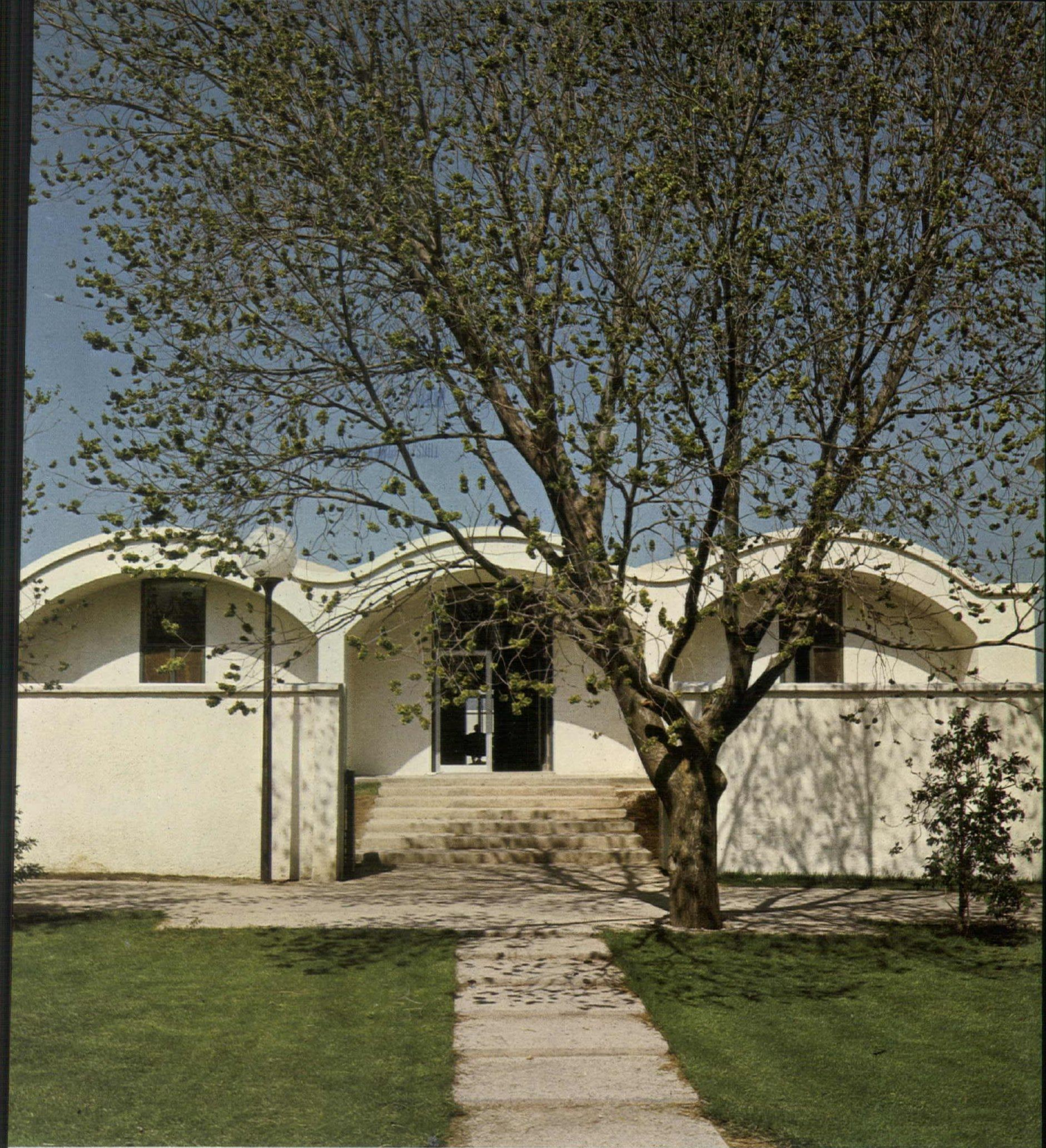

THE TABRIZ CONSULATE BY EDWARD LARRABEE BARNES

AIR CONDITIONING: HOW CHANGING TECHNOLOGY AFFECTS ARCHITECTS

HOUSE FOR A WOODED SITE BY GEORGE NEMENY

BUILDING TYPES STUDY: RECREATION—OPPORTUNITIES FOR INNOVATIVE DESIGN

FULL CONTENTS ON PAGES 4 AND 5

ARCHITECTURAL RECORD

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The Fresno Civic Center is "painting" itself

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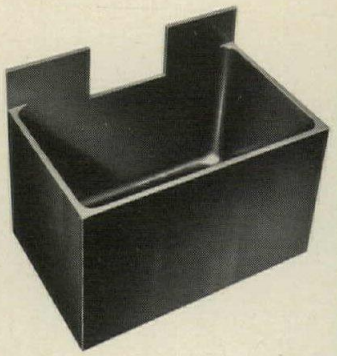

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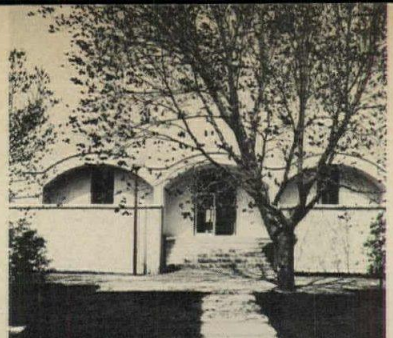

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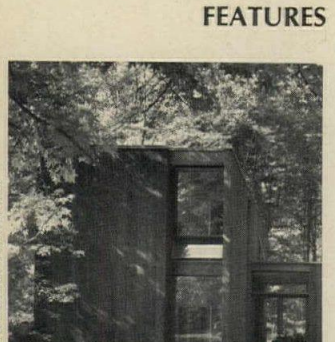

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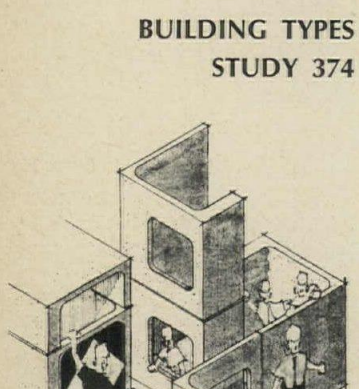
BUILDING TYPES STUDY 374



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ARCHITECTURAL RECORD

CONTENTS: AUGUST 1967

COMING IN THE RECORD

HOSPITALS: PLANNING FOR THE CHANGING TECHNOLOGIES

Medical centers will get special attention in next month's Building Typ Study, which will underscore the importance of flexibility in developing master plan that can adapt over many years to new technologies as the emerge. Some new applications of advanced techniques of automation the design of hospitals will also be analyzed.

PUBLIC BUILDINGS AS ARCHITECTURE

Heartening words have been spoken in recent years, and in the highe circles, about the need for the highest quality in Federal architecture. Bu the test of conviction in architecture is in architectural results, and ther should be particular interest in a forthcoming feature presenting the de sign concepts for some important new buildings on the Mall in th nation's Capital.

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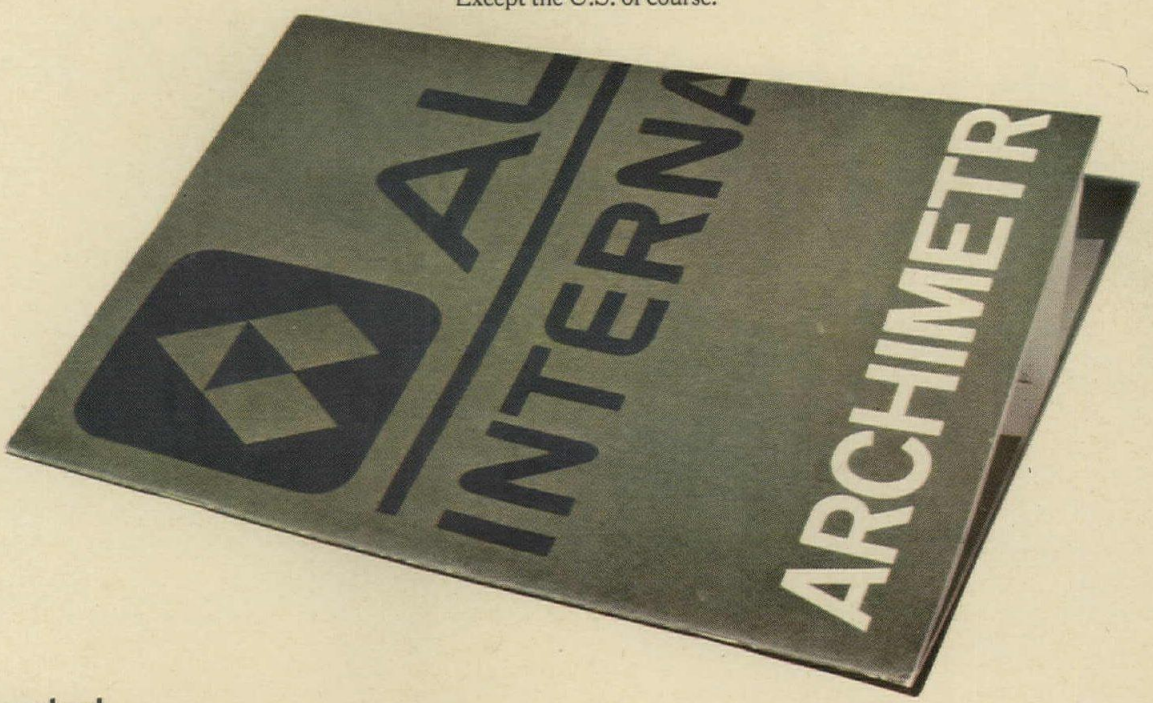

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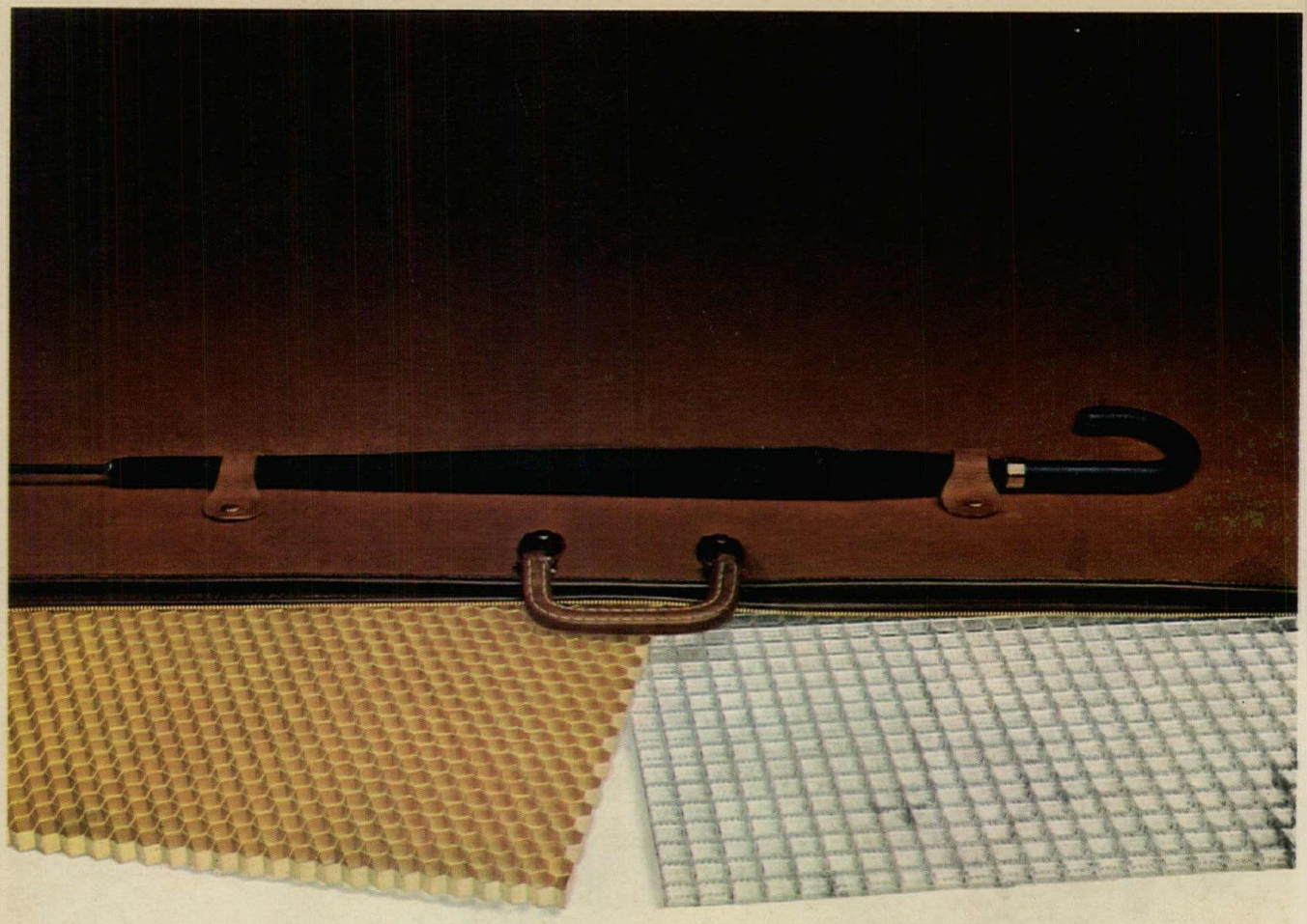

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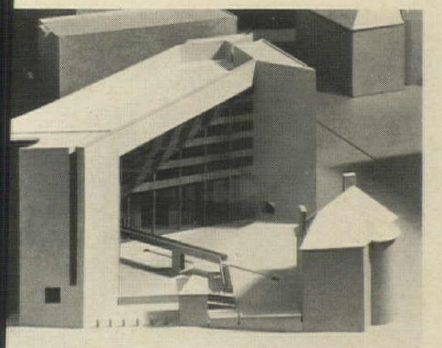


OR ONCE I'LL GIVE IN ND INDULGE IN CRITICISM

s observer has made it a habit to keep himself some thoughts about certain lding designs; I have in fact anunced a conviction that too negative icism damages not only the building question, but also the architectural se. In this case, however—this case is proposed new headquarters building the American Institute of Architects—ave to feel that criticism is demanded, d that, since in a way it is the fraternity a body which has perpetrated this den, they have asked for it.

They got it, the other day, from the e Arts Commission of Washington, C., which rejected the scheme for the ilding. At the moment, one presumes, is confusion around the Octagon, for e Commission has the power to prent its construction, and the Commisn left little hope for compromise by odification of the design. It said the ilding was "too domineering and out keeping with the feeling of Octagon ouse." And: "The whole concept is sically wrong, and there is little they uld do to alter the basic design."

I certainly agree that the design ould be domineering, and perhaps at's enough to say. But it's a bit amguous. The building, if constructed, ould dominate the site, and tower over e little Octagon Building. It might also e considered to be domineering as an rchitectural precept, or concept, and here are plenty of good architects today ho would question this idea of architectural objectives. A *tour de force* is always a temptation, but it is not always good architecture.

As most readers know, the design, the work of Mitchell and Giurgola, won a nationwide A.I.A. competition for the new office building and was later revised. So architects themselves are the clients; they wrote the program; they chose the jurors; and they are bound to carry on according to competition rules. It would be my thought that any criticism of this design should be widely distributed. Any entrant naturally tries to assess the purposes and preferences of the client and the jury; it was plain in this instance that the idea was to make it a stage setting for the Octagon. And the jury is responsible for picking a winning design; they opted for "domineering."

But the nice little Octagon is no subject for such glaring attention. It is a small, mild-mannered, modest little building. It has important historical claims, but it would not be so bold as to claim architectural achievement. So that mammoth glass monster that would be behind it should surely embarrass the little thing, and such glaring attention would focus on history, not architecture.

Shouldn't a nice little old lady have, as an escort, somebody equally modest and well mannered? Wouldn't the escort try to enhance her style, her mannerisms? Wouldn't he, in fact, dress modestly and let the old girl have what dignity she could manage?

The new building design seems to do everything glaringly inappropriately. It would tower over the little building; it would steal the show with its own *tour de force*. And in fact sort of laugh at the building it was supposed to revere.

Not to mention the fact that all this glare would focus on the little old lady's posterior. That particular little old lady has a posterior no more attractive than any other lady's or any show girl's. Would the famous topless gals of Paris's Lido like always to face the rear of the stage, and have the spotlights on their backs?

Henry Saylor, long editor of the A.I.A. Journal, spent a lot of years developing a nice garden setting behind the Octagon, including some rather large flowering trees. Visitors to the present A.I.A. office building, behind the Octagon, may not realize how that garden contributes to the charm of the old building, and to the receptions staged within.

But obviously the new building would mean removing the graceful garden, leaving an unseemly rear fully exposed. Thus its inhabitants, who would be supposed to bow low each time they get near the glass front, would be looking at a bare and unbeauteous scene.

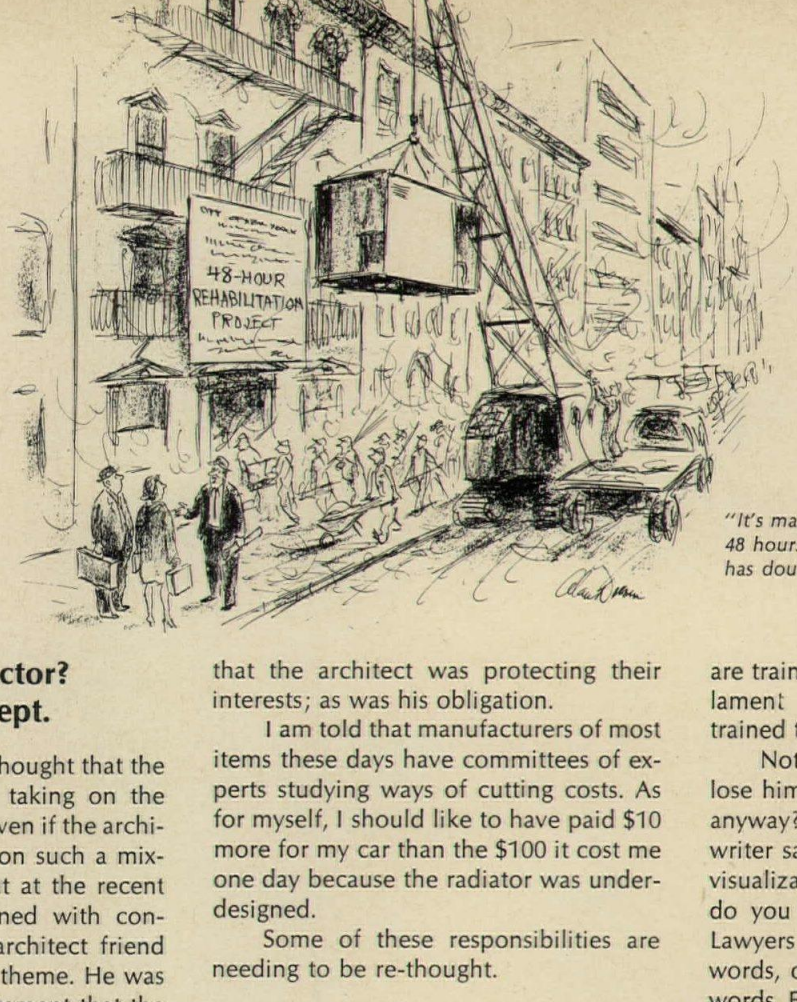
And think of the torture they would suffer in a tortured building. One look at the model shows how the functions of an office building have been sacrificed for this wall of glass. There are no other windows, and spaces would have to be staggered around the center.

More to the point, however, is the fact that strong architectural thought is turning ever more insistently toward making new buildings settle in comfortably and peacably with their neighbors.

Can anybody point to any corresponding attributes of that prize winner? Or is anybody ready to argue that that proposed building would do any good for the profession of architecture?

—Emerson Goble

Drawn for the RECORD by Alan



"It's marvelous—you come back in 48 hours and find the rent has doubled!"

Architect as contractor? Horrible thought dept.

Of course it is not a new thought that the architect might consider taking on the duties of the contractor, even if the architectural standards frown on such a mixing of responsibilities. But at the recent A.I.A. convention I listened with considerable interest to an architect friend who bent my ear on this theme. He was not making a positive statement that the architect should reach for this role; he was just running over the considerations.

I shall not put them all down here, but rather summarize them in the thought that the architect is now charged with so many responsibilities for matters he cannot control, that in self-defense he might have to act. He does not control the actions or policies of the general contractor; nor those of any subs. His actual control of labor, costs, deliveries, and so on is rather nebulous. Yet to the client it is the architect who disappoints him when the building is delayed, the costs run too high, the workmanship or materials are faulty. Legal decisions these days are frightening architects with charges of responsibility, when the architect has a natural tendency to think of himself as an adviser to the owner, not a contractor.

The trouble is that clients are not content with advice. They want a building, on time, on cost budget, on specified functional considerations. These are what the "package dealer" offers to the client.

Esthetics? Who knows about esthetics? How many clients (say, building committees) can stand up in front of the board of directors and argue that the architect was right, even though the building cost too much, or came in much behind schedule? What building committee can argue that quality was the factor, that the architect was protecting their interests; as was his obligation.

I am told that manufacturers of most items these days have committees of experts studying ways of cutting costs. As for myself, I should like to have paid $10 more for my car than the $100 it cost me one day because the radiator was underdesigned.

Some of these responsibilities are needing to be re-thought.

Any one for bridge? Sounds profitable

Alan Truscott, bridge writer for the New York Times, had something to say about what types of people make good bridge players. He mentioned actors, accountants, authors, bankers, dentists and doctors, engineers, and others, with an especially strong mention of lawyers. Then:

"Architects and artists are conspicuously absent from the list, suggesting that three-dimensional visualization is quite different from the mental pictures of the unseen cards that the expert must conjure up during the play of the hands."

It looks like architects should avoid bridge games with lawyers. Or, to my way of thinking, it would be simpler just to avoid lawyers.

Architects learn to draw, but what about thinking?

That canard (this page) about architects not being good bridge players (really, you know, the man didn't mention how busy architects are these days) does suggest, however, a recent remark by an architect. He also was mentioning architects' training in drawing, but he didn't give it the usual charge.

It is a familiar remark that architects are trained to draw, but not to write. lament was worse: "Architects trained to draw, but not to think."

Not to think. Well, I think I co lose him in semantics. What is thinki anyway? Architects are, as the bri writer said, trained in three-dimensio visualization. No thinking in that? W do you mean by "thinking"? Analy Lawyers would be trained to anal words, or perhaps abstractions stated words. Engineers analyze numerical m ters; doctors, medical troubles. Do architects analyze anything?

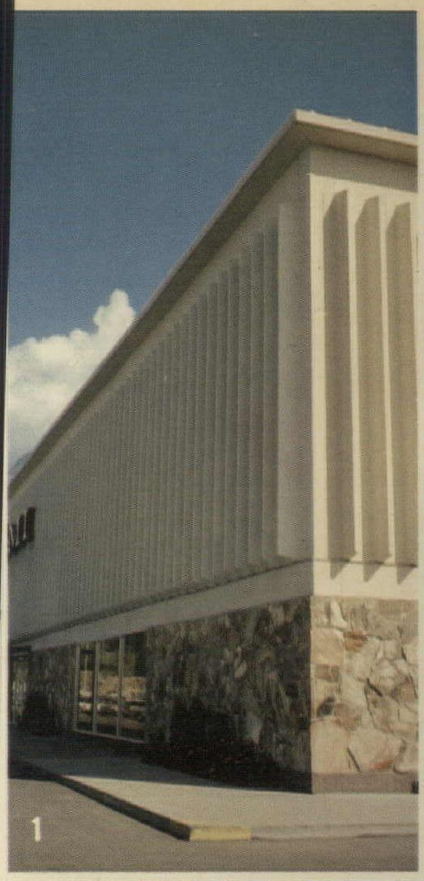
Ah, and what about creating? W do lawyers create? Doctors? Accou ants? Bankers?

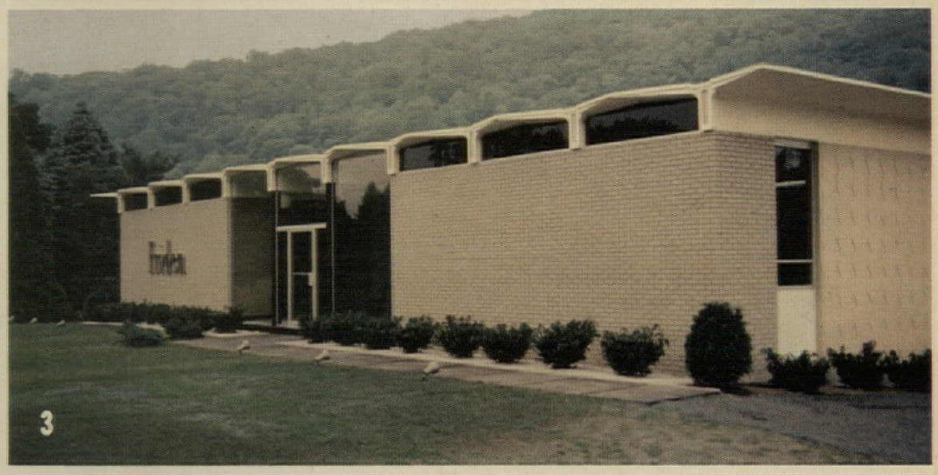
"Trained to draw, but not to think That might be changed to "Trained draw, in order to encourage creati thinking."

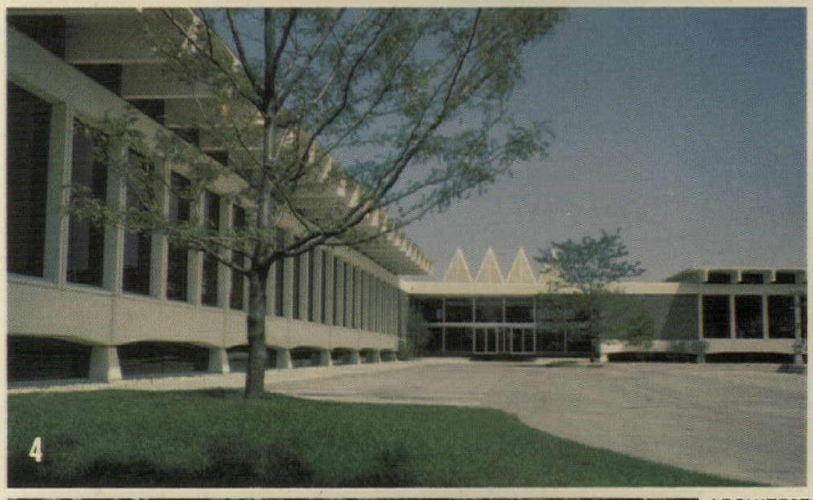
The A.I.A. building again and its neighborliness

That attack (previous page) on the pr miated design for the new A.I.A. hea quarters building considered it only the light of its neighborliness to the o Octagon Building. But when the Fin Arts Commission of Washington rejecte the design, what the Commission had i mind no doubt was the effect of s "domineering" a design on the surrounc ing city.

I can't drop my own charge withou questioning whether, in this respect, th architectural fraternity ought to be mor concerned than it seems to be. If it is too overpowering, too arrogant, to settl down quietly behind the Octagon, isn' it also too injudicious a venture to per petrate on the city of Washington? Isn' it a rather daring statement for the offi cial architectural group to make? —*E.G*







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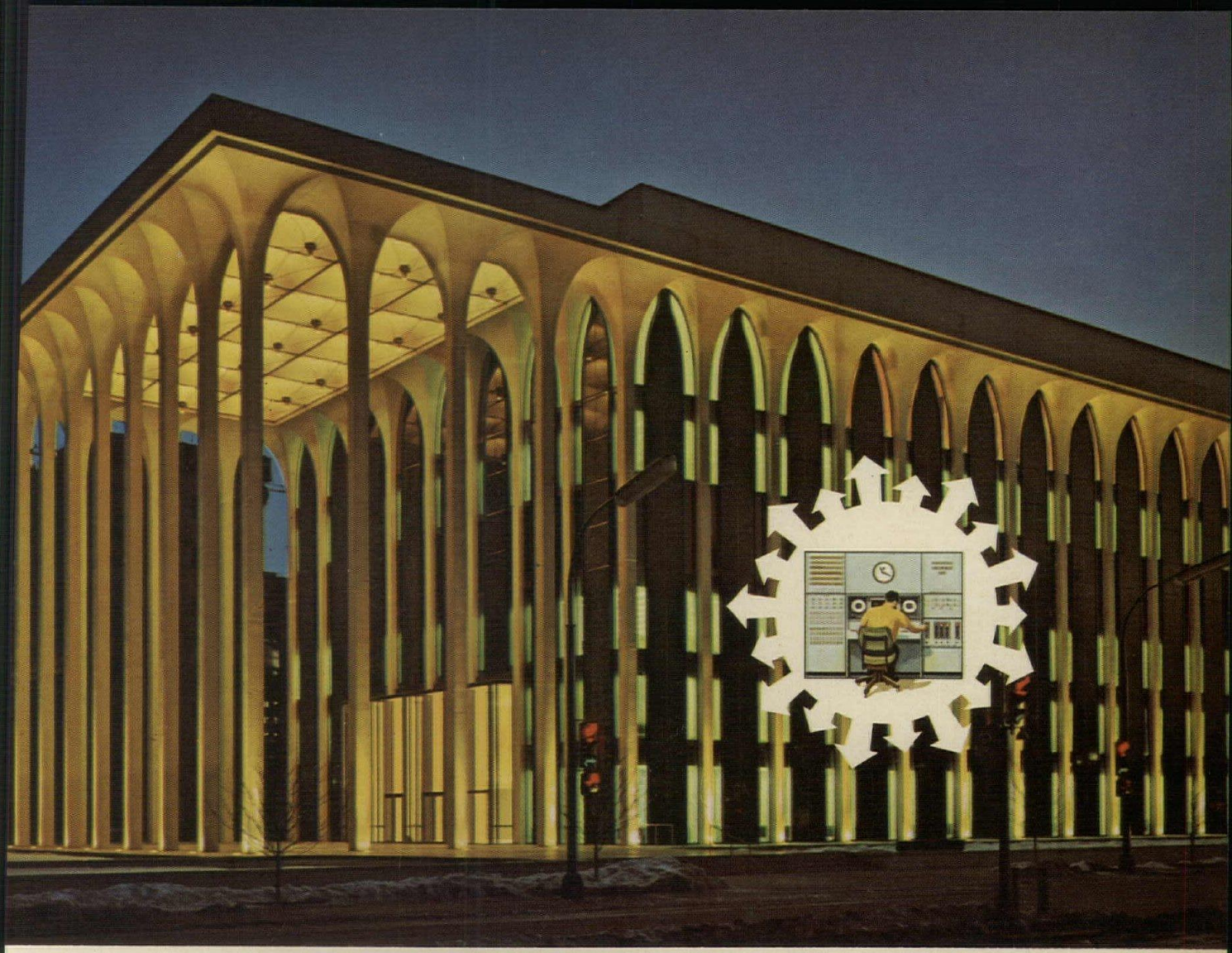

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SINCE *the original* 1921

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

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

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This good-looking terrazzo floor cured in 16 hours, weighs only 3 to 4 lb./sq. ft.

