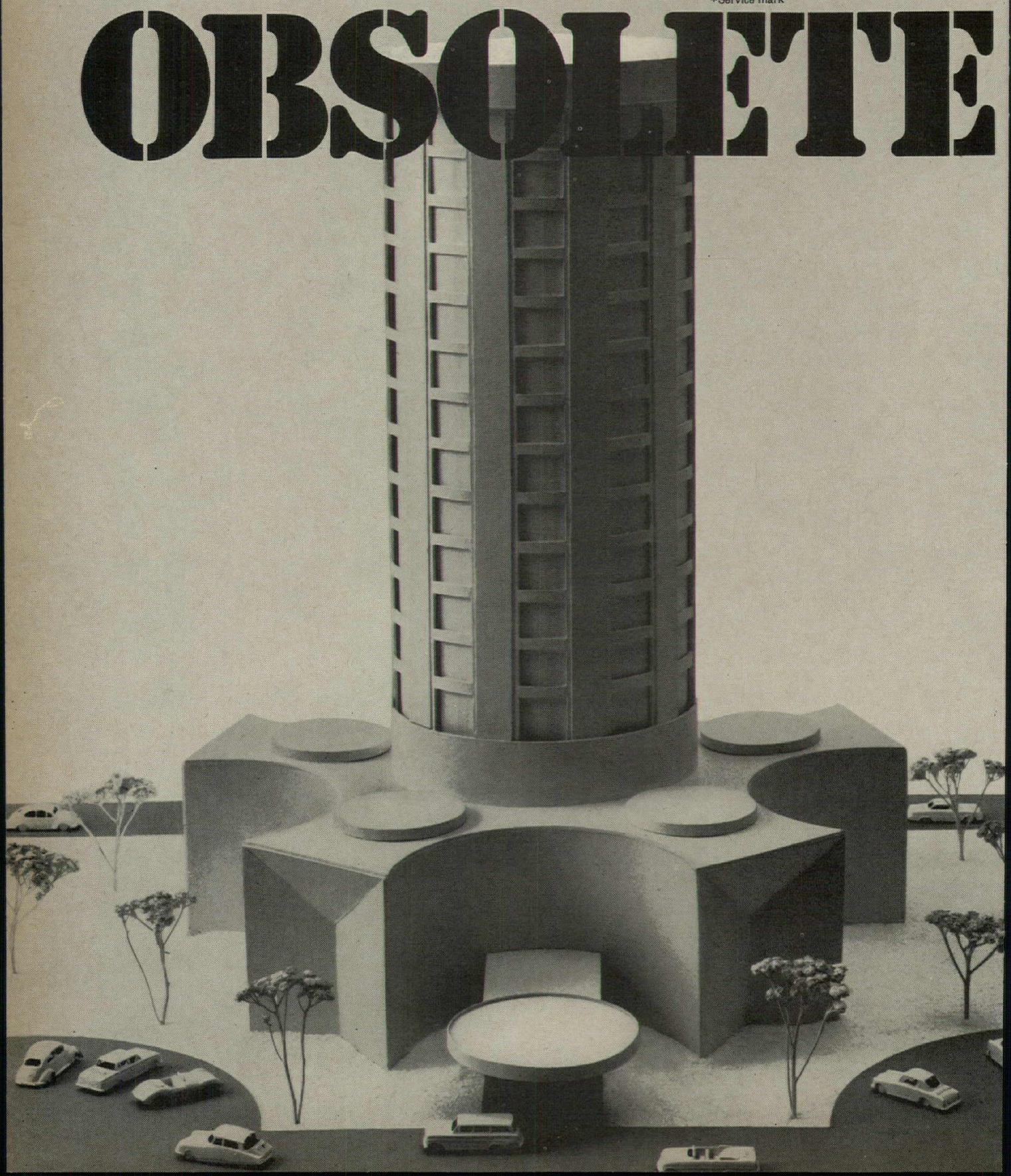
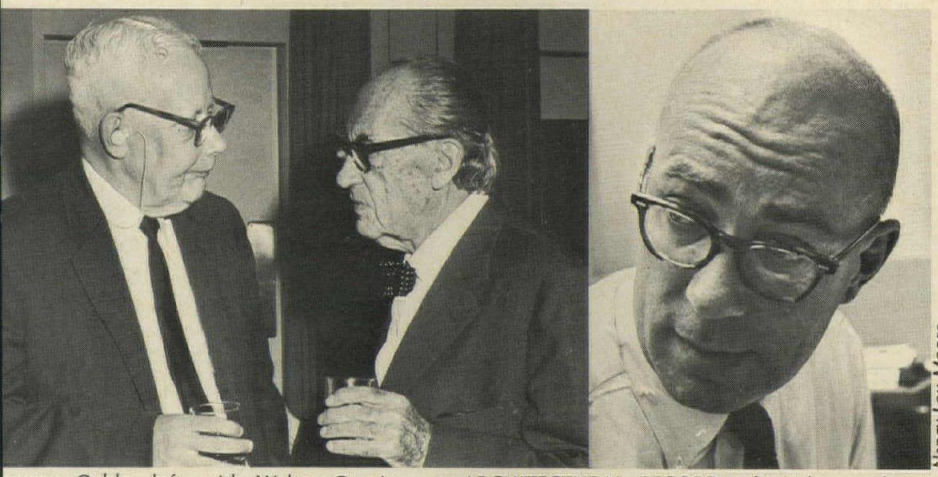




Nancy Lou Moore

nerson Goble, left, with Walter Gropius, an ARCHITECTURAL RECORD editorial consultant. ght, Walter F. Wagner, Jr., new editor of the RECORD.

merson Goble retires; new RECORD editor is Walter F. Wagner, Jr.

nerson Goble retired on November 1 editor of ARCHITECTURAL RECORD ter 26 years on the RECORD staff. His ccessor is Walter F. Wagner, Jr., execu- e editor of the RECORD since Feb- ary 1, 1965.

Mr. Goble, who holds a Bachelor Science degree from the University Illinois, came to the RECORD in 1941 ter holding positions at "Buildings," uilding Management" and "National al Estate Journal." He became editor 1958, succeeding the late John Knox ear.

During Mr. Goble's period of serv- at the RECORD, both circulation and vertising page volume more than pled. The Building Types Studies— sic research on functional planning for the architect—and the Architectural Engineering section—relating building technology to building design—became major foundations of editorial content.

Mr. Wagner, a graduate of the Massachusetts Institute of Technology with a Master's degree in engineering and business administration, first joined McGraw-Hill as an editorial assistant on "Factory" in 1950. After promotions on Factory to western editor in 1951 and assistant managing editor in 1955, Mr. Wagner went to "House and Home" where he was named architectural editor and assistant managing editor.

Mr. Wagner left "House and Home" to become editor-in-chief of "Popular Boating," his last position before joining the RECORD staff in 1965.

obert Simon ousted at Reston; Gulf Oil takes control

bert E. Simon, Jr., founder of the new wn of Reston, Virginia, has been ousted m his position as board chairman of operation. This action came three eks after the Gulf Oil Corporation d taken 90 per cent control of the ancially troubled new town, forming ubsidiary known as Gulf Reston, Inc.

At the time of the Gulf takeover, bert H. Ryan took over Mr. Simon's sition as president and chief operat- officer, with Mr. Simon being named board chairman. Within days the two men differed over "the whole range of policies, plans and priorities" for coping with Reston's problems. Mr. Simon was given a chance to resign, and when he refused, he was fired after the first board meeting of Gulf Reston, Inc.

Gulf's participation in Reston dates back to 1964 when the company invested $15 million in the project. In 1966, the John Hancock Mutual Life Insurance Company invested $24 million, and it retains its interest in the subsidiary. Gulf took controlling interest to protect its investment, and Ryan plans to start more cash flowing in by a broad plan for increasing sales of houses, apartments and industrial land. Mr. Ryan has stated that "we'll stick to the original master plan," but new emphases will include more traditional detached houses and fewer attached townhouses, and a broader range of houses, especially in the lower price brackets.

Mr. Simon stated that his greatest mistake was "doing too many things at the same time with an inexperienced organization. There should have been better coordination between design and construction people," Mr. Simon added.

Commenting on the management change at Reston, Robert L. Durham, president of the American Institute of Architects, said that a change in the "new town" concept is not needed, but "rather, developers of 'new towns' must have access to sources of 'patient money' —long-term financing that will carry the project until sufficient income is available. This kind of financing is provided in many European countries, frequently through government action. It is not out of the question for our country to consider such an arrangement. We are accustomed to having government providing financing in one form or another for many kinds of public works projects. A 'new town' should qualify as a 'public work.' In addition, we can ease some of the front-end load on new towns through tax incentives."

63 cities chosen for funds in Federal model cities program

Congress finally appropriated enough money last month to get 63 cities going in the "model cities" program. The final bill authorizes $312 million to begin a new phase of attacks on slum problems. The appropriation is broken down into $11 million for planning and the remainder for building. The 63 cities were chosen from 193 that submitted preliminary applications. In the same bill was $10 million for rent-subsidy projects, which enable the Government to subsidize the rent of low-income tenants in privately sponsored apartment projects.

Thirty-four states and the District

of Columbia are represented on the list of "model city" winners which includes:

Huntsville, Alabama; Texarkana, Arkansas; Fresno, Oakland, and Richmond, California; Denver and Trinidad, Colorado; Bridgeport, Hartford, and New Haven, Connecticut; District of Columbia; Miami and Tampa; Atlanta and Gainesville, Georgia; Honolulu; Chicago and East St. Louis, Illinois; Gary, Indiana; Des Moines, Iowa; Pikeville, Kentucky; Portland, Maine; Baltimore; Boston, Cambridge, Lowell, and Springfield, Mass.; Detroit and Highland Park, Michigan; Duluth and Minneapolis, Minnesota; Kansas City and St. Louis, Missouri; Manchester, New Hampshire; Hoboken, Newark, and Trenton, New Jersey; Albuquerque; Buffalo, Harlem, South Bronx, Central Brooklyn, Poughkeepsie, and Rochester, New York; Charlotte, North Carolina; Columbus, Dayton, Toledo, Ohio; Tulsa, Oklahoma; Portland, Oregon; Philadelphia, Pittsburgh, Reading-Berks County, and Wilkes-Barre, Pennsylvania; San Juan, Puerto Rico; Providence, Rhode Island; Nashville-Davidson County and Smithville-DeKalb County, Tennessee; Eagle Pass, San Antonio, Texarkana, and Waco, Texas; Winooski, Vermont; Norfolk, Virginia; Seattle, Washington.

Robert C. Weaver, Secretary of Housing and Urban Development, reminded disappointed officials of cities not given grants that Congress had appropriated $12 million more for a second round of planning grants. The criteria for the second round will be the same as stipulated by Congress in the authorizing legislation for the first competition, which states that cities receiving funds must coordinate a variety of social and physical programs to achieve a visible and substantial impact on the "model neighborhood." Mr. Weaver said, "we will soon be inviting applications for this second round."

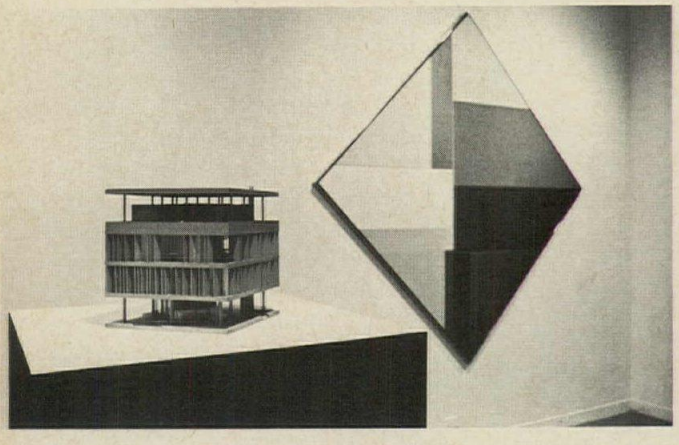
Three institutes are formed to study urban problems

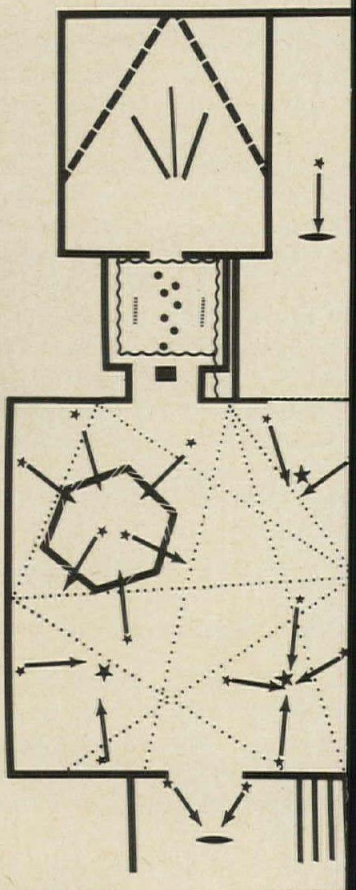
The study of the growing complexities of dealing with the urban environment has given impetus to the formation of three centers which propose a multi-disciplinary approach to solving the problems of cities.

The Institute for Architecture and Urban Studies in New York City is an independent organization organized, according to its director, architect Peter Eisenman, "to bring the real world into the academic world and create a half-way house." The Institute, formed with the initial support of The Museum of Modern Art, Cornell University and private foundations and individuals, will provide a new form of education and training for architects by integrating theoretical studies with empirical design problems, so that graduate students will be brought into contact with actual ur ban design problems.

The Research Center for Urban an Environmental Planning, located in th School of Architecture at Princeton Un versity, has been formed to bring to gether "the diverse intellectual resource needed to develop fundamental know edge of man's interaction with his en vironment," according to Bernard Spring, the Center's director. Fundamen tal to the Center are three aspects, say Mr. Spring: multi-disciplinary approach research done by the Center and teach ing in the School of Architecture to b closely interwoven; and dealing wit "real world problems."

The Institute of Urban Ecology the University of Southern Californi is marshalling the total resources of th University—public administration, arch tecture, engineering, medicine, the soci sciences—for the study of major urba areas and their problems. Eric Pawle chairman of the central faculty plannin committee of the Institute, states th "through such an organization, the tot weight of a community can be exerte to solve problems—even the proble of making a place into a place peop will remember."





Architectural League exhibits continue experimental program

Two exhibits at the Architectural League of New York—"The Diamond" by architect John Hejduk and painter Robert Slutzky, and "Vibrations" by artists-in-light Jackie Cassen and Rudi Stern—are continuing the League's purpose of being "a forum for experimental ideas."

In "The Diamond" (see photograph above left) which was shown from November 2-24, Hejduk and Slutzky have studied the dynamism inherent in the diamond shape. Hejduk's exquisite drawings construct a square building in which all the lines of direction follow the diagonal. Thus a viewer sees the building as a diamond. Slutzky's paintings gather force from the interplay of horizontals and verticals with the diamond shaped canvas. Supported by the Graham Foundation for Advanced Studies, this fifteen-year study was intended to carry DeStijl findings to their natural conclusion.

Environment V: "Vibrations," which opens on December 14 and continues through January 11, will transform the gallery into a "kinetic light environment" by means of a number of sophisticated projection techniques (see diagram at right). Included will be revolving plastic sculptures which retain projected images (above). The artists believe that "the exploration of light as an art medium provides the challenge of creating in architecture enveloping rhythms of color found in nature."

more Record Reports on page

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We walked into the walk-in business...

with our eyes wide open

We're now manufacturing modular walk-in cooler/freezers.

How come?

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Rather than produce just another walk-in, we're offering units which incorporate the latest, most modern features. For example, we use foamed-in-place urethane insulated stainless steel modular panels for maximum rigidity and insulation qualities. (We use other metals, too.) This eliminates the need for wooden frames and braces. Tongue and groove panel ends insure a positive seal between modules.

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Unlike other manufacturer's units, Vollrath walk-ins measure out to the full stated size. We don't short you a few inches on nominal dimensions. Not only does this simplify your own space calculations, but it actually gives you more refrigeration for your dollar.

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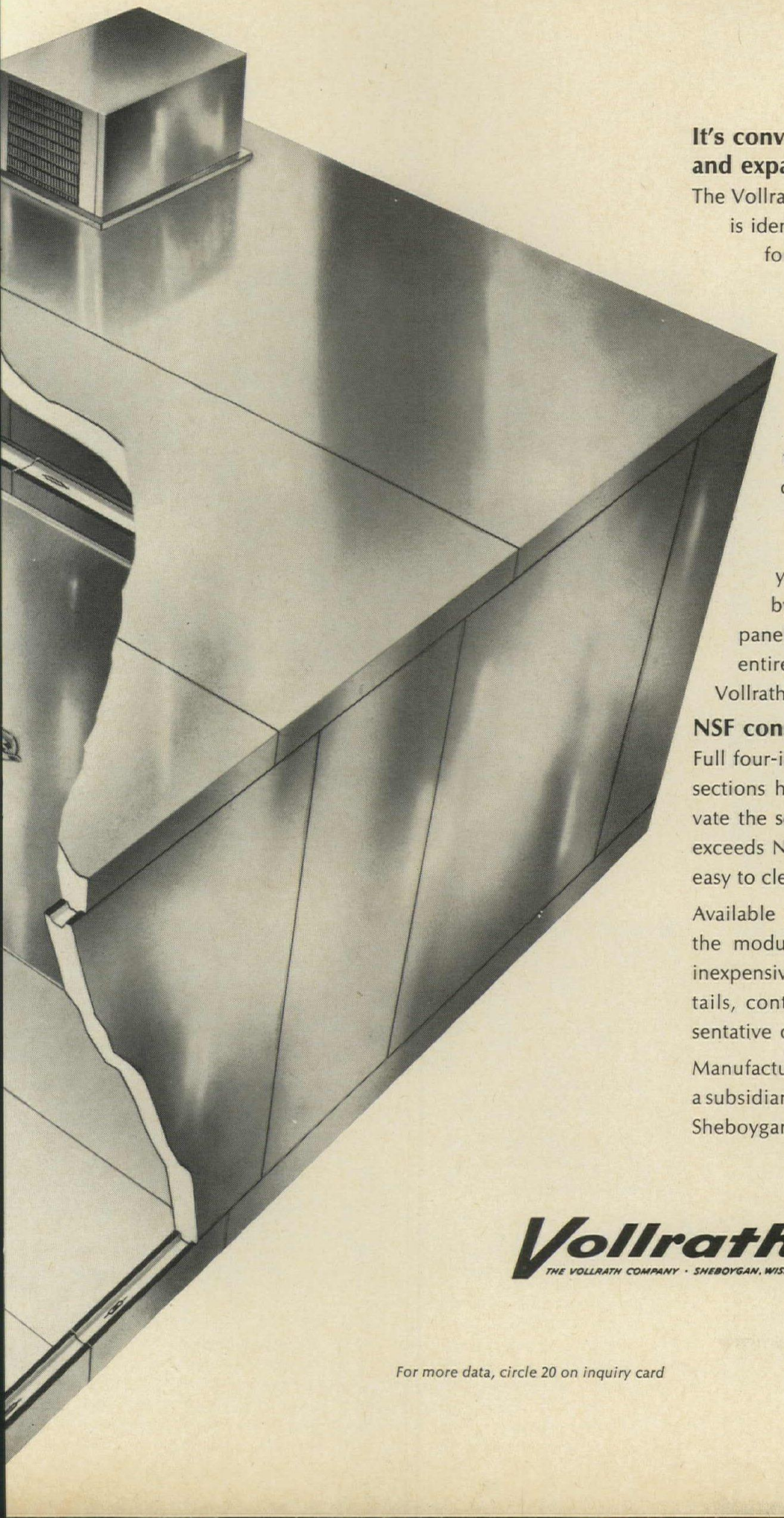
Vollrath's compact package refrigeration unit is entirely self-contained. Ready to plug in, ready to operate in one-tenth the time required for the average remote system. Includes compressor, fan, coil and condenser.



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BUILDINGS IN THE NEWS

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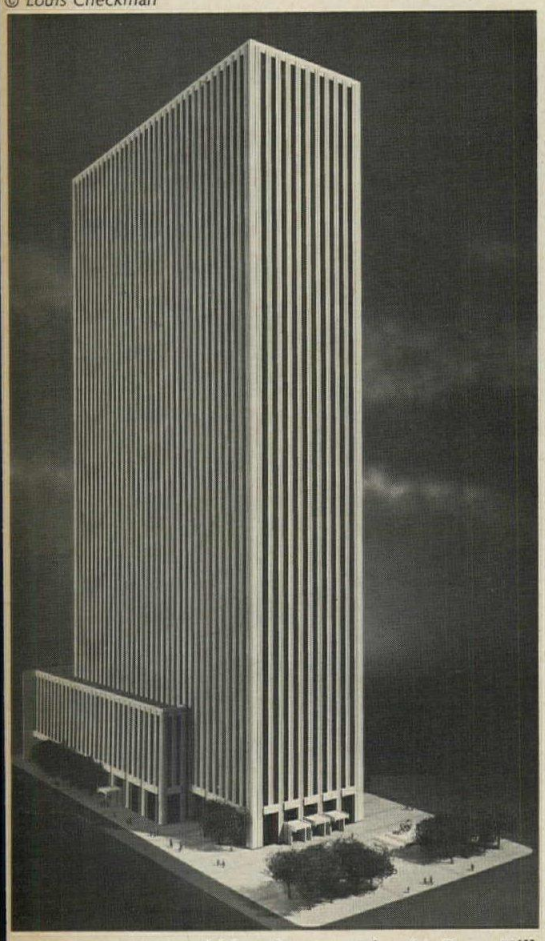
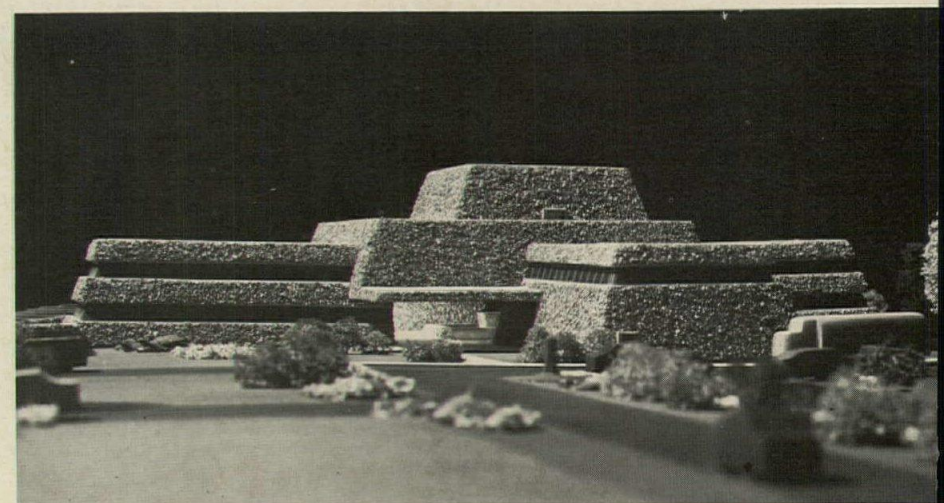
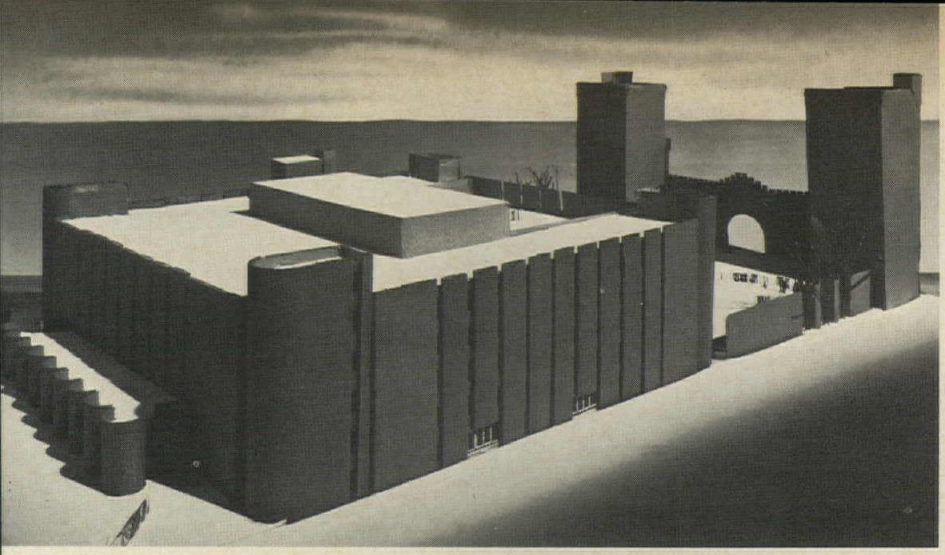


A new world headquarters for McGraw-Hill, Inc., will be built as a joint undertaking of Rockefeller Center, Inc., and McGraw-Hill, Inc., and will be the 20th building in New York's great midtown Center when it is completed in 1970. Some 5,000 employes will be moving from Raymond Hood's famous green skyscraper at 330 West 42nd Street, McGraw-Hill headquarters since its completion in 1931, and seven other locations in New York. McGraw-Hill expects initially to occupy more than 1-million of 1.8 million square feet of space in the new building. It will be a 48-story tower about 645 feet tall. The project, designed by Harrison & Abramovitz & Harris, architects, will be located on the west side of the Avenue of the Americas between 48th and 49th Streets, and will be set back approximately 117 feet from the Avenue. The building will be faced with stone and glass compatible with existing Rockefeller Center buildings.

The regional headquarters of the Crippled Children's Society of Los Angeles County, Los Angeles, designed by Ladd & Kelsey, Architects, will contain the Society's executive headquarters, workshop and volunteer facilities and a counseling and testing center for the children. Commenting on the project, architect John Kelsey feels that the building's character is created by contrasting the sim plicity of the ground floor with its inset wa of wood and glass with the rhythmical ar sculptural sunshaded windows of the mu larger overhanging second floor. The $800,0 building, scheduled for completion in O tober, 1968, will contain four levels includi two subterranean parking floors.

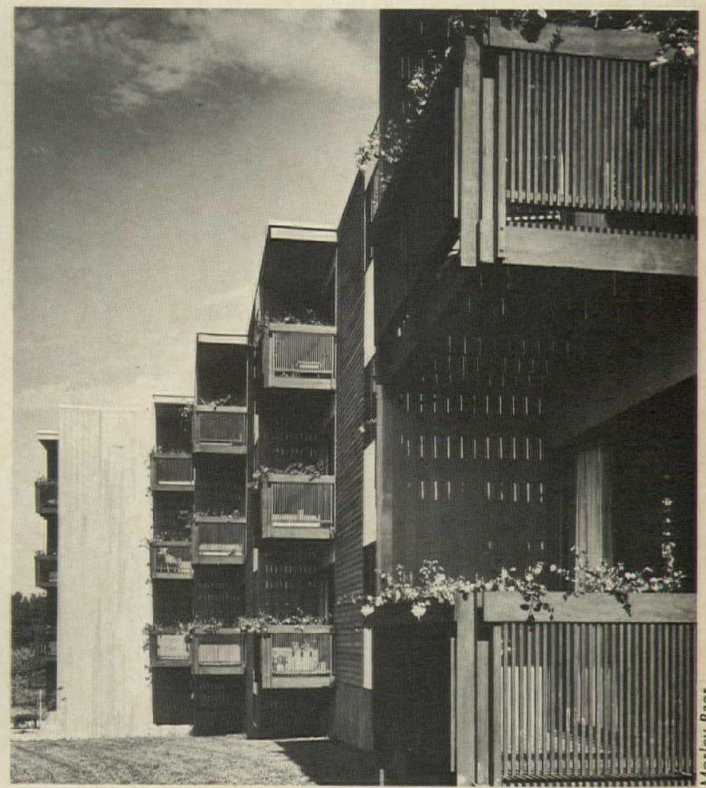


The Museum of the Illinois Indian at Dickson Mounds (a 63.25-acre area including a prehistoric Indian cemetery mound created by the Mississippian culture) will consist of truncated pyramids interlocking, building on top of one another. The truncated pyramid shape is characteristic of local Indian ceremonial mounds. The building is designed by the architectural firm of Golabowski, Spinney a Coady in association with State of Illin Supervising Architect Lorentz A. Johnson. T project consists of four wings around a ce tral area and will provide facilities for exhi tions, cemetery excavations and research. T exterior building material will be earth-to exposed aggregate precast concrete.



Intermediate School 29, New York City, will be a five-story building integrated with a portion of the 70-year-old Squadron A Armory. The architects, Morris Ketchum, Jr. and Associates, have incorporated two 100-foot brick towers and the old entrance wall to partly enclose the school playground. Operating under a grant from the Educational Facilities Laboratories of the Ford Foundation, the architects designed three subschools, each for 600 students, located in the top three floors. Each of the subschools has its own teaching staff and individual laboratories for science, language and art. The three subschools share a number of facilities including auditorium, library, gymnasium and cafeteria.

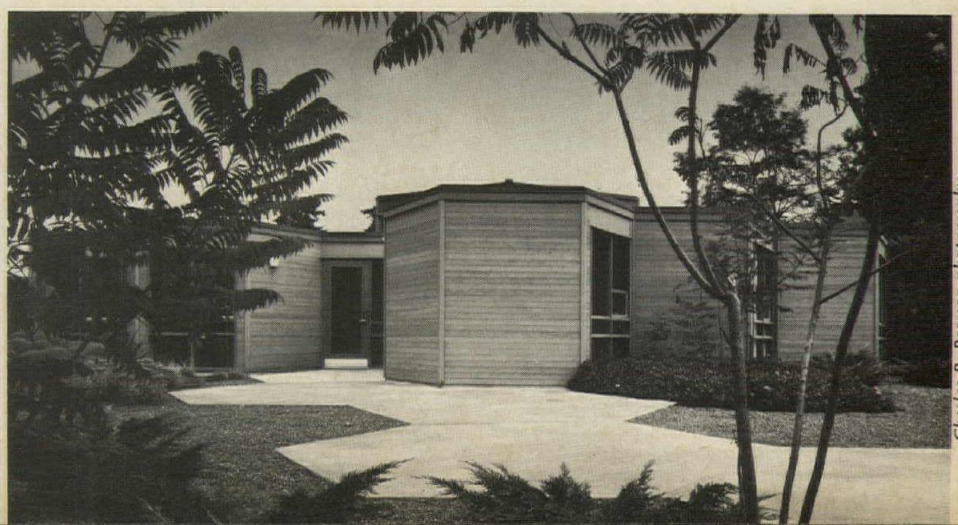
he Oceanography Research Building, University of Washington, eattle, designed by Liddle & Jones, Architects, has won the only onor award in the awards program of the Southwest Washington hapter, American Institute of Architects. Commenting on the build-g, the awards jury stated: "Appropriately, the traditional directness ocean-going vessels is apparent in this building with its no-non-nse sea-going character, yet it is thoroughly modern in all respects."



Morley Baer

Housing for the Elderly, Fawcett Avenue, Tacoma, designed by Robert B. Price, architect, is one of four merit award winners in the Southwest Washington awards program. The awards program praised the project in saying: "On a difficult site, this project is well handled, orderly and forthright, particularly so within the strictures of government regulations. The jury was impressed with the sense of pride the tenants obviously feel for their new home."

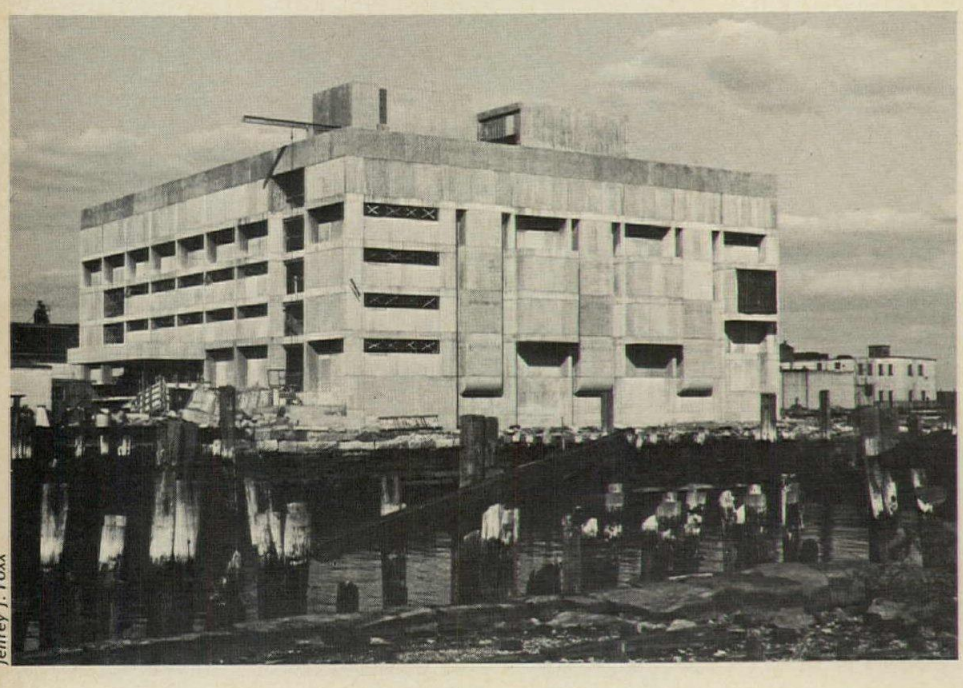
. Evans Dental Clinic, Tacoma, designed by iddle & Jones, architects, is another merit ward winner in the Southwest Washington vards program. "The building has an inti-ate scale with a very good garden," stated e jury report. "Pleasant private vistas are ovided for almost every outlook; it is a od solution for a small site." Serving on the vards jury were architects Joseph Esherick, n Francisco; John Storrs, Portland, Oregon; d A. O. Bumgardner, Seattle.



Charles R. Pearson photography

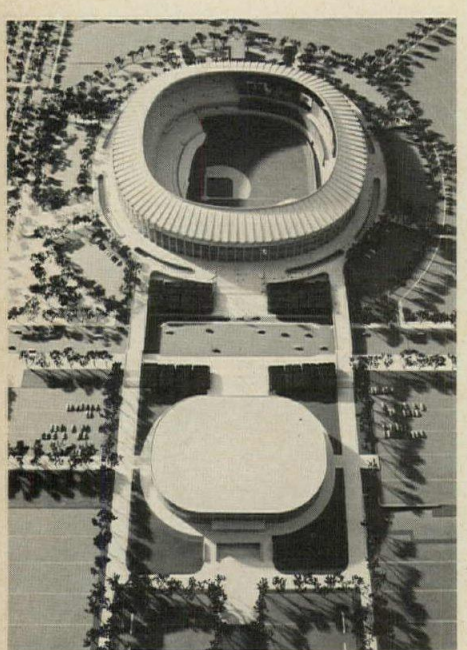
Jeffrey J. Foxx

The Boston City Hall, with facade nearly don and a scheduled completion date of Sprin 1968, has changed very little from the origi nal competition-winning renderings (Marc 1964, pages 192-4). Designers of the buildin are the City Hall Architects and Engineers Kallman, McKinnell and Knowles in associa tion with Cambell and Aldrich and LeMe surier Associates. The material is reinforce concrete, some of which was precast, th rest was poured on the site. Cost of th nine-story structure will be about $20 mi lion. Work began last month on the su rounding plaza which was designed as pa of the competition by the same architects.



Jeffrey J. Foxx

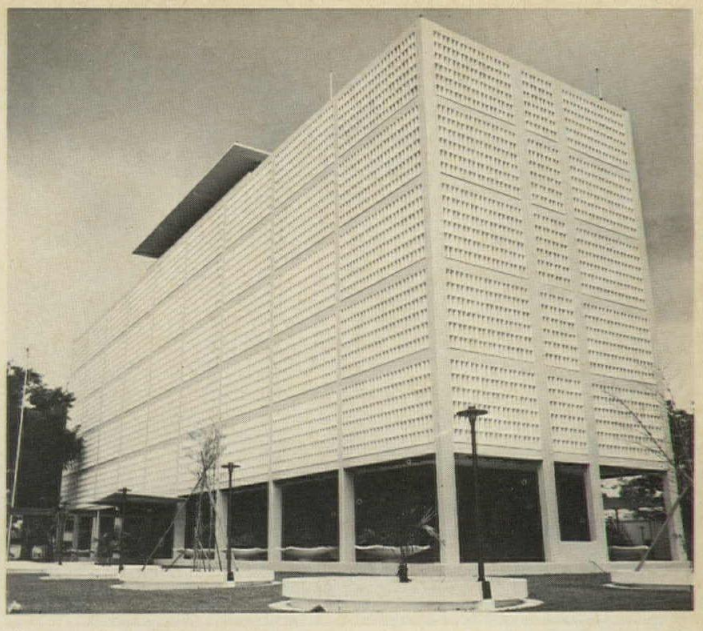
The New England Aquarium, which straddle Central Wharf in downtown Boston's wate front renewal area, is nearing completio with the opening scheduled for early spring 1968. The project, a joint venture of Cam bridge Seven Associates, architects, and Le Messurier Associates, structural engineers, a five-story poured and precast concret building. According to the architects th building is "in concept, an Aquatic Museum designed as a simple exterior shell or volum containing a complex interior space. A gia [170,000-gallon] cylindrical tank is the focu and lantern. Circulation is one way, up series of straight ramps and galleries aroun the outside of the main space, and the down a spiral ramp around the giant tan Galleries at the ends have alcoves contai ing small fish tanks. Large transparencies an other descriptive graphics in lightboxes pla a major architectural role along the five sid galleries." General contractor for the $5-mi lion building is the Jackson Constructio Company.



The Philadelphia Stadium, designed by Hugh Stubbins Jr., executive architect, with George M. Ewing Company, architects and engineers, and Stonorov and Haws, architects and planners, has been approved in a bond issue with site excavation now in progress. The stadium seats 50,000 for baseball and 65,000 for football with all seats permanent in nature. To shield the 15,000 extra seats, two large scoreboards on hydraulic pistons and three huge movie screens are raised, while 6,000 field-level seats can be stored under the outfield stands.

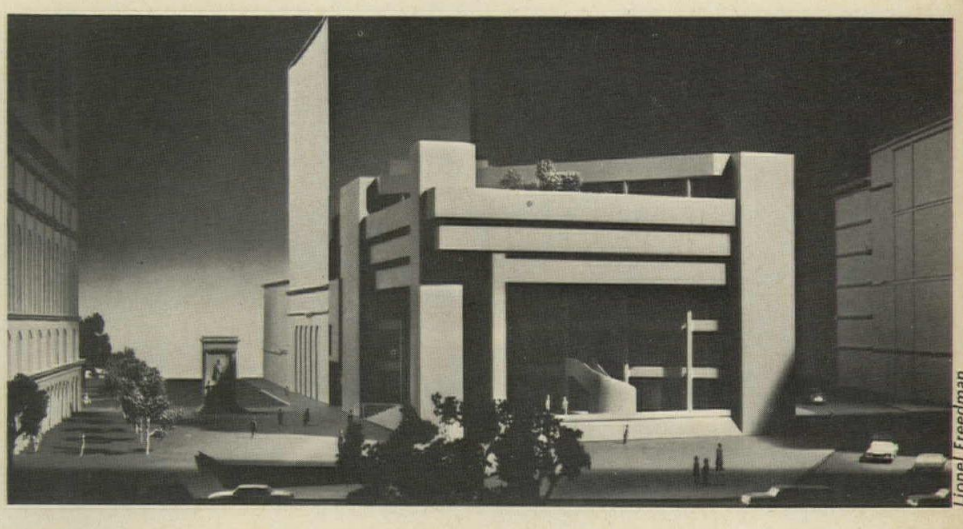
A condominium apartment in Kahului, Maui, Hawaii, designed by architects John Russell Rummell & Associates, Ltd., will be a 12-story structure built entirely of concrete block, with pre-stressed precast plank floors with concrete topping. The architects developed a new "shell block" which will be used for the first four stories. The building is the first of seven structures proposed for the seven-acre site.

The Morningside House for the Aged, New York City, designed by Philip Johnson, architect, will have 10 residential floors with each floor consisting of five hexagonal-shaped rooms surrounding a sixth hexagon that will serve as entrance lobby and sitting room. The cluster of hexagonal shapes was used to eliminate long corridors, thus aiding the efficiency of the nursing staff. The building is designed so that each of the residential floors can be changed for use by ambulatory or infirm patients. On the ground floor will be extensive occupational and physical therapy facilities, while the second floor will house a library, chapel, dining facilities and lounges. The building will have a reinforced concrete structure and will be faced with light-colored brick and stone.



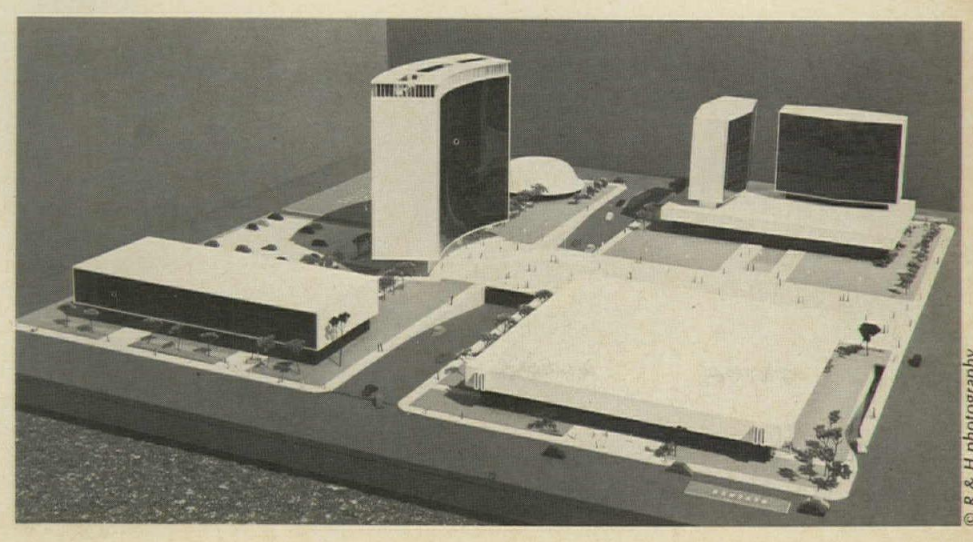
The American Embassy in Saigon, Vietnam, was designed with security as a prime consideration. The $2.6-million building has an exterior of reinforced concrete columns with a sun screen of massive terra cotta blocks. The blocks are also used in a fence surrounding the compound. Both the fence and sun screen were designed to act as shields and the windows are of shatterproof acrylic plastic. The embassy has six stories and contains 49,670 square feet of floor space. The original design for the embassy by Curtis and Davis, architects, called for a three-story structure. When the need for a larger building became apparent, the architectural firm of Adrian Wilson and Associates enlarged the building, retaining as much as possible of the original design.

new education building for The Cooper Union, New York City, designed by architect Ulrich Franzen, is a massive six-story structure designed to relate to two existing buildings by means of scale, siting, and alignment. A triangular entrance court, three stories high and covered from above by an outthrust at the fourth floor level, will serve as an entranceway from the two existing structures. The architect also proposes to rearrange the outside environment of Cooper Union to unify the three-building complex. The new building will contain a student-faculty center, auditorium, dining area, a 200,000-volume library, classrooms and offices for the department of humanities, and all administrative offices of the institution.



Lionel Freedman

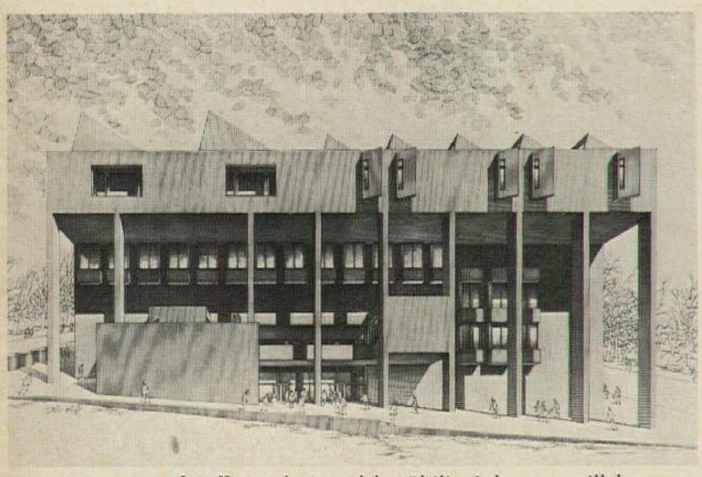
Horace Mann Plaza, an urban renewal project being undertaken by the Horace Mann Insurance Group in downtown Springfield, Illinois, will be a multi-use complex of buildings which will cost an estimated $25 million. Architects for the project are Ferry and Henderson. Dominating the complex will be the home office building for the insurance company, a curved building which will be at least 15 stories. Other structures in the complex include: a second office building of four to six floors containing 100,000 square feet; a 12-floor motor hotel containing 250 rooms; a 12-story apartment tower; a theater seating about 900; and retail space of 125,000 square feet to accommodate a department store and a wide variety of specialty and service shops.



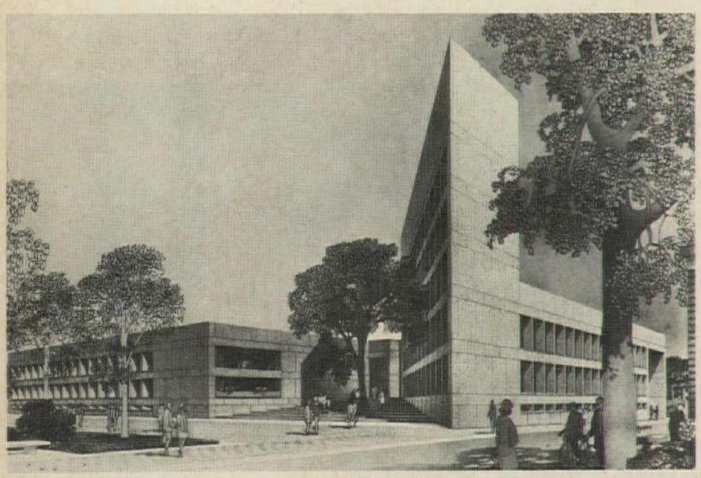
© R & H photography

Expansion program at Brown University respects surrounding historic district

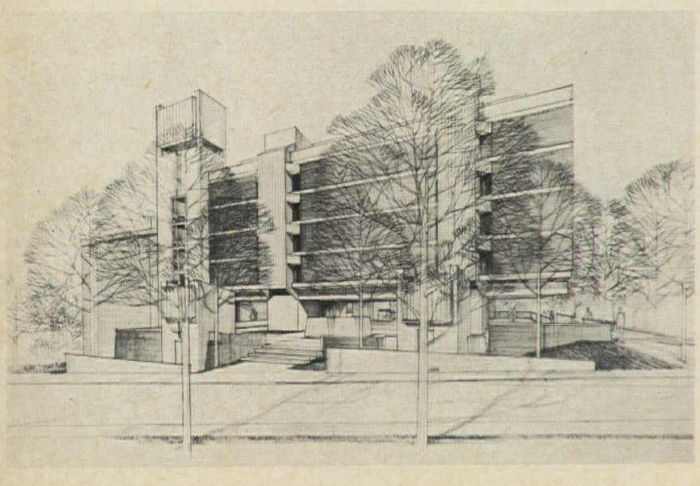
The five buildings shown below are only part of Brown University's effort to update and expand their campus facilities in Providence, Rhode Island. According to Charles Hughes, architect, and member of the Brown building committee, one of the primary considerations of the expansion program was keeping scale with the surrounding College Hill Historic District. Other buildings in the expansion program include a proposed bookstore-office building by Kent Cruise and Associates, and a proposed Sciences Library by Warner, Burns, Toan and Lunde (September 1966, pages 208-9).

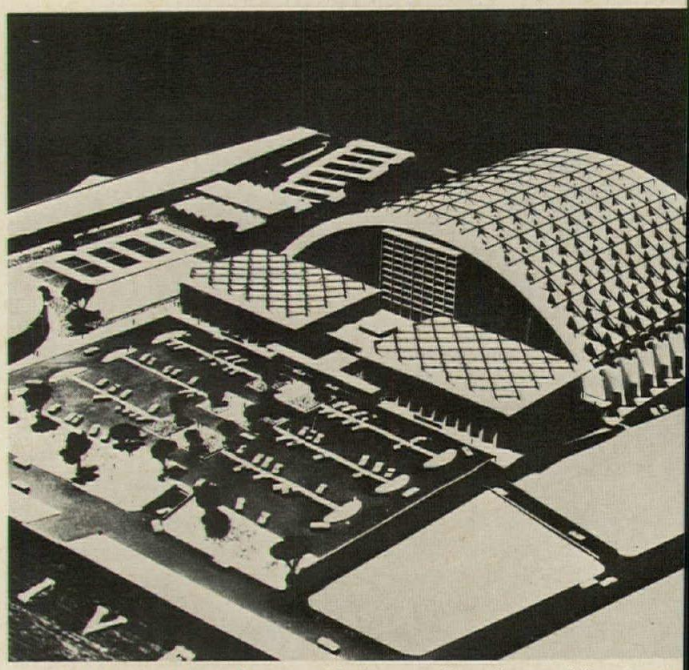


An art center and gallery, designed by Philip Johnson, will be constructed of reinforced concrete and glass. It will contain a 2,880-square-foot exhibition gallery and two lecture rooms, one of which will seat 250 and the other 100, on the first floor. Classrooms, offices and studios are on the upper four floors.

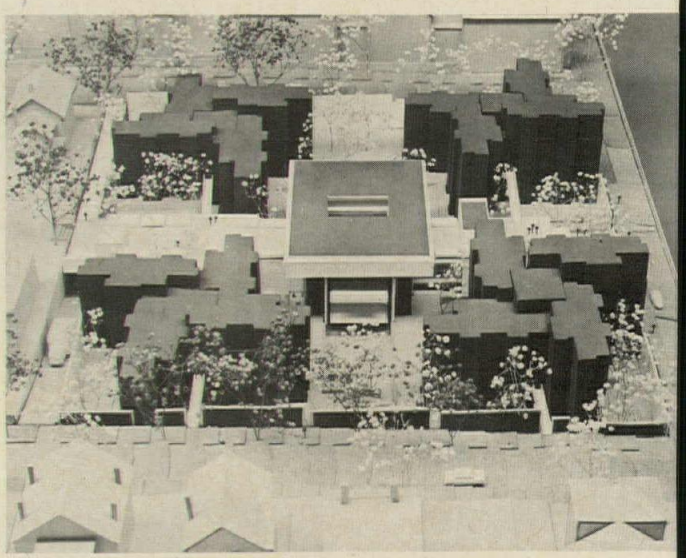


The Geological Sciences-Mathematics Complex, designed by I. M. Pei, is organized around a three-story galleria which runs the length of the building. The 200,000 square feet of floor space is divided among the four stories, two underground, of the main structure, and the five-story tower.



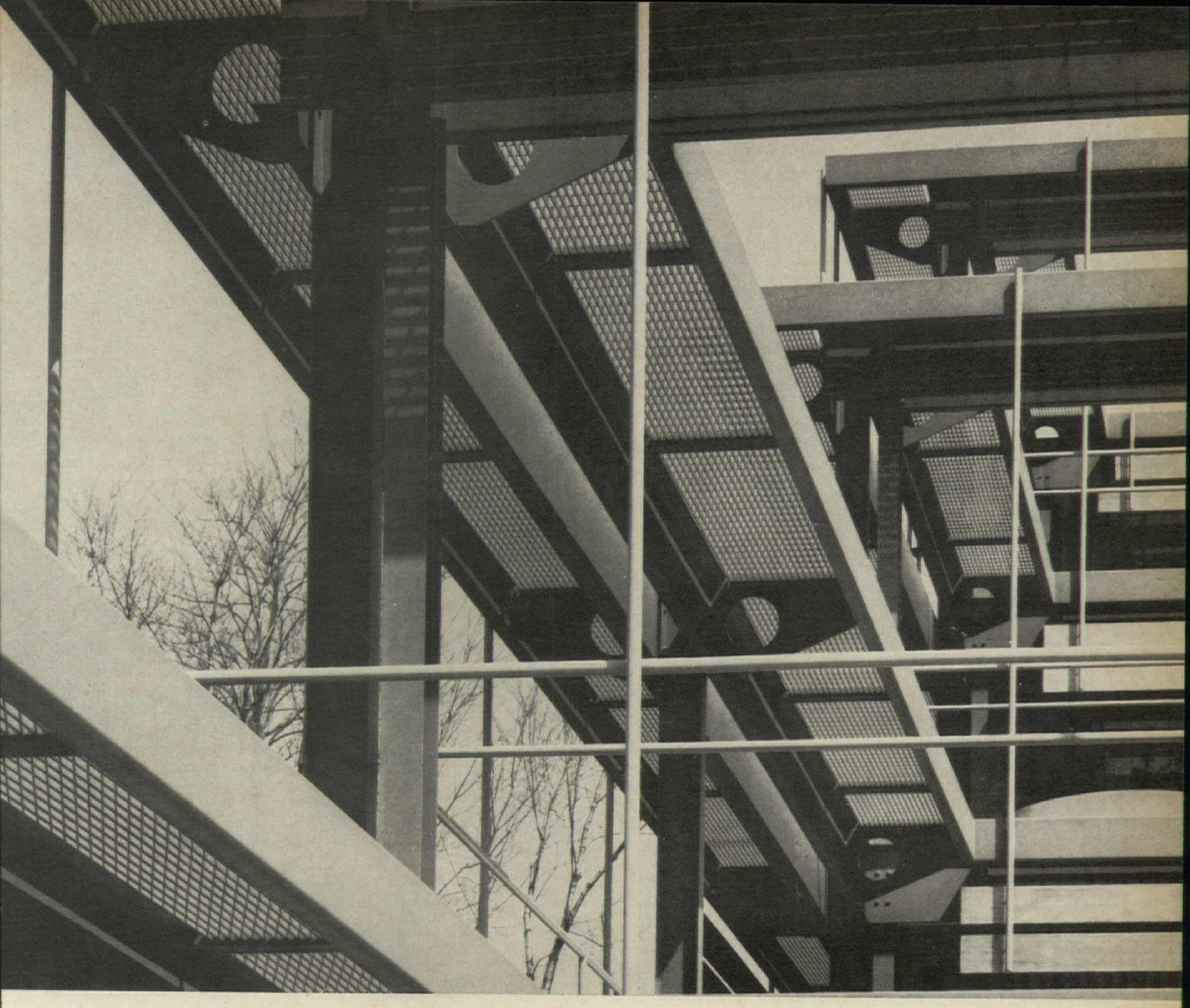


A preliminary scheme for an athletic complex, designed by Cutting Praeger and Candela, will span an unobstructed area 450- by 350-fee The load-bearing reinforced concrete walls will be 130 feet high an will be faced with brick. A laminated wood roof spans the space in parabolic arch supported by a steel-tubing space frame.



A five-building Graduate Center now nearing completion, designe by Jean Paul Carlhian of Shepley, Bulfinch, Richardson and Abbo was sited so that no building rises more than 50 feet above groun level. Four of the buildings are dormitories; the fifth is a commor Building cost is estimated at $4.3 million.

The Bio-Medical Center, designed by Shepley, Bulfinch, Richards and Abbott, consists of two inter-connected buildings now neari completion. One of the units will be a four-story laboratory tow that will be supported one story above ground level by concre towers. The other will be a five story animal care facility.



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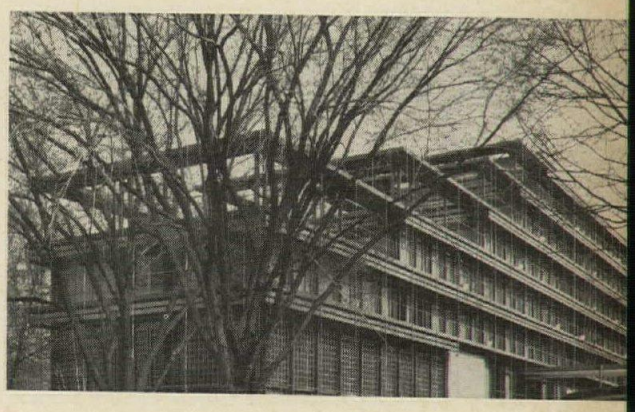

For more data, circle 21 on inquiry card

LETTERS

Air conditioning here and abroad

Upon my return from Europe last week, I read both portions of the two-part air conditioning article (July and August). You put more industry progress into the article than is normally the case, but not as much as I would have included. Let me add that I have recently met with leading architects of Spain and Belgium and have learned that they are rather disillusioned with the limited comfort provided by the traditional central systems which have been installed in their newest buildings. Already they are ready for a change.

I want to congratulate you on the excellence of your article. The clear and copious illustrations should be particularly helpful to your readers.

Herbert L. Laube
Senior Consultant
The Singer Company
Auburn, New York

Accolades are not often in order for articles that appear in the press on mechanical equipment. However, you really earned a couple with your July and August series entitled: "Air Conditioning: A New Interpretation For Architects."

It is no small accomplishment to sort out all the bits and pieces, plus all the equipment and types of systems that are involved in the mechanical side of a construction program. It is also no small accomplishment to make a presentation in the fine fashion that you accomplished in your report, not only for the plain language used in reporting on the various types of systems, but also for the excellent drawings included.

We believe that this report will be of estimable value, not only to the architects for whom it was originally put together, but also for the engineers who have never had the opportunity to find a complete appraisal of all the systems in one article. I can well appreciate the hours that must have been spent to put such a mass of material into print.

Robert F. Hayes
International Manager
Buensod-Stacey Corporation
New York City

About that criticism . . .

The topless gals of the Lido (August editorial) are famous only to those who are starving for that kind of thing. In any event, the references to the positions of the gals is the interesting part of the article.

Why don't you go to see the gals and see if your suppositions are true? Maybe in the meantime you will forget about "architectural criticism."

Luigi Pellegrin, architetto
Roma

TAC

In regards to The Architects Collaborative building (September): What a tacie building!

Sam Carson, Architect
Los Angeles, Calif.

A letter for a letter

The following is in reference to a letter printed in your October issue from Wallace D. Jeong, A.I.A., Los Angeles.

No one should "By definition . . . represent the supreme decisions in the profession of architecture, the mother art." I hope you enjoy the 20th century, when you move into it.

Jack R. Scholl
Washington, D.C.

FLLW in The Smithsonian?

Japanese friends spent an evening at our home recently and stated that the Imperial Hotel was slated for early demolition. My wife and I spent several nights there in 1932 when it was a comparatively new structure and already famous for standing up through the great earthquake. This brief association with the Imperial was an exhilarating experience. I have never forgotten it.

In the spring of 1965, we again visited the Imperial and were shocked at what had happened over the intervening years. The exterior detail, which was once so beautiful, was rapidly deteriorating with dirt and erosion. The interior was being modified by management and plastered with wires, signs and homemade decoration. Encroachment of the surrounding buildings, and especially the addition to the Imperial itself, was a sorry spectacle and my only reaction was the hope that it gets its coup de grace before long and the dignity it deserves. Here is an idea for consideration:

It is impossible to portray the genius of Frank Lloyd Wright in two-dimensional drawings or perspective. There must be added the extra dimension of space, scale and interlocking vista. Therefore, I suggest that before the Imperial is lost forever the architectural profession should make an effort to retain as much as possible of this magnificent structure for an inspiration to future architects. I am suggesting an enormous model be constructed of such size, scale and scope that would at least partially portray the quality of the original.

The model should be at least 20 feet square and possibly 20 feet high. It should be arranged so that the base is shoulder height from the floor and the viewer could stoop under and put his head up through the floor in such a manner that his eyeline would be at the eyeline of a person in the actual building. Here, he could look in all directions and get a fairly comprehensive indication of the actual building. I suggest that the model be located in the Smithsonian or some similar place and maintained as a permanent public exhibit.

There are, of course, numerous other ways to handle this problem, but my main concern is that it be promoted before it is too late. It is obvious that any attempt to save the original building will meet with the same fate as the old Metropolitan Opera.

O. Kline Fulmer
Fulmer & Bowers
Princeton, New Jersey

Who's in whose bag?

Thank you for a very beautiful story on our work (October). I don't know whether I am in Venturi's bag or he is mine, but I enjoyed your comments.

Ulrich Franzen
New York City

Noise control

I liked very much the Special Report No. 4 titled "Noise Control in Architecture: More Engineering Than Art" as printed in the October issue. You might be interested in a May article in *Sound and Vibration*, which goes to members of the Acoustical Society of America, acoustic consultants, and other specialists in the field. It further elaborates on both the architect's and engineer's role in handling vibration and structure-borne noise generated by mechanical equipment.

Laurence L. Eberhart
President
Consolidated Kinetics Corporation
Columbus, Ohio

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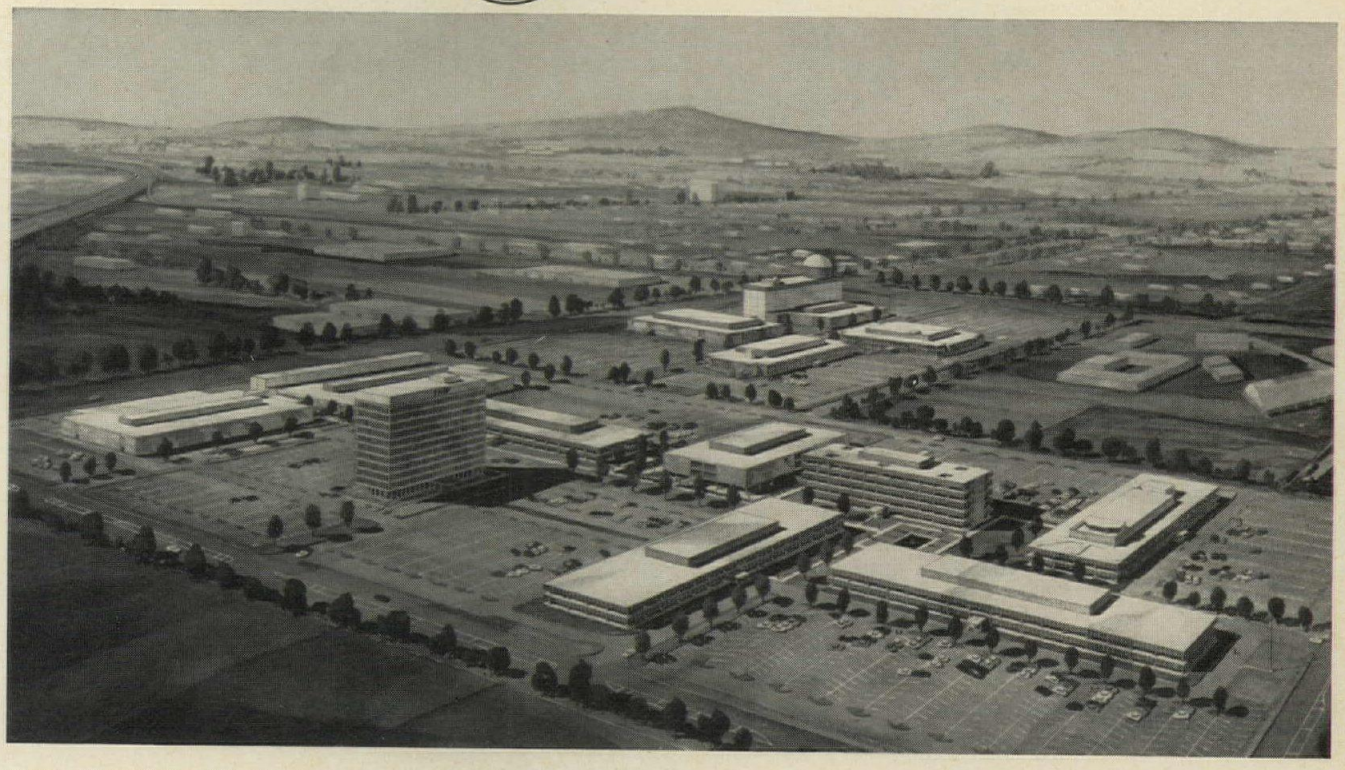

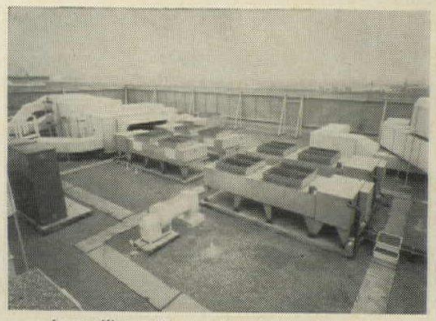

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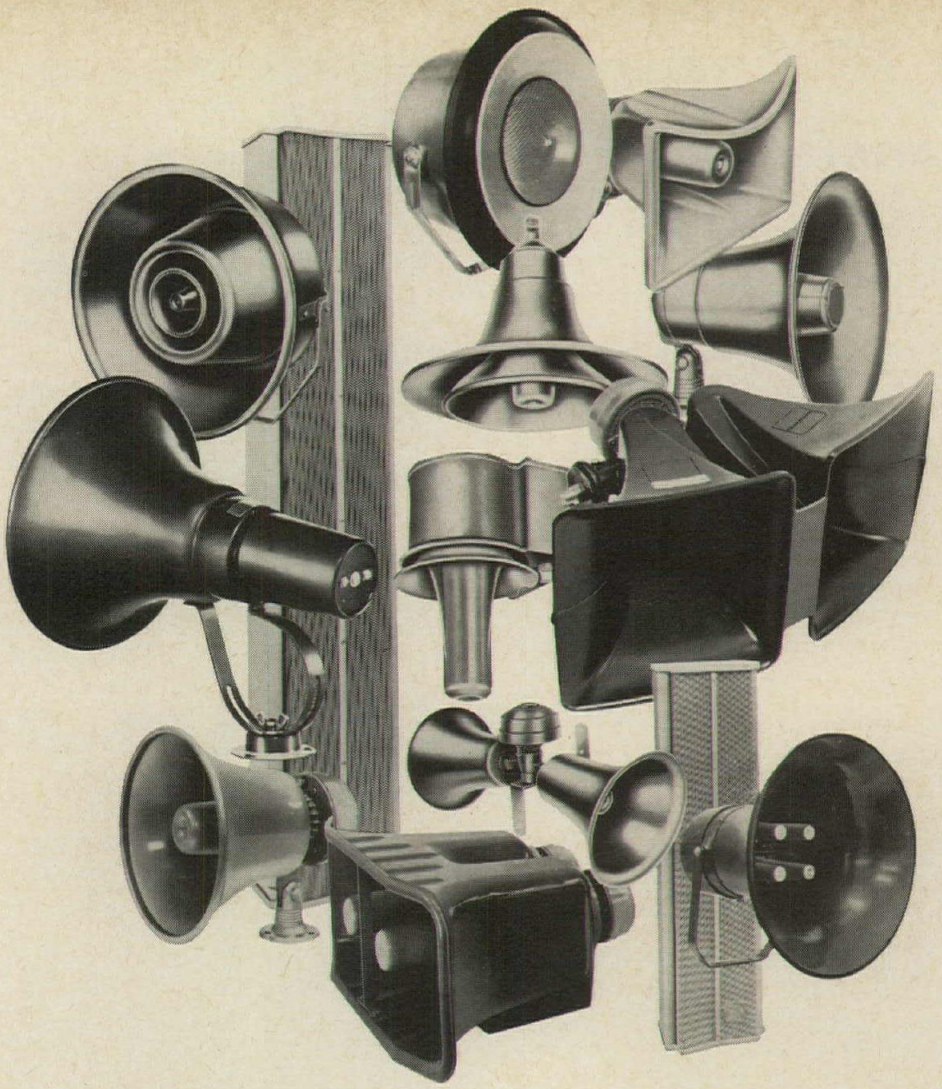

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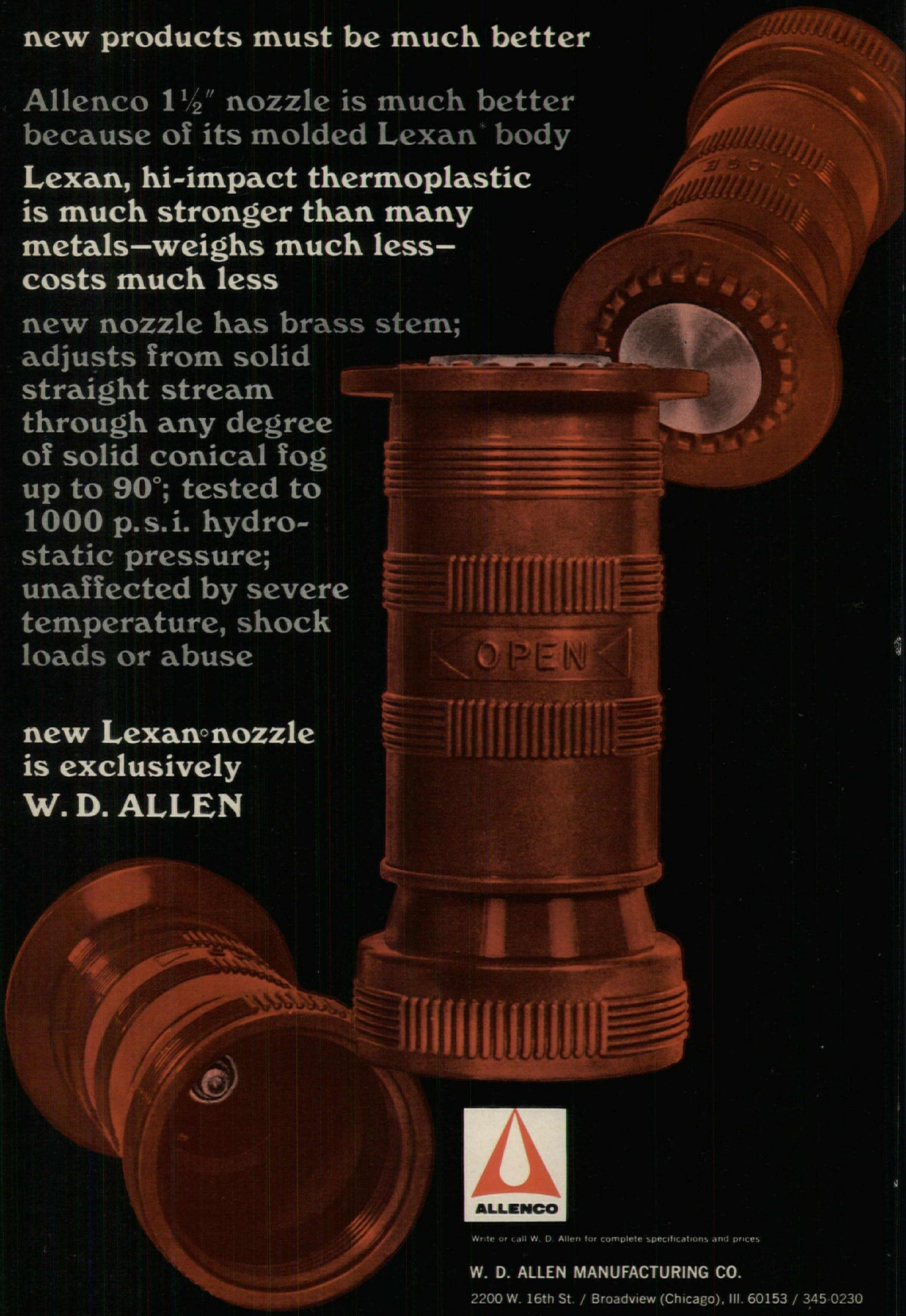

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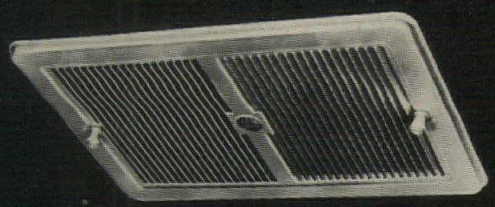
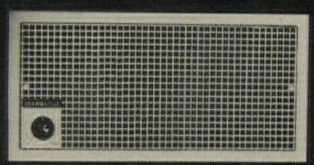


. . . from *Trade-Wind* the "FAN"-tastic QT, a remarkably QUIET Ventilator. Results of sound testing indicate that the QT has the quietest sone rating of any comparable ventilator currently available. Only 2.0 sones (at 5 feet). Versatile design permits QT to be mounted in a 4″ stud wall or in the ceiling. Further, QT will operate quietly with inexpensive 3″ or 4″ round, or 3¼″ x 10″ duct. QT has excellent air delivery characteristics: 90 CFM (at ⅛″); 78 CFM (at ¼″).



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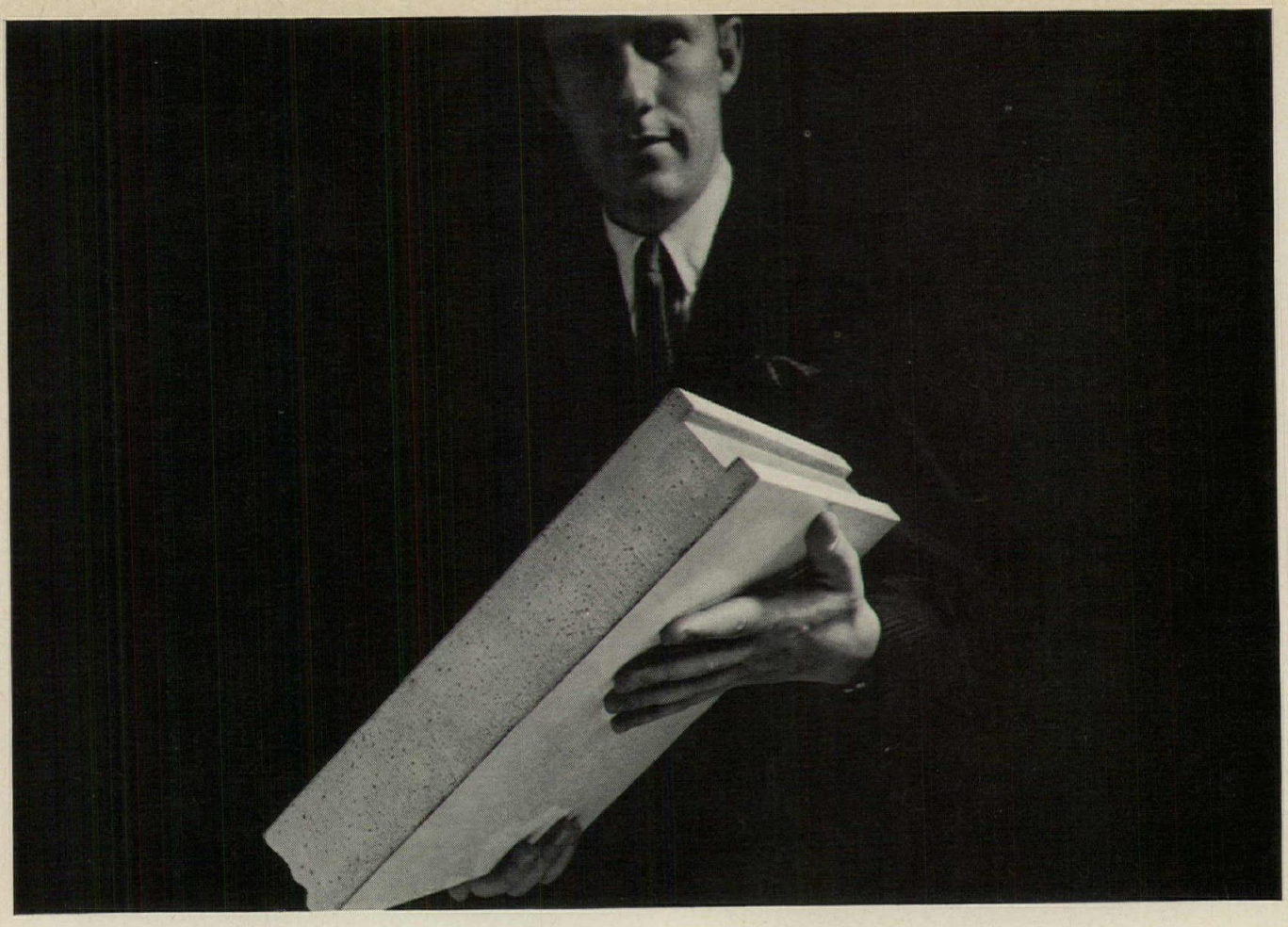

This is Tyler foam-in-place

It increases display and storage capacity as much as 25%

Fire-resistant foam, forced under pressure into a jig holding the inner and outer walls of a sales case or cooler, expands and bonds the walls together. It fills the space, stays in place and can't absorb moisture.

This foam-sandwich construction is one of the most efficient insulators—two inches of foam provides as much insulation as five inches of fiberglass. And it makes a much stronger case or cooler.

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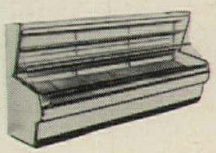
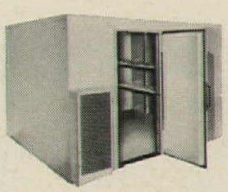


For coolers



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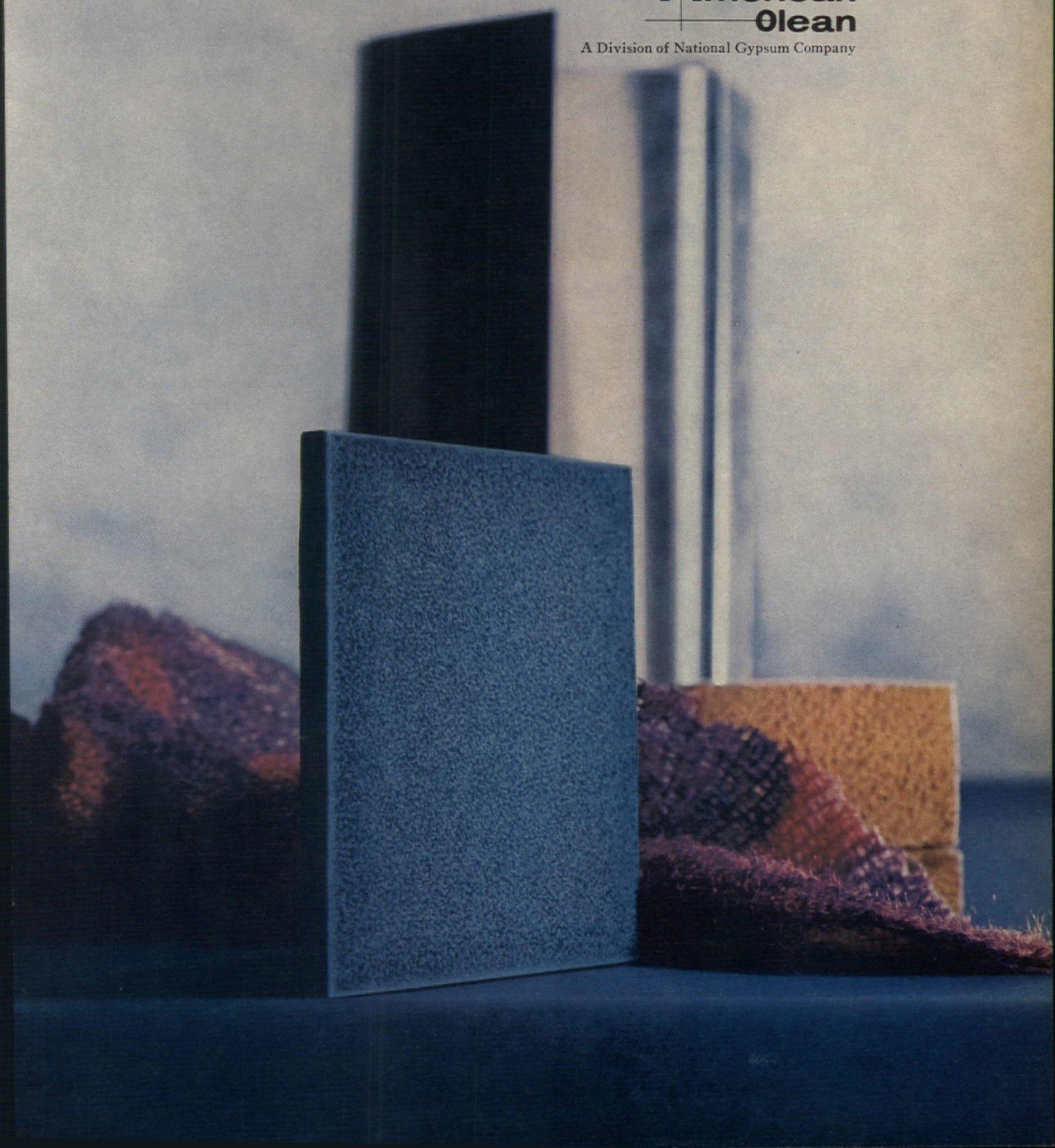

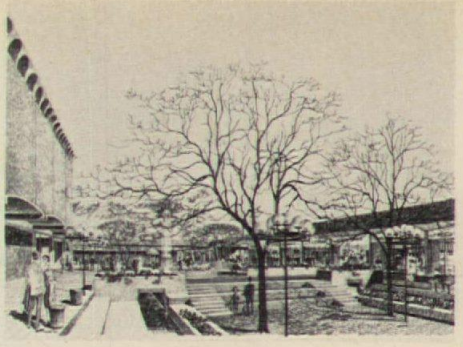

Sacramento pedestrian mall will be a focus for renewal program

An urban plaza in Sacramento, California, designed by the architectural and planning firm of Victor Gruen Associates, is meant to be, according to the architects, "a place for people to congregate, a place for civic and cultural functions, exhibits and band concerts, as well as a place for the pedestrian to stop and relax in an urban surrounding." The $415,000 first phase, financed by the Federal Department of Housing and Urban Development with the Sacramento Redevelopment Agency, will be 410 feet long and 108 feet wide. The plaza will have fountains, reflecting pools, full-grown trees, rest areas with double benches, children's play area featuring sculptured animals, and a lowered amphitheater with step and bench seating for up to 400 people. The $150 million redevelopment program in Sacramento involves a 65-block downtown area. General contractor for the plaza is the J. Bailey Company. The project is expected to be completed within five months.

Director of education named at Boston Architectural Center

Sanford R. Greenfield, a partner in the Boston architectural firm of Carroll & Greenfield, has been named director of education at the Boston Architectural Center. Mr. Greenfield, who served as chairman of the Education Committee of the Center, assumes the newly created post to further the development of the Center's School of Architecture and to create new programs in continuing education and community relations.

The Center School accepts students without requiring formal university prerequisites for admission in order to educate architects and skilled personnel for architectural offices, and to educate individuals who must have a basic understanding of architecture and building problems for their work in allied fields.

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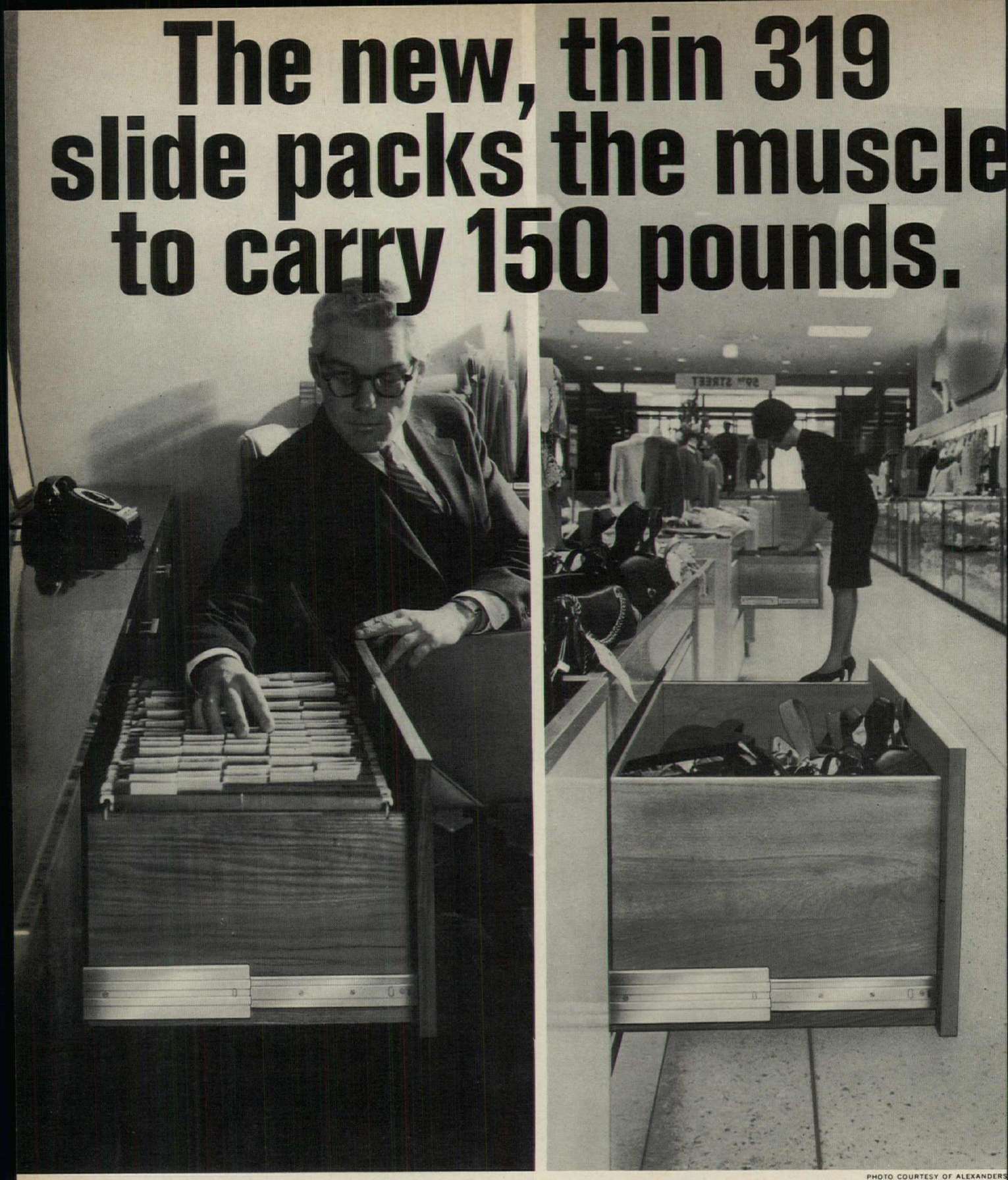

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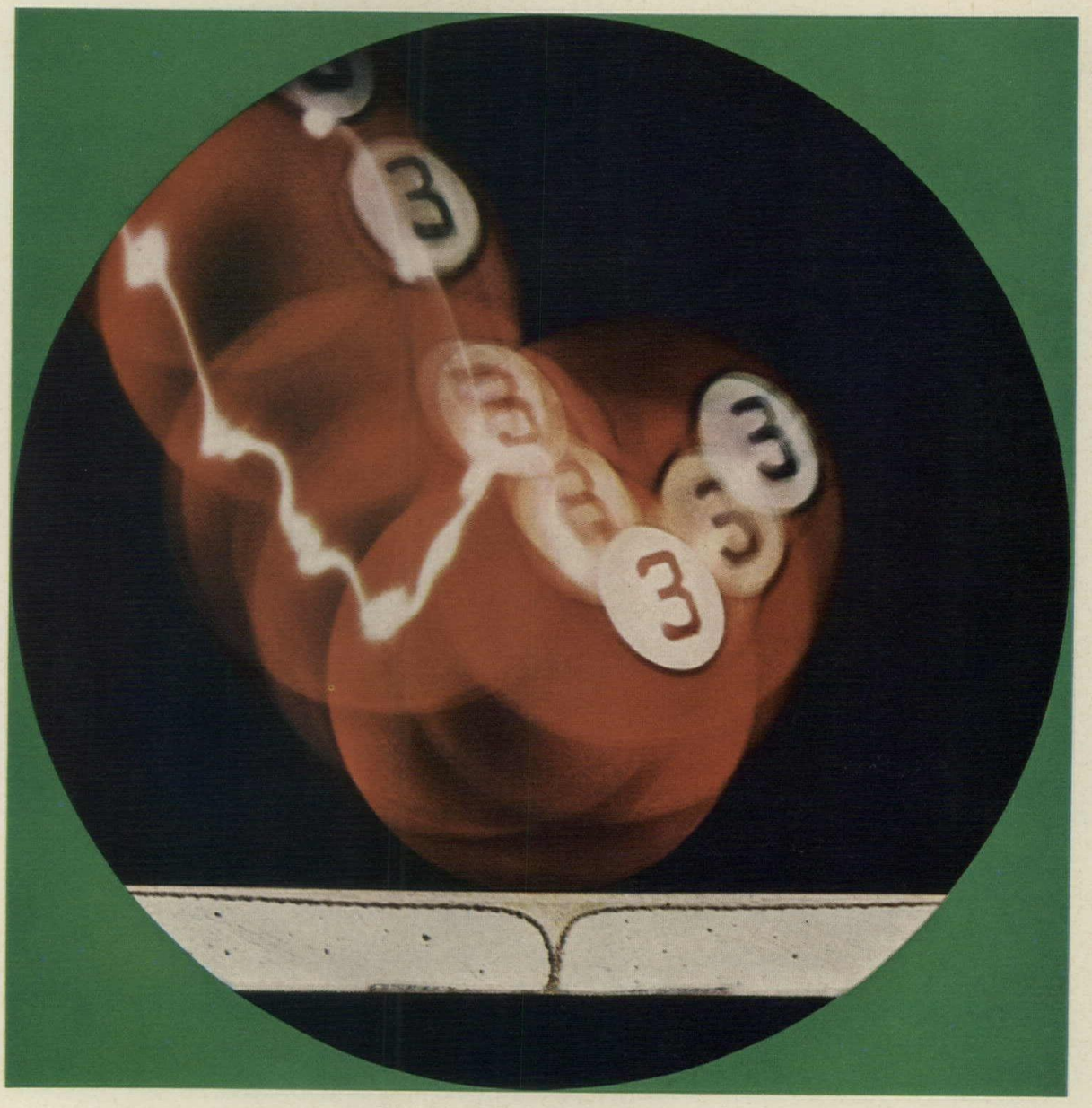

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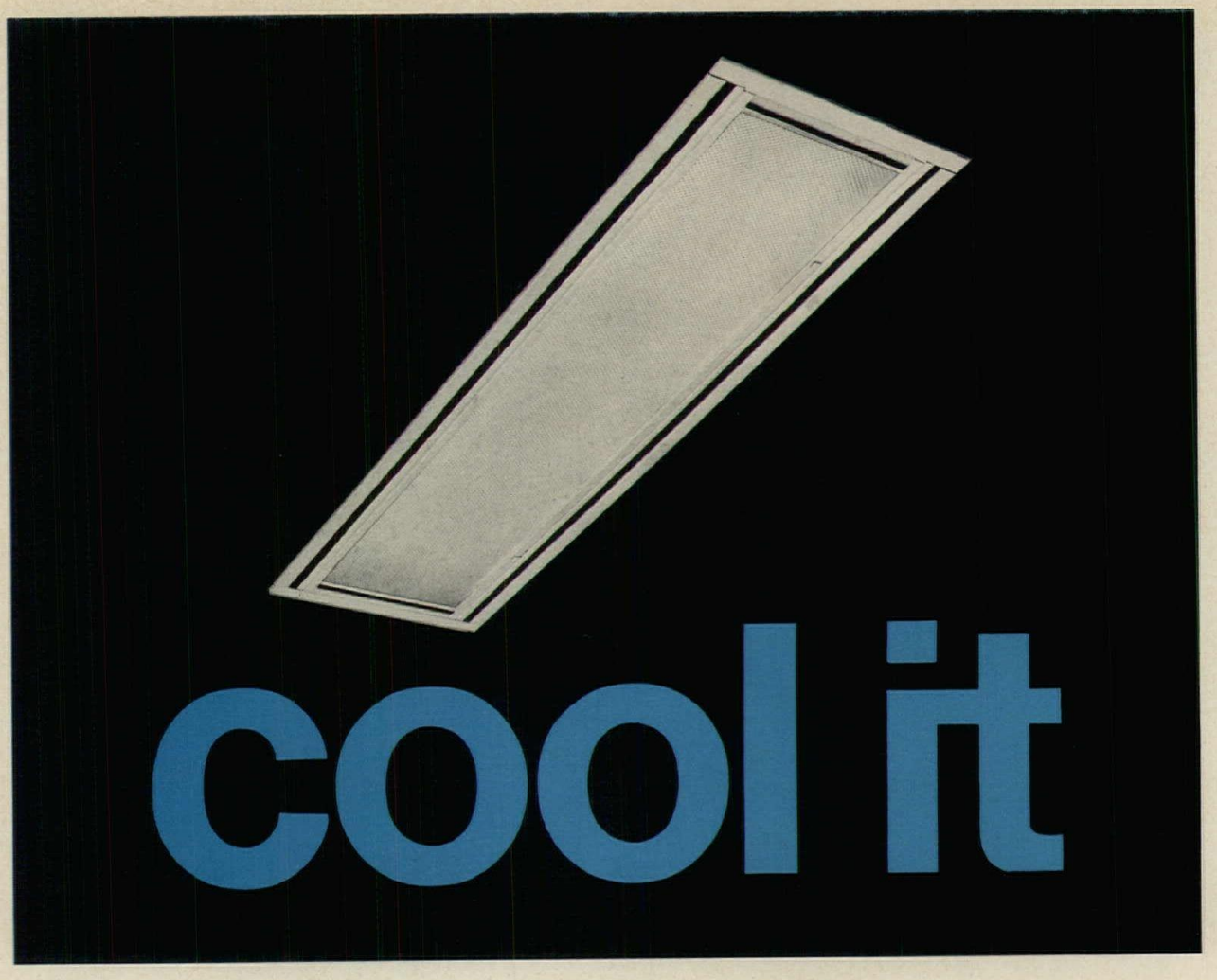

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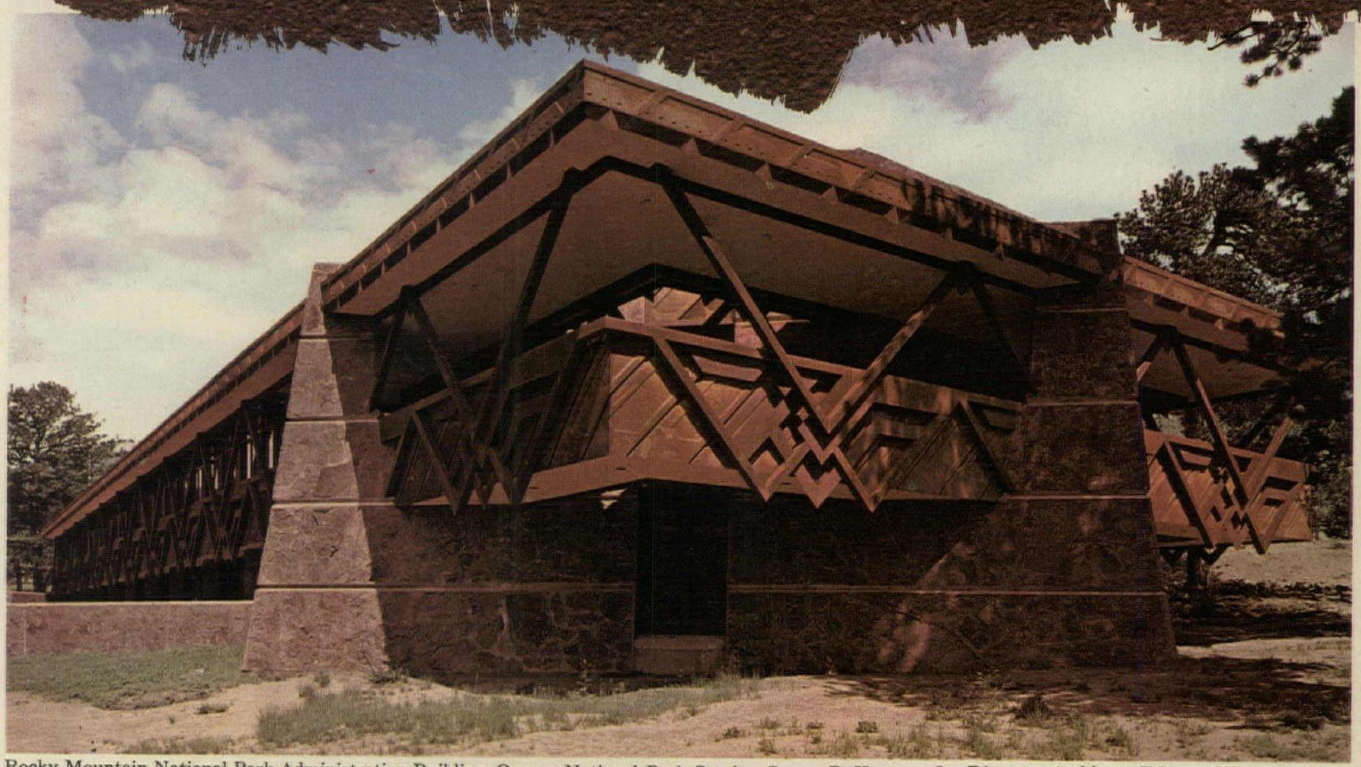
This administration building is "painting" itself



Rocky Mountain National Park Administration Building. Owner: National Park Service, George B. Hartzog, Jr., Director. Architect: Edmond Thomas Casey, Taliesin Associated Architects of The Frank Lloyd Wright Foundation. General Contractor: Kunz Construction Co., Arvada, Colorado. Structural Fabricator: PeCo Steel Corp. (formerly Aladdin Iron & Steel Corp.).

Location: Rocky Mountain National Park, Estes Park, Colorado. Exterior: bare USS COR-TEN Steel that "paints" itself as it weathers and needs no painting. COR-TEN steel develops a tight, dense, attractive oxide coating that seals out corrosion, heals itself if it is scratched, and looks better the longer it weathers.

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OFFICE NOTES

OFFICES OPENED

Harry J. Betley, A.I.A. Architect announces the opening of his new office at 737 North Michigan Avenue, Chicago.

Bornfriend & Cox, A.I.A. Architects have opened their new office at 210 South 13th Street, Philadelphia.

Morganelli-Heumann & Rudd, Los Angeles architecture and interior design firm, recently opened Seattle offices. **James W. Dupar,** of Seattle, has been named as associate-in-charge of the offices, located in Suite 212, 505 Madison Avenue.

Bolt Beranek and Newman Inc., research, consulting and development firm centered in Cambridge, Massachusetts, has opened a San Francisco office at 1 Jackson Place.

Arthur A. Schlott, Julian Norman and **John D. Cain, A.I.A.** announce the opening of their office under the firm name **Schlott/Norman/Cain Architects** at 145 Third Avenue North, Nashville, Tenn.

NEW FIRMS, FIRM CHANGES

The firm of **Abernethy & Robinson, Architects** announces the association of **C. Bolton Abernethy** for the practice of architecture as **Abernethy, Robinson and Abernethy, Architects.** The firm is at 403 East Market Street, Johnson City, Tenn.

Harold Adler, A.I.A. and **David R. Rosenthal, A.I.A.** announce the continuation of their practice in architecture as **Adler Rosenthal, Architects,** 200 N. Fairfax St., Alexandria, Virginia.

The Los Angeles architectural and planning firm of **Robert E. Alexander, F.A.I.A. & Associates** has named **Ernest H. Elwood** an associate.

E. Tucker Carlton announces the formation of the firm, **Carlton, Taylor and Clark, Architects,** located at 206 East Cary Street, Richmond, Virginia. Principals of the firm also include **Wayne E. Taylor** and **Robert H. Clark.**

Eleven new associates have been elected by **Caudill Rowlett Scott** of Houston and New York. The new appointments are: **James R. Cagley, Edward Carr, Jr., Joseph L. Cummins, Robert T. Daniel, Jr., Michael W. Davis, Jack de Bartolo, Jr., Paul N. Deltz, Frederick C. Matthews, F. Conrad Neal III, Kenneth R. Rector** and **Byron Stenis.**

Sylvester Damianos, A.I.A. and **James S. Pedone** have formed the partnership **Damianos and Pedone, Architecture, Interior Architecture.** Offices are at 416 Hastings Street, Pittsburgh.

James A. Babcock is now an associate in the firm **Chan/Rader and Associates.**

Vincent C. Cerasi announces that **Robert G. Torgersen** has become associate member of the firm. The office, now known as **Vincent C. Cerasi and Associates, Landscape Architects and Land Planners,** is newly located at 375 Mamaroneck Avenue, White Plains, N.Y.

The firm of **Childs/Bertman Tseckares Associates, Inc.** has been formed for the practice of architecture, planning and landscape architecture. Principals of the new firm, located at 188 Rawson Rd, Brookline, Massachusetts, are: **Richard Jay Bertman, Maurice F. Childs** and **Charles N. Tseckares.**

Ervin Y. Galantay and **Arthur J. Costello** have joined the firm **Damaz-Pokorny-Weigel** as associates. The architectural and planning firm is at 1114 First Avenue, New York City.

Cesar Pelli was recently elected vice president of **Daniel, Mann, Johnson & Mendenhall,** Los Angeles-based architectural, engineering, planning and economics firm.

continued on page 7

Ruberoid vinyl asbestos offers versatile styling --easy to maintain!

his attractive floor tile installation a Grandway Department Store as photographed more than a year ter the store opened. Thousands customers have tracked in dirt, ud, rain and snow.

The entrance and check-out op), boldly patterned with *Thru-hip* vinyl asbestos—and the main sles, combining *Travertine* with ature strips (below), look unbe-evably new. Racks and bins have en moved frequently across the lling floor, tiled with *Fine Grain.*

Ruberoid's vinyl asbestos has a ght hard surface that resists grease d stains. Spills can be wiped up ickly and easily. A weekly sched-e of washing and a light top essing keep the floor tile in tip-top ndition. No need for frequent avy waxing, buffing and stripping.

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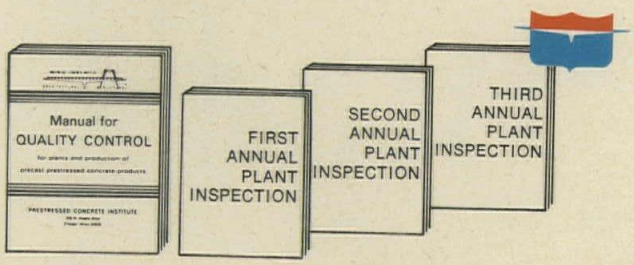
Administration of the PCI Plant Certification program is in the hands of a specially qualified PCI Committee working under the direction and supervision of the Institute's Board of Directors.

The PCI Plant Certification program is additional evidence of this industry's characteristic devotion to quality.



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George Nemeny uses ceramic tile for beauty and freshness to up-date Stanford White design.

George Nemeny (F.A.I.A.) tore down walls, installed skylights, window walls and white ceramic tile to update this Kings Point, N.Y., house designed by Stanford White at the turn of the century. He flooded the dark interior with light and centered on highlighting a magnificent view of Long Island Sound while retaining the spirit of the Classic Revival original.

Glazed ceramic tile for kitchen countertops and splash areas provides a sanitary, scratch-stain-burn-resistant and easy-to-clean surface for preparing food. The center island topped with tile offers an attractive cooking and snack spot with work and storage areas combined.

Unglazed ceramic tile gives a safe, non-slip, easy-to-clean surface for bathroom floors, walls and the step-up tub in the master bath. Floors in the kitchen, dining room, powder room and solarium are also ceramic tile. The builder for this rejuvenation was Laimons Birkmanis and Cramer Bros. of Cold Spring Harbor installed the tile.

For a long-lasting, carefree material that offers you unlimited design ideas for interior and exterior use in either new or remodeling projects, specify ceramic tile made in the U.S.A. The triangular mark at right appears on every carton of wall tile, ceramic mosaic tile and quarry tile when you select and install Certified Quality Tile. This seal is your assurance that tile is regularly sampled and tested by an independent laboratory to meet the most rigid government specifications (SPR R61-61 and SS-T-308b). For more data about Certified Quality Tile and tile installation see Sweets Architectural File or write: Tile Council of America Inc., 800 Second Avenue, New York, N.Y. 10017.

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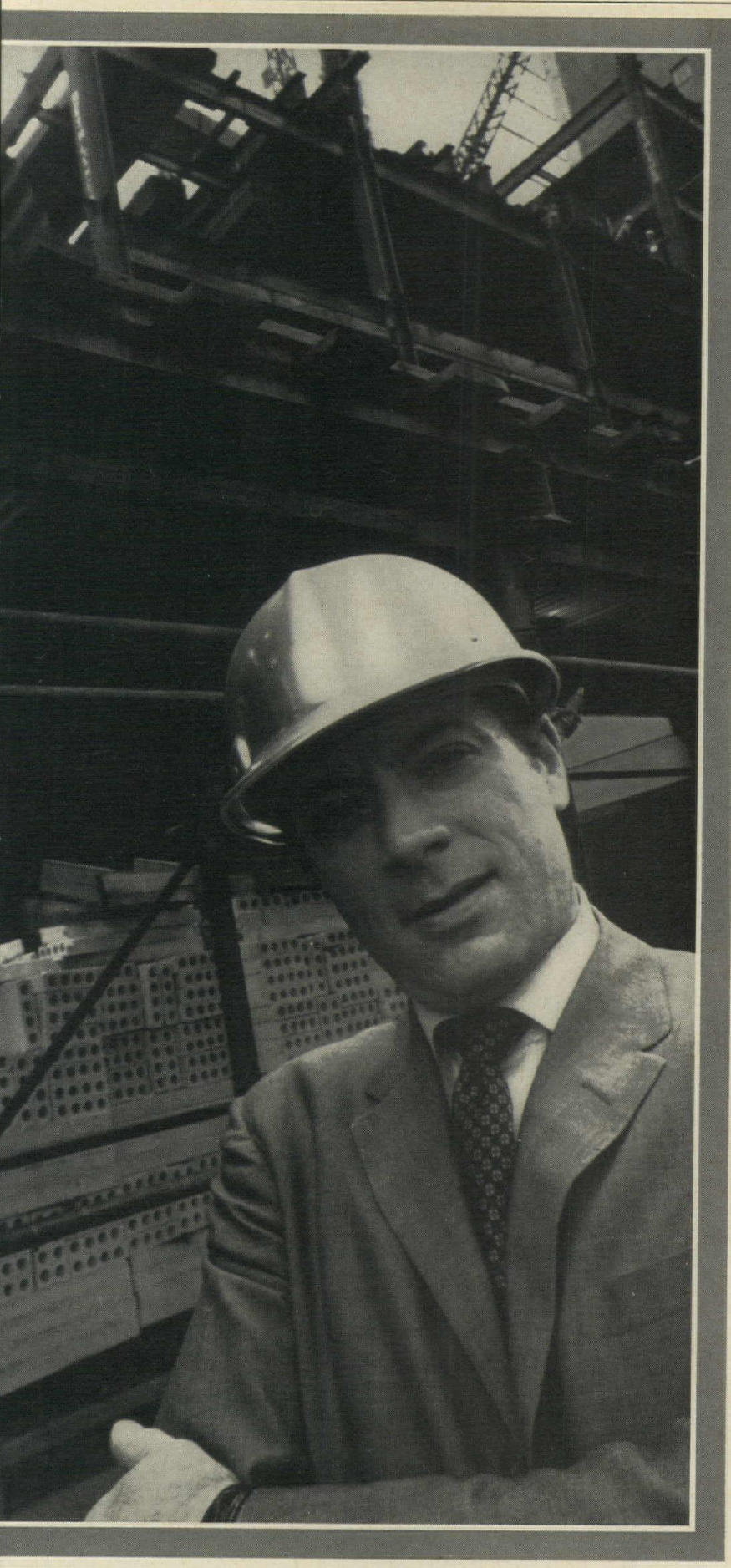

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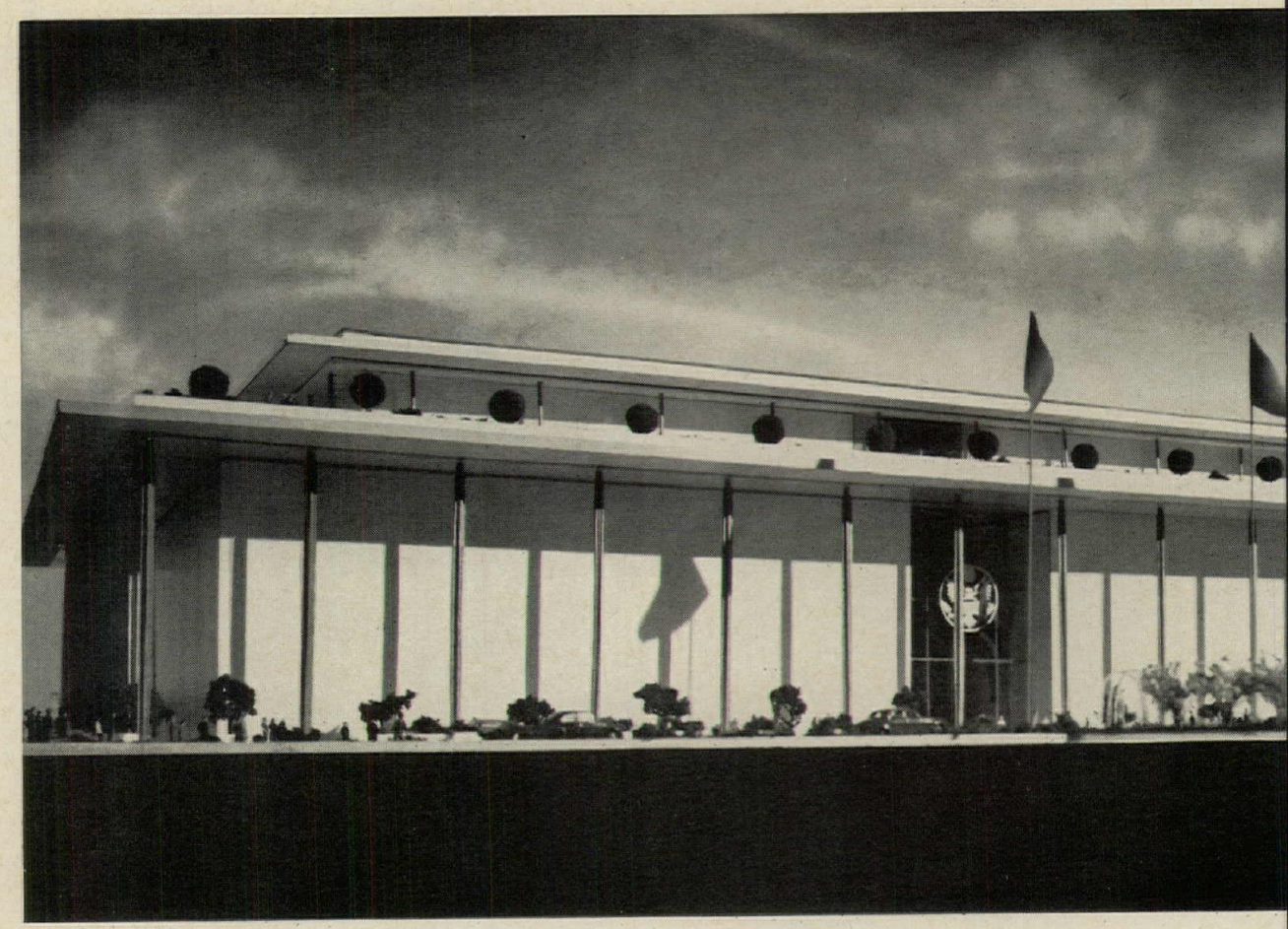
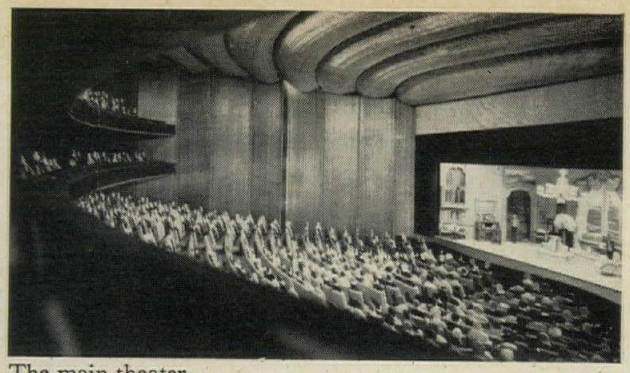


Masterpiece in All-Electric Design

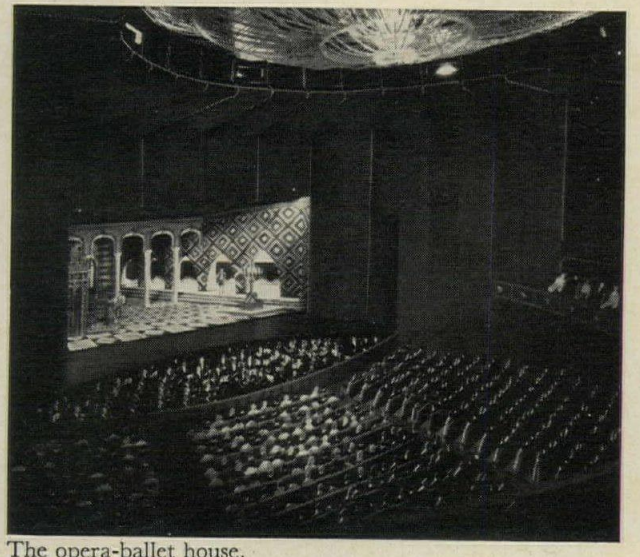
THE JOHN F. KENNEDY CENTER FOR THE PERFORMING ARTS, WASHINGTON, D.C.

to be completed in 1969

Architect:	Edward Durell Stone
Structural engineers:	Severud-Perrone-Fischer, Sturm-Conlin-Bandel Associates
Mechanical and electrical engineers:	Syska and Hennessy, Inc.



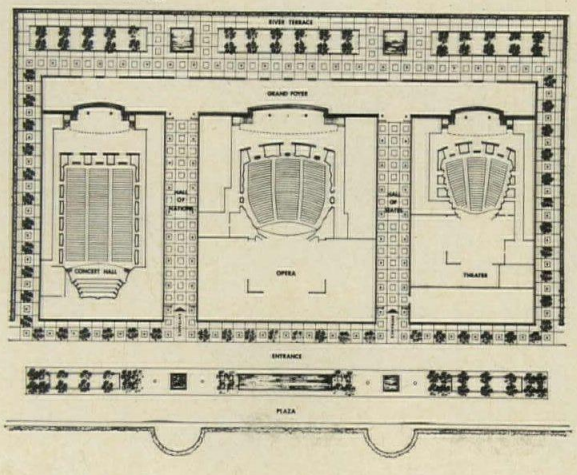
The main theater.



The opera-ballet house.

The concert hall.

The main level.



This theater complex for the performing arts—which will house two theaters, an opera-ballet house and a concert hall—will be served by a single source of energy, electricity. For heating and cooling. And for all other functions requiring power. As a result of this All-Electric design, planners anticipate a substantial reduction in owning and operating costs.

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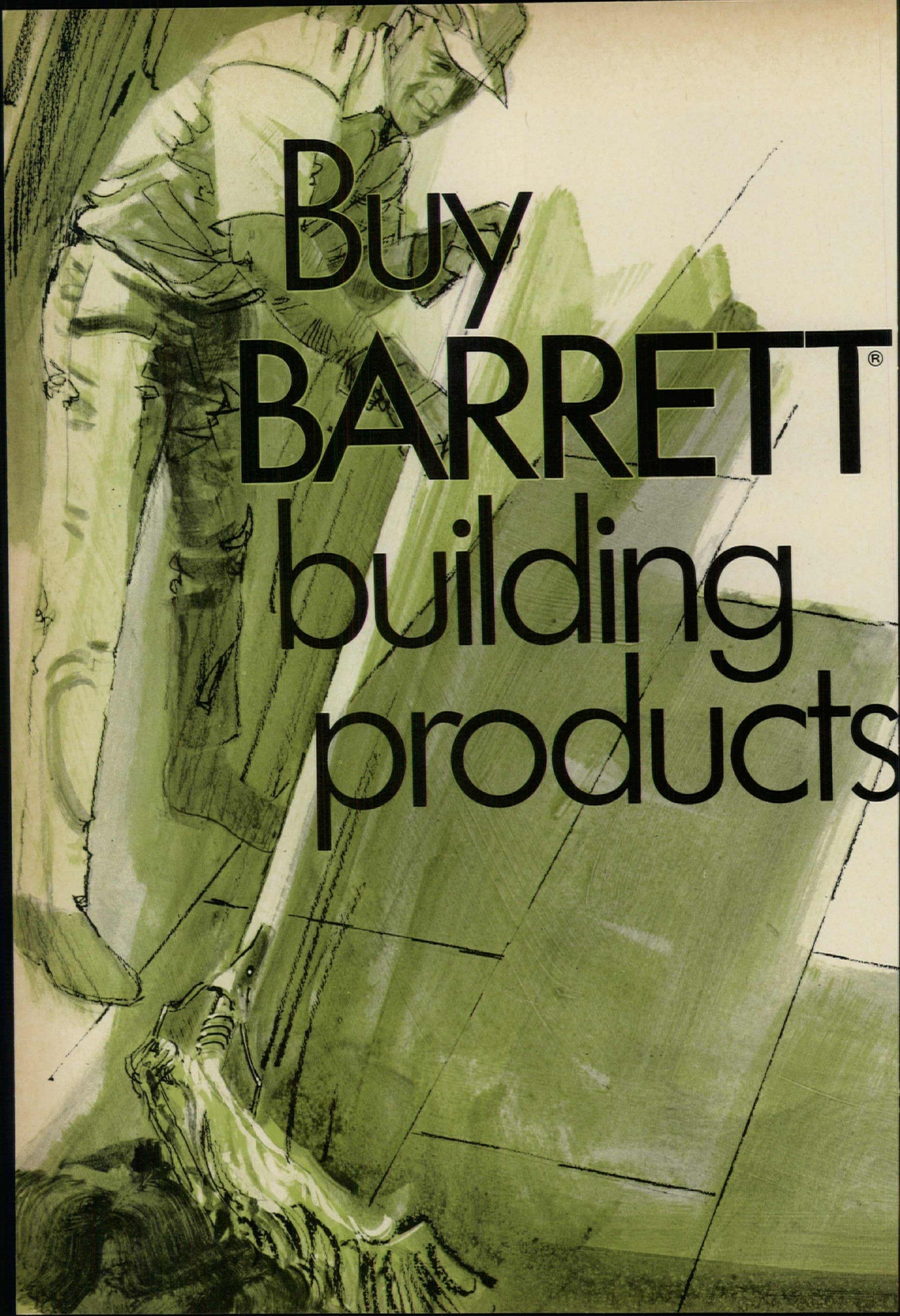
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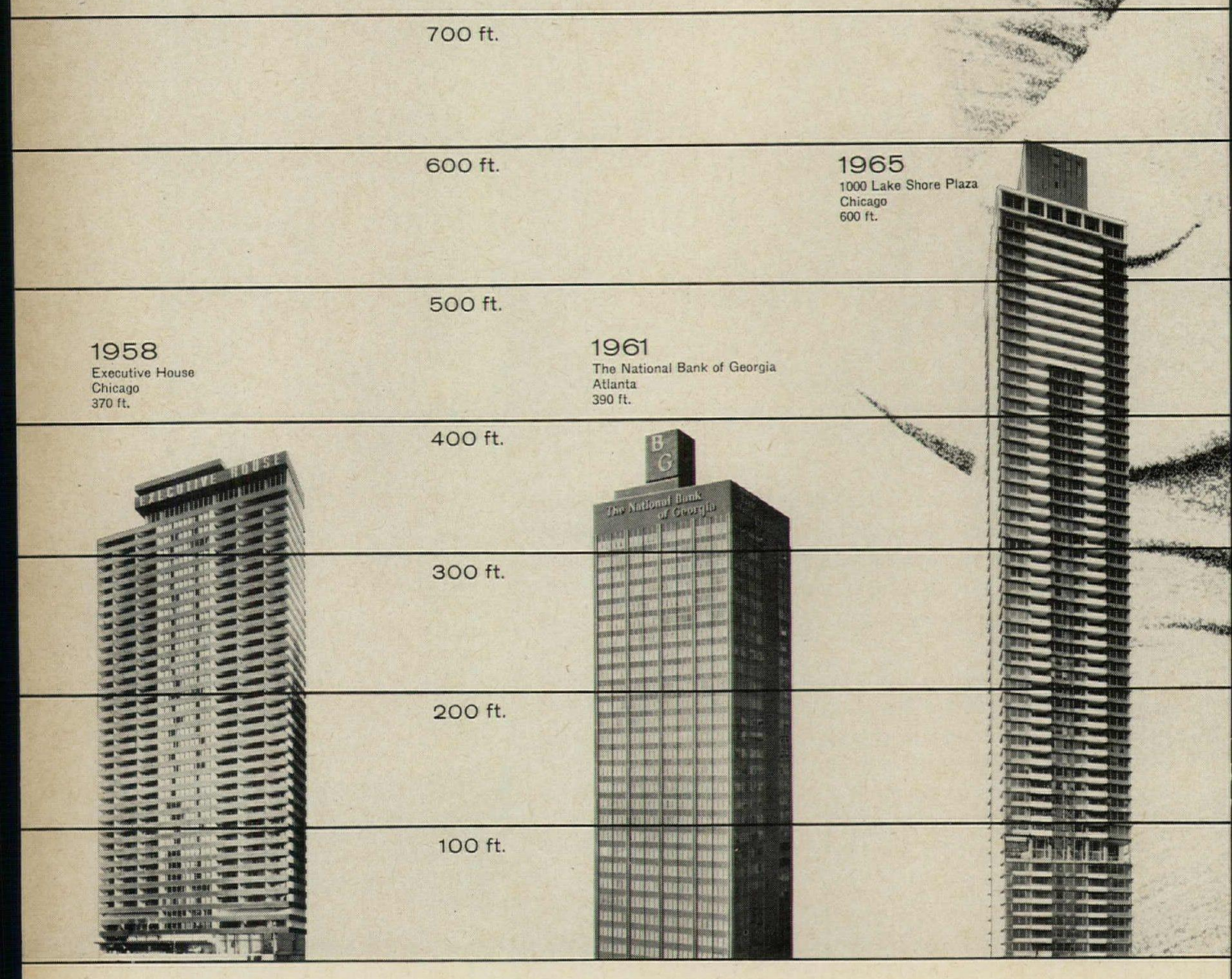
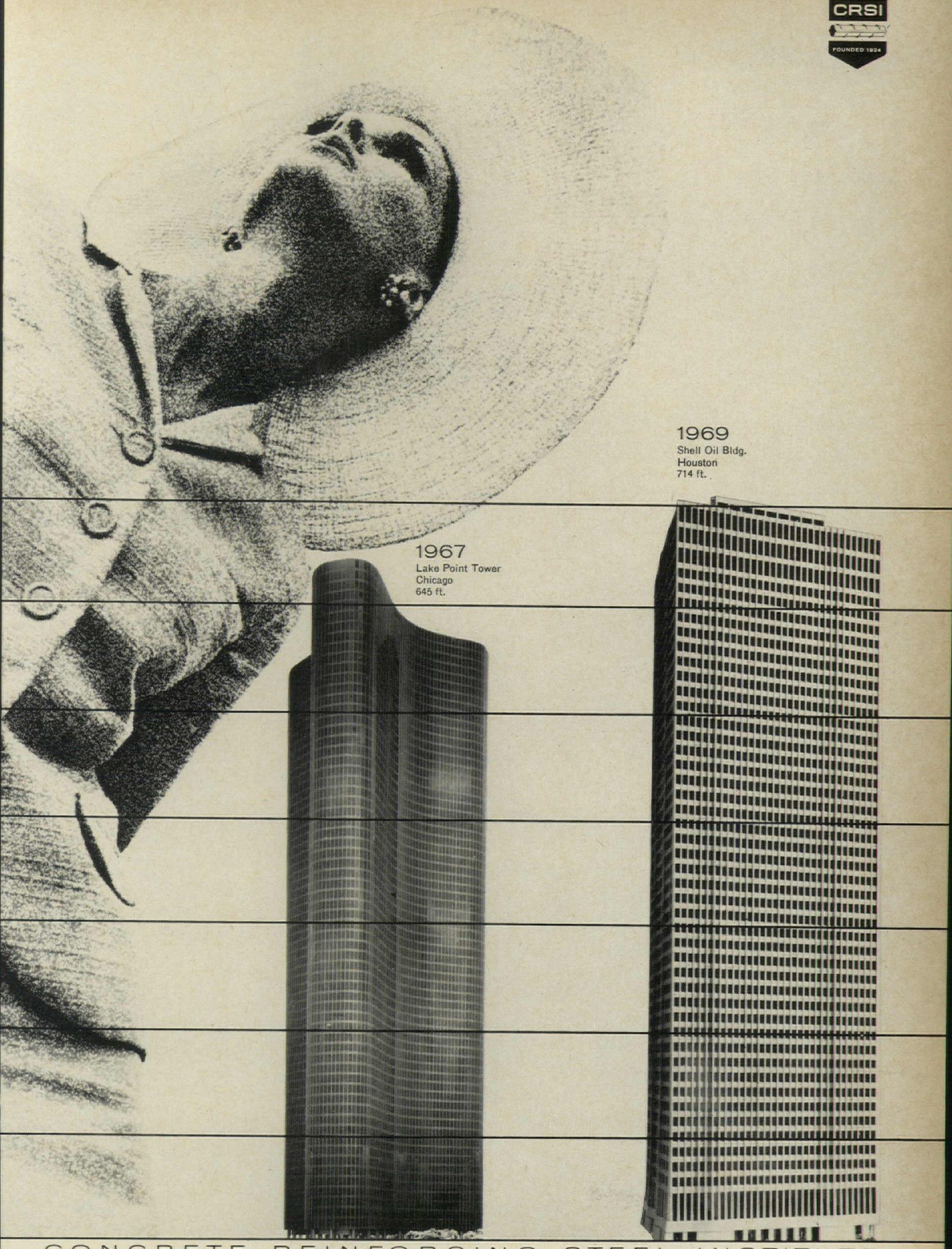
If you have a building that's going up, ask your consulting engineer about the many benefits high-strength reinforcing steels offer in modern concrete building design. Do it soon.





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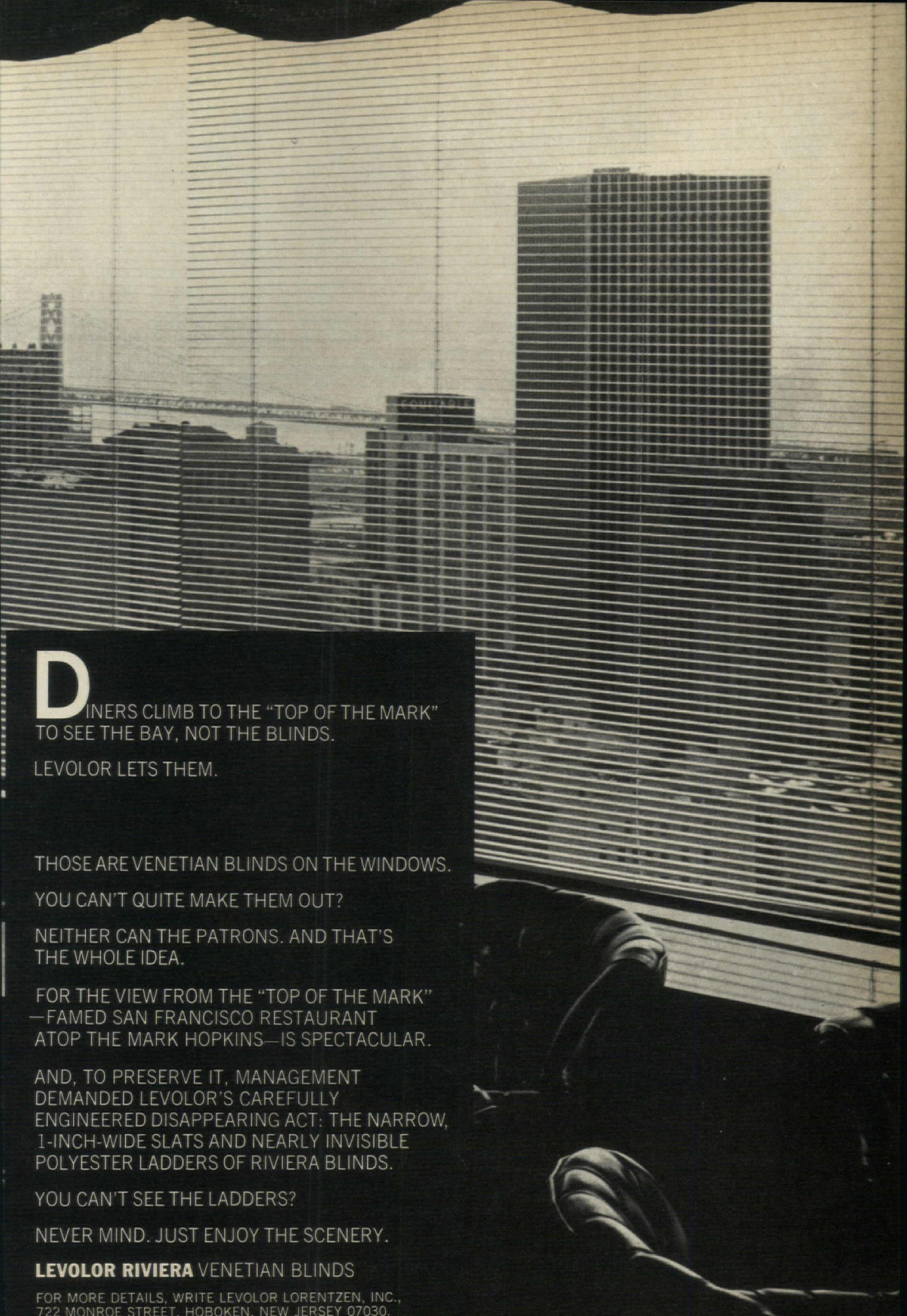

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Complete Industrial Panelboards

---An Inside Job

Until now, industrial panelboards were built in such a manner that the slightest modifications of circuitry meant, at the very least, troublesome hours of work for an electrician — and, in extreme cases, weeks of delay. Now, a new concept eliminates these headaches and, at the same time, provides advantages in safety and design flexibility of importance to engineers, electricians, contractors and users.

New approach to old problems

The solution is a new panelboard design developed by Square D Company. It incorporates vertical stacking of the bus bars, freeing a large portion of the lateral space required by old-style bussing. This I-LINE® design permits mounting any combination of circuit breakers. No special tools are required (see Figure 1). If a change in electrical requirements arises, additions or substitutions can be made without delay. To install or change over to a new 100-ampere breaker takes about 10 minutes with locally available I-LINE breakers versus more than two hours with other designs using connector assemblies and breakers which must be ordered from the factory. All components—boxes, interiors and breakers—are stocked by Square D distributors for immediate use.

Many new design features

Aside from easy assembly, I-LINE power panelboards incorporate a number of important benefits. An I-LINE circuit breaker, for instance, can be installed anywhere, regardless of the frame size or number of poles of the breaker opposite it on the bus bar stack. This is readily seen in the main illustration above. Lugs are front-removable, and special lugs are easily substituted when necessary. All terminals are UL listed for use with either

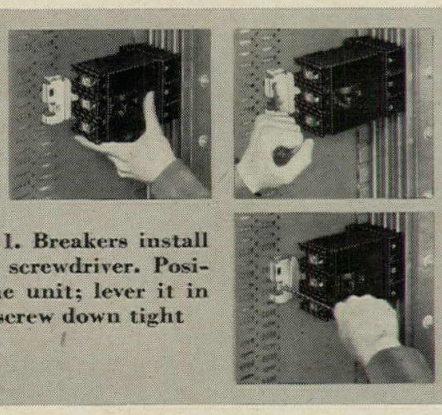
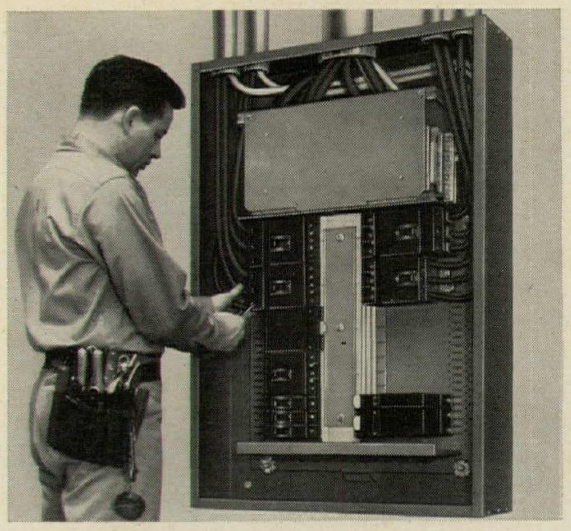


Figure 1. Breakers install with a screwdriver. Position the unit; lever it in place; screw down tight

aluminum or copper cable. A single bolt clamps the cable connectors to the respective bus bars, and complete joint maintenance means only the tightening of that one bolt. Provisions are made for a solid neutral in the main lug or main breaker compartments.

Integrated equipment rating

An extensive testing program conducted by Square D Company assures safety with every combination of breakers installed. Called the "integrated equipment rating," it is the short circuit rating of the *complete* panelboard with branch circuit breakers installed. This testing (*1*) confirms the capability of the line-side bus and insulation assembly to withstand any ionized gases discharged from a branch circuit breaker during short-circuit interruption (discharges must not cause a line-side, phase-to-phase arc on the bus assembly), (*2*) establishes that any arrangement of branch circuit breakers can be made safely, without regard to frame sizes, and (*3*) verifies the safety of the physical bracing of the bus system.



Additional safety

The integrated equipment rating is only a part of the safety built into I-LINE power panelboards. Even with exterior and interior trim removed, the panelboard presents a "dead front" (Figure 2). A captive, hinged cover protects personnel from accidental contact with the main lugs.

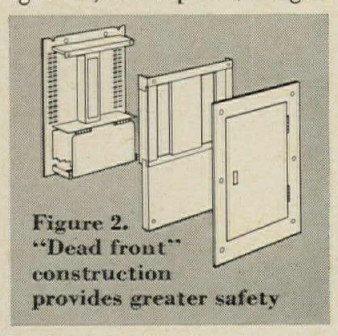


Figure 2. "Dead front" construction provides greater safety

Polyester glass insulators throughout the bus bar stack are as wide as the bus bars themselves to minimize the chances of accidental contact with bus bars or line-side connectors. Dead metal insulators and filler blanks provide additional safety within the completed unit.

Wide selection

Plug-on breakers range from 15-ampere, single-pole devices to 400-ampere, three-pole frames. All have mounting brackets and connectors attached and ready for installation. Optional designs include bolt-on connectors, Visi-blade breakers, bell alarm, shunt trip, undervoltage trip and auxiliary contacts.

For more data...

Further information on I-LINE power panelboards is available. Write to: Square D Company, Dept. SA, Lexington, Kentucky 40505. Or contact your Square D field representative or distributor.

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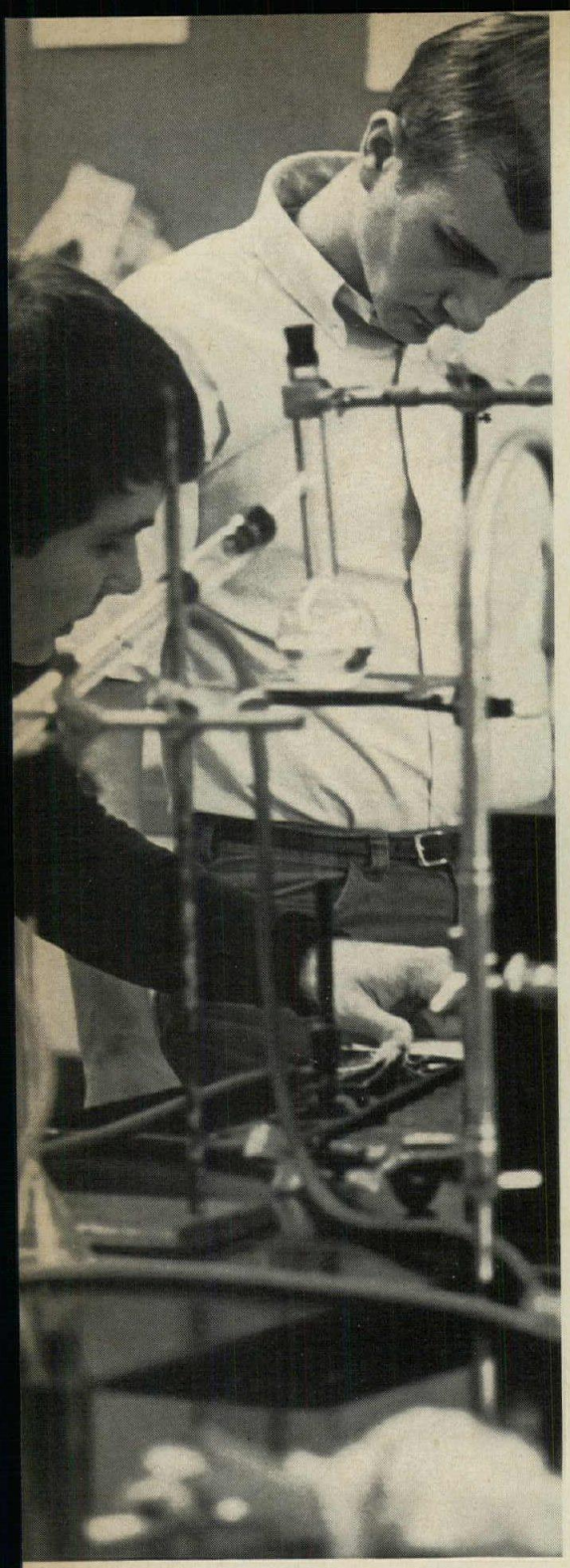
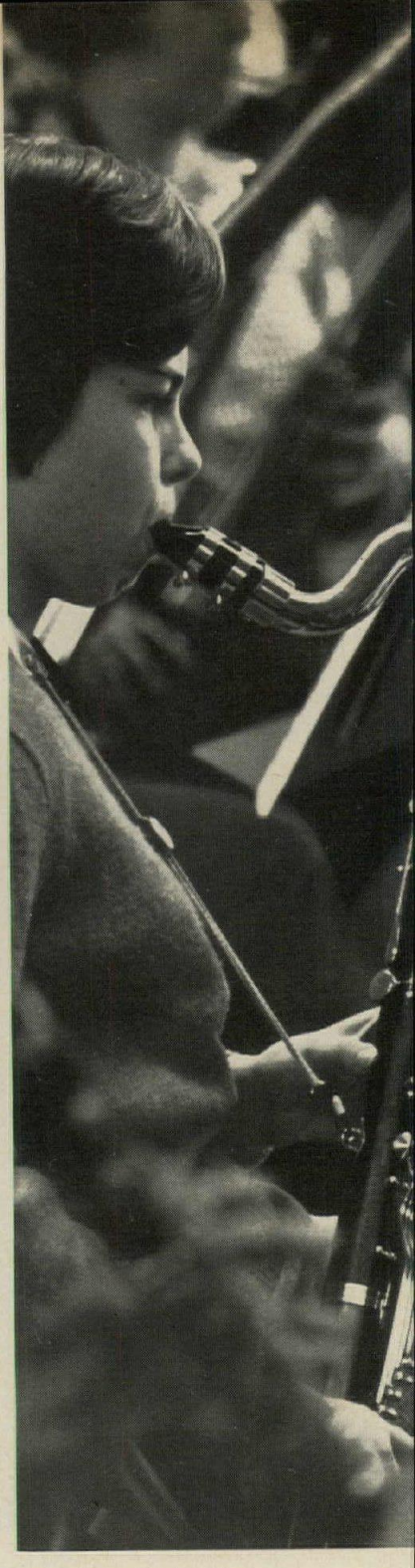
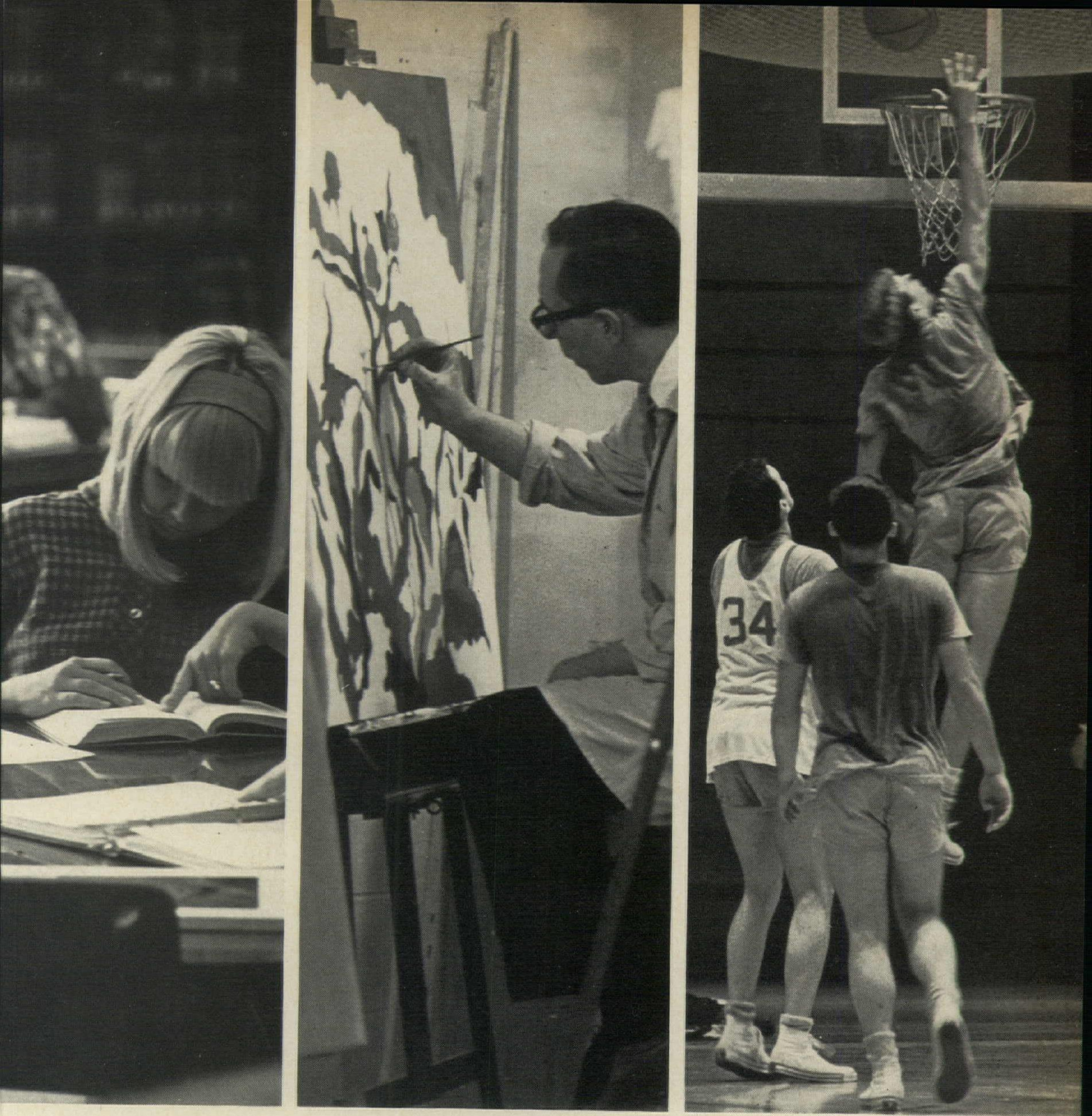




Chem 101 to basketball practic



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continued from page 60

Environmental Systems Design, Inc., a consulting mechanical and electrical engineering firm was recently formed, with offices at 35 East Wacker Drive, Chicago. It is headed by **Hem C. Gupta,** president and **Robert J. Ladner.**

Martin E. Fossler is now general manager of **Alexander Ewing & Associates,** Philadelphia architects, engineers and planners.

Albert Kennerly, formerly with **Skidmore, Owings & Merrill,** is now a partner of **Fordyce & Hamby Associates.** The firm continues in the general practice of architecture at 717 Fifth Avenue, New York City, under the new name, **Fordyce Hamby & Kennerly.**

Frederick G. Frost Jr. & Associates, Architects of 30 East 42nd Street, New York City have appointed **Owen L. Delevante A.I.A.** an associate in the firm. Mr. Delevante was formerly with the firm of **Harrison & Abramovitz.**

Louis J. Nacamuli was recently appointed associate in the consulting structural engineering firm, **Garfinkel, Marenberg and Associates.** The firm's address is 9 East 40th Street, New York City.

Donald E. Wudtke, A.I.A., has joine **M. Arthur Gensler Jr. & Associates, Architects** as a partner. The firm has recently moved to new offices, 222 Hears Building, San Francisco.

Kinney E. Griffin, A.I.A. announce the formation of a new organization en gaged in the practice of architecture an planning under the name of **Kinney Griffin and Associates, Architects & Plan ners,** and the professional liaison of th firm with **Douglas Dacre Stone, A.I.A** The practice continues at Suite 26, 451 Williams, Fremont, Calif.

The Detroit-based architectural an engineering firm of **Harley, Ellingto Cowin and Stirton Inc.** has elected **Ma colm R. Stirton, A.I.A.** president. He su ceeds **Julian R. Cowin, A.I.A.,** who wa elected chairman.

The partnership firm of **Charles Hartmann, Architects, A.I.A.** has bee reorganized with the formation of th firm of **Charles C. Hartmann, Sr. and A sociates, Architects. Charles C. Hartman Sr., F.A.I.A.** is the principal with **Ralph Austin, Jr., A.I.A.** as associate. The firm address remains unchanged: 405 We Fisher Avenue, Greensboro, N.C.

E. Hernandez and **B. O. Menezes** a nounce the formation of a partnersh under the name of **Hernandez, Menez & Associates, Architects and Town Pla ners.** The new firm's address is: Sol House, Government Road South, P. Box 20120, Nairobi, Kenya.

Arthur C. Holden, F.A.I.A. and **Jol B. Corser, Jr., A.I.A.** announce the wit drawal of **John T. Egan** and **William Wilson** from the firm of **Holden Egan W son & Corser** and the admission to pa nership of former associates **Henry Raemsch, A.I.A.** and **John Yang, A.I.** The new firm, **Holden Yang Raemsch Corser,** is located at 630 Third Ave., N.

Louis R. Morandi, A.I.A. is now partner of the firm **Hillman/Garmendi Architects,** 122 East 37th Street, N.Y.

The architectural firm of **Lemmo Freeth, Haines & Jones** has appoint **Fred R. White, A.I.A.** and **George Wo A.I.A.** as associates and **Joseph G. F. F rell, A.I.A.** as senior associate.

William M. Schoenfeld, A.I.A. h been elected a vice president of the L Angeles architectural firm, **Charles Lu man Associates,** and **Peter DeFrancis** appointed director of consulting servic

W. Gene Williams of Oklaho City, Oklahoma has merged his archite tural firm with the Tulsa consulting e gineering firm **Mansur, Steele & Ass** to form **Mansur-Steele-Williams, Inc.**

continued on page

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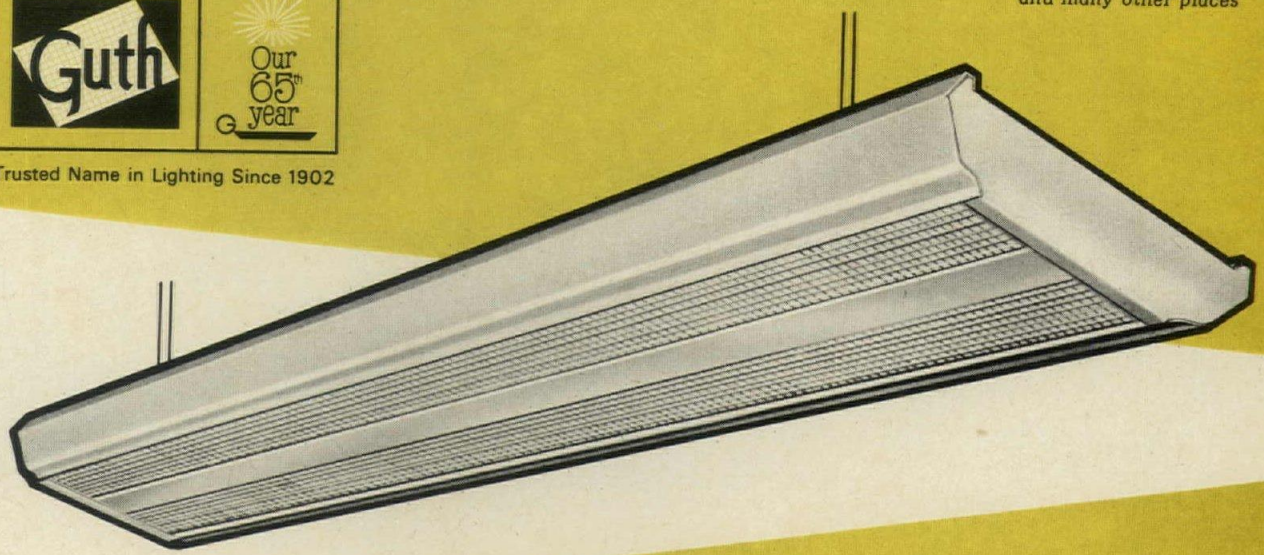

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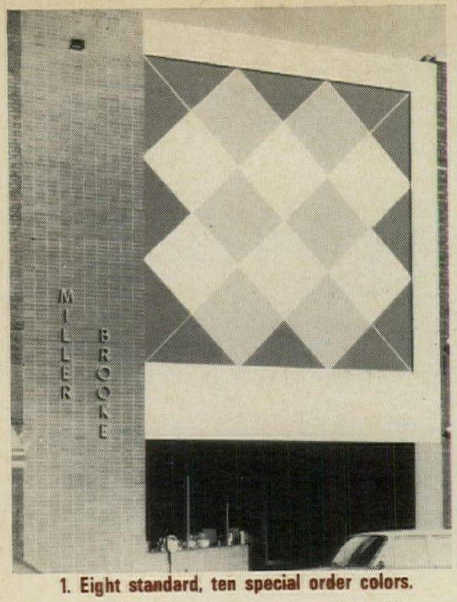

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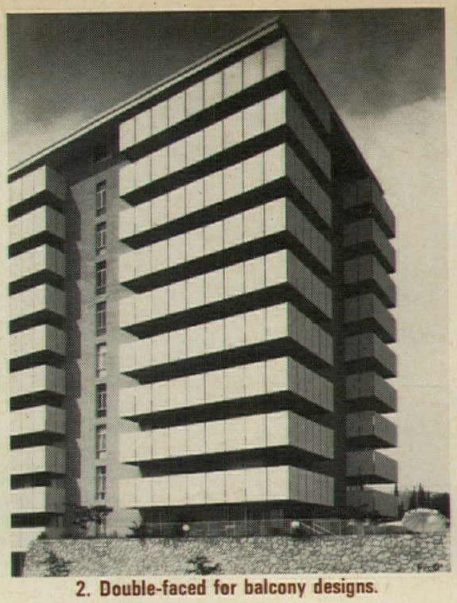

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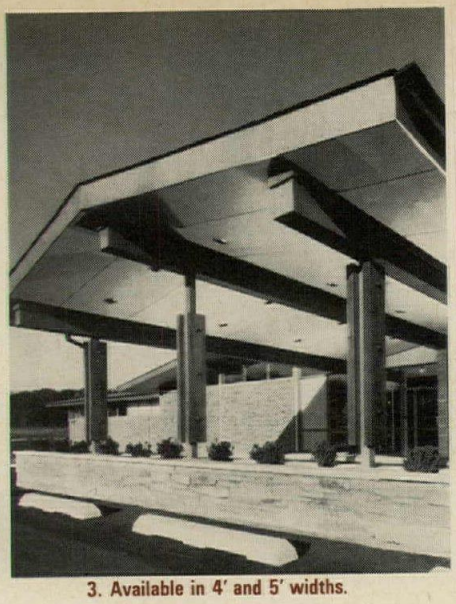

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Congress stops fee bidding and opens top limit

he threat that architects might have to d before getting Federal design con- acts was knocked out by Congress last onth. Representative Jack Brooks (D- x.) told the General Accounting Office quit trying to make A/E firms submit ice during the final stages of negotiat- g a design contract.

At the same time, he wrote a stiff rective to GAO to stop trying to oaden the congressional limitation at only designs and specifications ould be included within the so-called per cent fee limit.

And he told both the A/E societies d GAO to calm down about any spe- l cases where an A/E firm's fee might above the 6 per cent limit legiti- ately; in such special cases, he said, ngress can pass a separate waiver if eded.

Brooks' committee consensus clears up GAO quandary

Brooks voice carries a lot more weight than just one congressman complaining about GAO's fussy accountant-like attitude. He is the chairman of the House Subcommittee on Government Activities, which would consider any legislation about the issue.

And since he wrote the letter to GAO on subcommittee stationery, speaking as the chairman, Brooks' views have the force of law unless some congressman tries to elevate the 6 per cent fuss into a major public issue—highly unlikely.

The controversy arose last spring when GAO suggested Congress ought to do away with the 6 per cent limit as arbitrary and unreasonable. Upon the few occasions (such as a restoration job or a huge new complex like NASA's "moon palace" at Cape Kennedy) when an A/E's fees exceeds the 6 per cent limit, agreed the A/E societies, the statutory limit does seem arbitrary.

But no one was able to come up with a suitable alternative. Consequently, Brooks decided not to tamper with the procurement laws; at the same time, he decided to set GAO straight on a lot of other issues—and in doing so, he "bought" the arguments of the design professions:

"The quality and the cost of the facilities the A/E designs are the true test of his capability. . . . If the amount to be paid the A/E enters into the initial stage of the selection process when the relative qualifications of A/E's are determined," Brooks said, "the chances of achieving this optimum result are compromised."

uge housing bills expected in Congress next year

rly next year, President Johnson is ex- cted to ask Congress to approve a ge "omnibus" housing bill, topped by own proposal for a new plan to pro- e home ownership for the near-poor.

The administration's bill, which will lude requests to continue urban re- wal, public housing and the other ma- urban programs through 1973, will headlong into another major hous- bill that the Senate was to take up month.

This bill, authored by Senator John rkman (D-Ala.) and his housing sub- mmittee, contains a hodge-podge of housing programs.

me ownership plans npete for notice

haps the best known is the "lower- ome home ownership" plan that the Alabama senator put together in the wake of favorable publicity over Senator Charles Percy's (R-Ill.) "Home Ownership Foundation" scheme. Senator Percy's plan remains in the Sparkman bill in name only, as a vehicle for aiding nonprofit housing sponsors. A similar concept, authored by Senator Walter Mondale (D-Minn.) is also included—but FHA would do the counseling.

Senator Sparkman hopes his new plan would be used mostly for new construction or rehabilitation. "Lower-income" families (including those qualified to live in public housing) would be eligible; rents would be subsidized, but the mortgages would carry a market rate of interest.

Interest rates approach statutory limits

Senator Sparkman's bill also contains many other changes in national housing policies, some of which would undoubtedly be picked up in President Johnson's bill next year. The most significant, particularly for short-term outlook on home building, is the deletion of the statutory limit (6 per cent) on maximum interest rates for mortgages insured by the Federal government.

By lifting the 6 per cent ceiling,

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Senator Sparkman's bill would permit HUD Secretary Robert Weaver to allow stated interest rates to swing into line with prevailing market rates, thereby lessening the amount of "points" paid. This in turn would encourage greater use of Federal mortgage insurance, which then might attract more funds toward construction of multiple housing.

Lifting the 6 per cent ceiling is politically a hot potato, however. Many states now assert that rates above 6 per cent constitute usury, and President Johnson could hardly maintain a "populist" image if he advocates higher rates to be paid to bankers.

Other innovations: Senator Sparkman proposes FHA insurance for seasonal homes—vacation houses. He sug gests letting some urban renewal fun be used to fix up municipal facilitie (parks, streets, and other minor improv ments) in areas destined for clearan but not yet worked into urban renew schemes. Objective of the idea is to pr vide temporary relief for a long h summer of tension in those areas.

Unions step up pressures on A/E firms

In recent months, unions have been making a concerted effort to organize the employees of architectural firms. Reports from Michigan, Florida, Illinois, New York and several other states indicate several unions—particularly UAW and AFL-CIO operating engineers are trying to organize subprofessionals.

To counteract the unionization drive, the A.I.A. and five engineering societies were to meet soon after press time to hash over what architectural firms could do when faced with a unionization effort.

"No conference is going to do away with the union problem, however," explained Milton Lunch, general counsel for one of the engineering societies.

The group was likely to affirm the principle that self-interest (collective bargaining) often can run counter to professional responsibility and the client's interest. By the same token, however, several speakers were expected to explain that the only true "cure" to the problem was for A/E firms to provide good working conditions and enough pay so as to smother the appeal of any unionization effort.

Philip Hutchinson, A.I.A.'s director of government affairs, had already expressed the fear that the unionization drive could have wider ramifications, judging by the current direction of court decisions. "It certainly isn't going to happen tomorrow, but we can't ignore the possibility that unions might begin to picket a construction job unless the plans and specs were drawn in a unionized shop," he said.

At the Chicago symposium, ma case histories would trace how so firms were successful in fending off unionization drive and how others ha accepted the union's presence.

Several lawyers specializing in lab relations were to explain that architec are seldom prepared for a union's en into their shop. Harry Rains, New Yo attorney, has previously explained th an architect should always have a w ness whenever first confronted by union representative; he should say o that he will recognize a unit that is ce fied by an NLRB election; he should n touch any cards signed by employees; should be brief, polite, firm and wr down everything once the first confr tation is over. Then get a lawyer, Ra added.

Briefs

Continued opposition to H.R. 8213, the Federal bill requiring the listing of all subcontractors on Federal work has been urged by both AGC and A.I.A. who favor a listing procedure compatible with that developed and approved by AGC.

Capital spending by American business will reach $65 billion for plants and equipment next year reports the 14th McGraw-Hill fall survey, "Preliminary Plans for Capital Spending in 1968-1969." This is a 5 per cent gain over the 1967 rate, and though substantially smaller than the 16 to 17 per cent gains of 1965 and 1966, the planned increase nevertheless represents a turnaround from the declining rate between the fourth quarter of last year and the second quarter of this year.

A statute of limitations law effective November 9, protects California's architects and other design professionals. Authored by Sen. William E. Coombs, the new law limits the architect's liability to four years in suits arising from patent (i.e., apparent by reasonable inspection) deficiencies in design, planning, or supervision of construction.

Lump sum fees for architects participating in New York State's housing programs are now based on the number of dwelling units rather than construction costs. Commissioner James S. Gaynor says the new schedules provide increased fees for all types and sizes of new construction (including non-residential areas and structures), and insure just compensation for consultants by stipulating a minimum fee requirement. He describes the program as a commitment to architectural excellence.

A bill to outlaw hold harmless agreements, such as the indemnification clause in A.I.A. Document A-201, has been vetoed in Illinois by Gov. Otto Kerner on grounds that it would make recovery by innocent third parties more difficult and impair the right of parties to freely negotiate their contract. Though more than 20 other state legislatures have considered similar bills, none has been adopted in any state to date.

The U.S. Supreme Court has dismissed planners' appeals to review a New Jersey Supreme Court decision which holds that registered engineers, land surveyors and architects may obtain professio planner registration without examinati and/or planning degrees.

The action means an end to a c troversy which began with the 1962 actment of a planner registration which could have been interpreted prevent engineers and architects fr providing planning services. This preci tated a series of legal actions resulting a continuing stay on the issuance of planner registrations by the New Jer Board. Dismissal of the appeal now thorizes and obligates the Board recommence issuance of certificates all qualifying groups.

A 2.5 per cent increase in building c for the year ending October 31, 196 reported by W. H. Edgerton, manage cost calculating services of the F. Dodge Company, and editor of the D Building Cost Calculator and Build Cost and Specification Digest. The b reason for the increased building c was an average 6 per cent increase hourly wages for building trades cra men, Edgerton said. During the sa period, building material costs ros slight .10 per cent.

CURRENT TRENDS IN CONSTRUCTION

George A. Christie, Chief Economist
F. W. Dodge Company
A Division of McGraw-Hill, Inc.

Industrial-commercial building: survey indicates '68 gain

The strong recovery of the housing market during 1967 has been, without question, this year's most important construction trend. As the increased availability of mortgage money lifted home building from its badly depressed state back in January to near-normal levels by the final months of the year, *total* construction activity rose to new record highs.

But while all attention was focused on seeing the housing industry through its crisis, another important area of construction—the industrial and commercial building market—has developed some troubles of its own.

In a way, it's possible to draw a parallel between the 1966 housing collapse and the later reversal in commercial and industrial building. When mortgage sources dried up early last year, housing activity fell off sharply; when business investment incentives (the 7 per cent tax credit and accelerated depreciation) were suspended late in 1966, business-related construction receded. That's where the similarity ends, though. Once mortgage funds began to flow again, the strong latent demand for shelter brought on immediate and sustained recovery in single and multi-family housing starts. But the restoration of the tax credit and the fast-write-off incentives so far has failed to spark a similarly strong revival of industrial and commercial building. Two things help to explain the current sluggishness in the construction of new business facilities.

In the *commercial* area, store building (especially suburban shopping centers) declined soon after the housing recession began. And although housing activity has now regained near-normal strength, store building is only beginning to show a corresponding upturn.

In the *industrial* building market, the problem is one of mild overcapacity. This time last year, manufacturers were operating at 90 per cent of potential output. Since then a combination of factors—the need to reduce output for a brief time (in order to keep inventories from getting out of hand) plus the availability of a lot of new capacity (which had been ordered a year or more earlier)—pressed the operating rate down to 81 per cent by this past September. And this means that it's now possible to get a fairly large increase in output from existing facilities before another *new* burst of plant and equipment expansion becomes necessary to handle expected growth.