It's based on Shell Epon® resin.

Shell Epon resin is gaining rapid acceptance as a binder for terrazzo floors. It acts as both the marble chip matrix, and the adhesive that bonds to the substrate. The result is a highly durable, non-dusting floor with broad design and installation possibilities.

Lightweight—These "thin-set" floors are applied in thicknesses of 3/16" to 1/4" giving a weight of only 3 to 4 lb./sq. ft. compared to about 30 lb./sq. ft. for portland cement terrazzos. For new construction, less load-bearing capacity is needed. For remodeling, thin-set terrazzo can be installed on upper stories as well as lower floors, and elevations need not be raised.

Fast cure—Terrazzo based on Epon resin can be walked on in 10 to 12 hours, can be ground in 16 to 20 hours. This permits workmen to return quickly to the job site.

Low maintenance—The tough, smooth, chemical-resistant surface of these floors is very easy to clean.

Flexible, crack-resistant—Epon resin-based terrazzo absorbs impact, vibration and noise, resists cracking much better than portland cement. If desired, it can be made flexible enough to eliminate divider strips.

Easy installation over wood, concrete and steel. Floor is applied in 5 steps: (1) Etching the substrate; (2) Priming the substrate; (3) Power-trowelling the binder/aggregate mix; (4) Grinding and grouting the surface; and (5) Sealing. A finish may also be applied.

Why Epon resin? Shell Epon resin is the ideal binder for thin-set floors. It has extremely low shrinkage, and adheres tightly to substrates. Its low odor permits installation in institutions and food plants with a minimum of operational interruptions.

Terrazzo floor systems based on Shell Epon resin are readily available in a wide range of colors. Mail the coupon if you'd like a supplier of these materials to contact you.

Shell Chemical Company
Plastics and Resins Division

SHELL

Shell Chemical Company AR-8
Plastics and Resins Division
113 West 52nd St., N.Y., N.Y. 10019

Please have a supplier of Epon resin-based terrazzo materials contact me.

Name_____

Company_____

Address_____

City_____ State_____ Zip____

For more data, circle 9 on inquiry card

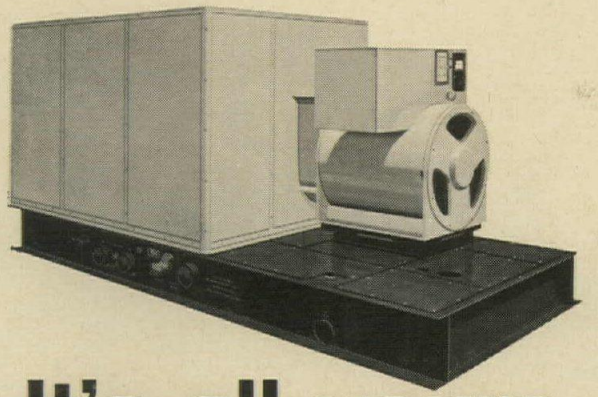
Bright ideas

You see them here. You see them there. You see them everywhere . . . those thrifty, space saving Bradley Washfountains. That's because Washfountains are used throughout modern schools. In washrooms. Corridors. Shops. Gyms. Labs. Classrooms. Kitchens. Cafeterias. Faculty lounges. Dormitories. Why are Washfountains so popular? Compare them to ordinary lavs. Washfountains cost *less* to install, use *less* water, require *less* space. And they're foot operated, so they're much more sanitary. Available in the widest choice of models, colors, and compositions. Bradley Washfountains—the brightest ideas in modern schools. See your Bradley representative. And write for latest literature. Bradley Washfountain Co., 9109 Fountain Drive, Menomonee Falls, Wisconsin 53055.

from Bradley!

BRADLEY

Want a building power system that gives you electricity, heat, and air conditioning —even in a blackout?

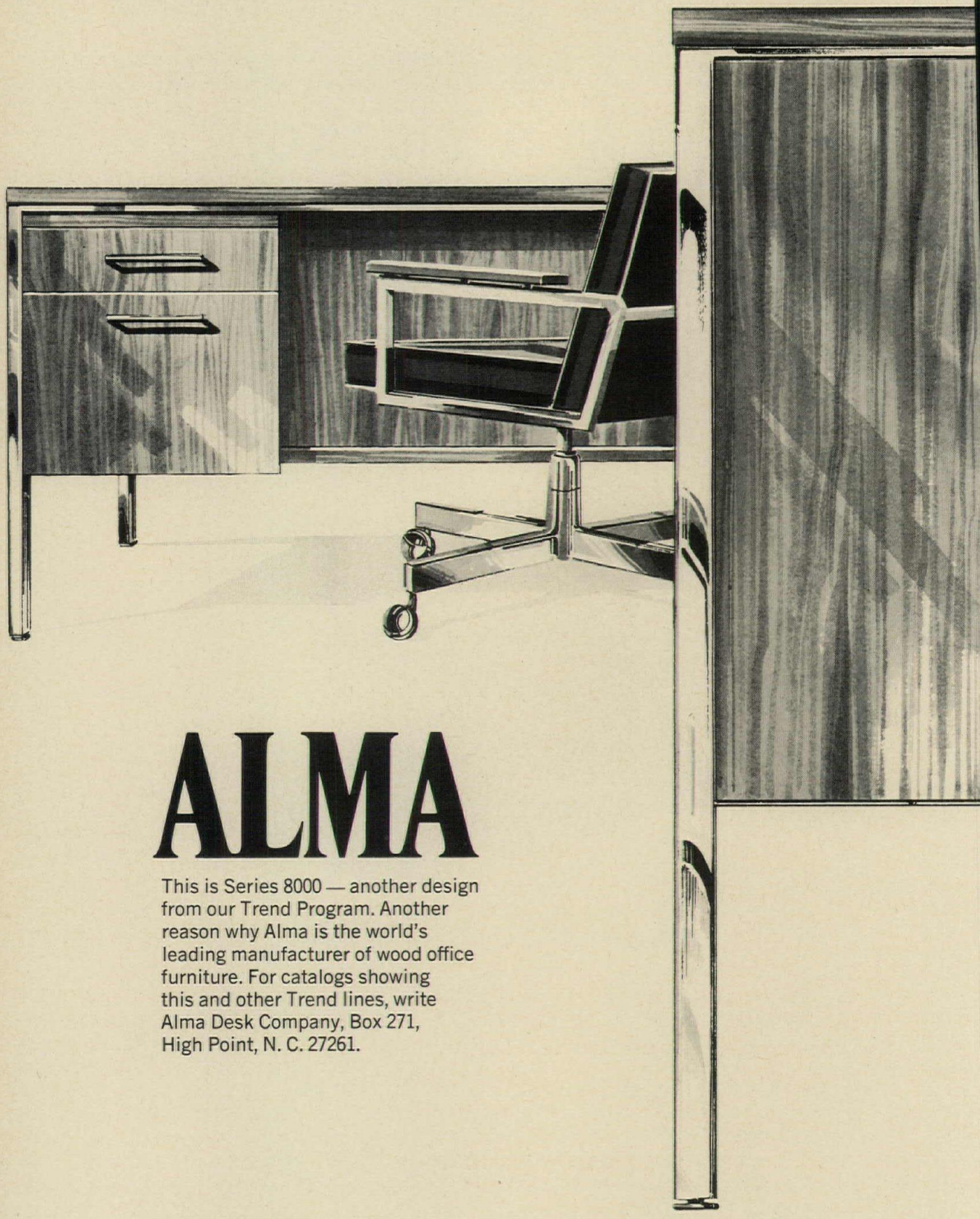


It's all yours.

The Garrett-AiResearch Total Energy System is yours to make money with by providing its power output to your lessees in high rise office buildings, apartments, or shopping centers. It's yours to rely on for uninterruptible power for hospitals, or critical industrial processes. It's yours to use as a way to lower overhead by regulating its power to your precise needs. ■ It's all done with our AiResearch turbine modules. Exhaust gas heats water, produces steam, and powers air conditioning cycles; shaft power runs generators, pumps, and compressors. ■ You buy only the modules you need now; more units can be added easily and economically as your power needs increase. ■ To get all the facts on the system that's leading the trend to modern power, write: Total Energy Sales, The Garrett Corporation, Dept. 5D, 180 North Aviation Blvd., El Segundo, Calif.

AiResearch Total Energy Systems GARRETT

For more data, circle 11 on inquiry card



ALMA

This is Series 8000 — another design from our Trend Program. Another reason why Alma is the world's leading manufacturer of wood office furniture. For catalogs showing this and other Trend lines, write Alma Desk Company, Box 271, High Point, N. C. 27261.

For more data, circle 12 on inquiry card

Swirl by Robert Pierron—a sculptured wood relief from the private collection of WOODWORK CORPORATION OF AMERICA

REEDOM TO CREATE IN WOOD... The promise of wood in the hands of a sensitive designer adds beauty to structure ..form to function... feeling to flexibility. For more than two generations our single-source custom service has nabled architects and designers to unleash their total creativity on the wonderful warmth of wood. We invite you to hink of wood as the medium... freely... unconcerned with construction and installation. We can produce it.

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RCHITECTURAL WOODWORK:
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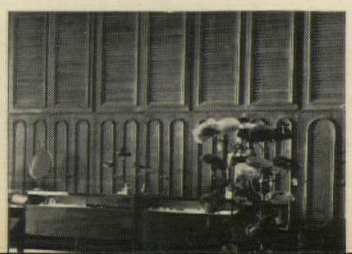

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INDUSTRIAL WOODWORK:
Wood Components • Special Plywood

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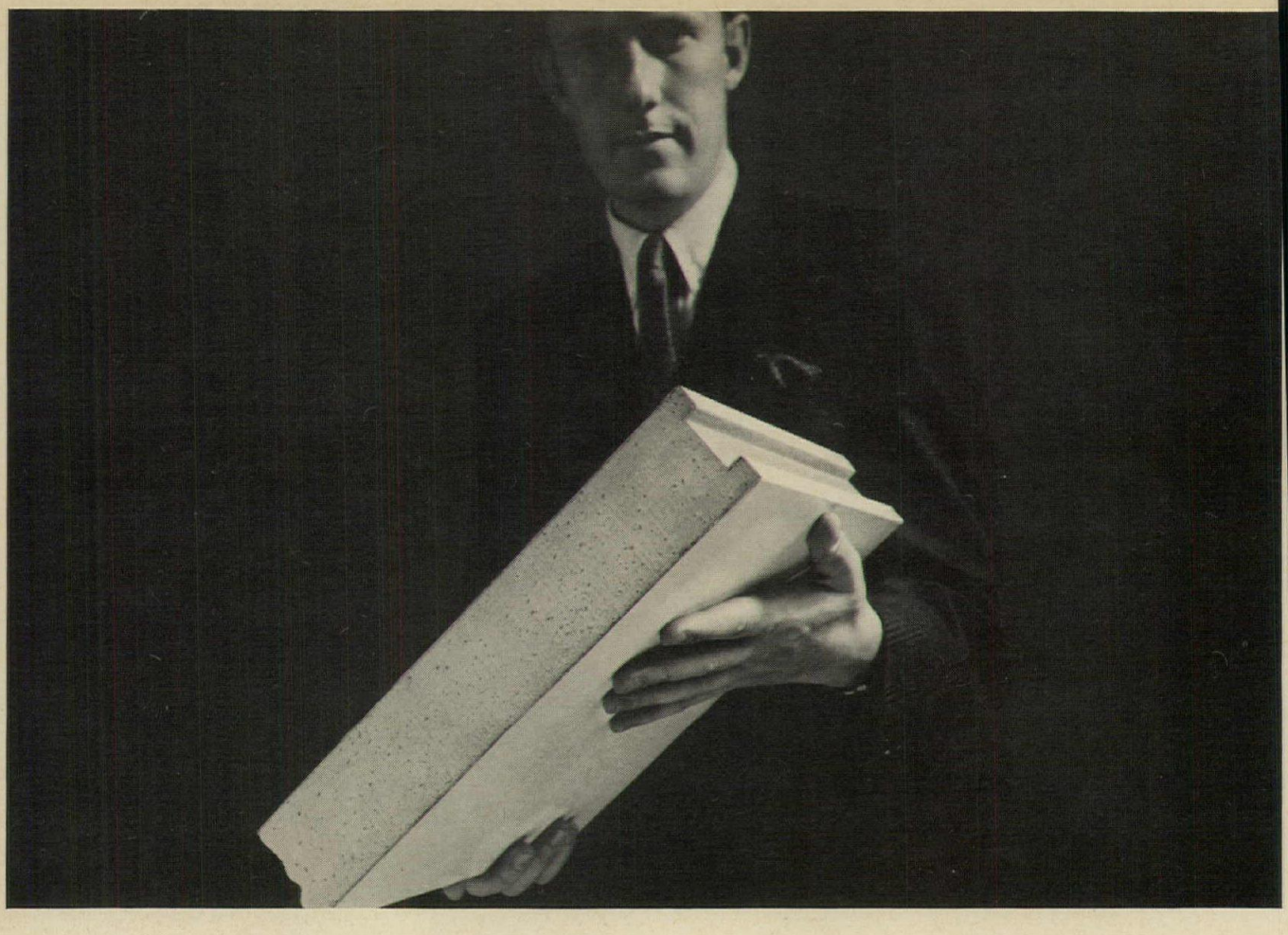


This is Tyler foam-in-place

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.

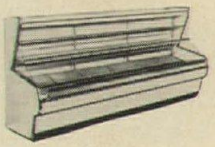
This foam-sandwich construction is one of the most efficient insulators—two inches of foam provides as much insulation as five inches of fiberglass. And it makes a much stronger case or cooler.

For sales cases

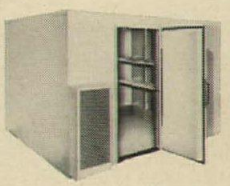
Out-of-stock or restocking problems during rush hours are reduced because Tyler foam-in-place sales cases give up to 25% more capacity than conventional fiberglass cases.

Tyler sales cases are lighter in weight so they're easy to install. And they're rust-resistant so they last longer—can be hose flushed every night.

Supermarkets, convenience and specialty stores can add extra display space throughout the store without adding extra floor space with a complete line of Tyler foam-in-place, produce, meat, dairy and frozen food sales cases.



For coolers



Foam-in-place increases capacity as much as 24% in low-temperature coolers and up to 8% in normal temperature models. This extra "cube" may let you specify a smaller cooler, saving valuable space.

Foam can't settle in the walls and leave voids so you get uniform insulation for the life of the cooler. And Tyler foam coolers are lightweight for easy dismantling if you want to increase the size or move them.

Tyler walk-in coolers are NSF approved.

For more information

Call your Tyler distributor listed in the yellow pages under "Refrigerating Equipment, Commercial." Or write:

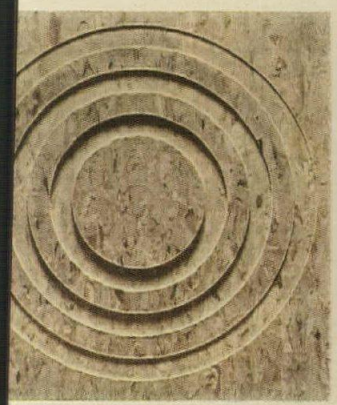
TYLER
REFRIGERATION DIVISION
CLARK EQUIPMENT
CLARK EQUIPMENT COMPANY
NILES, MICHIGAN 49120

For more data, circle 14 on inquiry card

his exclusive Ruberoid ormula outwears any other inyl asbestos floor tile.

(Below) Good Hope Intermediate School, Mechanicsburg, Pa.
Flooring Contractor: Bellwood Co., Inc., New Cumberland, Pa.
General Contractor: Reisinger Bros., Inc., Carlisle, Pa.
Architect: Bender Burrell Assoc., Camp Hill, Pa.

yal Stoneglow" Ruberoid



Milled down tile proves pattern won't wear off

dy in the flooring industry match for *Royal Stoneglow*. owing stone beauty is engi- ed for extra heavy duty. eeds Federal specifications for l asbestos. Available in 12" x iles, 3/32" and 1/8" gauges.

ne richly veined pattern won't traffic lanes. Color chips that the pattern extend through tile. The 1/8" gauge is ideal for odeling—helps conceal sub- irregularities.

oyal Stoneglow takes heavy ffic in stride: retail stores, ermarkets, office buildings, ools, hospitals. It's resistant to ase and stains, to sun-fading fire. Can be used on, above below grade.

sk your Ruberoid distributor the twin Samplers which in- de the complete Ruberoid line architectural gauges in vinyl estos. For more information, te The Ruberoid Co., a division General Aniline & Film Corpo- ion, 733 Third Ave., New York, Y. 10017.

RUBEROID®

DISTINCTIVE FLOORING

another fine product from

gaf


Arctic White
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Taffy Beige
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Smoky Beige
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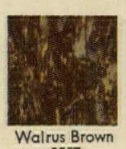
Walrus Brown
5557


Verde Antique
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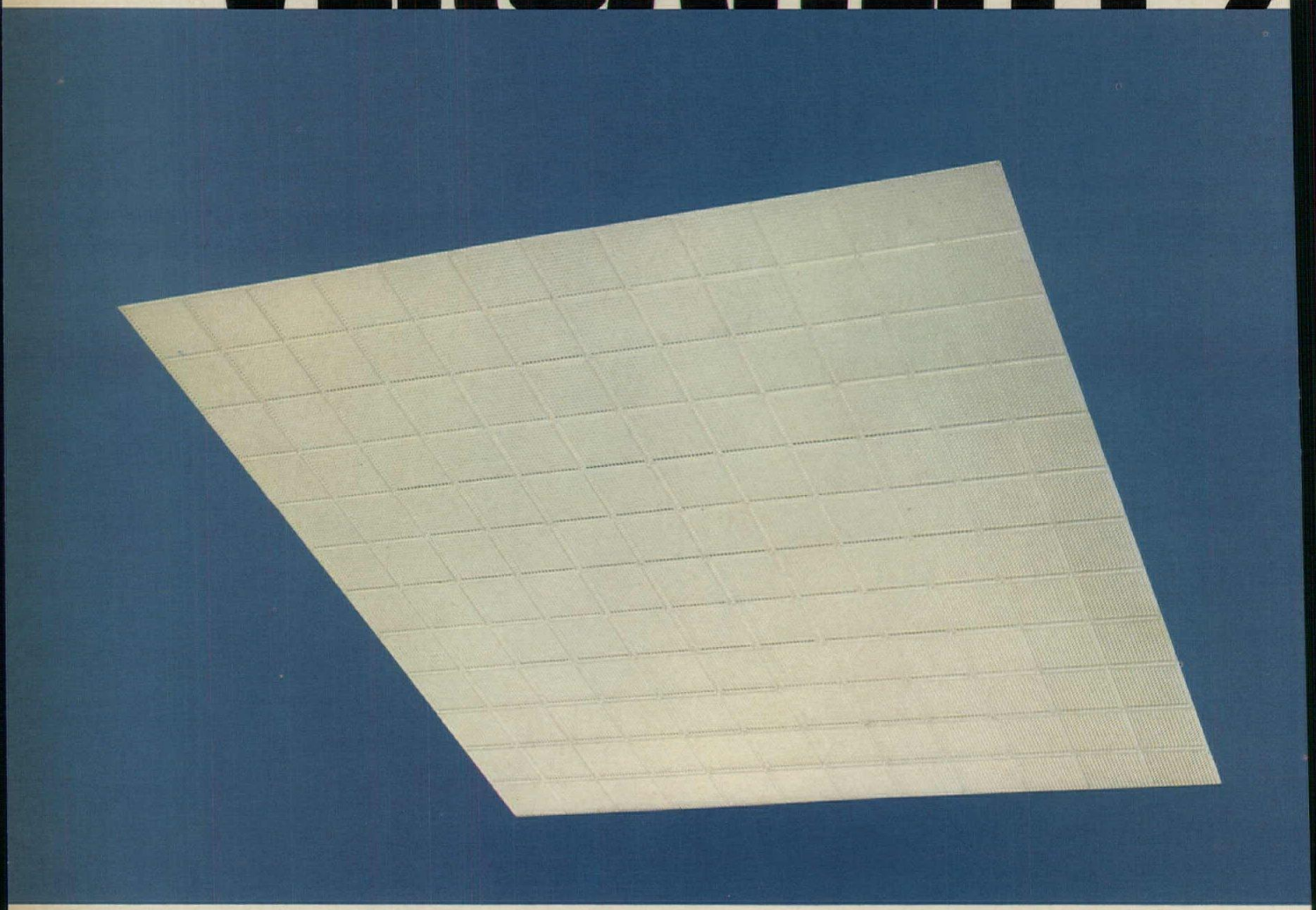
VERSATILITY



Holophane's new Controlgrid Controlens® has a truly distinctive modular look. You can specify it in sizes up to a big 3′x3′–or in ANY smaller size.

Clean, crisp appearance. Controlgrid's rectangular grid pattern gives it the trim, lean, unobtrusive look so popular in contemporary interiors. The grid pattern of slightly raised ridges gives Controlgrid a unique modular look and helps keep the lens rigid no matter how large the lens area.

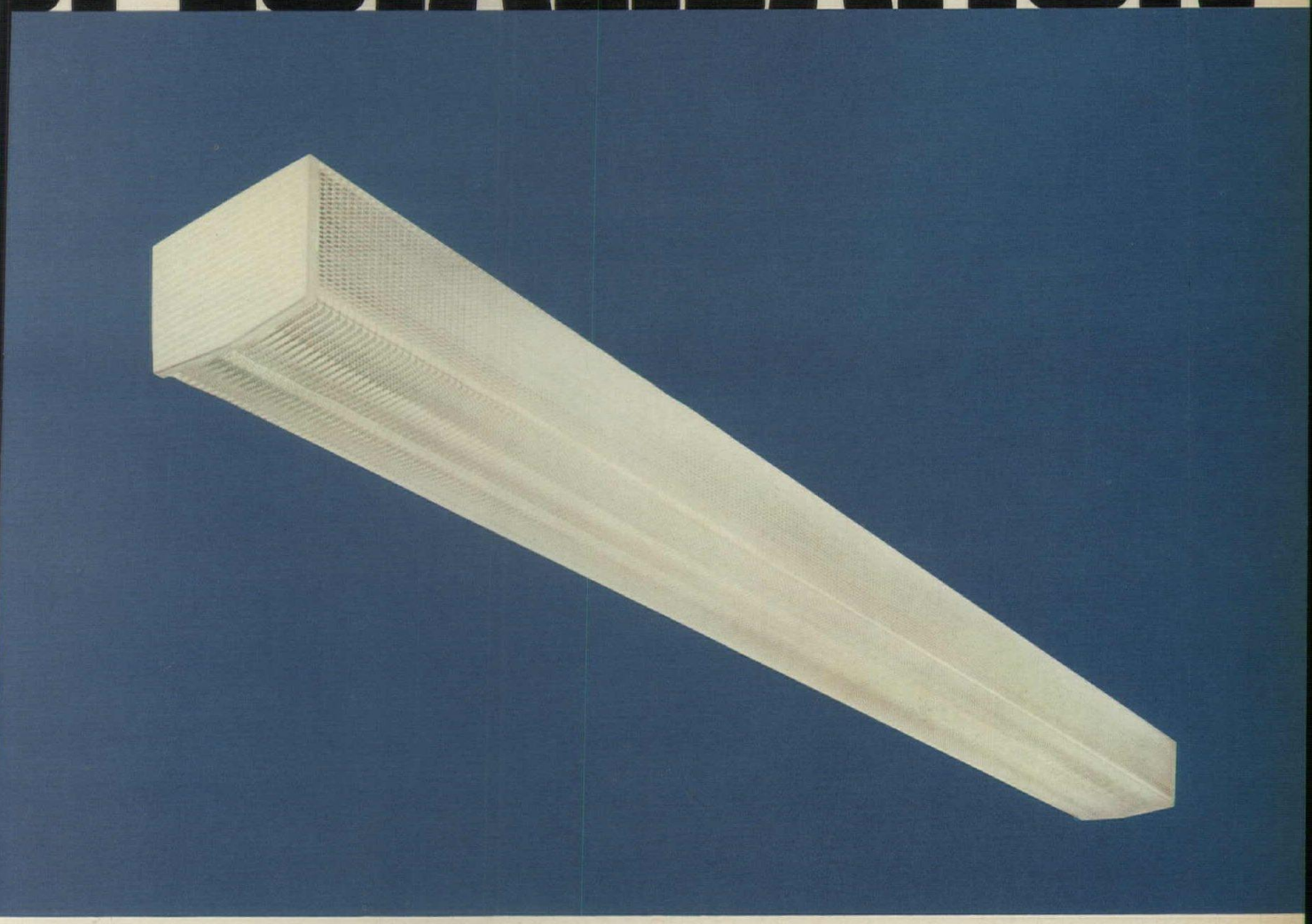
Design flexibility. Controlgrid is molded in 2′ X 4′ and 3′ X 3′ sizes, and is available in ANY smaller size you specify. That means you can use different sizes to meet different lighting needs while keeping appearance uniform *throughout* your design.

Precision light control. Controlgrid's prismatic structure is carefully engineered to deliver the maximum amount of glare-free, prismatically-controlled illumination *uniformly* over horizontal surfaces. You get more light where you need it. And Controlgrid has exceptionally low and even lens brightness—it *never* intrudes on your design.

CONTROLENS by

HOLOPHANE

SPECIALIZATION



Holophane's new 6100 Controlens has the slim styling and specialized performance you need for lighting corridors, library stacks and similar areas.

Full ceiling and wall illumination. The 6100 is a slender, one-lamp wrap-around lens designed to distribute light prismatically onto ceiling and walls as well as floor. This eliminates all dark areas, makes any corridor or aisle safe, cheerful and inviting.

Uniform, glare-free illumination. A combination of longitudinal and transverse prisms on bottom of lens distributes glare-free light uniformly over a broad area, not just under the fixture. This means you can space units more than twice the aisle width apart and still get completely uniform illumination.

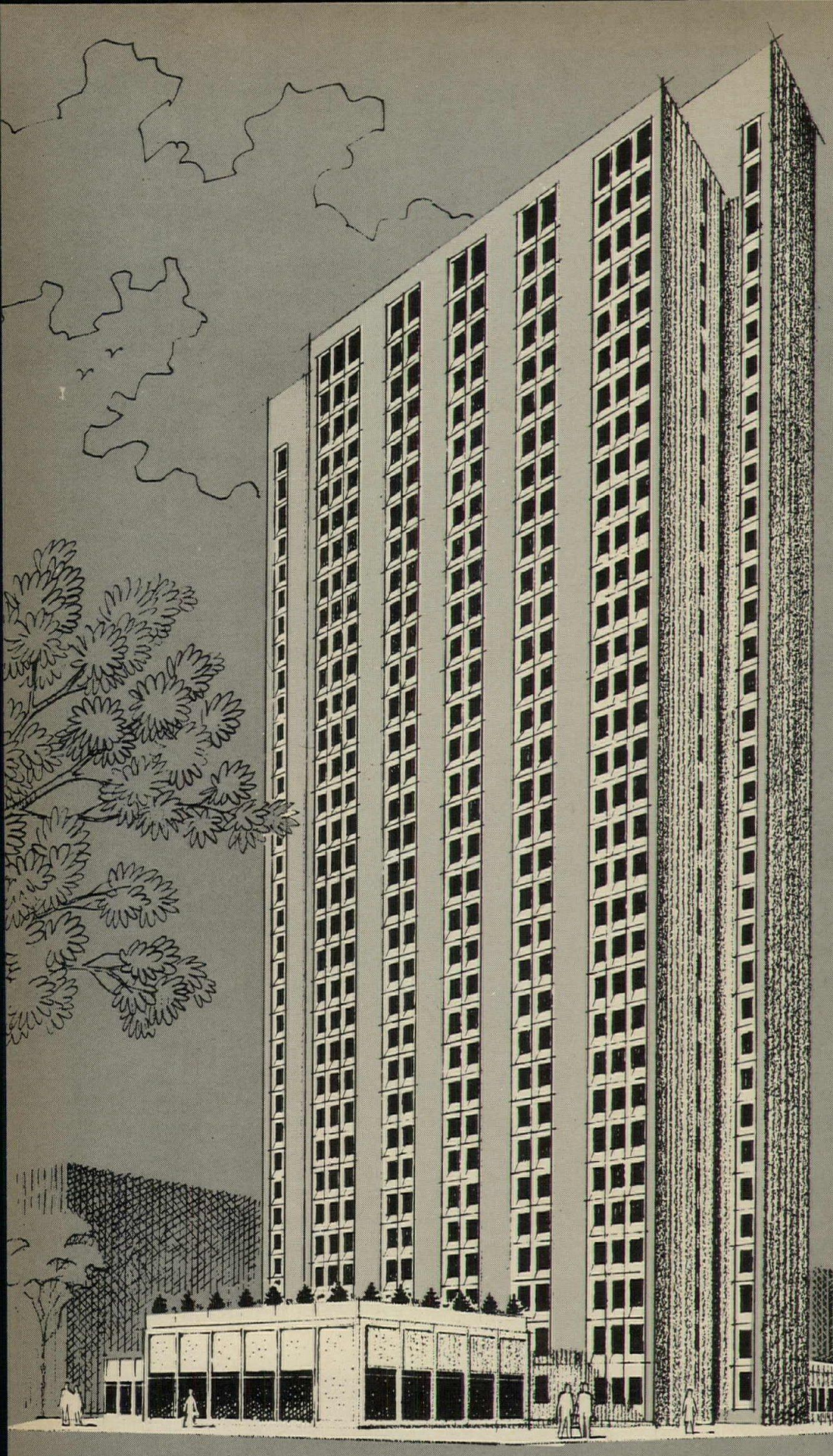
Low and even lens brightness. A unique configuration of linear prisms obscures the lamp, illuminates the lens evenly and unobstrusively. There's no socket or lamp-end darkness. And since the lens attaches to its fixture by its rugged endcaps, it functions like a frameless Controlens with no visible hinges to mar appearance.