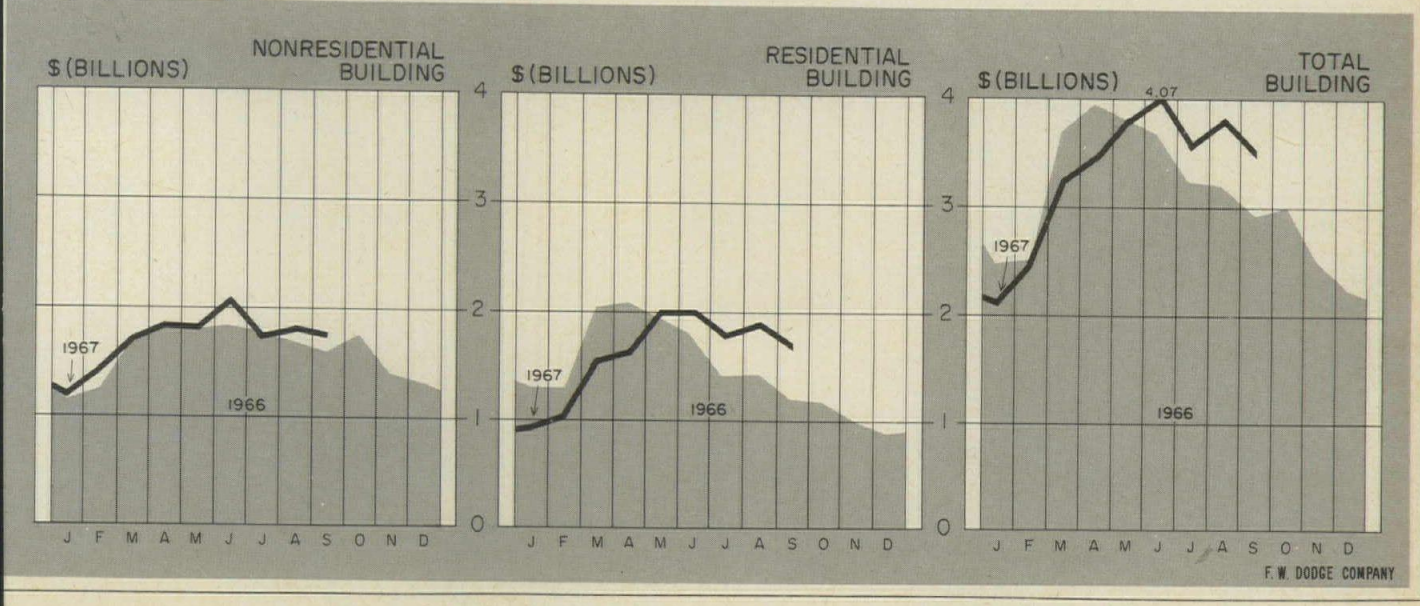
What, then, are the prospects for industrial and commercial building in the year ahead? According to the recently released McGraw-Hill survey of business plans for capital spending, things should be moving up again soon, though only at a modest pace.

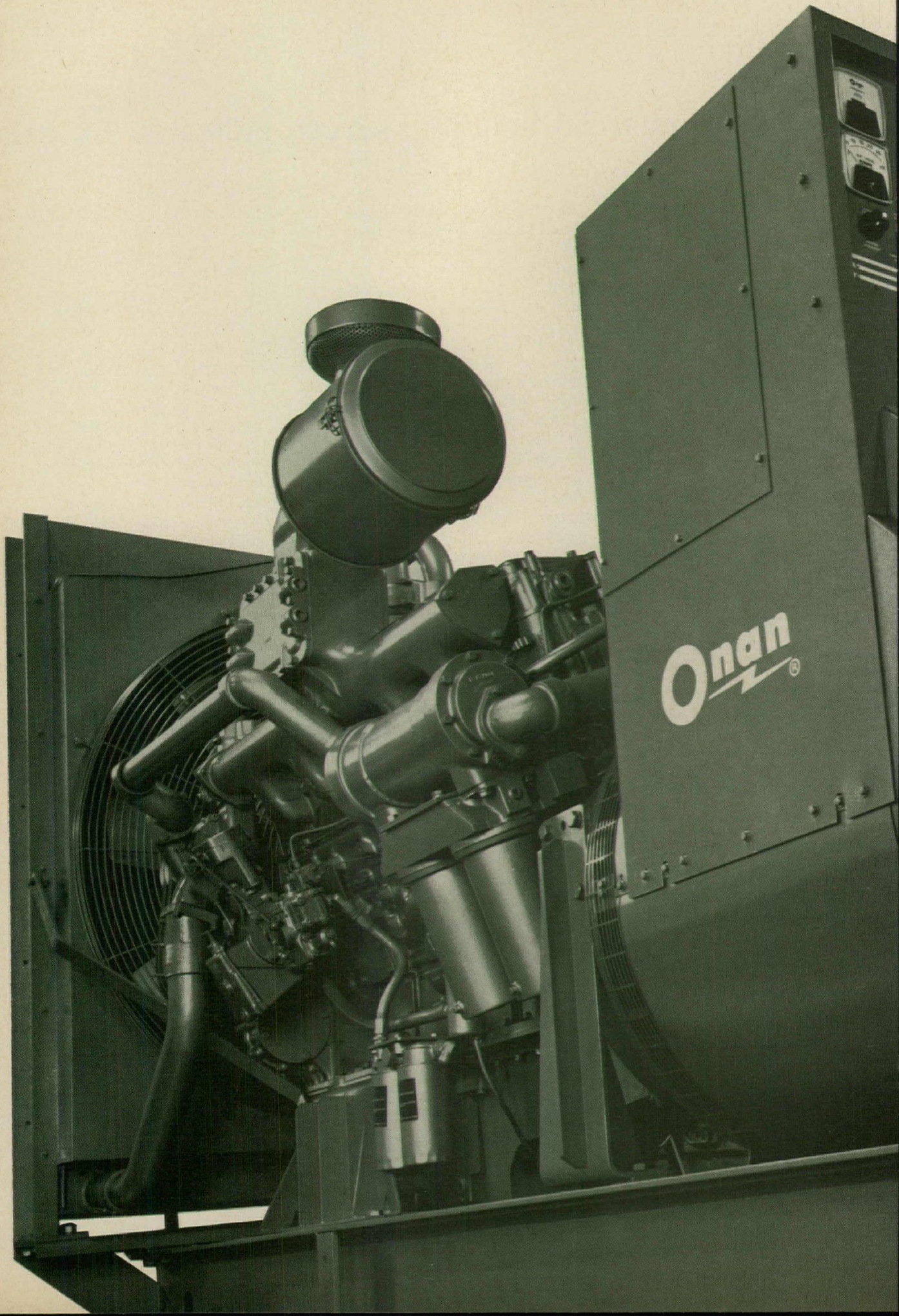
One important key to the capital spending outlook is that manufacturers anticipate that next year's sales will be *up 8 per cent in physical volume*. That will have the effect of raising operating rates back to about 85 per cent of capacity. In order to produce at that rate—and to replace obsolete facilities—manufacturers plan to raise their capital outlays by 3 per cent in 1968.

A much bigger percentage gain, according to the survey, is slated for commercial building. Next year's outlays for stores, warehouses, and offices (both buildings and equipment) are expected to advance by 8 per cent.

These survey findings bear out the fact that after several years of very strong plant and equipment expansion, there's enough capacity around right now to take care of most needs for a while. But they also show that with a good rise in sales volume, the current sluggishness in industrial and commercial building is bound to be short-lived.

Building activity: monthly contract tabulations

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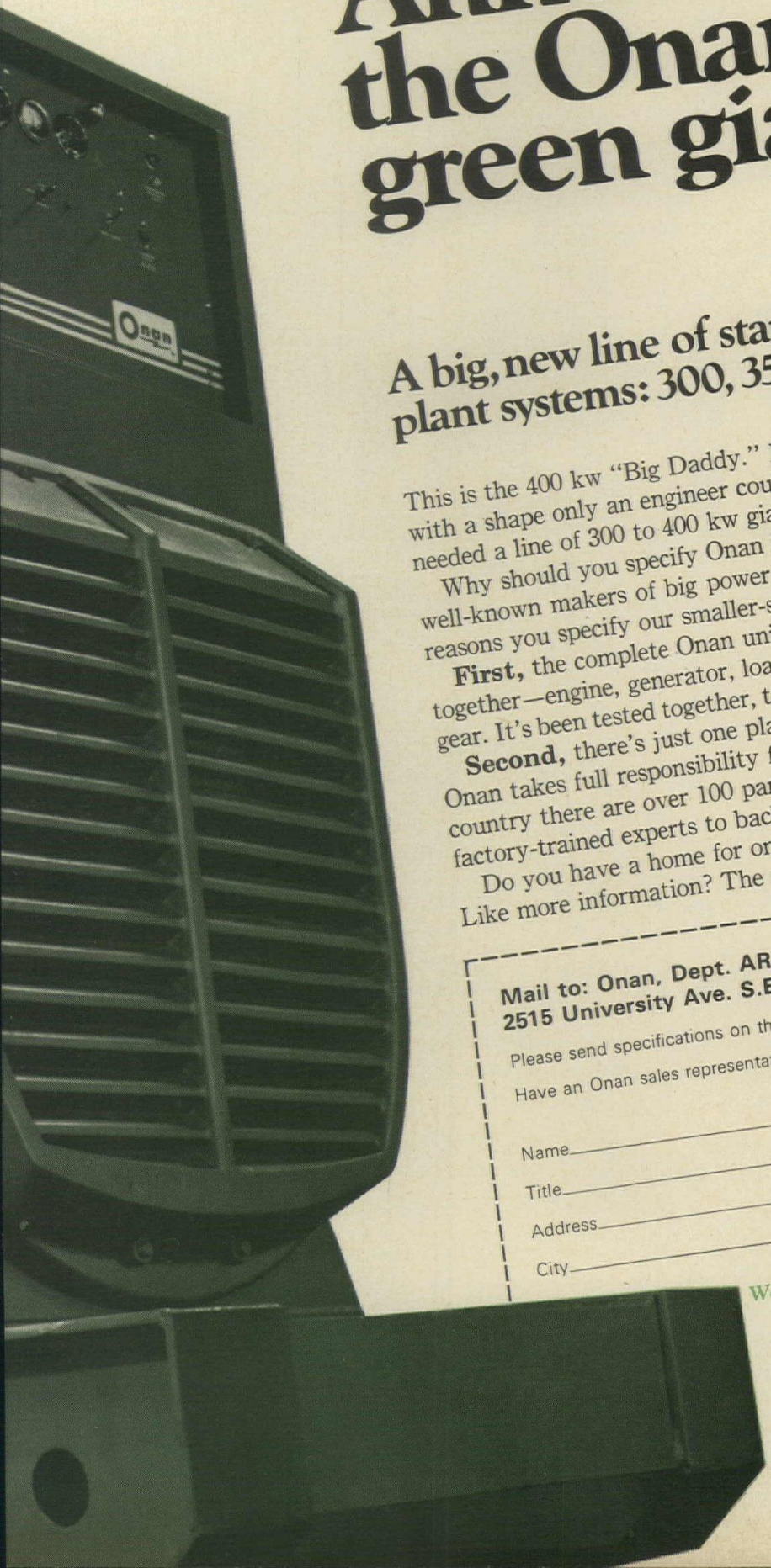

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RENDS AND ANALYSIS

wrence C. Jaquith, Economist
cKee-Berger-Mansueto Inc.
onstruction Consultants

A proposed guide for square-foot cost calculations

he guidelines for calculating the square ot cost of a building are quite vague, fact so vague that just about any gure one comes up with for a building n in some way be defended as ac- rate. For more complex buildings, one st calculation can vary as much as 25 er cent from another. Yet either one (or y in between) can usually be justified accepted criteria.

And, if one wants to come up with much higher or lower figure than can e achieved by calculating area and dol- r amounts in different ways, an even ore flexible method is available. This is e often meaningless approach of de- rmining the cost per bed, per pupil, er man, etc. Since the guidelines for is approach are virtually non-existent, e selection of what cost items to count d how to count them is highly discre- onary. It is occasionally absurd.

ow to cut costs ignoring them

government directive was circulated at set a maximum limit on the per-man st of barracks on overseas installations. ecause either the limitations were un- alistic, or the buildings were uneco- omical, or the bidding was not com- etitive, or perhaps because of all three, e low bid often indicated that the cost er man (measured in any reasonable rms) had been substantially exceeded.

This did not mean that the projects ere not approved. Nor was some feat value engineering performed at the st minute. Instead, the field estimator minated certain areas of cost from the st-per-man ratio that were not con- dered "relevant". While there was me rationale for eliminating site work sts, this logic was often extended to clude such areas as stairways, bath- oms, and even aisle space depending how much the per-man cost had to trimmed. When this was done, the ost" per man was then duly reported being within government guidelines even though it might only have repre- nted the cost of the area where the nks were located.

Needless to say, a private owner cannot be placated so easily. A project either comes in under the budget or it doesn't and juggling the cost per man or per square foot won't change the low bid. So these figures after the fact are meaningless to the architect except for one important function: they serve as a basis of comparison for the cost of future buildings of a similar type.

This is the first way that the lack of explicit guidelines for these cost approximations can spell problems for the architect. The cost of his project may compare unfavorably with the costs of other similar projects. If it has already been built, he may be subject to criticism. If it is in the early stages of design, it may be needlessly reduced in scope, or even shelved. Yet the basis of such a comparison may be nothing less than specious. A difference of several hundred thousand dollars may stem entirely from the method of calculating costs and not from any real differences in costs. The latter would be apparent only if similar methods are used—and more often than not this doesn't happen.

For example, a recent study in several states indicated substantial differences in the methods of reporting school construction costs. While school costs are often compared on a per-pupil basis, some states or school districts use design capacity to indicate the number of students; others use actual enrollment figures; still others use the number of pupils designated to support agencies for funding purposes.

The methods of determining the other factor in the ratio, total building cost, also differed from state to state. Site work costs, athletic fields, swimming pools and a myriad of other items were included by certain states and districts; others considered some of these costs; and others, just the cost of the building itself.

As this example indicates, the guidelines for calculating costs in this manner, or on a per-man or per-bed basis, are virtually non-existent. And since the inclusion or interpretation of many key factors is so discretionary, valid comparisons are more a matter of chance than anything else.

It was also pointed out that the guidelines for arriving at a cost-per-square-foot of building are not as ill-defined as these other general approaches to designating the cost of a project. They are, however, sufficiently vague to create a second problem area for the architect. The lack of explicit guidelines here can also lead to unfavorable comparisons between his project and other similar projects. The result can again be criticism, reduction in scope, or curtailment, and with little or no basis for any of these. But this can be a greater problem area to overcome since it is more difficult to point out discrepancies in comparisons of cost-per-square-foot. The lack of uniformity in cost-per-pupil, etc. is more easily revealed by a little research, and the disparities are more readily understood by the client. On the other hand, the architect may unwittingly present his project in an unfavorable light because of his procedures for calculating square-foot costs. Or if he is aware of differences between his methods and those used to calculate similar projects, it still may be difficult to convey this fact to the client.

This happens for two reasons: First of all, as indicated above, there can be significant differences in what elements are considered to be part of the total building cost. Secondly, the guidelines for calculating the square foot area of a building are such that different interpretations of these guidelines for the same building can mean as much as a 20 per cent difference in the figure designated as total area.

Each architect determines square foot areas as he sees them or as he interprets how they should be calculated. He may, or may not, do this in the same way each time or weigh the varying aspects of his project in the same manner each time. Obviously, if he has no explicit standard to guide him he cannot evaluate the area in the same manner as his fellow architect.

A.I.A. standard method is useful but limited

A standard in general use is the A.I.A. document on areas and volumes. The expression often used is, ". . . taken off according to the A.I.A. standard guide." What exactly does this mean and why does this frame of reference produce a wide range of interpretation?

The A.I.A. reference (A.I.A. Doc. D101 Sept. 1963 ED) states the following: "The ARCHITECTURAL AREA of a building is the sum of the areas of the several floors of the building, including basements, mezzanine and intermediate floored tiers and penthouses of headroom height, measured from the exterior faces of exterior walls or from the center line of walls separating buildings.

"Covered walkways, open roofed-over areas that are paved, porches and similar spaces shall have the architectural area multiplied by 0.50

"The architectural area does not include such features as pipe trenches, exterior terraces or steps, chimneys, roof overhangs, etc."

This guide appears adequate at first glance, but if applied to many of today's complex buildings it is not. Too much remains undefined for the uniform interpretation of peripheral and marginal areas of the building, thus most of the discrepancies occur because of the manner in which these areas are calculated.

Below is a detailed interpretation of the A.I.A. guide that is suggested as one way in which the calculation of these areas could be more closely defined. It is by no means the *only* way that the guide can be interpreted. But it does offer a more precise guideline to the calculation of areas that are now subject to various interpretations. Continuity is achieved in that fully enclosed areas, partially enclosed areas, open areas, etc. are each treated in a consistent manner. The diagram indicates some of the major areas of consideration.

The A.I.A. method can be more precise

The architectural area of a building is the summation of the total area applying the following procedure. Buildings of unusual design or nature not conforming readily or easily to these procedures should be discussed with the project coordinator before determining area or volume.

1. *Full Areas*

Square foot areas are determined by measuring the following spaces from outside to outside of exterior walls:

a. Basements or sub-basements having full height, including but not duplicating elevator pits, boiler rooms or pits, and other spaces which go below floor level.
b. Pipe space over 6 feet high.
c. Enclosed spaces (four sides) of open entrance terraces beneath the upper floors as in a structure of stilt-design.
d. All intermediate floors.
e. Mezzanines and interior balconies.
f. Mechanical spaces.
g. Penthouses.
h. Any full height space above roo
i.e., stair bulkheads. The lowest fu
area will be the slab on grade of th
basements or first floor, and the high
est full area will be the top floor o
floors of penthouses or bulkhead
above roof.

Areas frequently omitted from ful
space calculations but which should no
be so omitted are:

a. Stair well openings.
b. Elevator shaft openings.
c. Pipe shaft openings.
d. Any other nominal floor opening

2. *Half Areas*

The following spaces will be considere
at one-half their measured values:

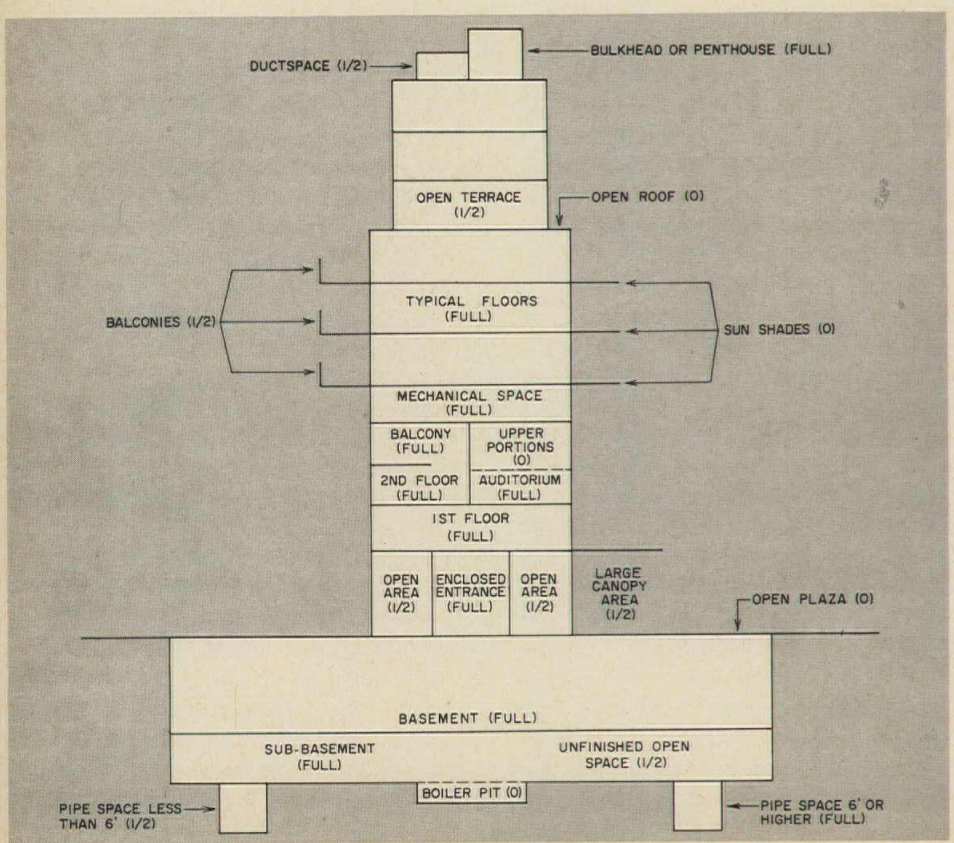
a. Exterior wall balconies with en
trances to the interior of the buildin
b. Attached porches with open side
c. Exterior entrance canopies of sig
nificant size and structure.
d. Unenclosed spaces of entrance te
race beneath buildings of stilt-desig
e. Unfinished open basements wit
concrete floors.

3. *Areas Not to be Considered*

Do not include the following areas i
square foot calculations.

a. Open spaces that go beyond on
or more floors, such as the upp
spaces of auditoriums, gymnasium
swimming pools, large architectur
stair wells, lecture halls or oth
rooms.
b. Interior courts or yards.
c. Catwalks.
d. Unoccupied or unfinished att
spaces.
e. Roofs.
f. Open air spaces of roof entranc
terraces or walkways.
g. Other enclosed spaces (or stru
tures) not attached to building.
h. Outside connecting corridors
covered walks.
i. Window canopies or sun shades.
j. Crawl spaces (with or without co
crete floors).
k. Pipe space less than 6 feet high.

A quick comparison of the A.I.A. guid
against this outline will show those are
of the building that are either vague
defined or not mentioned at all by th
existing standards. At the present tim
there are numerous peripheral are
that are counted as zero by some arch
tects, one-half by others, some fractio
in between by others and even full
some. If square foot costs are to be at
meaningful, for comparative purposes
otherwise, more explicit guidelin
should be established. The ones we ha
indicated are by no means the only on
possible but they may suggest the nece
sary steps to be taken.



INDEXES AND INDICATORS

William H. Edgerton
Manager-Editor, Dow Building Cost Calculator,
An F. W. Dodge service

DECEMBER 1967 BUILDING COST INDEXES

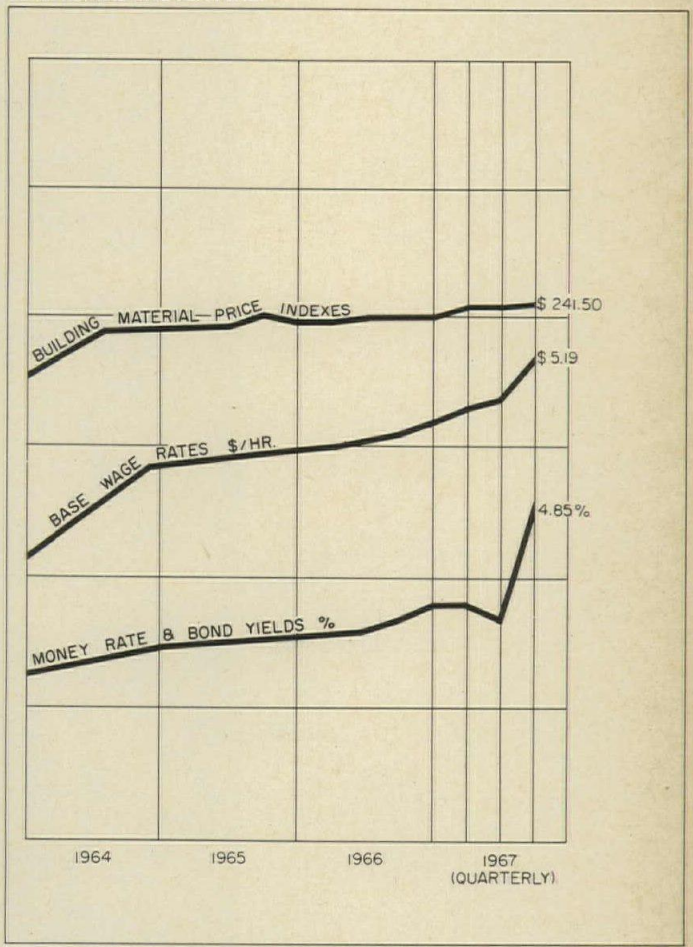
1941 averages for each city = 100.0

Metropolitan area	Cost differential	Current Dow Index residential	Current Dow Index non-res.	% change year ago res. & non-res.
U.S. Average	8.5	283.2	301.7	+2.05
Atlanta	7.2	320.2	339.6	+1.79
Baltimore	7.7	282.8	300.8	+1.69
Birmingham	7.5	258.7	278.2	+1.48
Boston	8.5	254.2	269.1	+1.41
Chicago	8.9	316.5	332.9	+2.53
Cincinnati	8.8	274.6	291.9	+3.56
Cleveland	9.2	289.6	307.8	+1.00
Dallas	7.7	264.1	272.8	+1.35
Denver	8.3	290.1	308.3	+2.52
Detroit	8.9	290.0	304.4	+1.45
Kansas City	8.3	252.9	267.7	+1.26
Los Angeles	8.3	289.6	316.8	+2.45
Miami	8.4	275.8	289.5	+0.77
Minneapolis	8.8	285.4	303.4	+3.74
New Orleans	7.8	254.5	271.0	+3.04
New York	10.0	298.2	320.7	+3.16
Philadelphia	8.7	282.8	296.9	+2.51
Pittsburgh	9.1	261.5	278.0	+1.18
St. Louis	9.1	280.3	297.0	+1.77
San Francisco	8.5	364.9	399.4	+1.24
Seattle	8.4	260.3	290.8	+3.09

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

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

ECONOMIC INDICATORS

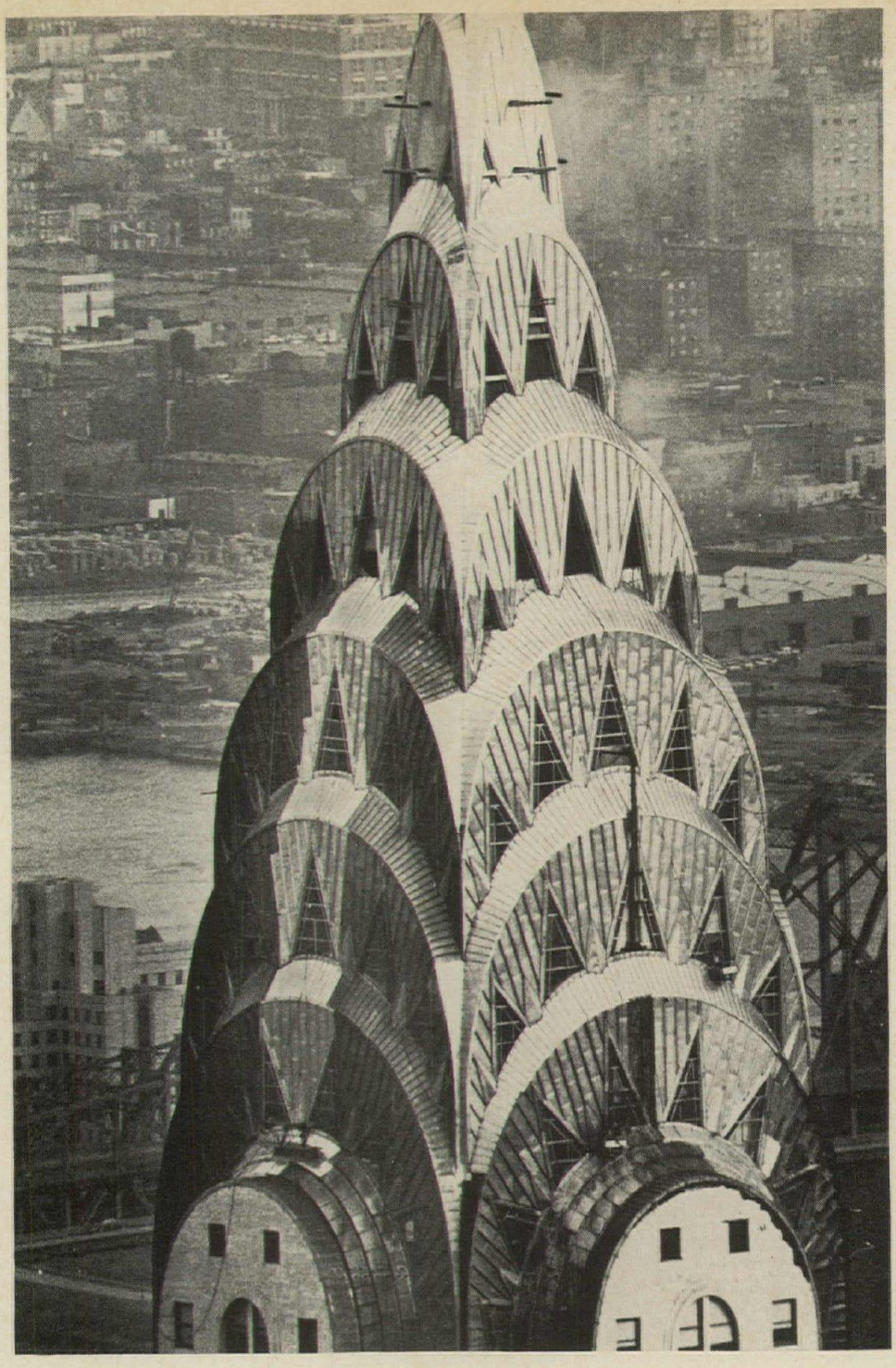


HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES

1941 average for each city = 100.00

Metropolitan area	1952	1960	1961	1962	1963	1964	1965	1966 (Quarterly) 1st	1966 (Quarterly) 2nd	1966 (Quarterly) 3rd	1966 (Quarterly) 4th	1967 (Quarterly) 1st	1967 (Quarterly) 2nd	1967 (Quarterly) 3rd	1967 (Quarterly) 4th
U.S. Average	213.5	259.2	264.6	266.8	273.4	279.3	284.9	286.3	287.3	290.4	286.6	292.7	293.7	296.5	—
Atlanta	223.5	289.0	294.7	298.2	305.7	313.7	321.5	322.2	323.3	328.5	329.8	332.4	333.4	334.6	—
Baltimore	213.3	272.6	269.9	271.8	275.5	280.6	285.7	288.6	289.6	289.4	290.9	290.4	291.5	294.9	—
Birmingham	208.1	240.2	249.9	250.0	256.3	260.9	265.6	267.1	268.1	269.7	270.7	272.9	274.0	273.8	—
Boston	199.0	232.8	237.5	239.8	244.1	252.1	257.8	258.5	259.6	260.9	262.0	262.9	263.9	264.8	—
Chicago	231.2	284.2	289.9	292.0	301.0	306.6	311.7	312.6	313.7	318.9	320.4	320.4	321.3	327.3	—
Cincinnati	207.7	255.0	257.6	258.8	263.9	269.5	274.0	274.7	275.7	277.2	278.3	278.7	279.6	287.3	—
Cleveland	220.7	263.1	265.7	268.5	275.8	283.0	292.3	293.0	294.1	299.2	300.7	300.0	301.3	302.6	—
Dallas	221.9	239.9	244.7	246.9	253.0	256.4	260.8	261.7	262.6	265.8	266.9	267.6	268.5	269.5	—
Denver	211.8	257.9	270.9	274.9	282.5	287.3	294.0	294.6	295.5	296.6	297.5	297.6	298.5	304.0	—
Detroit	197.8	259.5	264.7	265.9	272.2	277.7	284.7	285.5	286.5	295.7	296.9	298.0	299.1	300.1	—
Kansas City	213.3	237.1	237.1	240.1	247.8	250.5	256.4	257.3	258.2	260.0	261.0	260.8	261.9	263.4	—
Los Angeles	210.3	263.6	274.3	276.3	282.5	288.2	297.1	298.0	298.6	301.6	302.7	303.6	304.7	309.0	—
Miami	199.4	256.5	259.1	260.3	269.3	274.4	277.5	278.4	279.2	282.9	284.0	283.4	284.2	285.2	—
Minneapolis	213.5	260.0	267.9	269.0	275.3	282.4	285.0	285.7	286.6	288.3	289.4	292.0	293.1	299.2	—
New Orleans	207.1	242.3	244.7	245.1	248.3	249.9	256.3	257.1	258.0	258.8	259.8	262.3	263.4	266.7	—
New York	207.4	265.4	270.8	276.0	282.3	289.4	297.1	297.8	298.7	302.8	304.0	309.4	310.6	312.5	—
Philadelphia	228.3	262.8	265.4	265.2	271.2	275.2	280.8	281.7	282.6	285.3	286.6	287.1	288.1	292.8	—
Pittsburgh	204.0	243.5	250.9	251.8	258.2	263.8	267.0	268.9	270.1	270.7	271.7	272.2	273.1	274.1	—
St. Louis	213.1	251.9	256.9	255.4	263.4	272.1	280.9	282.2	283.2	287.0	288.3	290.3	291.3	292.3	—
San Francisco	266.4	327.5	337.4	343.3	352.4	365.4	368.6	376.2	377.7	384.7	386.0	388.1	389.2	389.6	—
Seattle	191.8	237.4	247.0	252.5	260.6	266.6	268.9	271.1	272.1	273.9	275.0	276.5	277.5	282.6	—

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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The high strength-to-weight ratio of stainless allows lighter, more economical gages to replace heavier, more expensive (and less available) gages of copper in most roofing and flashing specifications.

Now Republic offers this surprisingly economical material in two tempers: a roofing grade type 304, and a new strong, yet easy-to-work, stainless flashing grade, Republic DUROFLASH®.

New Republic DUROFLASH®, a soft stainless.

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Designing and Specifying Stainless Steel in Built-up Roof and Moisture Protection Systems.

Everything we know about stainless steel in roofing systems we put down in a new booklet which is yours for the asking. It contains complete specifications and details plus tables comparing the properties of roofing and flashing metals.

And we'll include a sample of Republic DUROFLASH which will tell you more than we can about the workability of this new soft stainless.

This table illustrates the recommended applications of regular Republic 304 grade stainless, and new Republic DUROFLASH, the soft stainless.

Stainless Steel Types, Gages, Finishes, and Tempers FOR ROOF AND FLASHING SYSTEMS

Use	Product Description and Finish
Exposed Flashing	Where a semibright reflective treatment is desired . . .
Roof Trim	Specify temper rolled AISI type 304 No. 2 (strip) or No. 2B (sheet) conventional annealed finish
Roofing	— OR —
Roof Drainage Accessories	Where a softer, less reflective treatment is desired . . .
Expansion Joint Covers	Specify temper rolled AISI type 304 No. 2 rough rolled (Republic No. 2 RSK) conventional annealed finish.
Roof Drainage	Specify cold rolled (65 to 80,000 psi yield strength) AISI type 304 No. 2 (strip) or No. 2B (sheet) conventional annealed finish . . . appearance — semibright
Concealed Flashing	
Roof Penetration Flashing	Specify soft temper (dead-soft or fully annealed) AISI type 304 No. 1 (strip) or No. 2D (sheet) conventional annealed finish . . .
Miscellaneous Items	(Republic DUROFLASH) appearance — matte

Let Republic Steel help you in the selection of the stainless steel type, gage, finish and temper for your specific roofing job. Contact your nearest Republic Steel sales office for a sample of new Republic DUROFLASH, and the complete booklet, "Designing and Specifying Stainless Steel in Built-up Roof and Moisture Protection Systems," Adv. 1820, or write to Republic Steel Corporation, Dept. AR-4875, 1441 Republic Building, Cleveland, Ohio 44101.

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Today's new tools for tomorrow's practice

by C. Herbert Wheeler, Jr.

he architect's creative role can be pre-erved against the encumbrances of bur-eoning technology—by making use of hat technology. Many architects are al-eady using an array of devices with ames that would have frightened them ss than a decade ago: computers, data lotters, microfiche, network planning, a ost of information storage, retrieval and eproduction systems. They have one ob-ctive in common: support—not substi-tion—for the architect's primary design nction. Professor Wheeler takes an ar-itect's hard look at what's here today, standing in the wings.

he leading architects in the next five or n years will be those who not only con-nue to practice architecture with great mpetence and sensitivity, but who, in ddition, adopt advanced techniques and quipment that have already become nportant in industry, business, and many her professions. New techniques using mbinations of photographic and other production devices (microfilm, xero-aphy, offset, etc.) will be linked to com-terized systems of storage and retrieval. ectronic reproduction and analysis sys-ms (such as data plotters, light pencils ting on cathode ray tubes, and other mputerized graphics systems) will enter ore directly into the mechanics of the sign process. Therefore, the designer ll have more time to think; he will have w capabilities to make value judg-ents; and he will be able to approach designs with greater confidence.

Microfilming, microfiche, and aperture cards for filing all project and business records not only will eliminate excessive paper in the office, but more important, will make it possible to retrieve the information wanted—when it is wanted. There will be compact microfilm readers (Fig. 1) and reader-printers (Fig. 2) throughout the office that will make it possible not only to read any document, scan the document, and enlarge elements of it, but also to print it at will. The microfilm projection and worktable (Fig. 3) developed by the Scan system will make possible checking and studying drawings and making quantity take-offs in both sub-contractors' and architects' offices. In short, microfilm will permit the convenient printing and reproduction of architectural documents in any shape or form, will reduce storage space, and speed up retrieval.

The large-size blueprints of today will become small, pocket-size prints by means of photo reduction and low-cost offset printing techniques. The photo reduction of drawings will make it possible for designers to make freehand details on grid paper. In the photo process the grid can be dropped out leaving the image sharp, clean, and in scale, thus eliminating tracing and redrawing which is time-consuming and subject to error. Such reduced-scale details, which can look as good as precision-drawn details, will trigger many new techniques for greater efficiency in the preparation of construction documents. Drafting retrieval through use of indexed aperture cards will permit the designer to refer readily to his past tried and proven designs and details, and in many cases reuse them.

Product literature, technical information, photographs and perspectives can be mounted on documents and drawings and reproduced to create a single document—thus adding to convenience and reliability and eliminating a great deal of tracing and checking.

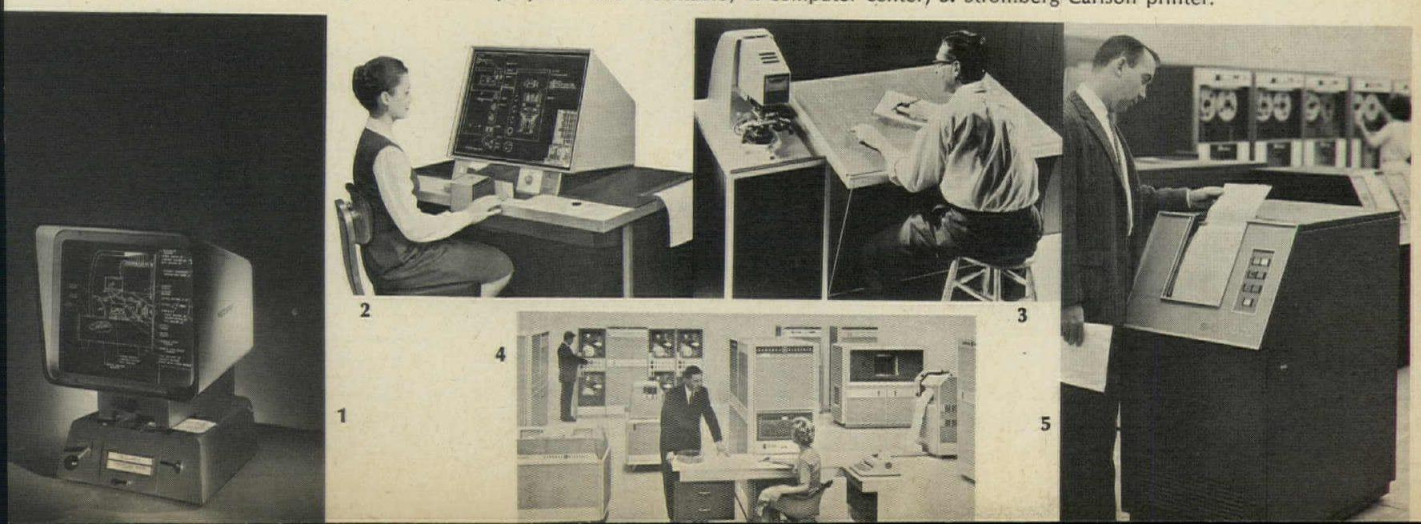
The various photographic technologies will make possible new developments in booklets, brochures, and bound documents. Drawings and specifications will be coordinated into booklets—well organized to permit cross-referencing. And new binding and printing methods will encourage better multi-color construction documents.

Data processing equipment on line for architects

Simultaneously with the application of the photographic sciences will come increased application of data processing (Fig. 4). The entire business-keeping system can be computerized from the recording of "time and costs" to the preparation of payroll and billing for services. Data processing will include the high-speed printing of specifications. Several types of master specifications will be stored on magnetic tapes and printed on line printers which are electronically operated (Fig. 5).

Even secretarial and routine work of

Eastman card reader; **2.** Itek reader-printer; **3.** Scan projector and worktable; **4.** computer center; **5.** Stromberg-Carlson printer.



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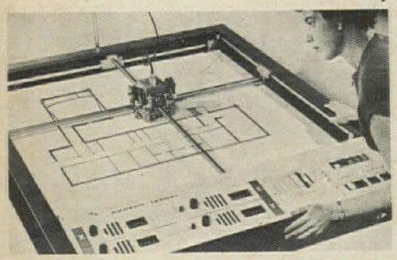

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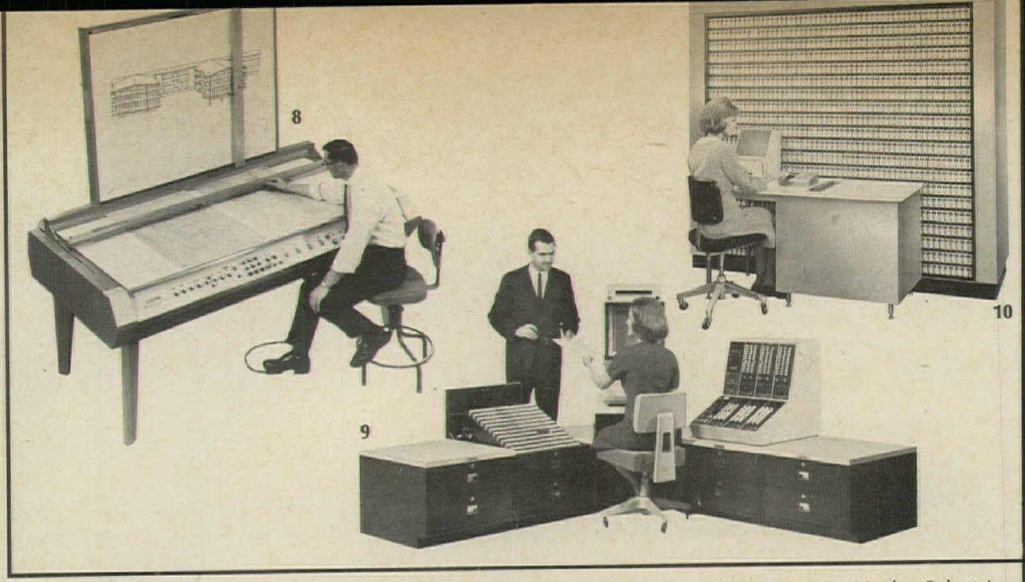

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6. IBM communication system; **7.** Benson-Lehner plotter; **8.** Perspective Inc. Illustromat; **9.** Eastman Recordak Miracode system; **10.** Mosler Selectrieve

a practice can be accomplished by using magnetic tape electric typewriters. These typewriters operate automatically from information stored on magnetic tape cartridges. The secretary is able to stop tapes, add material, erase material and continue on automatically error-free.

On standard documents, only items changed will need to be proof-read and checked. Architectural firms will find that the magnetic tapes will expedite and make more reliable the various written reports, instruction sheets, code reviews, checklists, cost estimates, material lists, outline specifications, and other practice documents which fall into patterns of similarity, but which vary in detail. Several office-type computers, now being used by many architect-engineer offices, will become a vital tool in building design and planning.

Computers will be used by designers, planners, specification writers, business managers and engineers. Small general practices, and specialized practices that are not quite large enough to have their own automated equipment, will be tied into architectural service centers. The small practices will be able to secure computer services, reproduction services, high-speed specification services, information retrieval services, and probably automatic drafting services, all of which will be centered in a cooperatively-owned public utility in each community.

The architectural service center will have a large, high-speed computer and auxiliary facilities, which will make it possible not only to receive and analyze data, but to provide automated documentation services. A high-speed computer like one located in the computation center at Penn State University will probably be the backbone of a center. The console of the center will be connected to the architect's offices by means of the communication system. The console will be surrounded by magnetic tape reel units, a processing unit— a magnetic tape storage unit, and a high-speed line printer which will prepare specifications at 1100 lines per minute.

The office of the new practice will be somewhat similiar to the computer-aided design laboratory in the department of architectural engineering of Penn State University, which has key punches, a digitizer, a microfilm projection table, and cathode ray tube calculators. The practice will have a telephone communications tie-line which is connected with a high-speed computer system and all of its auxiliary equipment. This communications system (Fig. 6) will make it possible for designers and managers to use the computer facilities on a time-sharing basis while still in their own offices.

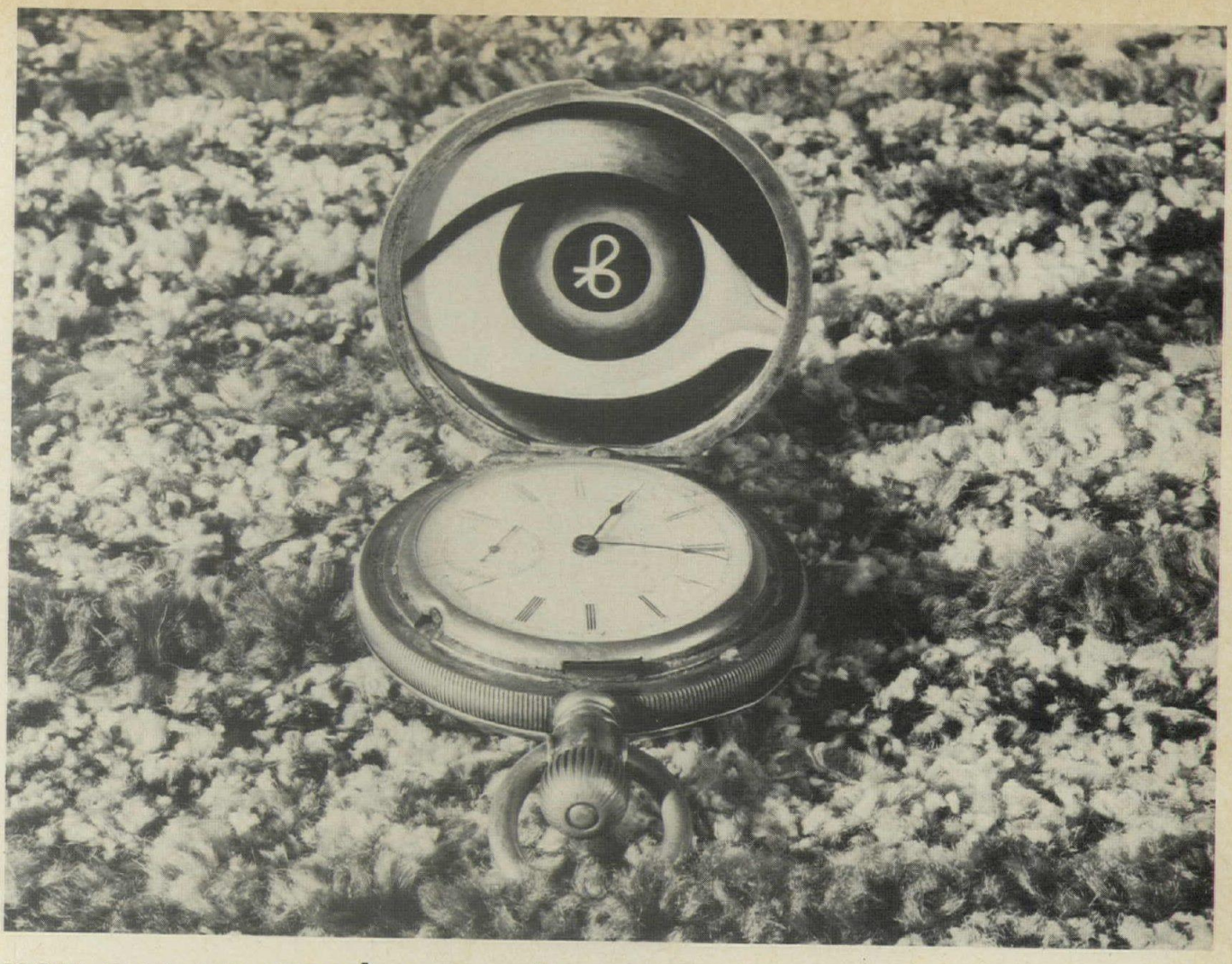
Designers in practice will use a building plan digitizer. Also known as the X-Y coordinatograph, it will permit the designer to take off drawing data on areas, volumes, equipment, and materials and then store it in a memory bank for subsequent investigation and use. The equipment, consisting of the automatic drafting machine digital computer, and card punch, facilitates quantity take-offs for cost analysis, estimating, and product analysis.

Another item of equipment in the computer center will be the data-plotter which will produce drawings—plans, elevations, and perspectives—automatically. Although the art of laying out perspective drawings will probably never be lost, very few of these drawings will be "hand-made," because technology has produced two automatic perspective machines. The digital data plotter (Fig. 7) will make perspectives at any angle. Using the same basic, record information, additional perspectives from different vantage-points can be made inexpensively. Cost would be about $160 for the first layout and $50 for each additional angle layout. The Illustramat, (Fig. 8) a perspective layout machine driven by an analog computer, will probably be use extensively to make perspectives. Man architectural firms and delineators ar now using the machine on an hourl basis. Its accuracy in making perspective of multi-curved building exteriors or in teriors is uncanny. One of its most e fective uses could be in checking inte ferences in space for ducts, piping an architectural features.

Also located in the architectur service center will be a central inform tion bank, which will consist of a micr film library of technical data and produ literature (Fig. 9). This system, in one the research laboratories at Penn Stat contains modular banks of 200 rolls microfilm tape, each carrying th equivalent of 2,000 pages of docume tation. The retrieval console will make possible to locate any part of a tape ar view it and print it at will. The system expansible. A similar system (Fig. 10) w be used to retrieve readily used micr film data more automatically. With t efforts of the architectural services ce ter, modern practices will be in a positi to slash further the cost of preparing co struction documents. It was not long a when fifty percent of the fee was co sumed preparing the documents. Now is customary to prepare them for fo percent while some firms are budgeti thirty percent of the fee for the prepa tion of documents.

The fact is that some offices are ready using many techniques describ here. Of course, architecture will alw be "the practice of an art"—a concept art; automation will simply assist the d signer and planner, so that architect will be "the practice of an art which u scientific techniques and business-l methods."

Mr. Wheeler is Associate Professor of Architect Engineering at The Pennsylvania State University.
research was made possible by grants from the Committee on Research. This article is based o speech given at the 1967 A.I.A. Convention.



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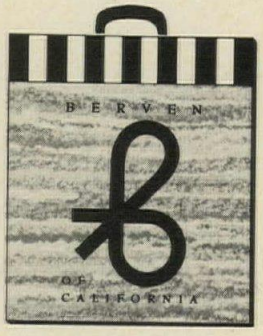

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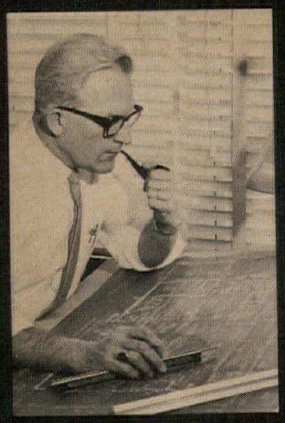

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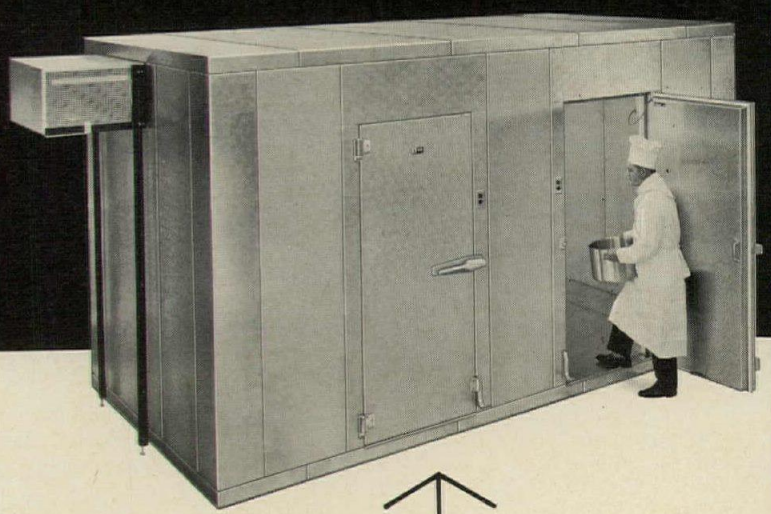

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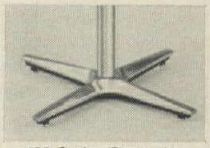
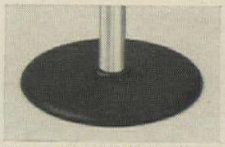


150 Series Base with Black accented chrome.



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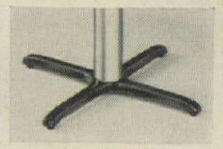

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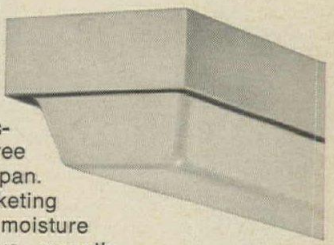

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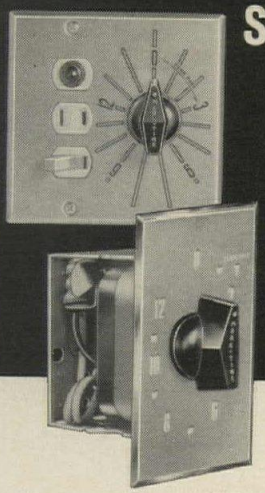

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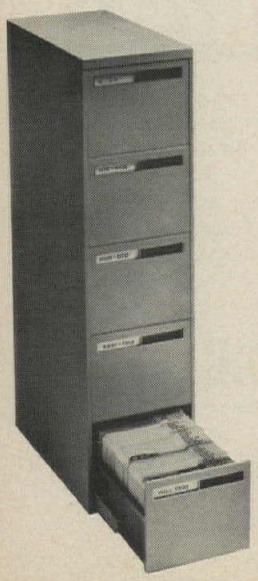

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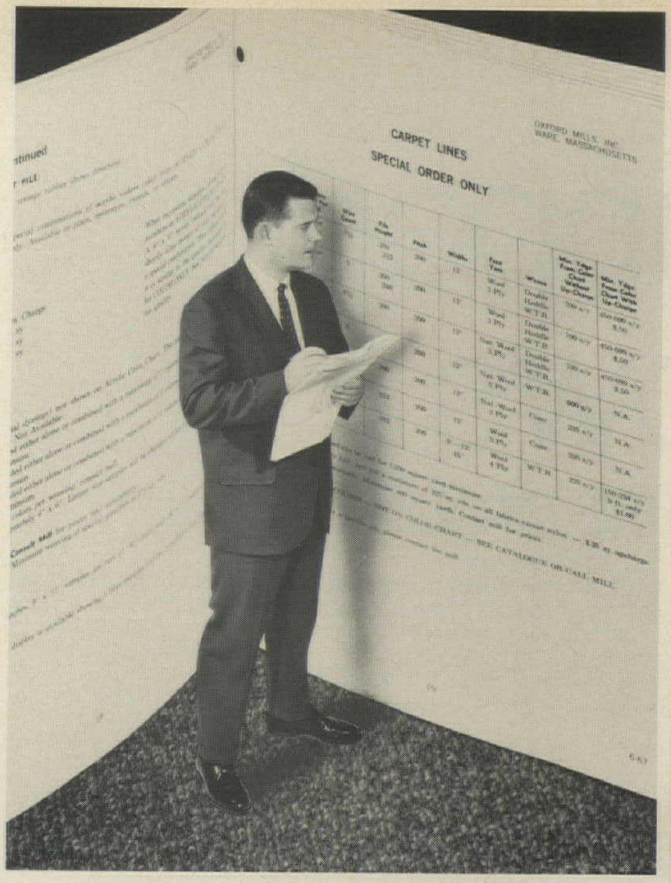

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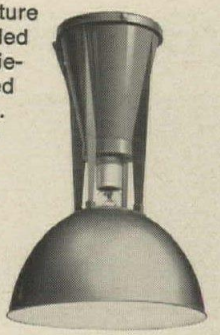

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WHEELER REFLECTOR

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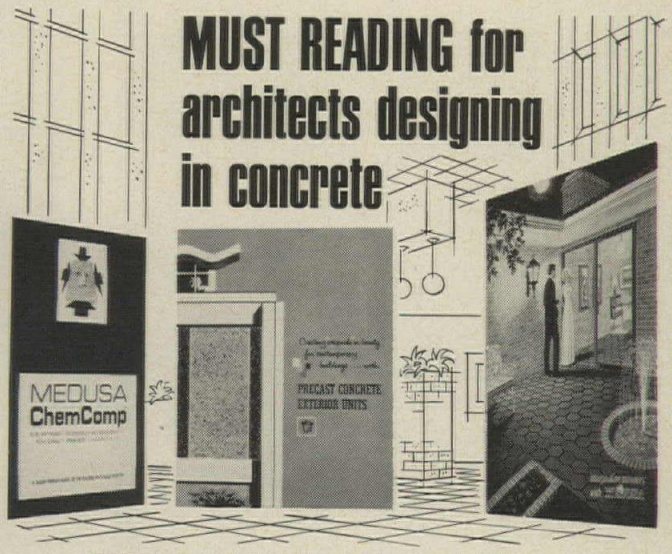

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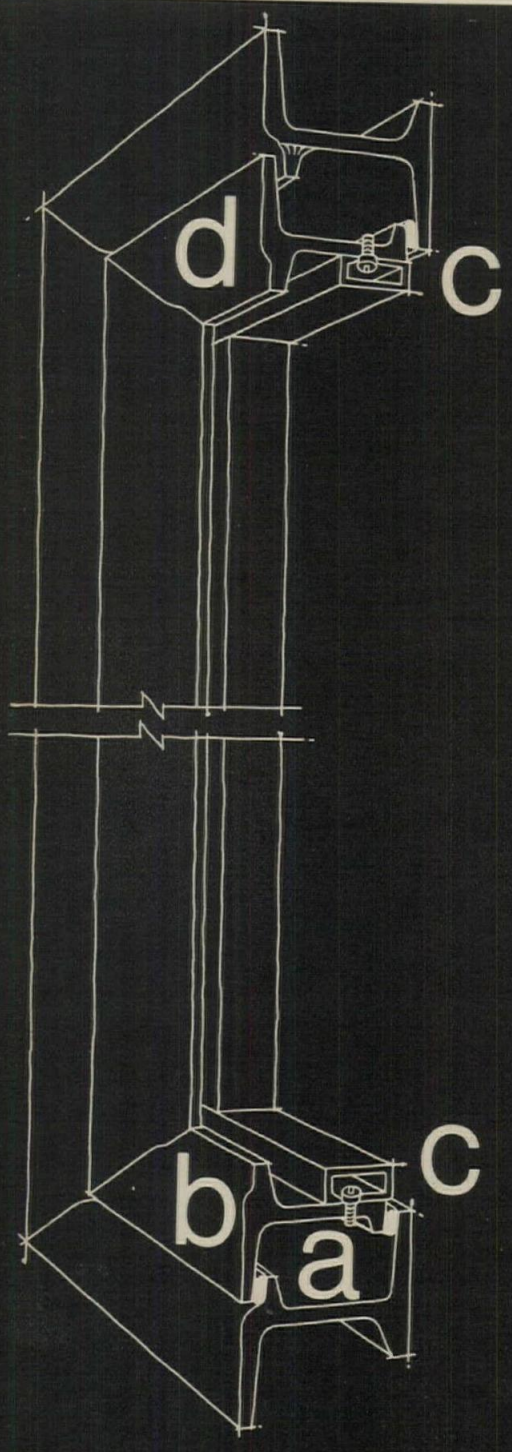

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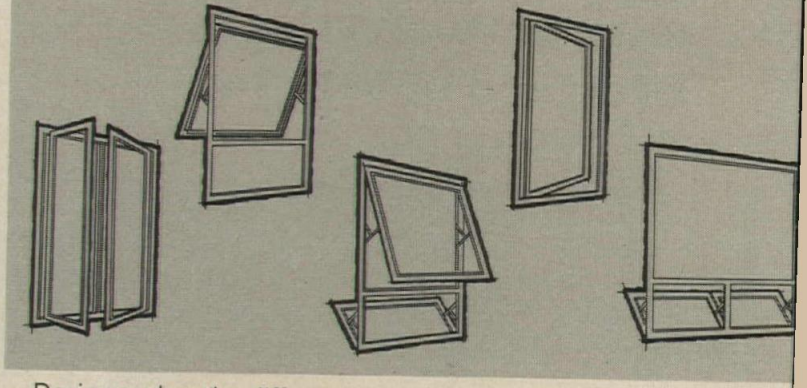
Weatherstripping and pressure-equalization features afford super resistance to air infiltration and prevent water leakage (even unde simulated 8"-per-hour rainfall with 90 mph wind pressure). Add to t a 6 to 8 mil color-cladding of polyvinyl chloride and you have a tr high-performance Ceco steel window.



Design makes the difference . . .

Cecoclad Weatherstripped H-P Steel Windows permit outside w pressures to enter into the internal chamber of the window throu planned openings (a) behind baffle (b). This creates pressure inside chamber essentially equal to the outside pressure. Specially desig closed-cell foamed vinyl weatherstripping (c) seals the inside surfac the chamber. Rain is blocked by the baffle along with outside weath stripped contact surfaces (d). The baffle and contact surfaces are eff tive because there is no pressure differential to draw quantities of w into the chamber. Small amounts of water that enter with the w collect at the bottom of the chamber and drain off freely to the outs

The Ceco Corporation, 5601 West 26th Street, Chicago, Illinois 60650.
Please send copy of Bulletin 1108 entitled "Cecoclad Weatherstripped Steel Windows . . . Pressure equalized for high performance."

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CIVIC ARCHITECTURE

After a long lapse, in response to new public demand for greater amenity in city life, the more enlightened Federal and city political leaders are trying to establish a higher standard of design for public projects. They have just begun, as Daniel Patrick Moynihan points out on this page*, but it is an encouraging beginning as the work on the following pages will show. Most encouraging—this focus on quality is not limited to buildings normally conceived as civic monuments, but includes a broad range of projects of civic consequence.

With no very great evidence, to be sure, but with much conviction I will argue that the American polity—both the experience and the awareness of community and shared conviction—has been impaired, has atrophied in our time because of the retreat from architecture and public buildings as a conscious element of public policy and a purposeful instrument for the expression of public purposes.

The concept of private affluence and public squalor in the United States is a familiar one, and correct as far as it goes. But save for a rare person such as John Kenneth Galbraith, it infrequently extends to the notion that public squalor includes the penury and squalor of public building and city planning. Indeed the very persons who will be the first to demand increased expenditures for one or another forms of social welfare, will be the last to concede that the common good requires an uncommon standard of taste and expenditure for the physical appointments of government and of the public places of the city. Even those most vocal in support of government support for the arts will resist, even reject, the manifest fact that architecture and urban planning are the two arts in which government must be involved.

This is not a matter of oversight, but of widely held conviction; and it has never been more manifest than in recent months when, in response to what is generally known as the urban crisis, some of the best and most generous minds in public life have responded with proposals to build more factories in the slums, and the respected and revered Episcopal Bishop of New York has announced that as a gesture towards the poor, the Cathedral of St. John the Divine will not be finished in our time. This is appalling. Three summers of rioting and out goes 50 years of zoning, much of which began with the realization that one of the intolerable facts of poverty was the requirement of living in the midst of every known form of industrial ugliness. Twenty centuries of Christianity and in a time of moral crisis we cease work on this splendid place of worship.

Somehow, somewhere in the course of the development of democratic or demogogic tradition in this nation the idea arose that concern with the physical beauty of the public buildings and spaces of the city and nation was the mark of—what?—crypto-deviationist anti-people monumentalism—and in any event an augury of defeat at the polls. The result has been a steady deterioration in the quality of public buildings and spaces, and with it a decline in the symbols of public unity and common purpose with which the citizen can identify, of which he can be proud, and by which he can know what he shares with his fellow citizens.

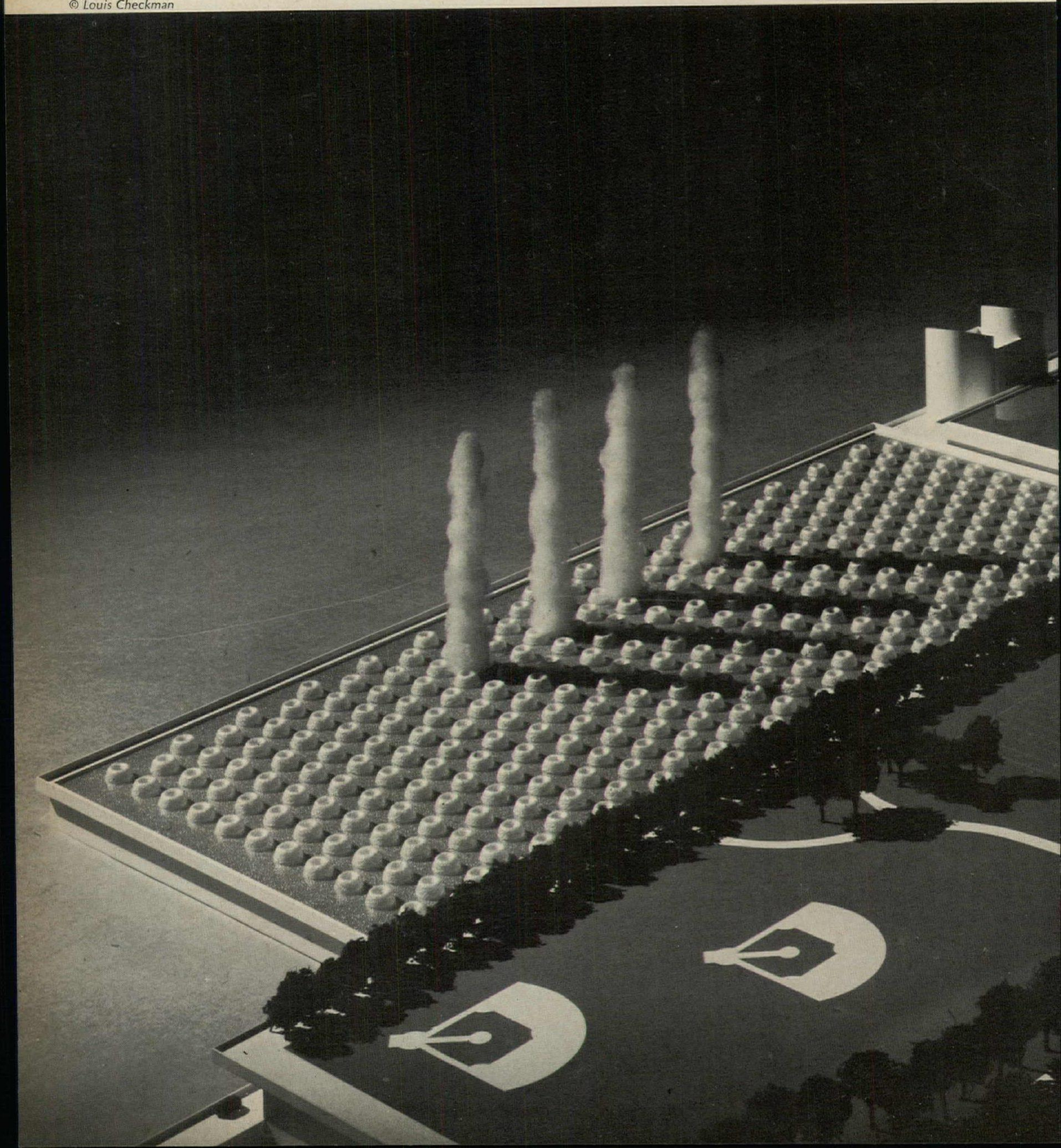
In our time, the fear of taxpayer resentment of the costs of excellence in public buildings has been compounded with an almost ideological alarm at the implications of modern design. When President Kennedy took office in Washington, for example, it had been very near to half a century since the Federal government had constructed in Washington a building that was contemporary to its time, and the House of Representatives was soon to begin the Rayburn Building, perhaps the most alarming and unavoidable sign of the declining vitality of American government that we have yet witnessed. And this is the point: good or bad architecture is not an option. It is a fundamental sign of the competence of government.

I believe this is beginning to be seen. It is a matter of significance, I feel, that mayors such as John Lindsay and John Collins, governors such as Nelson Rockefeller, and both Presidents Kennedy and Johnson have been actively concerned with the quality of the public buildings by which—like it or not—posterity is likely to recall their administrations. But the subject is still far too little insisted upon by those who realize its import. If we are to save our cities, and restore to American public life the sense of shared experience, trust, and common purpose that seem to be draining out of it, the quality of public design has got to be made a public issue because it *is* a political fact. The retreat from magnificence, to use a phrase of Evelyn Waugh's, has gone on long enough. Magnificence does not mean monumentality. That seems to be a point to be stressed. I have heard Saul Steinberg quoted as saying that the government buildings of Washington seem designed to make private citizens realize how unimportant they are, and there is much to what he says. But that seems to me simply to define the special requirements of this age of enormity: to create a public architecture of intimacy, one that brings people together in an experience of confidence and trust. The city beautiful is as valid a concept today as it was when George Washington and Thomas Jefferson established it as an American principle almost two centuries ago. It is not a concept to be traded in for anyone's notion of private gain or social welfare. It is not an efflorescence of elite estheticism, it is the bone and muscle of democracy, and I repeat that we begin insisting on it.

At a time when there is so much that is brutal, we risk nothing less than our humanity if we fail to do so. The task of this less than all-powerful nation is to show to the world and to ourselves that, sensing our limitations, we know also our strengths, and that we will husband and develop those strengths. The surest sign of whether we have done this will reside in the buildings and public places which we shall build in our time, and for which we shall be remembered or forgotten in history.

*Excerpted by permission from a paper "Architecture in a Time of Trouble", copyright 1967 by Daniel Patrick Moynihan, presented by Professor Moynihan at the Harvard Graduate School of Design Alumni Dinner held in New York City last month. Mr. Moynihan, now Director of the Joint Center for Urban Studies of M.I.T. and Harvard, helped implement the new Federal demand for "designs which embody the finest contemporary American architectural thought" as a member of the President's Council on Pennsylvania Avenue established by John F. Kennedy.

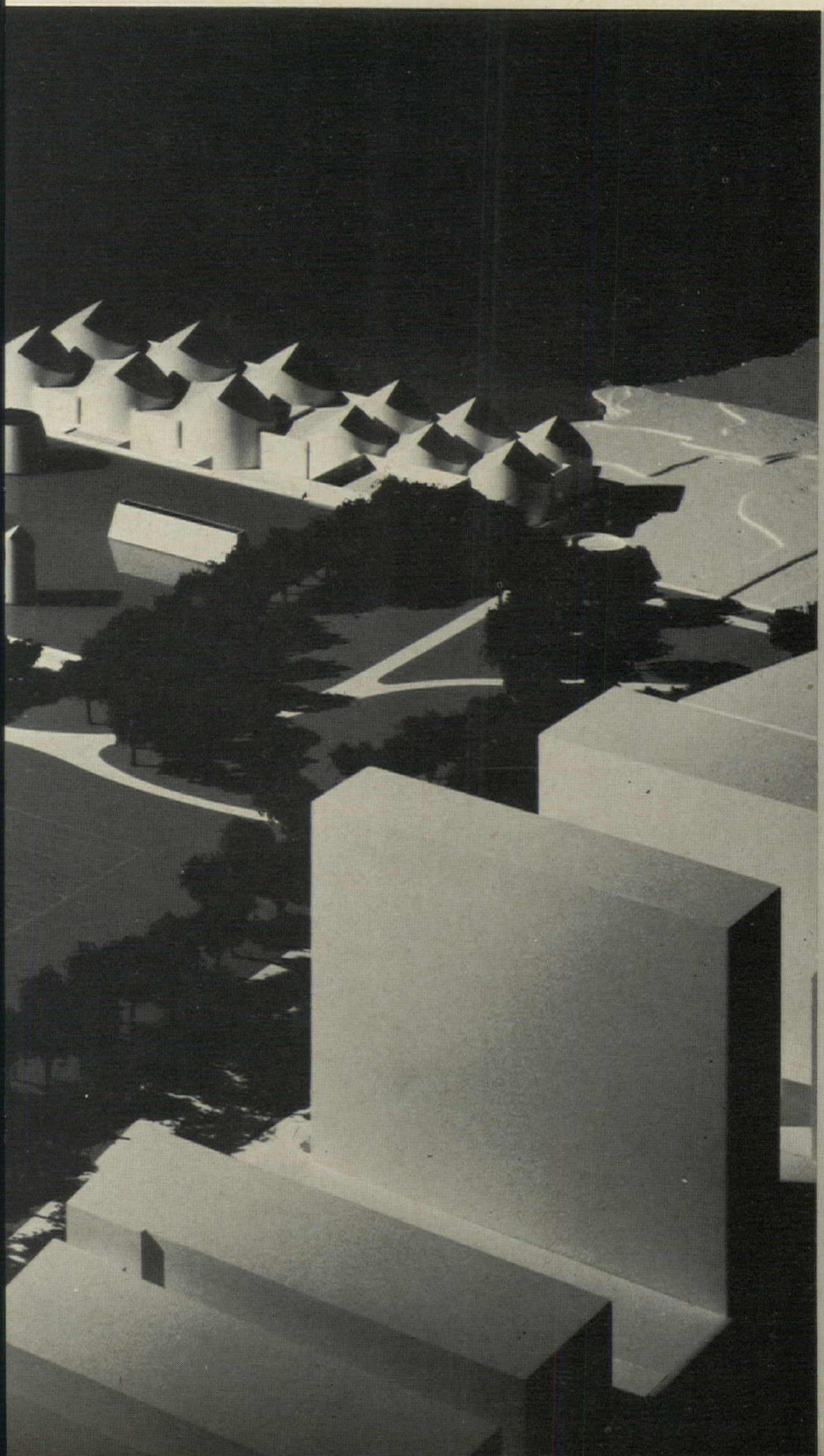
A sewage treatment plant designed to enhance a riverfront



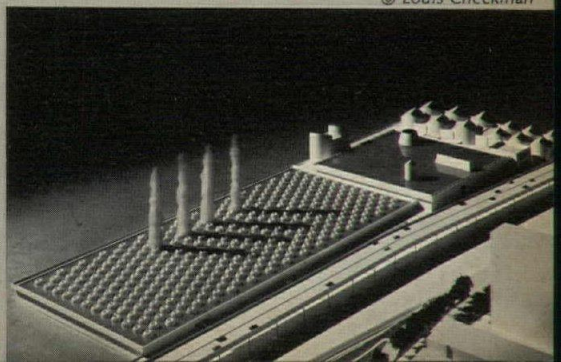
Architect Philip Johnson was recently invited by New York's Mayor John V. Lindsay to redesign the North River Water Control Project, a "short-period-phase-activator-sludge-type sewage treatment plant." Johnson has described the project as follows: "The problem facing our firm was not only to preserve all of the necessary facilities for the project, but totally to recreate the visual aspects so that it could become a major esthetic monument on the waterfront as well.

"The main theme of the redesign is the creation of some 15 acres of water displays. An upper area of four acres is a comparatively quiet pool. This pool has sculptural shapes penetrating it, which not only house various functional requirements of the plant, but make a gigantic sculpture garden. The lower part comprises 11 acres of aeration nozzles forming a continuous shimmering haze of droplets of water. The major effect is a group of four 200-foot water jets. The changing effect of such a display lighted at night and blown about in the wind during the day can be one of the great attractions of the New York scene.

"During the course of our investigations we came across, however, a serious consideration from the point of view of city planning. Our new facility is, generally speaking, at the same level as the Henry Hudson Parkway and at the same level as Riverside Drive. It occurred to us that this land, some 15 acres in extent, which lies between Riverside Drive and our facility should be used by the city as a park and playground for the citizens of Harlem and Upper Manhattan. The express tracks of the New York Central could be covered as well as the highway. In this way the level of Riverside Drive would extend down a gentle green slope to the edge of our great fountain."



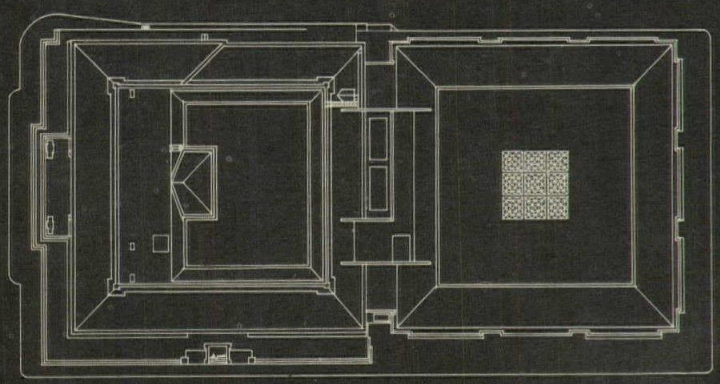
The existing site (above) lacks any civic amenity. The larger of the two model photographs shows the total project, including the parkland proposed by Johnson, designed as a platform bridging across the highway and New York Central tracks. The smaller photograph shows the new facility without the additional parkland. Owner of the project is the N.Y.C. Department of Public Works.



An addition to the Boston Public Library

Architect Philip Johnson's major additio to McKim, Mead & White's great librar on Copley Square, completed in 1895, located behind the existing building. will not disturb the handsome Renais sance facade which faces northeast to ward the square, but will be clearly vis ble to the northwest on the Boylsto Street side (below).

Although architect Johnson has ye to publicly reveal the plans and section for this new wing, it is possible to specu late upon its interior arrangements b examining the exterior evidence show in the model photograph and roof plan



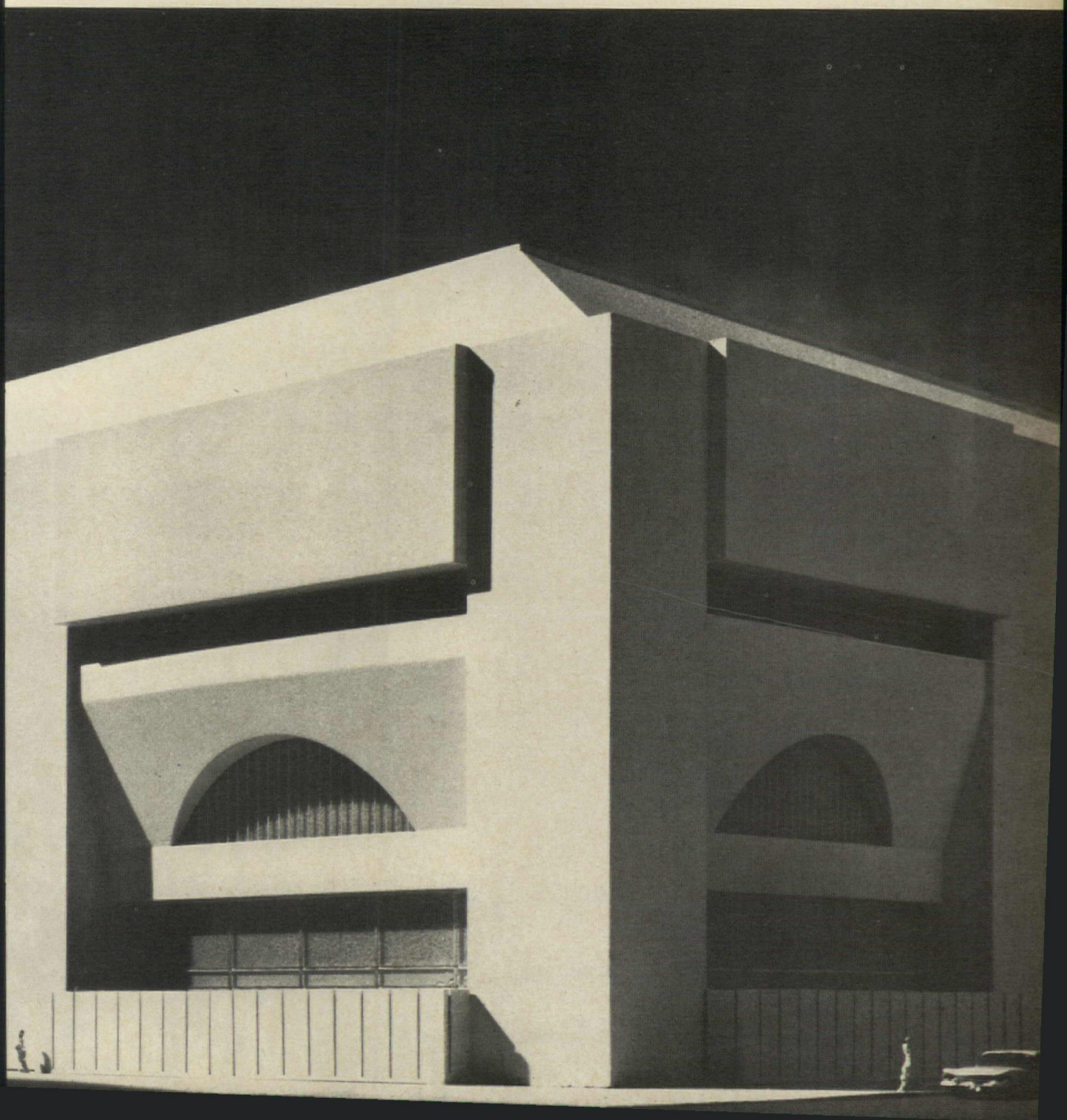
The roof plan (above) defines the boundaries of the site. The main facade of the Boston Public Library which faces Copley Square is shown on the left-hand side of the drawing. The remaining three sides are bordered by streets. The new addition has approximately the same perimeter as its neighbor but since it lacks the interior courtyard of the latter it will provide a much greater volume of space.

and relating it to the interior space of the famous Boston landmark. The Boston Public Library, like many other fine libraries, has its main reading rooms on the top floor contained within great vertical spaces directly under the roof. Beyond the reach of the highest bookshelves are rows of immense windows. Below the reading room floor and connected to it by a grand staircase is the entrance level which contains smaller spaces under a proportionately lower ceiling. The building surrounds a courtyard with a beautifully scaled Renaissance loggia used as an outdoor reading space. Although it is too early to see, Johnson may have created a secondary entrance to the new addition from this courtyard.

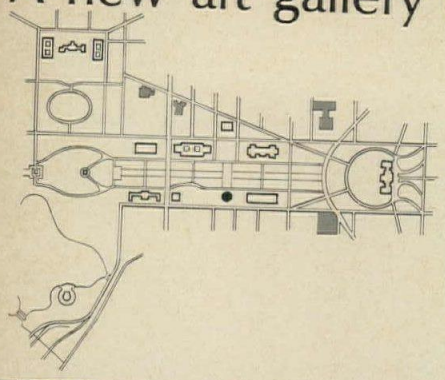
The new building, as its facade indicates, reverses the order of the older structure. The great high-ceilinged space is on the entrance level, and offices, workspaces and additional stack areas appear to occupy the top floors. Huge glass-filled lunettes and broad horizontal expanses of window located above the shelves will flood the principal space with light. Narrow strips of windows located in the recessed horizontal bands above the lunettes reveal the location of perimeter offices. The deep masonry band beneath the sloping roof apparently encloses stack areas.

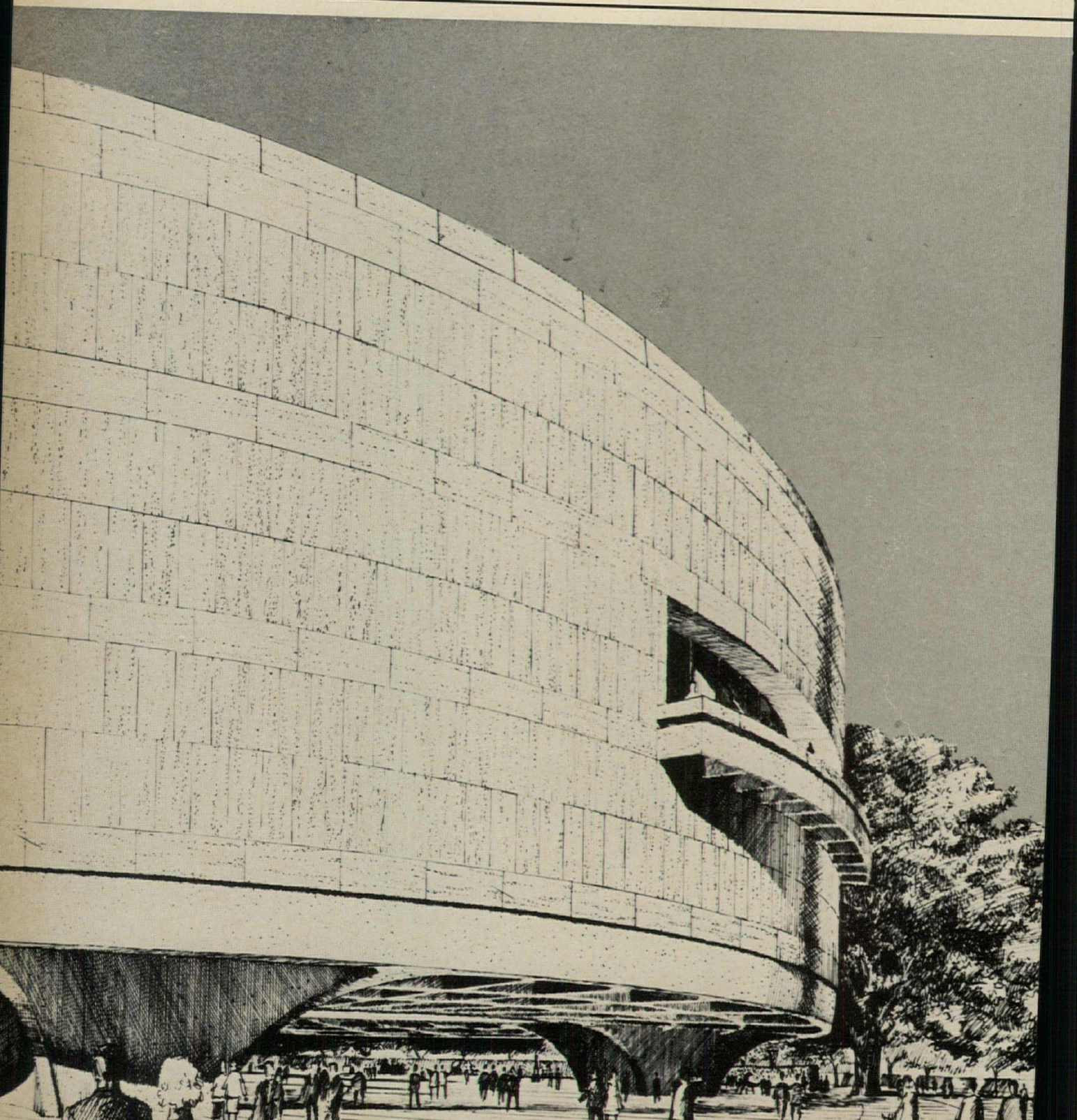
In reversing the order of interior space, Johnson maintains alignments with the essential horizontal divisions of the adjoining Renaissance facade, but in his bold handling of the massive masonry elements of the new building he makes no concession to its more delicately scaled neighbor.

BOSTON PUBLIC LIBRARY ADDITION, Boston, Massachusetts. Owner: *The City of Boston.* Architects: *Philip Johnson Associates and Architects Design Group Incorporated.*



A new art gallery for the Capitol Mall, Washington, D.C.

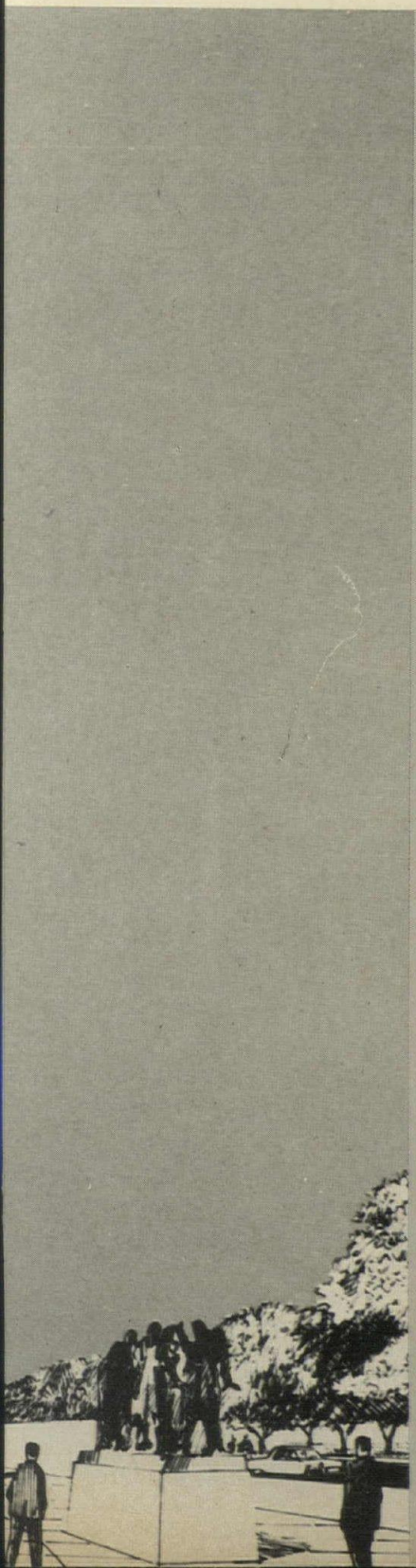


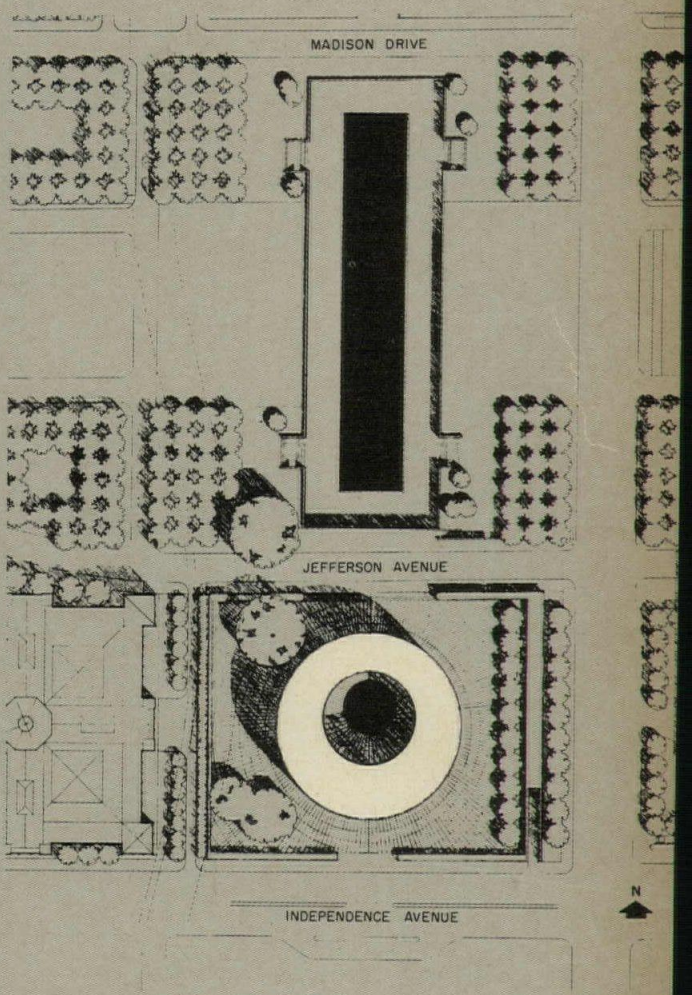


The Joseph H. Hirshhorn Museum and Sculpture Garden, designed by Gordon Bunshaft of Skidmore Owings & Merrill, for the Public Buildings Service of the General Services Administration, has been conceived as part of a great north-south cross axis for the east-west oriented Mall. Parallel to the magnificent cross axis to the east, which is formed by the White House, a slightly non-aligned Washington Monument and the Jefferson Memorial, the axis now clarified by Bunshaft's design was first established by Daniel Burnham, Charles McKim, Augustus St. Gaudens and Frederick Law Olmstead, Jr., creators of the McMillan Plan of 1901. The latter plan, named after the chairman of the Senate Committee for the District of Columbia, James McMillan, was the first important design for the development of Washington since 1791, the year L'Enfant established the city's axial streets and radial avenues.

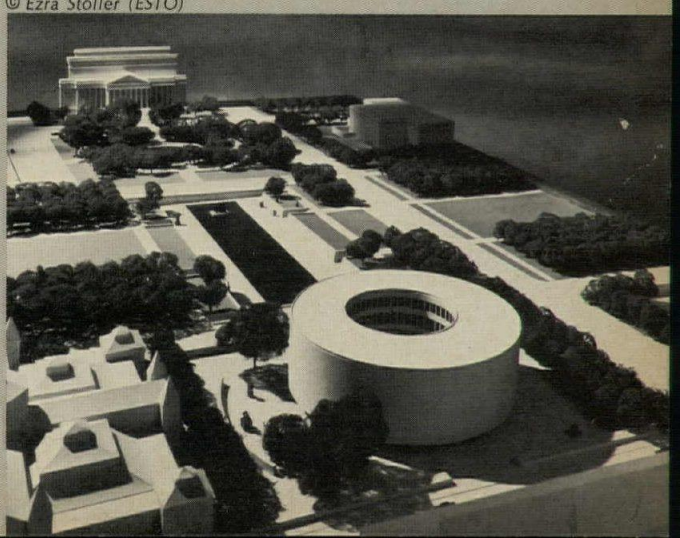
The McMillan scheme influenced the location of the three major buildings on the northern edge of the Mall to which Bunshaft has symmetrically related the proposed Hirshhorn Gallery. Directly on axis and shown at the top of the model photograph is the National Archives building designed by James Russell Pope and built in 1935. To the east is the National Gallery also by Pope and constructed in 1941. Only an edge is shown in the model. On the west, but not included in the photograph is the Natural History Museum of 1910. All three are major eclectic monuments in the neo-classic style.

Bunshaft has enclosed three levels of gallery space within a cylindrical form for which the rectilinear neo-classic structures become a foil. Subtly assymmetric in plan, each of the three circles which form the doughnut shape and the





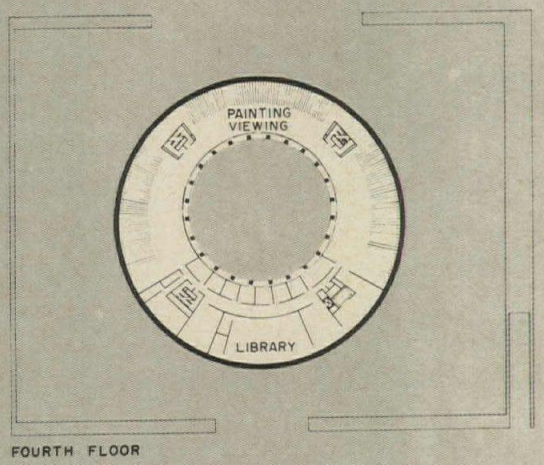
© Ezra Stoller (ESTO)



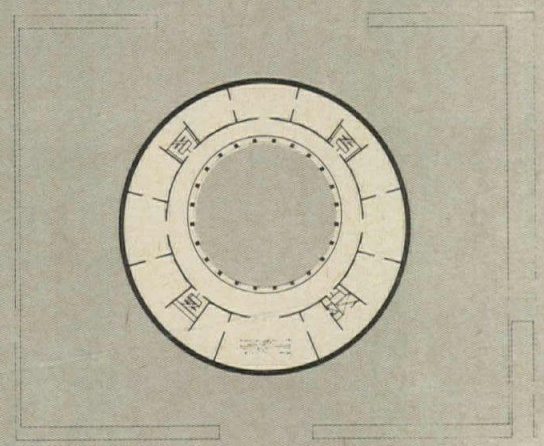
The sketch at left shows the side of the 60-foot-high marble-covered cylindrical bearing wall which faces the Mall. The balcony located on the second gallery floor opens upon an axial vista which is terminated by the National Archives building to the north of the Mall, as shown in the model photograph at right. The Smithsonian Arts and Industries building lies to the west of the proposed structure as can be seen in the lower left-hand corner of the photograph, and the new National Air and Space Museum will occupy the adjacent block to the east.

circular pool within it, has a different center. The eccentric radii create gallery spaces of varying size. The building is far bigger than the model suggests. Frank Lloyd Wright's Guggenheim Museum would fit in the hole. The circular form is raised 15 feet above the plaza level by four great piers. The walls which are to be covered with marble are load bearing and reach a height of 60 feet. Below the plaza level there will be additional gallery space and a restaurant overlooking a reflecting pool and sculpture garden.

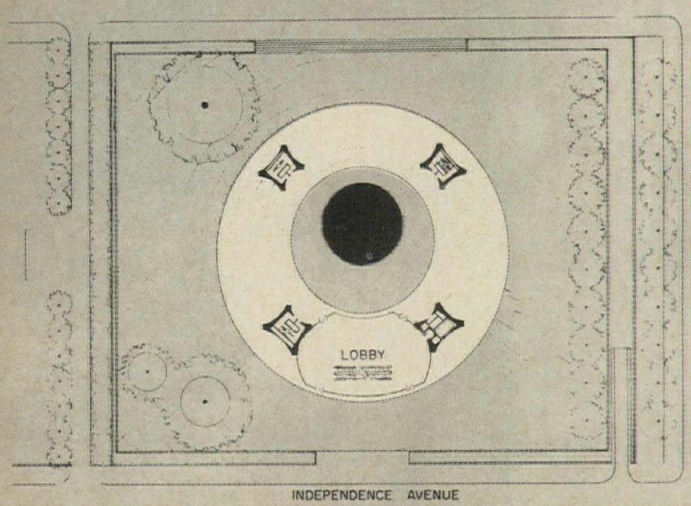
The 80-foot-wide pool spans the Mall for 500 feet. Since eventually all cars will be removed from the Mall and ci culation will be by means of minibus streets within the Mall will no longer b major circulation elements. Bunshaft scheme, therefore, calls for the remova of two segments of parallel east-west ave nues to accommodate the pool and i surrounding lawns. Free-standing sculp ture from the Hirshhorn collection wi be exhibited on the wide terraces o either side of the pool. Pool and terrace will be 7 feet lower than grade to plac them at the restaurant level, and to pre serve the Capitol, Washington Monu ment and Lincoln Memorial vista.



FOURTH FLOOR



SECOND FLOOR



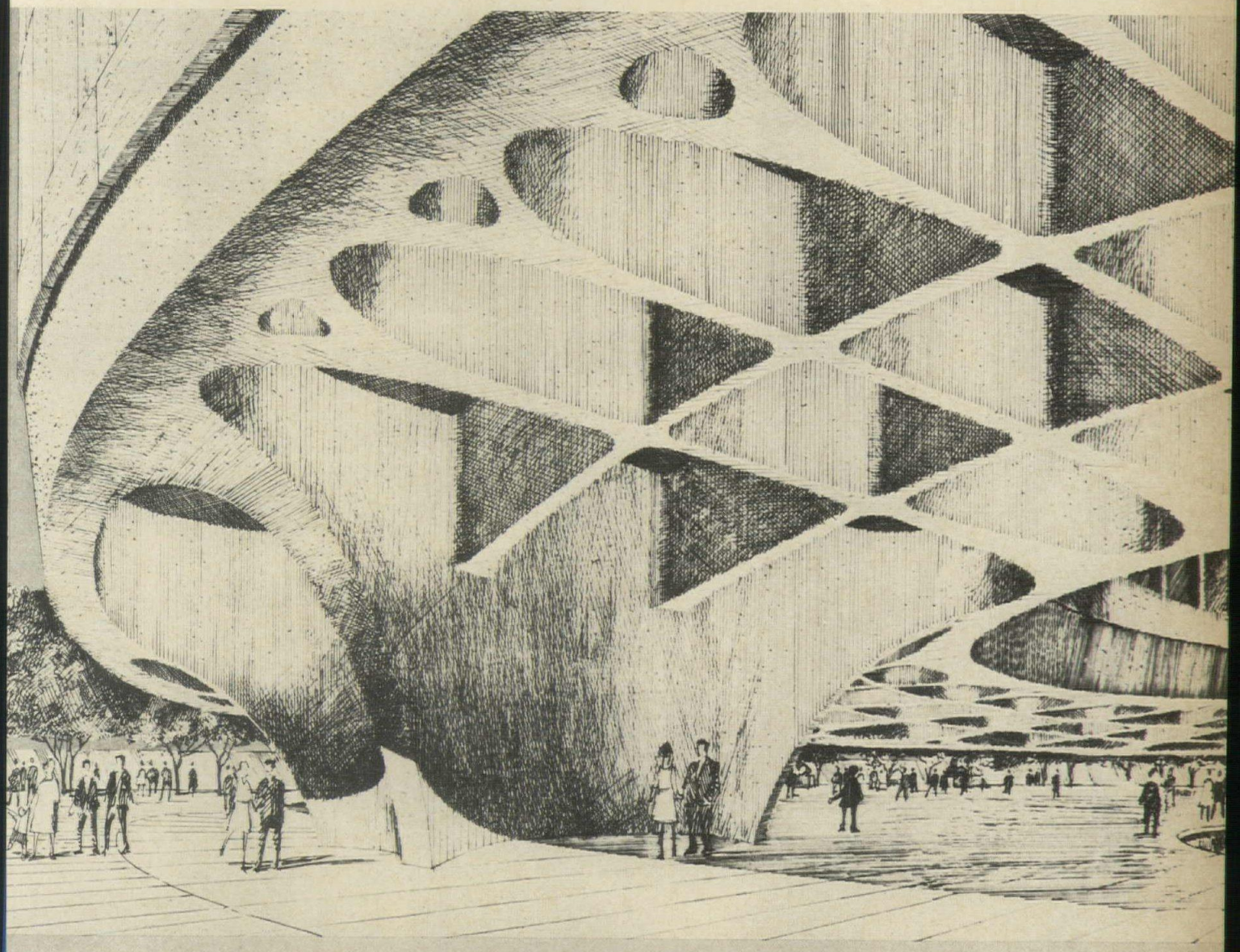
PLAZA LEVEL

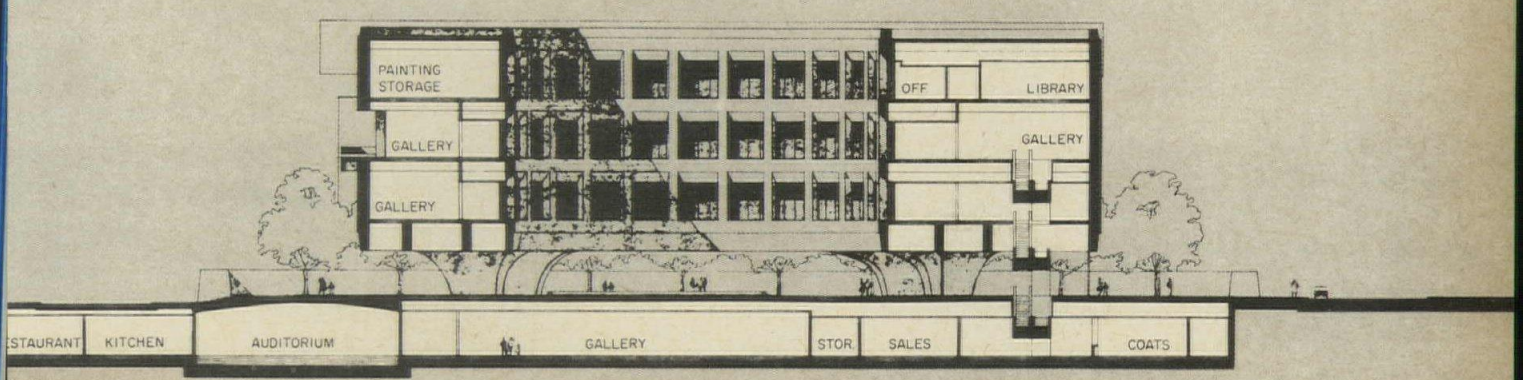
The sketch at the right reveals the coffered concrete underside of the cylinder. Plans show the glass enclosed entrance facing Independence Avenue at the southern edge of the Mall, a typical gallery floor, and storage for 5,000 paintings and library space on the top floor. Corridors are lit by large windows which afford a view of the courtyard. Galleries are lit by artificial illumination only since it has been found that natural illumination ages paintings five times more rapidly than incandescent. The building is larger than it appears: the diameter of the exterior circle is 235 feet, and the circle which defines the court is 115 feet.

Another plaza for sculpture has been proposed for the south forecourt of the National Archives building, directly beyond the reflecting pool. Visible in the model, it is not included in the Hirshhorn plan. Under study by the San Francisco office of SOM, it will exhibit works of sculpture from the National Gallery and the Natural History Museum on a terrace which will enclose a 980-car parking garage. Originally conceived in the Report of the President's Council on Pennsylvania Avenue, this plaza will be an additional reinforcement of the cross axis.

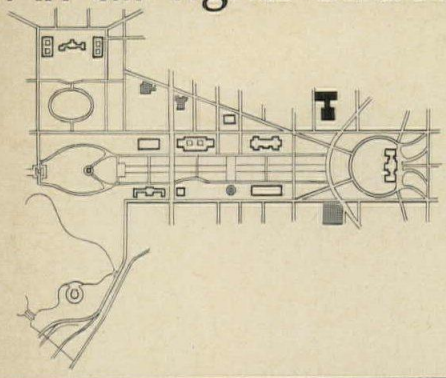
President Johnson has authorized a $15-million appropriation for the planning and construction of the building, pools, plaza and gardens. Originally scheduled for completion in 1970, Congress has not yet appropriated the funds. The museum will be devoted exclusively to the Hirshhorn collection and will be administered by the Smithsonian.

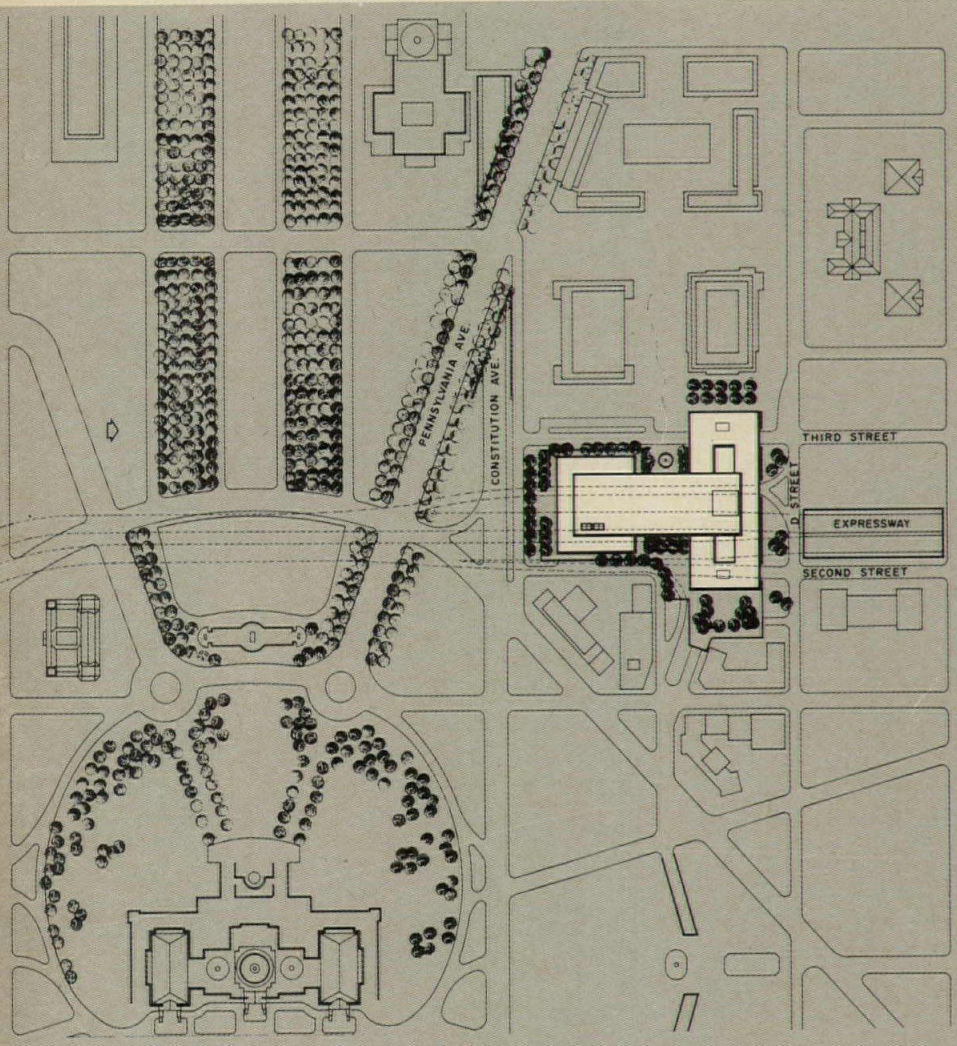
THE JOSEPH H. HIRSHHORN MUSEUM AND SCULPTURE GARDEN, Washington, D.C. Owner: *United States Government*. Architects: *Skidmore Owings & Merrill—partner-in-charge: Gordon Bunshaft; project manager: Frederick C. Gans; design assistant: Sherwood A. Smith;* structural engineer: *Paul Weidlinger;* mechanical engineers: *Jaros, Baum & Bolles.*

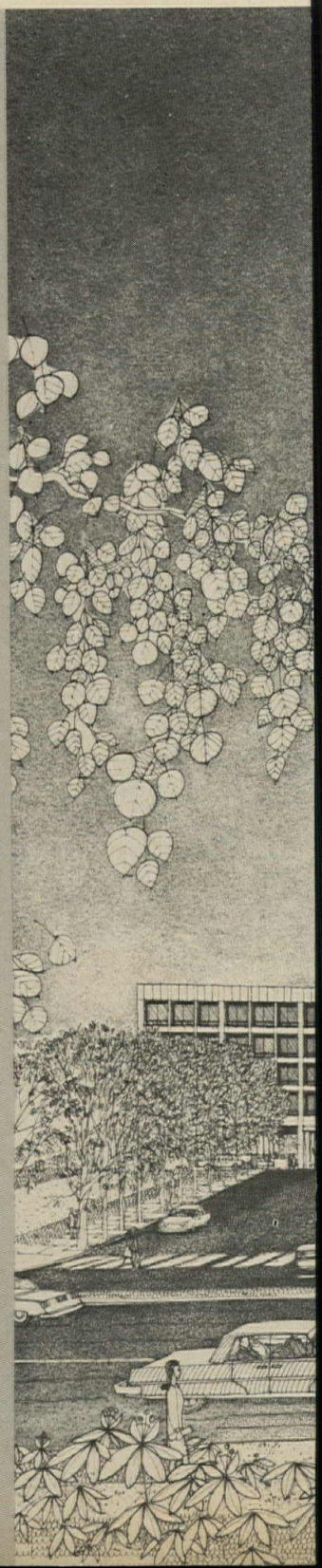


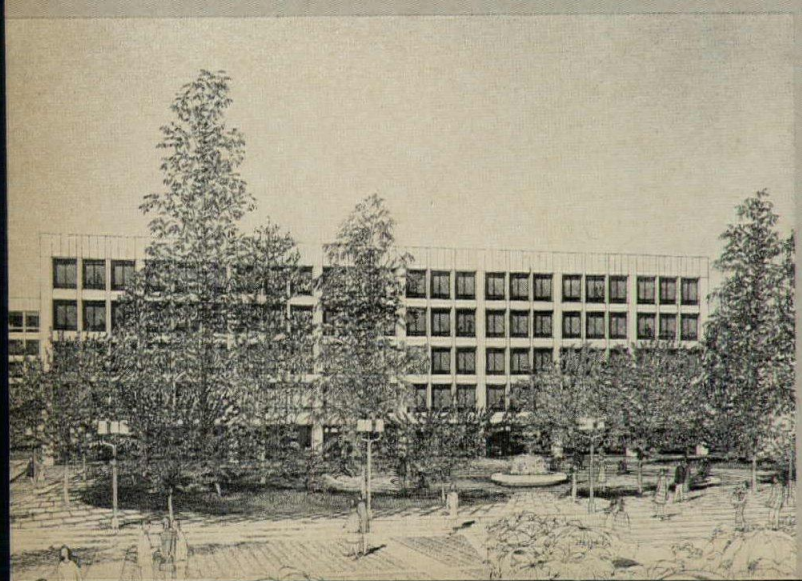


An air rights structure for the Department of Labor









The site plan above embodies the proposals of the Council on Pennsylvania Avenue which are not yet implemented. Constitution Avenue is shown intersecting with Pennsylvania Avenue by means of an underpass, and Louisiana Avenue extends across the Mall in a big curve. Note the proposed reflecting pool over the freeway tunnel. The drawing at left shows the facade of the Labor building which faces the Capitol. The perspective at right shows the main entrance facade facing the north side of the Mall.

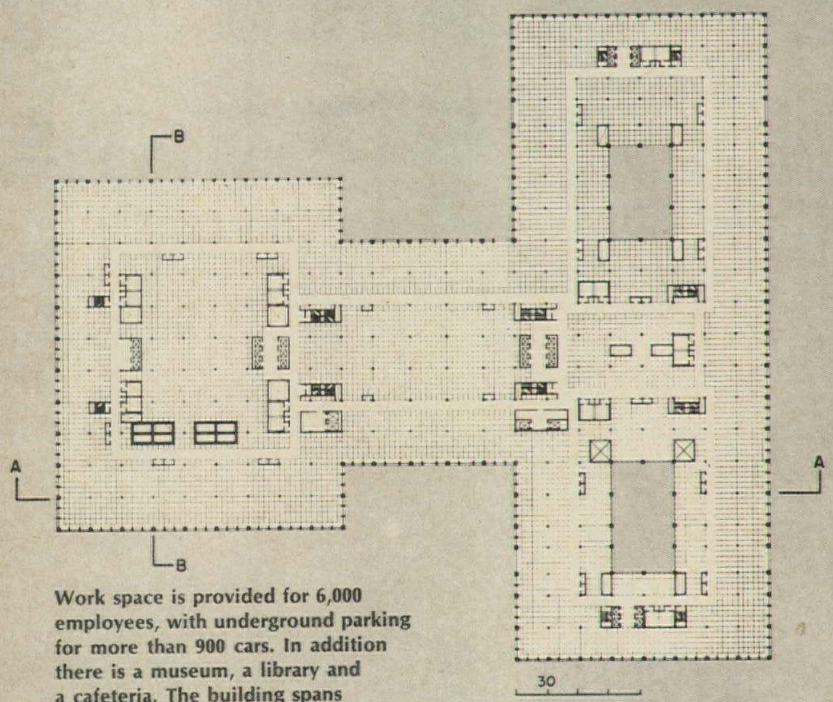
This major new Federal office building is the most ambitious air rights project developed to date by the General Services Administration Public Buildings Service and marks the first joint venture between the GSA and the District of Columbia government on a project of this magnitude. Karel Yasko, special assistant to the Commissioner of the Public Building Service, describes the GSA's new approach: "Although we set up these air rights projects deliberately—but for the timely freeway construction, we might have had a difficult time getting them started, at least with Congress. Who associates GSA with urban problems? But we believe that the Federal government should create a body of experience in the design of air rights buildings which can be made available to the country at large. This experience should serve as an encouragement to urban communities which are slashing highways through the hearts of their towns, to explore solutions by which these necessary roads can be better accommodated. While we did not search for varied types of air-rights problems, we grabbed them as they appeared. The first was the Labor building. . . ."

Spanning the Center Leg Freeway

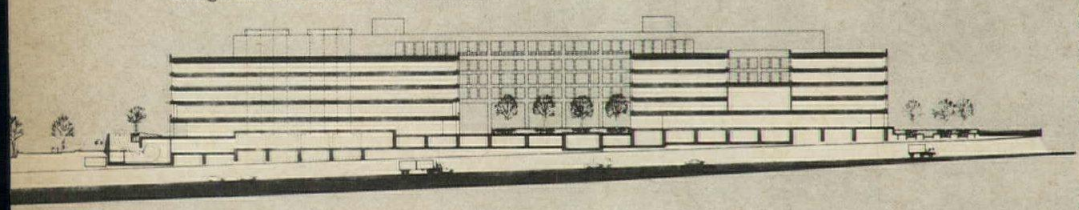
which will tunnel under the Mall, it oc
cupies an important site immediately to
the northwest of the Capitol. The build
ing will house the ventilation system fo
a large portion of the expressway tunnel

The location of the Labor building
lessens the noise and obscures the view
of traffic entering the Mall tunnel.

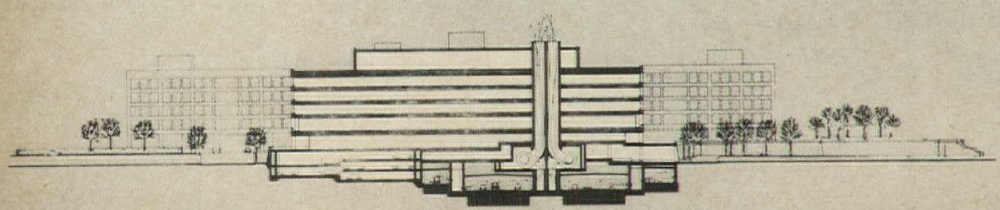
The building's designers have suc
cessfully achieved an architectural ex
pression in line with a general directive
of the National Capital Planning Com
mission: "Federal buildings housing or
dinary administrative offices should no
be given a monumental treatment. This



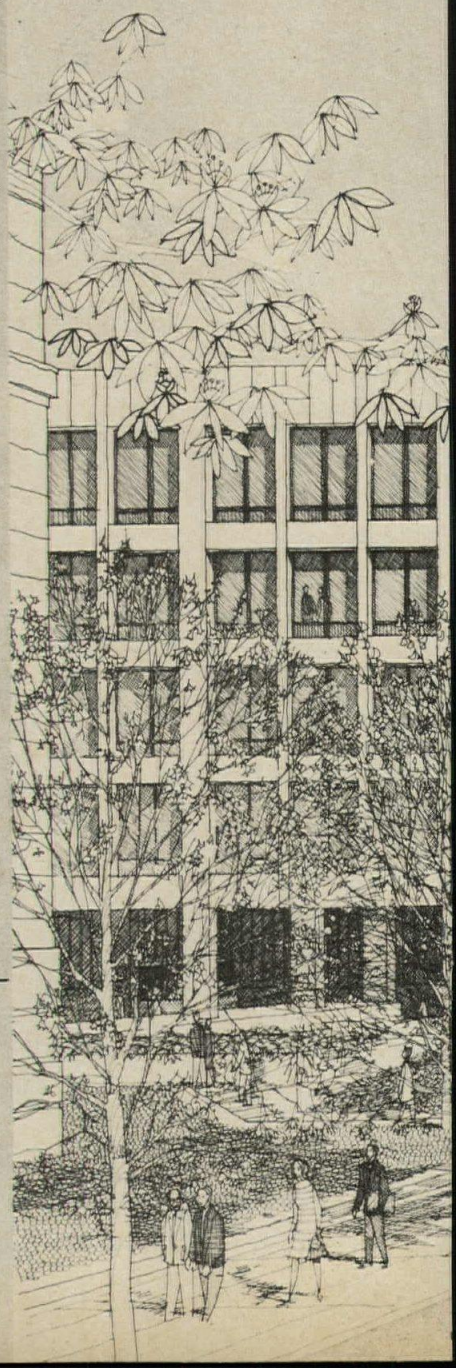
Work space is provided for 6,000 employees, with underground parking for more than 900 cars. In addition there is a museum, a library and a cafeteria. The building spans eight lanes of traffic by means of deep steel plate girders which form two clear spans of 70 feet each. The space between the girders provides for functions normally placed in the basement. This service space creates a buffer zone against the noise and vibration of the expressway. A pair of tunnel exhaust ducts can be seen in the section. The drawing at the right shows the approach designed for visitor automobiles.



SECTION A-A

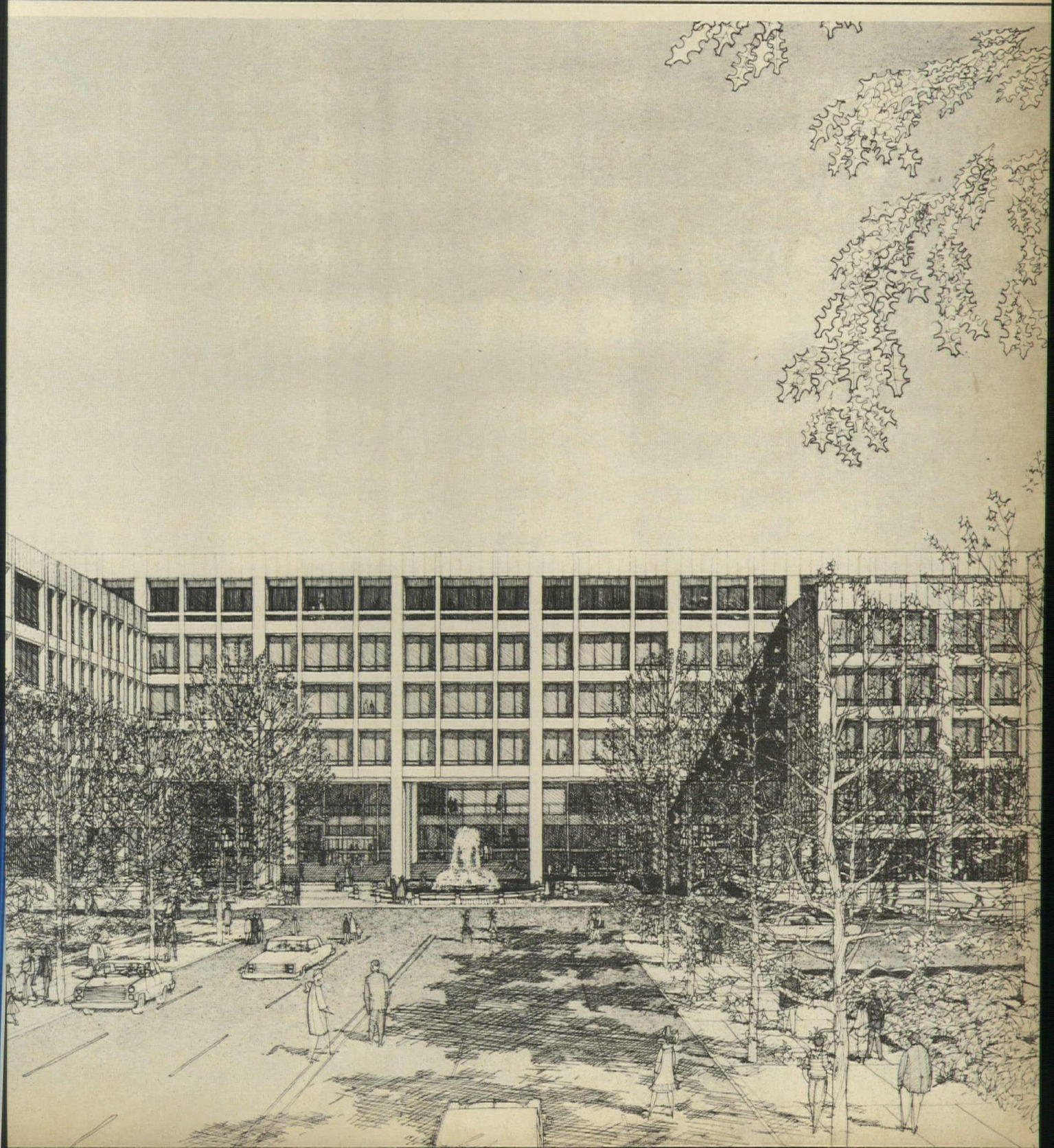


SECTION B-B

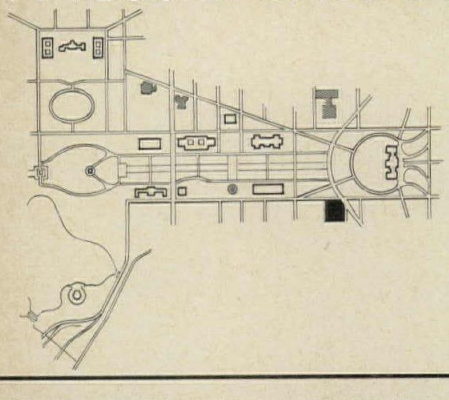


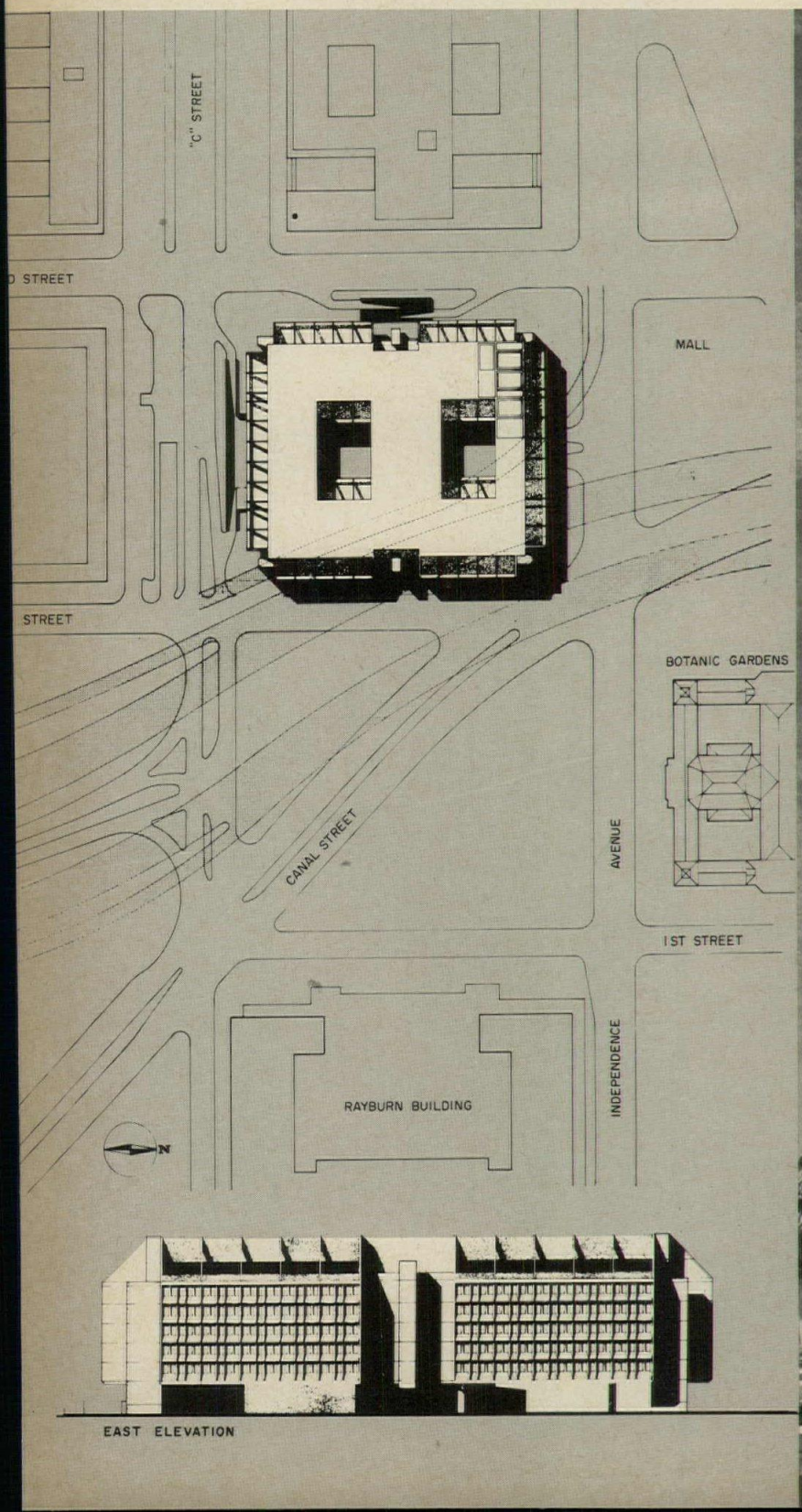
loes not mean that they should be dull nd anonymous—they should be among he best in their class—but their design nd siting should respond mainly to the estraints of function and environment."

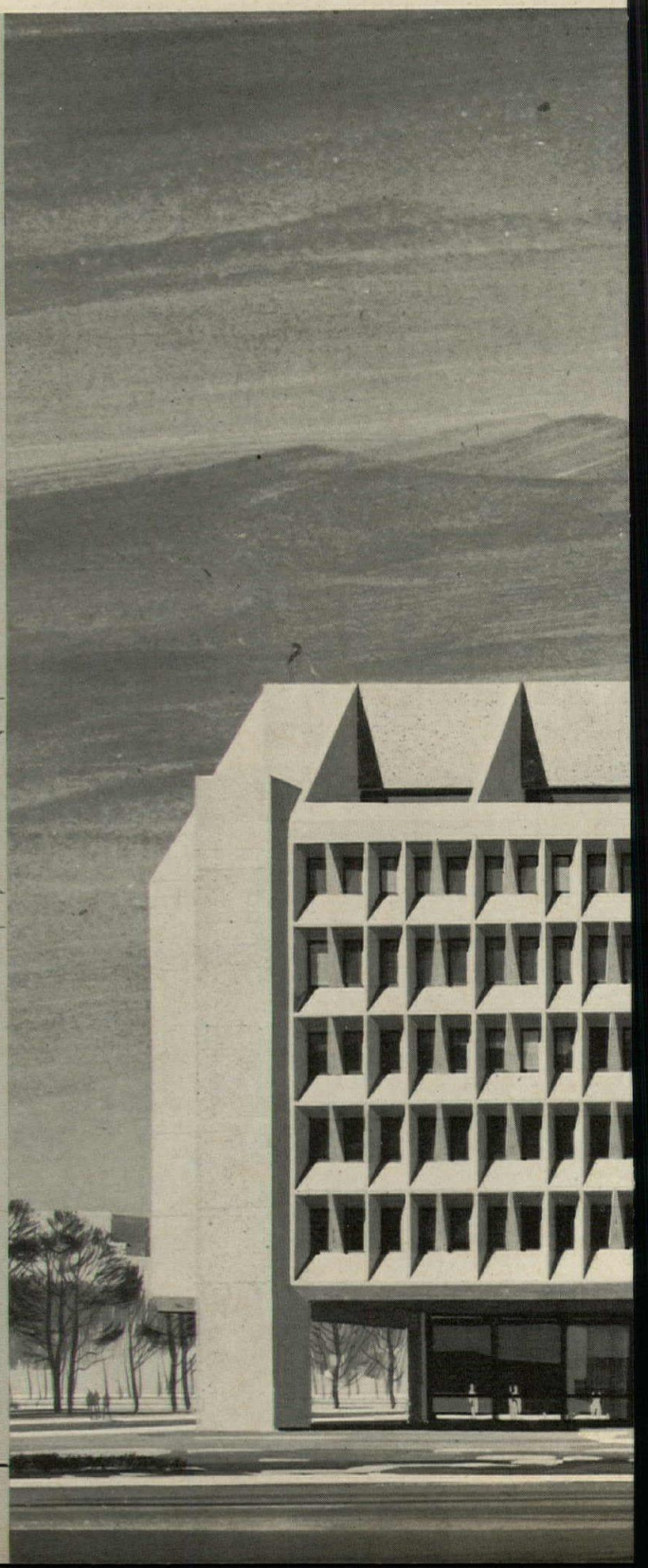
NITED STATES DEPARTMENT OF LABOR FED-RAL OFFICE BUILDING, Washington, D.C. Owner: *General Services Administration.* Archi-ects: *Brooks, Barr, Graeber & White and Pitts, Mebane, Phelps & White—senior partners-in-harge: R. Max Brooks, F.A.I.A.; L. W. Pitts, .A.I.A.; Russell R. Phelps, F.A.S.C.E.; partner in harge of coordination: T. Ray Ogden; associ-tes in charge of design and production: Alvin . Palmer, A.I.A.; William H. Paschall, A.I.A.; irby M. Keahey, A.I.A.*



A Federal office building designed to span a freeway

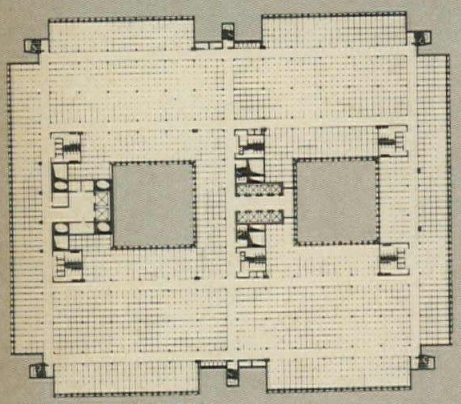




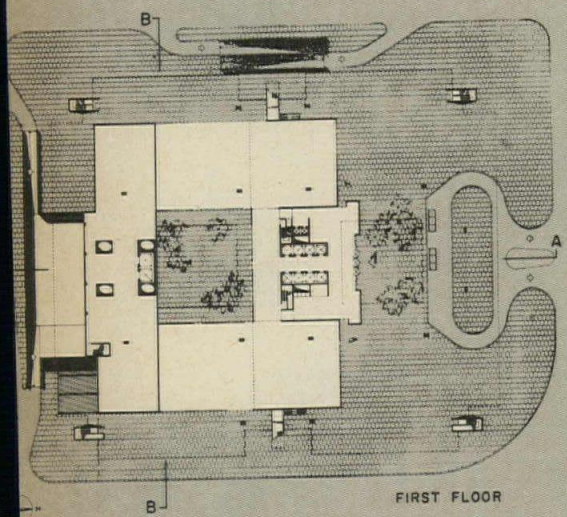


This proposed structure designed by Marcel Breuer and Herbert Beckhard, spans the Center Leg Freeway at a point directly across the Mall from the Labor Department building shown on the preceding pages. It performs the similar function of supplying and exhausting air for the freeway tunnel under the Mall. A large portion of the underground areas of the site are occupied by the freeway system. This area is augmented by a rather large sewer trunk which will run alongside the roadway. Large supply and exhaust ducts must be run from the freeway tunnel to a large mechanical equipment room within the building. From this point vertical shafts, at least 60 feet high will be constructed to dissipate the fumes exhausted from the freeway. Therefore the building had to be designed to accommodate these sizable exhaust ducts. Complicating the design problem further is the fact that the freeway will pass under the building diagonally, instead of axially as it does under the Labor Department building across the Mall.

It became apparent to the architects early in the design stage that there weren't too many locations through



TYPICAL OFFICE FLOOR

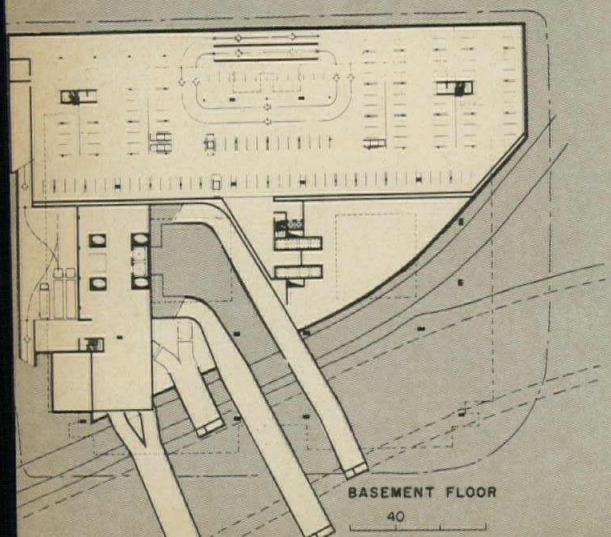


FIRST FLOOR

The office spaces of the building are based upon a 5-foot-square module with the office space contained therein completely flexible, each module having its own source of air conditioning, heating and lighting. As a result, the flexible partitioning system permits relocation of partitions without adjustment to the mechanical or lighting systems. The floor construction will be cellular steel deck.

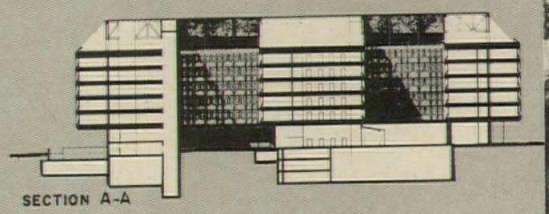
The penthouse level of the building will be occupied by mechanical spaces for the building and by the employees' cafeteria. The cafeteria will command a view of the surrounding cityscape.

The entrance level in addition to containing the main lobby, is flexibly planned to permit the construction of such large spaces as a library, meeting rooms, and lecture halls. Diagonal elements shown at the basement level are exhaust and supply ducts for the freeway. These connect to vertical shafts which are elliptical in shape for acoustic reasons.

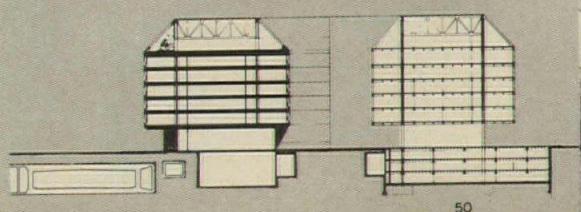


BASEMENT FLOOR

40



SECTION A-A



SECTION B-B

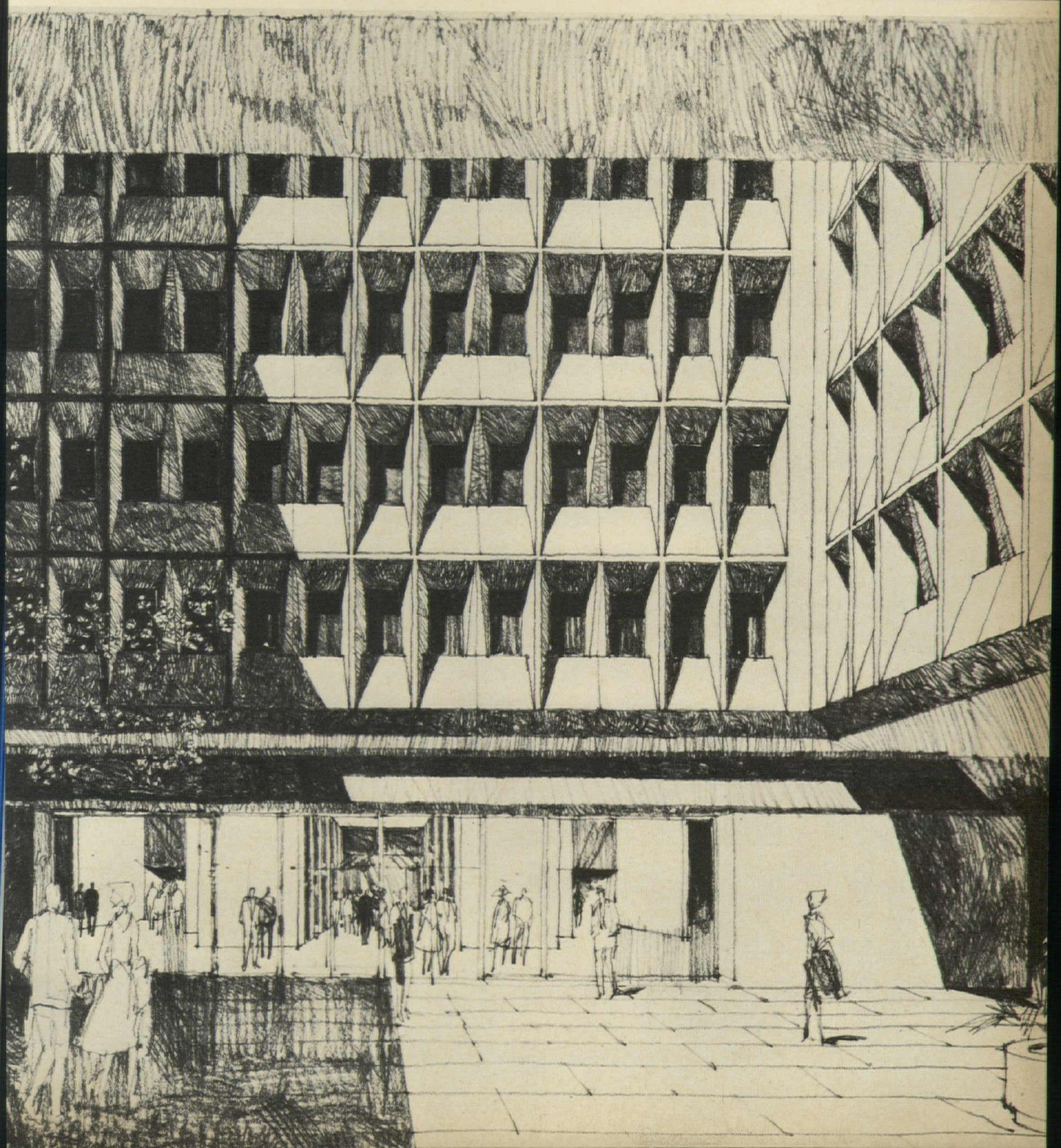
50

which column loads could be carried to he ground. They decided to use a limted number of large, widely spaced columns. These extend from their footings below the highway level to the penthouse roof and support deep trusses which establish the floor to ceiling height of the penthouse. The edges of these trusses slope 45 degrees and can be seen in the sections (opposite page).

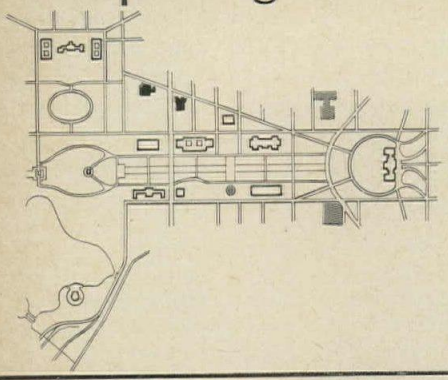
The trusses in turn carry vertical hangers which support six office floors. Thus the structural system of the office floors is independent of the structural system of the three levels of parking, the truck service area and mechanical equipment spaces which occupy the available space below the plaza. It was possible to establish a separate column system for the parking garage based upon auto parking modules. Wind bracing is accomplished by the two main cores—the one containing passenger elevators, and the other incorporating exhaust ducts and service elevators. The 45-degree slope of the end members of the trusses is in accord with the setback requirements for buildings in this zone.

The plan itself is rectangular with two large interior light wells which provide a proportion of space with exterior windows to interior space which is generally considered desirable by the client. One of the light wells terminates in a completely enclosed inner court, while the other is a vertical extension of the open plaza as shown in the drawing on this page. It is possible to drive onto this plaza from Independence Avenue to drop off and pick up people by car.

FEDERAL OFFICE BUILDING, South Portal Site, Washington, D.C. Owner: *General Services Administration.* Architects: *Marcel Breuer and Herbert Beckhard, and Nolen-Swinburne & Associates—assistant: Guillermo Carreras.*

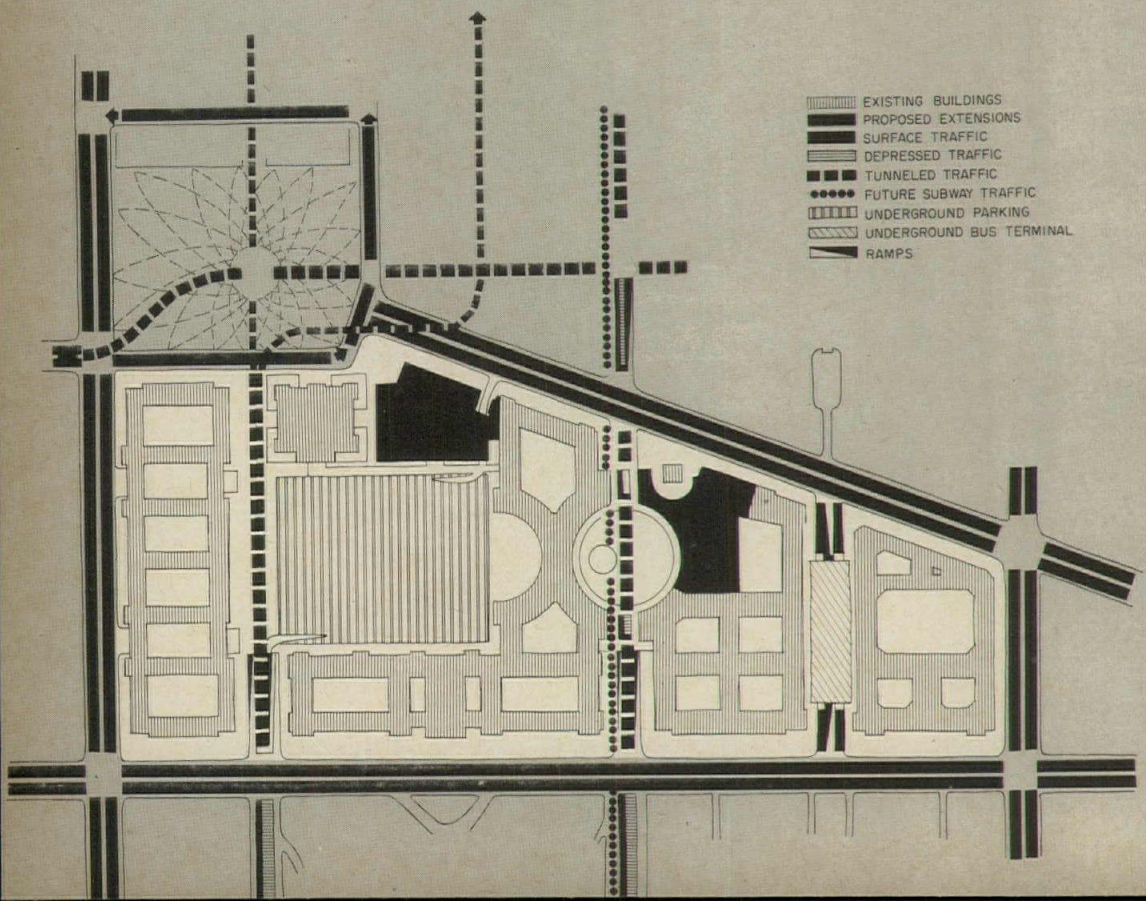


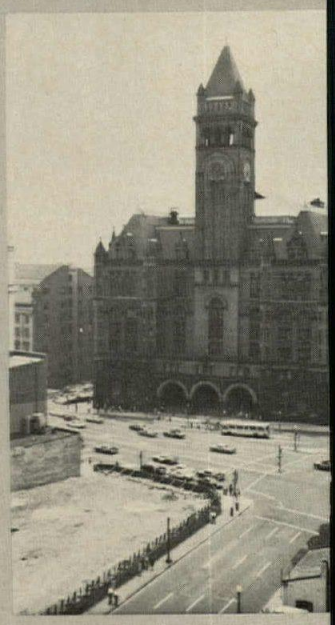
Completing the Federal Triangle: a problem of style



Lautma

The buildings shown in black on the plot plan below are Warnecke's proposed additions to the Federal Triangle, a vast neo-classic complex which was begun in 1928 and brought to its present incomplete state in 1938. The great crescents combine to form the Post Office Department. The rectangular car-filled plaza is enclosed to the west and south by the Department of Commerce and the Labor Department respectively. The new scheme will put the cars beneath the plaza and landscape its surface. The circular plaza will be completed, north-south streets will be tunneled underground and an underground bus terminal will be added.

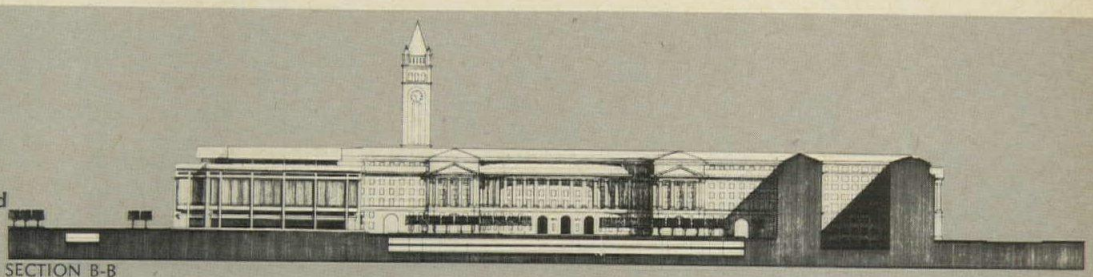




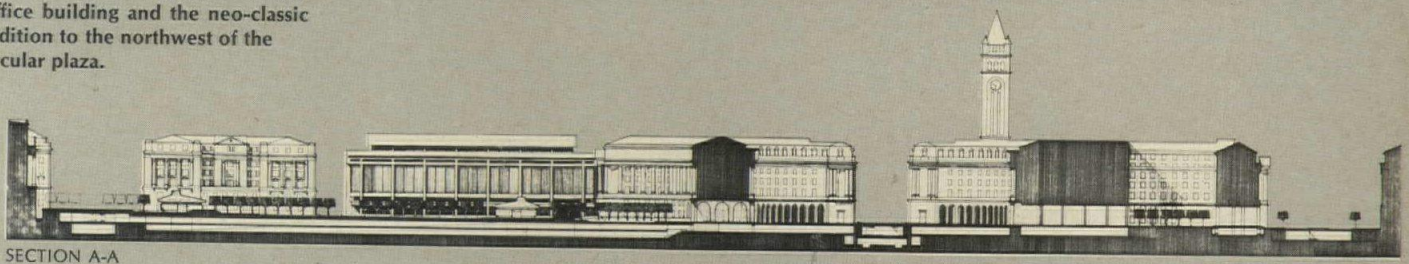
Architect John Carl Warnecke's Federal Triangle feasibility study, prepared for the General Services Administration Public Buildings Service is a fascinating exercise in architectural esthetics. The problem for which Warnecke's answers were sought is composed of several parts. First —how to add over half a million square feet of office space to the Internal Revenue Service building, a great neo-classic pile built during the first five years of the depression. This building is part of an incomplete circular plaza formed by the elegant neo-classic facade of Delano & Aldrich's Post Office Department constructed in 1934 (see top photo opposite). Second—how to provide a setting for the famous spire, all that is to remain of the Old Post Office and Clock Tower built in 1897 (see middle photo opposite) which although deemed among "landmarks of importance . . . which should be preserved or restored if possible" by the Joint Committee on Landmarks of the National Capital Planning Commission and the Fine Arts Commission has been declared by the Report of the President's Council on Pennsylvania Avenue to be "chaotic beyond relief . . . in the midst of a conflicting [neo-classic] composition . . . it is not advocated that the Old Post Office be preserved as a whole . . . [only the Tower]". Third—how to design the two major facades of the new, 600-thousand square-foot Post Office building in harmony with the directives of the Pennsylvania Avenue plan. Fourth and last—how to best accommodate the revised street patterns, the new rail transit system, the vast underground parking area and the bus station proposed by the National Capital Planning Commission, and reinforced by the Pennsylvania Avenue plan.

Warnecke's feasibility study shows

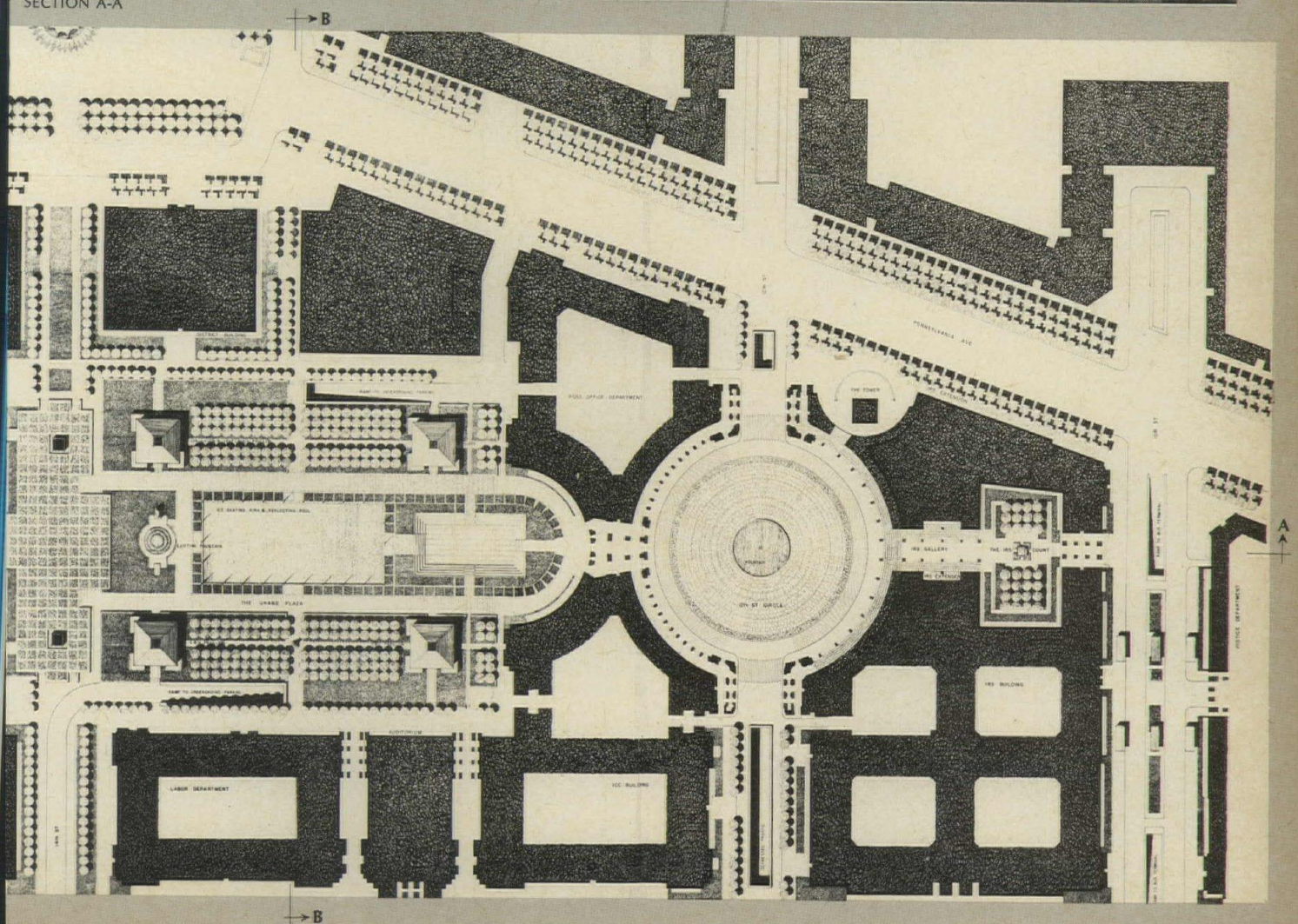
The drawing (top right) shows the two level parking garage under the rectangular plaza and the west facade of the new Post Office building. The 360-foot-high Clock Tower of the Old Post Office building will remain. The drawings below) show the completed plan and a section taken through its main axis. New elements shown are the south facade of the proposed Post Office building and the neo-classic addition to the northwest of the circular plaza.



SECTION B-B

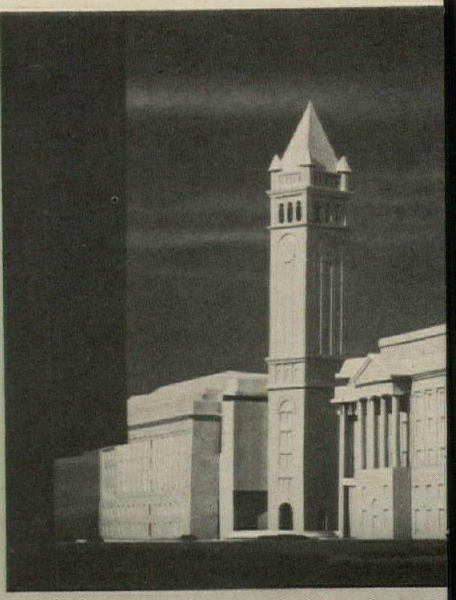


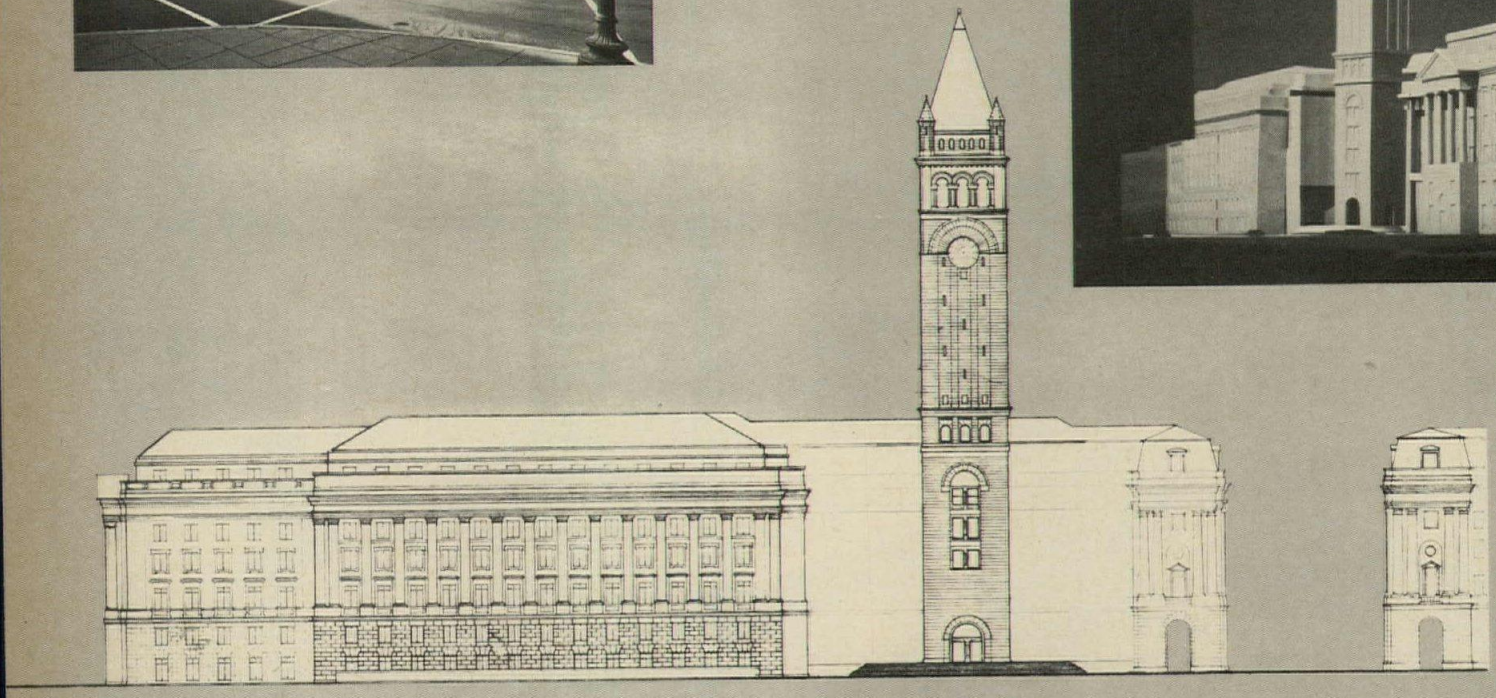
SECTION A-A



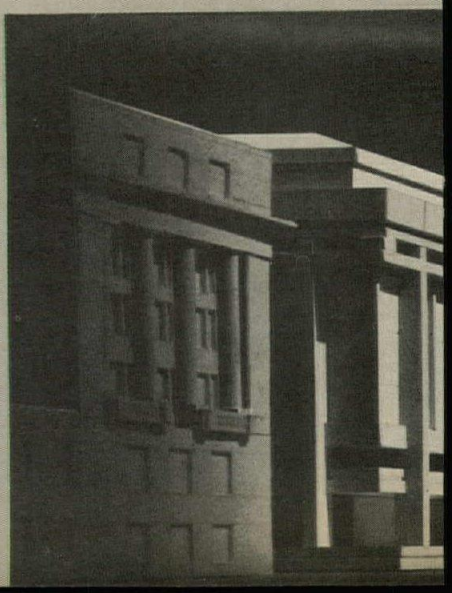
four possible facade treatments for the IRS building, but he strongly recommends that the Delano & Aldrich facade, which already comprises three-quarters of the circular plaza, be completed as designed in 1934. He also proposes that the Pennsylvania Avenue extension of the IRS building which replaces the Old Post Office exactly duplicate the neo-classic facade it adjoins. The Clock Tower (shown in the drawing below) will rise from a new podium within a semi-circle which has not yet been studied, but which will be carried out in a neo-classic manner to match adjacent elements.