You can specify both the Controlgrid and 6100 lens in the fixtures of dozens of leading manufacturers. For full information on these newest Holophane lenses, write: Dept. H-8, Holophane Company, Inc., 1120 Avenue of the Americas, New York, N.Y. 10036.

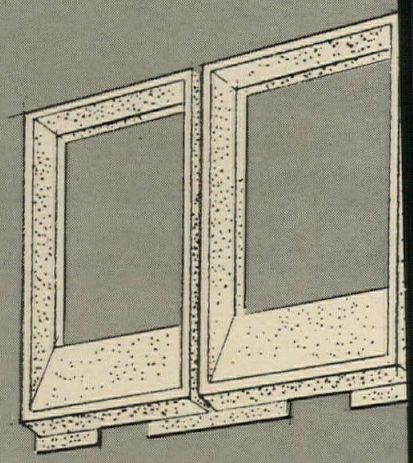
CONTROLENS by

HOLOPHANE

For more data, circle 16 on inquiry card



from plaza to penthouse, precast units of MEDUSA WHITE



Triple window units measure 8
x 16'6"; double window un
measure 8'8" x 11'0"; single un
8'8" x 5'6". Flat panels, 8'8" x 1

mooth white precast window units contrasted with flat precast panels with exposed aggregate of letcher Granite . . . make an attractive facade for this 36-story hospital housing "original."

n addition, the planters in the garden and plaza . . . the panels and load-bearing columns in the tore . . . are precast of true-white Medusa White . . . the architect's aristocrat of White Portland ements . . . his most moldable, aesthetic medium for creative "originals."

sk your concrete products producer about Medusa White or write Medusa at P. O. Box 5668, leveland, Ohio 44101.

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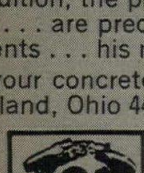
LAURENCE G. PAYSON HOUS
(Society of New York Hospita
New York, N. Y. **Architect:** Fre
erick G. Frost, Jr. and Associa
Architects, New York, N. Y. **Ge**
Contractor: Turner Constructio
Co., New York, N. Y. **Preca**
Producer: Allied Castings, Ma
chester, Conn. **Precast Erector**
Sparks Associates Inc., Ne
York, N. Y.



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White & Gray Portland Cements • White, Gray & Custom Color Masonry Cements • ChemComp Shrinkage-Compensating Cement

Grant makes child's play out of moving heavy doors or walls.

Grant sliding hardware affords architects and designers the flexibility of immediate interior space conversion, so vital in today's structures. Grant offers hardware expressly designed for application to doors, partitions, dividers, even walls.

7000 hardware: 100 lbs. capacity/1200 hardware: up to 275 lbs. capacity/5000 hardware: up to 300 lbs. capacity (greater capacity available). Specific data on all Grant hardware available on request.

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WESTERN DIVISION: 944 LONG BEACH AVE., LOS ANGELES, CALIF. 90021

For more data, circle 18 on inquiry card

What will bargain insulation do to repeat business?

(He just found out!)

And in such language! But . . . can you blame an owner whose heating and cooling costs are going up and up? Now it looks as if he may have blown an account by deciding to use that bargain insulation.

It worked all right at first. But gradually it lost efficiency. Why? Maybe the vapor barrier? He knew vapor barriers weren't foolproof. They deteriorate. Maybe building movement split it. Then moisture permeated the insulation. Condensation may have complicated things . . . dragged down insulating efficiency. There is a better insulation. It's STYROFOAM® brand plastic foam. The very best. Retains its effectiveness. Resists water and rarely requires a vapor barrier. Rot and mold are not problems. Flame retardant.

Lightweight and easy to install. Use the Miller System: Apply paneling decorative wallboard directly STYROFOAM brand plastic foam: use a base for wet plaster; or as a perime insulation for foundations and sla Want the repeaters?

Specify STYROFOAM brand plastic fo insulation, one of a family of rigid fo insulations offered by Dow. For in mation, write to: The Dow Chemi Company, Construction Materials Sa Dept. 71302, Midland, Mich. 486

DOW

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5 ways to cool it

EW
EMI-RECESSED

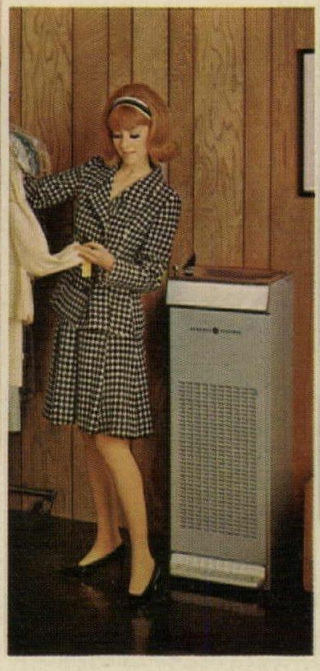
ooler or fountain.
efrigeration package
vailable separately
n 8 or 12 gph capacity
o serve from 96 to
44 people per hour.
rder complete water
ooler, or fountain and
dd cooling unit later.
Good-looking design in
Mocha Linen textured
inyl finish (shown),
Desert Mist enamel
r stainless steel.

FLOOR-MOUNTED
FLUSH-TO-WALL

Exclusive trapezoid shape invites access from either side, or front, saving over a foot of aisle space. Seven models serve from 73 to 180 office workers per hour. Hot water accessory available.

WALL-MOUNTED
SPACE-SAVER

At standard height, leaves floor clear for easy cleaning. Or unit may be mounted at floor level for children. Stylish decor, serves 73 to 180 office workers per hour. Hot water accessory available for instant hot beverages.



FREE-STANDING
WATER COOLER

Streamlined, handsome appearance complements any location. Suitable for office or industrial applications—6 models serve from 48 to 240 people. Dual hand and full-width foot controls are standard on most models.

COMPACT
WATER COOLER

Cool refreshment for small offices. Serves up to 36 people; requires just one square foot of floor space. Adjustable temperature control, automatic stream height regulator.

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FREE EIGHT-PAGE BULLETIN with attractive full color illustrations, plus all the technical data. Send for it! Simply clip out the coupon below before you turn the page.

Please send me your full line water cooler bulletin 67-1036.

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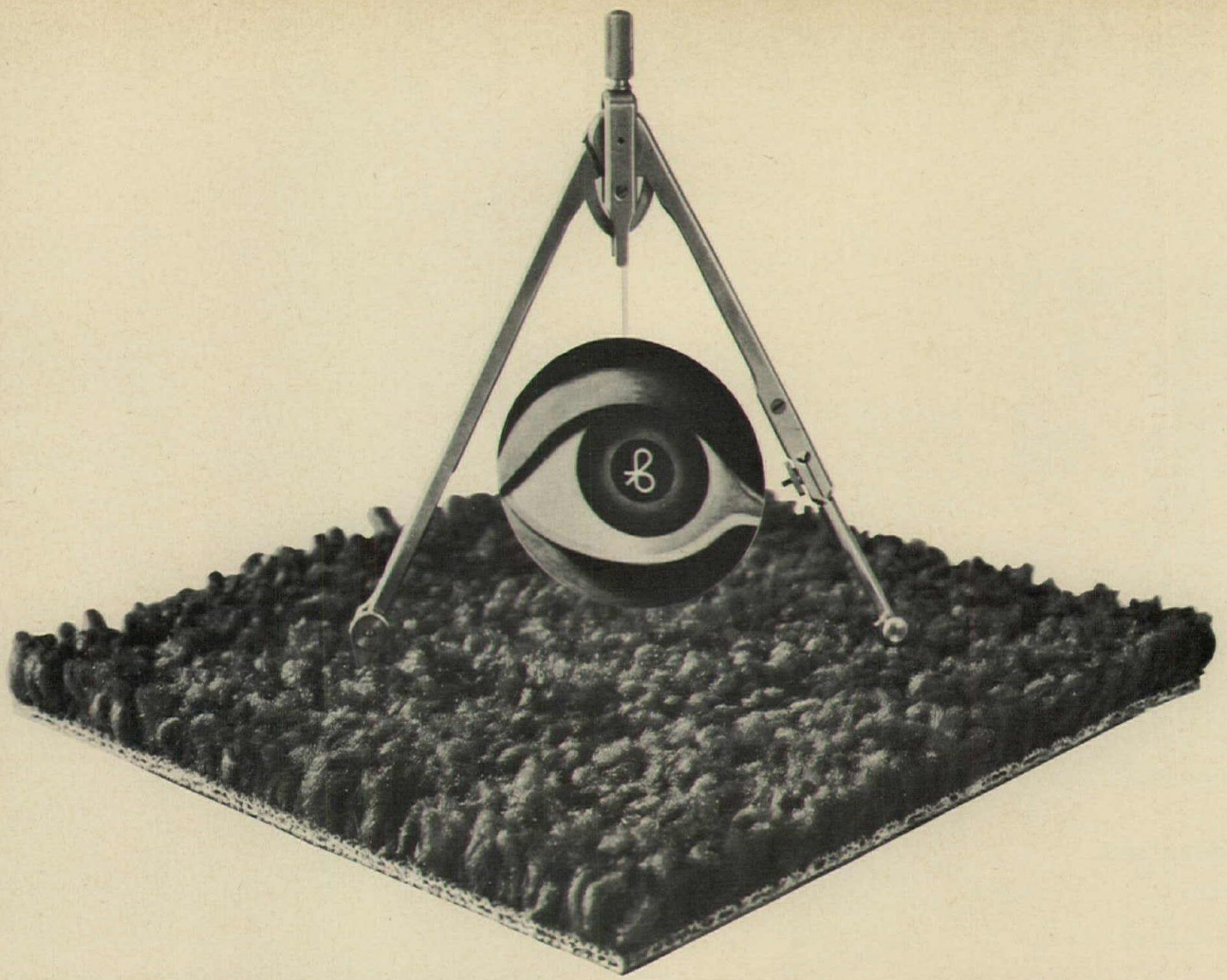

you see so much more in carpeting when you call in Berven of California

Would Tufted Broadloom best answer your carpet specifications? The textural, design and color versatility of Berven Tufted Broadloom might prove most interesting... plus its dollars-and-cents practicality. Berven offers you a wide sweep of qualities ranging from acrylic, nylon, polyester and poly-propylene olefin fibers to traditional pure wool. Tufted Broadloom, in turn, is but one of 10 basic lines manufactured or distributed by Berven Of California to offer you one of the widest selections of carpeting and services in the Nation. And behind all of this is a sure sense of color and textural styling that springs from a most knowledgeable Custom Carpet heritage. Perhaps we might be helpful. We'd surely like to try.

THE BERVEN OF CALIFORNIA RANGE

Manufacturers of: *Tufted Broadloom; Custom Tufted Rugs and Carpet; Stock Design and Custom Designed Handmade Rugs and Carpet; Hand-loomed Reversible Chenille; Custom-braided Rugs; Hand-loomed Reversible Broadloom.*

Distributors of: **Roxbury Broadloom (Axminster, Velvet, Knitted, Tufted); *Loma Loom Rubber-backed Carpet; Ozite Outdoor-Indoor Carpet, Carpet Tile, Rubber and Felted Lining.* *WESTERN STATES

BERVEN OF CALIFORNIA

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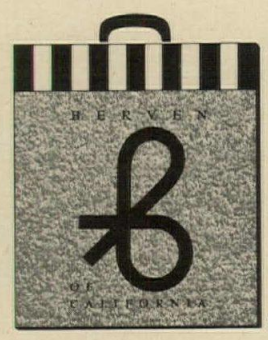

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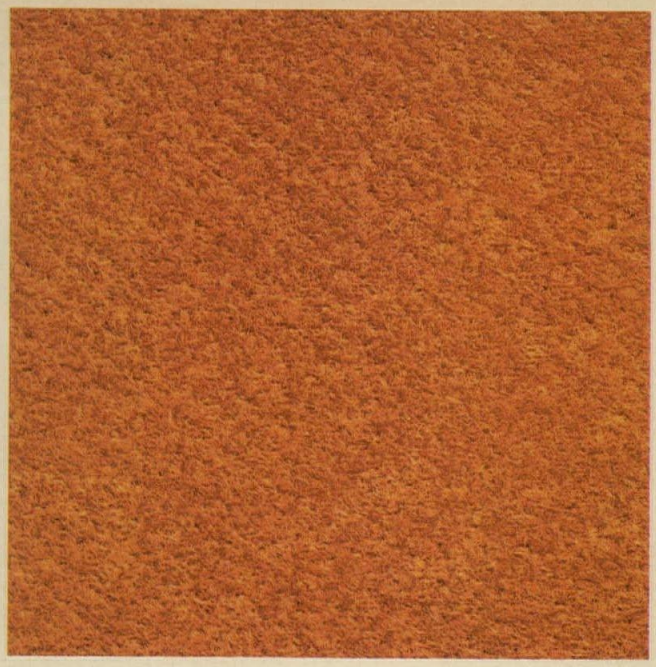

Now, a carpet tile!

Ozite introduces the soft, warm, quiet tile that never needs waxing or polishing . . . because it's carpet!

Now get the benefits of a soft floor covering with the installation advantages of tile. New Ozite® Carpet Tiles are 12-inch squares of long-wearing Ozite Carpet, with a built-in rubber back for extra plushness. They're made of Vectra® olefin fiber . . . the fiber that won't absorb moisture . . . so it resists stains from food, drink, even household chemicals. ■ Ozite Carpet Tiles are colorfast. Won't rot or mildew. (Ideal for below-grade installations.) They bring new comfort, warmth and quiet to offices, stores, schools, motels, rec-rooms, bathrooms, kitchens. No costly waxing or polishing. Dense, firm surface resists soiling. Just vacuum clean. In case of accident, individual tiles can be easily replaced. ■ Ozite Carpet Tiles are simple to install with Ozite adhesive. They cut easily with a sharp knife or scissors. Can be installed in sections. No involved estimating. Minimum of waste. 16 colors give unlimited design possibilities. All colors also available in broadloom widths. ■ Where will you use Ozite Carpet Tiles made of Vectra fiber? Use your imagination! ■ Mail coupon now for full details and samples.

OZITE CORPORATION, Dept. AR
7-120 Merchandise Mart, Chicago, Illinois
Please send me complete information plus sample swatches of new Ozite Carpet Tiles.

Name _____

Firm _____

Title _____

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State _____ Zip _____

If Product or Performance Defective Replacement or Refund to Consumer ★ Good Housekeeping Guarantees

As advertised in LIFE magazine

Ozite® CARPET TILES made with Vectra® OLEFIN FIBER

® Ozite is the registered trademark of the Ozite Corporation — 7-120 Merchandise Mart — Chicago, Illinois
® Vectra is the registered trademark of the National Plastic Products Company, Inc., for its olefin fiber. Vectra makes fiber only, not carpet.

For more data, circle 22 on inquiry card

Anemostat® diffusers— silent, efficient performers at the Los Angeles Music Center

MARK TAPER FORUM

AHMANSON THEATRE

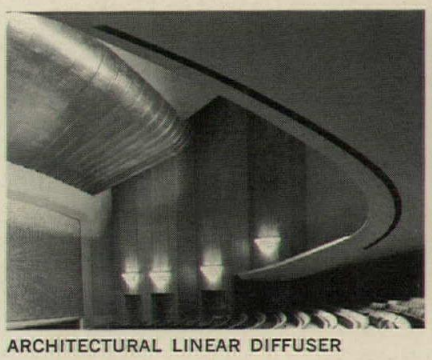
Air diffusers for the $33.5-million Music Center of Los Angeles County had to meet these primary criteria—blend with the elegant decor, deliver effective air flow patterns in huge halls as well as smaller areas, and be quiet enough not to disturb the sensitive ears of music lovers.

Several types of Anemostat diffusers were chosen for the trio of outstanding buildings. In the Dorothy Chandler Pavilion and Ahmanson Theatre, for example, Anemostat's ALD Architectural Linear Diffusers became unobtrusive elements of the interiors. These linear units distribute 250,000 CFM of air to the pavilion with no audible hisses or hums.

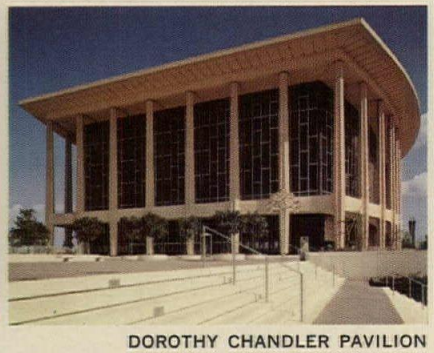
Anemostat EA-1 square diffusers and C-2 circular diffusers handle smaller spaces in the three buildings. They mount flush, look trim, and offer similar air handling flexibility and quiet operation.

Write for a catalog of Anemostat's complete line of air distribution equipment. Anemostat Products Division, P.O. Box 1083, Scranton, Pa. 18501.

Architect and Engineer: Welton Becket & Associates • General Contractor: Peter Kiewit Son's Company • Air Conditioning Contractor: F. B. Gardner Company, Inc. (pavilion); A&S Air Conditioning Company (forum and theatre)



ARCHITECTURAL LINEAR DIFFUSER

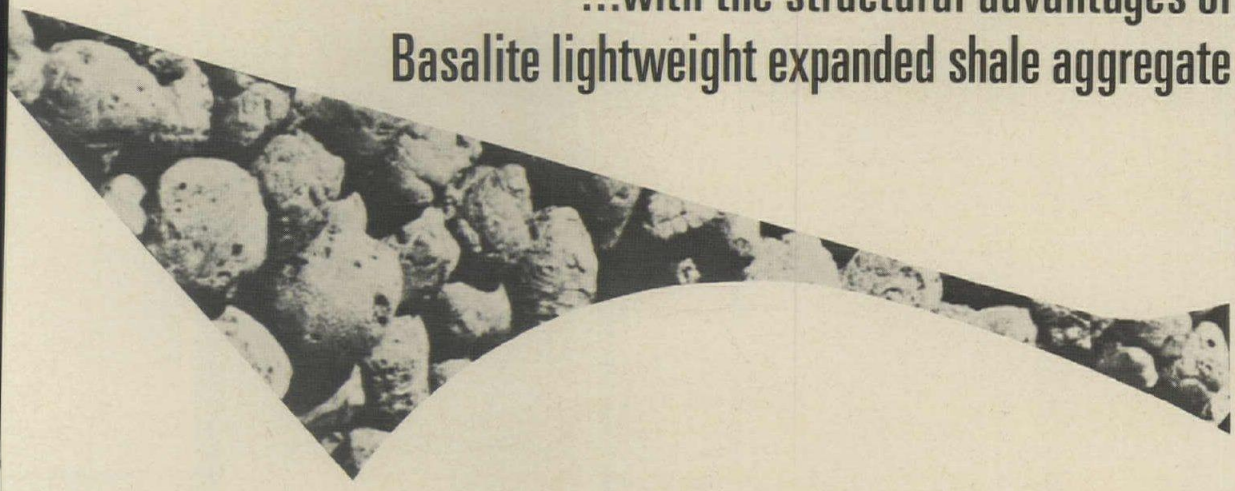


DOROTHY CHANDLER PAVILION

DCA **ANEMOSTAT PRODUCTS DIVISION**
DYNAMICS CORPORATION OF AMERICA

For more data, circle 23 on inquiry card

Obtain more architectural flexibility in concrete ...with the structural advantages of Basalite lightweight expanded shale aggregate

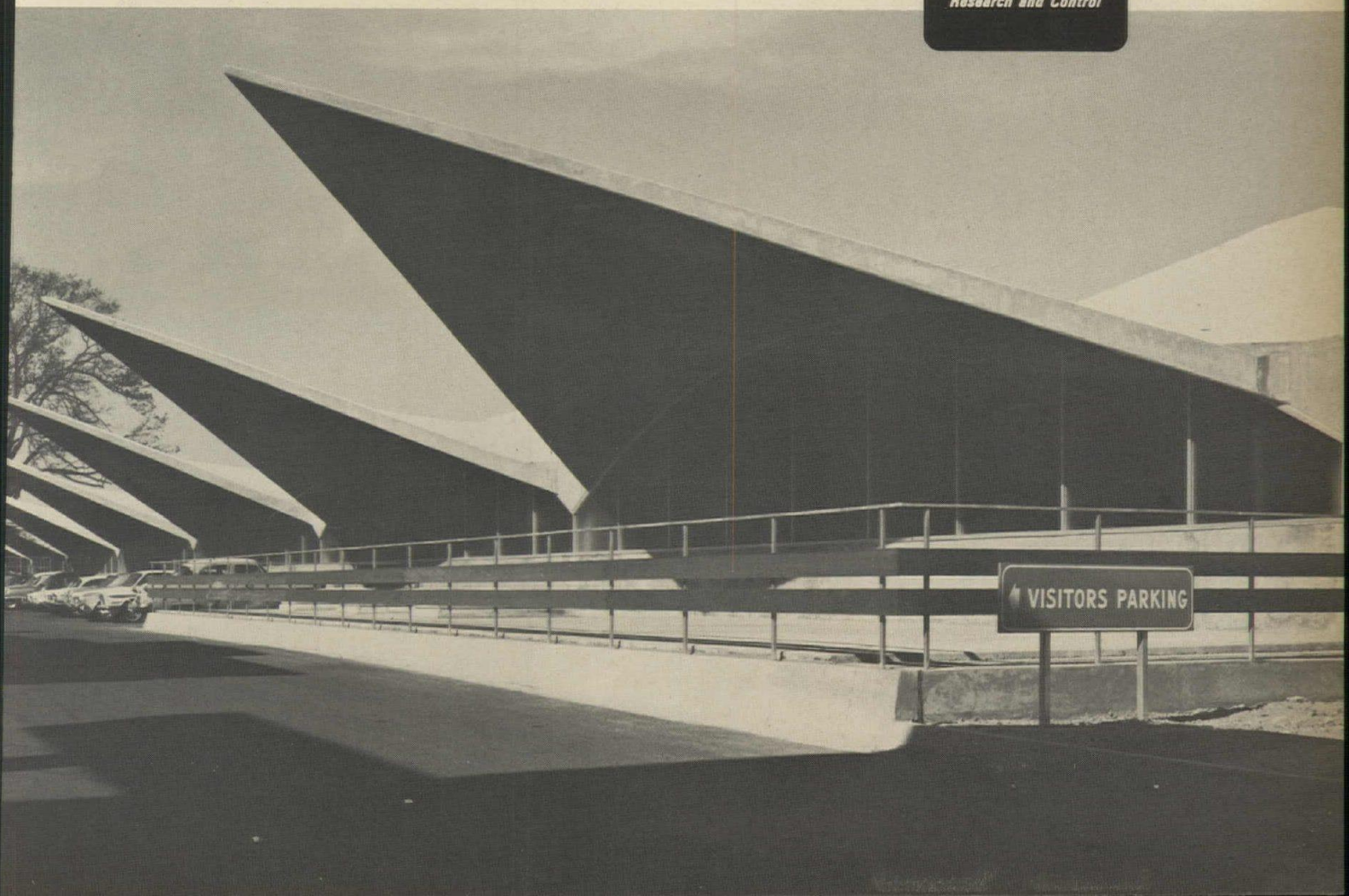


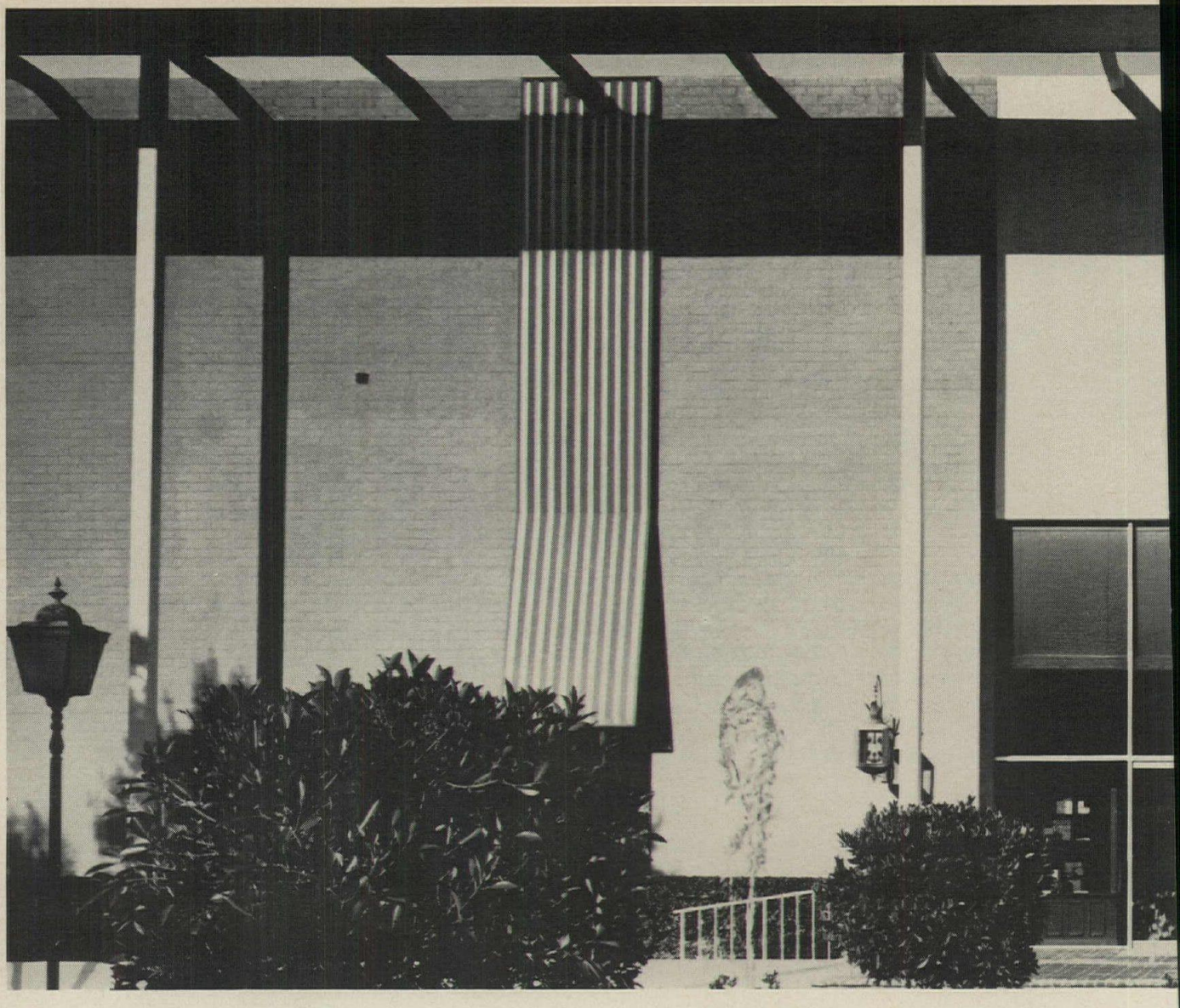
Basalite expanded shale aggregate is a superior lightweight, structural concrete material ... with minimized drying shrinkage, improved fire resistance, high quality insulation and sound dampening properties, low weight and high strength. Basalite offers greater design flexibility and economy than conventional concrete aggregates. It can be cast into thin graceful sections with long free spans and extended cantilevers; distinctive, beautiful textured finishes are readily and economically achieved. Design with concrete—Basalite aggregate concrete! Write or phone for Basalt's free technical consulting service. **Basalt Rock Company, Inc., Aggregate Division, Napa, Calif. 94558. Phone 707/226-7411 Ext. 206.**

"Basalite"—trade name of Proven Quality
Marketed only in Northern and Central California

Basalt
QUALITY through Research and Control

McGraw-Hill Distribution Warehouse, Novato, California
Architects & Engineers: *John S. Bolles Associates, San Francisco*
General Contractor: *MacDonald & Nelson, Inc., Oakland*
Concrete: *Shamrock Materials, Inc., San Rafael*





Lower total annual cost in All-Electric buildings?