The photograph at left shows the Pennsylvania Avenue boundary of the Federal Triangle as it appears today. The model photographs at right show how the Avenue will appear after Warnecke's proposals are carried out. The old Post Office will be demolished save for its tower, and the new addition will be contemporary in style.





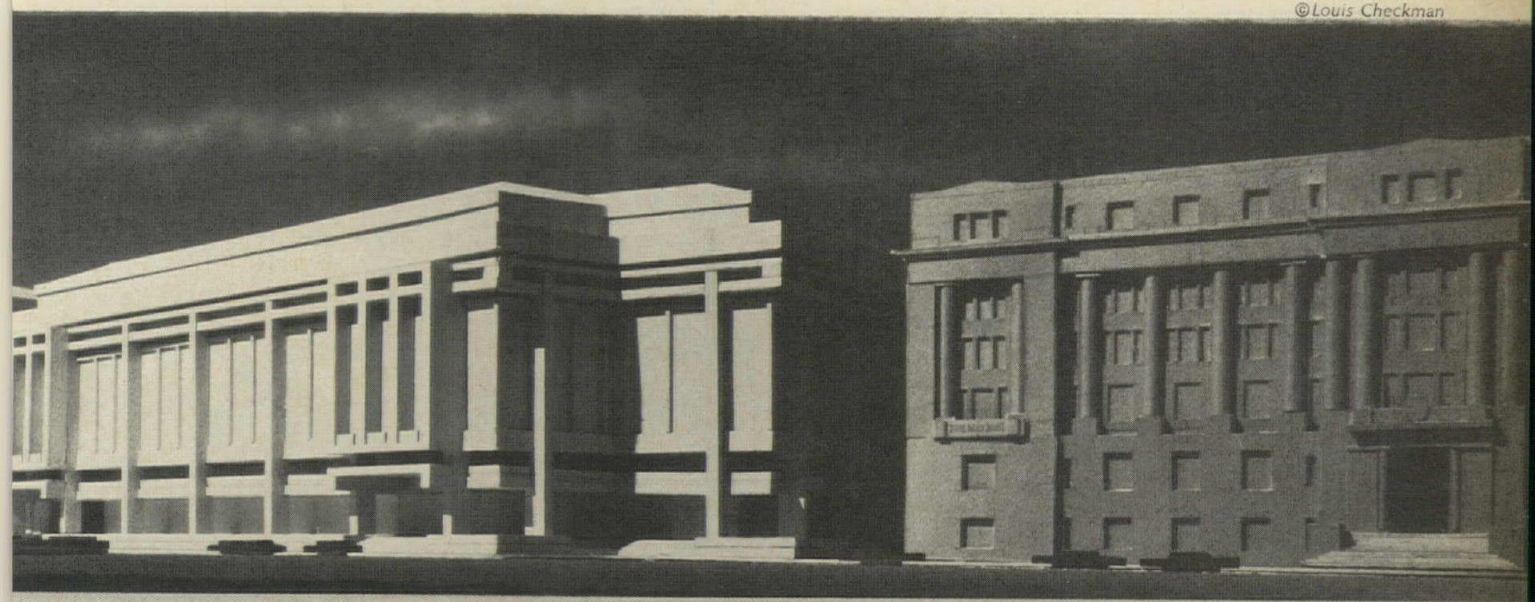
The drawings above comprise all but three of the elements of the Federal Triangle which form the Pennsylvania Avenue edge. (The Department of Justice, the National Archives and the Federal Trade Commission were not included in this study.) The photograph at left looks toward the rectangular plaza now used as a parking lot. The model photograph at right shows how this plaza will appear when it is free of cars and the new Post Office addition has been added to complete the composition.

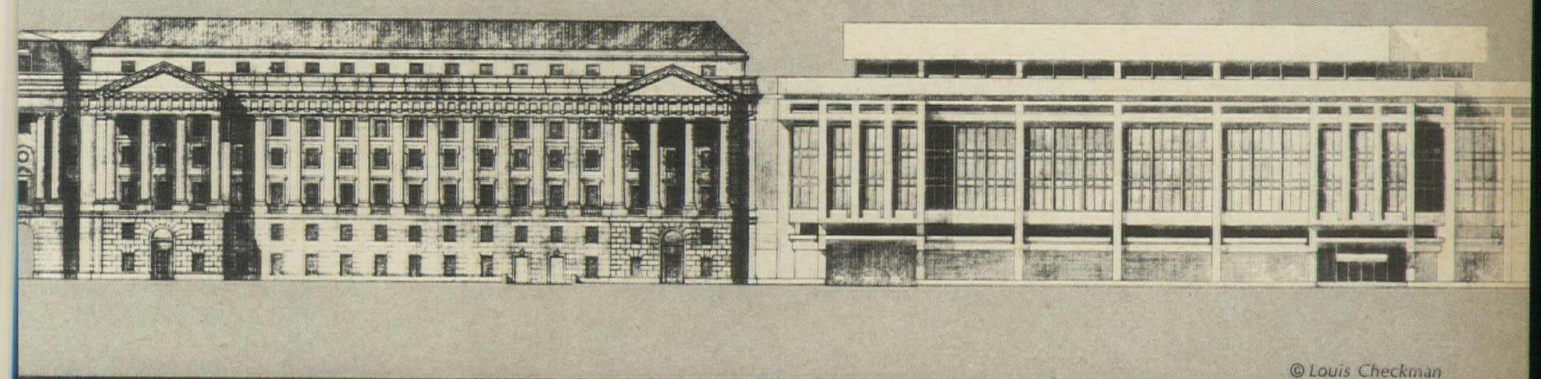


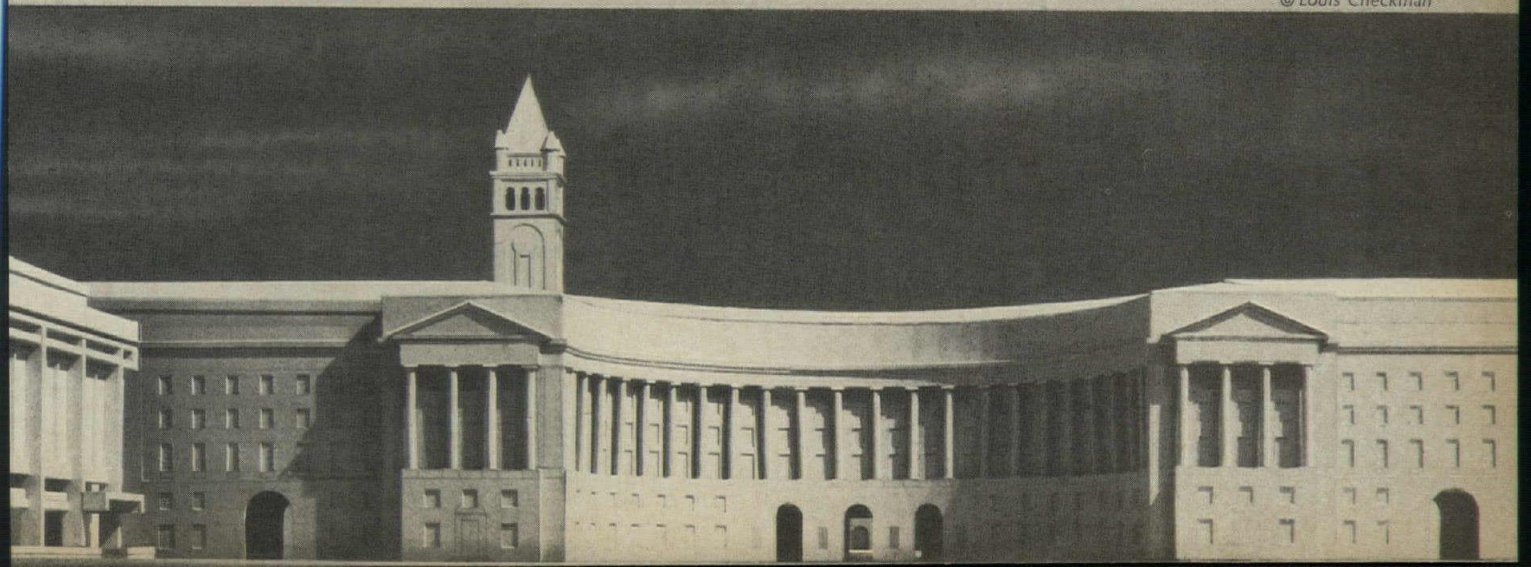
Warnecke also produced four solutions for the Post Office building addition, but his feasibility report favors the one shown in the model photographs and drawing (below right). The top photograph and middle drawing show how the building will appear on Pennsylvania Avenue; the bottom photograph shows how it relates to Delano & Aldrich's other curving facade—the one which faces the large rectangular plaza. Warnecke feels that the new Post Office building addition is sufficiently separate and distinct from the rest of the neo-classic Federal Triangle to justify treating its facades in a contemporary manner. He believes that the column spacing and deep arcades will be particularly successful for the Pennsylvania Avenue side of the Triangle for they will harmonize with the arcaded structures which the Pennsylvania Avenue Plan proposes. Warnecke also believes that the Post Office addition will serve as a bridge relating contemporary structures to the north of the Avenue, with neo-classic structures to the south.

The diagrammatic site plan on page 124 shows that a subway stop will be located within the circular plaza, and that an underground garage for 1,600 cars will be located on two levels under the large rectangular plaza. North-south streets will tunnel underneath the Federal Triangle and an underground bus terminal will be located near the western edge of the site. The National Capital Planning Commission has approved, for budget purposes only, the proposed additions to the Federal Triangle. Work may start in 1968.

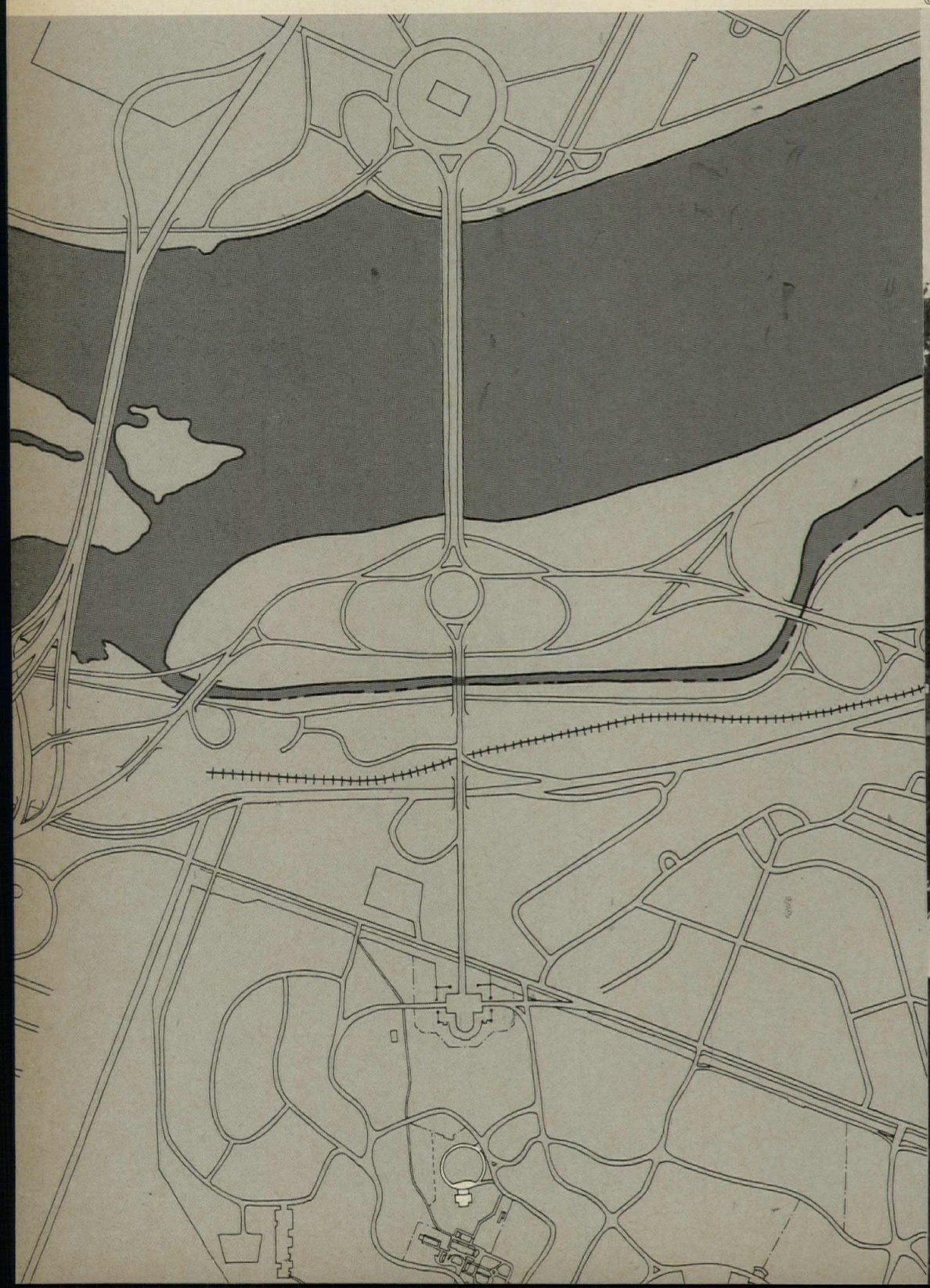
FEDERAL TRIANGLE FEASIBILITY STUDY, Washington, D.C. Owner: *General Services Administration.* Architects: *John Carl Warnecke and Associates;* mechanical and electrical engineers: *Jaros Baum & Bolles*





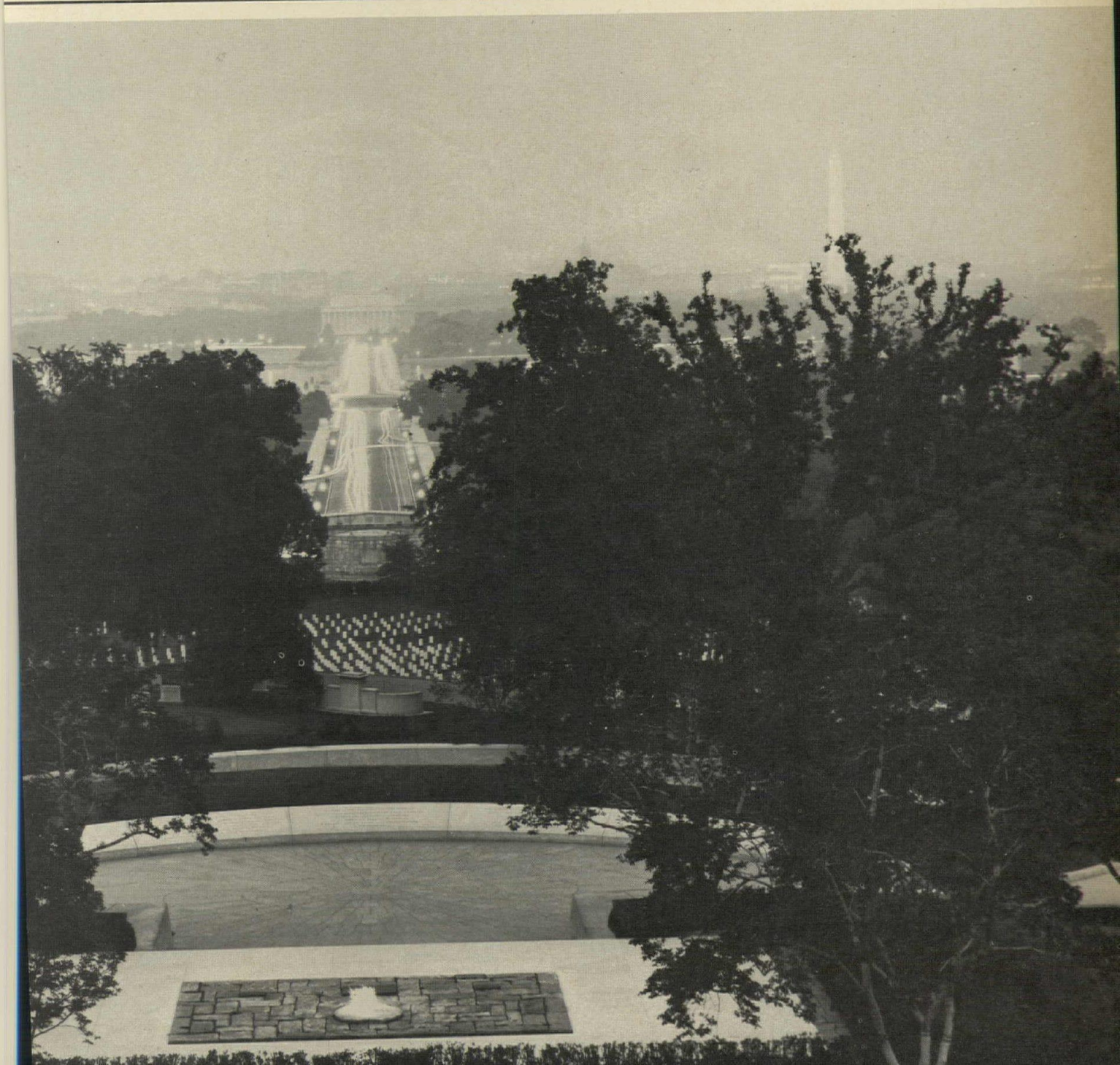


The President John F. Kennedy Grave



The noble Kennedy grave site at Arlington National Cemetery, designed by John Carl Warnecke, occupies such an important space in Washington's great axial fabric that its symbolic value is immensely enhanced. The placement of this essentially modest tomb on a gentle grassy slope crowned by the highly visible hill-top portico of Arlington House (Custis-Lee Mansion) at the end of a long axis leading to the Lincoln Memorial, confers upon the late President's grave a civic consequence comparable to that possessed by the Washington and Jefferson as well as the Lincoln memorials.

This is doubtless what the Kennedys intended when they chose the site, and architect Warnecke did not fail them. He has made inspired use of every dramatic, expressive and evocative potential the land provides. The grave is not on axis with the colonnade of the old plantation house, but it is directly centered on the main cemetery gate, Memorial Avenue and the Arlington Memorial Bridge which spans the Potomac River. The climax of the vista is the Lincoln Memorial which turns northward on its own long axis to define the eastern end of the Mall. The Washington Monument, just visible at

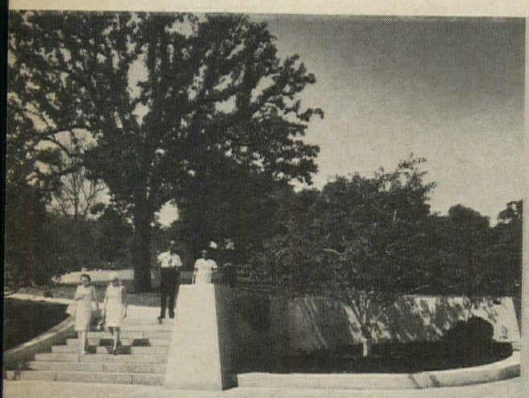


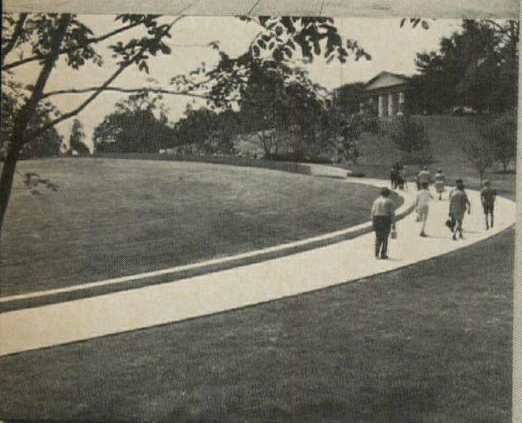
the right-hand side of the photograph on the preceding page, and the Capitol Dome define the second major axis to which the grave is obliquely linked.

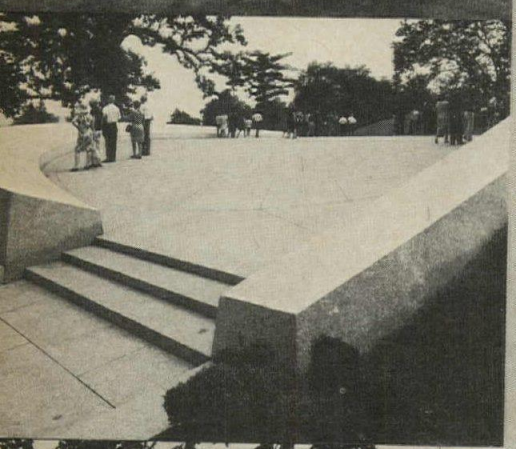
The photographs below illustrate successive stages in the approach to the tomb. Steps lead to a circular walk which arrives at an elliptical plaza overlooking the great axial vista. From this plaza, a short flight of steps joins a rectangular terrace. The graves of Kennedy and two of his children are marked by tablets of grey slate set within a surface of rough hewn granite slabs quarried from Cape Cod. The round stone which holds the eternal flame was also found on the Cape.

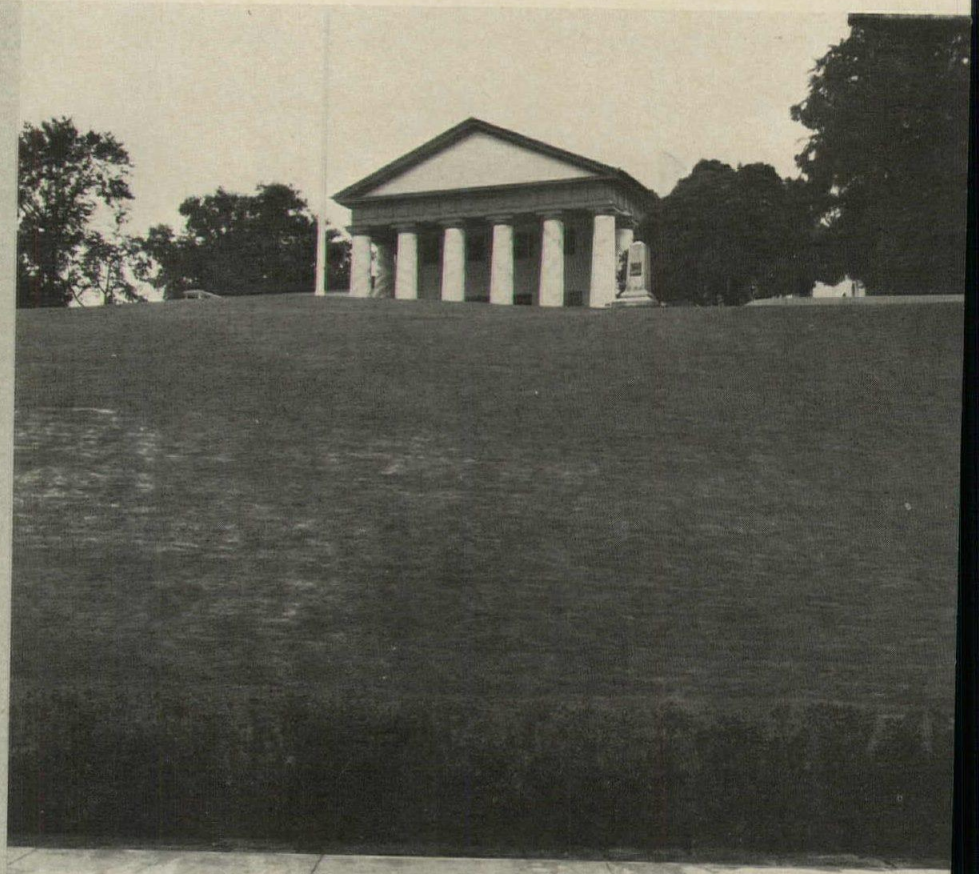
The retaining walls are of granite, and the circular walk and elliptical plaza are also of this material. The steps leading to the grave terrace are of white marble, as is the terrace itself. A large 150-year-old oak tree and two magnolia trees have been planted on either side of the steps leading to the circular walk.

THE PRESIDENT JOHN F. KENNEDY GRAVE, Arlington National Cemetery, Arlington, Va. Architects: *John Carl Warnecke and Associates;* structural engineers: *Ammann & Whitney;* contractor: *Aberthaw Construction Company.*









TREND IS NOT DESTINY

A review by Lewis Mumford

The title of this very special review of Albert Mayer's new book "The Urgent Future" by the leading urban scholar, author and critic reflects his conviction of the critical importance to effective planning for the urban future of that repeated admonition of Mayer. The book, developed from a series of articles "Architecture for Total Community" published in ARCHITECTURAL RECORD in 1964-65, is seen by Mumford—and by the editors—as a major contribution of synthesis and evaluation to the literature of city planning.

During the last thirty years there has been a Vesuvian eruption of books about cities —their nature, their forms, their planning, their deterioration and renewal, their probable future: in fact, more books about the city have been published in the United States alone during this brief period than in the whole previous century.

The results of all this scholarly activity are ironic. The study of urbanism, instead of being a neglected wasteland, has now produced such a heavy crop of information and knowledge that no one has been able to gather in more than a small part of it, still less assimilate it and apply it to the improvement of cities.

In spite of the amount of attention that has been given to the whole process of urbanization, a large number of the people who have been writing about the future of the city do not have the faintest notion of what they are about: or to put it more politely, what they call *the* city is only a particular *sector* of the city, or some limited aspect of its growth interpreted in terms of selected economic, social, or architectural processes. As a result, they miss the two most important features of the historic city: the fact that it brings together *within a definable and limited area* the largest possible variety of human functions and facilities; and that cities, despite their wide range of size, from two thousand in ancient Mesopotamia or Greece to three or four hundred thousand in Renaissance Italy, always, like any other organism or organic association, exhibit serious lapses in functional efficiency and in cooperative human responses when they pass beyond these limits of growth.

Fortunately, during the past half-dozen years, a handful of important books on city and regional planning have appeared, which should help us to understand the dimensions of our problem and to take the measures necessary to control and direct into new channels the forces that are at work, while establishing more comprehensive and more humane goals than those which now beckon us. Among these books I would place Tunnard and Pushkarev's *Man-Made America;* Osborn and Whittick's *The New Towns;* Colin Buchanan's *Traffic in Towns;* and Edmund Bacon's *Design of Cities.* All these books are concerned with the city as an organic entity, at once a container and a magnet, a concentrated field for direct human cooperation, expression, communication, and stimulation. This habitat is far too complex, far too subtle in its qualitative aspects, to be handled solely by the abstract formulas, mathematical or sociological: direct observation and personal experience are essential.

These books have much to give to the professional planner and administrator and the architect: but they are too specialized to reach the public that these professions serve. And since active and intimate participation by the community itself is one of the chief requirements for urban and regional improvement on the scale that is now needed, the various positive contributions of these books and other related treatises, such as *The Urban Condition,* edited by Dr. Leonard Duhl, need to be brought together and focused upon the immediate situation. That difficult feat of selection and unification is one of the many merits of Albert Mayer's new work.

Mayer is peculiarly fitted to perform this act of synthesis. His own concern with the city developed slowly out of a private interest, as a builder of individual New York apartment houses, making miniscule innovations under the municipal and financial conditions that limit success in this field. In his awakening to the inadequacy of such piecemeal improvement and to the need for a more social approach, Mayer's development has been parallel to that of the general public. Mayer is one of the few current writers about the city who, as practicing architect and urban planner, with a basic training in engineering, has had an intimate contact with every variety of planning problem. But it was only after 1930, as he himself confesses, that his sense of public responsibility turned from private philanthropies to the public offices of housing and city design.

Since the Second World War, which brought Mayer into contact both with wide areas in his own country as consultant on war housing, and likewise with

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The Urgent Future, by Albert Mayer. New York: McGraw-Hill Book Company, 1967. 184 pages; illustrated. $16.95.

"Mayer happily sees that our present difficulties are also opportunities; for at last, perhaps they have jarred a whole people sufficiently to make action on a heroic scale possible

Africa and India, his scope and authority have widened. Nehru brought him to India to look freshly at Indian villages and plan their development: a commission he was intelligent enough to turn into an experiment for improving agricultural practices. Before that, he had worked with Henry Wright and Henry Churchill on the design of Greenbrook, one of the projected Greenbelt communities of the second Roosevelt administration; and in 1950 he was, in association with the brilliant and still-lamented Matthew Nowicki, the first planner of Chandigarh, thus giving to LeCorbusier, who replaced him, his first initiation into the principles of the Radburn plan. Since then, with Clarence Stein as consultant, Mayer became the designer of the new aluminum town, Kitimat, in British Columbia; and he is now designing Maumelle, a New Town of 60,000 people, in Alabama.

Mayer's long seasoning, his wide experience, his generous eagerness to learn from others and develop further their good ideas give his book still another distinction. Though alert to both technological improvement and fresh human developments, he is too well-grounded to be caught by the latest slogans or Twiggy models: nor does he reject vital ideas because, like the Garden City concept, they were formulated half-a-century ago. *The Urgent Future* is such a book as only a man ripe in years, yet still full of energy and youthful hope, could write, with no dogmas that need protection, no vanity that calls for petting, no ego that demands inflation. Mayer's face on the jacket, concentrated, deeply lined, grave, shows that his hopes and his enthusiasms have not been purchased lightly. His does not seek credit for fake "originality" by giving old ideas a new name: rather he appreciates how much excellent work has already been done, both in theory and in many actual planning experiments; and he builds on these valid precedents in projecting the large tasks that now loom before us.

The guiding idea of this book Mayer lays down at the beginning: Trend Is Not Destiny. And this idea itself is almost as important as his discriminating appraisals of past accomplishments in public housing and planning, or his critical exposure of the failures in national policy, as well as in private enterprise, that have already brought our cities so close to ruin. Ever since Patrick Geddes introduced the notion of "survey before planning," the need for adequate information, both historical and statistical, has become obvious to even the most routine administrators: but unfortunately those who confine themselves to the statistical method have forgotten the lesson of history: the future is never a mechanical extension of the past. Those who assume that a curve extrapolated from past observations must be followed into the future are in effect worshipping the past as if its achievements were immortal and its errors incorrigible.

Public authorities and private corporations that project new plans solely on the basis of existing trends merely follow the line of least resistance: they surrender in advance, on the assumption that opposition is futile, and that whether you have reason to like the result or not, you had better "go along with it." This is not merely bad planning philosophy: it is bad biology. Even the lowest organisms are able to survive only because they are organized for prompt feedback, which enables them to correct mistakes that would endanger their survival or curb their further development. Instead of waiting for the future to happen, an organism's whole system is planned, from birth to death, to achieve a future consonant with its own nature; and if this is not forthcoming, the organism escapes, retreats, shrivels, or dies. The advantage of knowing current trends, when they happen to be adverse to human development, is to be able to introduce new factors that will modify, halt, or reverse any particular threatening trend.

Mayer's repeated admonition, "Trend is not destiny," should be on the walls of every planning office. If it were taken seriously, most of the silly chatter about Megalopolis as the "new form of the city"—actually the formlessness of the non-city—would abruptly cease. D Costantine Doxiadis' inflation of Meg alopolis into "Ecumenopolis," a plane covering urbanoid mass with a termina population of 36 billion people, fortu nately carries the notion that the meg alopolitan "trend is destiny" to its fina pitch of absurdity. If Doxiadis had an familiarity with previous population sta tistics, he would have realized ho shaky his own picture of present popula tion growth actually is; for during th 1930's most competent statisticians in dicated that the population of all Wes ern countries except The Netherlan was approaching stability, and migh even diminish after 1980. Till 1950 in deed many population experts refuse to believe that the postwar populatio explosion, which reversed this tren would continue.

Had Doxiadis understood Mayer admonition he would have realized th even if his statistical data seemed m mentarily correct, they would not ind cate the necessity for embracing "Ec menopolis", however grim the prospe as manifest destiny: they would rath call for massive efforts to control th birth-rate, by many new measures b sides those already being tried. If th course were not successful, the desirab pattern of population would not be th of further congestion in continuous c nurbations: rather food needs would d mand the widest scattering in agricultur villages, with every possible square fo of land devoted to intensive cultivatio

To Mayer's original statement, the one may accordingly add two corollarie "The probable is not necessarily inev table: so don't panic and blindly subm to probability." And the second is: "Th possible is not impossible." Therefo plan boldly and imaginatively, in ter of future potentialities, not just past n cessities; and never accept any probabi ties as final until you have examined po sible alternatives and have made sure th better choices are not—in the long r if not immediately—available. If Ma er's book did nothing else than to d molish the notion that past statisti

rends provide the only safe grounds for uture projections, it would be doing a alutary job toward reorganizing current ractices in urbanization.

I shall not attempt to summarize Mayer's critical exposition of this crisis. y now everyone has become aware of through the breakdowns and disor- anizations and impoverishments that ave become commonplaces in the rou- nes of our "great" and "affluent" Ameri- an cities—the blocked traffic, the oisoned air, the polluted waters, the nbalanced budgets, the shortage of ositive urban benefits, the endless daily ustrations, the crimes, delinquencies, ots: in short, the creeping human pa- lysis that accompanies the big city's owy dynamism.

But Mayer happily sees that our esent difficulties are also opportuni- es; for at last, perhaps, they have jarred whole people sufficiently to make ac- on on a heroic scale possible: action, ayer hopes, sufficient to reverse the assive trend that, with glacier-grinding lentlessness and river-flowing swiftness s been wiping out the city as a recog- zable human habitat. If this awakening es not lead to action, then the end is sight: hence Mayer's sense of urgency.

"This study," Mayer emphasizes, "is *action* book, a book to lay the factual sis for conclusions and decisions *and* lead to those overwhelming moral im- lses which alone can infuse into con- usions and decisions the necessary con- tion for sustained dynamic action." hile Mayer's work does not, like so uch current foundation-supported re- arch, postpone all thought of action in vor of stepping up the urban research dustry, neither is it, like current pro- ams for model cities and strictly mid- e-class "New Towns", an effort to avoid aling with economic realities by plas- ing glamorous Madison Avenue words er a program which sedulously avoids allenging the motives and aims that w govern urban building.

Mayer is not blind to the fact that famous public housing and urban re- wal act of 1949, which was supposed to eliminate metropolitan slums and re- house their inhabitants decently, actu- ally ejected the slum dwellers from their miserable quarters without rehousing more than a small proportion of them, while it placed the state's special power of eminent domain at the disposal of real-estate operators, and enabled them to build luxury apartments on the va- cated and cleared properties at a juicy profit, with the aid of a special govern- ment subsidy originally meant to make public housing possible at lower than slum densities.

In short, "urban renewal," up to now, has been mainly a deadfall to trap the helpless and the exploited, and a windfall for the private promoter and builder: a kind of inverted socialism for the benefit of millionaires. This indicates that our present plans for urban renewal, if they lack the "overwhelming moral impulse" that Albert Mayer attaches to them and seeks to call forth, may likewise be undermined and subverted.

In his critical analysis of current trends and programs, Mayer puts a diag- nostic finger on every suspect factor— upon our current national and state high- way programs, with their short-sighted emphasis on the cost-benefit appraisal, which makes even more unbalanced the present clots and flows of population; upon futile traffic gimmicks which en- sure further traffic jams: upon architec- tural giantism as an end in itself, as a status symbol, with the tendency of all expanding metropolitan institutions— the hospitals, the universities, the mu- seums, no less than big industrial cor- porations—to monstrous concentration on a single site: upon the practice of the speculative private enterpriser, with the connivance in the past of the FHA, to convert farm land into random suburban parcels, emptying out the central city and spoiling accessible recreation spaces, while replacing valuable market gardens and orchards with dreary acres of asphalt and concrete.

On all these matters Mayer's criti- cism is helpful because it is also discrim- inating. While he rejects single-factor an- alysis and one-shot remedies, he realizes, out of his own practical experience, how difficult it is for the busy planner or ad- ministrator to make a holistic approach to what seems, at the moment, a piece- meal problem, capable of a piecemeal solution.

But Mayer does not lose sight of the basic condition for effective city and re- gional planning: the fact that the land "is going to have to be considered and regulated like a public utility and that the policy on land in certain locations will have to go even further, to embrace large-scale purchases and continuing ownership by the government." This—in diametric contrast to the legalized mal- feasance of public funds that took place under the Urban Renewal Act—is the indispensable basis for any adequate pro- gram for urban building and regional de- velopment, whether under private or public enterprise, as Ebenezer Howard recognized in his original specifications for the Garden City. And if I have any serious criticism to make of Mayer's pres- entation of the Urgent Future, it is his failure to underline this essential condi- tion as frequently as he has underlined his thesis that trend is not destiny.

Without his detailed appraisal of both the real accomplishments and the arresting defects of the housing and planning that has been done during the last generation, Mayer's program for action would lack both its clearly defined goals and the concrete proposals he makes for achieving them. Because his emphasis is on action, this work is not merely an able treatise on contemporary city planning, but a vital contribution to the politics of regional development.

The crux of Mayer's work is a series of interrelated proposals for mastering those present trends which are inimical to good urban development, and for opening up a new period of constructive city building. This involves four closely linked measures.

First: the building of new cities of moderate size, on a large scale, as an im- perative preliminary to any loosening up of metropolitan congestion and effecting

"... the current American belief that such new cities ... can be built without heav government aid is an illusion ..."

a genuine urban renewal. Here the brilliant success of the New Towns policy in England, signalized a few years ago by a canny attempt at a financial "take-over" of the oldest of the new towns, Letchworth, serves as a standard both of desirability and practicability, as do parallel developments in Sweden. But the current American belief that such new cities, sufficiently diversified to hold a mixed population with mixed incomes, with jobs near at hand, can be built without heavy government aid, is an illusion: since the most successful of such private enterprises, the Levittowns, are only monotonous suburban housing enclaves, not diversified cities.

Along with this process of urban colonization on a regional scale Mayer proposes the immediate decentralization of overexpanded and over-localized institutions within the metropolis. This has been going on in a spotty, spontaneous way since the 1930's, beginning with the decentralization of the big department stores and banks. But it has still to be planned on a larger scale, and deliberately coordinated by the municipality, in order to abate the counter-tendency to over-centralization and giantism. The multiplying of the number of in-city centers, each with its own complex of factories, offices, shops, and residential developments, would do more to permanently break the traffic paralysis of the big city than all the billions so far recklessly poured into expressways, double-decked streets, subways, and parking garages. This kind of internal decentralization of the big city was suggested in my lengthy criticism of the Plan of London County in 1945; and I am happy to find that Mayer makes it an essential feature of his program.

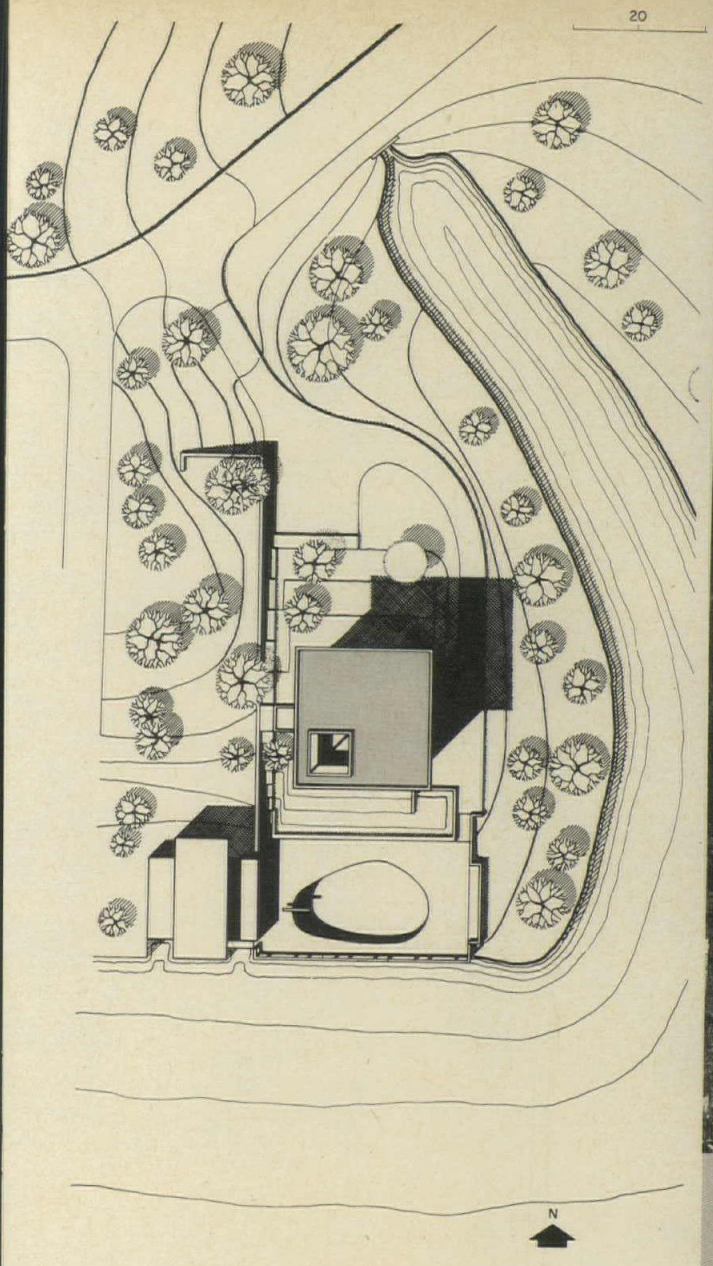
The second step is the re-structuring of the whole metropolitan area, by breaking away from the notion that planning must follow the trends that lead to the random spread of Megalopolis. Mayer points out that in Holland planners observed that the ring of cities from Rotterdam to Haarlem and Amsterdam was coalescing into a Randstad: a single urban smudge. Instead of backing this movement further, the planners decided to counteract it by deliberately steering industries and population into other parts of the country, thereby maintaining open spaces between the cities, and establishing a green matrix for agriculture at the center of the Randstad.

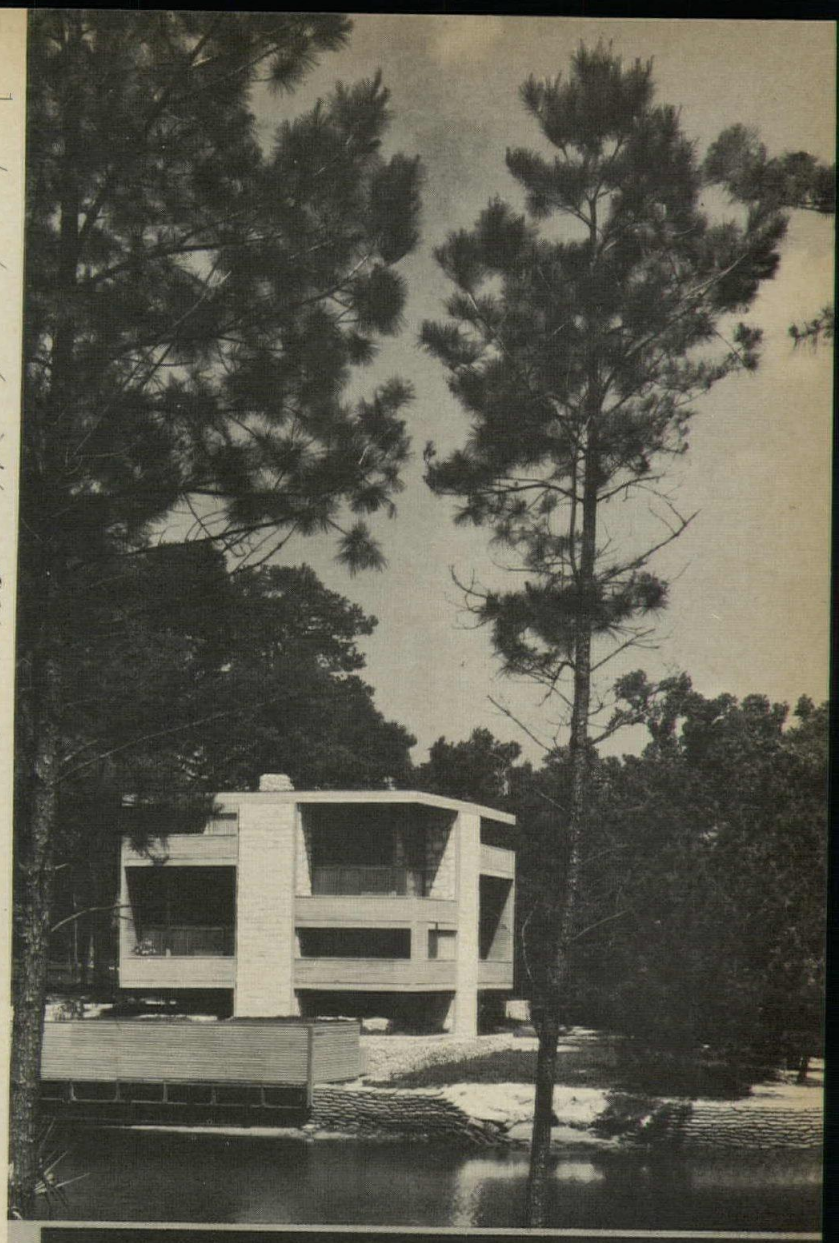
The third step demands the creation of adequate organs for federated metropolitan government. This is not a simple task, as Mayer realizes, because it involves not only giving power to a new type of centralized public authority, but also rebuilding local units, from the smallest neighborhood cell upward, so that the citizens will be organized for direct participation and active responsibility. The more complex urban society becomes, the less can it be run by administrative experts, with one-way communication and remote control, and the more necessary it is to have constant two-way inter-communication and local action, to offset the ruthlessness and insolence of public officials, too often unwilling to share power or authority with those they supposedly serve.

Admittedly such local action has so far chalked up mostly petty, preventive gains: now it saves a valuable tree, now it keeps a playground from being turned into a car-park, or again it saves a bigger area like Washington Square from violation and misuse. But if the boasted leisure of our technologically oriented society is worth anything, it is for spending time on local political efforts, as the Athenian democracy did in its heydey. Without legally instituted popular participation—such as has been proposed for the decentralization of New York City's school system—the moral urgency and vigilant local initiative that Mayer's urban program requires will be lacking.

The fourth step, finally, is the establishment of a regional scale, to take the place of the metropolitan scale and therewith the restructuring of both old and new regions so as to effect a better balance between human needs and regional resources. Mayer recognizes that though the advantages of the metropolis are indisputable, they do not demand an indefinite increase in size, or an indef nite expansion in area. He sees that, c the contrary, a moderate-size city of 500 000 people, like Zurich, a humane ar beautiful center, has—if it does not kee on expanding!—most of the advantag of metropolitan culture without the di abilities of overcrowding and ove spread, which would seriously lesse these advantages. Mayer recognizes fu ther that there are other incipient gala ies of American cities, like the Raleig Durham-Chapel Hill group, that migh with adroit organization and plannin turn into regional cities, with all the cor bined advantages of a larger metropo tan population, with ample financial ar cultural resources, without the costly di abilities of congestion and giantism. Ar finally, Mayer points out, there are o areas like Appalachia, with now dereli industries, but possessing many positi geographic advantages, which might rehabilitated, not by inconsecutive piec meal improvements, still less by rando highway building, as now projected, b by full-scale regional plans that wou conserve the land and utilize its sources, interweave industries in a ne population pattern, and multiply the c tural and social opportunities for bo the existing population and a larger or

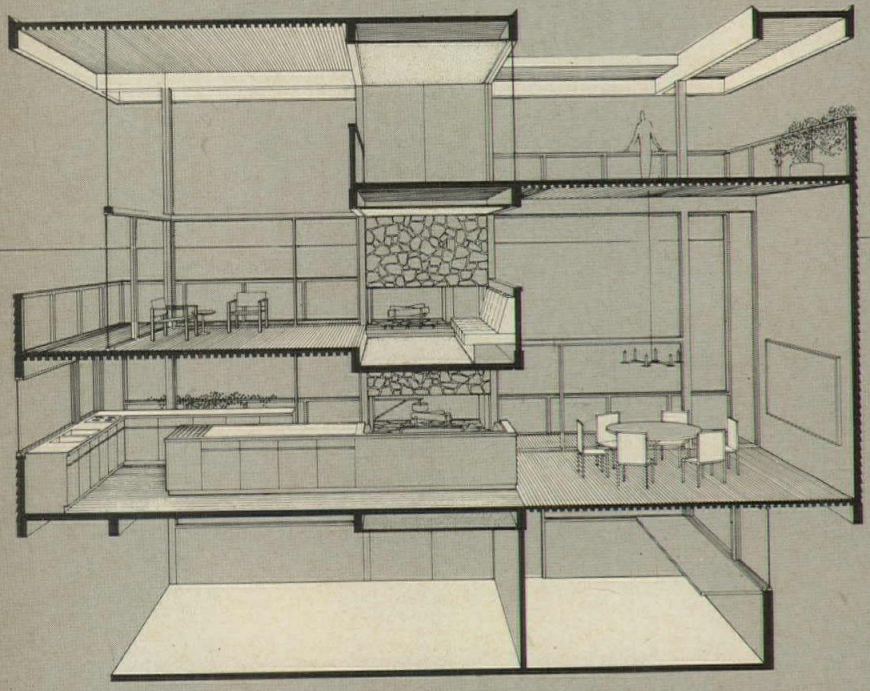
There is no part of this program th is entirely new, no part that has not some degree been tested. Mayer's spec contribution has been to assemble t best planning thought of the last half ce tury, to evaluate current experience a diagnose current weaknesses, to bri forward alternatives, and to show wha still lacking if we are to overcome urb disintegration. Finally he demonstrat by well-chosen illustrations and d grams, how attractive our urban and gional environment could become, if engaged collectively to make use of resources now at our disposal. Whet this book will actually have the impac deserves to have will depend, in p upon how many Albert Mayers are av able and how deeply they can be arou and committed to cooperative politi and economic effort on the largest sc



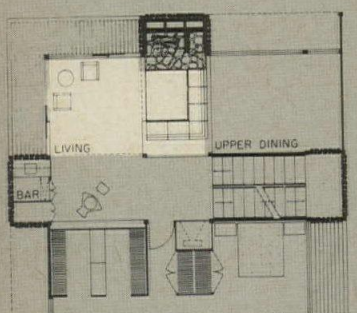


A cube-shaped house with expanded spaces

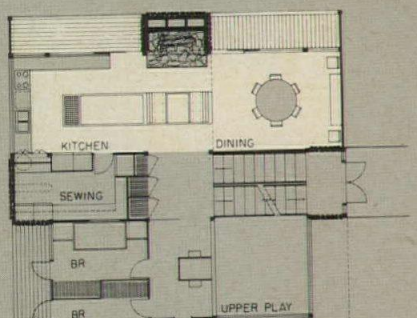
For a woodland site on a small Florida peninsula, William Morgan designed a cube-shaped house whose height permits a sweeping river view through the surrounding trees, and whose small ground area preserves the existing live-oak woods intact. On closer inspection, and in the following pages, this familiar shape, solidly anchored to its site, opens up into new spaces, expanded and unexpected.



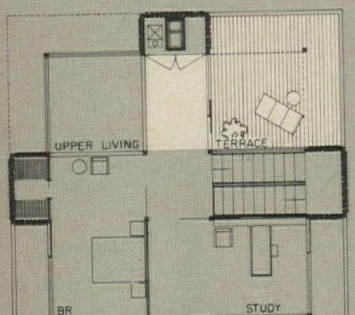
Varied floor levels, spirally arranged in a vigorous interplay of interior spaces, are actually geared to strategic views and controlled by the logic of a four-story grid plan. Rooms in section appear in white on plans.



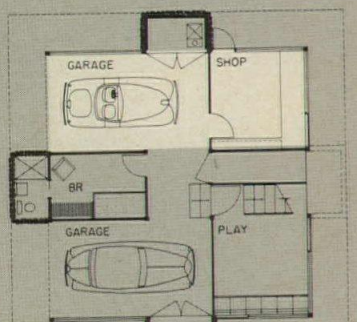
THIRD FLOOR



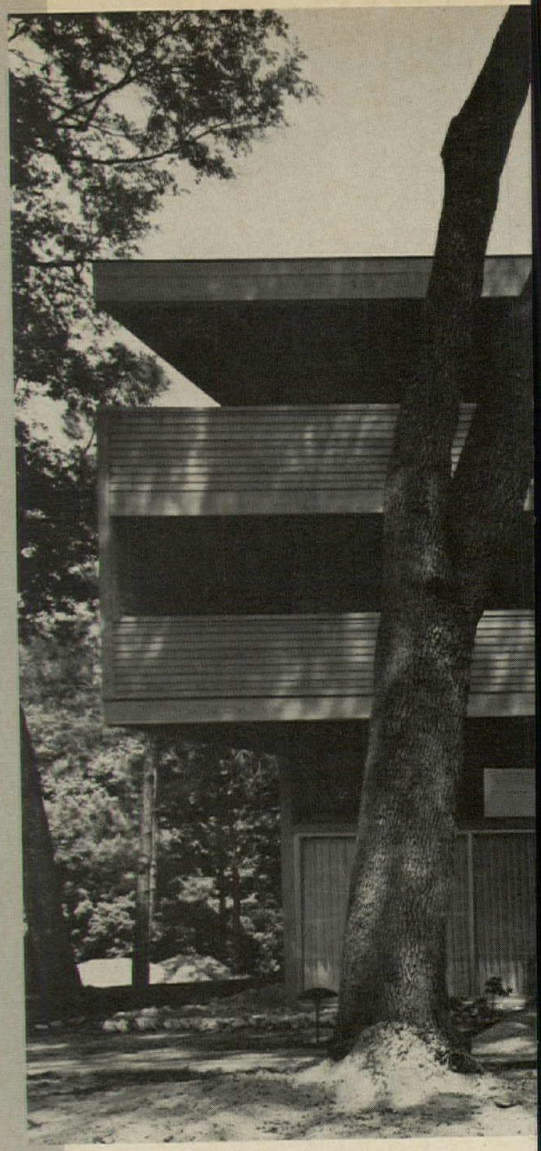
SECOND FLOOR



FOURTH FLOOR



FIRST FLOOR



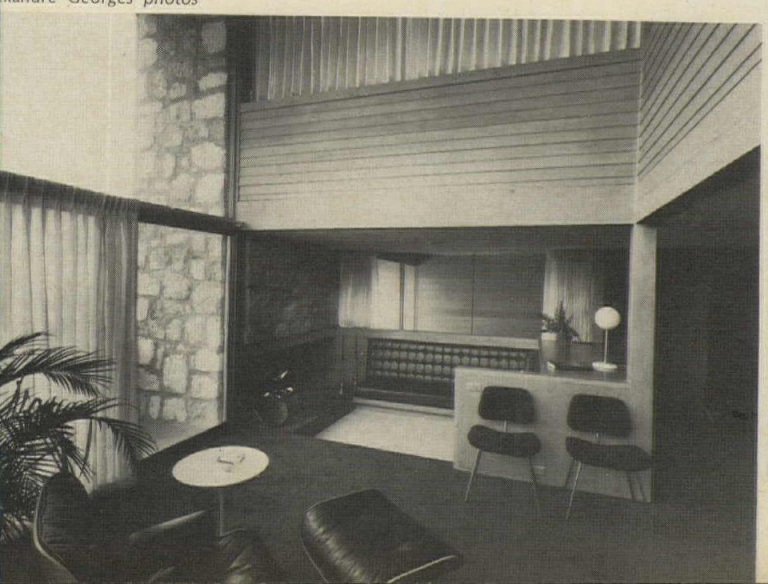
William Morgan has treated this hou in Jacksonville, Florida in a delig fully unorthodox manner. Two-sto spaces are spiralled within the cube. T result is an exciting interplay to be c covered behind a placid, compact terior.

The key to this house's intrigui contrast of open, varied space and fining shape—and to its structure—the four stone-faced columns. Alrea familiar elements in Morgan's work, th are used with great sophistication. structural supports they not only perm variations in ceiling height (from 6 fe 8 inches to 14 feet 7 inches) and mu open living area (4,060 square feet four levels); but, doubling as serv towers, they concentrate fireplace, sta air conditioning and plumbing into n vertical packages, leaving the living ar uncluttered. Utility chases which conn the structural columns are hidden un

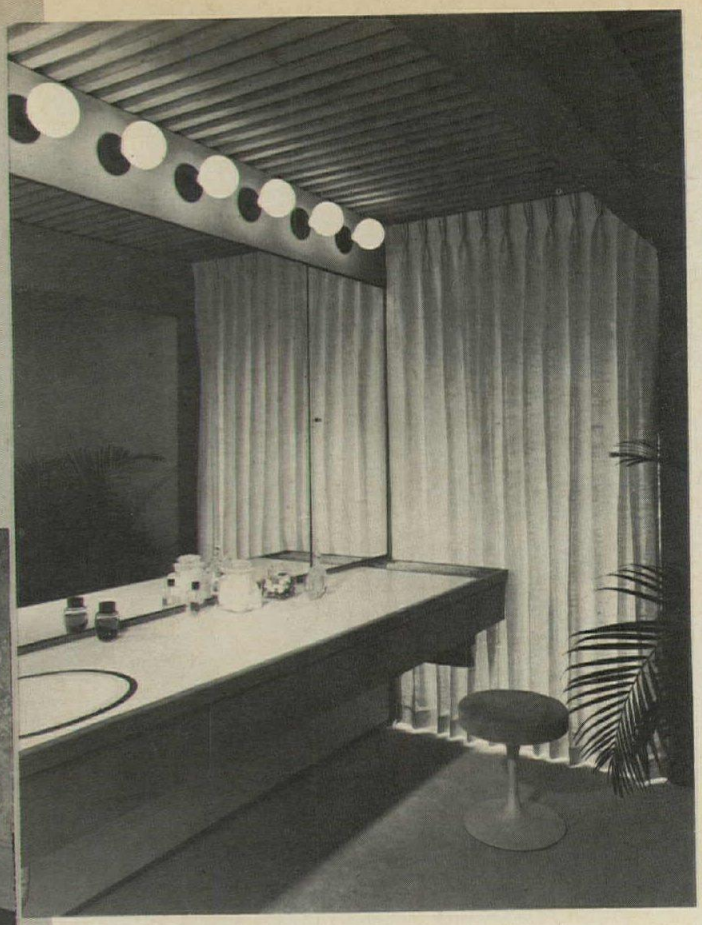
The staggered levels within are expressed as patterns on the exterior. These varied facades are secured by the firm verticals of the structural towers and by the strong line of the roof. Recessed glass panels and broad overhangs that protect against direct sunlight form bold patterns of light and dense shadow. South and east from the living room, and south from the dining room, are the main glass areas, which open two full stories to the river basin.

A low-ceilinged inglenook (below) sets off the living room's two-story height, while to the rear a balcony reveals the second great space—of the dining room—beyond.

exandre Georges photos



The dressing room of the Hatcher house (right) is located on the closed-off north side, as are other private and quiet areas (guest and master bedrooms, study). Careful lighting design emphasizes the boldly detailed, exposed beams and floor-ceiling deck. Dining room and kitchen (below left), actually form a single expanse; their areas are defined by a change in ceiling height.



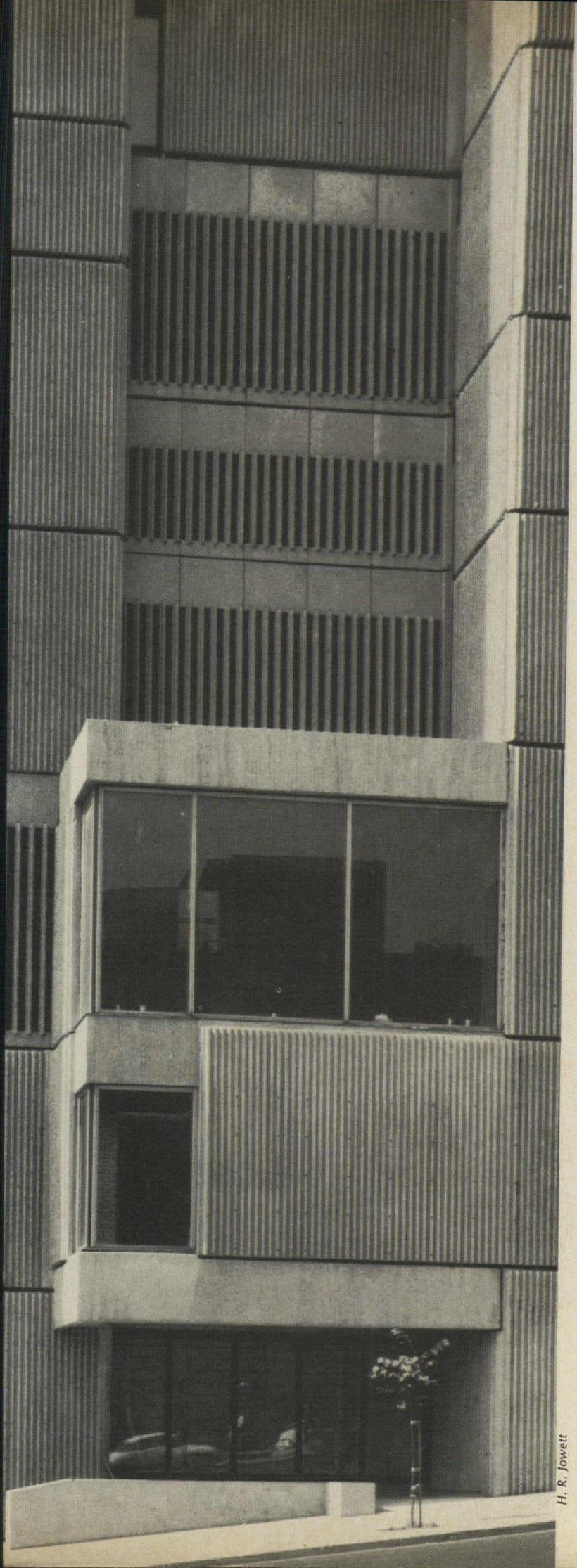
dropped ceilings. The 6- by 12-inch beams between the four columns are supported by 6- by 6-inch posts.

Exposed structural members and natural-finished materials add to the interior clarity and sense of continuity between outside and inside. Floor decking, of 2-inch by 4-inch edge grain pine alternating with 2-inch by 3-inch spacers, is exposed below, forming finished ceilings. Wood siding of clear cypress, dressed and matched in a narrow horizontal board pattern, blends warmly with the facing stone of light brown coquina rock, locally quarried. Matching siding is used for the low boathouse and relates this outlying building to the main block of the house.

The house is sparingly furnished to emphasize the sweeping views, the varied spaces, the natural-finished cypress and pine-wood textures, and the clean de Stijl-like intersections of planes.

Designed for a family of four, the residence cost $105,000, including pool, boathouse and cabanas.

HATCHER RESIDENCE, Jacksonville, Florida. Owners: *Mr. and Mrs. William K. Hatcher;* architect: *William Morgan;* engineers: *Haley Keister;* contractor: *Ross Construction Co.*



H. R. Jowett

PLACE BONAVENTURE: A UNIQUE URBAN COMPLEX

Place Bonaventure, as most people who have been to Expo now know, is not what its name suggests—neither a public square with a monument in the center, nor a great plaza, serving as a platform for a typical arrangement of office towers, high-rise apartment buildings or great halls for the celebration of the arts. Place Bonaventure has no real plaza at all. One of the largest buildings in the world and relatively low in comparison to surrounding office and hotel towers, it is a dense monolith which almost completely covers its 6-acre site. As a building type it has no counterpart anywhere.

Designed by Montreal architects Affleck Desbarats Dimakopoulos Lebensold & Sise, this $80-million complex has been constructed primarily to provide space at many scales for the exhibition and sale of products, and supplementary space to shelter and feed those involved in viewing and buying. Its great showrooms serve the international businessman, and the shopping concourse accommodates the local worker on his way to the subway. Built on air rights above the Canadian National railroad tracks, the massive building is shaped by a complicated circulation network which accommodates underground truck routes, parking, a subway station, and sheltered pedestrian passageways, all of which link with the corresponding systems which are being developed as an integral part of Montreal's 200-acre urban core. The complexity of these interrelated functions constituted a major architectural challenge. As a prototype for the dense, multi-use urban complex of the future, Place Bonaventure's brilliant and unusual *parti* deserves careful study. —*Mildred F. Schmertz*

Place Bonaventure's lack of an actual *place*, and its dense monolithic shape can be explained by an analysis of the program requirements. The owners' essential demand was for the type of space which should be artificially lit. Merchandise displayed in exhibition and shopping areas is shown to best advantage under carefully controlled lighting conditions and daylight can be a positive handicap. The provision of vast interior spaces became a practical answer. Only the hotel, auxiliary office spaces for the display areas and principal public elevator lobbies required perimeter locations to provide daylight and views. This meant horizontal circulation had precedence over vertical circulation for eminently functional reasons. The vertical distance to be travelled by elevators was minimized as was the area of perimeter wall and windows. These fundamental considerations made the conventional tower plaza solution infeasible.

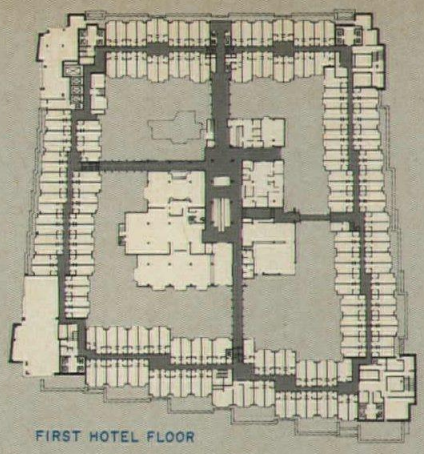
Public enjoyment of the little outdoor open space which the Place Bonaventure complex affords is limited to users of the restaurants which are centered in the roof-top hotel garden shown in the hotel level plan (top) or to future patrons of the small terrace cafe which is planned for the southern end of the west plaza shown in the shopping level plan (bottom). This plaza's principal purpose is to serve as an appropriately imposing drive-in entrance to the lower hotel lobby which is connected by express elevators to the main hotel lobby on the roof. The plaza also conceals parking facilities for about 1,000 cars.

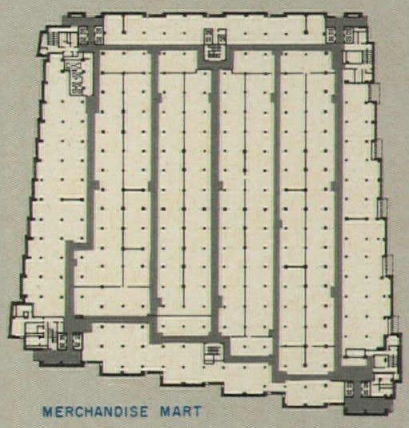
'Simultaneous' is better than 'sequential' collaboration

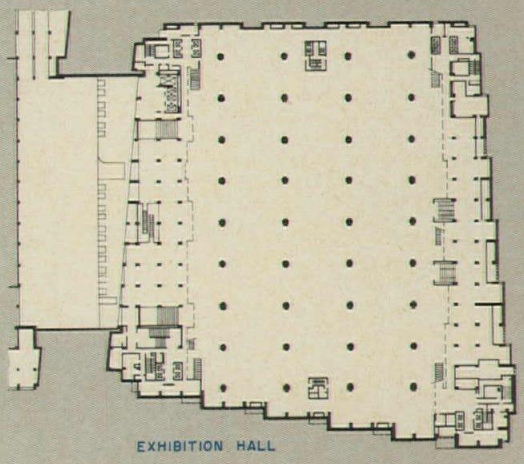
The finished complex—eminently practical, extremely economical and designed and built within a relatively brief period—was produced by a collaborative approach on the parts of the architect, owner and contractor which departs from normal architectural practice and which Ray Affleck, partner-in-charge of Bonaventure, finds effective and significant. He has given an account of the process in the July 1967 issue of Architecture Canada. Said Affleck: "The classical triumvirate of owner, architect and contractor functioning in linear sequence and in relative isolation from one another, was replaced by the simultaneous interaction of these entities. . . .

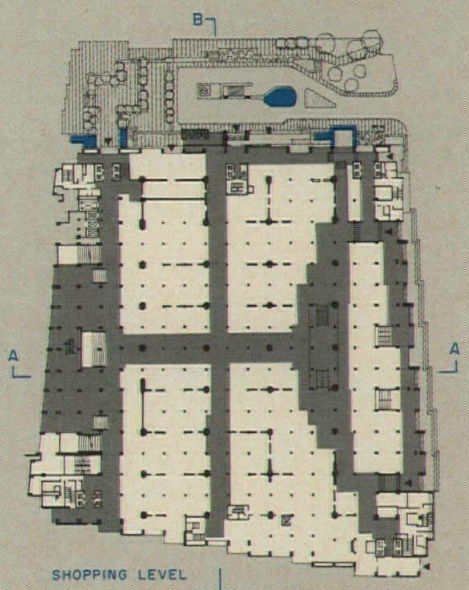
"It was found that, in the process of problem stating, problem solving and decision making, basic ideas came from any individual or any discipline. . . .

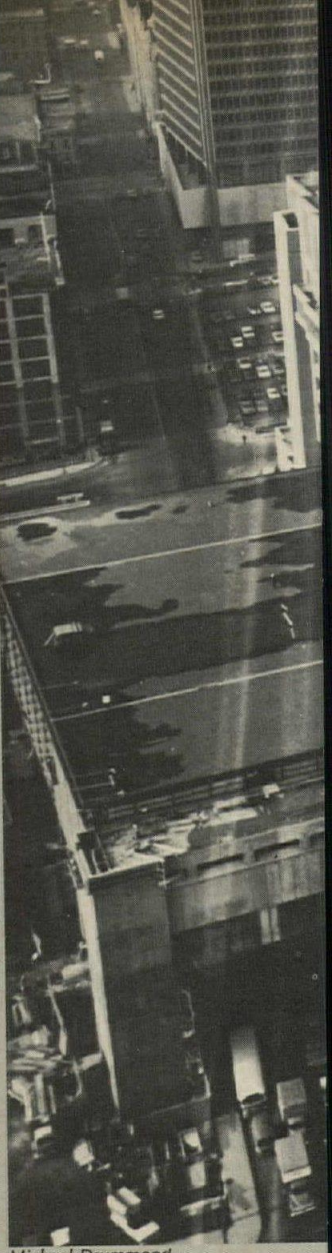
"Our experience indicates that one answer to the apparent inadequacies of the building industry is not the expansion of the architectural profession into

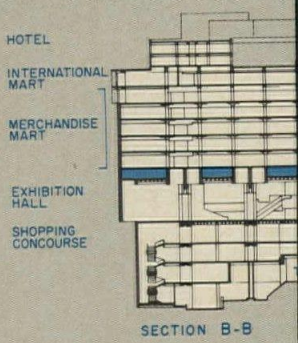

FIRST HOTEL FLOOR


MERCHANDISE MART

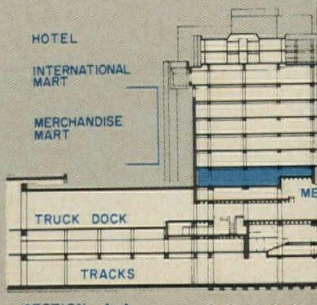

EXHIBITION HALL




Michael Drummond

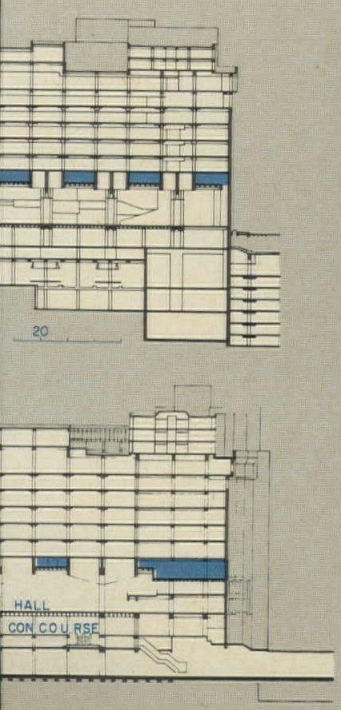


SECTION B-B



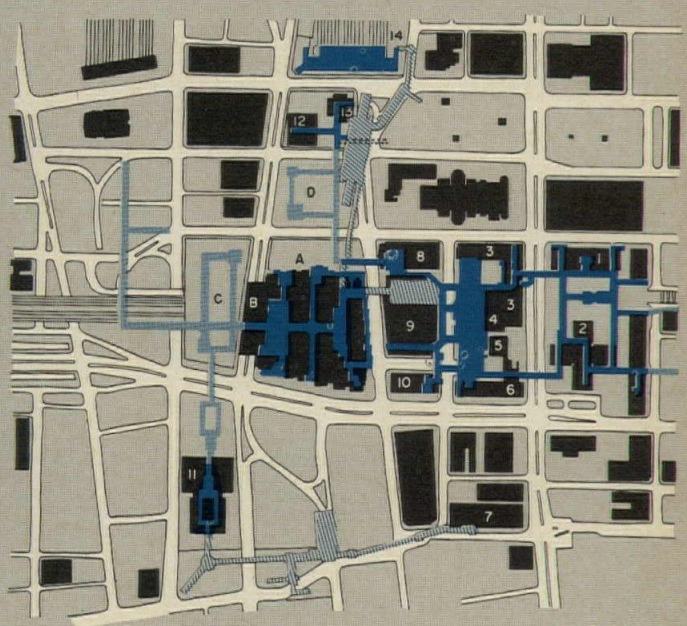
SECTION A-A

The organization of elements on a 6-acre site



Place Bonaventure's highest point is approximately 185 feet above the Canadian National tracks which run just below the boundary street to the north of the site and which bridge across the southern boundary street is shown in photo above. Directly above the tracks are two levels of retail shopping connected to an enclosed pedestrian system, a subway entrance and the city streets. Above this is a 40-ft-high exhibition and convention space. The hall's mechanical and electrical equipment space (shown in blue) is integrated with the structural system. Five floors which comprise 60 feet in total height provide about 1 million square feet of merchandise mart space, and 100,000 square feet of office space. Just below the 400-room rooftop hotel and garden are international showrooms and hotel service and function rooms.

The site plan at right shows Place Bonaventure's pedestrian passageways in relation to the existing (dark blue) and planned (light blue) pedestrian network for Central Montreal. These paths are located both above and below ground. Subway stations (diagonal stripe) are complete.



1 IBM Building
2 Place Ville Marie
3 Queen Elizabeth Hotel
4 CNR Central Station
5 Terminal Tower Building
6 Aviation Building
7 Chamber of Commerce Building
8 CNR Office Building
9 CNR Parking
10 Central Terminal Building
11 Place Victoria
12 Place du Canada Office Building
13 Le Chateau Champlain
14 CPR Windsor Station

A West Plaza, entrance to Hotel Bonaventure
B Loading dock
C Future south development
D Future west development

peripheral areas, but rather the professionalization of all the entities already involved in the game. . . . [If this were to occur] the architects' energies could be released from many side issues and channeled into the compelling issues of urban design as an art form."

An architecture for all the senses

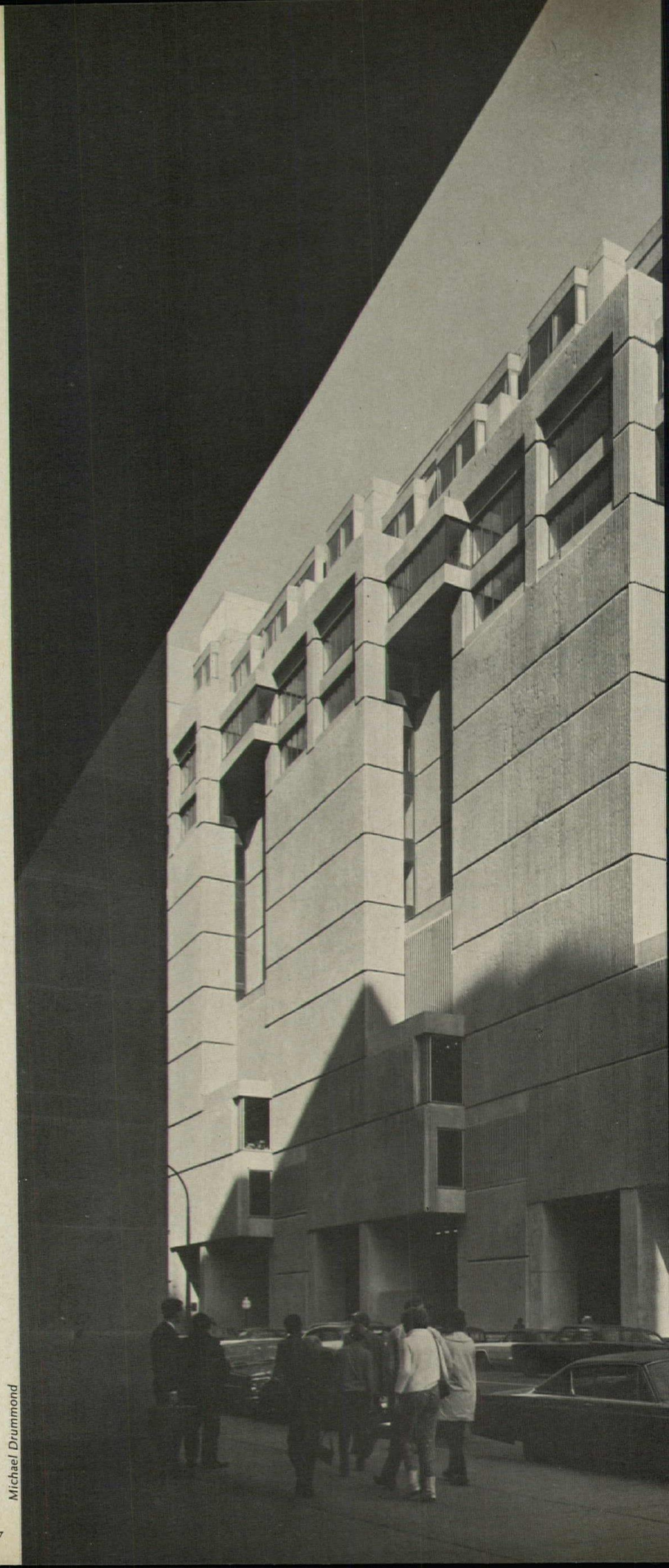
On the question of urban design as an art form, Affleck is equally explicit, and if he sounds a bit like his fellow Canadian Marshall McLuhan, it is because both men have gone over this ground together. Affleck continues: "An attempt was made in the design of Place Bonaventure to develop an architecture based on patterns of human behavior rather than on the tenets of normal composition which have, generally speaking, held sway in our profession since the Renaissance. The general notion can be expressed in a variety of ways: an architecture oriented to total experience, involving all the senses, (not merely the visual) and involving movement as a primary activity—rather than an architecture related primarily to static objects to be 'looked at'; an architecture of participation, where form is understood as process rather than object; an architecture related to the discovery of patterns, rather than the imposition of patterns. . . .

"[At Place Bonaventure] the architecture of the internal streets and places became a major field for the direct application of these ideas, as did the creation of the special 'fun-environment' for the Hotel. In retrospect, I would say that the environmental barrier (facade) was possibly the most difficult element to cope with—maybe because of the weight of historical baggage that we still carry with us in this area of expression."

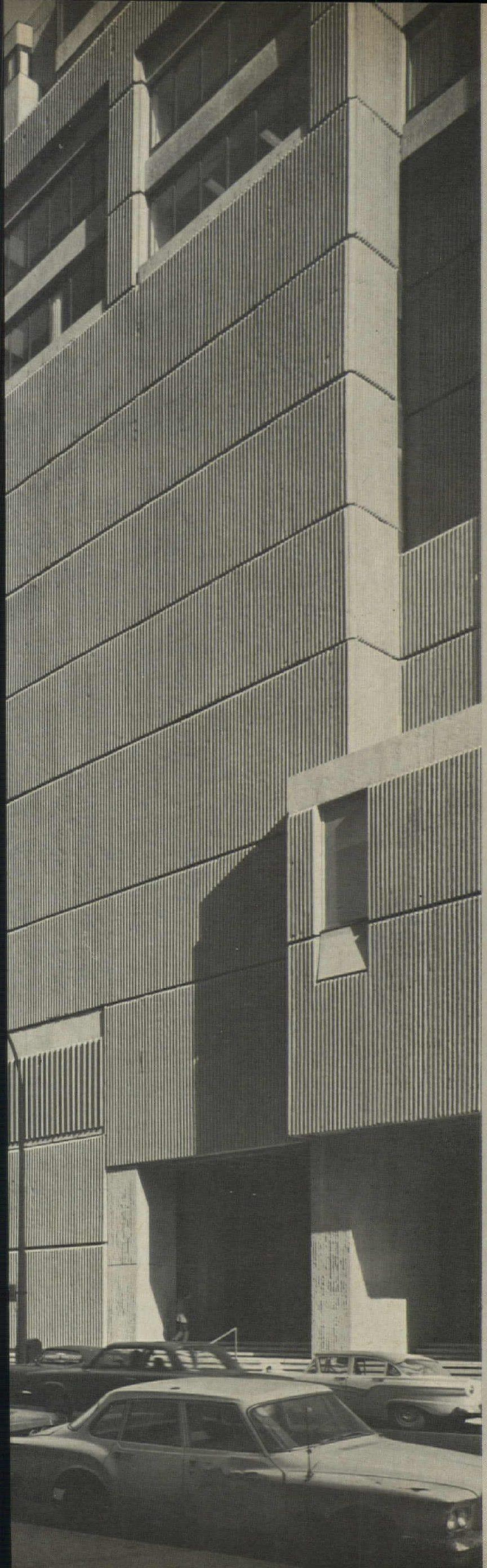
Finding a form and scale for the environmental barrier

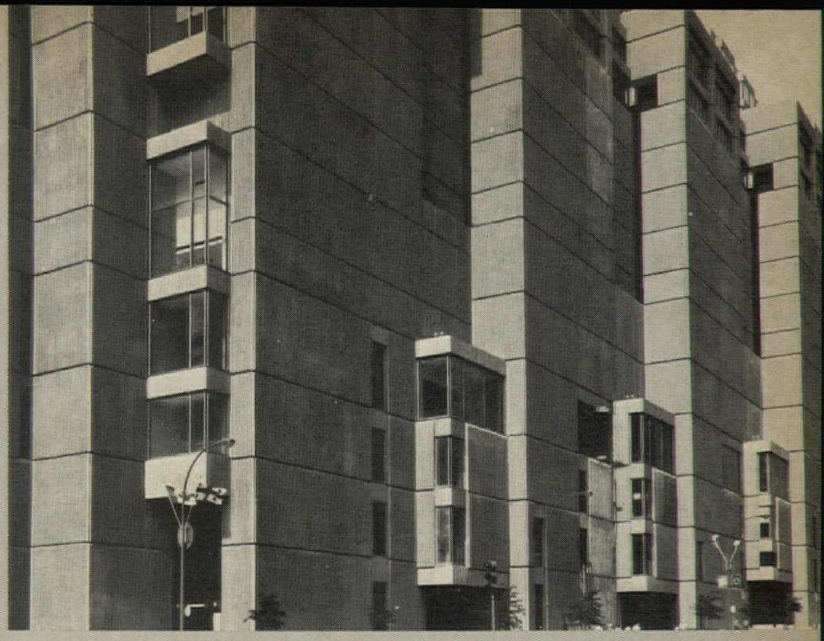
Place Bonaventure's architects, in designing the facade of their monolith, did not have to delve too far in the past for "historical baggage".

The greater part of it was ready to be hoisted aboard as recently as the fall of 1963 when Paul Rudolph's Yale Art and Architecture Building first opened its doors. Rudolph's highly influential structure carries some historical baggage of its own to be sure—no good building would yet dare be without it—but this baggage within baggage merely increases the load which Affleck deplores. The Art and Architecture Building is a small structure compared to Place Bonaventure but its bold, vigorous concrete forms do provide a key to the



Michael Drummond

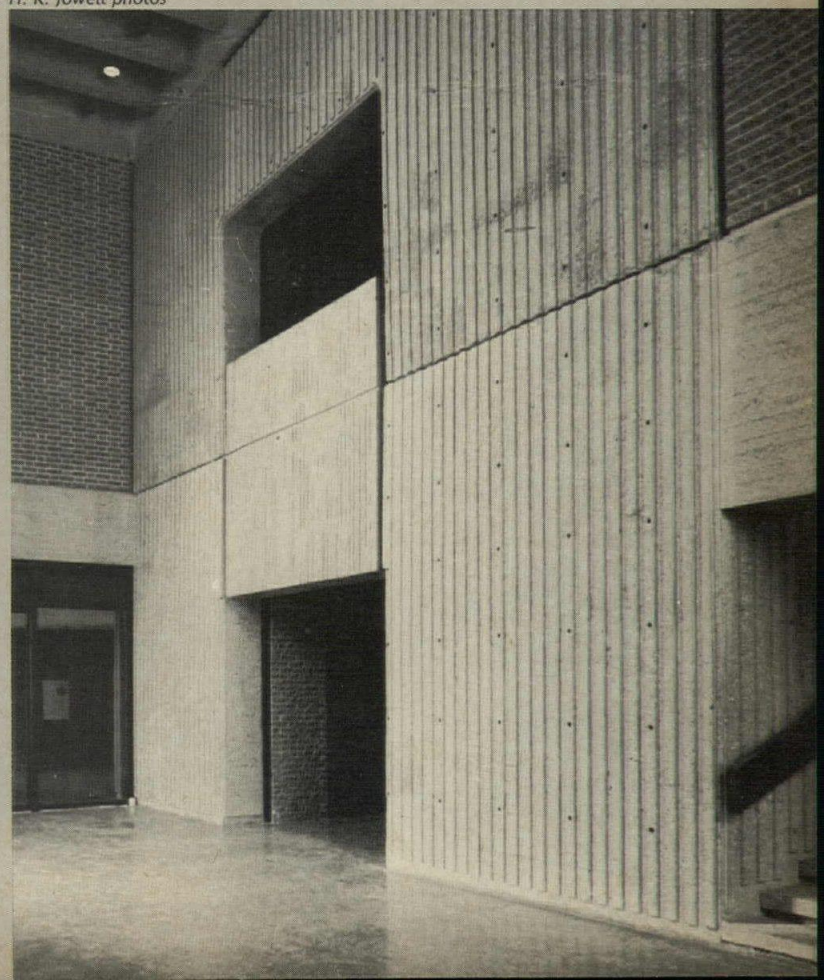




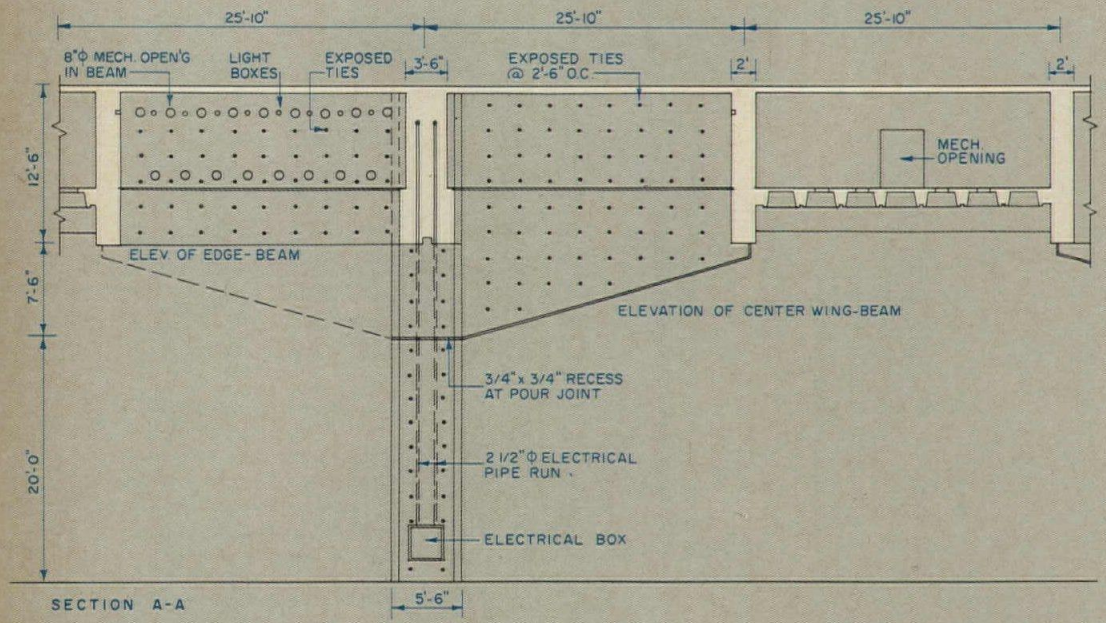
A search for legibility

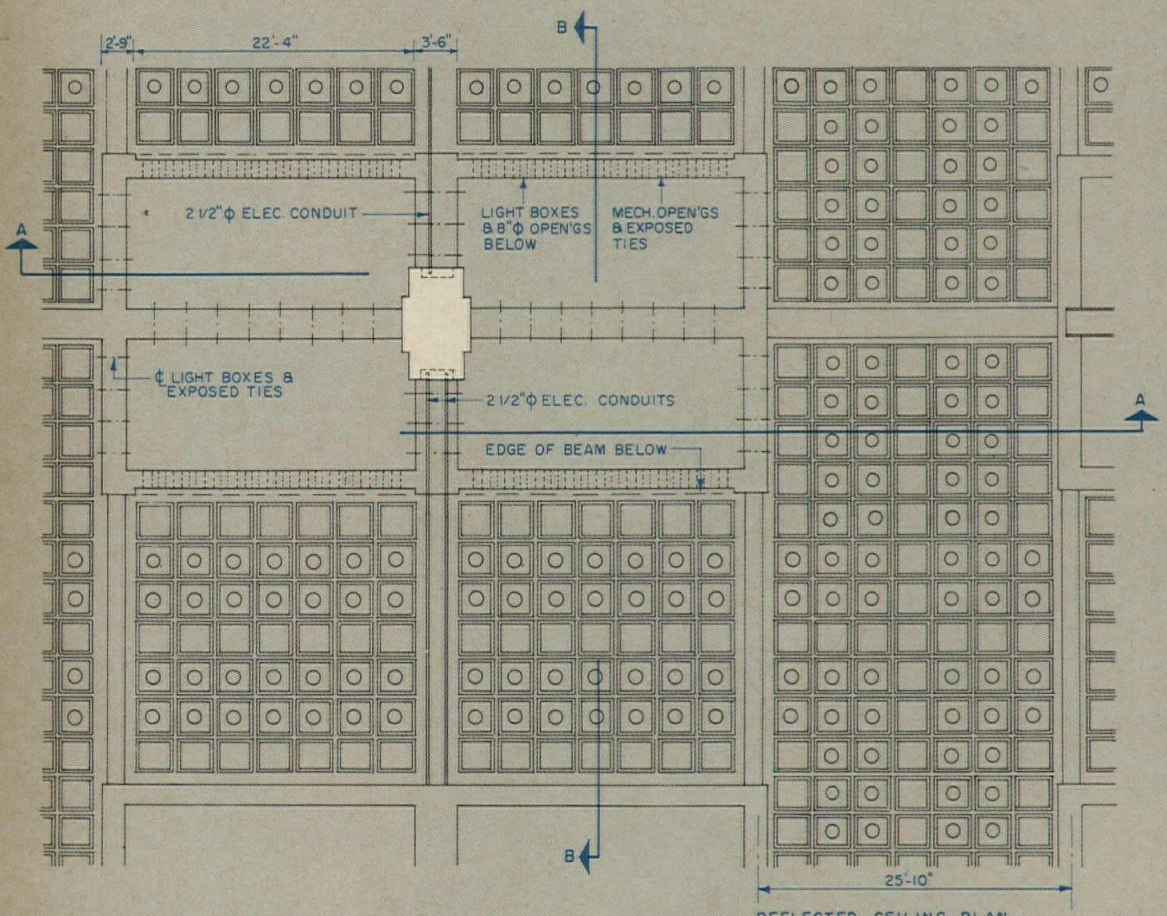
Place Bonaventure has a very low ratio of perimeter wall to functioning space, and a number of separate elements which should where possible be expressed on the exterior. The photograph (left) is of the north facade and shows (from bottom to top) the arcade at the shopping level; air intakes for the mechanical ducts and windows for the small office spaces located below and on the mezzanine of the exhibition hall; the windowless perimeters of the artificially lit exhibition spaces which admit light only at inset corners; and at the top, two office levels crowned by three stories of hotel rooms. The photograph (above) is of the east facade as it turns the south corner. The corridor below is handled as a vertical space.

H. R. Jowett photos



The exhibition hall: an integrated system

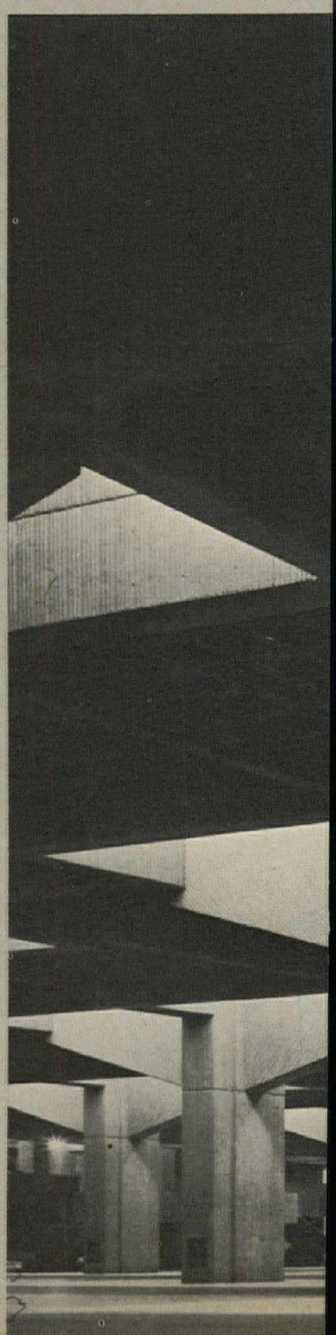




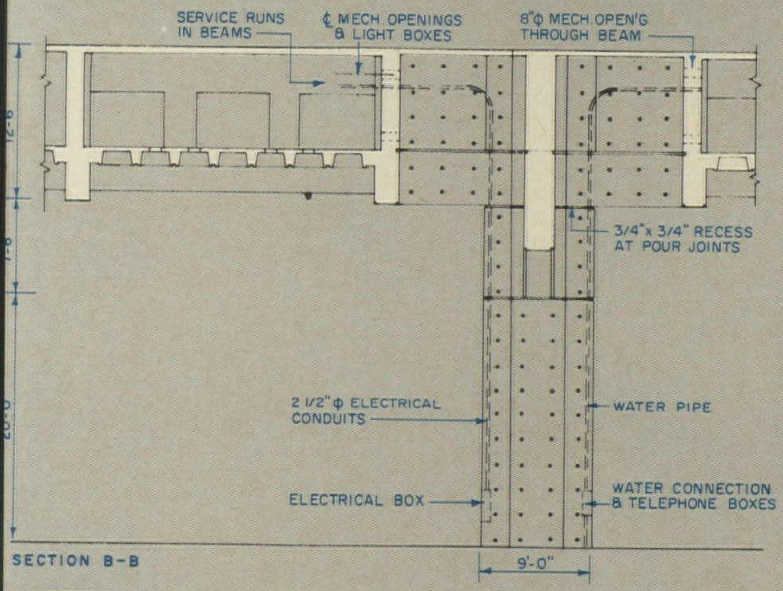
In Place Bonaventure's Concordi Hall the architectural, structural, me chanical and electrical systems ar completely integrated.

The structural problem was difficult one: to provide a large fre open space with relatively few struc tural supports to carry the eigh floors of the merchandise mart an hotel above. Economy and functio indicated that the mart and hote structure be based upon a 25-foo square grid. In order to provide th long spans and few columns re quired in the hall, this upper struc ture had to be transferred to a gri of 75 feet by 50 feet through th enormous concrete truss and tre structure.

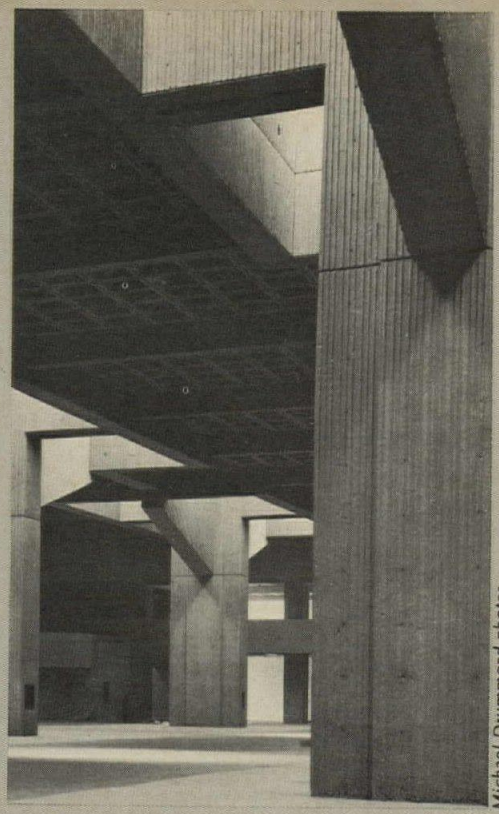
The two-directional concret truss is the depth of a complete floo and provides completely accessibl electrical raceways, full height ca walks for service personnel, and complete distribution system fo air-conditioning supply and exhaus The concrete grid floor of this trus space is perforated with circula holes on a regular pattern to pro vide complete flexibility for exhib tion lighting, as well as the poss bility of dropping other service such as water, compressed air, ele



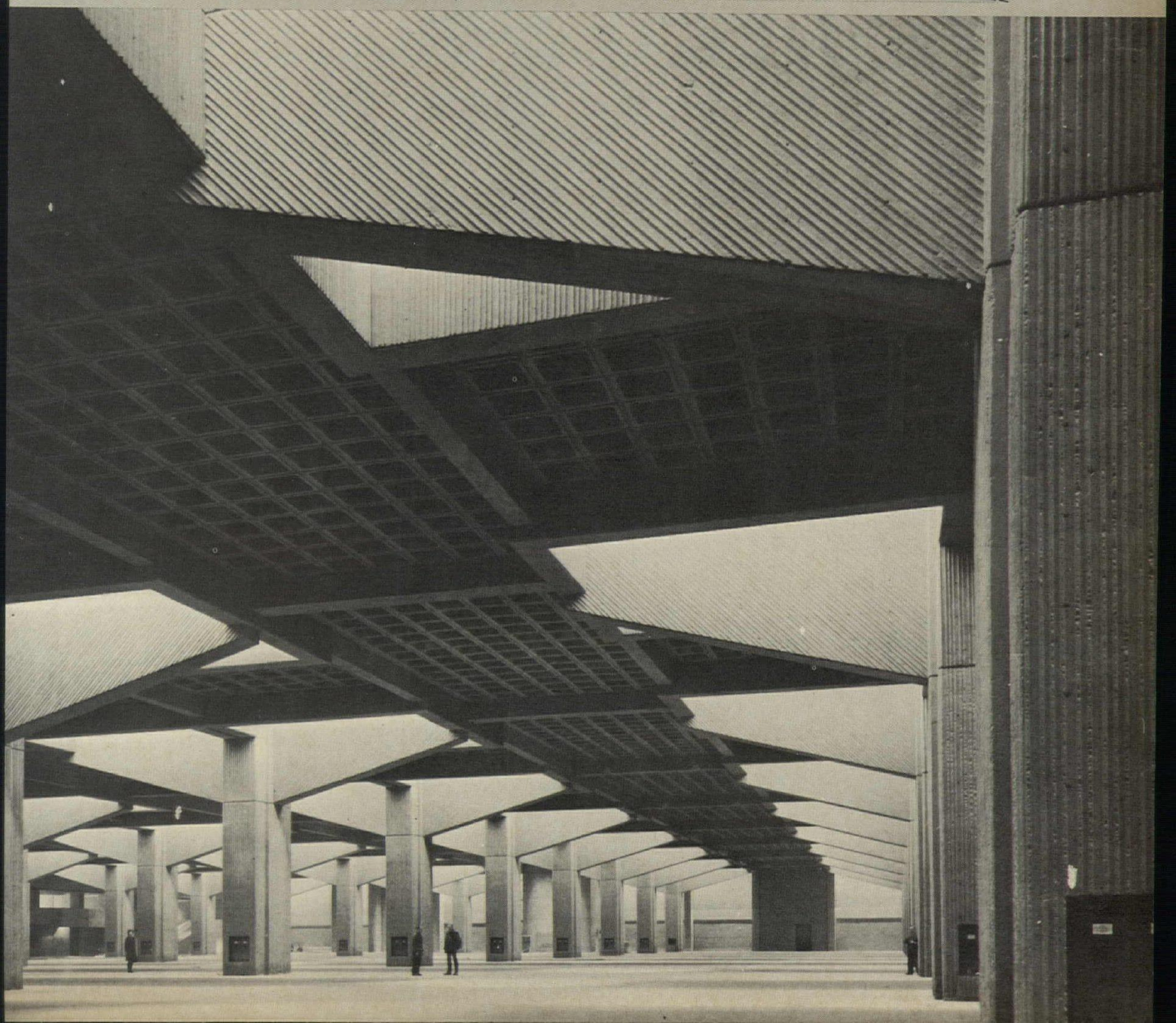
trical power, etc., as might be required for exhibition purposes. The high spaces surrounding the tree supports contain general illumination for the hall. The forms that were developed out of this synthesis were constructed entirely in poured-in-place concrete with the principal spans post-tensioned. The simple wood plank concrete formwork was itself carefully designed to provide the pattern now apparent on all the exposed concrete members. After stripping the forms, the concrete was sandblasted in order to expose the warm colored aggregate. This strong concrete expression makes a fine background for displays.



SECTION B-B



Michael Drummond photos



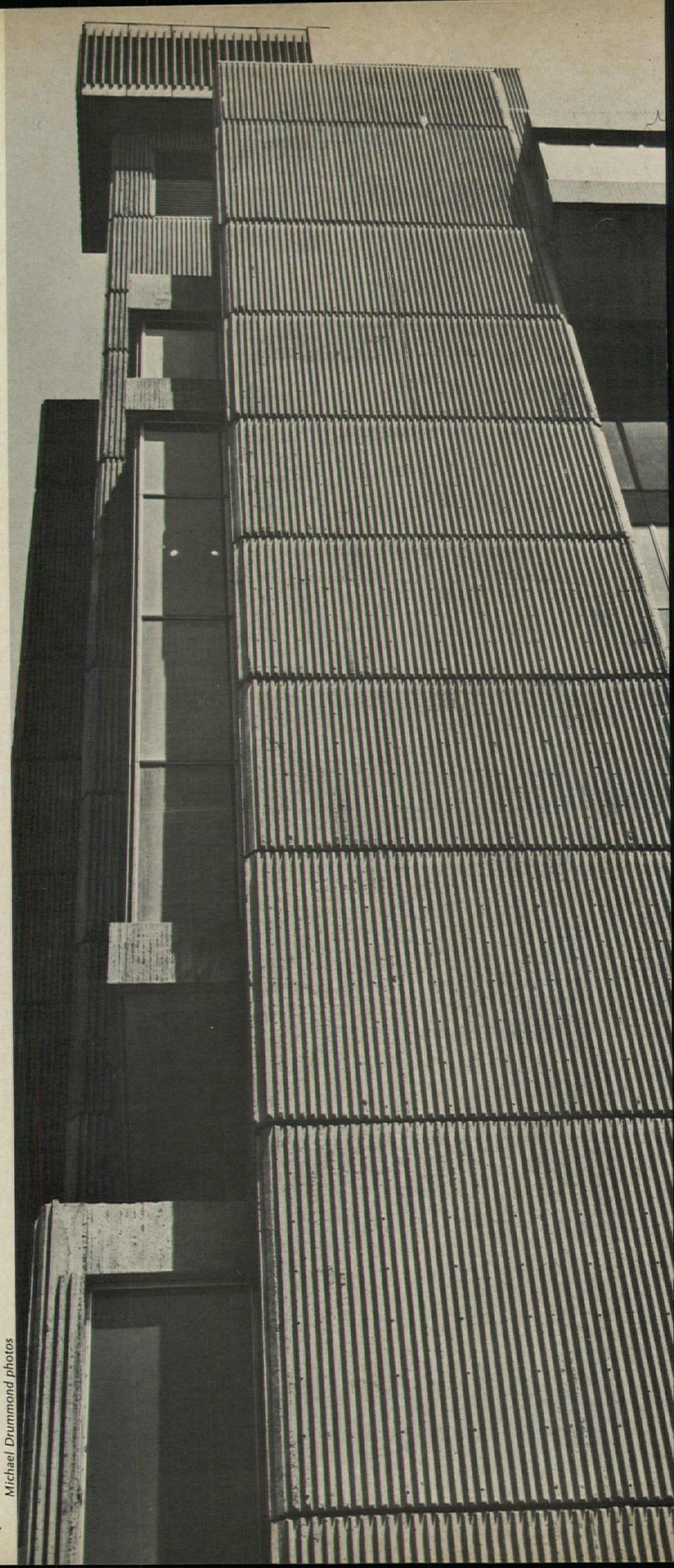
proper use of the material for projects many times its size.

In the process of adaptation to an immense complex, however, these shapes must be brought up to scale, not only for esthetic effect but to make the individual elements more legible. Legibility is a problem at Place Bonaventure. Since all the elements which make up the complex are enclosed within a simple environmental barrier, rather than expressed as isolated forms, different functions and spaces are difficult to recognize and find from the exterior (this problem is solved quite well inside where space grows larger and thrusts upward to define major points within the complex). Rudolph has established several precedents for the elaboration of exterior forms which might have increased definition and comprehensibility in Place Bonaventure. The massing at each of the four corners should have been stronger for example.

Rudolph's building, as every disciple knows, *turns a corner*. The roof top hotel could have made a great cornice —consider the Kallmann, McKinnell and Knowles design for Boston City Hall. Place Bonaventure's architects might have cantilevered some of the hotel terraces, pulled back the rest, permitted the planting to spill over and separated each little suite of hotel rooms from its neighbor with a pair of huge fins. Perhaps it would have cost too much.

In any case Affleck and his collaborators clearly weren't interested. Since in Place Bonaventure they have created an unprecedented contemporary urban building type, a cornice may have rightly seemed to be more historical baggage than they were willing to carry.

PLACE BONAVENTURE, Montreal, Canada. Owner: *Place Bonaventure Inc.;* developer: *Concordia Estates Development Company;* hotel lease owner: *Hotel Bonaventure Inc.;* hotel operating company: *Western International Hotels Ltd.* Architects: *Affleck Desbarats Dimakopoulos Lebensold & Sise—partner-in-charge: R. T. Affleck; project manager: J. E. La Riviere; project designer: Eva Vecsei; project architects: D. Lazosky and H. K. Stenman; chief field supervisor: Patrick Godden; specifications: Herman Pallas; design coordinators: Mrs. T. O'Brien and Antoine N. Haddad; tenant architect: R. Khosla; lighting and graphics coordinator: I. Reichman; interior design: H. de Koving;* structural engineers: *R. R. Nicolet & Associates and Lalonde, Valois, Lamarre, Valois & Associates;* mechanical and electrical engineers: *James P. Keith & Associates;* landscape architects: *Sasaki, Dawson, De May Associates —principal-in-charge: Masao Kinoshita;* hotel interior design: *Roland William Jutras Associates, Inc.;* town planning: *Vincent Ponte;* traffic and parking: *De Leuw Cather & Partners;* lighting: *William M. C. Lam;* acoustics: *N. J. Pappas & Associates;* graphics: *Paul Arthur & Associates and Girard, Bruce, Garabenian & Associates;* hotel design: *William B. Tabler;* hotel lighting: *Seymour Evans;* general contractor: *Concordia Construction, Inc.*

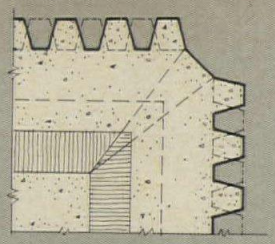


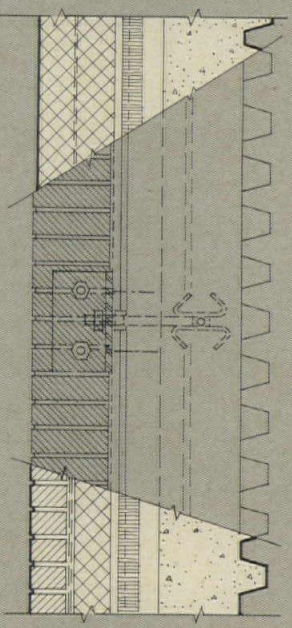
Michael Drummond photos

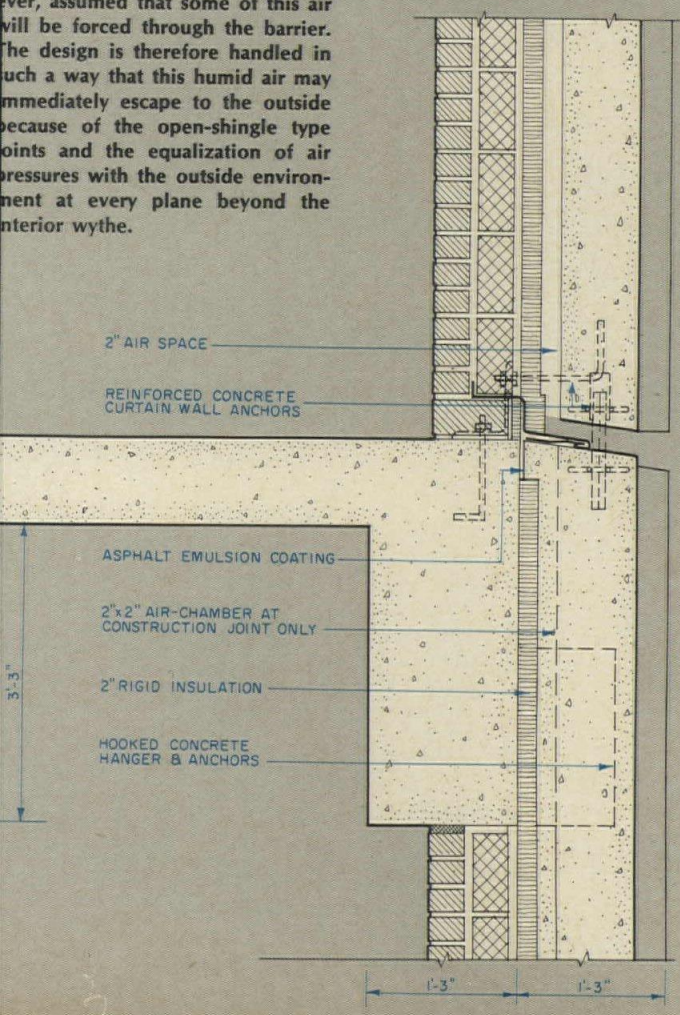
The environmental barrier

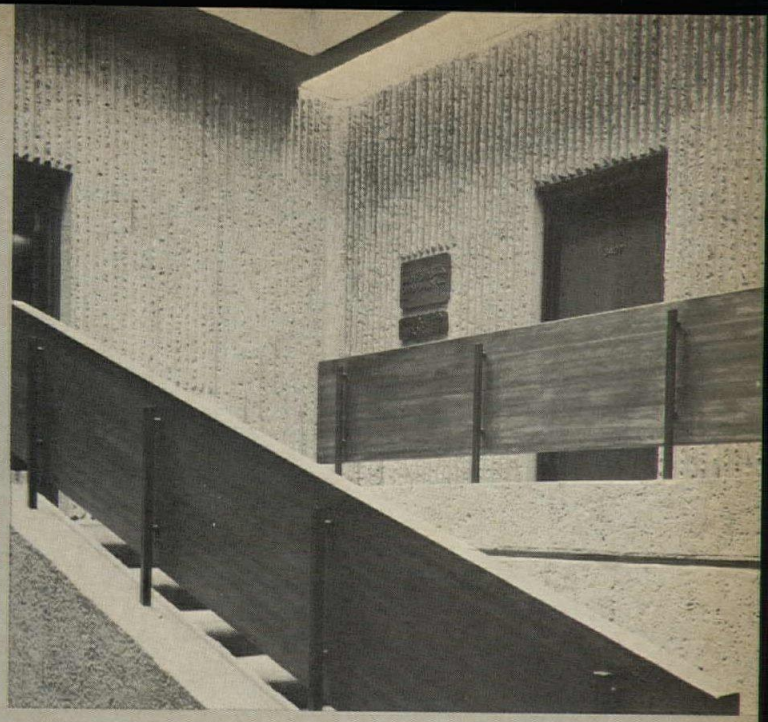
The exterior wall was developed as a double wythe wall with the interior wythe serving as the actual plane of enclosure. This wythe consists of the poured-in-place reinforced column and spandrel beam system insulated on the exterior, combined with self-insulating aerated concrete block in-fill wall panels. The exterior panels are the actual "rain screen" members which follow the general principle of shingle design with entirely open joints to the exterior. These giant "shingles" are made of poured-in-place concrete, using corrugated steel movable forms. Within the general theory of the wall, the shingles could have been of any open-jointed material whose main function is to protect the inner wall and insulation from direct rainfall, and to provide a visually-acceptable skin. Metal louvers or precast concrete shingles might have fulfilled these functions equally well. In this case, however, a careful study of the economics of the wall resulted in the choice of the poured-in-place concrete members.

The problem of the migration through exterior walls of interior climate with a high relative humidity under positive pressure has the potential of causing severe damage in the Canadian climate. The method of wall design employed at Place Bonaventure deals with this problem in the following manner: The exterior face of the inner wythe is regarded as the only significant barrier to this migration. It is, however, assumed that some of this air will be forced through the barrier. The design is therefore handled in such a way that this humid air may immediately escape to the outside because of the open-shingle type joints and the equalization of air pressures with the outside environment at every plane beyond the interior wythe.



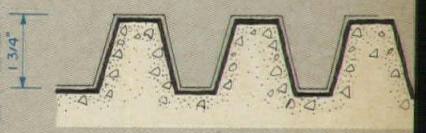


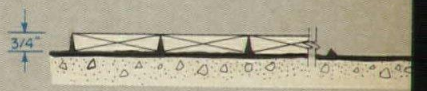




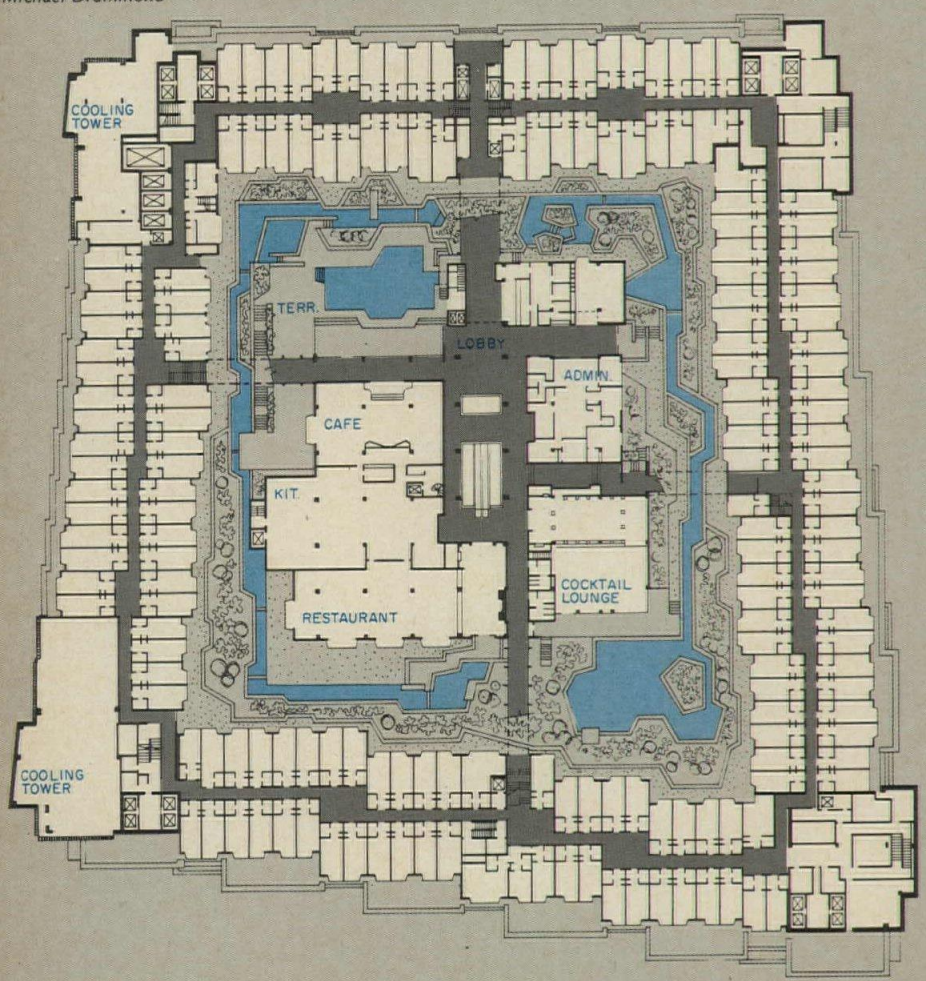
Concrete textures

Interior concrete surfaces vary according to a carefully established system related to their scale and function. The hand-hammered corrugated surface (top right) is used throughout the hotel interiors (above). The random finish (center) is used in Concordia Hall. One of the uses of the boarded pattern (bottom right) is shown at the entrance to an elevator lobby (below).





Michael Drummond



The Hotel Bonaventure garden

The garden of the 5-acre rooftop hotel was conceived as a Canadian setting, with moving water, lakes, streams and waterfalls and a natural composition of deciduous and coniferous trees, shrubs and rock formations. By locating the public rooms in the center of the garden and the guest rooms around the periphery, a high degree of relationship between the garden and the various aspects of the hotel was achieved.

Arrival at the hotel is by express elevator from the west plaza. From this point, however, the movement patterns are entirely horizontal with very slight changes of level. Glazed bridges with varying views of the garden connect the guest room wings with the central facilities, and the guest room corridors themselves are broken up with skylit garden courts. During the summer-time, guests will also have the choice of circulating through the garden pathways from one part of the hotel to another.

In designing the garden, particular attention was paid to its wintertime aspects. The various level changes provide a varied snowscape and many of the waterfalls are designed to function all year round. In addition, interior skylit gardens contribute natural greenery throughout the long winter season.

Canadian building research is significant, diversified

This summer the Division of Building Research of the National Research Council of Canada marked its 20th anniversary. A good idea of how broadly ranging the Division's research activities are is evident from a perusal of its latest annual report. Representative subject areas include: sound isolation, air leakage in buildings, snow loads, fire research on steel structures, flame spread in corridors, protective coatings, and permafrost.

Interest in most of these areas obviously should be widespread, and not merely limited to Canadian problems per se. Take air leakage, for example. With mechanically air conditioned multi-story buildings, pressure differences between inside and outside can vary widely depending on wind, stack action, and building pressurization by the mechanical system. This can affect not only infiltration or exfiltration, but loading on building cladding as well. The Division of Building Research has conducted field studies of pressure differences across external walls and internal separations first in a 9-story office building, and then later in a 17-story building in Ottawa and in 34- and 45-story office buildings in Montreal. As a part of the field studies, exterior wall pressure differences, together with wind speed and direction and outside air temperature are being recorded on magnetic tape for digital computer processing.

Studies at the Division of Building Research have led to the development of the "rain screen" principle which is exemplified in the double wythe construction description following: 1) the inner wythe should be designed as the environmental barrier with all joints fully sealed against infiltration or exfiltration, 2) the vapor barrier, if required, should be on the inner face of the interior wythe, 3) thermal insulation should be located on the exterior plane of the inner wythe. All structural members should be inside the plane of insulation, 4) the two wythes should be separated by an air space vented to the outside, for air pressure equalization, 5) the exterior wythe should be designed as an open vented screen to protect the inner sealed wythe from rain or snow.

This concept has been applied in Place Bonaventure (page 147) by Affleck, Desbarats, Dimakopolous, Lebensold and Size. It has also been applied in a number of instances by Emery Roth & Sons of New York. The most prominent example from the Roth firm (who are associated with Minoru Yamasaki and Associates in this instance) is the World Trade Center. This was described fully in the RECORD Special Report on "Wind, sun, rain and the exterior wall." Four examples from the Canadian firm were presented by R. T. Affleck at a symposium on "Weathertight Joints for Walls," conducted by the International Council for Building Research, Studies and Documentation (CIB) in Norway last September.

In their fire research, the Canadians have been examining the creep of three widely used structural steels at various temperatures ranging from 700 to 1,200 F, and at various stresses ranging from 1,000 to 45,000 psi. The study showed that the failure of steel-supported floor and beam constructions in fire is expected to occur when the temperature of the key component of the structure reaches a level in the range of 1,100 and 1,200 F. The exact value of the critical temperature depends on the characteristics of the steel, the loading conditions, and the load resistance of the deck.

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The slow, persistent fight against air pollution

President Johnson's signing of the Air Quality Act of 1967 will provide $125-million for expanded Federal research to determine which fuels are most to blame for dirty air and means of control. It also provides over $300 million for Department of Health and Education and Welfare expenses covering laboratories, equipment, personnel and stations for monitoring emissions.

While results may seem to be slow in coming, as far as the man on the street is concerned, much has been done, particularly "detective work" in identifying the sources of annoyance, discomfort and health hazards. For example the National Bureau of Standards has developed methods by which they can even identify the type of gasoline being burned by automotive vehicles by geographic area. Another example is the Special Air Pollution Study of Louisville and Jefferson County, Kentucky, financed by local industry and the Federal and local governments. As part of the study the National Bureau of Standards developed practical methods for sampling and shipping of samples, analyzing them and interpreting the results; providing techniques and instruments not

available to the local group, advising the group on the application of existing analytical methods to specialized problems, and developing new methods. NBS was involved in a pollutant-source survey in one area of Louisville in estimating the relative contributions to pollutions by motor vehicles, industrial and domestic processes.

That a Federally funded program was needed is fairly obvious. But just how far-reaching the pollution problem is can be appreciated even more from findings of the Atmospheric Sciences Research Center of the State University of New York. Air sampling and visual observations from airplanes showed that the pollution zone of Los Angeles reaches 500 miles into the Pacific and to western Arizona and central Nevada. Samplings taken aboard a cruise ship showed that Northeast pollution was measurable 600 miles east of Long Island. Satellite pictures taken during winter storms have shown snakelike plumes, extending many miles downwind of lakes, which could be traced to lake-side cities. Question is whether ice crystals formed due to industrial stack waste or due to auto exhaust.

To prove a non-shrink grout doesn't shrink

When Construction Products Research of Old Greenwich, Connecticut developed a new non-shrink grout (for setting of columns, machinery, precast beams on walls, and also for patching, even to a fine feather edge and the like), they felt the need for a new test method which would show shrinkage from the time the grout material was first mixed with water. The reason, the company says, is that most of the shrinkage of grouts takes place in the first 24 hours, whereas the ASTM standard reference for shrinkage calls for testing to start after the first day.

The test—which, incidentally, has been adopted by T.V.A. laboratories—is amazingly simple: Small cans (like frozen juice cans) are filled with the freshly mixed grout. Then a small plastic ball the size of a marble is dropped into the grout. A light projector set up behind the test sample projects a highly magnified image onto a piece of paper some distance away used for recording purposes. Thus even miniscule movement can be detected.

With the non-shrink grout, the sample will actually expand just slightly, generally on the order of 0.003 in. per in., or so. While the basic ingredient which achieves the non-shrink effect has not been revealed, the developers say that it is not metallic or plastic-based in nature. The basic physical achievement, however, does not involve a change in the chemistry of concrete.

First "staggered-truss" building set to be built

The new steel framing system for apartment buildings developed by an architectural and engineering team at M.I.T. is to be used for the first time in a 17-story high-rise apartment building in St. Paul, Minnesota. The system, which was featured in June 1966 RECORD, employs building-wide Pratt trusses arranged in a staggered pattern from the end view floor-by-floor. By this technique floors need only span 12 feet while still allowing 24 ft clear space—trusses are 24 ft apart. A given floor slat rests on the top of one truss hangs from another truss (located in the story above) in the middle of the bay, and rests on a third truss at the other end of the bay.

The 17-story structure, which is being sponsored by the St. Paul Housing and Redevelopment Authority as a low-cost housing project uses slightly more steel than the M.I.T. prototype design. This was due partly to the heavier floors —6 in. prestressed concrete slabs plus a 2-in. topping, as opposed to 5-in. precast slabs proposed by the M.I.T. group. Even so startling savings result as compared with conventional framing systems: about 7 lb per sq ft, contrasted with 9 lb for a braced frame, and 12 to 13 lb for a column-girder portal frame. High-strength steel is being used, with deflection being no problem because of the stiffness of the trusses.

Contracts let for low-cost military housing

Last month the defense department let a number of research and development contracts aimed at cost reduction for military family housing. Organizations involved in the research will be: Carl Koch & Associates, General Electric Company, the University of Michigan, Kaiser Industries, National Gypsum, Battelle Memorial Foundation, and Aerojet-General Corporation. According to HUD Secretary Weaver, his department cooperated with Defense in the research activities that led to these contracts. Weaver also has said that the Department of Defense is interested in building and testing prototype houses if studies yield encouraging results.

Mechanical consultants developing computer program

Automated Procedures for Engineering Consultants, Inc. is an organization of over 50 members, including mainly mechanical consultants, several architectural firms and a few utilities. First objective of this year-old group was to develop computer programs for automatically calculating heating and cooling loads on the most complex type of commercial and industrial buildings. In addition a specification writing program has been developed. And presently in the works are a building configuration program, a duct design program and an equipment selection equipment program. Cost of developing the load-calculation program is said to have been over $15,000 plus considerable volunteered time. The program is available to all APEC members for a nominal cost of reproduction. Cost of joining APEC is $500 and dues are $100 per year. Current president is Herman Blum of Herman Blum Consulting Engineers, Dallas.

Computer produces toned prints—perhaps of a building

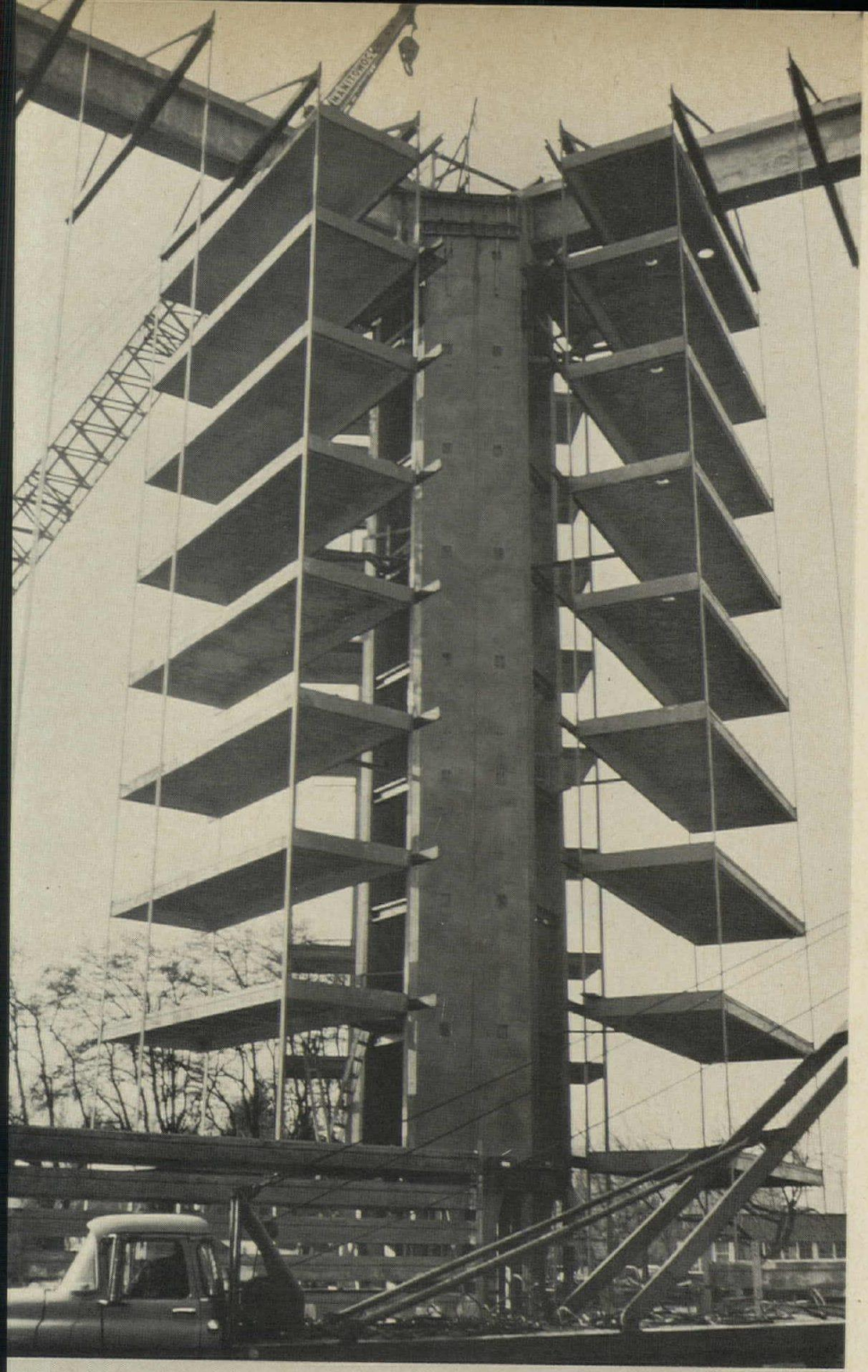
Architectural designs can be visualized in three dimensions, under a variety of lighting conditions and from any specified angle, with a new computer process developed by Mathematical Applications Group, Inc. (MAGI) of White Plains, New York.

In effect, the new technique causes a computer to simulate a camera, light sources and object to be reproduced or designed. Briefly, the process works this way. The object to be pictured is converted to a mathematical representation and put on a punched card. Additional data on simulated light sources, camera position and focus are also put on punched cards. The cards are fed into a computer which is attached to a cathode ray tube, similar to a TV tube. The computer then traces the light rays from the source of light to the object (mathematically represented), and through the simulated camera lens to a point on the cathode ray tube. The computer completes the same process for a large number of points on the tube. A built-in camera then photographs the image formed by the points of light and produces a fully-toned picture of the desired object.

According to Dr. Philip S. Mittelman, MAGI president, the computer has capability for calculating heat and air conditioning loads under any lighting condition. This might be especially helpful when dealing with complicated sculptural facades.

Although MAGI has never actually handled a building, Dr. Mittelman says that the process is capable of handling very complicated projects. A commercially useful system will be produced within the next six months.

Nine stories hang from steel straps for two high-rise dormitories



recast floor panels are supported by hangars in tension rather than by conventional compres-on columns. The steel-strap hangars are stretched between outriggers at the top to grade beams t the bottom. The outriggers as well as the straps were fabricated from high-strength steel.

High-strength steel hangers, only 1- by 4-in. in size, carry nine floors of precast concrete floor panels and walls for two three-winged residence halls at Central Washington State College, housing 500 students. The "tension columns" stretch between steel outriggers at the top of the building to grade beam bolts at the bottom that permitted tensioning of the 1- by 4-in. straps. The outriggers, in turn, are carried by 6-ft-deep prestressed concrete girders which span between the precast concrete walls of the center core and precast concrete end frames.

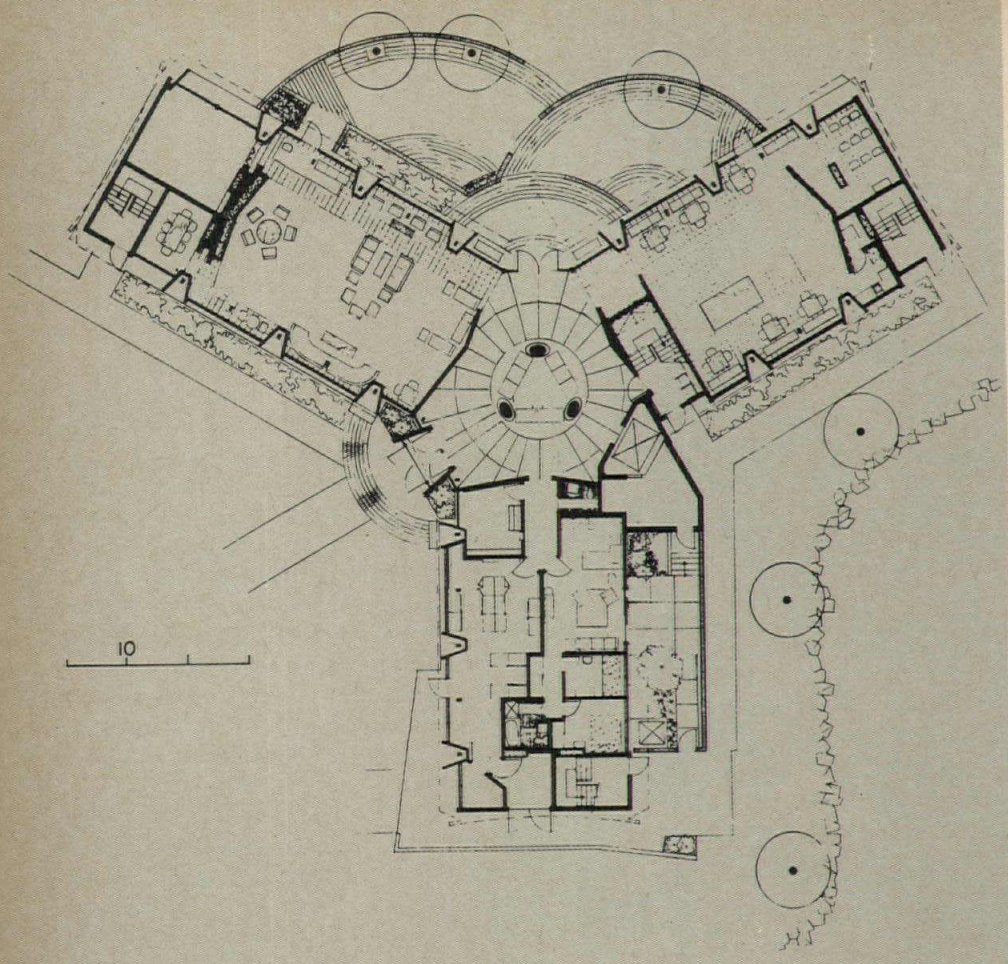
The 1- by 4-in. hangers were shipped to the job in nine-story sections. Since long lengths of T-1 steel were not available, the hangers were fabricated with the upper third from T-1 steel, the middle third from A-441 steel and the lower third from A-36 steel, in correspondence with the lessening load from top to bottom.

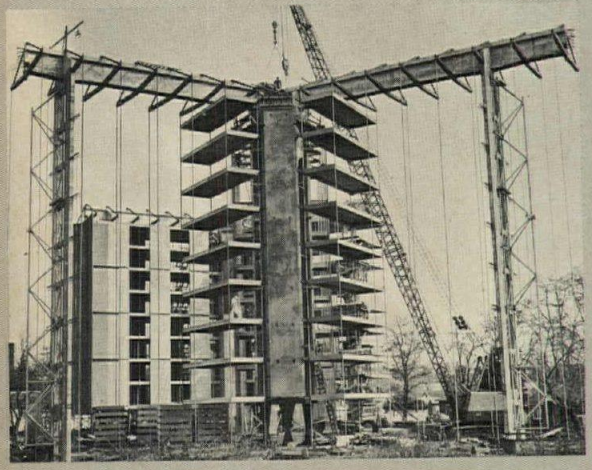
How the structure went up

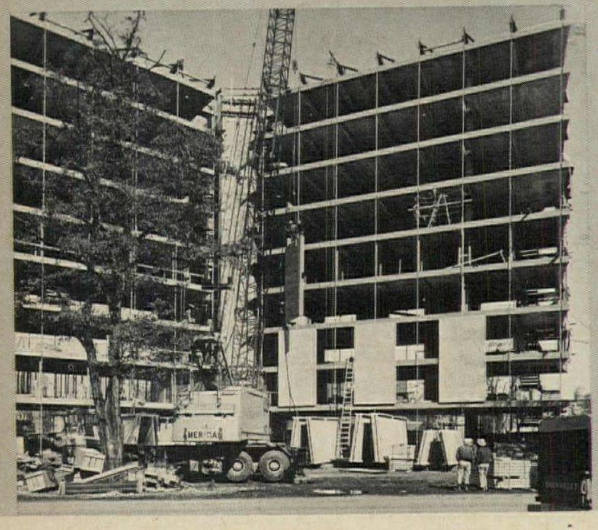
Before construction started, a thorough soils analysis was made to make sure that differential settlement would be negligible. After deep, rigid footings had been placed, three A-441 braced columns and a collar section, which forms a heavy supporting ring at the second floor level, were erected to receive the three precast concrete center-core walls. The heavily-loaded braced steel columns were used to open up the first floor lobby for architectural reasons; otherwise the core would have had to continue down to grade and block off the center of the lobby. Next the precast end frames were erected and held in place by temporary bracing trusses. Then the 60-ton girders were placed by crane and joined to the end frames and core with high-strength concrete.

Steel outriggers that carry the hanger straps were bolted to the concrete girders 9 ft on center by means of high-strength bolts. The outriggers consist of T-1 steel for the upper chords (three straps for each) and A-441 steel for the lower chord, which is a 10 WF section.

The pre-drilled hanger straps were then attached to the outriggers, first







The precast walls for the core are supported by a ring beam and three braced columns—one for each wall. After the structure was in place, two-story-high panels were erected —a fixed connection in the center, sliding connections at the ends.

being adjusted vertically, then reamed and finally bolted in place. Prestressed floor panels, 9 by 27 ft in size, were bolted to the strap hangers at a rate of 25 per day. Through careful structural design and fabrication, the camber was held to plus or minus ⅜ in., which was taken out when the panels were welded together and the 2-in. construction joints grouted. Because of the levelness and smoothness of the floor panels, no concrete topping was necessary. This saving helped defray the cost of carpet used in all corridors and student rooms.

Two-story-high precast wall panels were bolted to the floor panels—firmly at the mid-point, but with provisions for expansion at top and bottom of the panel.

Special engineering problems

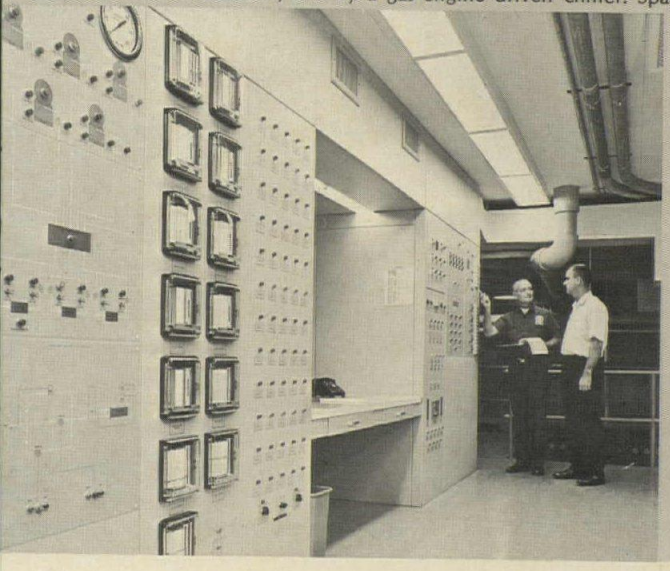
The high-strength steel hangers, working in tension at approximately 50,000 psi stress, were subjected to about three times the strain generally experienced by conventional columns. Other elements such as the outriggers are also highly stressed, which further added to the deflection problem. Thus, accurate predetermination of deflections, particularly those caused by dead load, was extremely important.

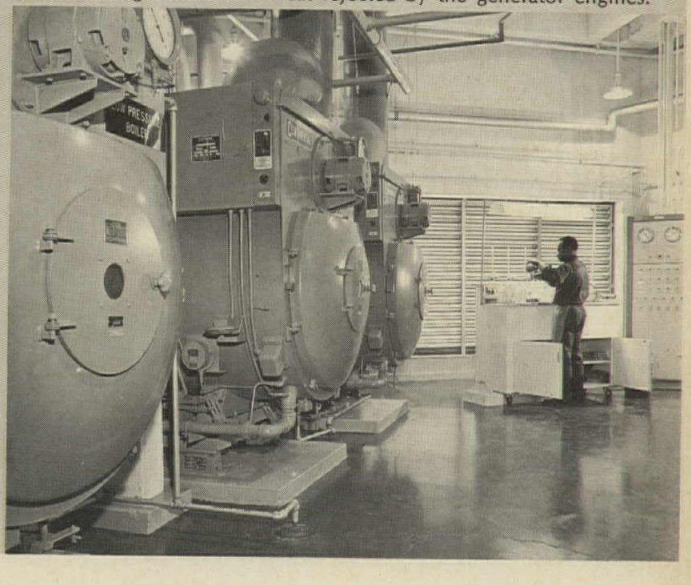
In order to reduce the change in elevation of floor levels caused by addition of dead load—i.e., the stretch in the hangers after floor panels had been installed—the hanger system was predeflected by jacking it down and connecting it to the grade beam. After all load was on the hangers, some additional tensioning was applied to prevent any hanger from becoming slack under live load or due to thermal effects. Further, because of stretch in the hangers, floor panels had to be erected in such a position that they ended up at the correct elevation after all dead load had been placed on the structure. For example, the precast channel slabs obviously had to line up with their respective floor levels in the core and at the end frames. For this reason it was necessary that deflections be carefully calculated and that hangers be placed at predetermined elevations throughout.

All floor and wall panels and prestressed girders were fabricated in a Seattle-area plant, 130 miles away from the campus. Only the core walls and end frames were precast at the site. Reason: the small labor force available in the town.

Cost of the two dormitory buildings, which will house 500 students, was slightly over $2.2 million dollars, or $4,400 per student. This includes built-in room equipment and carpeting, but excludes the architect's fee.

All energy required by the two 24-story dormitories is supplied by gas-engine driven generators, supplemented by gas fired boilers (below, right) for extra domestic hot water, and by a gas-engine driven chiller. Space heating and cooling comes from heat rejected by the generator engines.





Total energy in high-rise—two applications

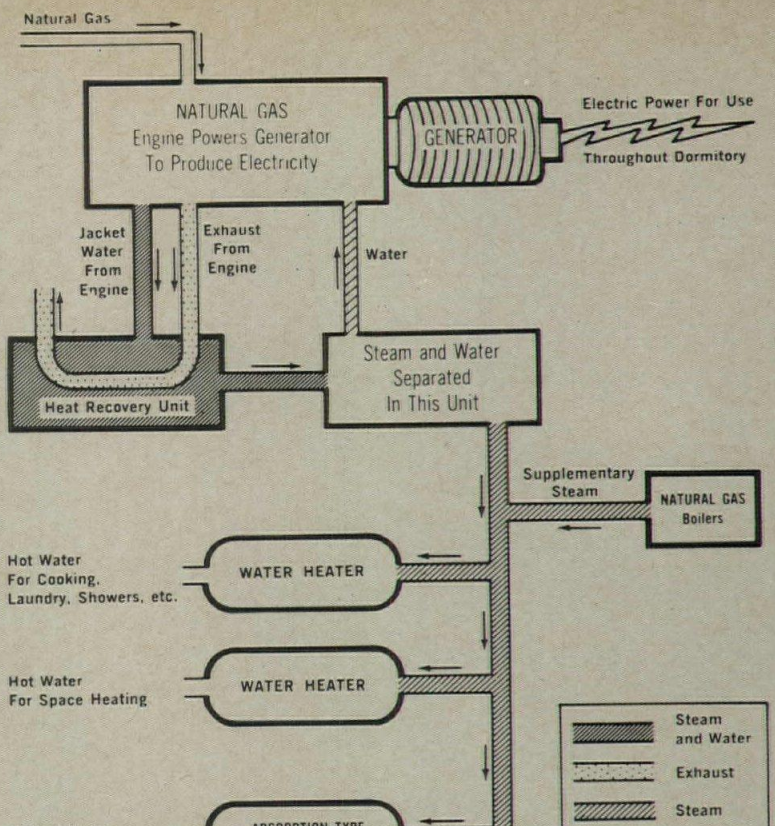
. Two dormitories at Ohio State

t the heart of the total energy systems r two new high-rise dormitories at hio State University are four natural s engine-generator units, located on e top floor of each building. These pply all the electric power for the ormitory complex. Heat from the en- ne exhaust, jacket water, and lube oil recovered and used to heat the build- gs in winter, air condition them in mmer, and furnish domestic hot water.

Prime movers for the O.S.U. total ergy systems are four 690-hp natural- s-fueled reciprocating engines. Each engine drives a 500-KW generator.

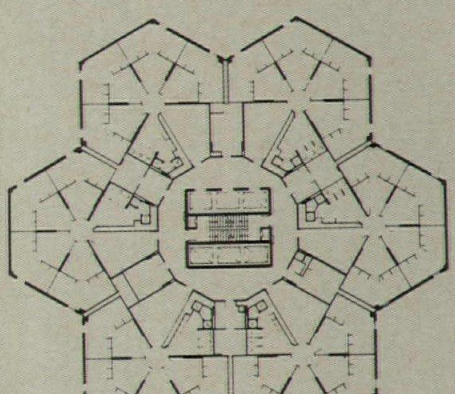
Automatic switchgear activates and synchronizes the four engine-generator sets in sequence as the building's electrical load increases, and shuts them down periodically to equalize running time. Only three generators are required to carry full load. Maximum load anticipated is 1350 KW, leaving a 450 KW nominal reserve in each plant's capacity.

Heat rejected from these engines is recovered by passing engine exhaust and jacket water through vapor phase heat recovery units where a large percentage of the high temperature water is converted to low-pressure stream. A portion of this steam, supplemented when necessary by five 100-hp natural gas boilers, is used to heat the thousands of gallons of hot water required daily throughout the dorm. This steam is also used to provide hot water for the building's hydronic heating system, and to operate a 480-ton absorption air conditioning machine. Any excess steam (above 13.5-14 psi) generated in the heat recovery boilers is exhausted to the cooling towers serving the chiller.

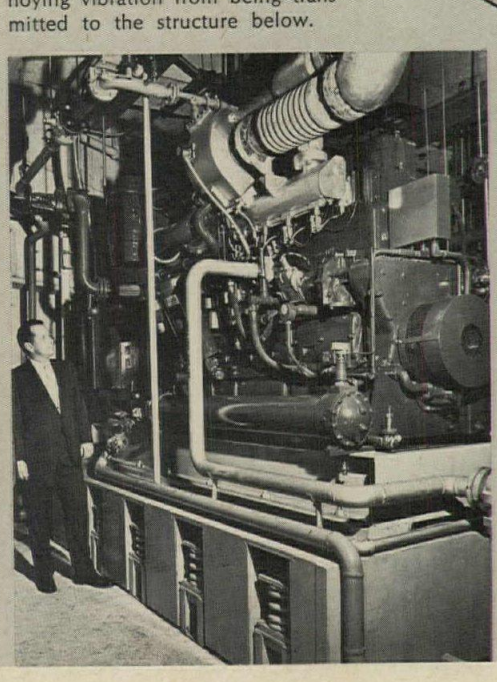


Simplified diagram of the total energy plant. Maximum anticipated load is handled by three of the four generators on the top floor of each dormitory.

Floor plan shows arrangement of student suites and lounges.



One of the engine-generator units which is mounted on an inertia block and springs to prevent annoying vibration from being transmitted to the structure below.



Lube oil heat is recovered for use by the domestic hot water system at 140F., with any excess dumped via the cooling tower. Maximum rated Btu recovery for the total energy system is estimated at 38 to 40 per cent of all exhaust, jacket water, and lube oil heat. A separate 500-hp natural gas engine, manifolded into the same heat recovery system, drives a 465-ton centrifugal compressor, to provide additional air conditioning.

Anticipated operation of the total energy system in each building will be three engine-generator sets at 85 per cent of the maximum load factor. At present, the automatic switchgear brings on the third engine at 645 KW load; under full occupancy, the third engine will be activated at 700 KW. A cold engine can be cranked, started, synchronized and parallelled in 45 seconds, but any one generator can be brought on line in only 36 seconds from "everything off" condition.

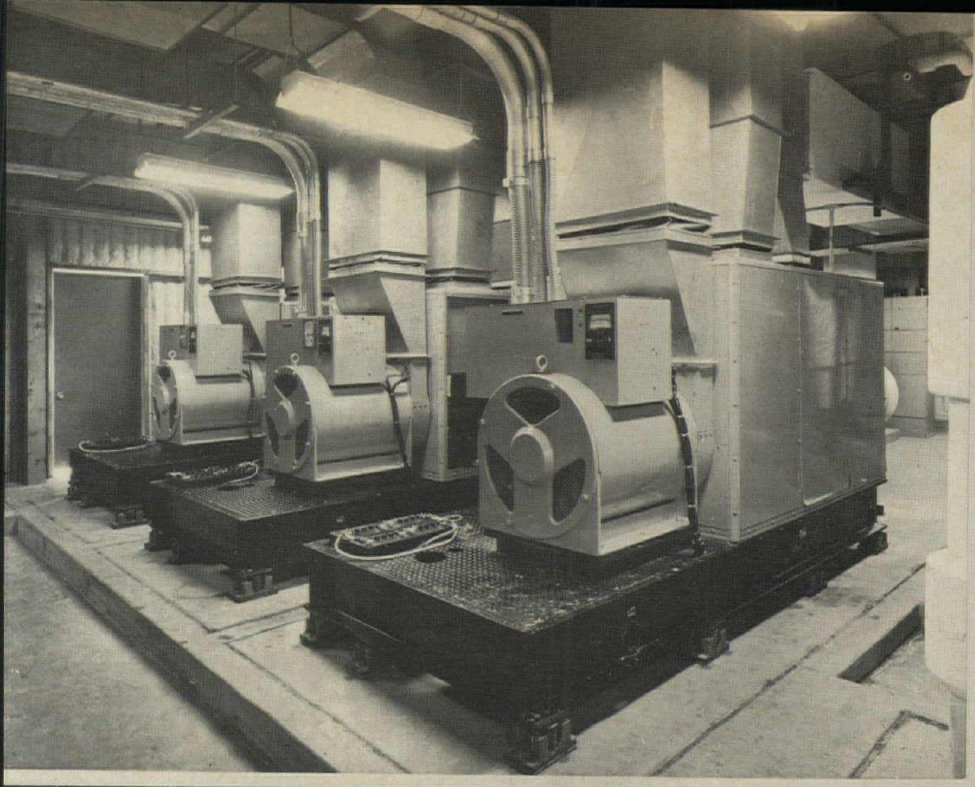
Excess or standby capacity for emergency mode operation (of one elevator, fire pumps, exit and corridor lighting, etc.) is available from one engine-generator set, or the university's power plant, more than fulfilling the Ohio building code requirements.

One-engine excess capacity also provides for both scheduled or emergency downtime. Via a manual control system, the twin buildings can be selectively tied in for reduced-load operation in the event either total energy plant should fail. Any six of the eight engine-generator sets can carry the full projected load of both dormitories in the manual mode.

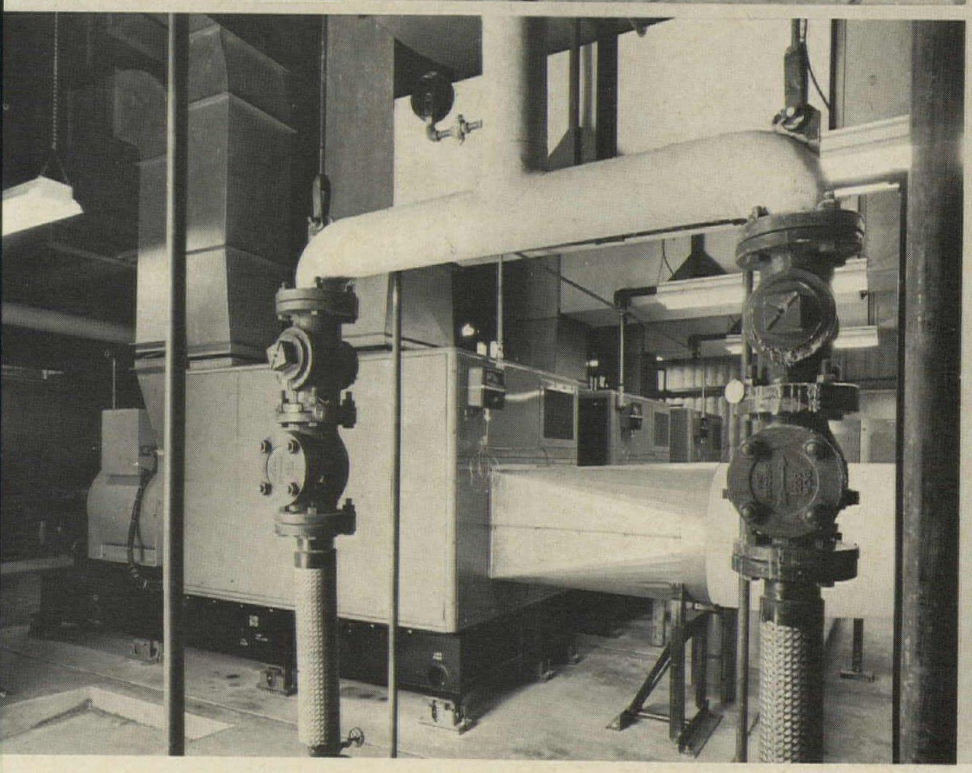
Top-floor location of each building's mechanical equipment isolates it from the students and permits more effective use of lower floors. Each engine rests on a spring-mounted concrete inertia block. The entire engine room floor is separated from the structural slab by high-density glass-fiber blocks for sound attenuation. All piping in the engine room is supported with either spring hangers or glass-fiber pads.

Annual gas consumption projected for both dormitories totals approximately 181,626 mcf. Of this total, power generation is expected to use some 98,768 mcf/yr; auxiliary heat and air conditioning will take 72,858 mcf/yr, and cooking should use approximately 10,000 mcf/yr, according to utility estimates.

Project architects and engineers were Schooley, Cornelius, Schooley; structural engineers were Fling & Eema, Inc.; acoustical consultants were Bolt, Beranek & Newman, Inc.; and general contractor was George C. Driscoll.



Three gas-turbine driven generators, 250 kw each, serve the 12-story International Trade Center. The gas turbines are installed in sound-attenuating enclosures. Exhaust heat from the turbines is passed through a common hot water heater to provide high-temperature water for space heating, domestic hot water and air conditioning.



2. Two office buildings in Pasadena

Two new, almost identical, 12-story office buildings in the Los Angeles area, each receive all their energy requirements from three natural gas-powered gas turbine/generator sets. Turbine exhaust heat is recovered for use in the air conditioning and heating systems.

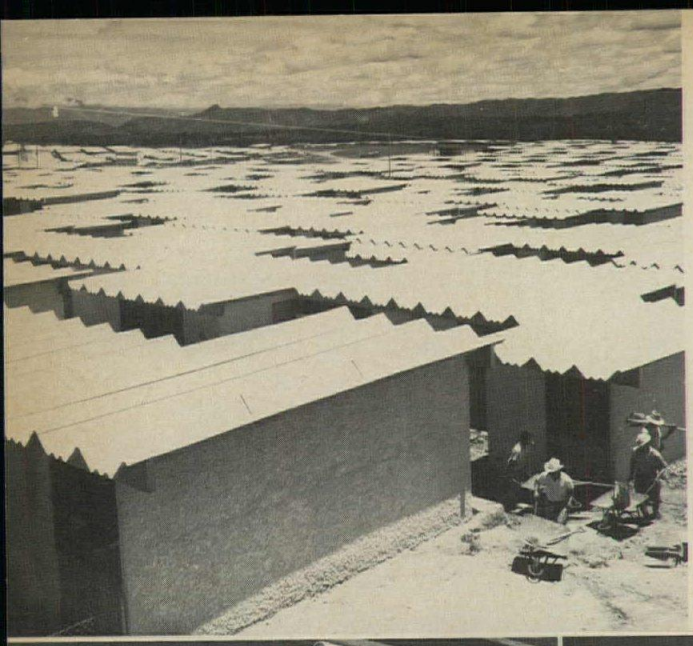
The equipment is leased from Garrett-AiResearch and a maintenance agreement has been made with a local company presently serving a number of industrial facilities.

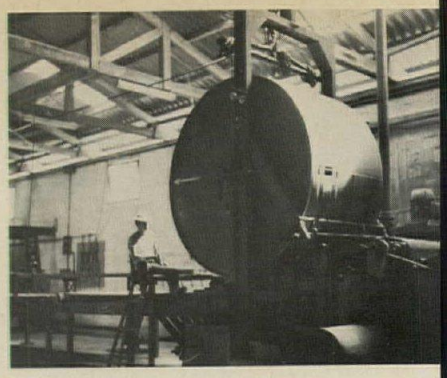
Each of the two buildings has a usable area of approximately 125,000 sq ft plus a penthouse containing the power generating and mechanical equipment. The equipment, installed in a sound-deadening enclosure, is equipped with inlet and exhaust silencers.

The three gas turbine/generators are each rated at 400 hp, 250 kw, 60 cycles, 277/480 volts. Turbine exhaust heat is recovered by a single hot water heater, rated at 7,200,000 Btu/hr at full output of the three turbines, and producing 270 F high-temperature water at a flow rate of 205 gpm. Rated capacity of each of the chillers in the two buildings is 400 tons. Of this, 350 tons are available for comfort cooling. About 50 tons are required to cool the air inlet temperature for the turbines, which reach peak efficiency at 59F.

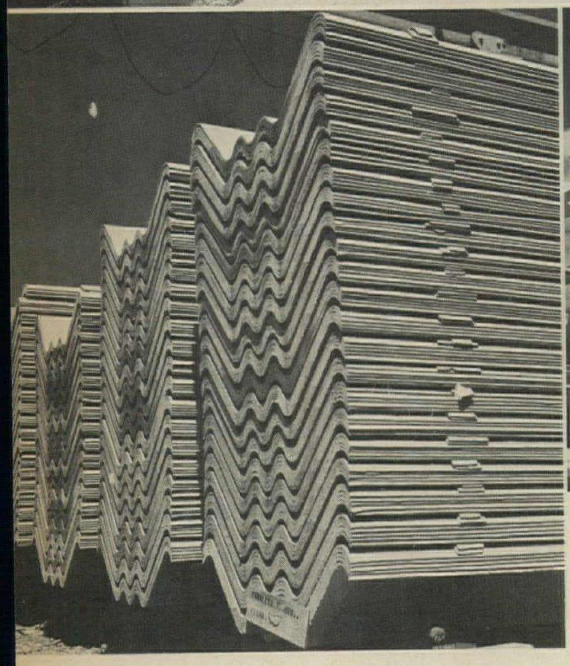
The high-temperature water is also used for space heating and for domestic hot water. When the electric load is light and not enough hot water is produced for heating and cooling, electric immersion heaters are switched on automatically in steps of 150 kw maximum.

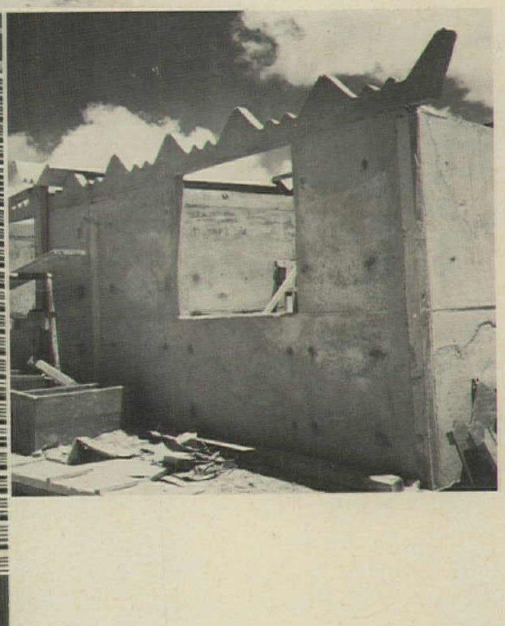
In the event of a turbine failure, there is automatic load shedding. Circuits automatically drop out in a three-step program—nonessential circuits first, followed by other circuits in reverse order of their importance, finally leaving only emergency lights and one elevator. There is a control cubicle for each turbine, with automatic shutdowns in case of high oil temperature, overspeed, high pipe temperature, etc.

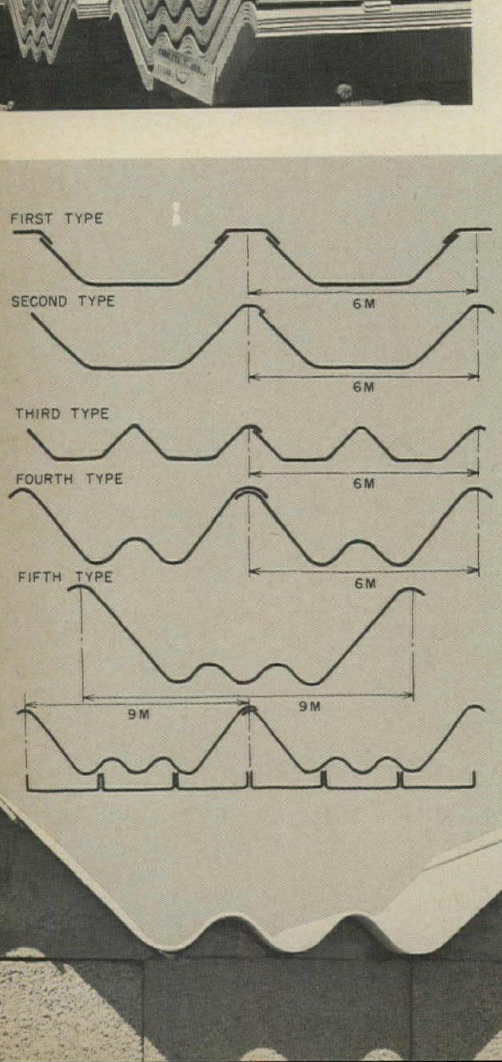




SOPHISTICATED ROOF COMPONENT WIDELY USED FOR SELF-HELP HOUSING







Corrugated roof element of asbestos cement acquired its curved shape through strictly functional needs. Originally made from two halves of "wet" asbestos-cement pipe, it was given a channel form to permit it to span 20 ft and more, plus small bends at the edges for overlapping joints. The modified curved shape was developed to permit stacking of units to greater heights for storage and shipping. While the original operation was performed partly by hand, an automated machine has now been developed and is in use in Mexico City. The huge housing project at the top of the page is in Guatamala City, where the process was first tried out.