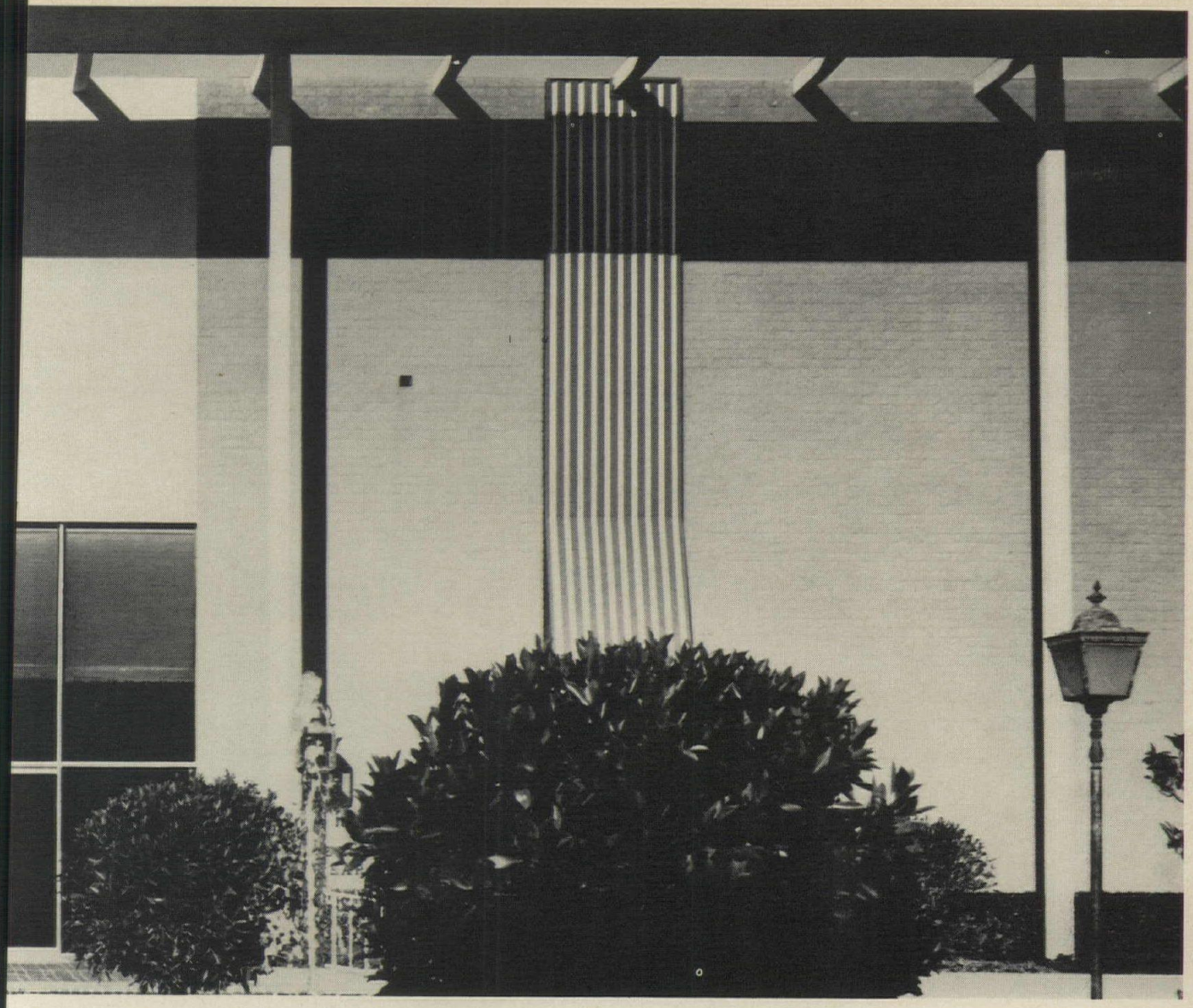
Ask Buffums'...

Buffums' Palos Verdes is the fourth All-Elec department store in the Buffums' chain. another example of the remarkable economy the All-Electric building concept.

By going All-Electric, Buffums' was able make more efficient use of their money in seve ways.

The lower first cost of electric heating and conditioning equipment accounted for big init savings. Because electric air conditioning is 30 to 50% less, Buffums' greatly reduced costs that one item alone. Electric heating eliminat the need for boilers, stacks, vents, flues and t space required to house them. Just the savings piping materials and installation was considerab Space saving was another factor. In this case, was the equivalent of a complete shoe departme

Buffums' lighting was designed in accordan with the nationally recognized standards of t Illuminating Engineers Society. It not only ligh without glare and highlights Buffums' quali merchandise but, most importantly, is the princ



source of heat for the entire store.

Flameless, quick-recovery, water heating serves ffums' beauty shop and washroom areas.

Another important benefit of the All-Electric ncept is the architectural freedom of design. All-ctric systems are flexible, and can be incorpo-ed in a great variety of building designs, rather n forcing the architect to design the building ound traditional systems.

The All-Electric Building Award for Buffums' los Verdes testifies that this building has met cognized engineering standards for lighting, ating, and air conditioning.

Buffums', like so many other companies, has und that lower first cost, lower maintenance pense and competitive operating costs add up lower total annual cost in All-Electric buildings. e can give you all the money-ahead facts and ures on All-Electric building, including hun-eds of case histories. Write Marketing Engi-ering, P.O. Box 62, Terminal Annex, Los ngeles 90051.

BUFFUMS' PALOS VERDES

Architect: Killingsworth, Brady and Associate, A. I. A.

BUILDING PROFILE

GENERAL DESCRIPTION
- Two-story building
- 43,000 square feet department store
- Reinforced brick masonry construction

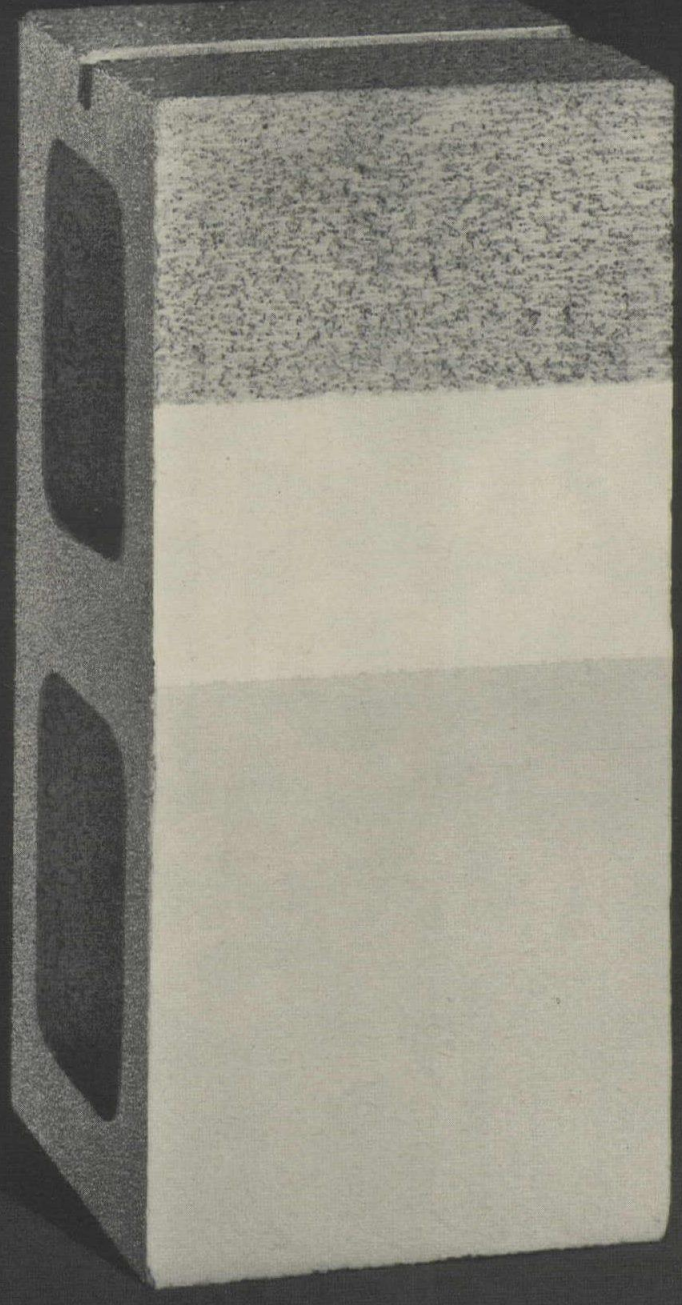
ELECTRIC LOAD
- Connected Lighting and Miscellaneous Load—600 KW
- Electric Air Conditioning (125 Tons—3 Units)—160 KW
- Electric Supplementary Heating—92 KW
- Electric Water Heating—40 KW

INSTALLED COSTS
- Air Conditioning System—$1.25 sq. ft.
- Electrical System—$1.90 sq. ft.

OPERATING COSTS
- Total Electrical Operating Cost for a Six Day Schedule—$.38 per sq. ft. per year

SPACE CONDITIONING
- Direct expansion, refrigerated, air cooled cooling system. Heat supplied by lights supplemented by electric heating coils as needed.

Southern California Edison SCE



Perfect way to prevent leakage . . .

PRIME 'n FILL

Concrete block never looked so good . . .

never sealed out moisture so completely. PRIME 'n FILL primes, fills, and surfaces concrete blocks in one operation. Moisture simply cannot seep in, because PRIME 'n FILL blocks and seals every void in the block. Its hard, dense, non-porous surface makes a perfect base for all vinyl, acrylic, latex, or oil type coatings. PRIME 'n FILL also does the same effective job on interior building block surfaces. This low cost, time-tested, quality product extends the economy of block construction right to the finish. One pound (mixed in water) covers 15 to 25 square feet. Stretches paint coverage, too; one finish coat usually does the job. Now you can forget the problems and high cost of painting concrete block. Just PRIME 'n FILL . . . then paint.

WORLD'S FINEST SYNKOLOID WATER PAINTS

THE SYNKOLOID COMPANY

LOS ANGELES • ATLANTA

WAREHOUSES: PORTLAND • DENVER • SALT LAKE CITY

MAIL THIS COUPON FOR COMPLETE INFORMATION

THE SYNKOLOID COMPANY 3345 Medford Street,
Los Angeles, California 90063

Gentlemen: Tell me more about PRIME 'n FILL.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

For more data, circle 25 on inquiry card

The new Los Angeles grows up

with gas air conditioning.

"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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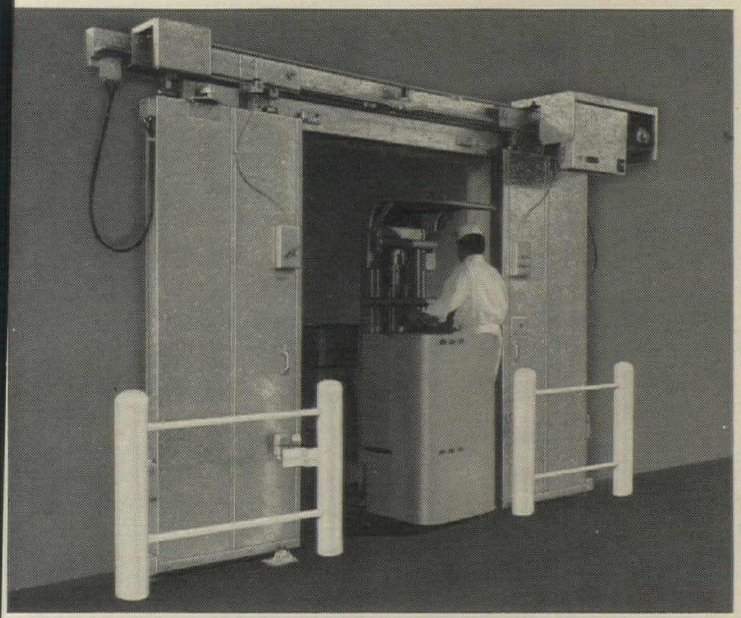
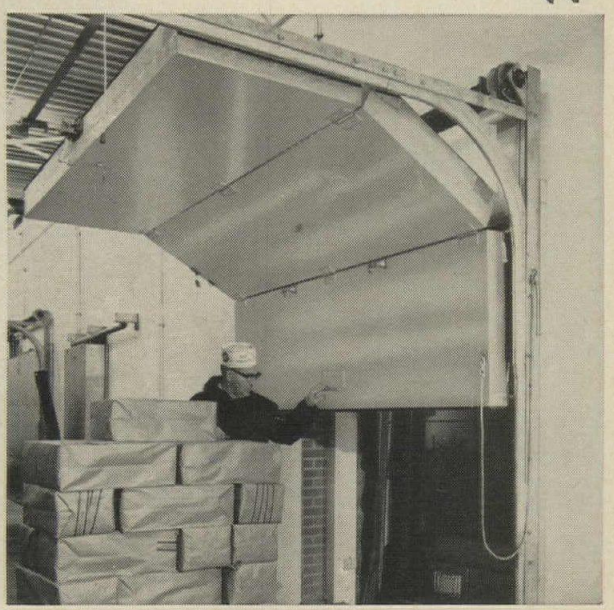
Jamison doors meet critical requirements of temperature, traffic, or limited space

HIGH VOLUME TRUCK TRAFFIC speeds through Electroglide Mark II doors. These power doors offer fast, automatic opening and closing to handle heavy traffic and save refrigeration. Available in both bi-parting and single leaf.



RESISTANCE TO HARD, ROUGH USAGE. Jamison JAMOTUF* Plastic Door for cooler or freezer is made from a new high-strength, tough plastic formulation. Ideal for food processing and meat packing plants.

LIMITED WALL SPACE. Jamison Vertical Sliding Door permits closer positioning of loading dock doors to service more trucks. Requires adequate ceiling height.



LIMITED CEILING HEIGHTS. Jamison Hinged Panel Overhead Door is for loading docks with low overhead space. Trucks back tight against gasket-type cushion, minimizing cold loss.

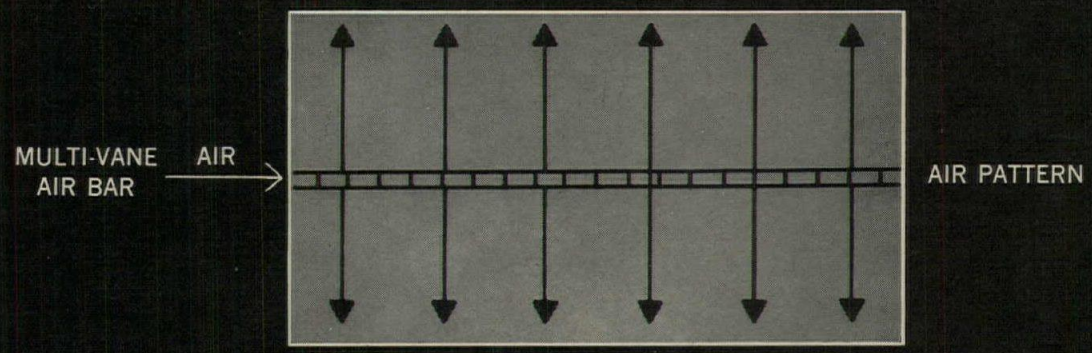
Whatever your door problem, Jamison makes a door to solve it. Write for data to Jamison Cold Storage Door Co., Hagerstown, Md.

JAMISON
COLD STORAGE DOORS

*JAMOTUF is a Jamison trademark.

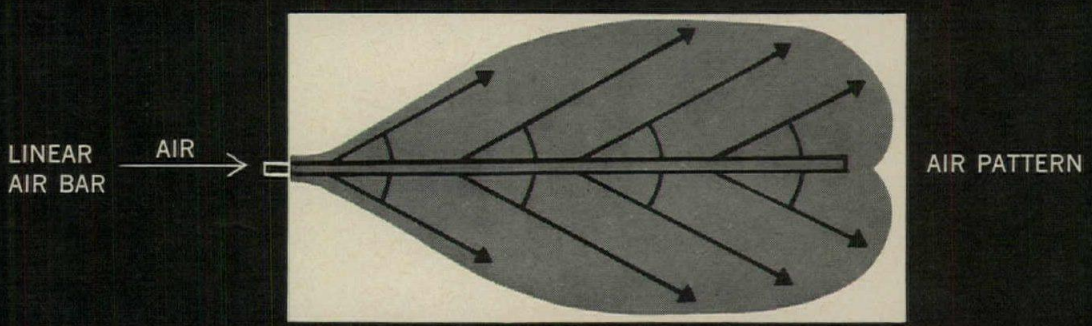
For more data, circle 27 on inquiry card

OUR MOVE



We move air evenly. We do it with a brand new linear bar (see our diagram). The bar economically and efficiently and quietly moves air throughout the entire space. We call it the OCF Dimensionaire Ceiling System. It's a total ceiling system. Air, light and sound. There's nothing like it.

THEIR MOVE



Others move air unevenly because they don't have a Multi-vane air bar. Their bars throw out the conditioned air at various angles. As you can see in the diagram, this can create dead spots and drafts in the room. Most air bars don't allow for the wide expanses of economical ceilings the way ours does.

YOUR MOVE

We have a movie you should see. And a brochure. They tell everything about the OCF Dimensionaire Ceiling System, including the Multi-vane air bar. Mail the coupon now, before it slips your mind.

USE DE

Dividend Engineering—to stretch your building dollar while improving building performance.

Name _____

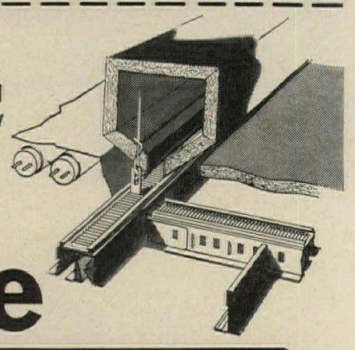
Title _____

Address _____

City _____ State _____

☐ Have your sales engineer call for an appointment to show the film.

☐ Mail the brochure.



OCF Dimensionaire Ceiling System

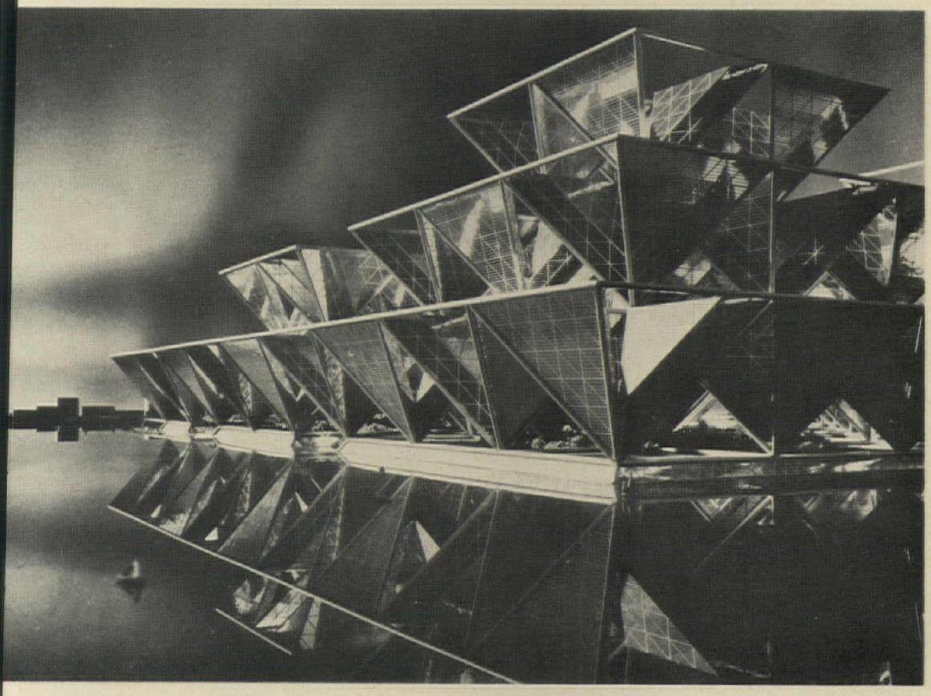
OWENS-CORNING FIBERGLAS

Owens-Corning Fiberglas Corp., Dept. DCS, P.O. Box 901, Toledo, Ohio 43601 AR-8

For more data, circle 28 on inquiry card

hitect proposes city core of 326 units to be built on pontoons over water rights

Shape/21, an "urban matrix" of mul- aluminum and glass units intended xtend from and expand upon the ex- g core of the city, has been con- ed and designed by Chicago archi- Stanley Tigerman and introduced by nolds Metals Company. The basic of the matrix, which would be built r water using a system of pontoons which the entire structural system is ported, is shaped like a truncated tet-



rahedral pyramid, or pentahedron, and is repeated 326 times in a pinwheel arrangement. Each unit is 600 feet on a side and 100 feet thick and is divided into 46 floors with the units being segmented into residential, commercial and communal functions. The units are connected by hollow trusses which serve as an integral transportation system and distribution network for utilities.

The pontoons, on which the complex would be supported, would be stabilized by anchored cables. The pontoons would vary in area from 360,000 square feet to 3,240,000 square feet each for a total area of 17,640,000 square feet of essentially open space. The complex would provide nearly 23 million square feet for residential application, over 82 million square feet for commercial use and nearly 106 million square feet for communal functions such as entertainment, educational, sports, civic and governmental use. City Shape/21 would require an area of about one and one half square miles, expanding the average city core by about 100 per cent without destroying the desirable water edge, since, says Mr. Tigerman, "the matrix would be located a sufficient distance from the shore to preserve esthetic and recreation values of the edge."

Although the project is solely conceptual, Mr. Tigerman has made a complete technological and structural qualitative study with structural engineers and technical consultants. "This study was made," said Mr. Tigerman, "using the existing properties of aluminum such as bending moments, deflection, modulus of elasticity and coefficient of expansion. From these data we have concluded that City Shape/21 can be constructed from existing materials either available now or which can be fabricated using existing equipment."

ontinuing education series ill be presented in six cities

series of seminars for architects and gineers on "Developments in Archi- ctural Technologies," presented last ar in New York and Cambridge, Massa- usetts, as part of the Cambridge acous- al consulting firm of Bolt Beranek and ewman's program of Continuing Edu- tion in Architecture, will be repeated six cities in 1967-68. The series, which ill consist of five day-long seminars on e topics of acoustics, mechanical sys- ms, lighting, structures, and computers, ill be given by outstanding lecturers om universities and from leading con- lting and research groups. The series will be offered in Cambridge, New York, Washington, Chicago, Los Angeles, and San Francisco for one day each month for five months (usually on Saturday). The $325 tuition for the series includes lunches and seminar literature. A second series, "Developments in Architectural Materials," is now in preparation.

Fletcher named to head public housing program

Thomas W. Fletcher, formerly city manager of San Diego, has been put in charge of the public housing program with his appointment as deputy assistant secretary of the Department of Housing and Urban Development. Marie McGuire, commissioner of the Public Housing Administration in the old Housing and Home Finance Agency, will remain with HUD as a special assistant on problems of the elderly and handicapped.

Grant by architectural firm enables educators to travel

A grant established by the Omaha-based architectural firm, Leo A. Daly Company, will permit faculty members of the School of Architecture at the University of Nebraska to visit geographical areas related to their teaching. The new grant is a revision of the former Daly Scholarship Fund which has provided an annual $2,000 four-year undergraduate scholar-

ship since 1956. Under terms of the new fund are one travel grant each year for a third-year student as well as a faculty grant, probably to be awarded every third year. The first recipient of the faculty grant is Ronald E. Hess, assistant professor of architecture, who is spending this summer visiting Egypt, Jerusalem, Lebanon, Greece, Cyprus, Turkey, Crete and countries in Southern Europe.

August F. Hoenack cited for excellence in hospital design

August F. Hoenack, chief of the Architectural, Engineering and Equipment Branch of the Division of Hospital and Medical Facilities, Public Health Service, has been presented the Superior Service award of the United States Department of Health, Education, and Welfare. Mr. Hoenack, a pioneer in hospital architecture whose 30 years of government service has included 25 years with the Public Health Service, was cited "in recognition of his exceptional contribution to national health facility construction programs through excellence in hospital design and architecture."

Mr. Hoenack is currently the Public Health Service representative to the American Institute of Architects' Committee on Hospitals as well as being a member of its Ad Hoc Committee on Architecture and Engineering in Government. He is a consultant to the American Hospital Association's Committee of Design and Construction, and a member of the American Standards Association's Committee on Making Buildings Accessible to and Usable by the Physically Handicapped.

Department of Transportation announces awards competition

The Federal Department of Transportation has announced the initiation of an annual highway beauty awards competition to "recognize and cite the interest and participation of governments, authorities, organizations, businesses and industries in the national program of highway beauty." The competition will result in the annual presentation, beginning next January, of 11 awards to agencies of state, county or local governments, and four awards to social, civic, professional or other organizations and private industry.

"Design concept teams" urged for highways by A.I.A.

George E. Kassabaum, first vice president and president-elect of the American Institute of Architects, has called for use of "design concept teams" of specialists as a required part of the Federal Government's interstate road program.

Speaking for the A.I.A. before a Senate Committee of Public Works as part of hearings underway on the Highway Beautification Act of 1965, Mr. Kassabaum said that architects were "convinced that this approach will produce a highway that is part of the community, rather than one that takes the community apart." The design concept teams are panels of engineers, economists, sociologists, planners and architects who focus on the "complete social, economic and physical impact" that an expressway will have on a community.

The design concept team id
now being tested on a 20-mile seg
of the Interstate Freeway System in
tral Maryland, Mr. Kassabaum said.

The design concept team app
to urban design problems had beer
posed in the A.I.A. policy statemen
sented in May before Senator Abr
Ribicoff's Subcommittee on Exec
Reorganization of the Governmer
Archibald Rogers of Baltimore, chai
of the A.I.A. Committee on Urban
sign. Mr. Rogers was also author o
proposal for organization of the p
type team for the Baltimore projec

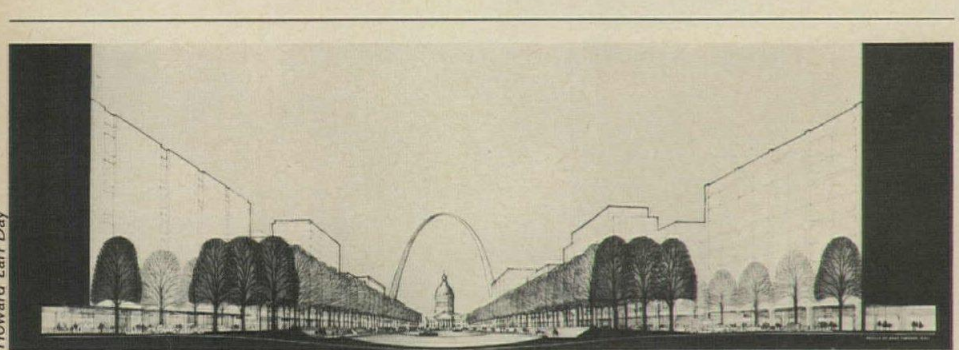
Llewellyn W. Pitts

Henry J. Toombs

Obituaries

Llewellyn W. Pitts, a 1966 candidate
the office of First Vice President
President-elect of The American In
tute of Architects and from 1964
chairman of its Commission on Pu
Affairs and director of the A.I.A. Te
Region, died June 23 at the age of
after a long illness. Mr. Pitts was a ser
partner in the firm of Pitts, Mebane
Phelps, architects and engineers,
Beaumont, Texas. Mr. Pitts received
architectural degree from the Georgia
stitute of Technology. He was elected
the College of Fellows of the A.I.A.
1958 for Design and Public Service, a
was made an honorary member of
ciedad de Arquitectos of Mexico in 19
Mr. Pitts served as president of
Southeast Texas Chapter A.I.A. in 19
President of the Texas Society of Arc
tects in 1961, a member of the A.I
Committees on Education, the Natio
Capital and the Madison Library, and
director of the A.I.A. Foundation.

Henry J. Toombs, senior partner
the architectural firm of Toombs, An
sano and Wells, Atlanta, died June 15
the age of 71. Mr. Toombs, who receiv
his bachelor's and master's degrees fro
the University of Pennsylvania in 19
and 1922, was elected to the College
Fellows of the A.I.A. in 1949. His firm h
been responsible for many distinguishe
buildings in Atlanta and in the South i
cluding the John Knox Presbyteria
Church in Marietta, Georgia, which wo
a 1967 A.I.A. Honor Award, and the A
lanta Memorial Cultural Center, no
under construction.



Howard Earl Day

Shown above is a rendering of the $15,000 first-prize winner in a national competition for design of the St. Louis Gateway mall by the firm of Sasaki, Dawson, DeMay Associates, Inc., architects, landscape architects and planners of Waterbury, Massachusetts. Members of the winning design team included Richard H. Rogers, associate in charge, Hideo Sasaki, Mark Battaglia, Tom Johnson, Vincent Nauseda, Charles Smith and Charles Turofsky. The rendering reproduced on page 36 of the July RECORD and identified as the winner of the competition was the $4,000 second-prize winning design by the St. Louis firm of Murphy and Mackey Architects, Inc. The RECORD very much regrets this error.

Architect: Walton & Madden, Riverdale, Md.
Screen erected by: Acme Iron Works, Inc., Washington, D.C.

BORDEN DECOR PANEL AS BUILDING FACADES

Shown above is Deca-Grid style Borden Decor Panel used as a facade for the Pargas, Inc. building in Waldorf, Maryland. Set off by piers of white precast stone, the sturdy aluminum Deca-Grid panels are finished in blue HINAC, Pennsalt's new finish for metals.

This Deca-Grid installation has tilted spacers, a feature called the Slant-Tab variation wherein spacers may be mounted at angles of 30°, 45°, 60° or 90° as desired. The Slant-Tabs may be further altered by use of non-standard angles, or lengthened tabs.

All the Borden Decor Panel styles, including Deca-Grid, Deca-Gril, Deca-Ring and Decor-Plank, are highly versatile in design specification and in application as facades, dividers, grilles, fencing and the refacing of existing buildings. In standard or custom designs, Borden Decor Panels provide a handsome, flexible, maintenance-free building component.

Write for latest full-color catalog on Borden Decor Panel

BORDEN METAL PRODUCTS CO.