The photos on this page show the re sults of a rather simple, but spectacular successful idea for self-help housing i Central America that has acquired con siderable sophistication in the six yea since its inception. In February, 1961, th RECORD showed how architect Alvar Ortega, who is on the staff of the Unite Nations Technical Assistance Commis sion, had taken asbestos-cement pipe di rectly from a Guatemala factory, sliced in halves, and while it was still fres pressed it into galvanized metal forms t make channel-shaped-roof member When dry, the channels, 21 ft long, 8 i deep, 15 in. wide at the bottom and 2 in. wide at the top, were rigid enough t span 20 ft without intermediate suppor

More recently the channel slab have undergone a face-lifting and a made in 18 countries in Central Ame ica, South America and Africa. Also th machinery has been automated, with th first such plant being located in Mexic City (this plant is shipping the channe to both Texas and California for vacatio houses). The photo at top left shows 5,000-unit low-cost housing develop ment in Guatemala City employing th new shape.

Reason for the new shape was to a quire more rigidity so that the chann units could be stacked much higher f shipping than the simpler shape. Th original shape tended to bow out und excessive stack loads. The drawing show the various configurations tried. Arch tect Ortega reports that it was not easy as it might seem to develop a shap that would have sufficient strength an at the same time nest properly. As ca be seen from the photo at the bottom the page, the units overlap in a self-ca ping fashion. Ortega says that his grou is now experimenting with a roof 35 long employing the new shape.

Antron* the carpet fiber for high traffic areas

Be it a hall, a lobby or a busy office you can't beat carpets made with pile of "Antron", the soil-hiding nylon.

In similar carpet constructions, "Antron" nylon is the carpet fiber that keeps its new look longer than any other fiber.

"Antron" has been structured for precise control of reflected, absorbed and transmitted light. This control of light dramatically reduces the appearance of soil on the carpet.

What does all this mean to you? Carpets that keep the total appearance of any interior at its highest.

And, because "Antron" is the unique soil-hiding fiber, it means lower maintenance costs and less frequent commercial cleaning. In short, "Antron" delivers a long-term investment saving. An important fact to the cost-conscious client.

"Antron" sounds like a lot. And it is. Recently, over 57,000 square yards of carpeting of "Antron" was specified for one building. Reportedly one of the largest fully carpeted office buildings in the country. "Antron" was chosen on the basis of soil hiding, appearance retention and wear tests.

Impressed? You should be. Specify LEES Design III or Tribune on your next job. We're sure you'll be convinced "Antron" is the optimal carpet fiber for high traffic areas.

If you'd like to learn more about "Antron" and Du Pont's other fibers for contract carpeting, a fact-filled brochure is yours for the asking. Address request to:

Contract Specialist
Carpet Marketing Group
E. I. DU PONT DE NEMOURS & CO. (INC.)
308 East Lancaster Avenue
Wynnewood, Pennsylvania 19096

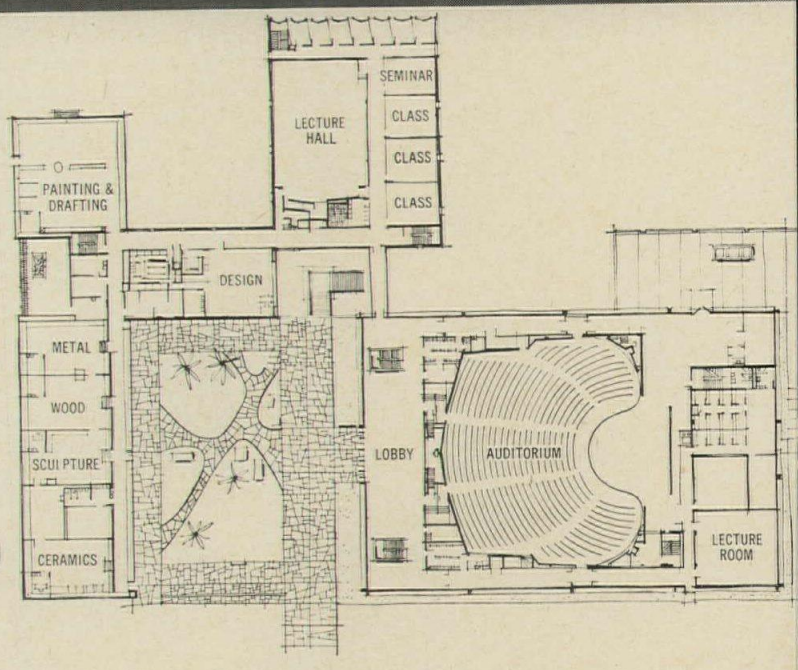
*Reg. U. S. Pat. Off. for Du Pont nylon fiber. Du Pont makes fibers, not carpets.

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

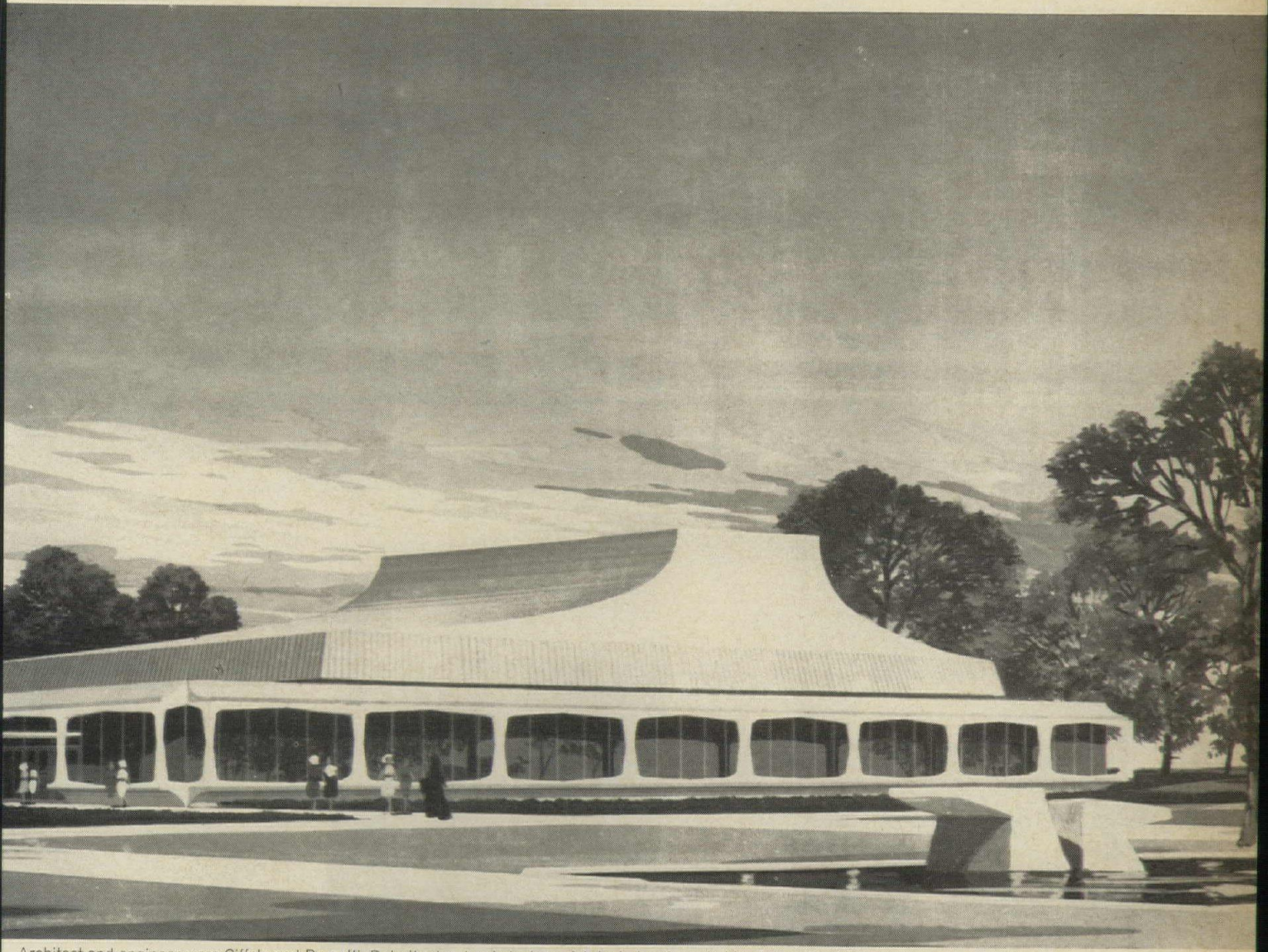
Better things for better living
...through chemistry

For more data, circle 68 on inquiry card

New arts center for Nazareth College won First Honor Award from the Department of Health, Education and Welfare, Office of Education, in collaboration with the American Institute of Architects.



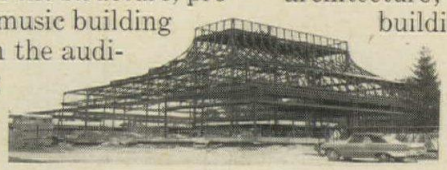
Exciting roof design for $3,000,000 arts center



Architect and engineer were Giffels and Rossetti, Detroit; structural steel was fabricated and erected by Rebco Steel Corporation, Niagara Falls.

The dynamic versatility of structural steel is dramatized in the sweeping parabolic curves which crown this two-story auditorium building.

The 1142-seat auditorium is part of an award-winning $3,000,000 arts center for Nazareth College, Pittsford, N.Y., near Rochester. Its unusual roof trusses run longitudinally through the structure, providing a clear span of 105 feet. A music building and a low-lying art wing will join the auditorium in an integrated grouping around a landscaped court. Structural steel was the natural choice for the framing and roof trusses in creating the graceful configurations of the center's three units, because steel is so economically adaptable to design requirements.



Steel offers many other advantages. Such things as shortened construction time; adaptability to existing architecture; wide scope of aesthetic expression; low building cost. Before *you* start designing, ask a Bethlehem Sales Engineer what today's new steels and new design techniques have to offer. Bethlehem Steel Corporation, Bethlehem, Pa.

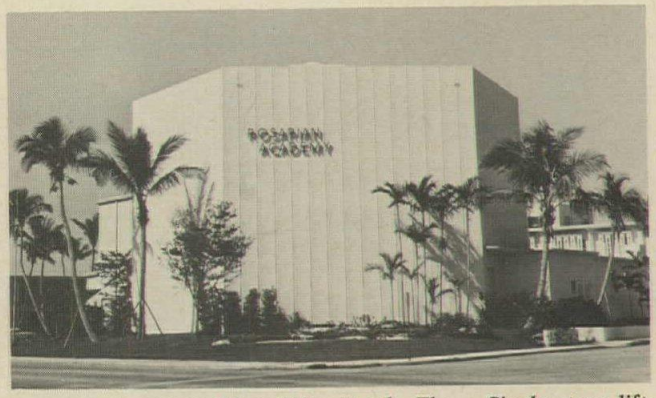
BETHLEHEM STEEL

BETHLEHEM STEEL

For more data, circle 69 on inquiry card

METROPOLITAN OPERA, Lincoln Center, New York City — Seven 8′ x 60′ stage lifts, two orchestra pit lifts, other equipment for handling sets and scenery.

Last year Dover Stage Lifts met the engineering challenge of the Metropolitan Opera



ROSARIAN ACADEMY, West Palm Beach, Fla. — Single stage lift 46′-4″ x 9′-0″, rise 5′.

and the budget of the Rosarian Academy Auditorium

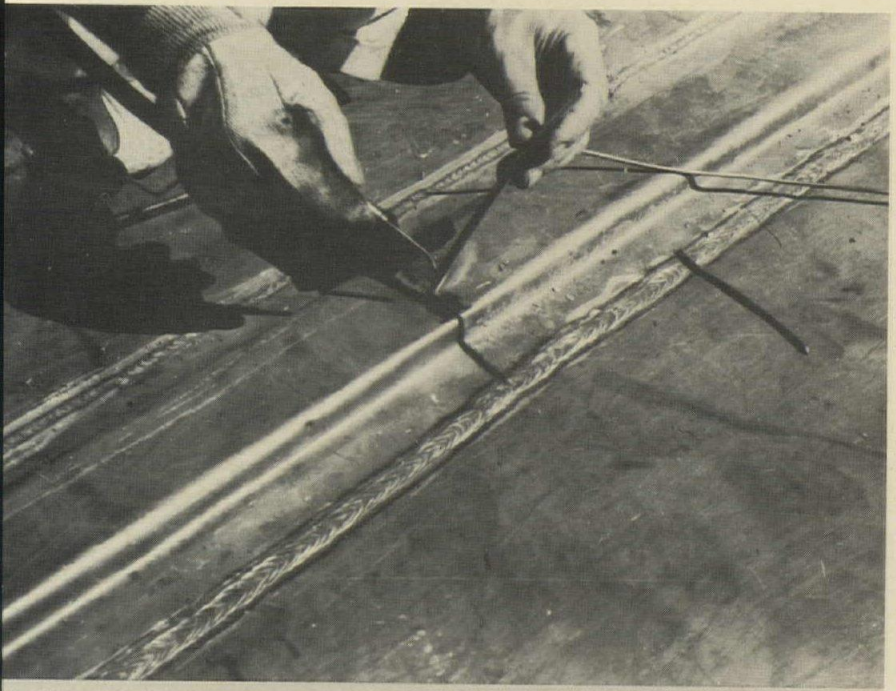
These extremes of complexity and cost illustrate the versatility of Dover Stage Lift engineering. Utilize this unique breadth of experience on your projects by contacting Dover for imaginative suggestions on achieving the effects you want with Oildraulic® Stage Lifts. There are practically no limitations on platform size, lifting capacity or control systems. Installation is by elevator specialists whose services are always available to assure dependable maintenance and operation. Write for literature and list of recent installations or see our catalog in Sweet's files.

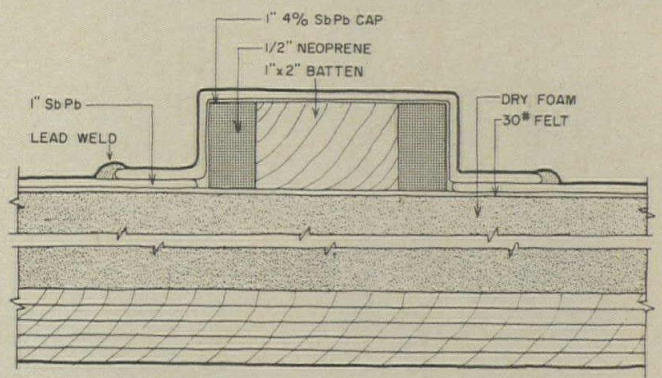
DOVER CORPORATION / ELEVATOR DIVISION

Dept. T-6, P.O. Box 2177, Memphis, Tenn.

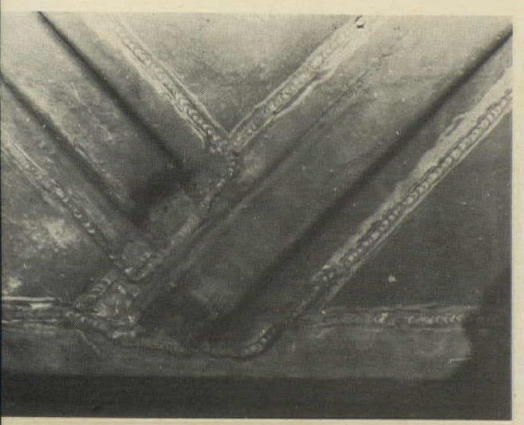
For more data, circle 70 on inquiry card

An exposed lead membrane for reflecting pools





DETAIL AT BATTEN



A newly-developed expansion joint for lead-lined outdoor reflecting pools has a back-up of redwood strips plus cellular neoprene on the sides of the strips. The substrate shown was for the experimental setup only. Lead membranes are frequently used when pools are located over underground building spaces. Substrate usually is concrete and lightweight fill. Photos show "burning" (welding) of the expansion joint cover to the base sheet, and a right-angle intersection of two expansion joints.

Sheet lead has long been used as a waterproofing membrane for outdoor reflecting pools and fountains. Normally, however, it is not exposed to the weather, but is covered with a lightweight concrete fill and, perhaps, tile. Thus the lead membrane is not exposed to the direct rays of the sun when the pool is empty.

When architects Harrison & Abramovitz were designing the reflecting pools for New York State's South Mall project in Albany, they came up with the idea of using lead as the top layer rather than as an interlayer. They reasoned that 1) possible breaks in the membrane would be easier to repair (in conventional construction, leaks are practically impossible to find without tearing up the whole pool) and 2) the lead might have some esthetic advantages when exposed to view. A waterproof pool system was required in this instance because the reflecting pools and fountains will be atop a four-story elevated plaza, above laboratories, offices, a meeting hall, cafeterias, a bus terminal, the main electrical substation, and a central air-conditioning plant.

Using the lead sheet as the top layer posed a new problem, however: the possibility of cracking of the lead due to expansion and contraction caused by wide swings in surface temperature when there was no water in the pools. It has been noted that lead linings exposed for extended periods to temperature extremes from below freezing to 170 F (from absorption of solar heat) had in certain instances been stressed beyond their elastic limit and cracked.

In order to find out whether such severe service conditions might be met, the Lead Industries Association, Inc. undertook a study of a representative pool section, 30 by 35 ft, built using a newly-designed expansion joint, and a special lead alloy sheet (lead with 4 per cent antimony and 0.08 per cent arsenic) which has greater elastic and creep strengths than ordinary lead.

As the lead sheet was laid, 3-in. spaces were left for the expansion joints. In these 3-in. spaces, 1- by 2-in. redwood strips were set; the strips were lined

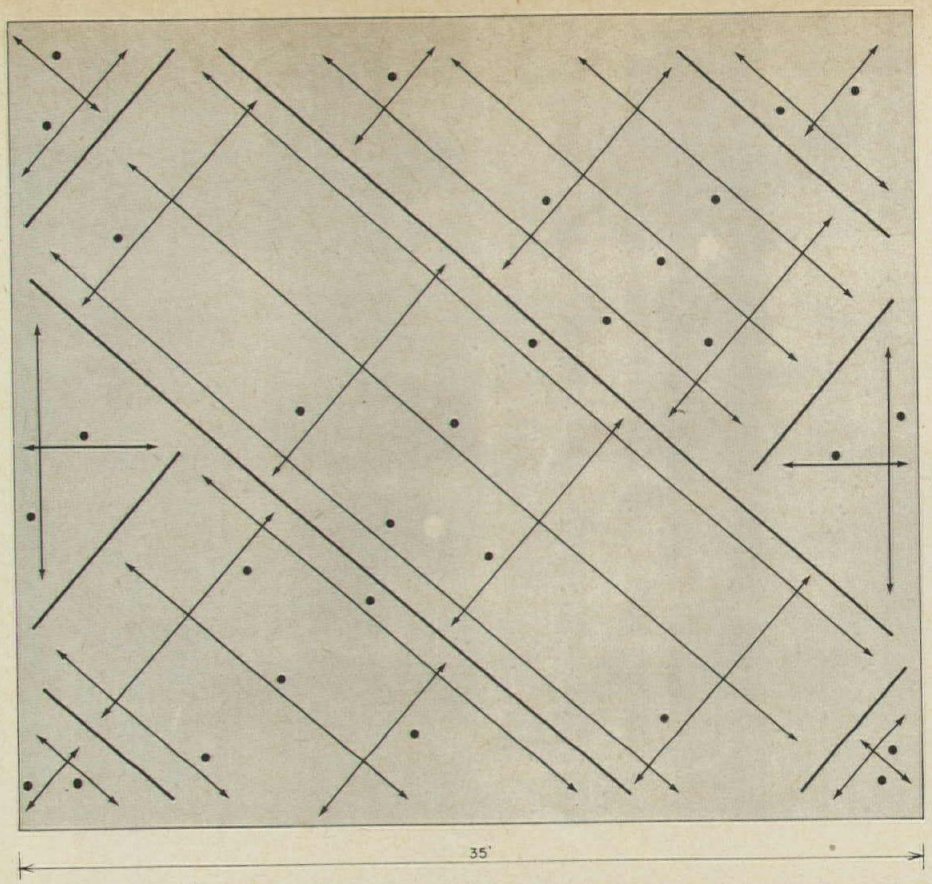
on the edges with ½- by 1-in. strips of neoprene foam rubber strip to allow for give and take as the main sheet changed length with temperature. The expansion joint was completed and sealed by capping it with lead sheet of the same alloy as used for the main sheet. The capping, which was formed from rolled alloy sheet, was then "burned" to the surface of the lead sheet. [Lead "burning" is trade terminology for a true weld. It is done using a burning torch and a burning rod of the same composition as the sheet lead to be burned.] While in this test installation rolled sheet was used for the expansion joint, the lead industry recommends that for actual construction, an extruded shape be employed.

The architects felt that the appearance of the expansion joints would be more interesting if they were to run diagonally in a "herringbone" pattern. The test installation was, therefore, laid out in this fashion.

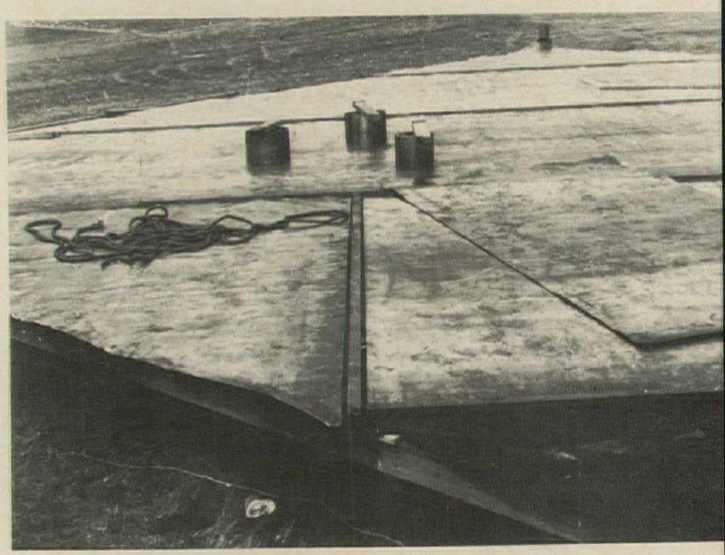
A layer of 30-lb roofing felt was put under the sheet lead to prevent contact between fresh concrete and lead, since free lime can corrode the lead. In the test installation, the felt was overlapped 2 in. But since this double thickness showed a raised seam after one year in the test installation, the investigators now recommend that instead of lapping, the felt be butted and taped.

Following two summers and one winter of testing, visual observation showed that no problems of creep or buckling arose. From measurements taken during the testing, the Lead Industries Association deduced that expansion joints may be as far apart as 38 ft, with no apparent deleterious effect. Measurements of a daily cycling pattern showed that pool buckling was both random and small. Only long-term rises and falls were measurable, but they were found to be of little consequence. The addition of water to the pool lessens, of course, the degree of thermal cycling and leads to even greater confidence in the durability of the construction.

The installation of the lead sheet was made at mid-day, so that surface temperature at that time was approximately 170 F. This temperature was used as the base reference temperature for measuring vertical deformation. The height measurements showed that the most severe positive displacement at any one point was 1.3 cm. On the average, displacements were on the order of 0.2 to 0.3 cm. The data show that during the first three days following installation, the lead sheet showed an initial settling. Days 3 to 42 showed a general rise in level probably due to some cycling expansion. After 42 days the sheet lead appeared to have flattened out.

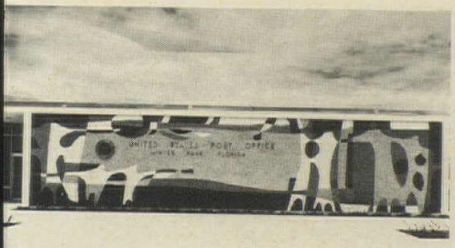


Elevation measurements, accurate to plus or minus 1 mm were taken periodically at 26 points over the surface of the test "pool." Also 30 sets of gauge marks were applied to the lead surface, and these were measured periodically, accurate to the nearest 1/16 in., to determine lateral deformation. From measurements of lateral deformation and surface temperature, it was possible to calculate a coefficient of expansion for the lead sheet as installed. Vertical test locations are indicated by dots and lateral locations by the lines with arrows. Heavy lines are the expansion joints.



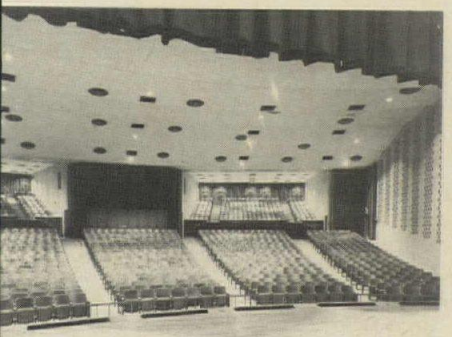
Most of the lead sheet is laid, ready to have expansion joints welded in place. The diagonal pattern was chosen for its appearance and not for technical reasons. Note intersection of two joints in the center.

For more information circle selected item numbers on Reader Service Inquiry Card, pages 245-246



EXTERIOR COATINGS / Two exterior coating systems provide new and existing buildings with an unlimited variety of surfaces that are attractive, durable, and functionally effective. Marble, stone and other aggregates are partially embedded in a matrix. The systems may be applied over any shape or form and over any sound backing. ▪ Desco International Association, Buffalo, N.Y.

Circle 300 on inquiry card



ACOUSTIC FABRIC / *Mellotone* pattern number 1415 is an all-synthetic, noncombustible, acoustic material, engineered and designed to be a decorative fabric, and it is sound transparent. Since sound passes through without being distorted, it is possible to use the material to cover speakers, as well as to cover soundproofing insulation where sound should be absorbed. Installation shown is in the new Lincoln High School, Port Arthur, Texas, designed by Lawrence Virine and J. Earle Neff. *Mellotone* covers 18 large speaker baffle boxes in the main floor ceiling and 20 baffle boxes in each of the ceilings of the two-tiered seating sections. It is also used to cover the three-in. soundproofing insulation on parts of the side walls, rear walls and on tier railings. ▪ Mellotone Inc., New York City.

Circle 301 on inquiry card

ONE-POINT CLASSROOM CONTROL / A compact control panel gives a teacher control of temperature, lighting and intercom—and includes a full-view integral clock. The thermostat can be equipped with a tamper-proof cover, and temperature settings can be locked; light switches are mounted from behind the panel face and the door has a tumbler lock. The 8-in. speaker, in an acoustically lined enclosure, is protected by twin grilles. ▪ Honeywell's Commercial Division, Minneapolis, Minn.

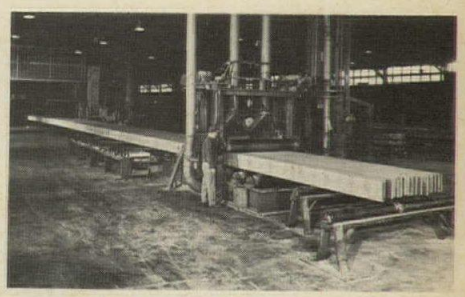
Circle 302 on inquiry card

FURNITURE / This 36-in. square, 15-in. high bar-coffee table in French olive ash burl is part of a collection that includes chairs, desks, and couches. Nothing is what it seems at first glance, and the coffee table is a good example. It appears to be a piece of modern sculpture, but a closer look reveals an ice bucket in the top and storage for bottles in the sides. The whole piece rolls on hidden casters. ▪ John Mascheroni Furniture Co., Inc., New York City.

Circle 303 on inquiry card

SILK-SCREENED WALLCOVERINGS / Concoctions of colors labeled "use sparingly" illustrate the "Pinch of Salt" collection of twelve designs. Designer Jack Denst forecasts a near-future world of interiors devoted mainly to "slow" tones, to "greyed" versions of otherwise spirited contemporary colors. Insertion of his own bold colors is a "spice-device." The lively colorways have been planned for disciplined use—in foyers, on single walls or dados, on room dividers or screens, framed as a serigraph, or simply draped. ▪ The Jack Denst Designs, Inc., Chicago.

Circle 304 on inquiry card



GIANT BEAMS / What are believed to be the largest timbers ever manufactured in the U.S. are being laminated and surfaced to support the roof of the new physical education building of the Hampton Institute in Virginia. Five of the seven beams are 123 ft long, 76½ in. deep, and 16¼ in. thick. Each beam weighs 35,000 pounds and contains 20,000 board feet of lumber. About 500 lbs. of glue and five gallons of stain are used in laminating and covering each beam. ▪ Timber Structures, Inc. Portland, Ore.

Circle 305 on inquiry card

more products on page 170

OFFICE LITERATURE

For more information circle selected item numbers on Reader Service Inquiry Card, pages 245-246

SOUND-INTERCOM SYSTEM / A silicone solid state system designed for medical and professional offices, restaurants, stores and homes is described in an 8-page booklet. A featured music and communication system with 10 station capacity allows selective station calls without interrupting background music at other locations; another system is equipped with a microphone input for paging. ▪ Emerson Electric Co., St. Louis, Mo.*

Circle 400 on inquiry card

HOME CARE / The *Homeowner's Record Book and Guide* provides the new homeowner with basic information on breaking-in and caring for his home. "There are over 3,000 component parts in your new home," reports the guide, "many . . . are products you can easily maintain or adjust." The loose-leaf book includes such topics as plumbing, electrical, heating, painting, floors, and walls in one section, and roofs, surfaces, and landscaping in another. In addition, there are convenient forms for keeping records of taxes, mortgage, utility charges, and insurance. $6.95 plus postage. ▪ House & Home Planner's Digest, 330 West 42 Street, New York City 10036.

PANELING / An 8-page brochure illustrates prefinished long-length metal roofing and siding panels available in 5 permanent baked-on enamel colors, galvanized finishes, and aluminum. The text explains the five 1-in.-deep ribs that add rigidity, prevent siphoning and drain seepage to the outside. ▪ The Ceco Corporation, Chicago.*

Circle 401 on inquiry card

CARPET BACKING / A brochure contains advice from leading carpet specialists on the installation of tufted carpets. ▪ Jute Carpet Backing Council, Inc., New York City.

Circle 402 on inquiry card

CONCRETE MASONRY / A 15-page booklet presents three textures: slump block, split block and concrete brick. Illustrations of interior and exterior residential applications are included. ▪ National Concrete Masonry Association, Arlington, Va.

Circle 403 on inquiry card

PACKAGED WATER CHILLERS / Two catalogs provide information on models capable of passing through a 36-in. doorway. Catalog 901-2 (27 pages) covers 7½- through 60-ton capacities, while 902 (23 pages) details 70- through 120-ton units. ▪ McQuay, Inc., Minneapolis.

Circle 404 on inquiry card

HARDBOARD / An illustrated 16-page report details interior and exterior applications, construction techniques, and merchandising ideas. ▪ American Hardboard Association, Chicago.

Circle 405 on inquiry card

RECESSED FLUORESCENT LIGHTING / Commercial and institutional lighting fixtures are offered in a 32-page illustrated brochure. A wide range of sizes and shapes are shown, including the *Skylight*. ▪ Lightolier, Jersey City.*

Circle 406 on inquiry card

STORAGE PRODUCTS / A 64-page illustrated catalog covers a complete line for industrial, commercial and institutional use. The booklet details such products as bar racks, book units, clip shelving, lockers, boxes and skids, open shelf files, service carts, tool stands, work-benches, bins and cabinets. ▪ Republic Steel Corporation, Youngstown, Ohio.*

Circle 407 on inquiry card

WELLPOINT SYSTEM / A 100-page, pocket-size book explains principles of dewatering, and the proper installation and operation of wellpoints, pumps and related equipment. $2.00. ▪ Moretrench Corporation, Rockaway, New Jersey 07866.

CURVED PANEL DESIGN / Design information on plywood panels is offered in a 12-page brochure. Connection, flashing, edge joints, and assembling instructions are detailed. ▪ Plywood Fabricator Service, Tacoma, Wash.*

Circle 408 on inquiry card

LIGHTING FOR SUSPENDED CEILINGS / An 8-page booklet features fixtures that eliminate exposed metal housing. ▪ The Celotex Corporation, Tampa, Fla.*

Circle 409 on inquiry card

DRAFTING SUPPLIES / A 96-page catalog with over 700 illustrations describes a complete line of more than 1700 items including a wide selection of drawing instruments, drafting media, and slide rules. ▪ The Lietz Company, Div. of Paxton National, Inc., South San Francisco.

Circle 410 on inquiry card

FURNISHINGS / A 52-page full-color catalog covers a product line designed to meet industrial and institutional needs. Included are a series of sequence seating for schools, a multiple modular seating series, commercial pedestal base tables, adjustable-height backrest stools, and hat and coat racks. Also featured are extensive lines of fiberglass chairs, steel folding chairs, fixed and folding leg tables, and storage trucks and accessories. ▪ Krueger Metal Products Co., Green Bay, Wis.*

Circle 411 on inquiry card

PLYWOOD STRESSED SKIN PANELS / A 16-page brochure covers both floor and roof systems and offers revised information to conform with U.S. Product Standard PS 1-66. ▪ Plywood Fabricator Service, Tacoma, Wash.*

Circle 412 on inquiry card

STUDY CARRELS / A 4-page brochure describes and illustrates models that may either be installed against a wall or arranged in completely self-supporting island groups. Panel and desk surfaces are of laminated alkyd-melamine plastic with solid or wood grain finishes. Electric lighting and outlets for audio-visual equipment are optional. ▪ Paneline Division, Movable Walls Corporation, Covina, Calif.

Circle 413 on inquiry card

INTERIOR HARDBOARD / Illustrations of panels, pre-finished moldings and other accessories are presented in a 24-page catalog conveniently indexed by categories. ▪ Masonite Corporation, Chicago.*

Circle 414 on inquiry card

* *Additional product information in Sweet's Architectural File*

more literature on page 218

Specify the new masonry fillers. They pass the test of time.

And only fill-coats with Goodyear PLIOLITE® resins pass the test for Federal specs. These unique fillers plug the holes in masonry surfaces, forming a flat, nonporous shield that won't blot up paint. *They cut your client's painting costs.*

And repainting costs. Paint grips longer on the fill-coated surface. And —ultimately—subsequent paint jobs are as economical as the first.

Fill-coats based on Goodyear PLIOLITE resins lock *into* masonry. Permanently. *Your buildings stay looking new for ages.*

And PLIOLITE-based fillers resist heat, cold, sun, rain. Block wind-driven spray at the equivalent of 98 mph for eight hours—per U. S. Government specs. *They meet Federal Specification TT-F-001-098.*

Give cinder block, concrete and stucco buildings lasting protection. Specify a fill-coat with PLIOLITE resins.

For a directory, write Goodyear, Chemical Data Center, Dept. L-84, Box 9115, Akron, Ohio 44305.

GOODYEAR CHEMICALS

For more data, circle 71 on inquiry card

Are you self-employed?

You may take advantage of the tax benefits available under the Keogh Act with investments in:

FIDELITY TREND FUND, INC.

which emphasizes capital growth possibilities by interpretation of market and economic trends.

For a prospectus and information about the opportunities offered you by the Self-Employed Individuals Tax Retirement Act, see your investment dealer, or write:

THE CROSBY CORPORATION

Dept. KE 225 Franklin St., Boston, Massachusetts 02110

For more data, circle 72 on inquiry card

ESIDEN

Want your name remembered? Set your client's in metal!

Architects and Decorators: Now that you've made "beautiful music"... building and interior, client and you, all in harmony... how about the **words?**

They might be mundane words: **Purchasing, Personnel, Production,** even **Please Enter.** They might be the most important words in the world. Like: **The Widget Company.** And: **Office of the President.** But how they look is up to you.

Knight will cast your letters in solid bronze, brass or aluminum. With anodized, polished or satin finish. To your design, or from our huge variety of styles. Cost, about the same as painted letters. But these will **last!**

And you'll be remembered, with appreciation. First step: Get Knight's FREE CATALOG, now.

H.W. knight & son inc.
METAL LETTERS & FIGURES

14 Lane St., Seneca Falls, N.Y. 13148

For more data, circle 73 on inquiry card

new narrow-beam floodlight POWR

delivers biggest return on lighting investment

Cost comparisons with three of the industry's most popular high-intensity floodlight types prove GE's new Powr•Spot luminaires, equipped with 1000-watt Multi-Vapor™ lamps, deliver the greatest return per lighting dollar. Regardless of annual usage—200 to 4000 hours.

Unique reflector design produces minimum overlap from remote mountings; now fewer Powr•Spot units do the job it once took many more conventional fixtures to do.

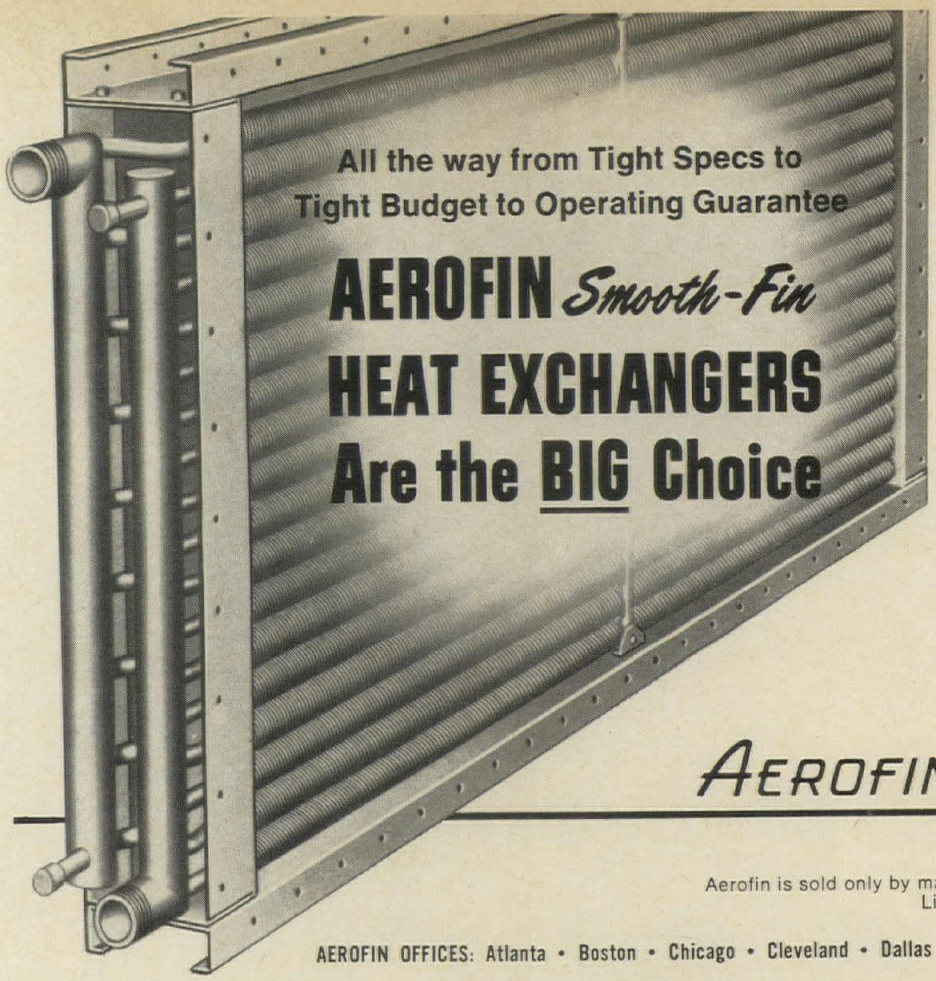
One of the big factors in the Powr•Spot economy story is GE's exclusive charcoal-filtered optical assembly that prevents efficiency-reducing dirt build-up on reflector, lamp, and inside door glass.

And Powr•Spot floodlights let you use the modern light source best-suited to your application: 1000-
Multi-Vapor, 1000-watt Mercury-Va
or 400-watt Lucalox™.

See your GE Sales Engineer or f
chised distributor for complete cos
light comparison and other details
write for Bulletin GEA-8554. Outd
Lighting Department, Hendersonv
North Carolina 28739. 46

GENERAL ELECTRI

For more data, circle 74 on inquiry card



All the way from Tight Specs to
Tight Budget to Operating Guarantee

AEROFIN *Smooth-Fin* HEAT EXCHANGERS Are the BIG Choice

Aerofin, the industry pace-setter, offers the widest possible range of *fan-system-engineered* hot and chilled water, steam, direct expansion, booster, SMOOTH-FIN coils. So why specify *over* or *under* your exact requirements?

Aerofin's close-fin spacing produces optimum heat-exchange capacity in unusually *compact* space. SMOOTH-FIN design coils have a low airside friction factor — yet are completely compatible with modern high-duct velocities. Need coil application help? Your Aerofin man has the answer.

AEROFIN CORPORATION

Lynchburg, Virginia 24505

Aerofin is sold only by manufacturers of fan system apparatus.
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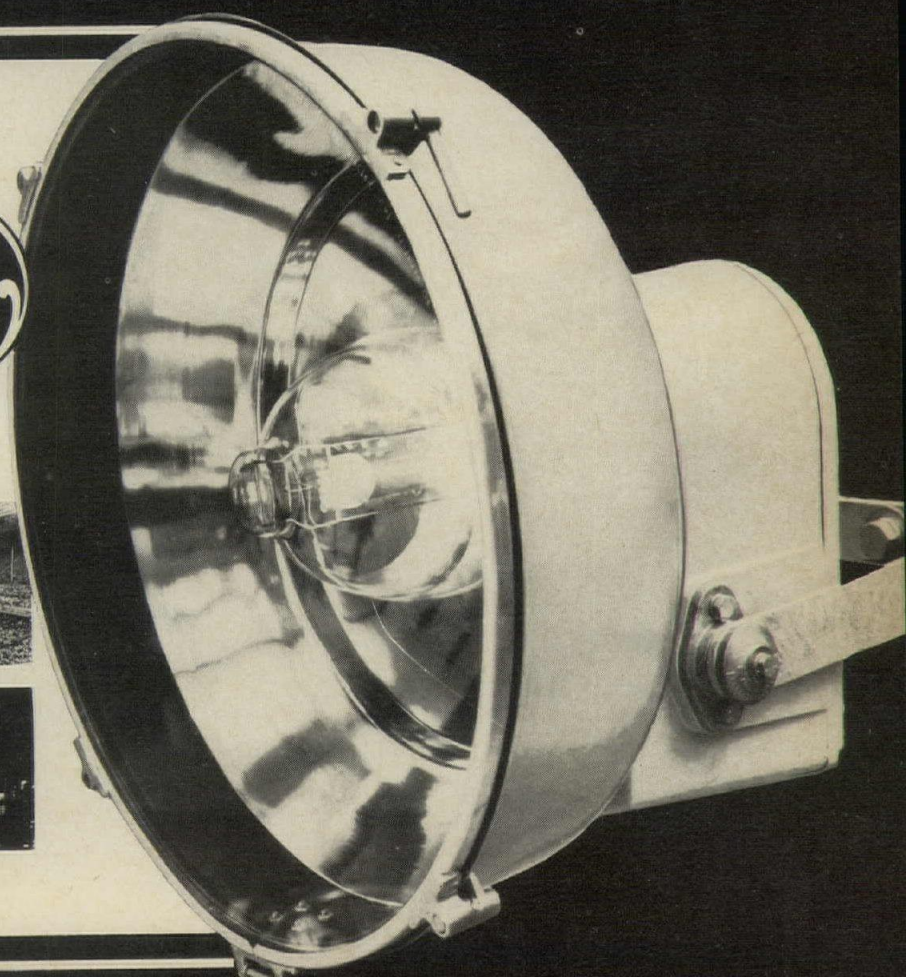
SPOT™ GE

Ideal for race tracks . . .

sports fields . . .

railroad yards . . .

and architectural lighting.



Don't chain school planners to an inflexible, immobile unit ventilator

Select the totally flexible Lennox DMS Heating-Cooling-Ventilating System

Many new schools are obsolete the day they open! Why? Because the planners became locked into inflexible mechanical and structural systems.

For example, unit ventilators. They require permanent walls, and permanent connections to a hot or chilled water supply. They occupy space within the classrooms. And the boilers and water chillers involved occupy costly space within the building.

The answer: The Lennox Direct Multizone System that requires no floor space, and no permanent walls, and no "boiler" room.

Because its overhead ducts are flexible, outlets can be moved at will. Therefore, walls can be moved, or added or eliminated. And buildings can be added to (you simply put additional DMS units on the roof).

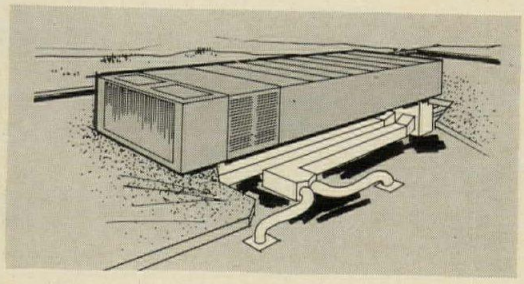
Each Lennox DMS provides room by room thermal control (up to 12 zones per unit). Each responds instantly to changes in weather, occupancy, or activity.

In fact, a DMS unit can provide 100% outside air if required. It can cool free, with outside air, any time temperatures are below 57°F. Mechanical cooling can be installed originally or added any time.

Gas, hot water or electricity can supply the heat.

A low (42") silhouette, and wide choice of outlet designs, impose virtually no architectural limitations.

The Lennox DMS provides the ideal learning climate, both thermally, and in terms of spatial flexibility. For information, see Sweet's—or write Lennox Industries Inc., 106 S. 12th Avenue, Marshalltown, Iowa.



LENNOX®

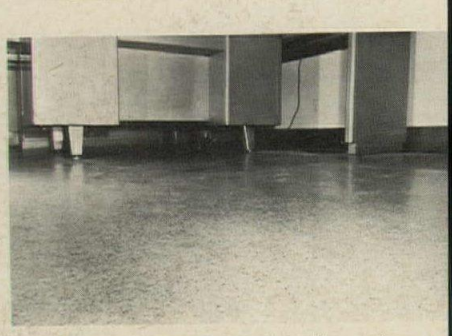
AIR CONDITIONING • HEATING

For more data, circle 75 on inquiry card

continued from page 163

RAMP FOR HANDICAPPED / A specially-designed ramp permits the severely handicapped to use regular outdoor recreation facilities such as swimming pools. ▪ Henry J. Campbell Jr. and Associates, Garden City, N.Y.

Circle 306 on inquiry card



RESILIENT FLOORING / *Selbacork* combines the toughness and lustre of urethane with a specially compounded cork aggregate. Although it is extremely resilient, it is also highly abrasion-resistant. There are no seams and the finish requires a minimum of maintenance. The quietness of the ⅛ in. thickness makes it attractive for such areas as churches, libraries, schools, and offices. ▪ Selby, Battersby & Co., Philadelphia.

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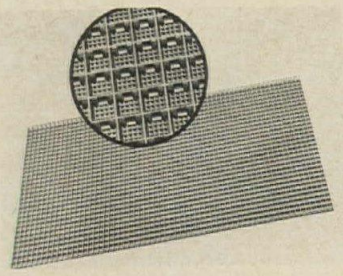


TWO-IN-ONE LIGHTING LENS / A lighting control provides all the benefits of both lens and louvers in one unit. The *Sinko Louver Lens* is slotted for unobstructed air flow. It is available in acrylic and styrene, in clear, translucent white and low brightness, and is provided in frameless style as well as T-Bar lay-in systems. ▪ MSL Plastics, Franklin Park, Ill.

Circle 308 on inquiry card

more products on page 17

In an apartment house, families live inches apart.

BEFORE YOU SPECIFY WHAT THOSE FEW INCHES SHOULD BE, REMEMBER ONE OF MANKIND'S MOST CHERISHED RIGHTS IS IN YOUR HANDS. PRIVACY.

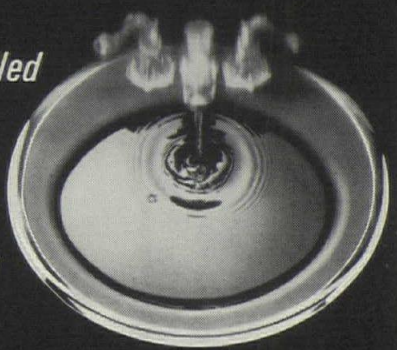
Keep New York Plastered.
THE PLASTERING INSTITUTE OF NEW YORK

For more data, circle 44 on inquiry card

For Sanitary, Watertight and Lifetime installation

Frame-installed bowls in vanities and countertops

Are the best!



Over 40 million **HUDEE** installations prove that sink frames—accepted and approved by everyone—provide the best sanitary and watertight seal. And the original Hudee sink frames, always the best, make the difference!

They are easy to install, completely trouble-free, and available in all types and sizes for immediate delivery everywhere. **And now you can even get stainless steel Hudee frames in 24K gold plated and chrome plated too!**

Write for Free Fact Book

187

SELCK

WALTER E. SELCK AND CO.
7136 W. GUNNISON ST. • CHICAGO, ILL. 60656
1216 S. Vandeventer Ave. ST. LOUIS, MO. 63110 | 166 Glenwood Ave. MINNEAPOLIS, MINN. 55405

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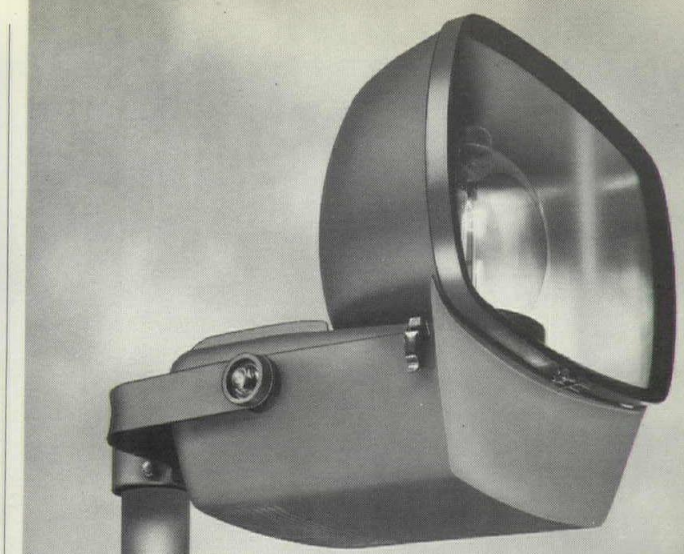
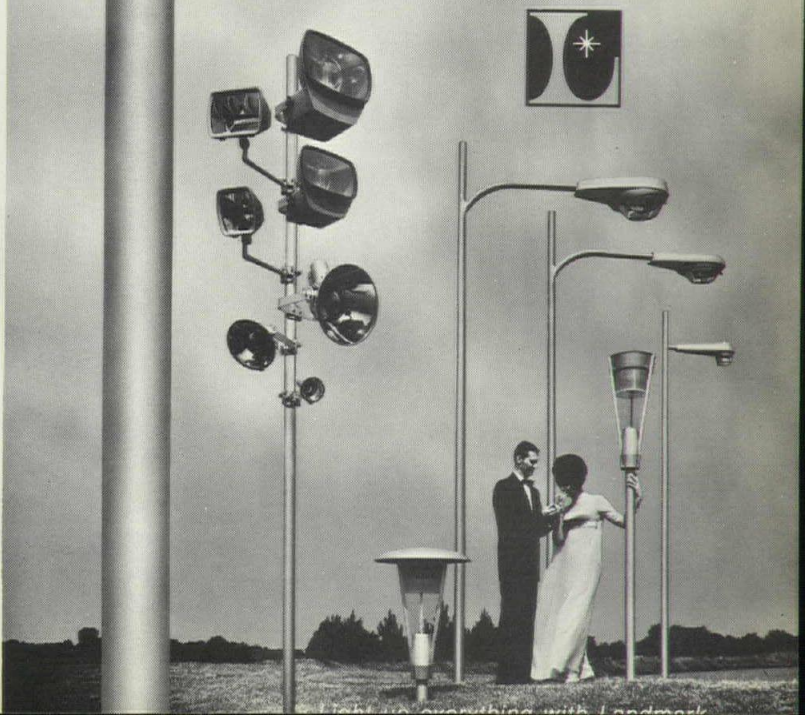


This Landmark Flood will still be an advanced design when they change the lamp ...7 years from now

With Mercury Vapor lamps rated 24,000 hours, today's floods must be as esthetically pleasing in years to come as when they are installed. Landmark's contoured design, cast aluminum "Recta-Flood" is created for the future. Its versatility appeals to the specifier, easy installation pleases the contractor, elimination of service problems makes a hit with the owner. Also available with Metallic Vapor lamp. Write Dept. HH for photometric data, specifications, and name of Landmark representative. Our condensed catalog is in Sweet's.

LANDMARK LIGHTING
Division of American Electric Manufacturing Corp.
Southaven, Mississippi 38671



For more data, circle 81 on inquiry card

PRECAST MAKES THE DIFFERENCE.
ATLAS WHITE MAKES THAT DIFFERENCE WHITE.

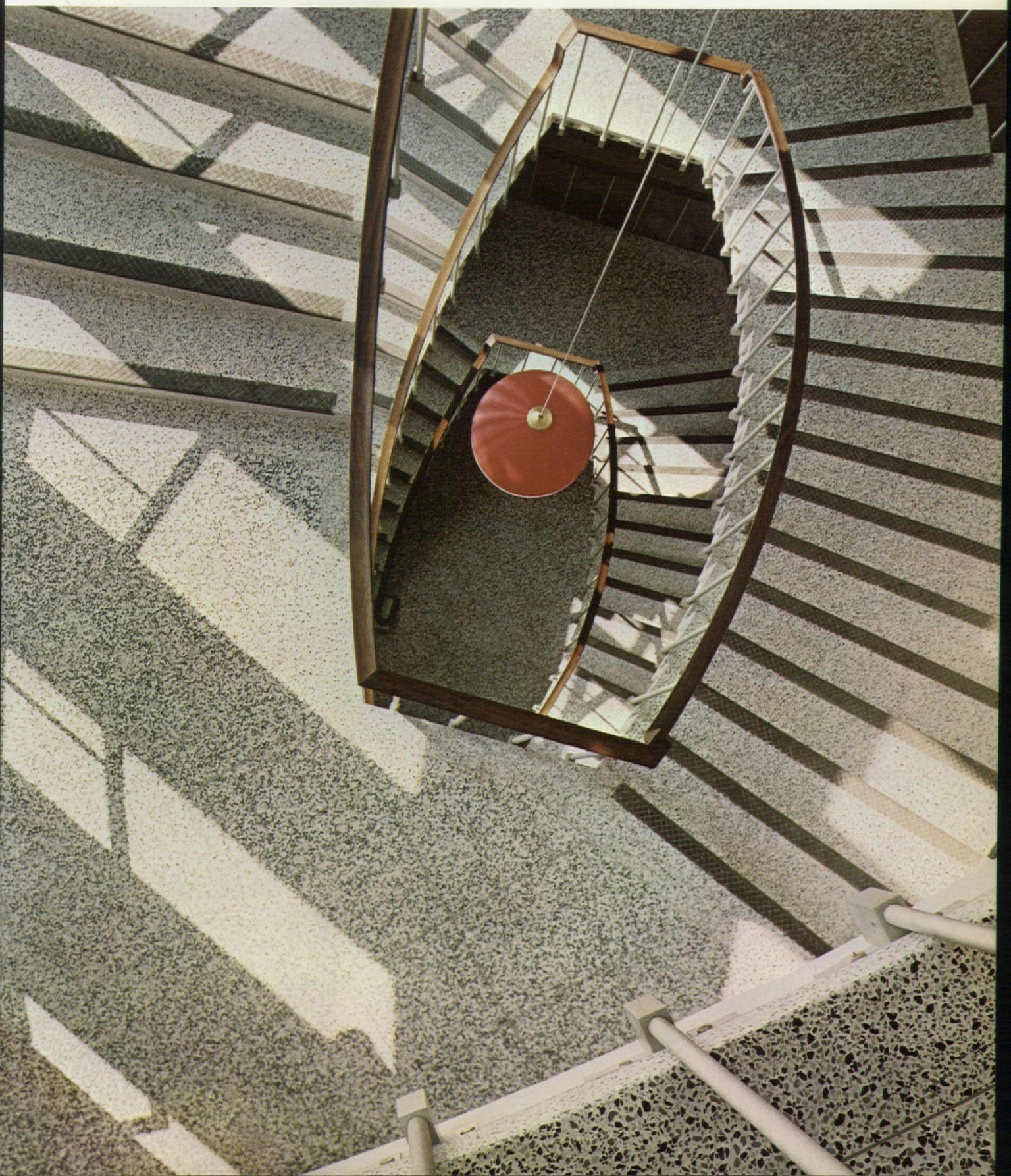
H. D. Lee Building, Mission Woods, Kansas. This is precast at its best. The slim, graceful columns taper from 16-inch square bases to 10-inch square tops, where they meet precast capital arches that flare out to 8-foot squares. The design is made even more striking by the use of Atlas White Cement. Universal Atlas cements are known for their uniform brilliance, whiteness, and physical characteristics that assure quality throughout every phase of construction. And Atlas offers more types of white cement than any other producer. Precast Manufacturer: Wilson Concrete Co., Omaha, Nebraska. Architect: Linscott, Haylett & Assoc., Kansas City, Missouri. General Contractor: Bob Eldridge Construction Co., Inc., Kansas City, Kansas. For more information, write Universal Atlas Cement Div. of U. S. Steel, Room 5112, Chatham Center, Pittsburgh, Pa. 15230. Atlas is a registered trademark.

Atlas
WHITE CEMENT

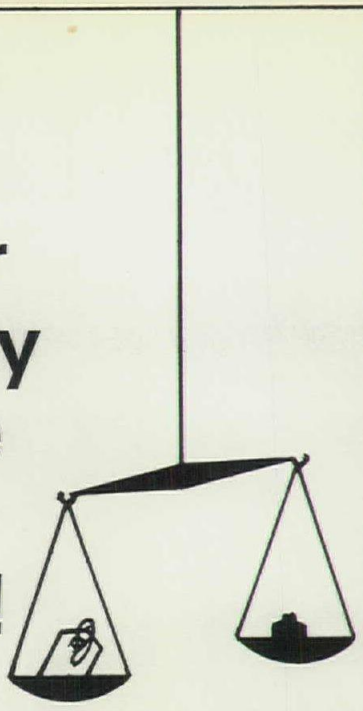
TERRAZZO LASTS A LIFETIME.
ATLAS MAKES THAT LIFETIME BEAUTIFUL.

McNutt Quadrangle, Indiana University, Bloomington, Indiana. The lively, colorful beauty of this 4-story free-standing terrazzo stairway could very well outlast the building itself. Nothing matches terrazzo for lifetime durability. And nothing matches Atlas White Cement for bringing out the true, uniform color of pigments and aggregates in terrazzo. In this installation, the stone is half black, half white, and the matrix is 100% pure Atlas White Cement. Terrazzo Contractor: Midwestern Terrazzo Co., Indianapolis, Indiana. Architect: James and Associates, Inc., Indianapolis, Indiana. Supervising Architect: Eggers and Higgins, New York, N. Y. General Contractor: Hagerman Construction Co., Fort Wayne, Indiana. For full details, write Universal Atlas Cement Div. of U. S. Steel, Room 5112, Chatham Center, Pittsburgh, Pa. 15230. Atlas is a registered trademark.

Atlas
WHITE CEMENTS



Sure the price tag is heavier ...but only to save you money!



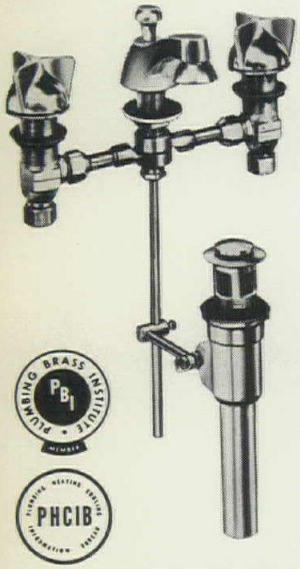
We do put extra metal, extra plating, extra care into Chicago Faucet bodies. For one reason alone: We expect them to last for years and years.

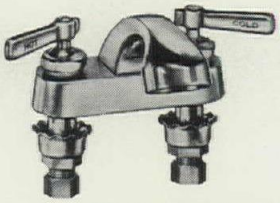
You see, Chicago Faucet design gathers all operating parts into one replaceable unit. This is unusual first because it closes with the pressure—works easier, stays leak-free longer. Then when service is needed you just drop in a spare unit, finish repairs at the bench. Best of all, if ever necessary you can completely renew the operating heart without disturbing the body or connections.

Does this Chicago Faucet idea really work? Can it promise to save you money? Ask anyone who bought Chicago Faucets 20, 30 or even 50 years ago.

Chicago Faucets offer the biggest line of laboratory fittings also. Ask for catalogs.

No. 897 Service Sink Faucet with integral vacuum breaker, adjustable wall brace, pail hook, adjustable supply arms with integral stops.





No. 967 Spray Head Lavatory Faucet, for today's public washrooms. Reduces splash and water waste, permits washing in clean running water.

No. 1746-E15 Widespread Lavatory Fitting with pop-up waste, in Classic pattern. Available with spray, plain or aerator spouts.

PLUMBING BRASS INSTITUTE PBI MEMBER

PHCIB

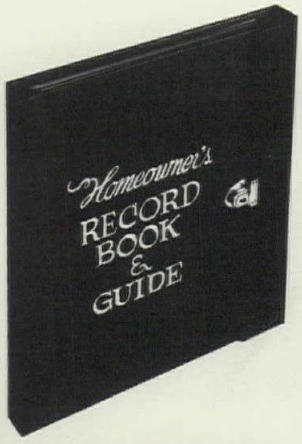
CHICAGO FAUCETS®

LAST AS LONG AS THE BUILDING

THE CHICAGO FAUCET CO., 2100 S. Nuclear Drive, Des Plaines, Ill. 60018

(A Suburb of Chicago)

SPECIAL INTRODUCTORY OFFER



Home owner's Record Book & Guide

GIVE THIS HANDSOME, LOOSE-LEAF BOOK TO YOUR NEW HOMEOWNERS — IT'S DESIGNED TO HELP THEM WITH DAY-TO-DAY MAINTENANCE PROBLEMS AND WITH ESSENTIAL RECORD KEEPING.

IT INCLUDES—

★ CONVENIENT FORMS FOR RECORDING HOME PURCHASE DATA . . . REPAIR AND IMPROVEMENT COSTS . . . TAX AND MORTGAGE PAYMENTS . . . WARRANTY DATES . . . YEAR-TO-YEAR UTILITY CHARGES . . . INSURANCE DATA, ETC.

★ USEFUL INFORMATION ON HOME MAINTENANCE PLUS REPAIR TIPS ON LAWN, TREE AND SHRUBBERY CARE . . . IDEAS FOR PRESERVING AND IMPROVING THE VALUE AND BEAUTY OF A NEW HOME.

THIS UNIQUE BOOK IS YOURS ON A FREE EXAMINATION OFFER FROM

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A unique publication distributed daily to new home-planning families reported by F. W. Dodge giving manufacturers an opportunity to offer their product literature to over 50,000 prime prospects annually.

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Please send me the HOMEOWNER'S RECORD BOOK & GUIDE for 10 days free examination. In 10 days I will remit $6.95 plus any local tax and postage. Otherwise, I will return the book postpaid.

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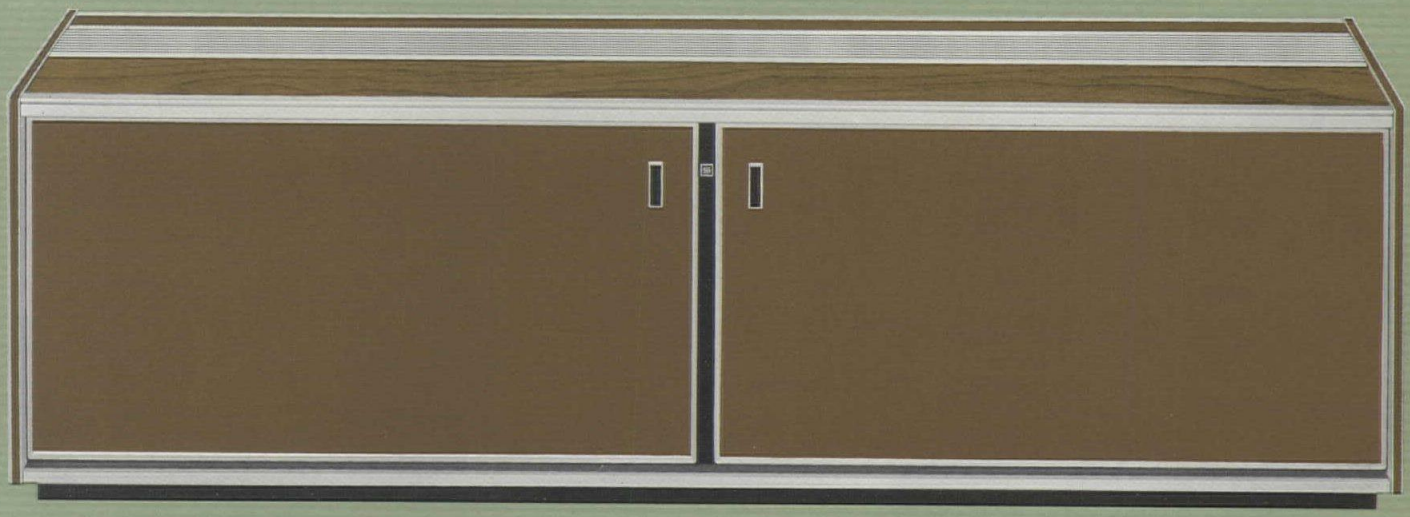
For more data, circle 82 on inquiry card

For more data, circle 83 on inquiry c

CAN YOU AFFORD NOT TO GO FIRST CLASS...
in something as permanent as a unit ventilator?
Maybe that's why more and more of the best schoolhouse architects and engineers recommend Schemenauer, the most thoughtfully engineered unit made!

DESIGNED AND BUILT BY SCHEMENAUER MANUFACTURING COMPANY HOLLAND, OHIO 43528

"The Benchmark of the Industry"

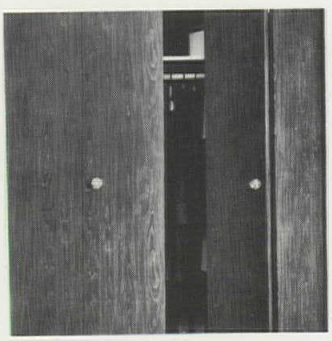


SCHEMENAUER

continued from page 176

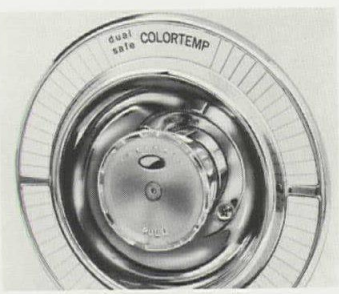
LAMINATED FABRICS / Genuine fabric incorporated in a high-pressure laminate is called *Numaplast*. The fabric-laminate is available on a custom basis of large or small quantities. *Numaplast* may be used on any vertical or horizontal surface and it is unaffected by cigarette burns, alcohol, coffee and fruit juice stains. ▪ Parkwood Laminates, Inc., New York City.

Circle 311 on inquiry card



BI-FOLD DOORS / These doors have a core of paper honeycomb which is said to give them excellent rigidity from top to bottom and completely prevent warping. Because the honeycomb core is about 90 per cent empty air cells, the doors are extremely light. The doors are available with five different vinyl surfaces in wood grains or linen patterns. ▪ Hexcel, La Mirarda, Calif.

Circle 312 on inquiry card

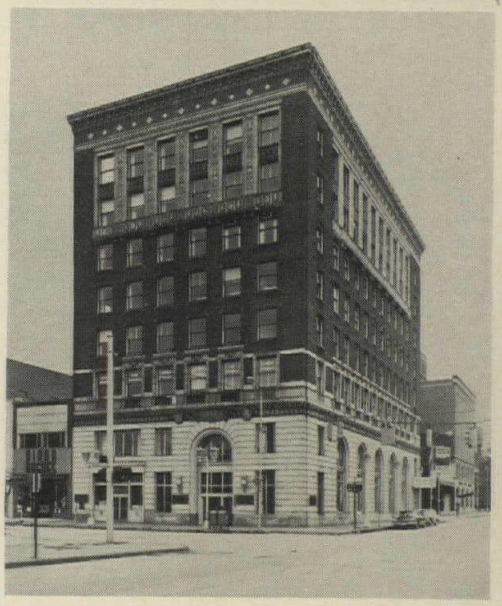


SHOWER TEMPERATURE CONTROL / A balancing control automatically maintains water discharge temperatures, once pre-set. ▪ Speakman Company, Wilmington, Del.

Circle 313 on inquiry card

more products on page 19

Transformation in Muskegon 1910 1967



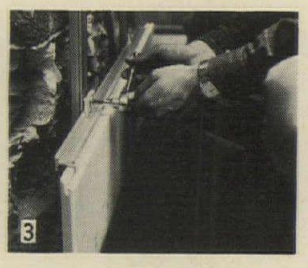
HACKLEY UNION BANK, Muskegon, Michigan

BANK BUILDING AND EQUIPMENT CORP.
Consultant, General and Interior Work Contractor

W. F. CANN, Architect

GEORGIA MARBLE SETTING COMPANY, Marble Erectors

The Zibell System cuts costs and gives new versatility to marble



1 Vertical struts are anchored to existing facade.

2 Horizontal supports lock into grooves in edge of 7/8" marble.

3 Horizontal members fastened by special clamps.

The Zibell System is a special arrangement of metal struts and fastenings that provide positive anchoring for marble as thin as 7/8". Old facades require a minimum of remedial work, and the lightweight installation rests easy on old footings. The Zibell System gives marble a versatility that designers like and an economy that delights the owners.

Write for New Brochure "THE ZIBELL ANCHORING SYSTEM"

The Georgia Marble Company

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COAST-TO-COAST CONSULTING SERVICE Our engineers stand ready to assist you any time any where on any subject involving marble or limestone. A phone call will put one of our men across the desk from you in a matter of hours. No obligation, of course.

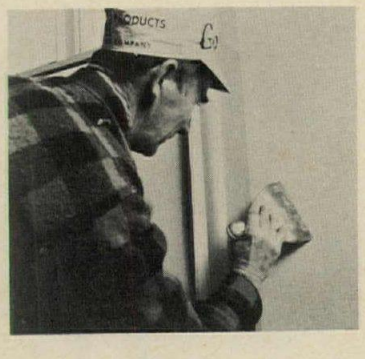
For more data, circle 89 on inquiry card

For more data, circle 88 on inquiry card

continued from page 194

PLASTIC FILM SURFACE / More than 25,000 sq ft of *Tedlar PVF* film bonded to vertical metal panels promises to keep the University of Mississippi's $1.7 million sports coliseum looking clean and new for years. The film is on a substrate of 16-gauge aluminum, bonded to 18-gauge prime painted steel over a layer of insulation, the whole making up a three-and-one-quarter-inch-thick insulated acoustical wall. According to the architects, Pritchard and Nickles of Tunica, Miss., the film was chosen because of its color fastness and to protect the metal against chipping, crazing, cracking or other maintenance problems. This installation is said to mark the first use of *Tedlar* on a splayed tapered panel for a radial wall section. ▪ E. I. du Pont de Nemours and Company, Wilmington, Del.

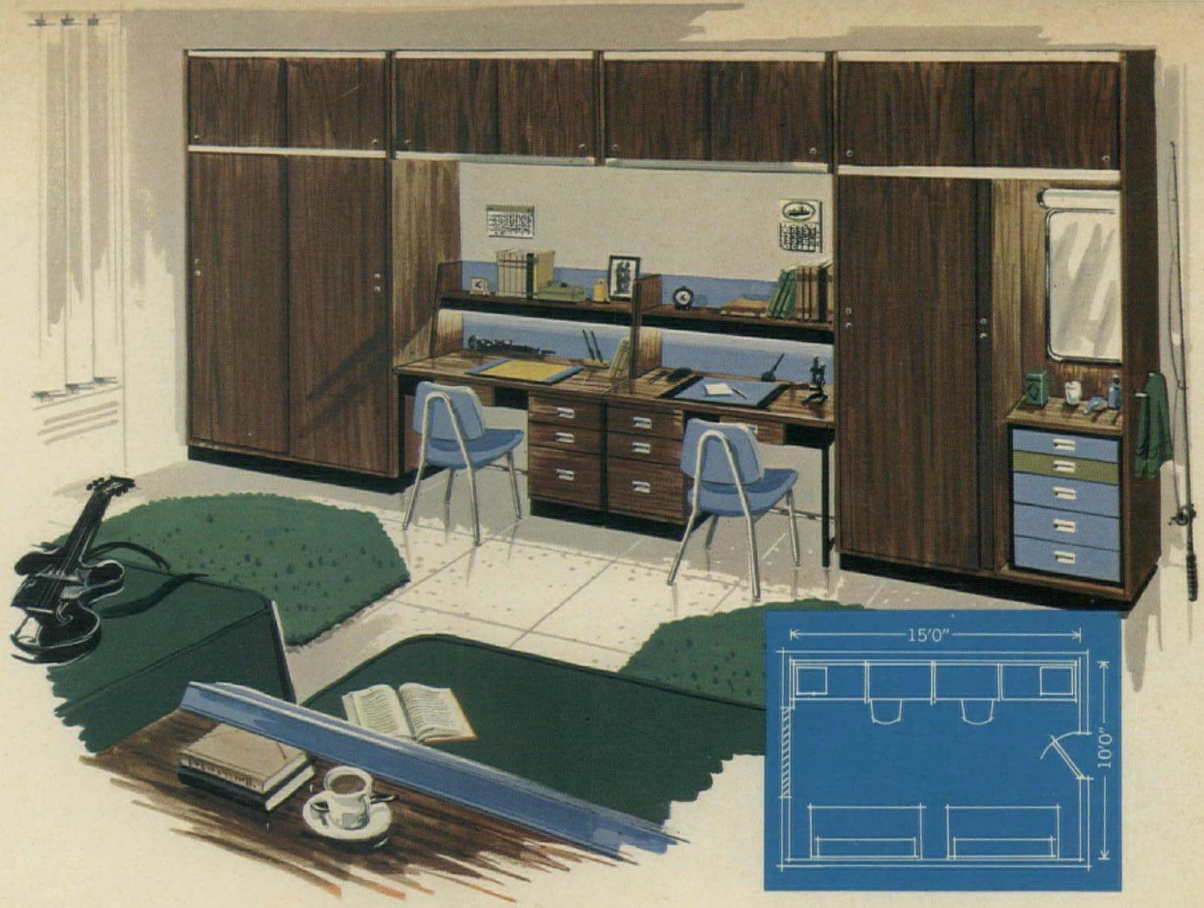
Circle 316 on inquiry card



INVISIBLE SEAMS / *Monolithic Durasan*, vinyl-surfaced gypsum-core paneling, is single-layer, pre-finished wallboard that can be screw-attached to steel studs without visible fasteners or battens and has no dirt-catching grooves or joints. Since it can be cleaned with soap and water the paneling is especially suited to hospitals, hotels and motels, apartments, dormitories, cafeterias, and other public or commercial buildings. Panels are available in eight colors. ▪ National Gypsum Company, Buffalo, N.Y.

Circle 317 on inquiry card

more products on page 204



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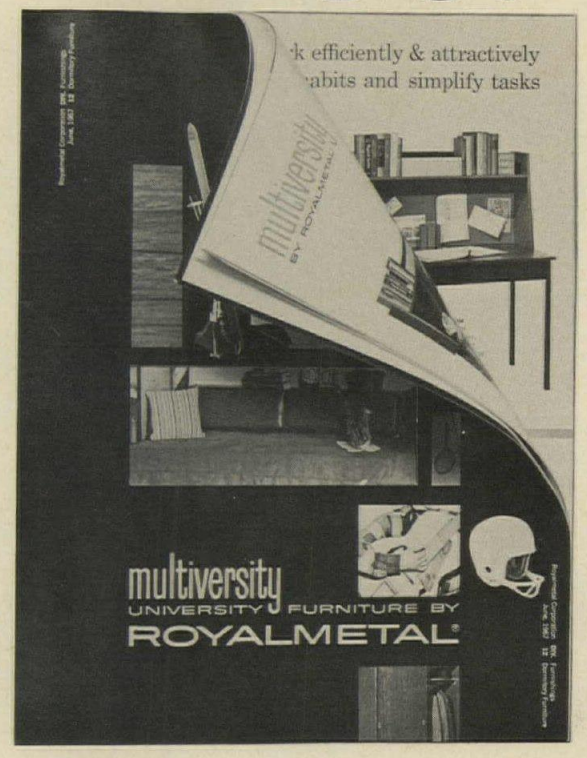

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22 acres of Zip-Rib® roofing

The time: sunrise. The scene: San Francisco Bay, overlooking the sun-gilded roof of one of the five enormous buildings in the Port Authority's new Army Street Terminal. The point: the designers locked out leaks by specifying Kaiser Aluminum's new Zip-Rib® roofing system. And they got a bonus besides—speed.

Our exclusive Zip-Rib system uses no nails, screws, or other through fasteners; this means that in the almost 1,000,000 square feet of un-holey roof on this deep-water port complex, there are 550,000 fewer chances for leaks. And because the corrosion-resistant panels are pre-cut to the exact ridge-to-eave length, there are no end laps to worry about, either.

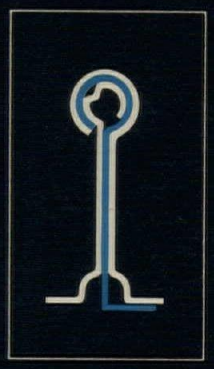
Yet its special design holds the Zip-Rib roof tight under heavy wind loads; the tie-down clips fit into the edge flange on each panel and are locked into place by our automatic closure tool which "zips" the panels together. Translucent plastic panels are fully compatible with the aluminum panels, letting you bring the sun inside.

Besides locking out leaks, the Zip-Rib system cuts the time needed to put a roof on by one-third or more. The six-month Army Street Terminal job was done in just over

....not one hole anywhere!

four months. And when you save time, you save money. The same kind of case history could be told about a containerized cargo handling facility of 45,000 square feet at San Pedro, California; about the new roof of almost the same size at a university's field house; about the 174,000 square feet of roofing on a race track grandstand in New York. All used Zip-Rib roofing.

Doesn't the Zip-Rib system sound like a good idea for your next building projects? For technical information literature, write Jim Larkin, Room 2136, Kaiser Center, Oakland, California 94604.



The design of our Zip-Rib system encloses and conceals the tie-down fastener in the "zipped-up" standing seam at the edge of each 12″ wide panel.

KAISER ALUMINUM

continued from page 20

FLEXIBLE DUCT / A flexible, U.L. Class 1 labeled insulated duct will conform to gradual bends necessary when connecting air ducts to diffusers or when routing air ducts through spaces with many obstructions. Used in low-velocity air-handling systems, the duct is light weight formed with a resilient, insulated core and jacketed with a tough noncombustible vapor barrier jacket. The duct is recommended for use as a complete air duct or connector. ▪ Owens-Corning Fiberglas Corporation.

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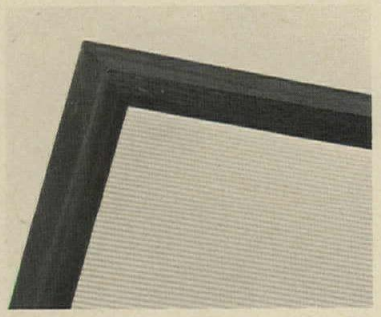

FLUORESCENT FIXTURES / The *Horizon* line of solid oiled walnut fixtures has an apparent depth of only 1⅞ in. The line includes two- and four-lamp types. Uniform low brightness, shadowless and non-glaring illumination find favor not only in offices, schools, and stores but also in residential family rooms, kitchens and dens. ▪ Smithcraft Corp., Chelsea, Mass.

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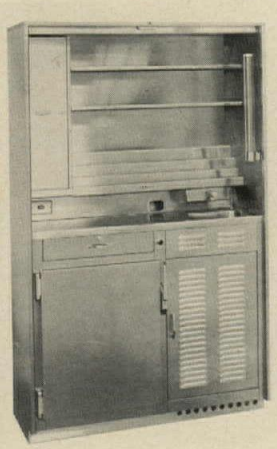
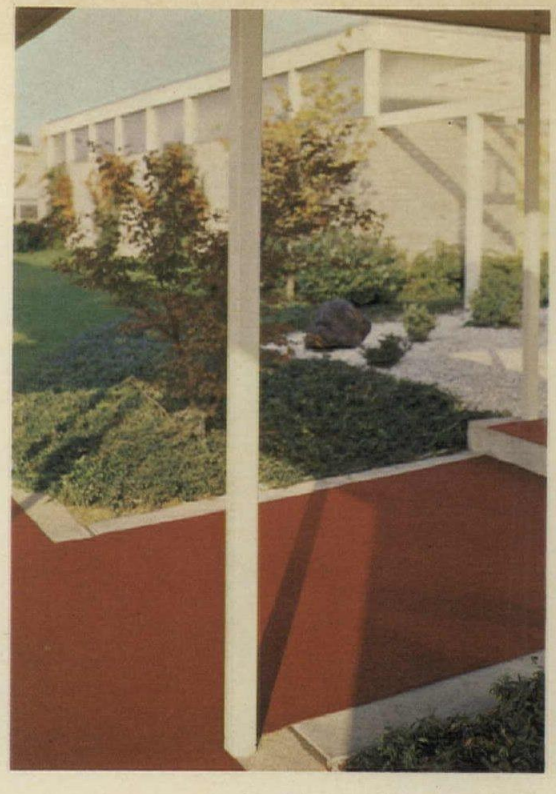


MEDICINE STATION / The *MP4 Medi-Prep* unit is available with choice of removable tiered shelves or adjustable flat shelves. It may be a floor stock unit, an individual order unit, or a combination of the two. ▪ Market Forge Company, Everett, Mass.

Circle 320 on inquiry card

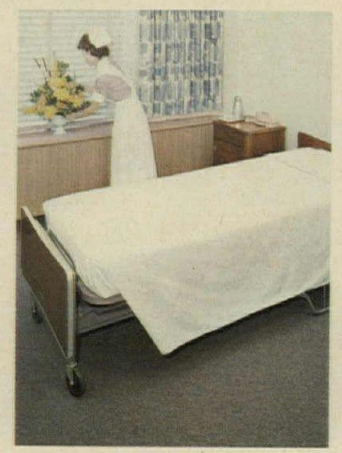
more products on page 210B

For more data, circle 92 on inquiry card



This could change your thinking from the ground up!

Ozite® Town 'N' Terrace Carpet made with Vectra® olefin fiber proved attractive and durable on walkways, balconies, patios, porches, in kitchens, hospitals, offices, restaurants...for over 4 years! Where would you use it?



Use your imagination! Ozite is the original, proven outdoor-indoor carpet. Sun, rain and snow haven't been able to hurt it. Won't rot. Won't mildew. Colorfast—because the color is *in* the Vectra fiber, not on it. And because Vectra fiber doesn't absorb moisture, it resists stains from food, drink, even household chemicals.

Use Ozite Carpet in kitchens and restaurants to add comfort, reduce noise, cut dish breakage. Put it in rec-rooms and baths to give warmth, end floor polishing and waxing. Use it in new dramatic ways outdoors . . . on patios, walkways, balconies.

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For additional information

. . . see the 8-page Ozite Carpets brochure in Sweet's Architectural Catalog File, Section 11L/OZ.

. . . ask your floor covering supplier to show you samples of all the famous Ozite Carpet products.

Good Housekeeping GUARANTEES REPLACEMENT OR REFUND TO CONSUMER IF PRODUCT OR PERFORMANCE DEFECTIVE

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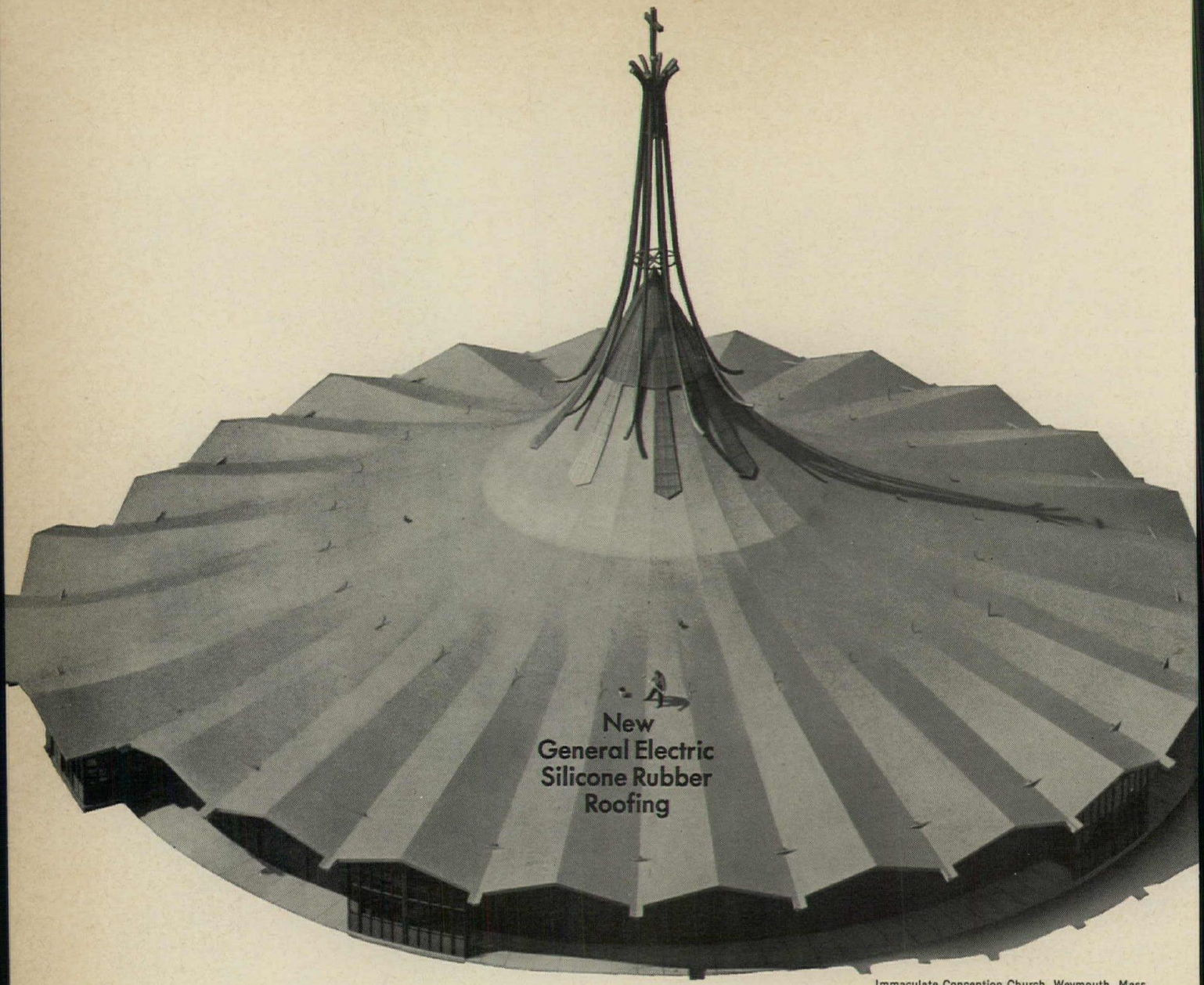


Immaculate Conception Church, Weymouth, Mass.
Architects: Holmes & Edwards, Boston, Mass.

The Goof Proof Roof. It covers any shape you can dream up.

A liquid GE Silicone Rubber Roofing System covers any shape you can design . . . elliptical, straight pitched, doughnut shaped . . . to make a long lasting, seamless elastic skin.

And, Silicone Rubber Roofing will stay weather resistant, seamless and resilient for years, if the substrate does its job. And that solves the most common problem of intricate roofs like this. Leakage.

As years of testing have shown, silicone rubber resists sunlight, ozone, ultraviolet and moisture. These are the things that cause eventual damage to other synthetic materials. So a Silicone Rubber Roof will not crack or embrittle. It exhales trapped air. And it will stay seamless as long as the substructure does its job.

Another beauty of Silicone Rubber Roofing is that it weighs only 1/20th of conventional built-up roofing. That opens up all kinds of design possibilities. It goes on in fewer man hours than any other liquid applied system. That keeps costs in line. And it doesn't take much skill. That's a help.

So, if you'd like to guard against goofs on your next showcase design, get the facts on GE Silicone Rubber Roofing. Write Section BG 12271, Silicone Products Dept., General Electric Co., Waterford, N. Y. 12188.

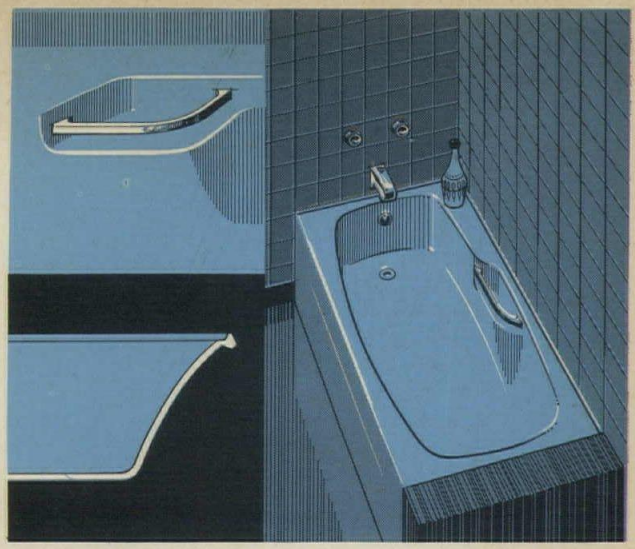
GENERAL ELECTRIC

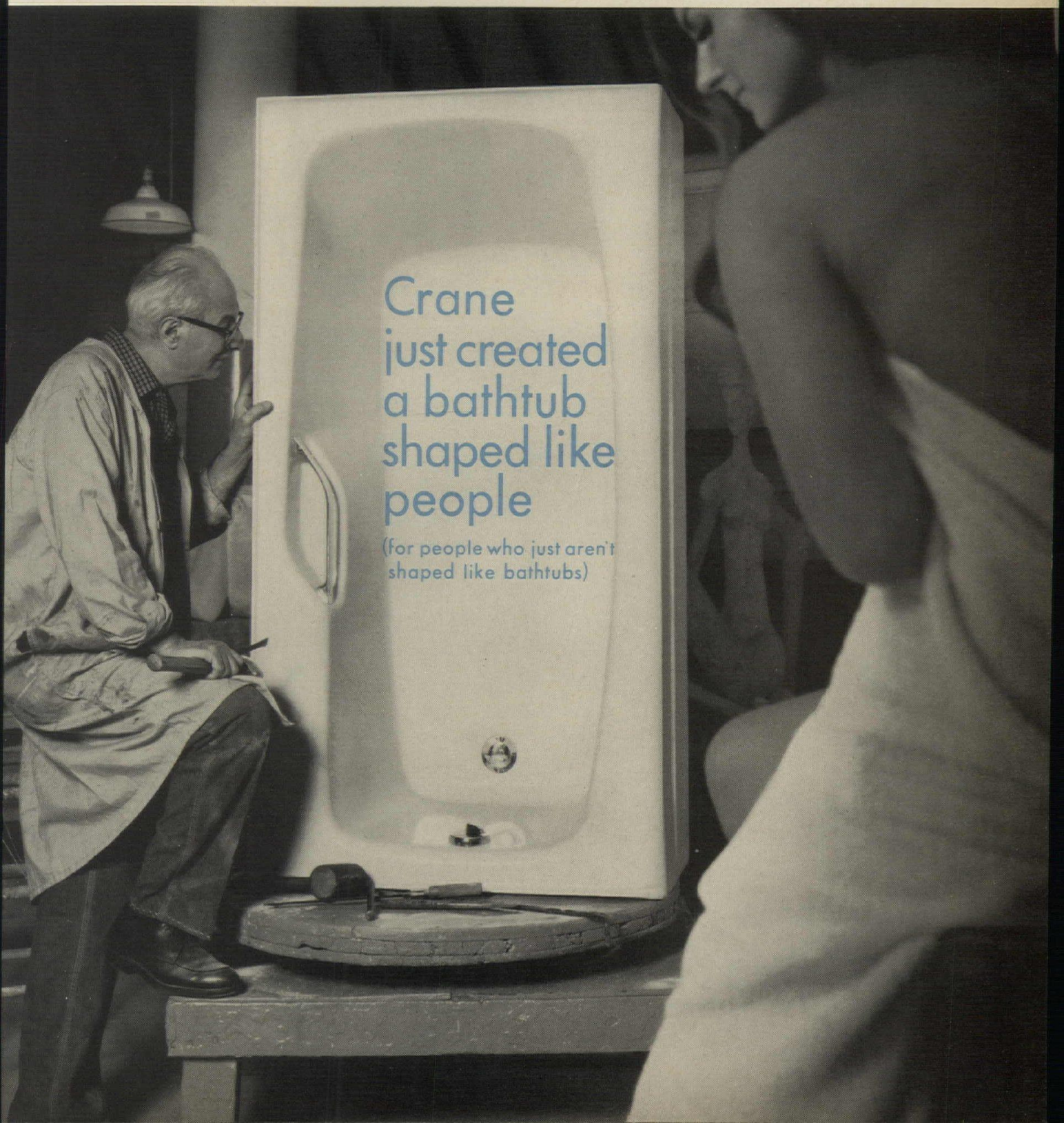
For more data, circle 95 on inquiry card

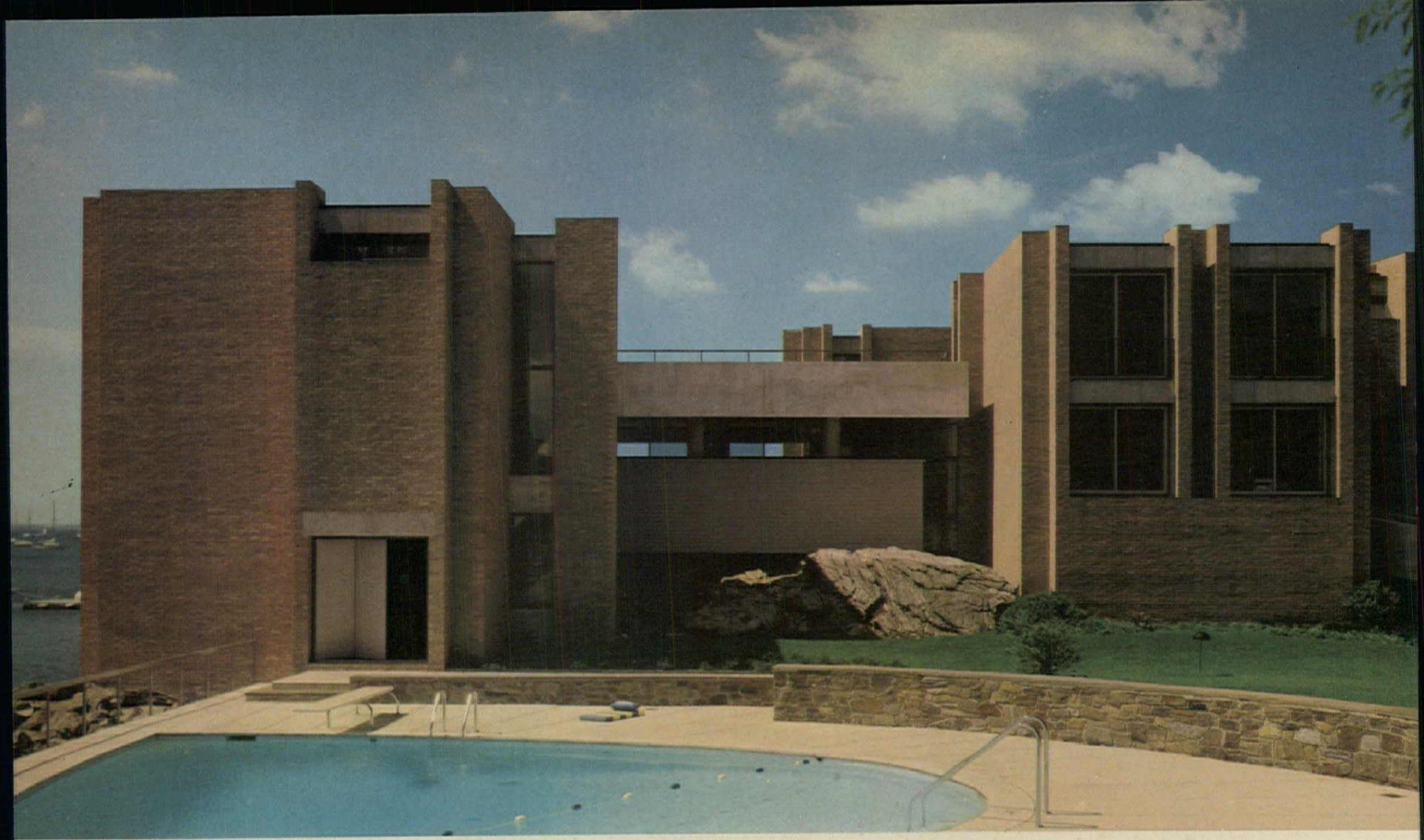
For more data, circle 96 on inquiry card

hand, how many people do you know whose ankles are as wide as their
? Or whose backs are ironing-board flat? Whose arms hang below their
es? Probably the exact number of people who can get really comfor-
e in a bathtub-shaped bathtub.
athtubs are beautifully shaped for sailing toy boats. But certainly not
ped for people.
ntil now. Until Crane created the new, body-shaped *Empress*, the very
bathtub to cuddle people in comfort. It's luxuriously wide at the seat
for lots of hip and elbow room. Slimmer at the outlet end to include a
e shelf for bathing accessories. The backrest is actually back-shaped
relaxing comfort. And the self-draining soapdish and strong assist-bar
where they should have been all along—right under your hand for safety
convenience. The outer rim even slims where you grip it for safe, grace-
entry and exit. Every thoughtful contour is built with the Crane quality
've admired, then permanently porcelainized in Crane's rich colors.
efore you design another bathroom, you owe it to yourself and to your
nts to see The Empress bathtub. It's
ome in any decor. For additional in-
nation write for Brochure ADJ-1984,
ne Co., Dept. 008, 4100 South Kedzie
nue, Chicago, Illinois 60632.

CRANE







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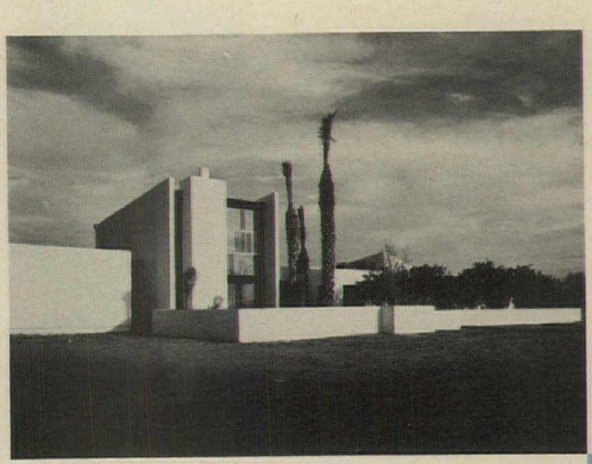


2

3

FROM RECORD HOUSES OF 1967

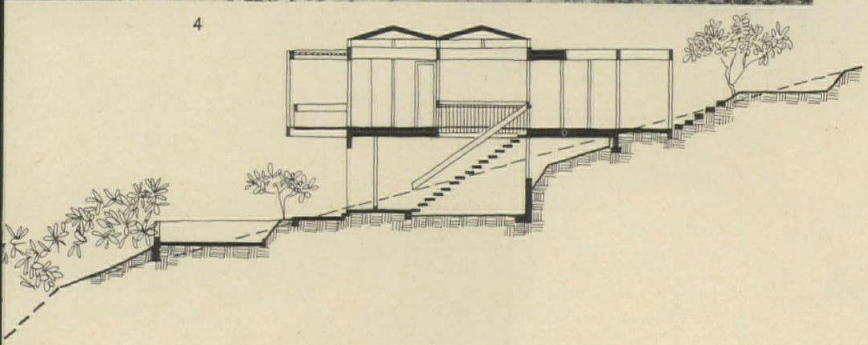
1 Island Residence, Long Island Sound, New York. Architect: Ulrich Franzen & Associates. Photo by Robert Damora
2 Gonzales House, Paradise Valley, Arizona. Architect: Bennie M. Gonzales. Photo by Bill Sears
3 Private Residence, Connecticut. Architect: Edward Larrabee Barnes. Photo by Joseph W. Molitor
4 Woo House, Los Angeles. Architect: Young Woo. Photo by Leland Lee

Coming in mid-May...

RECORD HOUSES OF 1968

Featuring...
The 20 Houses of the Year

4



A year in preparation, RECORD HOUSES OF 1968 will present the work of a wide variety of architects ranging from the well-known to talented unknown architects new to the ranks of major innovators. The houses will win for their architects and owners Architectural Record's coveted **Annual Award of Excellence for House Design.** All 20 award-winning houses are fully detailed with photographs (many in full color), plans and schematics. This highly visual presentation of each house, coupled with a clear statement of the problems and purposes behind its planning, will make RECORD HOUSES OF 1968 an ideal tool for opening your client's eyes to ways in which architecture can serve their individual needs, aspirations and way of life.

RECORD HOUSES OF 1968 comes to you as part of your subscription to Architectural Record. And again in 1968, RECORD HOUSES will be distributed to the nation's 23,000 foremost builders to accelerate the healthy trend toward greater architect-builder collaboration on tract housing. The house building and buying public will find it on sale at leading book stores.

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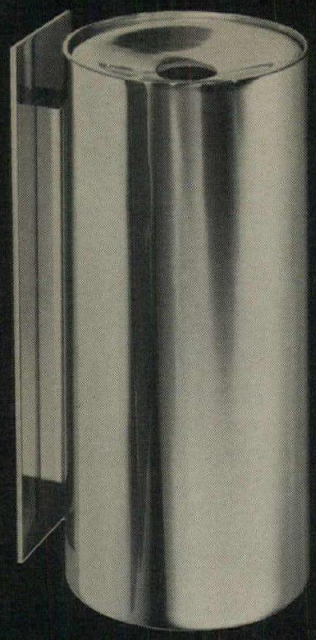

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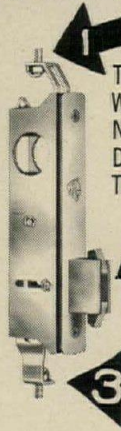

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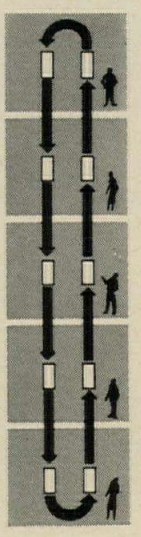

FREE BULLETIN describes Standard Conveyor *Recordlift*—ideal for multi-story buildings requiring inter-floor delivery of mail, documents, books, anything weighing up to 32 lbs. per load. Widely used in high-rise office buildings, insurance companies, banks, libraries, hospitals, etc. *Send today.*

Standard Conveyor COMPANY

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(Except for those designing jobs for locations outside the U.S.)

We want to talk about the Archimetric System, a new series of architectural products already proved in use in the US; and optional in Alcoa Duranodic 300® finish

Alcoa International has wrapped up the best features of aluminum building components in one neat, universal package. Curtain-wall, windows, doors, accessories . . . the lot. And all in Alcoa Duranodic 300, if specified. A complete range of aluminum architectural products capable of building anything from a modest shop to a luxury hotel. Because we are an international marketing organization we can supply your needs everywhere outside the U.S. 'Available everywhere' means that the nagging, time-wasting business of specification is simplified right down to one straightforward process . . . leaving you free to get on with the real business of being an architect. You can rely on Alcoa International to make sure that the local licensee is really trustworthy before he is given full responsibility for fabrication, assembly and installation of Archimetric products. He stands ready to inform, estimate, schedule, and deliver on any project. Any size. Anywhere. Except the U.S. of course.

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This booklet may contain the answer to one of your current problems. Better get it right away. The address is:
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ALCOA INTERNATIONAL

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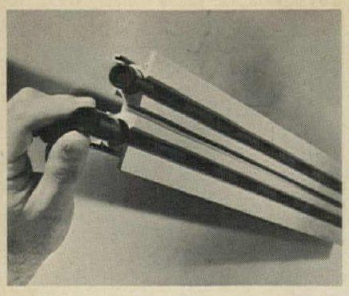
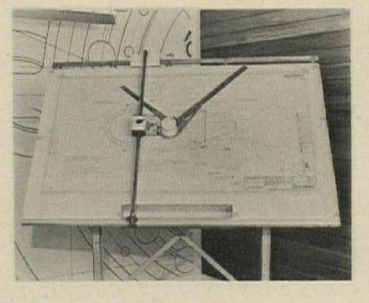


CEILING GRID AIR DIFFUSER / *Tri-Trol Air Trak*, a satin finish extruded aluminum grid, will support all standard ceilings and lighting fixtures, and features a center groove to permit complete flexibility in partitioning interior areas. Air distribution patterns are adjustable within a full 180 deg through three-inch-long openings alternating for the continuous length of the installed grid. A knurled knob adjusts the control valve for the full length of the module. ▪ Krueger Manufacturing Company, Inc., Tucson, Ariz.

Circle 321 on inquiry card

PLAYGROUND EQUIPMENT / A wide range of stainless steel product lines include seven basic slide designs, 75 swing set designs, seven glider swing designs, a variety of merry-go-rounds, spring-supported animals, climbers, muscle bars, obstacle courses, basketball equipment, bicycle racks, park benches, and picnic tables and grilles. One of the latest slides is a 26-ft. high space rocket. The company makes available proposed playgrounds in miniature, using scale models after they have received a dimensioned sketch of the playground and the approximate age range and number of children who will use the area. ▪ Game-Time, Inc., Litchfield, Mich.

Circle 322 on inquiry card



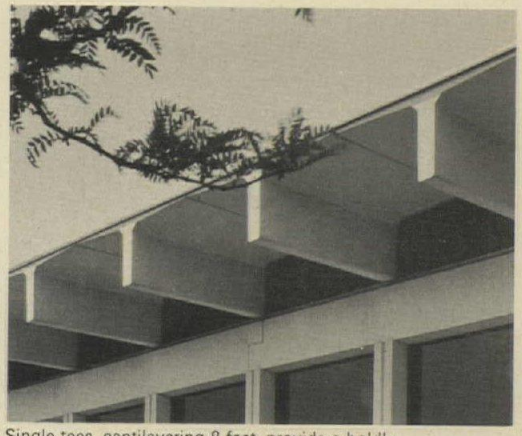
DRAFTING HEAD / A magnetized drafting head, which is self-locking in any position and needs no wires or counterbalances, is claimed to cover the whole of a normal 54-in. by 32-in. drawing board to the top rail without extensions. The head is mounted on a carriage and vertical rod assembly and is locked in position by a simple trigger mechanism. For left-handed draftsmen, and to enable the entire drawing surface to be used, the head may be released from its vertical rod slide and rotated through 180 deg and replaced. ▪ British Information Services, New York City.

Circle 323 on inquiry card

Medical Merchandise Mart, Lincolnwood, Illinois
Owner: Moss Corporation · Architects: Fridstein & Fitch, Chicago · Structural Engineers: George A. Kennedy & Associates, Inc.
Prestressed Concrete Fabrication: J. W. Peters & Sons, Inc., Burlington, Wisc.

Prescription for economy: Concrete tees that combine mechanical and structural functions

At the Medical Merchandise Mart, a one-stop shopping center for doctors, prestressed single-tee units span the 96-ft. wide showroom and cantilever beyond. Only prestressed concrete could combine the long spans and striking appearance within the budget limitations of this project.



Single tees, cantilevering 8 feet, provide a boldly modern roofline.

Contributing to its economy was the ability of the tees to perform beyond their primary structural function. Their very shape reduced the cost of air distribution and made practical the use of inexpensive light fixtures.

Again, the undersides of the tees require no weather protection outside and only a coat of light-reflecting paint inside if desired.

The structural system is a combination of prestressed concrete tees and precast framing. The high white ceilings and freedom from columns give the feeling of an open-air display that enhances the building's function—the display of medical equipment.

The Medical Merchandise Mart is typical of structures being built today for new reasons and new functions; an excellent example of how total thinking and cooperation between owner and architect can create a structural answer that is both aesthetically pleasing and commercially functional.

For the full story on design and construction details of the Medical Merchandise Mart, write for free literature. (U.S. and Canada only)

PCA **PORTLAND CEMENT ASSOCIATION**
DEPT. A12-8, 33 WEST GRAND AVE., CHICAGO, ILLINOIS 60610

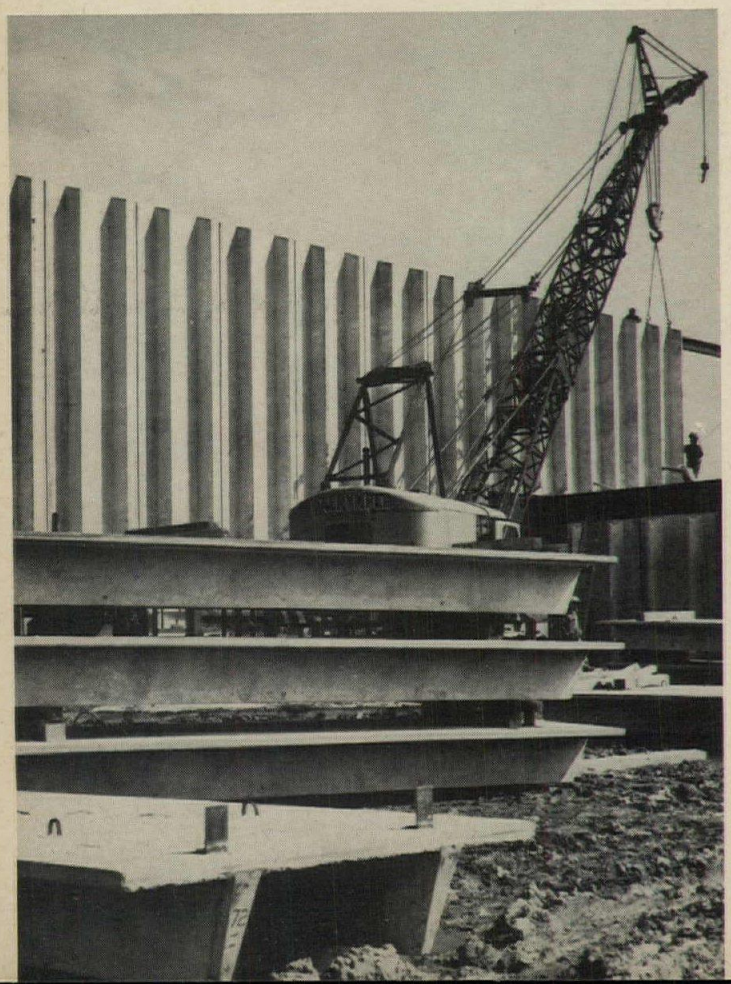
An organization of cement manufacturers to improve and extend the uses of portland cement and concrete

For more data, circle 100 on inquiry card

Versatility...in prestressed concrete

Double-tees do double duty in 360,000 sq. ft. shopping center

The Mall in Big Flats, New York
Owner: Arnot Realty Corporation, Elmira, N. Y.
Architect: Robert W. Kahn Associates, New York, N. Y.
Contractor: Welliver Construction Co., Elmira, N. Y.
Prestressed Concrete Supplier: Dalrymple Gravel & Contracting Co., Inc., Elmira, N. Y.



The Mall — a new, enclosed shopping complex between El and Corning in Big Flats, New York — is employing one stressed concrete member to function as two design elem

Double-tee members, 7½ feet wide by 18 inches deep, s as roof panels enclosing the mall area. In addition, these ments also serve as exterior wall panels, lending beauty basic continuity throughout the structure.

Use of these prestressed concrete elements helped mini wintertime construction problems. Pre-cast under contr plant conditions and delivered to the site when construc crews were ready for them, the double-tees permitted wor continue even when weather and ground conditions were than ideal.

Today, the versatility of prestressed concrete is in evid in shopping centers, high-rise apartments, office buildings, p ing decks, bridges, dock facilities, transportation termina in projects throughout the nation. And for these projects, r and more quality conscious prestressed concrete supplier relying on service-proved TUFWIRE® and TUFWIRE Strand their post-tensioning and pre-tensioning operations. For pendable performance . . . TUFWIRE and TUFWIRE Strand.

If you are interested in seeing other examples of prestre concrete's versatility, then write for a free copy of our booklet *Prestressed Concrete: a Growing Concept in Cons tion*. Union Wire Rope Products, including TUFWIRE TUFWIRE Strand for tensioning, are made by Armco Steel poration, Department W-3297, 7000 Roberts Street, Ka City, Missouri 64125.

ARMCO STEEL ARM

For more data, circle 101 on inquiry card

continued from page 164

BUILT-UP ROOFING / A 20-page manual includes information on a built-up roof walkway and protective course, double-coated and asbestos felts, and all-weather plastic roofing cement. ▪ The Philip Carey Manufacturing Company, Cincinnati.*

Circle 415 on inquiry card

LOCALIZED LIGHTING / A 16-page catalog illustrates more than 100 fixtures including applications for assembly, inspection, machining, graphic arts, loading docks, sewing machines, presses, brakes, and desks. Fluorescent and incandescent models make up the complete line of rigid, flexible and floating arm types. ▪ Fostoria Corporation, Fostoria, Ohio.

Circle 416 on inquiry card

MEMBRANE WATERPROOFING / An informative folder outlines effective uses of rubber membrane sheeting for waterproofing problems above and below grade. ▪ Rubber & Plastics Compound Co., New York City.*

Circle 417 on inquiry card

JEWELED PLUMBING FIXTURES / A hand carved, shell-shaped marble water closet cover available in twelve shades of marble and onyx is the highlight of a 60-page book! Included also are jeweled plumbing fixtures and such accessories as gold and silver-plated basin sets, custom cabinets, hardware, lighting fixtures, decorated bowls, towel bars and paper holders, soap dishes, towel rings, medicine cabinets and harmonizing wallpapers. $1.00. ▪ Sherle Wagner Corp., 125 East 57 St., New York, N.Y. 10022.

MODULAR COMPONENT SYSTEM / A described in a 4-page leaflet, framing lighting-ceiling components, heating ventilating air-conditioning system and interior walls of the system are engineered to fit a basic five-foot module. On-site work is minimized, and interior components may be rearranged at any time. Illustrations show applications for schools. ▪ Macomber Incorporated, Canton, Ohio.*

Circle 418 on inquiry card

SHIELDING SYMPOSIUM / A 44-page booklet entitled "Construction of Shielded Enclosures" includes over 40 illustrations and a complete transcript of the presentation. ▪ Ray Proof Corporation, Norwalk, Conn.*

Circle 419 on inquiry card

ACOUSTICAL PLENUM BARRIERS / An 8-page bulletin offers practical details and a field guide to the erection of thin sheet lead noise barriers above a hung ceiling. ▪ Lead Industries Association, Inc., New York City.*

Circle 420 on inquiry card

MERCHANDISING SYSTEM / A 39-page booklet describes a modular system with changeable and reusable steel fixture equipment for stores, restaurants and offices. Moveable fixture walls, tandem merchandisers and accessories are available in many surface finishes including vinyl metal laminates in solids, wood and leather grains, metallics and weaves. ▪ Ready Metal Manufacturing Company,

Circle 421 on inquiry card

GRATING / A tab-indexed, 28-page catalog covers a complete product line. Detailed engineering data is included on welded steel, rectangular bar, and I-bar aluminum. ▪ Kerrigan Iron Works Co., Nashville.

Circle 422 on inquiry card

* *Additional product information in Sweet's Architectural File*

For more data, circle 104 on inquiry card

Completed Project:

mpleted Project: USS ULTIMET es this office building the tinctive appearance that only ong, beautiful, maintenance-free inless steel can provide. nificantly, the building is owned the Joslyn Stainless Steel & pply Company, Fort Wayne, Ind.

sting: USS ULTIMET wall under- es dynamic test for resistance to ter infiltration (NAAMM Test C-2). e wall was subjected to a water ay and winds of 100 and 130 les per hour. Results: No evidence water on the interior.

oduction: Two half-mullions e continuously seam-welded this resistance seam-welding achine. USS ULTIMET components e maintained in inventory to sure immediate delivery.

brication: Shop preparation of LTIMET components for installation fast and simple. Many of the apes require only cutting to length th abrasive cutting equipment.

rection: USS ULTIMET Framing embers go up fast and easy. orkman snapping in a horizontal ember which can support either sulated panels or fixed glass.

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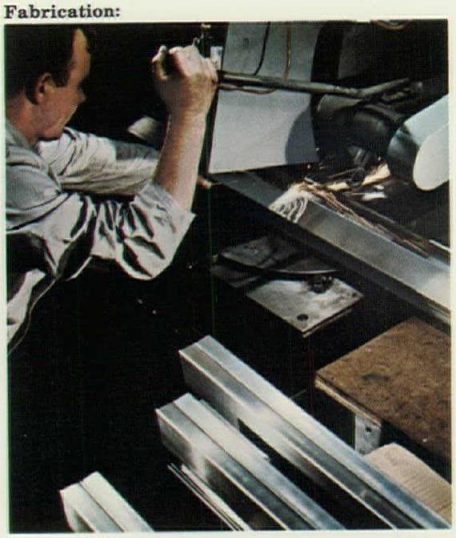

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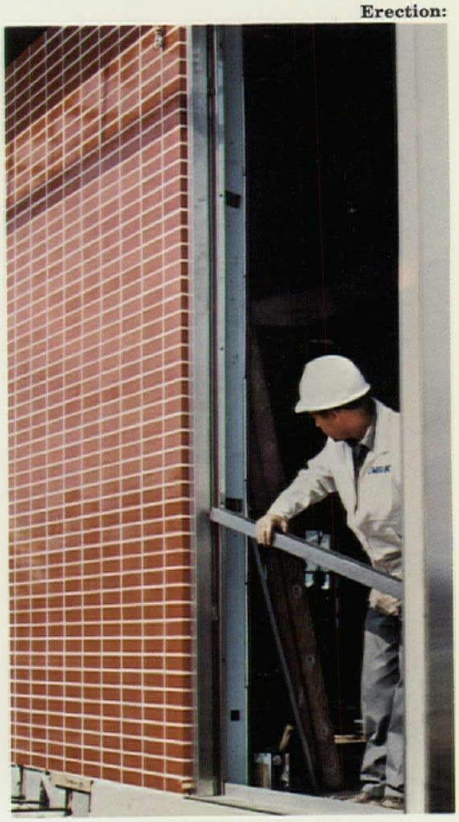

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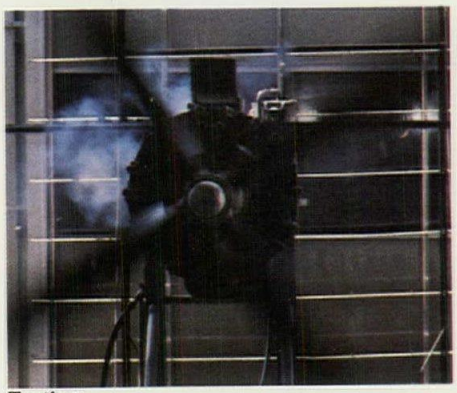
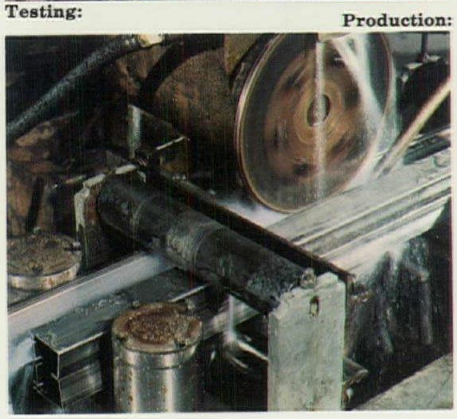


Production:



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- ☐ "Suggested Guide Specifications for USS ULTIMET Stainless Steel Wall Framing."
- ☐ "Suggested Guide Specifications for USS ULTIMET Stainless Steel Narrow Stile Swinging Doors and Frames."
- ☐ "USS ULTIMET Stainless Steel Business Showplaces" (renderings of storefronts).
- ☐ Information on USS ULTIMET in USS COR-TEN Steel.

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Firm_____

Address_____

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continued from page 78

George R. McElvy and **James J. Jennewein** announce **John E. Stefany, A.I.A.** as a partner in the firm of **McElvy, Jennewein, Stefany & Associates, Architects, A.I.A.** The firm is located at 1020 Exchange Bank Building, Tampa, Florida.

Pancoast/Ferendino/Grafton/Architects have added to their staff **Ralph Z. Aaron,** city planner. The Miami firm is located at 2575 South Bayshore Dr.

Michael A. Grillo is now a partner in the architectural firm of **Schiller & Frank,** 23 East Jackson Blvd., Chicago.

Schutte-Phillips-Mochon, A.I.A. Wisconsin architects, planners and engineers, have named **Frederick Albert Schutte** a partner. The firm maintains offices in Milwaukee, Appleton and Kenosha, Wis.

Ellison, Sedgwick & Associates has changed its firm name to **G. A. Sedgwick & Associates, Consulting Structural Engineers.** 1045 Sansome St., San Francisco.

Richard C. Slingerland, R.A. and **Constantin G. Fakas, P.E.** have become partners in the firm of **Slingerland and Booss, Architects-Engineers,** 342 Madison Ave., New York City.

Frank Straub & Associates, Architects has amended its firm name to **Straub, Van Dine and Brown, Architects. Harold F. Van Dine Jr., A.I.A.** has joined the firm as principal in charge of design, and **Robert L. Brown, R.A.** has been appointed principal in charge of production and coordination. The firm's address is 177 West Big Beaver Road, Troy, Mich.

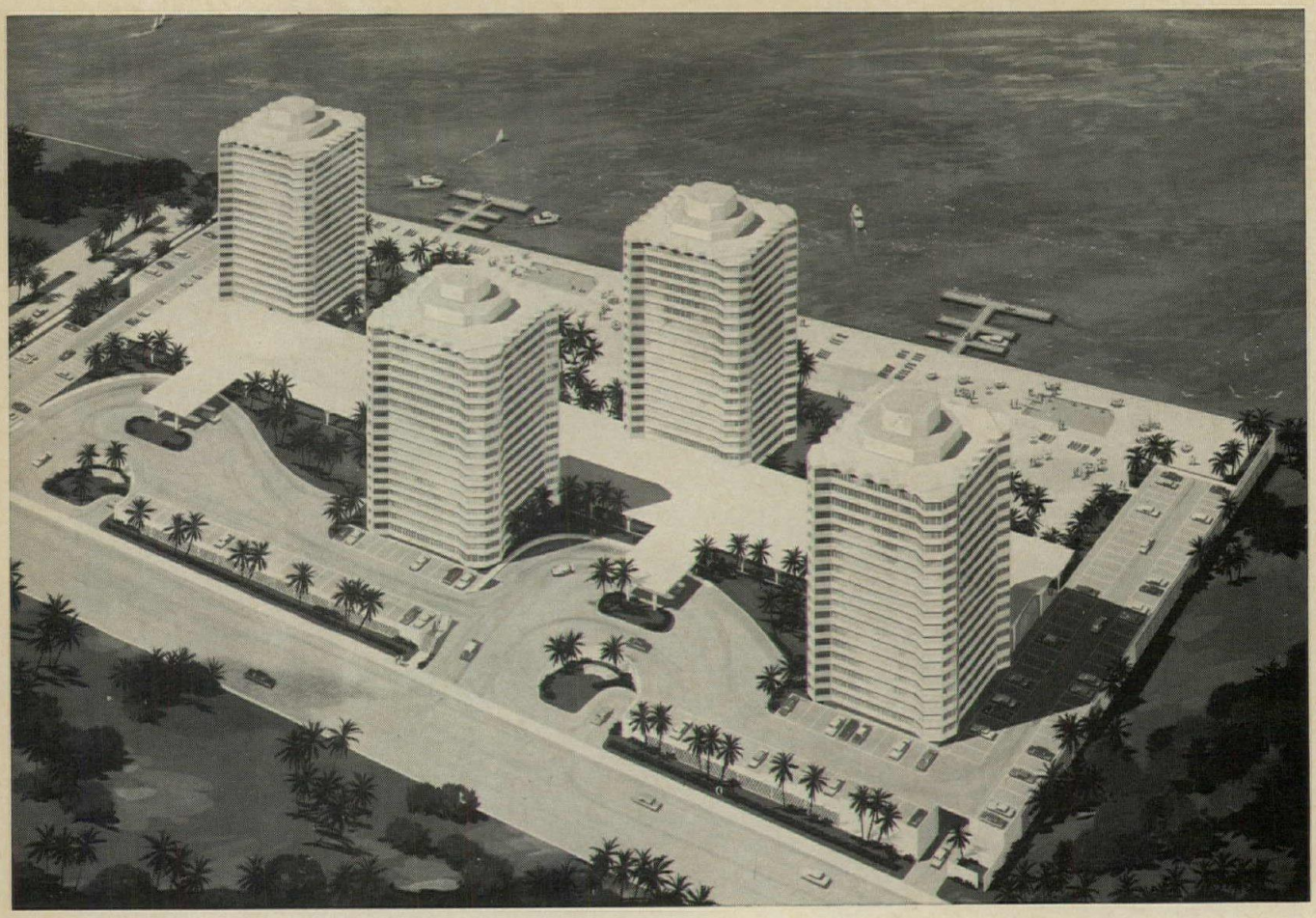
Three principals of **Stone, Marraccini & Patterson** have been elected vice presidents of the San Francisco architectural and planning firm. The new vice presidents are: **George A. Agron, Sanford L. Berger** and **Robert J. Bettencourt.**

The architectural firms of **Ray Takata, Architect** and **John W. Hansen, Architect** have formed a partnership for the practice of architecture under the firm name of **Takata & Hansen, Architects.** Offices are relocated at 926 Jay Street, Sacramento, California, Suite 910.

Vosbeck-Vosbeck & Associates, Architects, of Alexandria, Virginia and **Kendrick and Redinger, Consulting Engineers** of Arlington, Virginia have merged for the combined practice of architecture, engineering and planning. The merged firm, **Vosbeck-Vosbeck-Kendrick & Redinger,** is relocated at 720 North Saint Asaph Street, Alexandria.

John Carl Warnecke, F.A.I.A., Architects, Planners and Landscape Architects has appointed **A. Eugene Kohn** as a vice president of the firm and director of the New York Office, 350 Park Avenue.

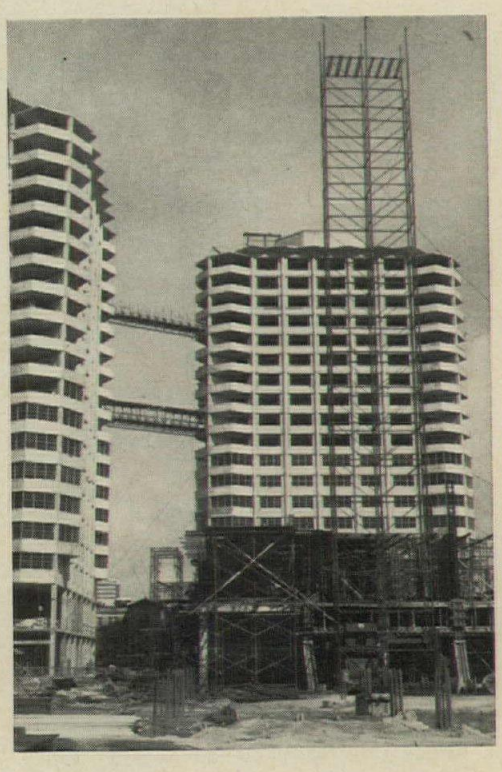
A hotel with no hotel rooms



...built with concrete

The 765 accommodation units of the Four Ambassadors range from studio apartments to luxurious penthouses. There's not a "hotel room" in the house. Every guest accommodation is a suite. And each suite is masterfully planned to provide the most imaginative use of floor space possible. The architects selected concrete to render this new idea in bayfront, downtown living which will serve both businessmen and vacationers in Miami. And here, as in new construction ideas throughout the U.S., Lehigh Cements helped make it happen. Lehigh Portland Cement Company, Allentown, Pa.

LEHIGH CEMENTS



The new Biscayne Bay-front complex consists of four, 19-story residence towers, an International Promenade shopping plaza and entertainment center, two yacht piers and two swimming pools. Below-ground parking for 760 cars provides direct access to both the Promenade and dwelling areas.

The entire complex is constructed of concrete. Columns and floors are all reinforced cast-in-place concrete. Walls are Portland Cement stucco over concrete masonry. Each residence tower measures 110′ x 110′ overall. And the Shopping Plaza is 540′ x 45′.

Owner:
Nathan Manilow, Harry Salter & Robert L. Turchin (Partners), Miami Beach, Fla.

Engineer:
James O. Power, So. Miami Beach, Fla.

Architect:
Russell-Melton Associates, Miami, Fla.

General Contractor:
Robert L. Turchin, Inc., Miami Beach, Fla.

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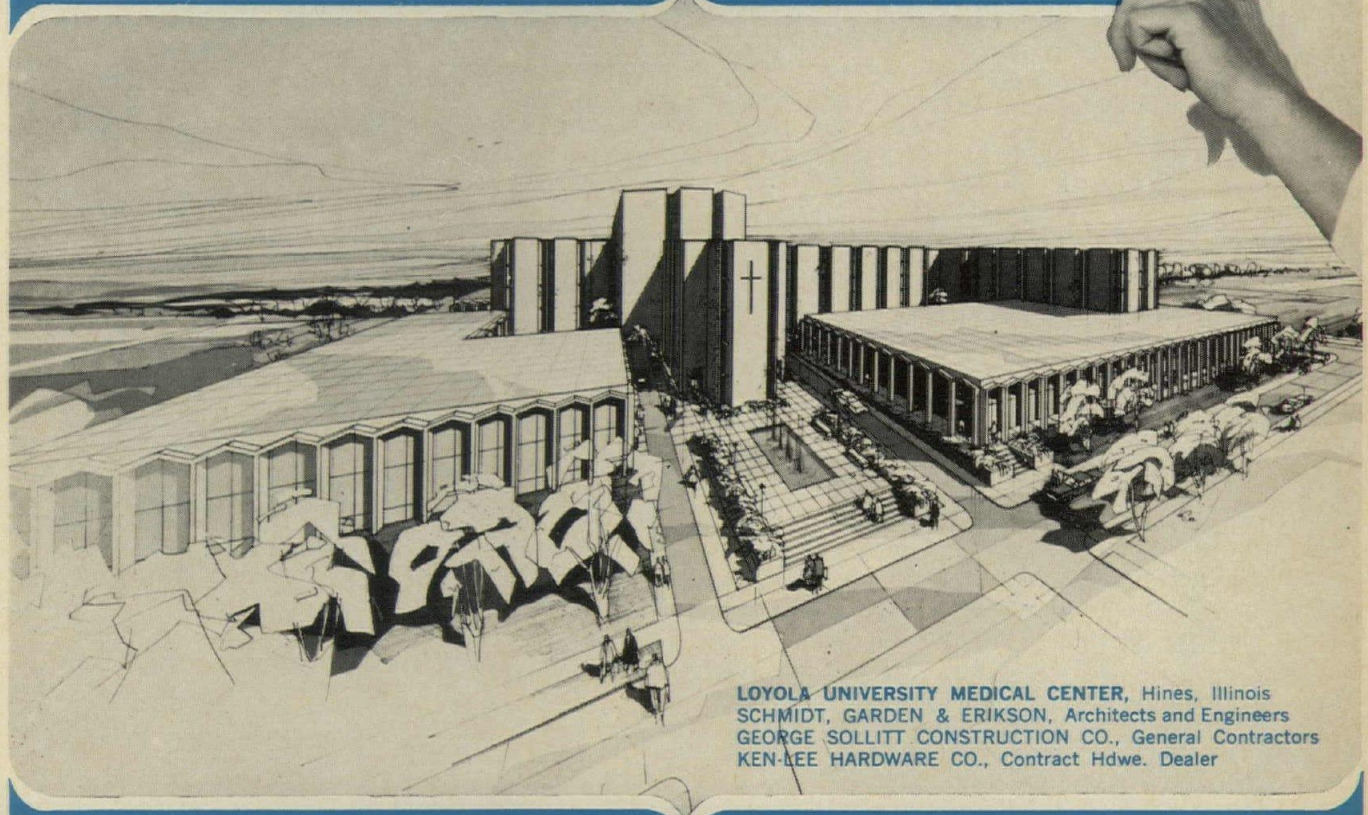

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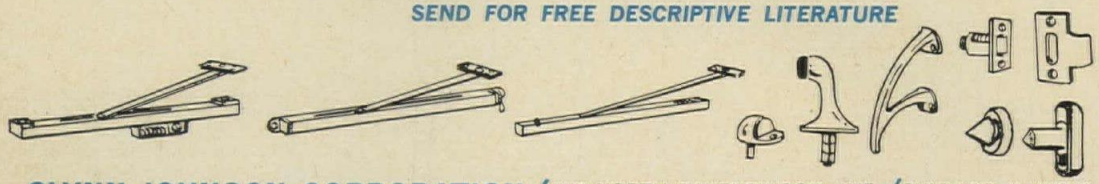

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REQUIRED READING

Environmental analysis of college housing

DORMS AT BERKELEY, *an environmental analysis. By Sim Van der Ryn and Murray Silverstein. Educational Facilities Laboratories, 477 Madison Avenue, New York, New York. 89 pp., illus. Paperbound.*

An interdisciplinary approach to the problems of programing and designing the environment can assist the analytic skills of the architect and at the same time enhance his design capacities. Such interdisciplinary action is a rich area for an integrated attack on the physical problems of planning. A recent study conducted at the Berkeley campus of the University of California is indicative of such interdisciplinary thought, if not action.

This report of that study is significant for many reasons. It is an analysis of building performance that is frankly experimental, including techniques from various disciplines. The techniques as applied to architecture need sophistication; the nature of the techniques as well as their usefulness demand consideration. But the stages of environmental analysis, the literature, and the data, and its relationship to the design process will continue to institute hypotheses for design purposes.

The study cogently spells out the desirability for an architectural programming coupled with the analysis of problems in existing environments. The case in point was college housing. The observers described and evaluated activities and processes as they took place in the college dormitory. The squeeze on future college housing certainly justifies the need for an interdisciplinary analysis on the various aspects of student housing design. Moreover, since the university is a prime part of the molding of an individual, the reaction that takes place between man and his environment there should set out sensitive criteria. The results of this study indicated first of all, the need for a relationship between the design process and environmental analysis.

Modern industrial sealants

SEALANTS. *Edited by Adolfas Damusis. Reinhold Book Division, 430 Park Avenue, New York, N.Y. 10022. 382 pp., illus. $17.00.*

A comprehensive reference on the new kinds of sealants should be especially helpful to those architects and engineers who need to make a serious evaluation of sealant properties and applications.

Here is a primary source of reference on the new sealants. It provides detailed information on every type of polymeric binder available giving a classification of sealants, characteristics of binders and pigments, and physical qualities of joints. The chemistry of sealants is kept minimal with the emphasis put rather on the types of binders, their application, and physical properties.

Sealants are presented on the basis of their polymeric binders and in the order of their decreasing elasticity and recovery. Various chapters deal with physical aspects of sealants in a joint, with pigments and their applicability in low modulus elastomers, with equipment for sealant application, and with specific problems encountered in the testing of sealants. Elastic recovery of cured sealants is correlated with the linearity of the elastomeric binders.

BOOKS RECEIVED

HIGHRISE BUILDING AND URBAN DESIGN. *By Hans Aregger and Otto Glaus. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 200 pp., illus. $20.00.*

NEW FRENCH ARCHITECTURE. *By Maurice Besset. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 231 pp., illus. $17.50.*

THROUGH THE GREAT CITY, *Impressions of Megalopolis. By Anthony Bailey. The Macmillan Co., 866 Third Avenue, New York, N.Y. 10022. 276 pp., illus. $5.95.*

AMERICAN ART DIRECTORY 1967. *Edited by Dorothy B. Gilbert. R. R. Bowker Company, 1180 Avenue of the Americas New York, N.Y. 10036. 508 pp. $22.50.*

NEW ENCYCLOPEDIA OF FURNITURE. *By Joseph Aronson. Crown Publishers, Inc., 419 Park Avenue South, New York, N.Y. 10016. 484 pp., illus. $15.00.*

KYOTO IN THE MOMOYAMA PERIOD. *By Wendell Cole. The University of Oklahoma Press, Norman, Okla. 166 pp. $2.75.*

THE MEASURE OF MAN. *By Henry Dreyfuss. Whitney Library of Design, 18 East 50 Street, New York, N.Y. 10022. 34 charts. $12.50.*

PLANNING THEORY *(Revision of Council of Planning Librarians Exchange Bibliography 31). By Herman J. Beckman. Mrs. Mary Vance, Editor, Council of Planning Librarians, Exchange Bibliographies, Post Office Box 229, Monticello, Ill. 61856. 14 pp. $1.50.*

SUN PROTECTION, AN INTERNATIONAL ARCHITECTURAL SURVEY. *By Ernest Danz. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 149 pp., illus. $13.50.*

HIGH GOTHIC: *The Classic Cathedrals of Chartres, Reims, and Amiens. By Hans Jantzen. Minerva Press, Funk & Wagnalls, 380 Madison Avenue, New York, N.Y. 10017. 181 pp., illus. Paperbound, $2.50.*

DESIGN AND PLANNING 2: *Computers in Design and Communication. By Martin Krampen and Peter Seitz. Hastings House, Publishers, Inc., 151 50th Street, New York, N.Y. 10022. 177 pp., illus. Paperbound, $10.00.*

THE LIVING THEATRE OF MEDIEVAL ART. *By Henry Kraus. Indiana University Press, Bloomington, Indiana. 248 pp., illus. $15.00.*

APPLIED BUILDING CONSTRUCTION, Vol. I. *By Anthony Medlycott. Barnes & Noble, Inc., 105 Fifth Avenue, New York, N.Y. 10002. 152 pp., illus. $6.25.*

THE AMERICAN ASSOCIATION OF ARCHITECTURAL BIBLIOGRAPHES PAPERS, Vol. IV, 1967. *Edited by William B. O'Neal. The University Press of Virginia, The Rotunda, Charlottesville, Va. 130 pp. $5.00.*

DESERT ARCHITECTURE. *By Ralph E. Parachek. Part of Arizona, 4407 North 16th Street. Phoenix, Arizona. 93 pp., illus. $6.95.*

DRAWINGS OF ARCHITECTURAL INTERIORS. *Edited by John Pile. Whitney Library of Design, 183 50th Street, New York, N.Y. 10022. 168 pp., illus. $23.50.*

TAMING MEGALOPOLIS, Vol. I, *What Is and What Could Be; Vol. II, How to Manage an Urbanized World. Edited by H. Wentworth Eldredge. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 1158 pp., illus. $9.25 per volume.*

PENCIL DRAWING FOR THE ARCHITECT. *By Charles I. Hobbis. Transatlantic Arts, 565 Fifth Avenue, New York, N.Y. 10017. 64 pp., illus. $2.50.*

AN INTRODUCTION TO TIMBER ENGINEERING. *By H. J. Andrews. Pergamon Press Ltd., 44-01 21st Street, Long Island City, New York, N.Y. 11101. 221 pp., illus. $7.00.*

MODERN FOUNDATION METHODS. *By Rolt Hammond. Transatlantic Arts, 565 Fifth Avenue, New York, N.Y. 10017. 176 pp., illus. $14.00.*

NATIONAL INSTITUTE FOR ARCHITECTURAL EDUCATION 1967 THESIS AWARD. *By the National Institute for Architectural Education, 115 East 4 Street, New York, N.Y. 16 pp., illus. Paperbound*

PERSPECTIVE DRAWING FOR TECHNICAL ILLUSTRATORS AND DRAUGHTSMEN. *By Peter Manktelow. Transatlantic Arts, 565 Fifth Avenue, New York, N.Y. 10017. 120 pp., illus. $8.25.*

DRAWING FOR PEOPLE. *By Henry Dreyfuss. Grossman Publishers, Inc., 125A East 19th Street, New York, N.Y. 10003. 231 pp., illus. Paperbound, $3.95.*

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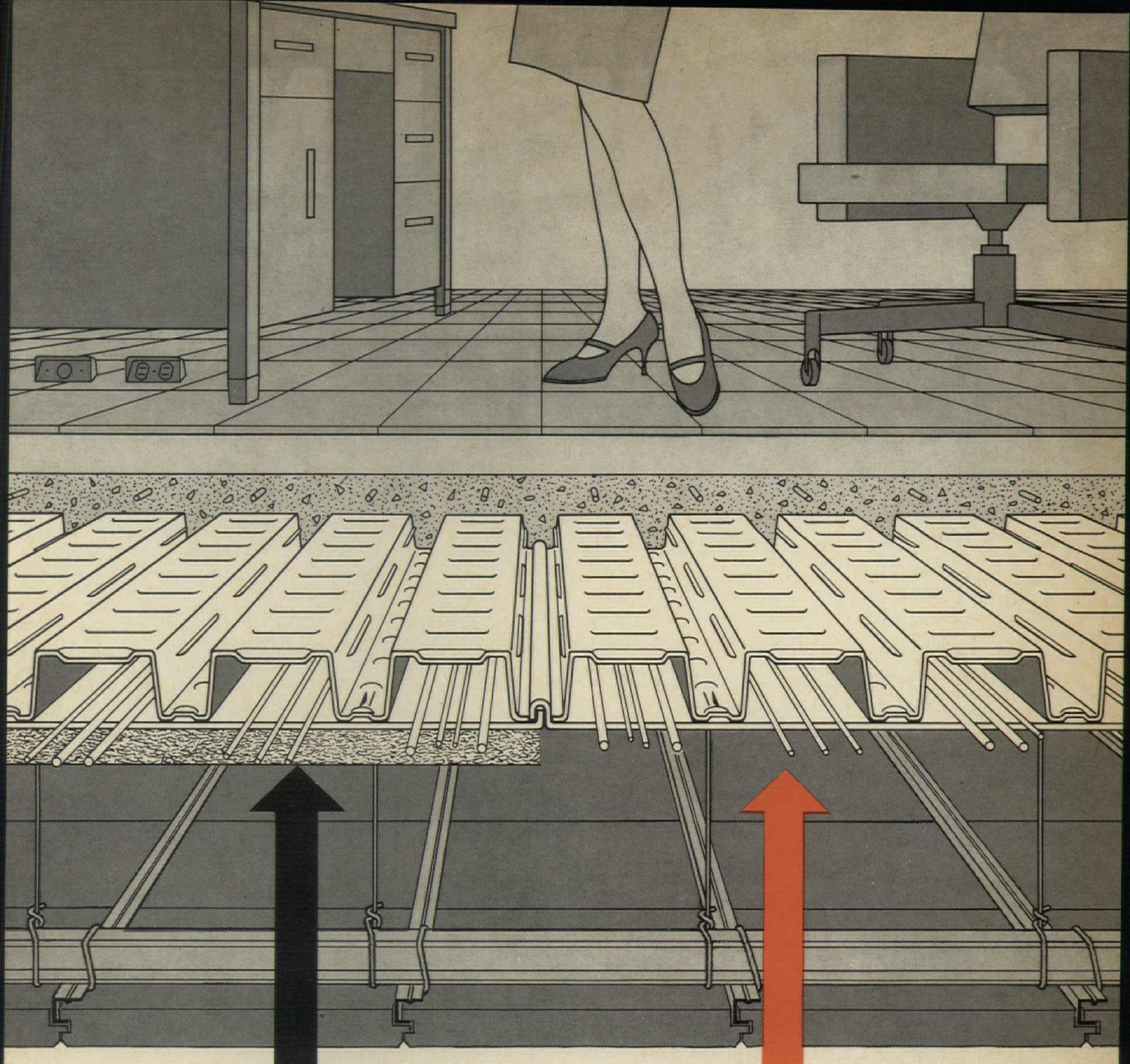

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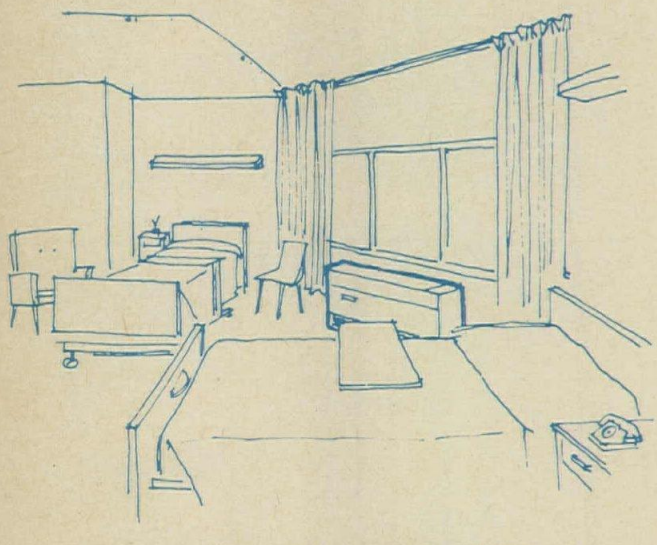
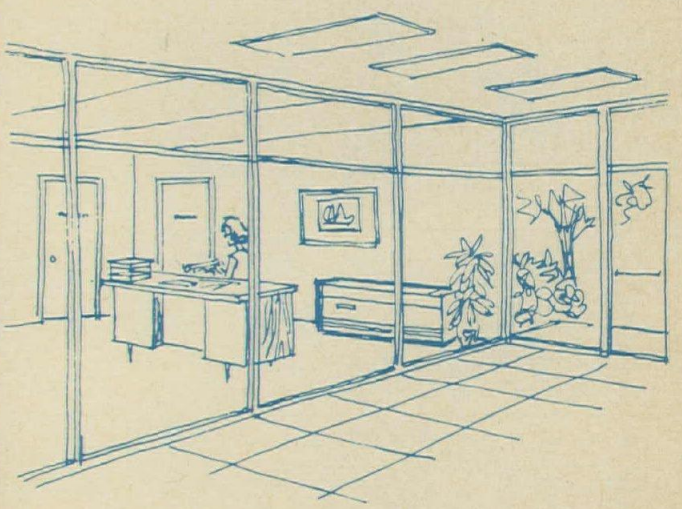


HOSPITALS/NURSING HOMES



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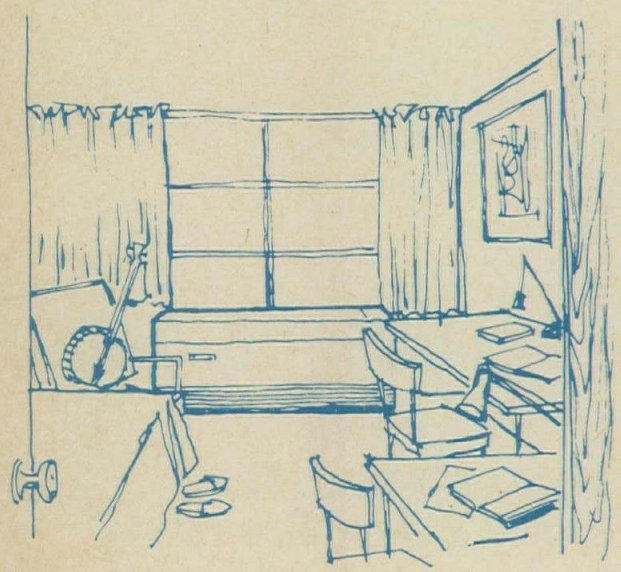
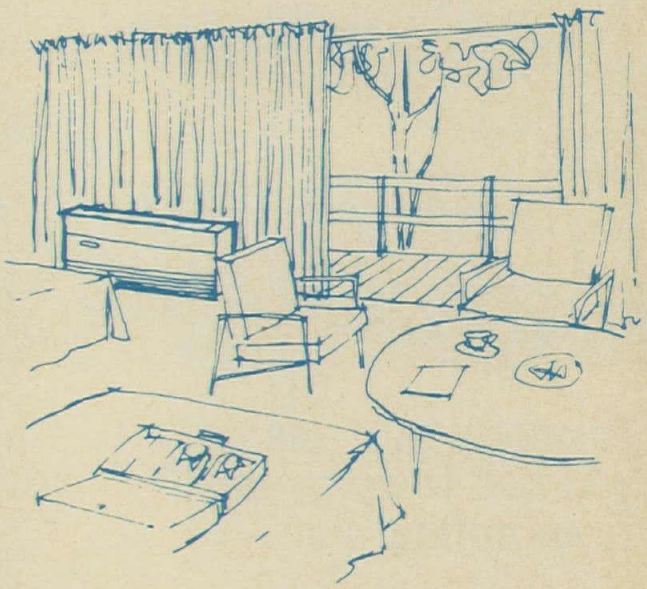


DORMITORIES



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continued from page 232

NEW ITALIAN ARCHITECTURE. *By Alberto Galardi. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 203 pp., illus. $17.50.*

ARCHITECTS' DETAIL LIBRARY, *Volumes 1-7. Edited by Konrad Gatz and John Thierry. Transatlantic Arts, Inc., 565 Fifth Avenue, New York, N.Y. 749 pp., illus. $11.50 per volume.*

PRINCETON ARCHITECTURE, A PICTORIAL HISTORY. *By Constance Greiff, Mary W. Gibbons, and Elizabeth G. C. Menzies. Princeton University Press, Princeton, New Jersey. 200 pp., illus. $12.50.*

COLLEGE HILL, A DEMONSTRATION STUDY OF HISTORIC AREA RENEWAL. *Conducted by the Providence City Plan Commission. City Plan Commission, City Hall, Providence, Rhode Island 02903. 240 pp., illus.*

SOME ROOTS OF MODERN ARCHITECTURE. *By Heinz Rasch. Transatlantic Arts Inc., 565 Fifth Avenue, New York, N.Y. 10017. 92 pp., illus. $7.50.*

THE REGION'S GROWTH, *A Report of the Second Regional Plan, 1967. Regional Plan Association, 230 West 41st Street, New York, N.Y. 10036. 136 pp.*

CONSTRUCTIVISM. *By George Rickey. George Braziller, Inc., One Park Avenue, New York, N.Y. 350 pp., illus. $15.00.*

A TREATISE ON THE THEORY AND PRACTICE OF LANDSCAPE GARDENING. *Introduction by John O. Simonds, Jr. Funk & Wagnalls, 380 Madison Avenue, New York, N.Y. 10017. 576 pp., illus. $7.50.*

PRIVATE HOUSES, AN INTERNATIONAL SURVEY. *By Werner Weidert. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 165 pp., illus. $16.00.*

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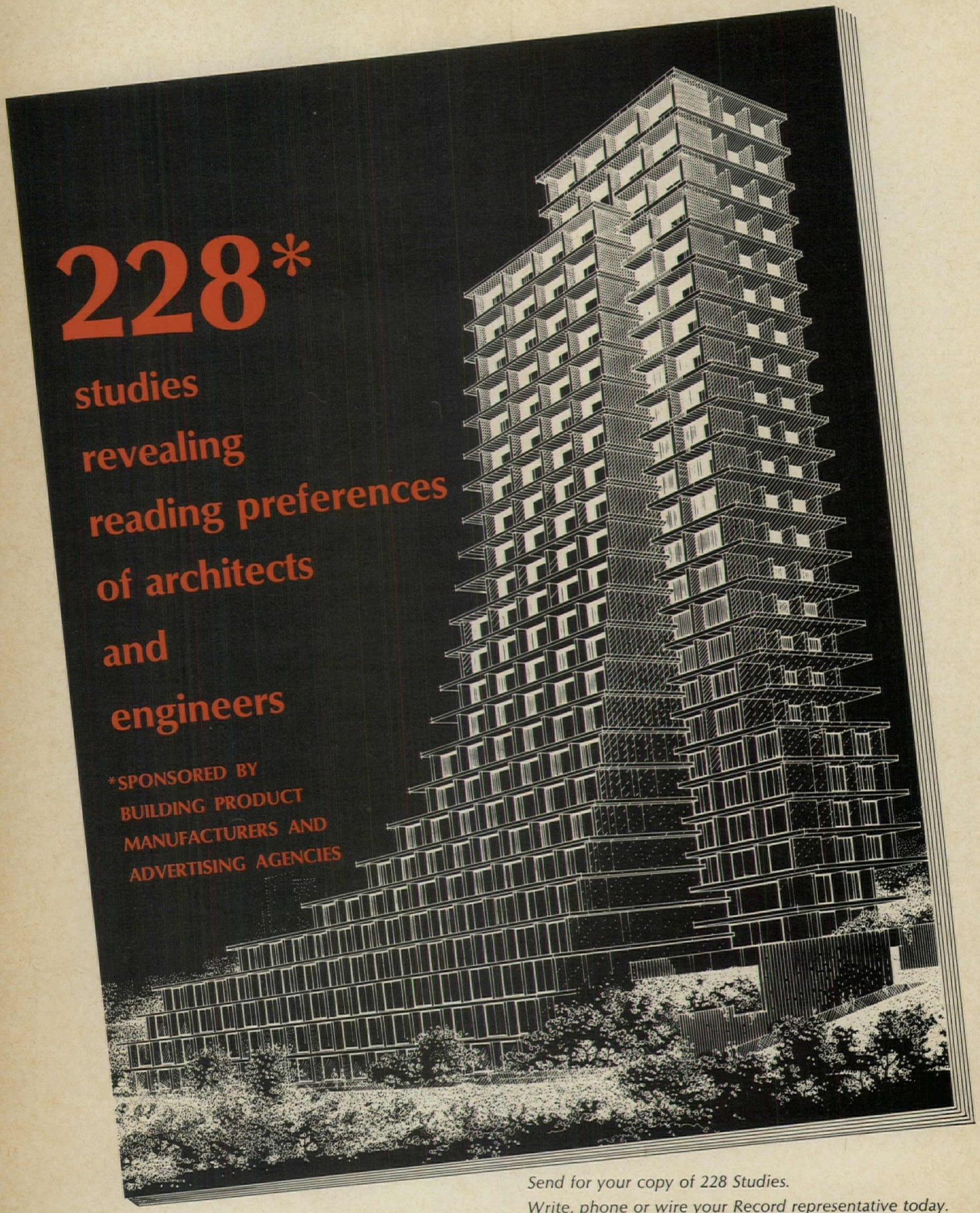

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rchitects' Reading Preferences

In 210 out of 228 independently sponsored readership studies, architects and engineers have voted Architectural Record "preferred", "most helpful", or "most useful."

While the results of a single study may not provide a conclusive picture of reading habits, the steady pattern of preference for Architectural Record as expressed in 210 studies—comprising over 243,000 mail questionnaires and interviews over a period of three decades—surely deserves the close attention of every advertiser who seeks to place his architectural advertising on the basis of readership.

Especially significant is the fact that, since January 1966, architects have voted Architectural Record "preferred" in fifteen out of fifteen studies. Here are the results:

READERSHIP STUDIES —1966-August, 1967

	1st	2nd	3rd	4th	5th
Record	15				
PA		14	1		
AF			13	2	
A & E N		1		6	9
AIA J			1	8	4

Equally significant is the fact that the Record's margin of leadership over the second place magazine has widened at the same time. In 1965 the margin of preference for the Record over the second place magazine was 19 per cent. In 1966, it was thirty-five per cent. In three recent independent readership studies, the Record's leadership over the second place magazine has widened to more than fifty per cent. Here are the results of these studies, in response to the question, "Which architectural magazine do you find most helpful in your work?"

	Wide-Lite Corp.	"Automatic" Sprinkler	Medusa Portland Cement Co.
Record	107	117	73
PA	61	78	46
AF	31	35	25
A&E N	13	14	7
AIA J	9	19	18

Why Architects and Engineers Prefer Architectural Record

Because the Record continually grows with the profession —improving its "helpfulness" whenever possible—such as the redesign of the magazine in 1966, the unique Architectural Business feature introduced last January, and the Architectural Engineering Special Report, unveiled in the July issue.

Because the Record has the largest editorial staff in the architectural field with 17 full-time editors.

Because Record's staff brings to its work over 250 years' background in architecture, journalism, engineering, teaching and the graphic arts.

Because Architectural Record editors take a no-nonsense approach to the profession—stressing 100 per cent editorial concentration on architects and engineers—with every page reflecting their working information needs and interests.

Because the Record staff is imaginative—creating a unique editorial climate that attracts the greatest architectural and engineering authorities of our time.

Because the Record offers architects and engineers the most editorial pages in the field—with most on nonresidential and residential buildings... the most photographs, drawings, four-color, the work of the most architects.

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Because architects and engineers find the Record most helpful in their work, they spend more time with the Record, giving advertisers a better climate in which to tell their advertising story. And they are the **active** architects and engineers. Over 90 per cent of all architect-designed non-residential and large residential building is in the hands of Record subscribers.

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330 WEST 42ND STREET
NEW YORK, N.Y. 10036

A McGRAW-HILL MARKET-DIRECTED PUBLICATION

ARCHITECTURAL RECORD

Published by McGraw-Hill, Inc., 330 West 42nd Street, New York, New York, 10036.

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VOLUME 142
JULY-DEC. 1967

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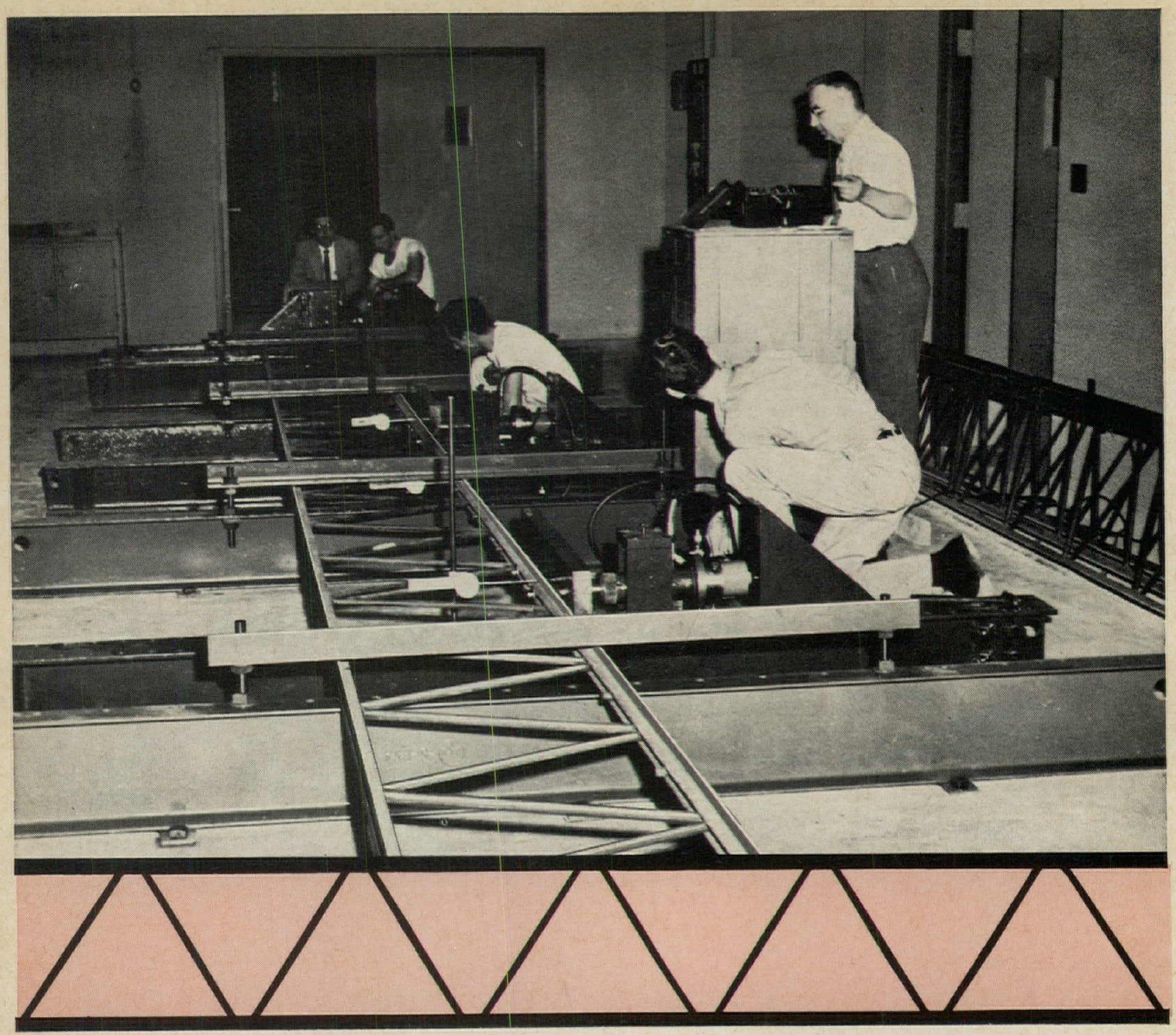

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