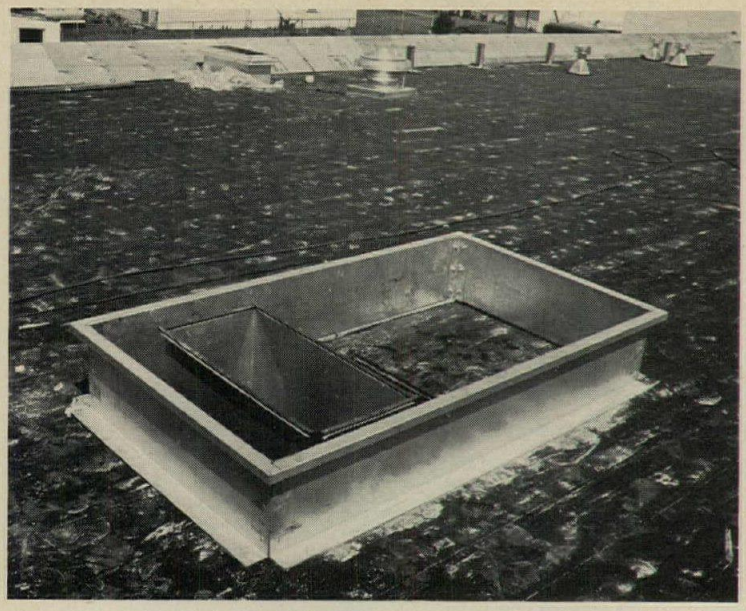
MAIN OFFICE: 822 GREEN LANE, ELIZABETH, NEW JERSEY • ELizabeth 2-6410

PLANTS AT: LEEDS, ALABAMA; UNION, NEW JERSEY; CONROE, TEXAS

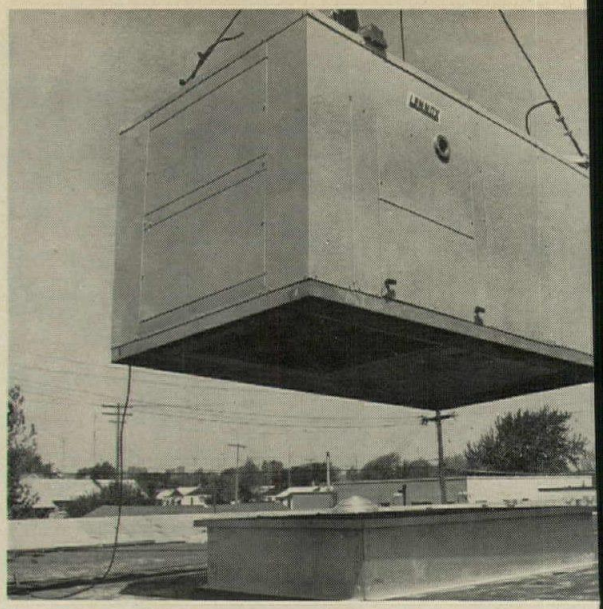
When in New York City, see our exhibit at Architects Samples, 101 Park Avenue

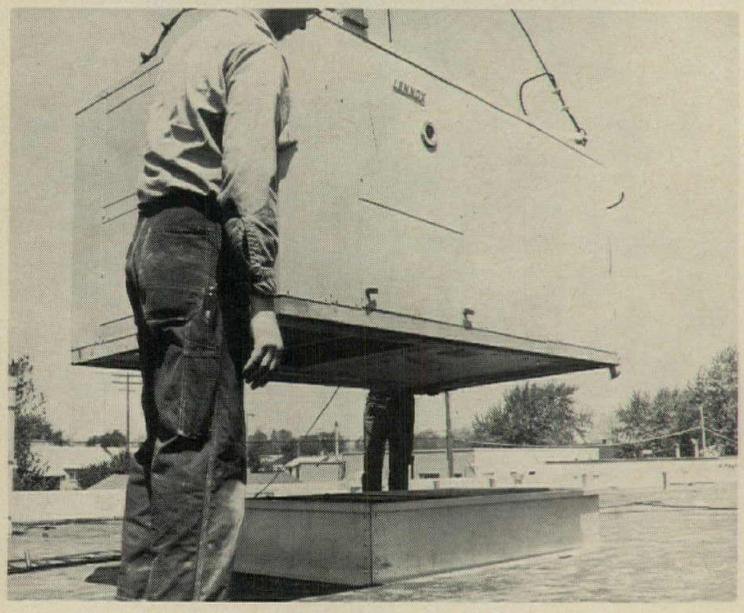
For more data, circle 29 on inquiry card

Easy installation begins with roof-mounting frame to be flashed in place.

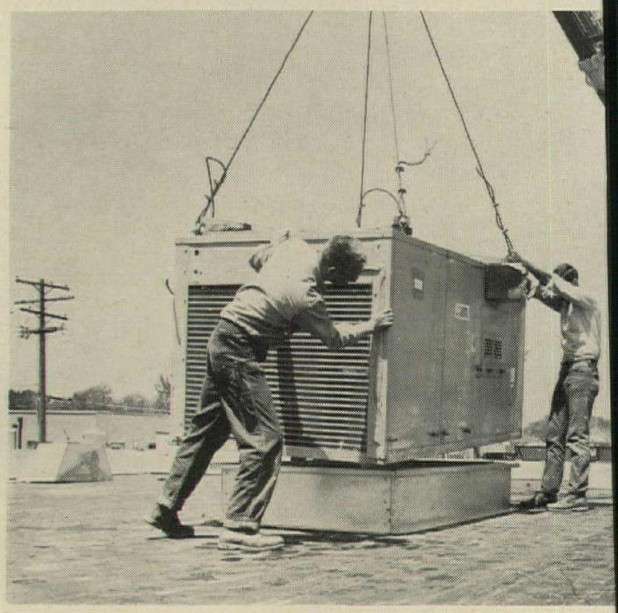


All ducts pierce the roof within the frame.





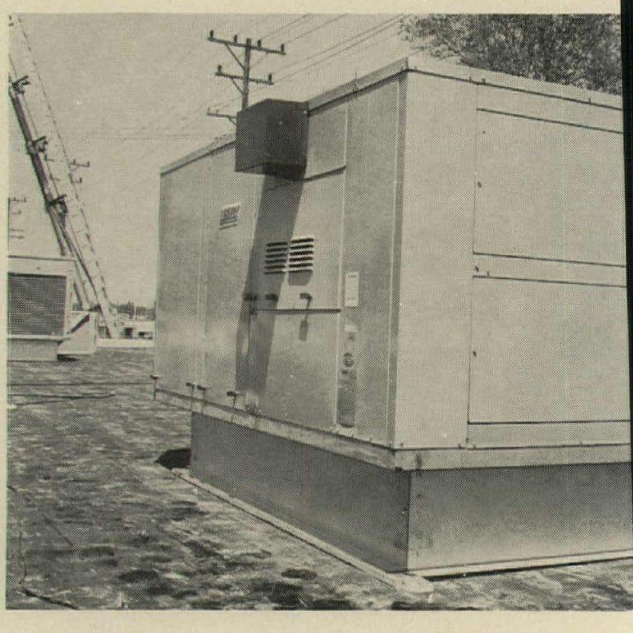
New single-zone system heats, cools, ventilates.



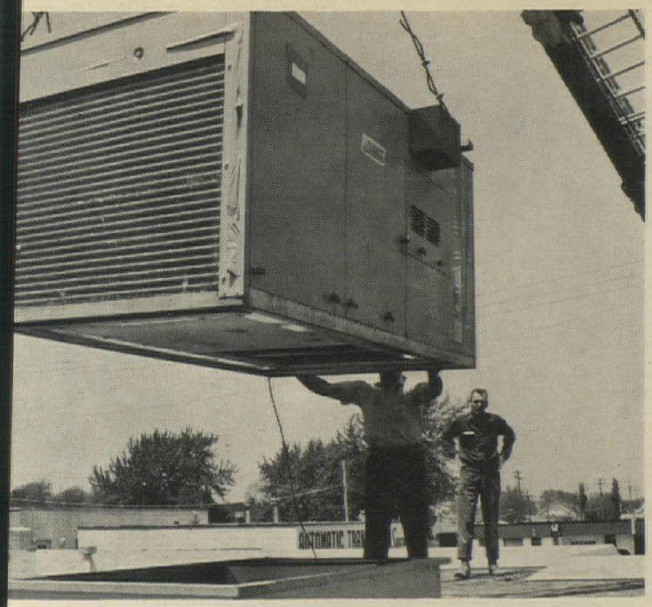
Long-life aluminized steel heat exchanger; non-corrodi

Optional POWER SAVER™ cools free with outside air below 57°F.

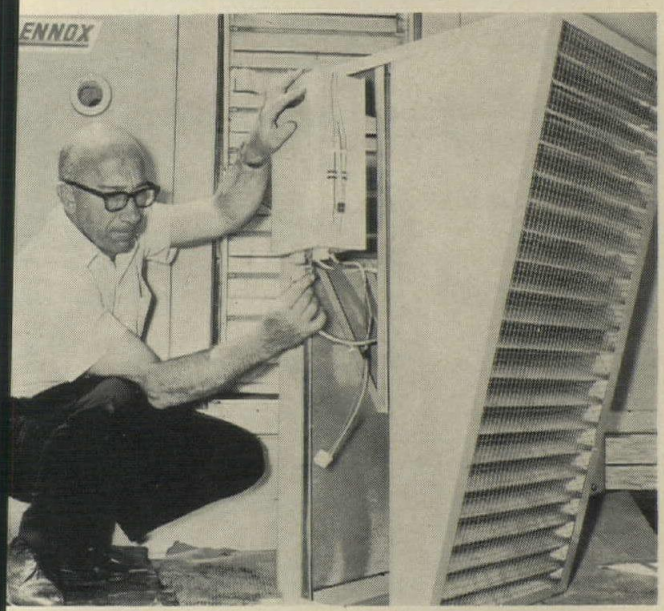
Commercial quality, factory-assembled; prewired and prech



ll-weather unit bolts to frame, needs no other sealing.



from "hole-in-the-roof" to start-up (same day!)



Simple "plug-in" connections for fresh air intake.

ouette, inconspicuous unit. Also adapts to grade-level installation.

New Single-zone Lennox Comfort System goes hand-in-hand with Multiple-zone DMS

A compact, factory-assembled system, the new Lennox GCS3 is designed for ducted heating, cooling and ventilation of high-occupancy areas.

GCS3 combines gas heating with electric cooling, is available from 8 through 22 tons cooling and up to 500,000 Btuh heating. It can ventilate with 100% outside air when desired.

The GCS3 is an all-weather system, with a foolproof electric pilot and electronic safety controls.

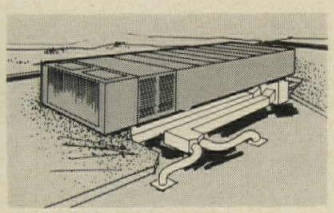
Normally roof-mounted, with bottom air discharge, the GCS3 converts quickly to side discharge for grade-level installation.

Here is Lennox single-source responsibility, in a complete factory-assembled system of commercial quality.

Where both single-zone and multiple-zone comfort control requirements exist, the new GCS3 can be combined with the Lennox DMS (Direct Multizone System).

Whatever your building — office, school, restaurant, plant, clinic, laboratory, apartment or other high-occupancy space — Lennox has the system (or combination of systems) for it.

For details, write Lennox Industries Inc., 104 S. 12th Avenue, Marshalltown, Iowa.



LENNOX DMS:
Multizone rooftop companion to new single-zone Lennox GCS3.

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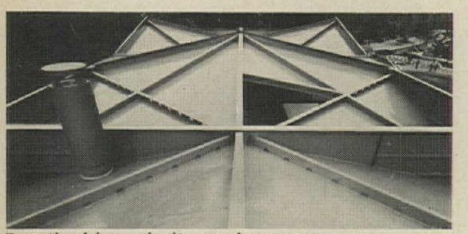
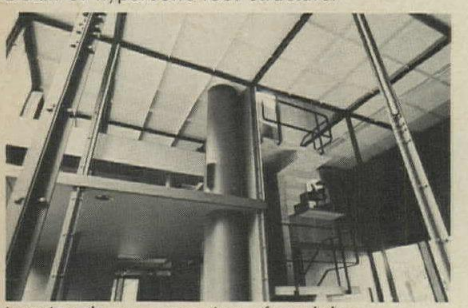
RESIDENCE-GALLERY DESIGNED BY Le CORBUSIER IS DEDICATED IN SWITZERLAND



Detail of hyperbolic roof structure.



Interior shows expression of module.

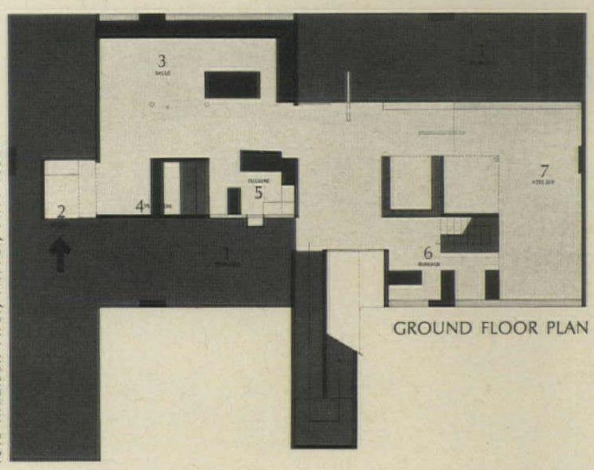
The residence and private gallery designed by Le Corbusier shortly before his death in 1965 for a lake-front site in Zurich was completed and dedicated last month. This building for Mrs. A. Heidi Weber, who has for a long time been Le Corbusier's representative for painting, sculpture and graphic work in Zurich, will now become a memorial and exhibition pavilion.

The design brings together a number of recurring themes from Le Corbusier's work: a roof structure composed of two hyperbolic paraboloids of opposed directions, which eliminates the need for a central support; the separation of the roof structure from the building; and the use of a 7-foot 5-inch module. The sheet-metal roof structure, weighing 40 tons and painted battleship grey, prefabricated, and then trucked to construction site where it was fixed six pillars. The entire structure is into a concrete base which incorpor ground floor and basement assem hall. The walls consist of brightly ored porcelain enamel panels.

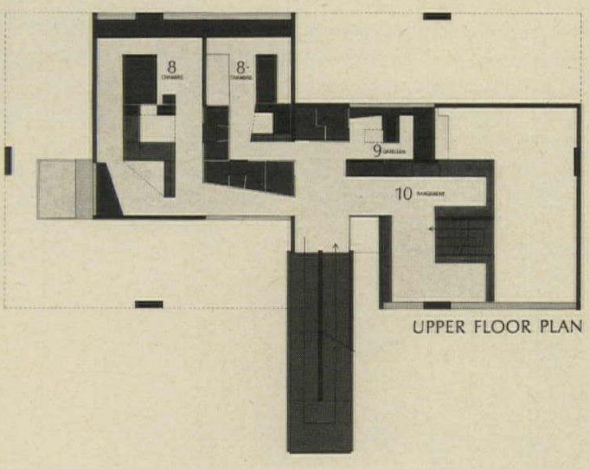
The residence portion of the vilion is located to the left in the pl with the gallery portion to the right, gallery portion being a two-story ro with further display space located o balcony overlooking the first floor. ramps lead to an outdoor terrace un the shelter of the roof.

Supervising architects for the $35 000 building were Alain Taves and Rob Rebutato.

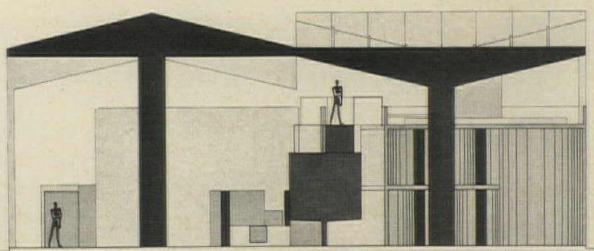
Jurg Gasser, photos



GROUND FLOOR PLAN



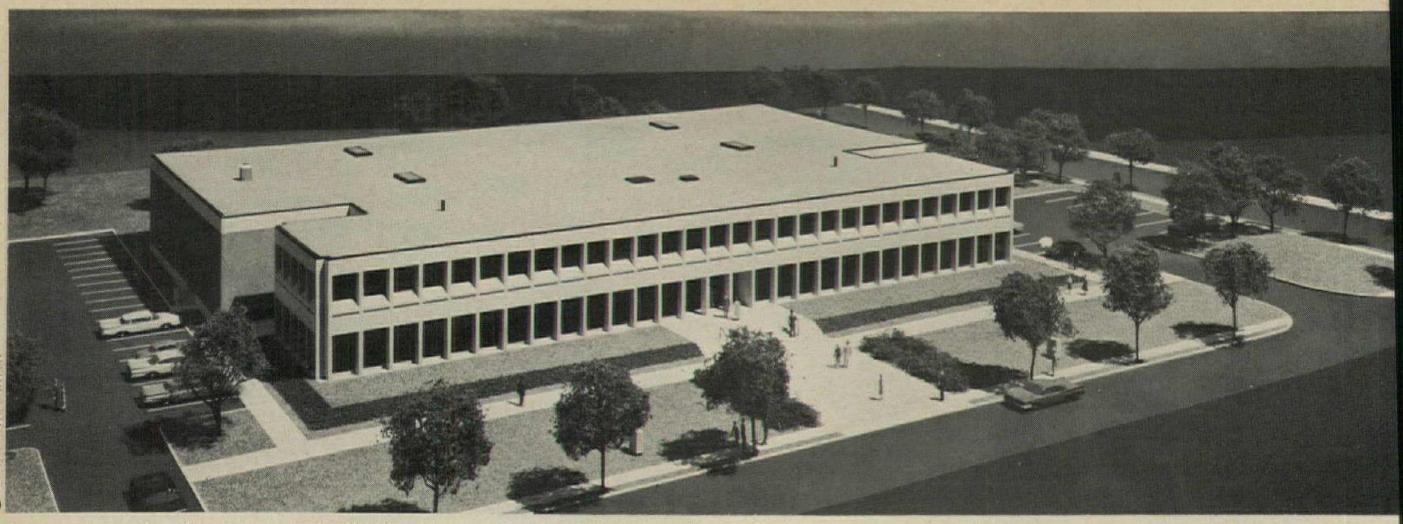
UPPER FLOOR PLAN



STREET ELEVATION WITH RAMP

1. terrace
2. entry
3. living room
4. coat room
5. kitchen
6. office
7. gallery
8. bedroom
9. curator
10. storage

Illustrations by courtesy of Solomon R. Guggenheim Museum, 1018 Madison Ave., N.Y.C., N.Y. 10021

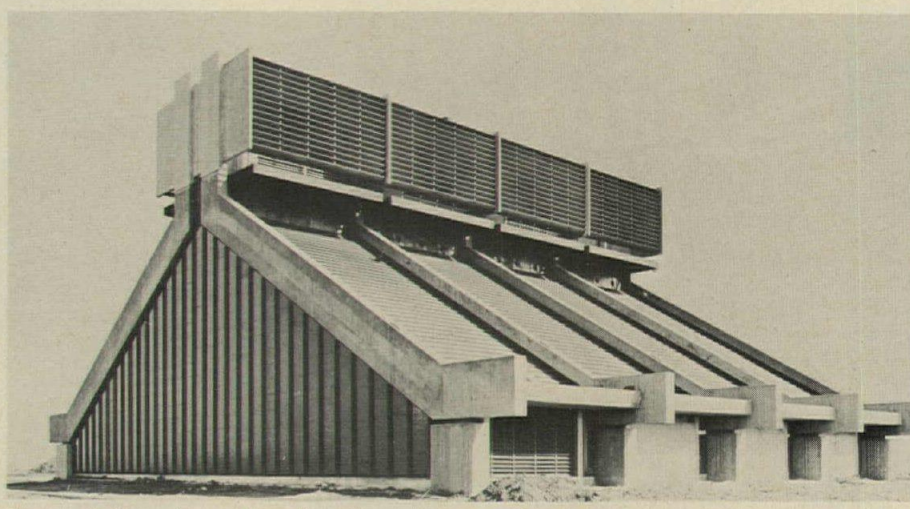


© Louis Checkman

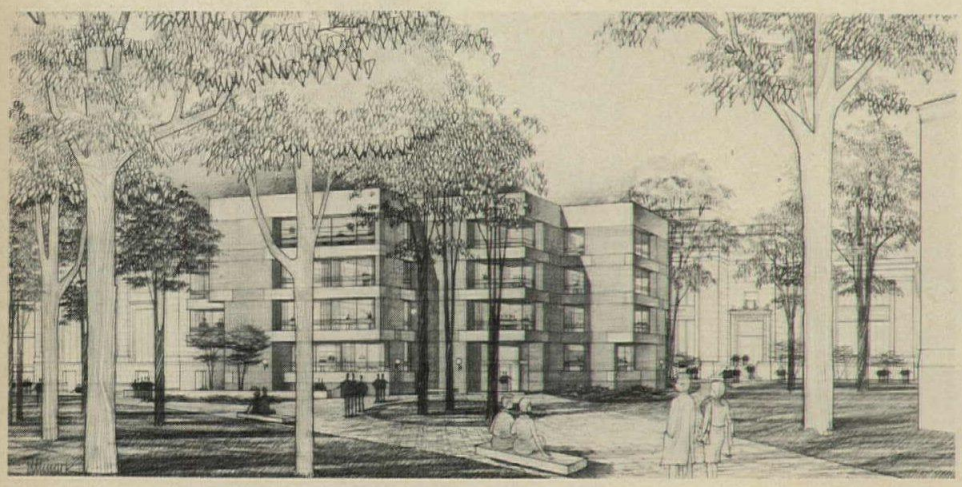
A corporate headquarters and distribution center for Ilford Inc., Paramus, New Jersey, designed by Zywotow & Eckert, will have its office section constructed of a modular, precast concrete wall system with tinted glass set in deeply recessed window openings. The distribution center at the rear will be faced with earth-colored brick and precast concrete trim. The headquarters section will contain executive offices, technical services, demonstration suites and general offices. The t story structure will contain 40,000 square in its first stage with provision for 20 square feet in expansion. General contra is the B. D. Malcolm Company.

Bryan-Young

A warehouse for the Pleasantdale Corporation, Atlanta, designed by Martin & Bainbridge, is one of 11 winners in the fifth annual awards program of the Prestressed Concrete Institute "to recognize excellence in design using precast and/or prestressed concrete." The 150-by 230-foot warehouse, with all wall and roof members of standard 8-foot-wide prestressed concrete double-tees, was praised by the jury for ". . . how, with simple standard materials and imagination, fine architecture can be achieved within a competitive cost range for a warehouse."

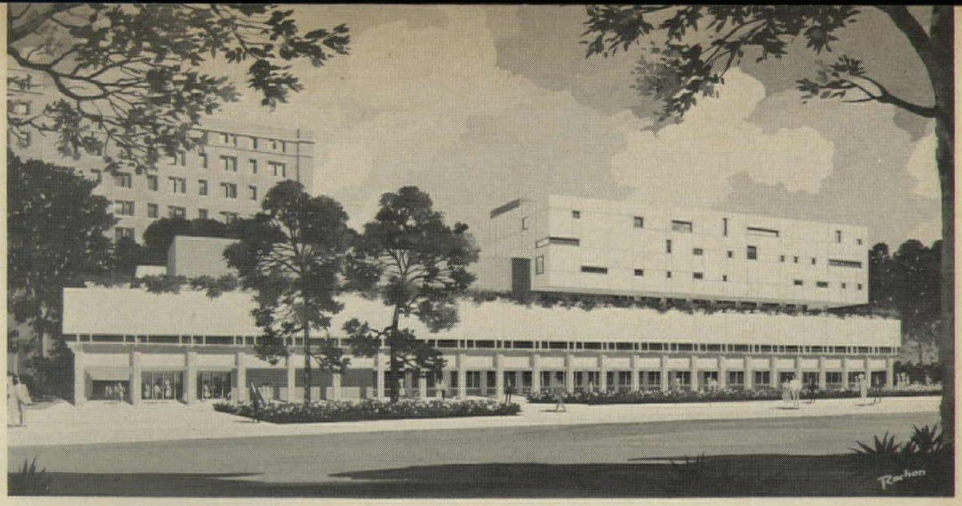


The Central Heating and Cooling Plant, University of Saskatchewan, Regina, designed by Clifford Wiens, is another winner in the P. C. I. awards program. Precast post-tensioned A-frame construction supports the cooling towers and permits concentration of roof penetrations at the apex for mechanical and plumbing vents. The jury commented: "What might have been a jarring anachronism b comes a handsome feature consistent wi the environment and landscaping . . . demo strating excellent use of prestressed concre members." Serving on the jury were arch tects Charles M. Nes, Jr., Guy Desbarats ar MacDonald Becket, and engineers Earle Andrews and Thomas M. Linville.

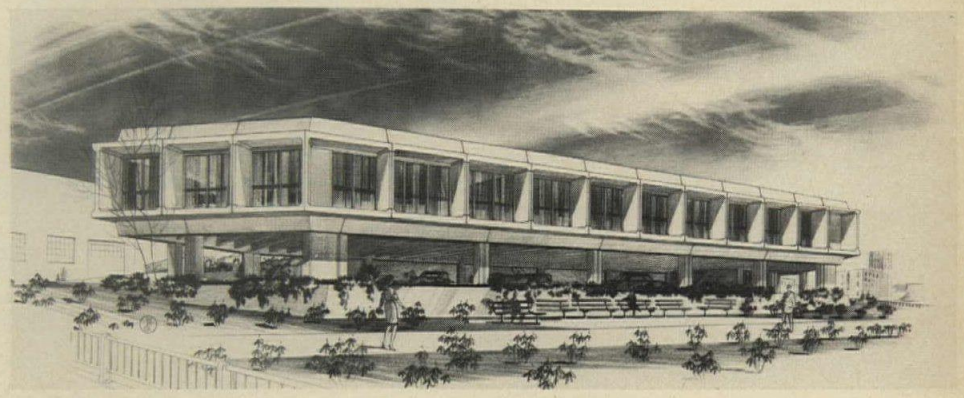


The Faculty Office Building for the Harva Law School, Cambridge, Massachusetts, d signed by Benjamin Thompson & Associate Inc., is a five-story building containing 41,80 square feet. The building will contain an er tire floor devoted to a faculty library, period cal room and lounge "in order to maintai the law school faculty's sense of communit and exchange of ideas." A companion five story building designed by Mr. Thompso will provide classrooms and administrative of fices. Both of the new buildings will have re inforced concrete structures with a reddish brown textured brick and bush-hammere concrete exterior in order to relate to existin older buildings.

University Center Building under con-
ion at Wayne State University, Detroit,
ned by Alden B. Dow & Associates, is a
framed structure faced with a skin of re-
ed thin wall latex concrete, which will
religious, recreational and educational
ties of the school. Located in a three-
tower which will be cantilevered ap-
mately 15 feet out from the four-story
will be facilities for religious groups. In
ase will be lounges, meetings rooms and
g facilities. General contractor for the
million building, which will contain
00 square feet, is the Lerner-Linden Con-
tion Company.



adquarters building for the Olivetti Un-
vood Corporation in Seattle, designed by
ard Bouillon, A.I.A., and Associates, will
n 8,000-square-foot office building, with
offices rising over a surface parking area
26 automobiles. The building, of precast
poured concrete construction with deep-
ecessed windows for sun control, will be
ted on a landscaped triangular site. Struc-
engineers are Olsen and Ratti and the
eral contractor is the Hugh S. Ferguson
npany.



Lens-Art Photographers

e Pittsburgh National Bank headquarters
ilding in Pittsburgh, designed by Welton
ecket and Associates, Architects—Engineers,
ll be a 30-story office building with the ele-
tor and service core expressed as a sepa-
te element on the east side of the building.
e design calls for clear-span construction
70-foot-long, high-tensile-strength steel
eams, and with load-bearing exterior col-
mns on the facade. The columns, recessed
andrels and elevator core will be sheathed
granite. The ground-floor banking space
ill be column-free with a 25-foot luminous
eiling. The building, which will contain
00,000 square feet of flexible space, is ex-
ected to be completed by 1971.

The Equitable Life Assurance Society office building in Los Angeles, designed by Welton Becket and Associates, Architects—Engineers, will rise 34 stories and will be set on a two-level landscaped plaza. Precast fins of beige concrete mixed with a beige Texas limestone aggregate then exposed by sandblasting, will rise nearly the height of the tower. Retail shops will be located on two plaza levels as well as in a separate one-story structure. The second story, which will house banking facilities, will be an extra-height floor cantilevered outward 11 feet on all sides. The $30-million building, constructed on a 4-foot 8-inch module (expressed on the facade by fins) will contain 780,000 square feet.

An Operations Center for the Manufacturers National Bank of Detroit, now under construction in Detroit, designed by Louis G. Redstone Associates, Inc., will be an 11-story structure containing 552,500 square feet to house the bank's computer center and a new branch bank. The building, which is located in the center of a proposed 20-foot-high pedestrian mall, will be faced with black granite, stainless steel and gray glass. Below mall level the building will be faced with carved stone bas-reliefs. The building will have a two-story lobby with an open well which will overlook the banking office. The project will provide parking for 260 cars on three sub-levels and will be topped by a heliport. General contractor for the underground work is the Barton-Malow Company.

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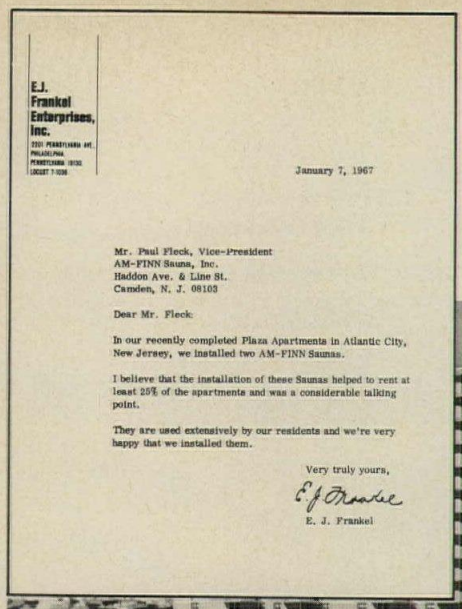

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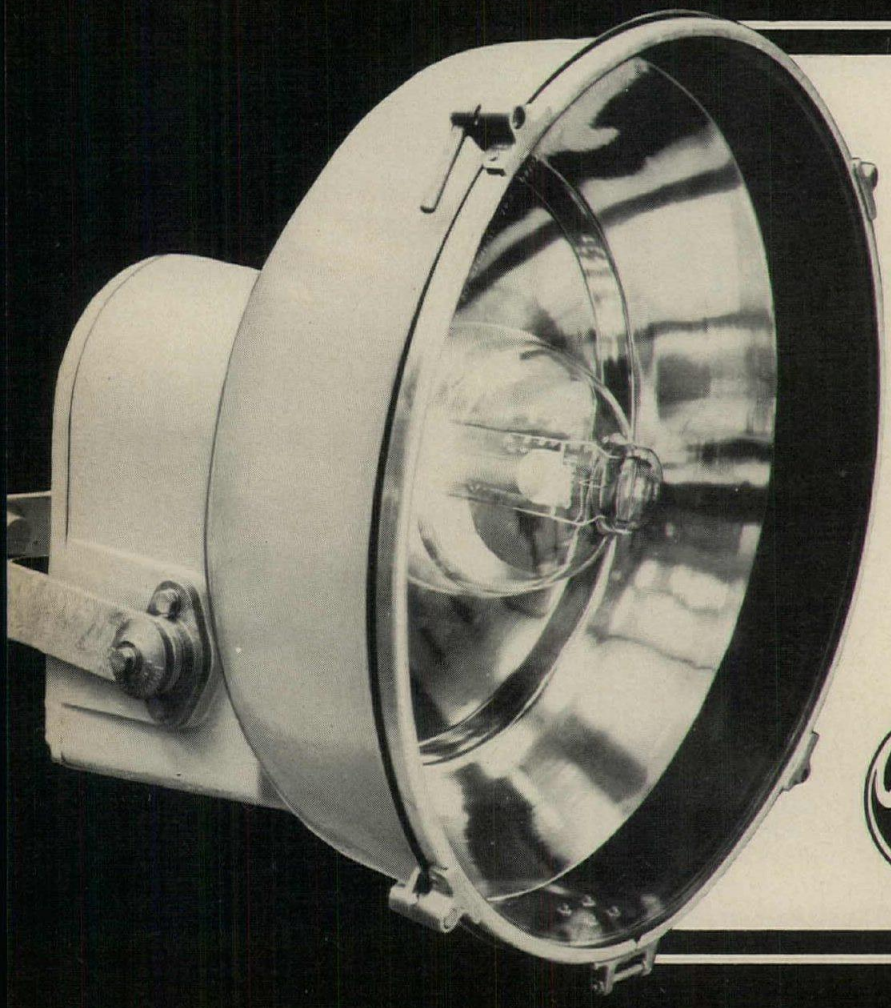

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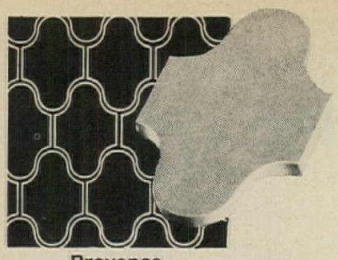
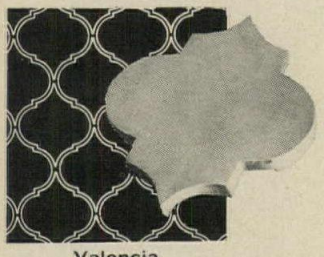
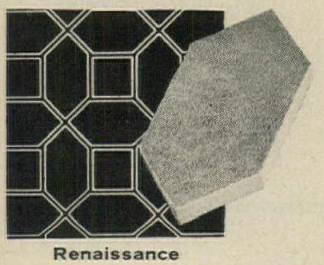


Provence



Valencia



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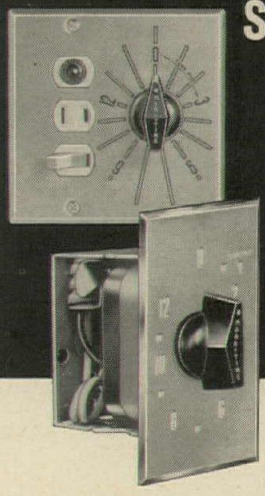

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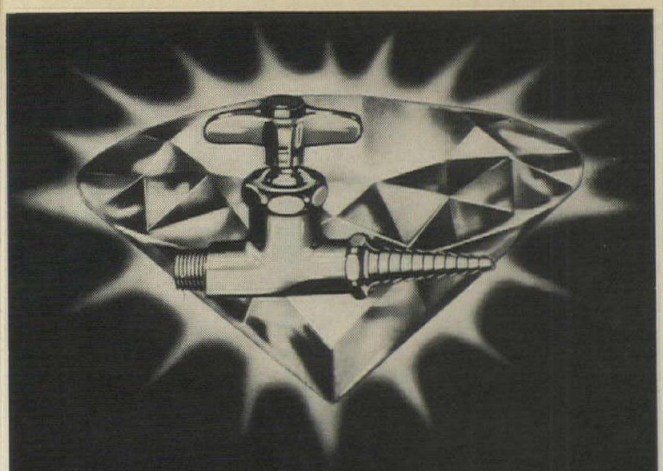

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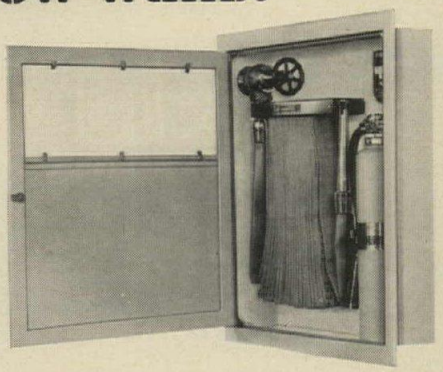

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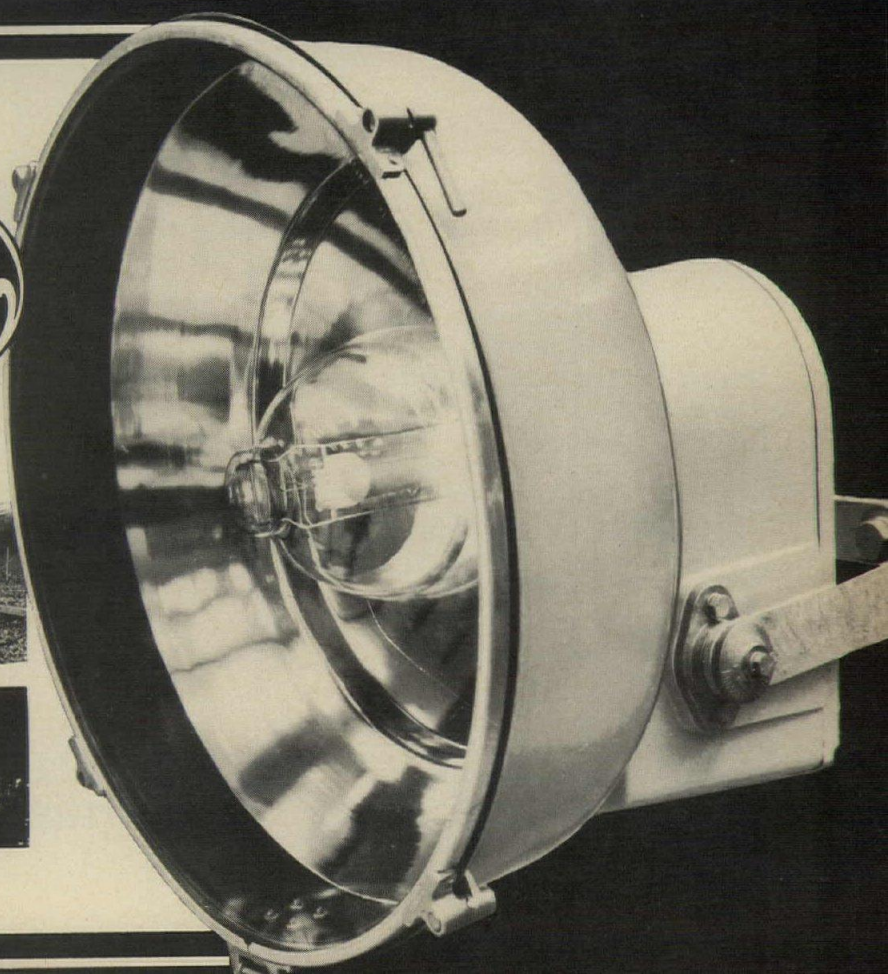

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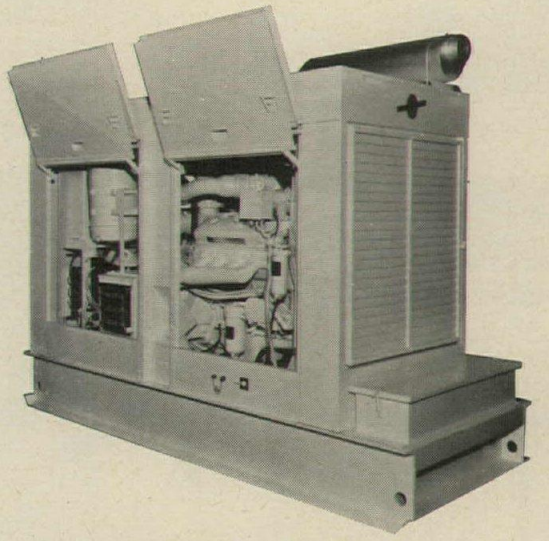

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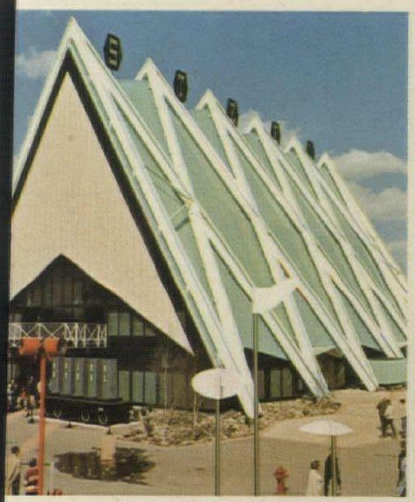
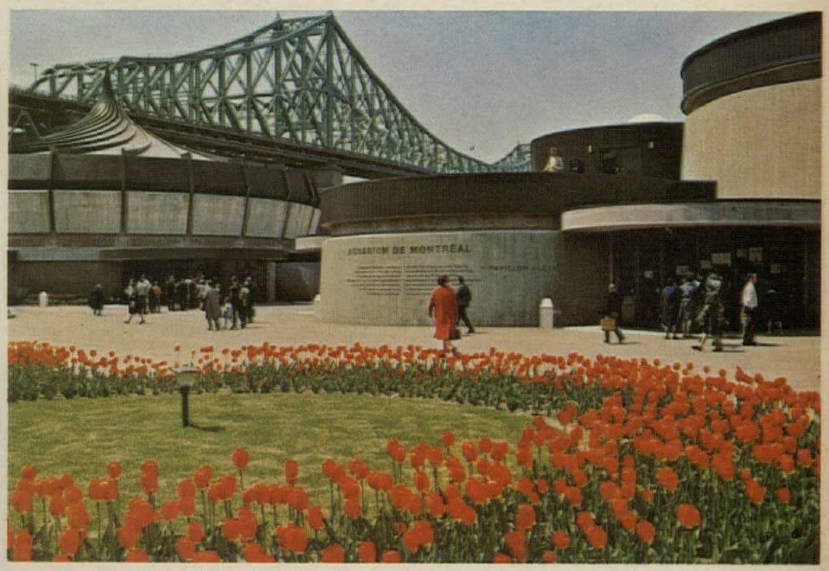
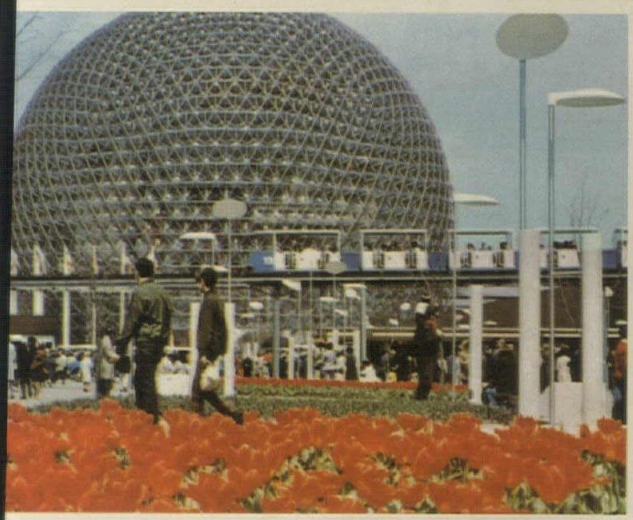
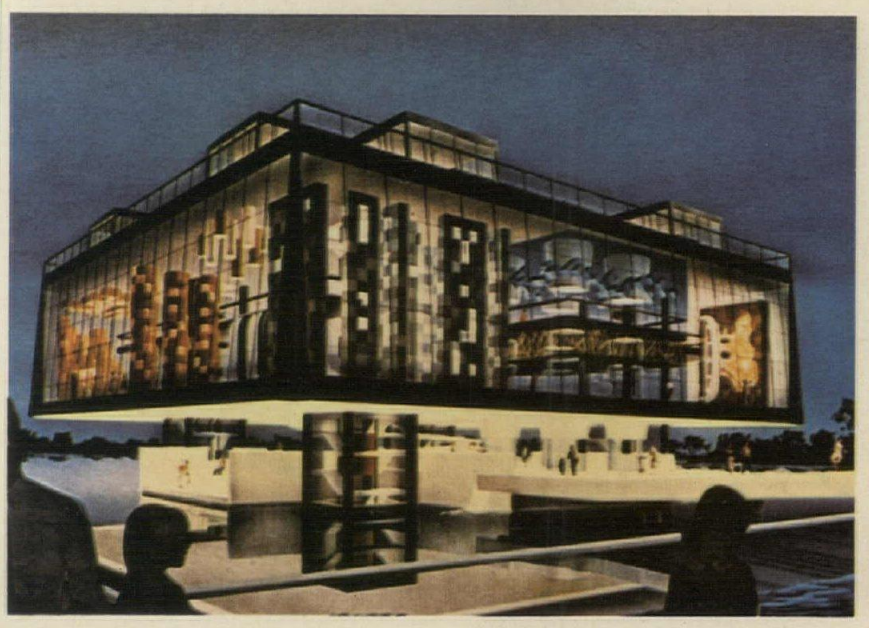






Color Harmony at Expo 67



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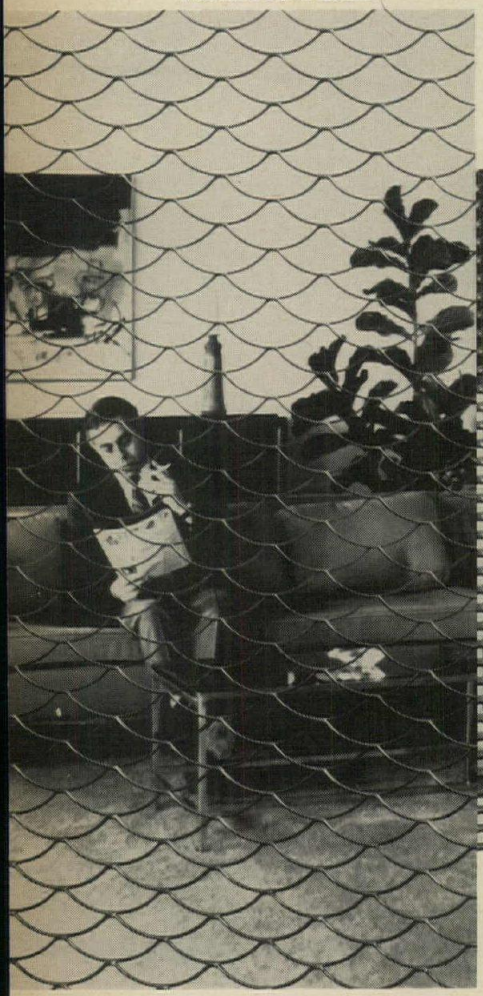
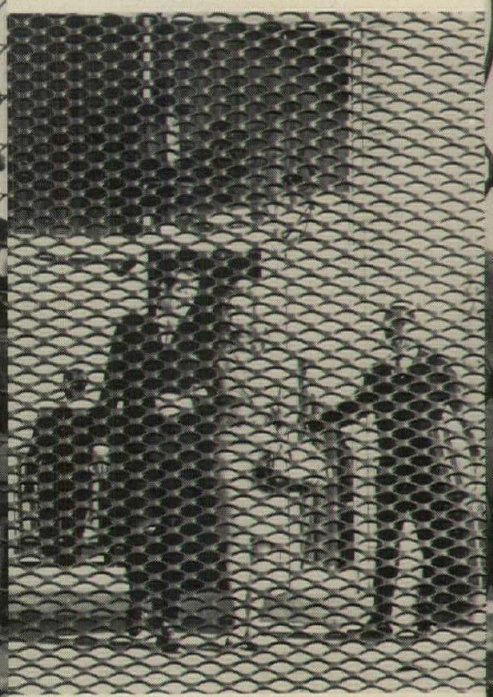
Peekaboo

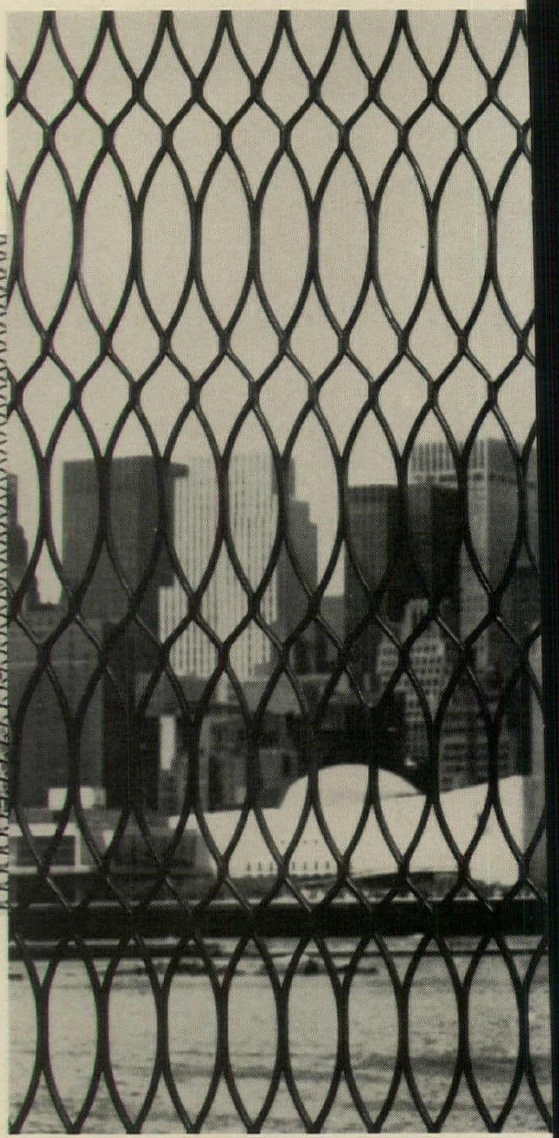
Peekaboo Parlor.



Peekaboo Portico.

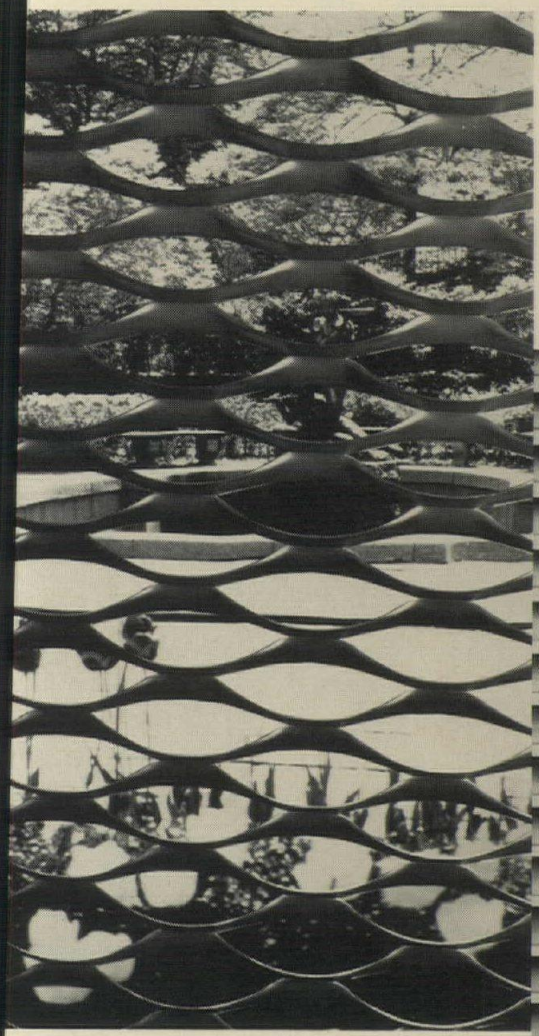


Peekaboo Panorama.



Steel.

Peekaboo Pool.



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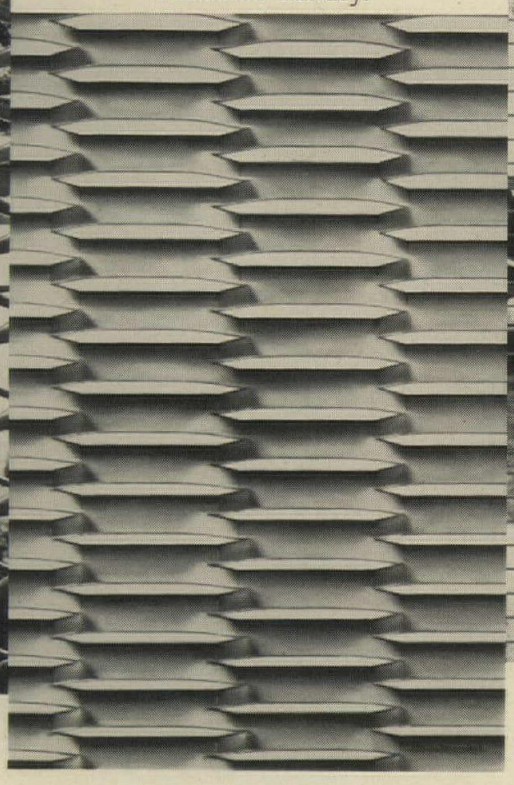

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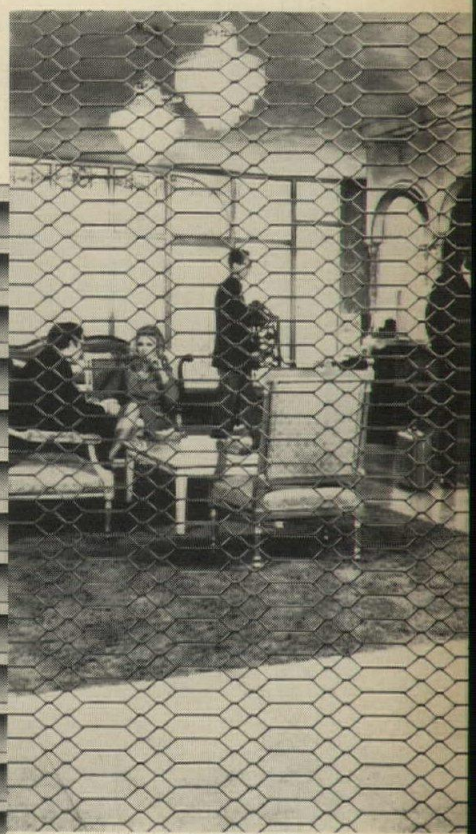

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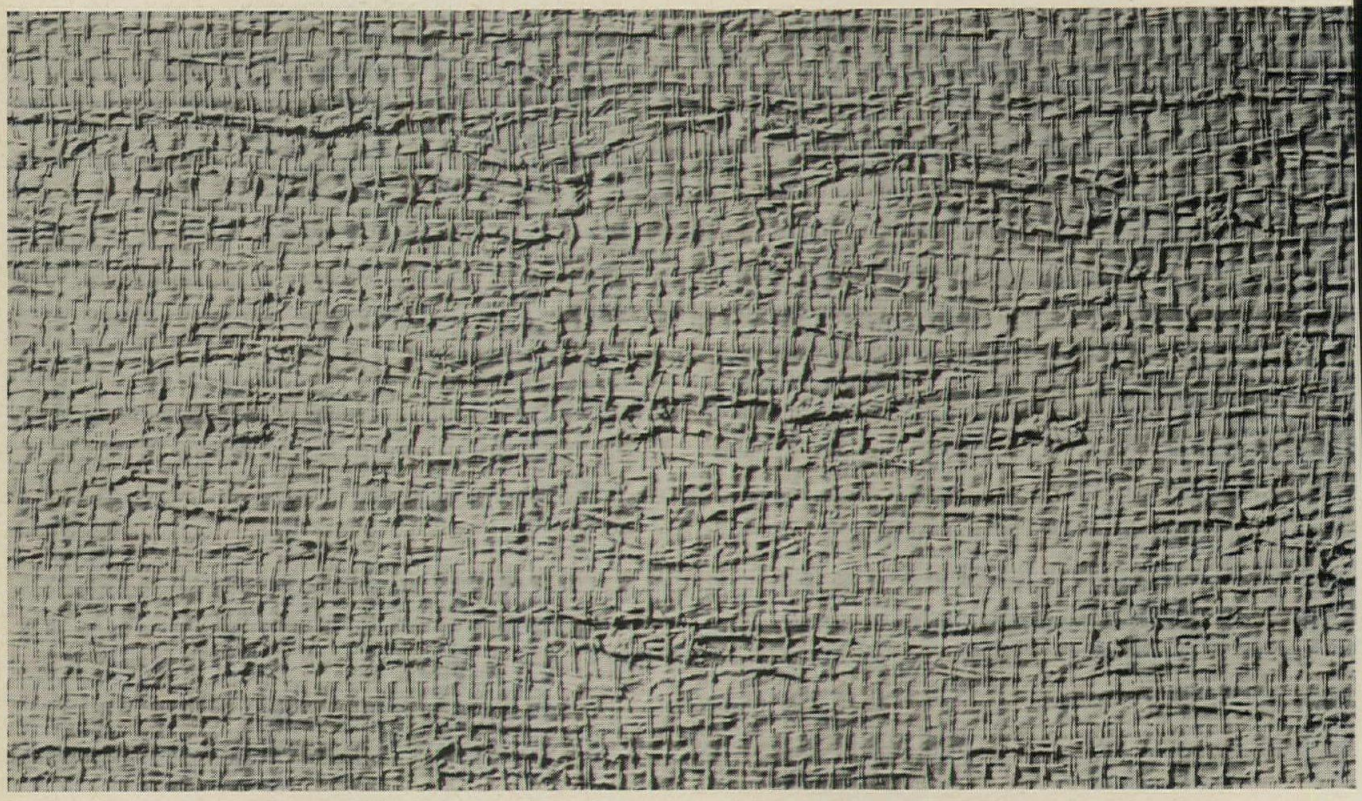
Wheeling, West Virginia

For more data, circle 34 on inquiry card

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.

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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.

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Koroseal—T.M. Reg. U.S. Pat. Off.

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Good looking.

Data Processing Center, Continental Telephone Co., Wentzville, Mo. / Architect: George Quick, St. Louis / Acoustical Contractor: Lindberg Acoustics, Inc., St. Louis.

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UNITED STATES GYPSUM

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ON THE CALENDAR

AUGUST

27-September 1 International Cong on Religion, Architecture and the Vi Arts—New York Hilton, New York C

SEPTEMBER

19-22 46th Annual Meeting of the ducers' Council. Workshops on "Imp of Building Systems on Construction the '70's" and "Cities—New and newed"—Hotel America, Houston.

OCTOBER

6-8 Annual New England Regio Conference of the American Institu of Architects—Sheraton-Eastland Mo Hotel, Portland, Maine.

1-6 50th Anniversary Conference, Ame can Institute of Planners. Theme: "T Future Environment of a Democracy" Shoreham Hotel, Washington, D.C.

9-12 Architectural Aluminum Manufa turers Association Annual Meeting Statler-Hilton Hotel, Dallas.

31ff. Fall Convention, American Concre Institute—Hotel Fort Des Moines, D Moines, Iowa. Through November 3.

OFFICE NOTES

OFFICES OPENED

Mel E. Bartholomew has opened a ne office specializing in total site enginee ing at 1962 Springfield Ave., Maplewoo N.J.

Architect **Richard W. Coyle, A.I.A** has opened an office in Omaha, Nebr.

Geoffrey W. Fairfax, A.I.A. ha opened an office for the practice of ar chitecture and planning at 1210 War Ave., Honolulu.

Guy A. Sadler, A.I.A., Architect an nounces the opening of his office at 270 N. Pershing Dr., Arlington, Va.

The Wisconsin firm **Schutte-Phillips-Mochon, A.I.A.,** architects, planners and engineers has opened an Illinois office in Chicago at 535 Michigan Ave.

Harlan E. Sherman Architect has opened an office at 13224 Shaker Square, Cleveland.

Piedmont Engineers and Architects of Greenville, S.C. have opened an office at 166 East Bay St., Charleston, S.C. **James L. Townsend, Jr.** will head the architectural division in Charleston.

continued on page 61

We're not saying commercial carpeting is obsolete, but...

Only Walk·Ease® vinyl flooring with fiber glass offers you so many important advantages

Walk·Ease by Flintkote is a cushioned sheet vinyl flooring made with a unique reinforcing layer of fiber glass. This distinctive, modern flooring combines the luxury of carpeting with the unsurpassed practical advantages of gleaming sheet vinyl.

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But **Walk·Ease** flooring is more than just practical. An extra thick vinyl foam cushion makes it superbly comfortable underfoot. Moreover, it is acoustically designed to deaden impact sounds, virtually eliminates the clatter of heels within rooms and between floors. **Walk·Ease** flooring is also warm, stays at near room temperatures, even when installed over concrete.

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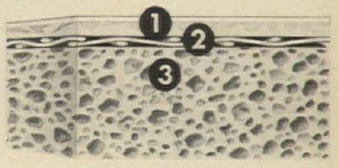

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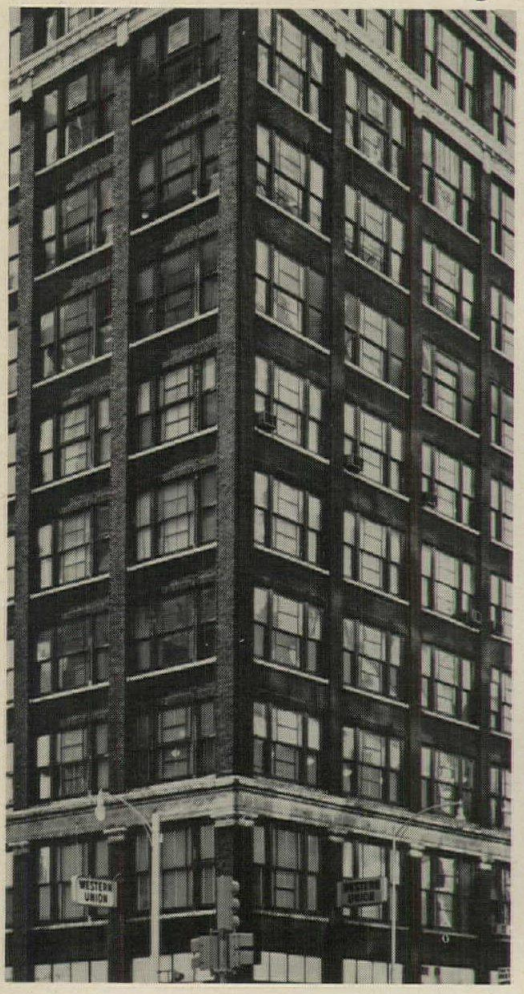
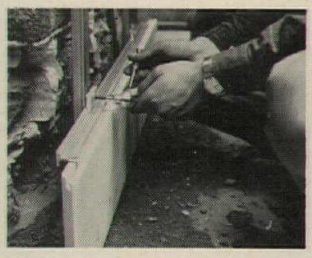
There's a new way to dress old buildings in Marble



Vertical struts are anchored to existing facade.



Horizontal members fastened by special clamps.

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

WESTERN UNION BUILDING, Atlanta
DANIELSON & PAINE, Architects

It's the ZIBELL SYSTEM of installing thin marble veneer

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.

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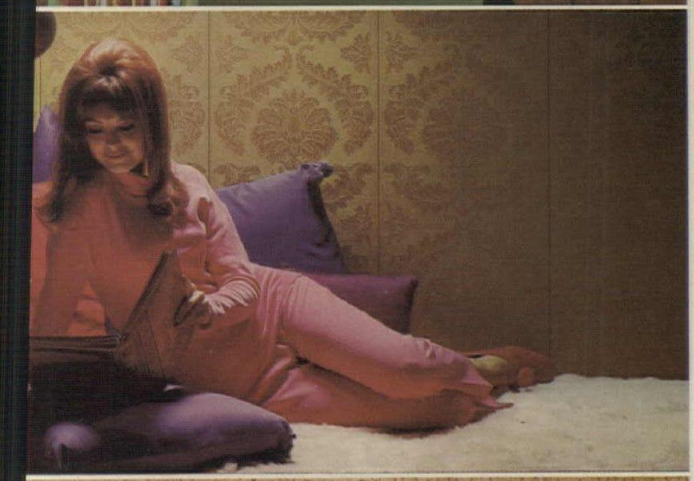

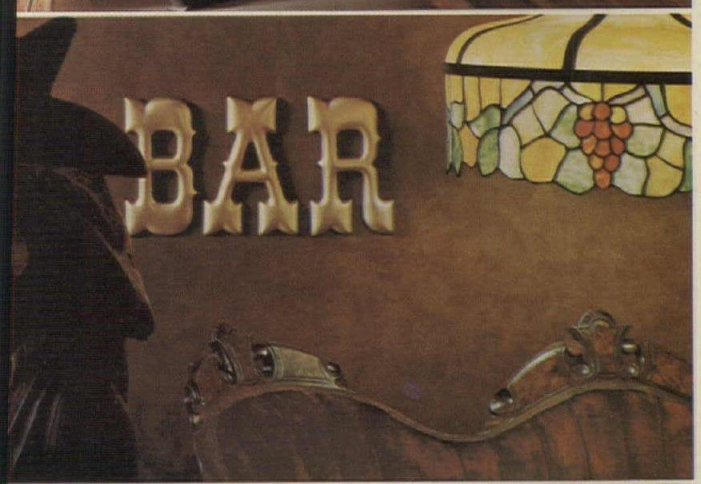

Five ways to add the Marlite touch.

Start with any room — in any building. Then select a Marlite Decorator Paneling with the touch that brings your interior plan to life. Wide choice? No one offers more than Marlite. Select from rich new textures, bold or muted colors, exciting patterns and designs.

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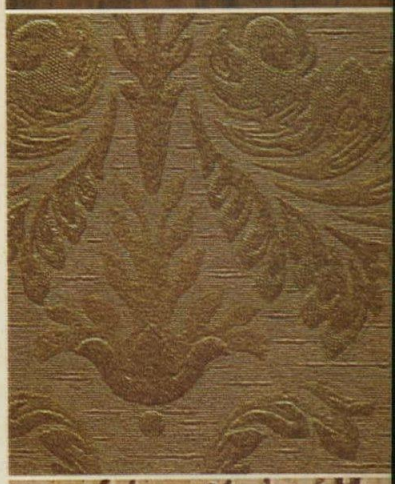
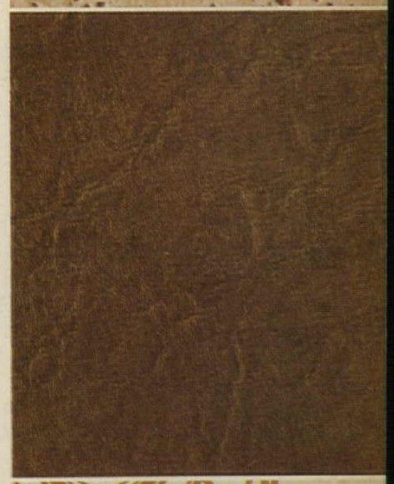
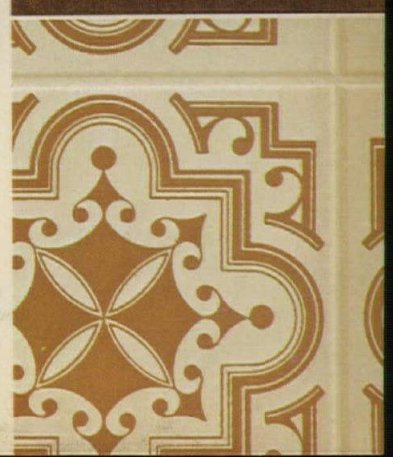
5. RIVIERA TILE features a classic pattern in gold, set apart by score lines.







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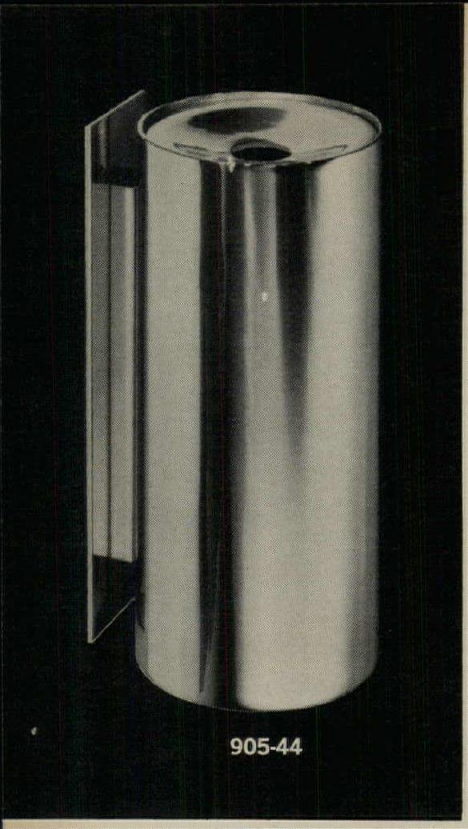

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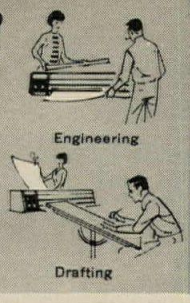

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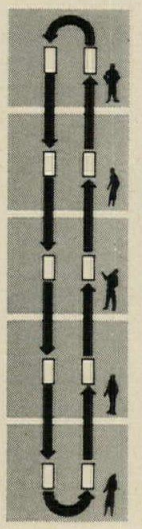

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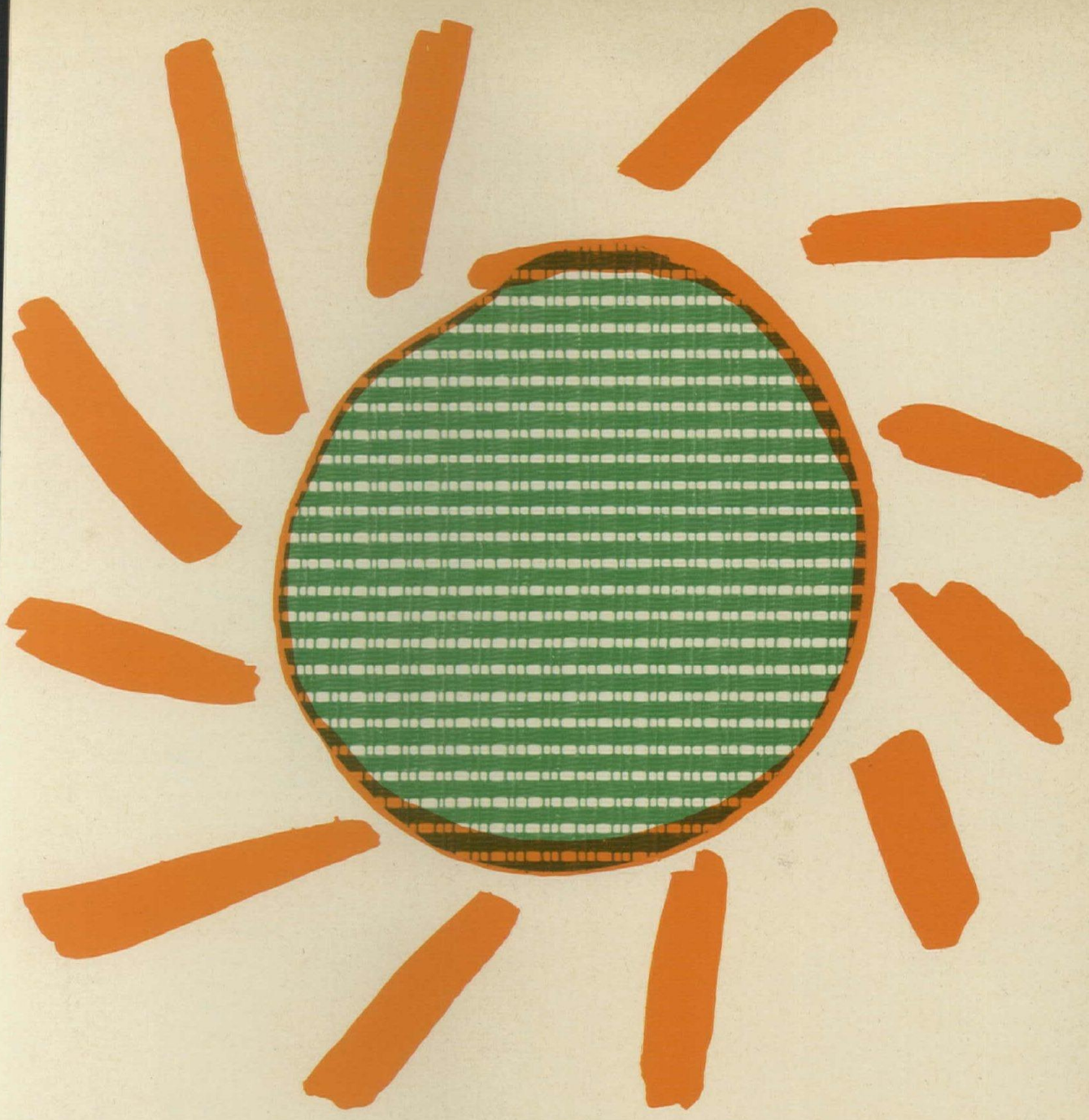

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Whether your choice is Comfort Screen for exterior fixed frames or Comfort Shade for interior shade fixtures, the Sun Sifters are easy to install. Once in place they do a great job in reducing interior temperature by blocking or reflecting solar heat. In reducing air-conditioning costs both initial and operating. In permitting see-through visibility. And, last but not least, in giving you very low maintenance costs (Stevens Comfort Screen or Shade can be easily washed with soap and water or vacuumed).

Comfort Screen is available in grey, aqua, leaf green, for outdoors. Comfort Shade is available in cool white, champagne, desert sand, finch green, for indoor shade fixtures only. For technical brochures, see Sweets Architectural Catalogue 15e/st or write: **J. P. Stevens & Co., Inc., Fiber Glass Screening, 1460 Broadway, N. Y. 10036.**

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by Stevens

*Patent applied for.

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Spancrete contributes to "stuctural integrity" of tradition-free church design by Belluschi & Ware

Spancrete ceilings of soft textured concrete, massive poured-in-place concrete beams, and board and batten redwood panels characterize the new Unitarian Church in Rockford, Illinois. The 40-inch-wide exposed Spancrete roof planks with V-groove joints provide the desired scale in relation to other materials and building design.

The choice of materials was influenced by a desire to create a natural warmth conducive to worship. Not too ornate but with simplicity — relying on good proportions, effective lighting and honest materials.

Photos by: Hedrich-Blessing

The Unitarian Church, Rockford, Illinois
Architects: Pietro Belluschi and C. Edward Ware Associates
Structural Engineers: The Engineers Collaborative
General Contractor: Pearce-Butler Company

SPANCRETE

PRECAST, PRESTRESSED CONCRETE HOLLOW CORE PLANK FOR ROOFS AND FLOORS

For more data, circle 43 on inquiry card

continued from page 54

Steve W. G. Au, A.I.A., Donald W. Cutting, A.I.A., Donald F. Fairweather and **Roger S. Smith** announce the establishment of the new firm **Au, Cutting, Fairweather & Smith, Ltd., Architects and Planning Consultants,** Suite 606, 810 Richards St., Honolulu.

Bodin & Lamberson, Architects announce the reorganization of the firm to include **Robert B. Plunkett, A.I.A.** and **Edward H. Shirley, A.I.A.** as partners and **R. L. Wooddall, Jr.** as an associate. The new firm is **Lamberson, Plunkett & Shirley, Architects; R. L. Wooddall, Jr., Associate** located at 410 Forsyth Bldg., Atlanta.

Environmental Research Associates, Inc. has been formed by **Ralph K. Morrill** and **Edward E. Pickard Architects, A.I.A.** to provide comprehensive environmental research, planning and design services. The new corporation is located at 404 E. Magnolia St., Auburn, Ala.

A new firm known as **Freidin, Kleiman, Kelleher** has been formed by its partners, **Jack Freidin, A.I.A.; Joseph Kleiman, A.I.A.** and **Daniel Kelleher, A.I.A.** It is located at 342 Madison Ave., New York City.

Frid, Ferguson & Mahaffey, Architects have named **Howard H. Perry** a partner and the firm's new name is **Frid, Ferguson, Mahaffey and Perry, Architects.** The firm is at 750 Main St., Hartford.

Batey M. Gresham, Jr. and **Fleming W. Smith, Jr.** announce the formation of a partnership for the practice of architecture to be known as **Gresham and Smith Architects—A.I.A.** at 535 Church St., Suite 1106, Nashville.

William A. Gould & Associates, Architects and City Planners, 1404 East 9th St., Cleveland announce that **Harry J. Roberts, William H. Wiechelman, Jr.** and **Harry A. Henshaw** have been named associates with the firm.

Peter G. Koltnow has joined the Los Angeles office of **Victor Gruen Associates** as project director.

Robert E. Sudbring, architect has joined the staff of **Gale A. Hill & Associates A.I.A.** located at 11722 Studt Ave., St. Louis.

Arthur W. Buttery has been made Chief Mechanical Engineer by **Holforty Widrig O'Neill & Associates Inc., Consulting Engineers** at 177 West Big Beaver Rd., Troy, Mich.

Lois Baker is now **Director of Interior Design** at **Frank L. Hope & Associates,** San Diego architects and engineers.

Keene/Mac Rae Associates, Inc. an architectural and engineering firm has

continued on page 84

Square D started out making safety switches

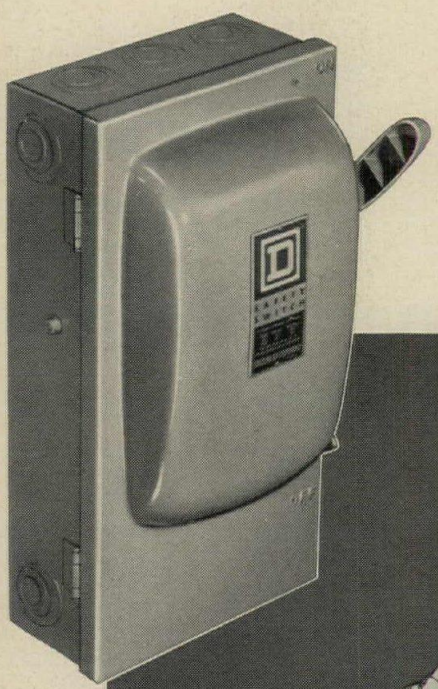
Today we make hundreds of electrical products

Our present style of safety switch is a vast improvement over the original introduced nearly 60 years ago. And we *still* sell more safety switches than any other manufacturer.

Square D is also the world's leading manufacturer of panelboards for lighting. We sell more circuit breakers for residential use than anyone else. The majority of this country's water and sump pumps are equipped with Square D pressure switches. Design engineers choose Square D pneumatic timers over any other make.

We could go on. The point is that Square D makes a complete line of electrical distribution and control equipment—and our reputation for undeviating quality of both products and service has gained us world-wide acceptance.

This is the biggest reason why you'll find Square D *wherever electricity is distributed and controlled.*



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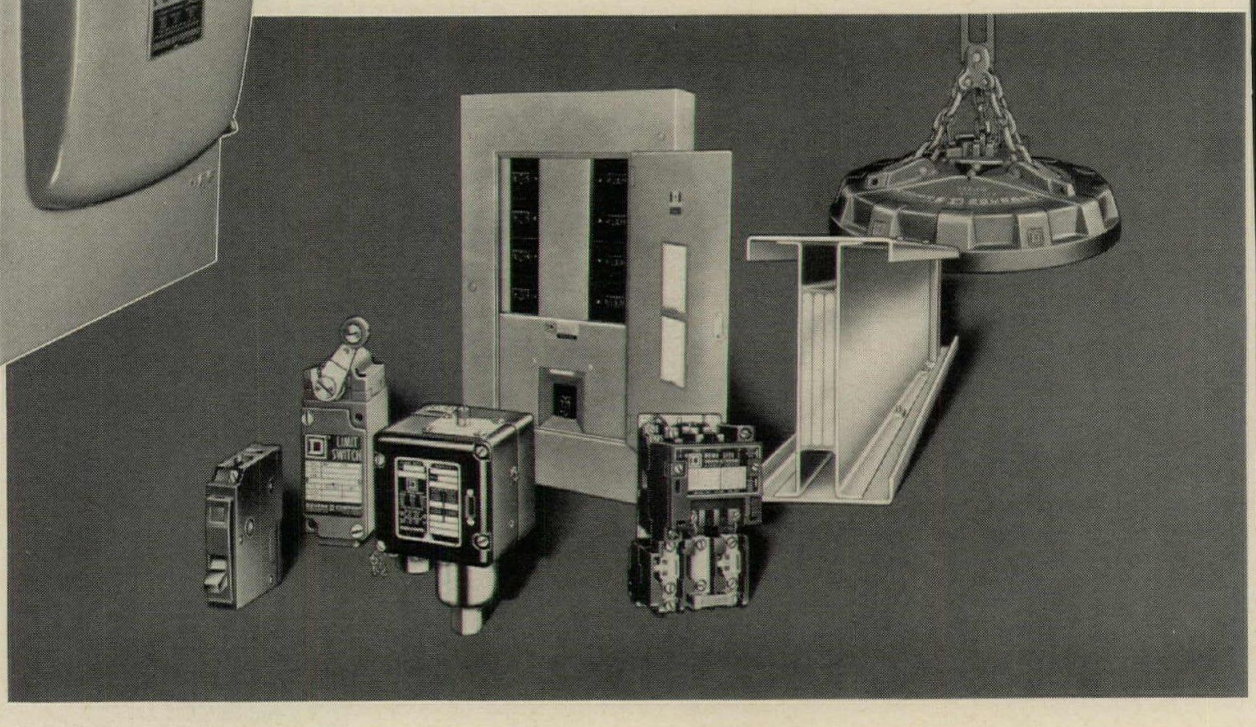

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For more data, circle 46 on inquiry c

ew low-income site plan readied by FHA

FHA is developing a new method of planning that could, according to ncy estimates, result in new, single ily detached homes in the $10,000 ge.

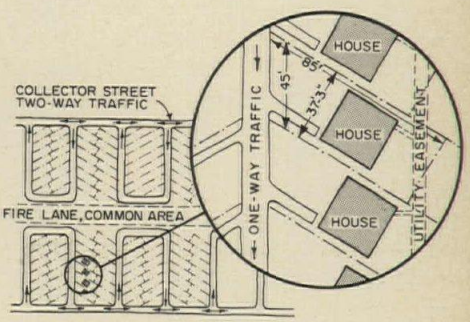
Key to the new plan, dubbed the odular Site Concept," lies in small- ed lots and one-way narrow streets. s a combination, happy or unhappy, the small-sized lots of the 1940's, nted lots and one-way streets of trailer ks, and the common-ground open ces idea of newer townhouses," says rominent land planning executive.

FHA's plan, according to several archi- ts and land planners who have re- wed it privately, will depend in large easure on the excellence of design of individual homes and on the local community's acceptance of the much higher density: 8.2 homes per acre, well above the national average of four.

Despite the design drawbacks, and probable local resistance to the zoning aspects, all of the experts who screened FHA's idea strongly favored the thought that FHA was trying to come up with some solutions to the high cost of new housing. In doing so, the agency had to toss out some of the most persuasive underwriting principles—that larger lots provide better resale potential, and that homeowners want larger houses.

FHA's experts feel an 800-square-foot house, at $10/square foot, can go on the 5,000-square-foot lot (85 feet deep on longest line, 37.3 feet wide with 43-feet street frontage) at a total cost of $10,500.

This includes $2,000 per acre for the "model" 28.13 acres and $316,481 in total development costs on common



areas and lots (streets, sewers, etc.). This works out, including 20 per cent land profit, to $1,563 per lot for 243 lots.

ossibility of international practice gains ground

the recent convention of the National uncil of Architectural Registration ards (N.C.A.R.B.) in New York, the port of the Committee on Foreign aluations, which was approved by the uncil, contained a significant break- rough in the area of international ciprocity. A Memorandum of Agree- ent to permit registered British and merican architects to practice freely either country was ratified at the nvention, and the appropriate ma- inery set in motion to bring it into fect. The agreement was the result of vo meetings—one in New York and one London—when representatives of the .C.A.R.B. and the Architects Registra- on Council of the United Kingdom .R.C.U.K.) first explored the possibili- es of international reciprocity and then rew up the memorandum of agreement.

Other countries are interested in developing international practice

The meetings were also attended by representatives of the Royal Architectural Institute of Canada, the Commonwealth Association of Architects, the Pan American Federation of Associations of Architects, the International Union of Architects and the Royal Institute of Architects of Ireland.

The meetings were conducted in a great spirit of cordiality and constructiveness, and the continued interest of all the countries represented suggests that this initial two-nation agreement may be only a prelude to a much broader reciprocity. Once in effect, the scheme will permit registered architects of Britain and the U.S. to practice freely in each other's country, subject only to their passing an examination testing professional practice and practical experience.

A survey of foreign schools will determine relative standards

The establishment of reciprocal agreements obviously depends in large part on mutual confidence in the equivalence of educational standards in the countries concerned. The Foreign Evaluation Committee of the N.C.A.R.B. has therefore been concerned to establish an effective means of studying and recording the

ARCHITECTURAL BUSINESS THIS MONTH

curricula of foreign schools of architecture and to relate these to the training offered by accredited schools of architecture in this country. The N.C.A.R.B. has therefore appointed Professor William Muschenheim of Michigan University School of Architecture to undertake the task of surveying foreign schools in the capacity of "Evaluator of Foreign Schools of Architecture." Professor Muschenheim's task will involve actual visits to as many schools as possible, and—with the help of the N.C.A.R.B. in Washington—the preparation of appropriate questionnaires to send to schools not yet surveyed and to those whose records require updating.

Other professions discuss international practice

That related professions are thinking along similar lines is evidenced by conclusions reached at a meeting on international engineering procedure held last February in Washington and attended by representatives of the [illegible] sulting Engineers Council, the Associ[illegible] General Contractors and the Agenc[illegible] International Development. The mee[illegible] recommended the adoption of an i[illegible] national standard form of contract, [illegible] ject to certain provisions in the cas[illegible] AID-financed projects, and the us[illegible] a glossary to clarify the meanin[illegible] terms not in current use in this cou[illegible] Other subjects discussed at the mee[illegible] included ways to improve contract [illegible] mates and methods of financing.

Dodge's mid-year forecast sees building upturn

F. W. Dodge Company reports that the second half of 1967 is expected to bring a bigger total of contracts for new construction. The stronger months ahead will lift the year's total to a new high of $51.2 billion, a 2 per cent gain over the $50.15 billion the industry reported in 1966, and bringing the Dodge Index to 149 from last year's 145.3 (1957-1959=100).

The rate of both commercial and industrial building will be climbing again during the next six months, reports George A. Christie, Dodge's chief economist. Total commercial contracting, he said, likely will finish 1967 at close to last year's record $5.835-billion amount. Industrial contracting, which declined due to tax credit and depreciation rulings of last September and the excessive inventories during the early months of this year, have proved only temporary problems. Though total industrial contract values may not quite equal the record $3.6 billion set last year, they should come within 1 or 2 per cent of it, Christie predicted. Total institutional contract values, Christie said, should about equal last year's $8.4 billion with a 3 per cent gain expected in educational construction offsetting the anticipated declines in hospital (—10 per cent) and religious building (—3 per cent) activity.

Housing, up 8 per cent to $19.3 billion, is the most unstable market at mid-1967. Despite the monetary ease resulting from a switch in monetary and fiscal policies, interest rates began to stiffen again during the second quarter due to heavy demands by both business and government and the anticipation by lenders of even stronger borrowing needs in the second half. However, the administration and the Federal Reserve Board are committed to the support of a housing recovery this year, and hopefully, Christie said, "this commitment will be reflected in a balanced use of both fiscal and monetary policies rather than another money squeeze." The rate of housing starts should total 1.3 million units for the year, bringing total contract [illegible] ues for one- and two-family house[illegible] $13.8 billion this year, a 12 per cent[illegible] crease over the depressed 1966 le[illegible] Total 1967 contract values for apartm[illegible] buildings are expected to climb to [illegible] billion, 4 per cent higher than last y[illegible]

Nonbuilding construction is dow[illegible] per cent to $12.725 billion. A quick [illegible] versal of the Presidential order to w[illegible] hold a billion dollars in highway c[illegible] struction has brought the rate of high[illegible] construction for the second quarter b[illegible] up to close to last year's average. To[illegible] 1967 contract values may reach $6 [illegible] lion, only 4 per cent short of the [illegible] year's record pace, Christie said. A s[illegible] advance is expected in 1967 for contra[illegible] for sewer and water supply proje[illegible] which should reach $2 billion in contr[illegible] values, 8 per cent higher than last ye[illegible] and an anticipated 1967 total of $[illegible] billion in utilities contracting will [illegible] large in contrast to every other year f[illegible] 1966.

Briefs

FHA to insure group medical facilities. Under a new program, the FHA will insure private mortgages to finance group medical practice facilities through new construction or rehabilitation of existing structures. The Public Health Service will advise FHA on medical aspects of project proposals. FHA will insure mortgages covering up to 90 per cent of the value of the facility, including equipment.

Architectural firm supports research. Diversified research projects in architecture will be undertaken within Kansas State University's College of Architecture and Design in the next three years with the assistance of a $30,000 grant from Smith, Hinchman and Grylls Associates, Inc. Presentation of a $10,000 check for the first year's research was made by Robert F. Hastings, president of the firm, to Dean Emil Fischer at the annual meeting of the A.I.A. in May. The research will be supervised by Henry Wright, K.S.U.'s Regents Distinguished Professor of Environmental Technology.

Mortgage lending revives. Statistics on mortgage lending in May show that home financing by savings and loan associations increased by 32 per cent from April to May, and for the first time in 15 months topped the volume for the same month of a year earlier. Associations closed an estimated $1.8 billion in mortgage loans in May as compared with $1.3-billion in April.

Housing for the elderly. Over 35,000 housing units designed for senior citizens of moderate income have been completed or are now under construction, financed by loans to non-profit organi[illegible] tions made by HUD and its predeces[illegible] agencies implementing Sec. 202 of t[illegible] Housing Act of 1959. Total cost of t[illegible] program through January 1967 was $42[illegible] 312,000. As of the end of January, [illegible] states and Puerto Rico had taken adva[illegible] tage of the program.

Psychoarchitectonics. That's the wo[illegible] used to describe an itinerant internatio[illegible] al exhibit of psychiatric and ment[illegible] health facilities now being organized [illegible] Italy. U.S. architects are invited to ser[illegible] exhibit materials consisting of plan prin[illegible] model photos and one-page written r[illegible] port to arrive not later than October [illegible] at: *Centro Psicographico di Maser, v[illegible] Dalmazia, 14, Montebelluna (Trevis[illegible] Italy,* for the attention of Professor Enn[illegible] Miotto.

MMENT AND CONTRACT TABULATION

e A. Christie, Chief Economist
Dodge Company,
ision of McGraw-Hill

second boom in school building

Part 2

ast month's column it was noted the current record rate of educa- al building is the result of powerful es that have been behaving quite pre- ably for many years. These forces— steady growth and changing compo- n of the nation's student body, and stimulus of several recent Federal struction aid programs—are largely onsible for today's very high level of ding.

here is every indication that the de- d for educational construction will ain strong both this year and next. there are also signs that after two ades of expansion, an important nge is coming in school building. his change will be in the rate of wth of school enrollments—the single st important factor governing the d for new educational facilities. Since 0 total school enrollments have been wing at a rate of more than 3 per cent year—almost exactly *double* the rate growth for the population as a whole. the table below shows, during the rt span between 1960 and 1966 the portion of the population attending ool increased from 25.6 per cent to 0 per cent. That increase meant a need new classroom space for nine million.

School enrollment and total population (millions of persons)

Year	Total Enrollment	Total Population	Population in School
1960	46.2	180.7	25.6 per cent
1966	55.1	196.8	28.0
1975(e)	59.4	215.3	27.6
Average Annual Growth Rate:			
1960-66		+3.2 per cent	+1.5 per cent
1966-75		+0.9 per cent	+1.0 per cent

Source: Bureau of the Census

But from here on (through 1975, at least) things will be quite different. It's not that we'll suddenly be faced with empty classrooms or anything like that, but just the same, the boom years for school building are coming to an end. For the next 10 or so years, total school enrollment will be increasing by an average of only 1 per cent per year, instead of the more than 3 per cent annual growth in the first half of the sixties. In relation to the population as a whole, enrollment growth will slow down to just about the same rate, rather than double its pace. And that means that by 1975, we'll actually have a smaller proportion (27.6 per cent) of the total population in school than today.

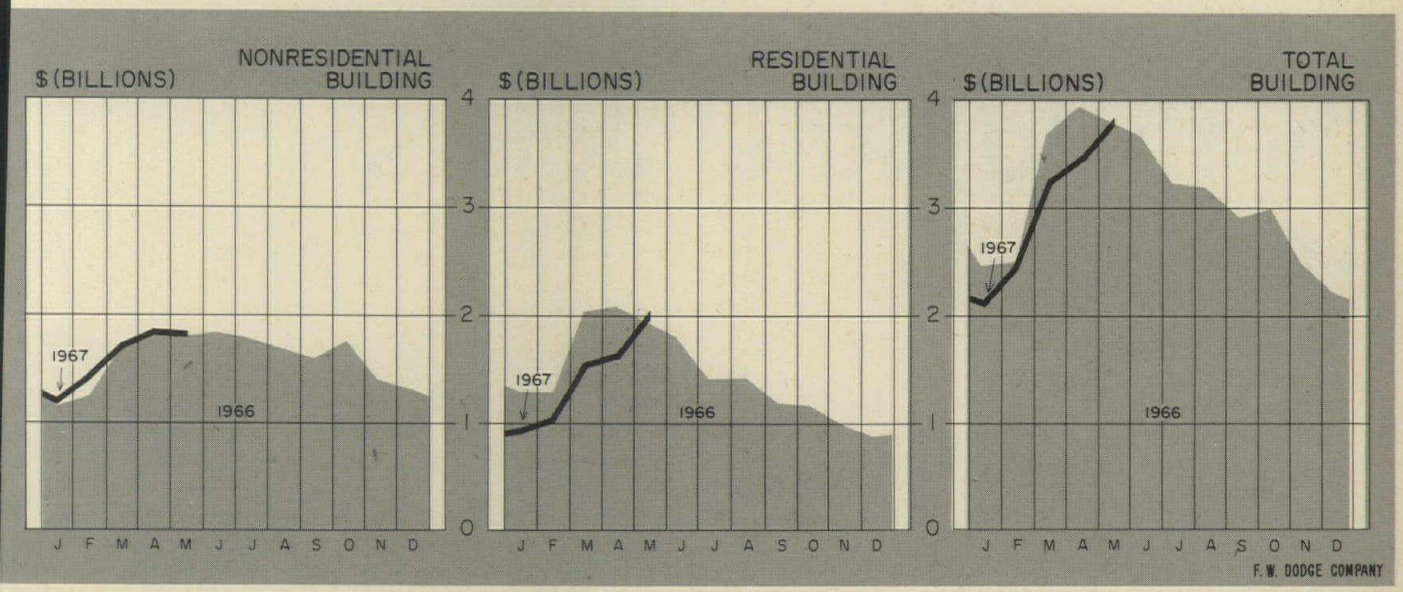
Demographically speaking, it's little more than a matter of put-and-take. In the years ahead, the students who were born during the peak birth rate years of the early fifties will be taken out of the educational system by graduation and will be replaced at the beginning grades by kids born in the middle-sixties when the birth rate was much lower. As this happens, the impact on the nation's educational system will be progressive.

Elementary (K-8)—enrollments have already leveled off and will actually begin to *decline* around 1970. By 1975, total grade school enrollments will be about two million less than today.

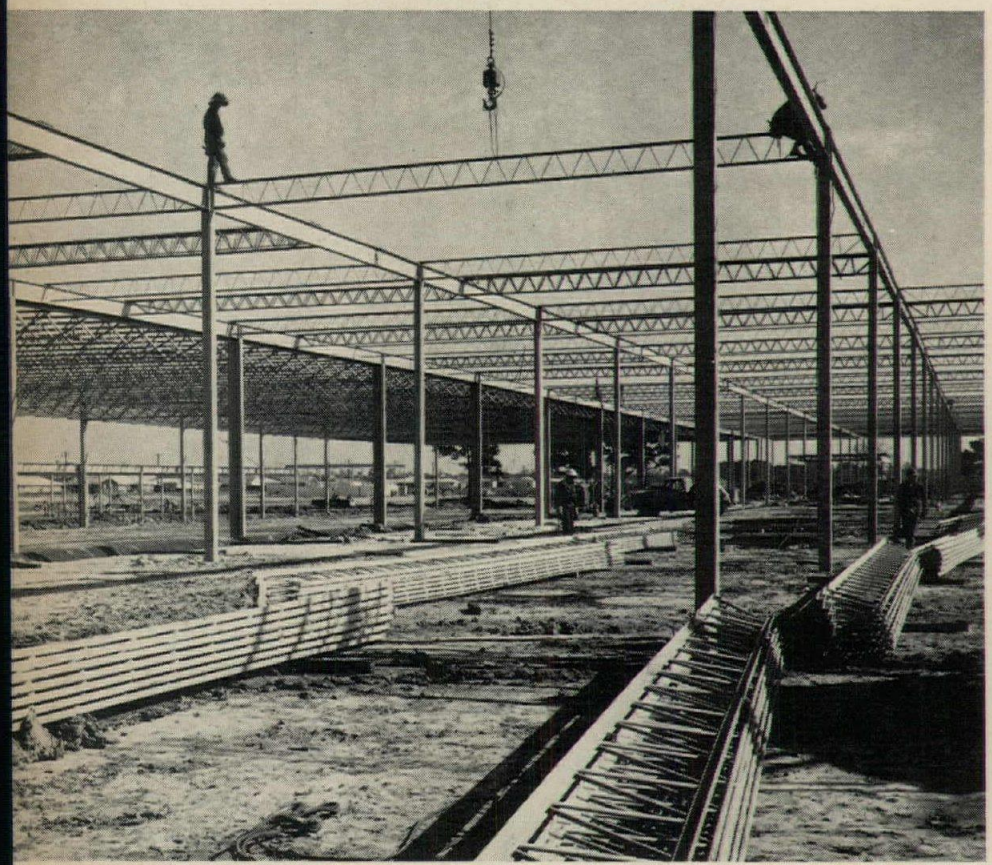
High School (9-12)—enrollments are still growing, but at a slower rate than during the early sixties. Expansion stops by 1975, and then decline sets in.

College—Plenty of growth left here. Enrollments are currently a bit more than six million, up from three and a half million in 1960. They'll expand somewhat more slowly to nine million by 1975, with further gains anticipated in the years beyond.

uilding activity: monthly contract tabulations



New Fleming Warehouse in Houston, has over 8 acres of roof...



Owner: The Fleming Co., Inc., Topeka.
Architects and Engineers: Bernard Johnson Engineers, Inc., Houston.
General Contractor: Lambert Construction Company, Houston.
Fabricator: Arkansas Steel Company, El Dorado, Arkansas.

More than 75 affiliated food stores will be served from the new Fleming Company di tion center now under construction in Houston, Texas. The building, with more t 350,000 square feet, features some of the most modern warehousing facilities in the Automatic dockboards, indoor loading facilities, air curtain walls, and computer controlled transportation, inventory and accounting are some of the features that this warehouse unique.

The huge flat roof of the warehouse is supported by Sheffield Steel Joists; 428 to all. There were good reasons for the selec of Sheffield Joists for roof support: they ar completely standardized as to length, dept load carrying capacities as well as meetin all the specifications of the Steel Joist Inst

In addition, joists provide easy passage a concealment of pipes and conduit through the open webs. This eliminates the need for cost furred ceilings. Also important, a coat of red-oxide primer paint is applied to She Joists at no additional cost. This efficient, non-bleeding primer is one of the best tha be provided for the protection of the joists.

Investigate the advantages of joist constr tion. Call the Armco sales office in your cit write, Armco Steel Corporation, Departmen W-777AA, 7000 Roberts Street, Kansas City Missouri 64125.

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ARMCO STEEL

NDS AND ANALYSIS

nce C. Jaquith, Economist
e-Berger-Mansueto Inc.
ruction Consultants

udy weighs the effect of wage rates on building costs

generally assumed that the sizable rences in the cost of a building from to city stem primarily from the lly large differences in wage rates n city to city. A recent study has con- ed a remarkably close correlation be- en building costs and wage rates prac- ly overriding other factors, such as cost of materials and labor produc- y, although these too vary signifi- tly from city to city. (For the moment, sideration of short-run market condi- s are excluded.)

Recently, wage differentials have ap- red to be most important on school ldings. Therefore, a study of this type project offered a logical choice for ding the actual weight of wage differ- ials in over-all cost differences.

This was accomplished in the follow- manner: First a cost breakdown by de was made of a typical school build- in New York City. The first column resents the per cent of the total job t accounted for by each category of rker. The second column is the per nt of the total job cost in which each de is directly involved, i.e. labor cost s material cost. This means that wage sts for these 11 trades accounted for .8 per cent of the total project cost. he remaining project costs—4 per cent for miscellaneous items would prob- ly add 2 per cent in labor costs.)

By taking wage rates for these same des in several other cities and using New York City as a base, a labor cost index can be compiled. The wages used are 1966-67 rates including fringes and are adjusted for an 8-hour workday where applicable. As these rates are renegotiated, the index can be updated.

A brief explanation about this index: the weights (per cent of total job cost) for each trade are not the same in each city, and neither are the differences in these weights simply proportionate to the differences in hourly wage rates.

So while the index shows Atlanta's labor costs for school buildings to be 55 per cent of school labor costs in New York, it does not mean that the total building cost for a school in Atlanta is 55 per cent of the cost in New York.

To convert the labor cost index to a building cost index, it is necessary to take the weighted labor cost in each city and add a constant representing cost of materials. When this is done using New York prices the following indexes occur.

Checking the relationships expressed in this index against various published indices produced some interesting results. In fact, most of the figures proved to be quite close.

SCHOOL BUILDING COST INDEX

New York	100		
Atlanta	78	Minneapolis	82
Baltimore	79	Norfolk	72
Birmingham	76	Pensacola	73
Boston	85	Philadelphia	84
Chicago	85	Pittsburgh	85
Cleveland	85	Providence	81
Dallas	76	St. Louis	86
Denver	79	San Diego	79
Detroit	87	San Francisco	91
Houston	78	Seattle	85
Los Angeles	88	Washington, D.C.	81
Miami	80	Wichita	76

Since the original purpose of this study was to test the notion that wage differentials are the primary determinant of building cost differentials from city to city, this could be taken as some measure of "proof". The accuracy lost by assuming constant material's prices was undoubtedly offset to a substantial degree by the use of weighted wage rates for the particular building type.

In these index numbers labor productivity was not taken into account. Short run market conditions, mainly influenced by the degree of contractor competition, were also not considered. As has been suggested previously, the ideal method for determining these factors is via thorough research of the city in question.

ST DISTRIBUTION ON TYPICAL SCHOOL EW YORK CITY

rade	Per cent of total job cost: Labor	Per cent of total job cost: Labor/Material
Bricklayers	6.0 per cent	10.0 per cent
Carpenters	4.2	13.0
Electrical workers	4.4	11.0
Iron workers	2.4	8.0
Common laborers	9.0	10.0
Lathers	0.6	1.0
Painters	2.4	3.0
Steamfitters	4.8	12.0
Plasterers	1.6	2.0
Plumbers	2.4	6.0
Concrete workers	12.0	20.0
TOTAL	49.8 per cent	96.0 per cent

WAGE RATES IN U.S. CITIES

Cities	*Brick-layers*	*Car-penters*	*Elec-trical work-ers*	*Iron work-ers*	*Common laborers*	*Lath-ers*	*Paint-ers*	*Steam-fitters*	*Plas-terers*	*Plumb-ers*	*Con-crete work-ers*	*Labor Cost Index*
New York	$8.24	7.36	6.44	7.19	6.07	7.38	6.23	7.82	8.56	7.82	6.80	100
Atlanta	4.90	4.25	5.10	4.87	2.65	4.25	4.25	5.05	4.35	5.05	2.77	55
Baltimore	5.05	4.42	5.05	5.36	2.89	4.53	4.33	4.96	4.53	4.96	3.28	58
Birmingham	4.65	3.90	4.69	4.57	2.60	3.85	4.00	4.95	3.97	4.95	2.70	52
Boston	5.90	5.15	5.57	5.67	3.95	5.60	4.70	5.82	5.10	6.00	3.95	69
Chicago	5.65	6.00	5.91	6.04	4.16	5.36	4.98	5.67	5.73	5.70	3.68	70
Cleveland	5.66	5.61	5.38	5.60	4.57	5.41	5.15	5.51	5.31	5.51	3.85	70
Dallas	4.78	4.33	4.59	4.45	2.43	4.53	4.15	4.82	4.57	4.82	2.43	52
Denver	4.85	4.72	4.97	4.70	3.20	4.78	4.13	5.10	4.70	4.97	3.20	58
Detroit	5.80	5.60	6.06	6.04	4.42	5.30	5.10	5.60	5.30	5.90	4.33	73
Houston	4.78	4.50	5.06	4.50	2.85	4.70	4.26	4.93	4.70	4.88	3.03	56
Los Angeles	5.30	5.51	6.04	6.37	4.29	5.42	6.07	6.93	5.53	6.93	4.50	76
Miami	4.87	4.95	5.46	5.12	3.20	4.61	4.15	4.92	4.62	5.02	3.00	59
Minneapolis	5.13	4.68	5.23	4.90	3.80	4.85	4.51	5.14	4.85	5.30	3.95	64
Norfolk	4.25	3.45	4.31	4.25	2.00	3.93	3.45	4.15	4.15	4.15	2.00	44
Pensacola	4.15	4.04	4.34	4.75	2.04	3.14	3.10	4.60	3.62	4.61	2.14	46
Philadelphia	5.82	5.13	5.68	6.00	3.60	5.19	4.50	5.75	5.24	5.77	3.60	67
Pittsburgh	5.85	5.55	6.05	5.54	3.88	5.76	4.73	5.79	5.66	5.52	3.88	69
Providence	5.33	4.38	4.72	5.46	3.60	5.15	4.05	5.35	4.88	5.35	3.57	62
St. Louis	5.97	5.35	6.14	5.40	4.39	5.33	5.25	6.43	5.33	6.06	3.83	72
San Diego	5.50	5.52	6.19	6.37	4.46	5.45	5.49	6.51	5.45	6.93	4.44	76
San Francisco	6.53	5.93	6.17	6.37	4.73	5.60	6.43	7.88	6.51	7.84	4.39	82
Seattle	5.54	4.85	5.19	5.50	4.15	5.03	4.70	5.48	5.03	5.48	4.35	69
Washington, D.C.	5.50	4.54	5.40	5.00	3.21	4.98	4.80	5.44	5.90	5.40	3.21	62
Wichita	4.48	3.83	4.70	4.28	2.70	4.57	3.50	4.75	3.75	4.75	2.84	52

A near-miss in Illinois on single vs. separate contracts

Some of the political aspects of the contest between proponents of separate contract bids and those who advocate a single general contract were underscored in a recent series of events in Illinois.

Owner-architect judgment should set bidding format

Previous columns (January, March) have stressed the importance of bidding systems which permit the owner, under advice of his architect, to exercise judgment in determining which format—whether separate or single bid—best serves his project needs. The trend in recent years has been to legislate the separate bid or split contract system into a must for public agencies.

The split contract is a format wherein separate bids are taken and contracts awarded for general construction work, plumbing, HVAC, and electrical work. Under this system, for a single building there may be as many as four (in some states the number is greater) separate prime contractors working on the job.

Illinois courts permit agency's choice of method

In Illinois, in 1966, the courts determined that the Illinois Building Authority was not bound by the separate bidding provisions of the State Purchasing Act. Since that time the I.B.A. has contracted some 40 projects, employing with considerable success both separate and single contract bids as circumstances warranted.

The subcontractor groups, understandably, were unhappy with this development. Separate bids had been required on all public work in Illinois since 1959. As a consequence, the subcontractors urged upon the recent legislature an amendment of the purchasing act which would specifically include the I.B.A. within the mandatory split contract provisions. The I.B.A., many architects, general contractors, and other interested parties, including our firm, opposed the amendment.

Committee's bill would extend choice to all agencies

The debate before the House Committee considering the matter must have been lively, because the bill as reported out (and as previously passed by the State Senate) would have not only preserved the exclusion of the I.B.A. from the obligation to award split contracts, but would have excluded all other state agencies as well. It would have restored to all public building in the state the option of selecting a contract format—whether single or split—which in the judgment of the agency involved most suited the needs of the project at hand.

But house reverses stand and requires separate bids

Unfortunately—and this is the development that caused a hurried revision of this month's article—the bill as passed by the house was further amended. The strides made by the house committee toward flexibility and the exercise of judgment in taking construction bids were reversed. In final form, the bill required that all agencies—including the Illinois Building Authority—take separate bids for the major mechanical and elec trades. The agency may also invite s bids for the entire construction pac if it so chooses, but the award mus made to the bid or combination of which results in the least cost.

Single and separate bids just won't work together

This approach has been used elsewh and it simply doesn't work. Subcont tors soon demonstrate that, confro with this choice, their bids to the gen contractor are much higher than th tendered to the agency. Indeed in m instances, subcontractors decline the tion and refuse to submit any bid wh soever to the general contractors.

It is hoped that Governor Ker will veto the Bill. If he does, this is will be reopened and hotly debated the next session of the legislature.

Mandatory format weakens project control

Clearly, the choice—whether separ or single contract—belongs with agency and its architects, and not w the subcontractors affected. As pointed out before, mandatory separa bids encourage abuse and weaken pr ect control.

Whatever the outcome, one m read some encouragement in the ep sode. The problems implicit in a manc tory separate bidding formula have be recognized, and this recognition can quite close to reversing a trend whi many observers, both for and agains had thought to be irreversible.

Shopping centers dominate merchants' building plans

Shopping centers have almost completely dominated new construction plans for some types of stores, with one result being that centers are gaining on the total retail trade market at the rate of 2 per cent a year.

W. Donald Calomiris, Washington, D. C. president of the Institute of Real Estate Management, made this observation while addressing delegates attending the annual convention of Realtors from New England at Dixville Notch, New Hampshire, June 30. Irem is a professional affiliate of the National Association of Real Estate Boards.

Mr. Calomiris said that variety, general merchandise, department, and shoe chain stores all placed more than 90 per cent of their new units in shopping centers in 1966 and plan about the same ratios this year.

Nevertheless, he said, the demand for center-city retail outlets is still strong. Most central business district stores are enjoying higher absolute retail sales volume, even while continuing to lose their former high relative proportion of total retail sales.

"There are several trends of interest affecting the demand for central business district retail stores," he went on. "One is the increased amount of business being developed by serving a record number of office workers located in the central business district."

An additional factor is the emerging trend back to the central city by apartment residents, particularly in the luxury rental classes.

"Urban renewal," Mr. Calomiris advised, "has been at least partially responsible for helping to reverse the previous trend away from the city." Th flow at present is rather mixed.

A third factor affecting demand the success of modern retail merchant in achieving higher sales volumes pe square foot of retail area. This has mad it possible for merchants to accommo date a greater volume of sales in smaller area than was possible a decad ago, and it has permitted them to absorb some of the increase in the cost o doing business in the central business district.

"The real victims, if they can be called that, of the trends in retail trade are the so-called strip stores and the secondary retail areas peripheral to or outlying from the central business district," Mr. Calomiris concluded. "It is in these categories that most of the vacancies and marginal uses are found."

EXES AND INDICATORS

n H. Edgerton
er-Editor, Dow Building Cost Calculator,
W. Dodge service

UST 1967 BUILDING COST INDEXES

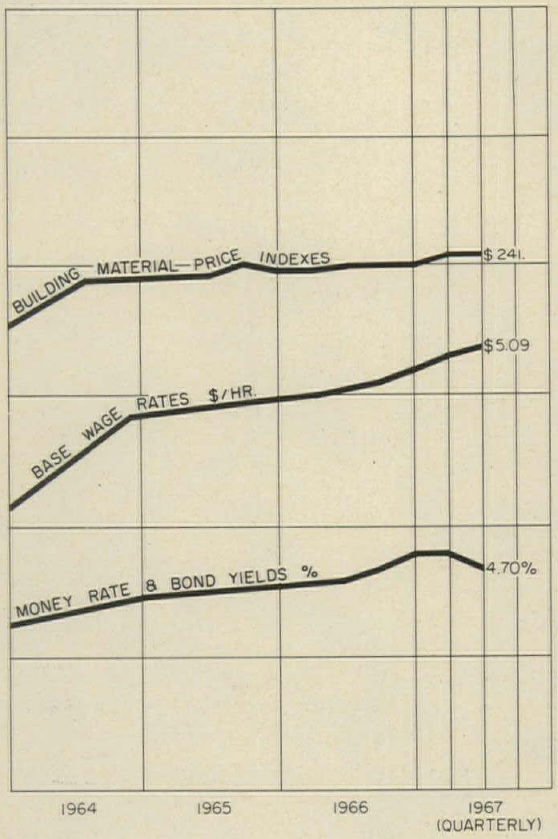
1941 averages for each city = 100.0

etropolitan ea	Cost differential	Current Dow Index residential	Current Dow Index non-res.	% change year ago res. & non-res.
S. Average	8.5	280.9	298.6	+2.18
lanta	7.2	332.1	338.1	+3.15
ltimore	7.7	279.3	297.1	+0.69
rmingham	7.5	258.7	278.1	+2.16
ston	8.5	253.1	267.9	+1.65
icago	8.9	310.3	326.4	+2.42
ncinnati	8.8	267.0	283.8	+1.41
eveland	9.2	288.1	306.2	+2.48
allas	7.7	262.9	271.5	+2.28
enver	8.3	284.4	302.4	+0.98
etroit	8.9	288.6	303.0	+4.28
ansas City	8.3	251.2	265.9	+1.43
os Angeles	8.3	285.2	312.0	+2.01
Miami	8.4	274.5	288.2	+1.82
Minneapolis	8.8	279.2	296.8	+2.23
New Orleans	7.8	252.4	267.4	+2.09
New York	10.0	296.0	318.4	+3.99
Philadelphia	8.7	278.0	291.9	+1.94
Pittsburgh	9.1	260.3	276.7	+1.07
St. Louis	9.1	279.1	295.7	+2.82
San Francisco	8.5	364.1	398.3	+2.99
Seattle	8.4	255.3	285.3	+1.94

erences 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 0) divided by that of a second (8.0) equals 125%, then costs in the first city are higher than costs in the second. Also, costs in the second city are 80% of those he first (8.0÷10.00=80%) or they are 20% lower in the second city.

e information presented here indicates trends of building nstruction costs in 21 leading cities and their suburban areas ithin a 25-mile radius). Information is included on past and esent costs, and future costs can be projected by analysis of st trends.

ECONOMIC INDICATORS



STORICAL 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	2nd	3rd	4th	1967 (Quarterly) 1st	2nd	3rd	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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—
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	—	—

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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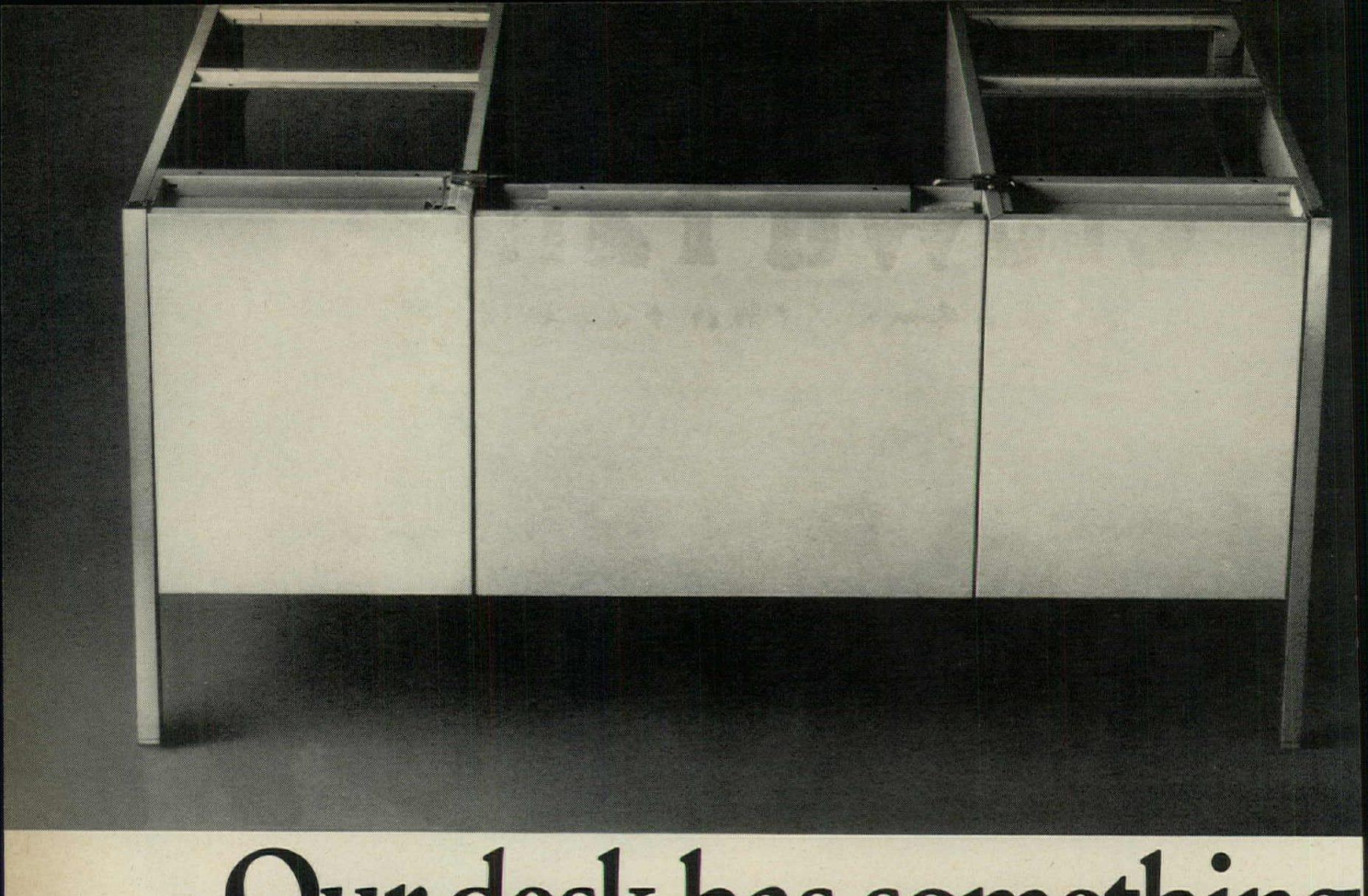
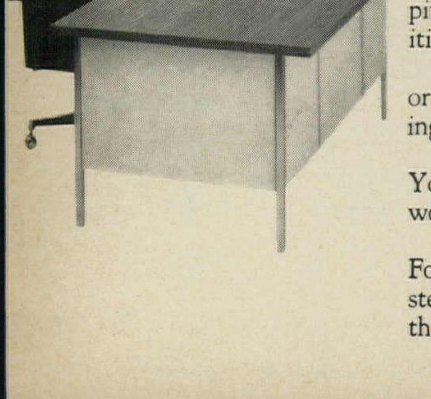


Our desk has something over a steel desk. A wood core top.



Don't knock wood.

It holds on to our laminated surface for dear life. The life of the same material on a steel top could be pitifully short. Steel just doesn't have the stick-to-itivity of wood.

Wood also absorbs sound when you bang the desk or slam the drawers. And it feels good on cold mornings. It's the best all-around material for a desk top.

The surface we use is virtually damage-proof. You can have it in a variety of finishes from natural wood grain to frankly synthetic.

Steel has a place underneath our wood core top. For a panel, you couldn't do better. We make our steel panels doubly strong, with a honeycomb core that absorbs hard knocks without showing it. And it swallows up sound like a plush carpet.

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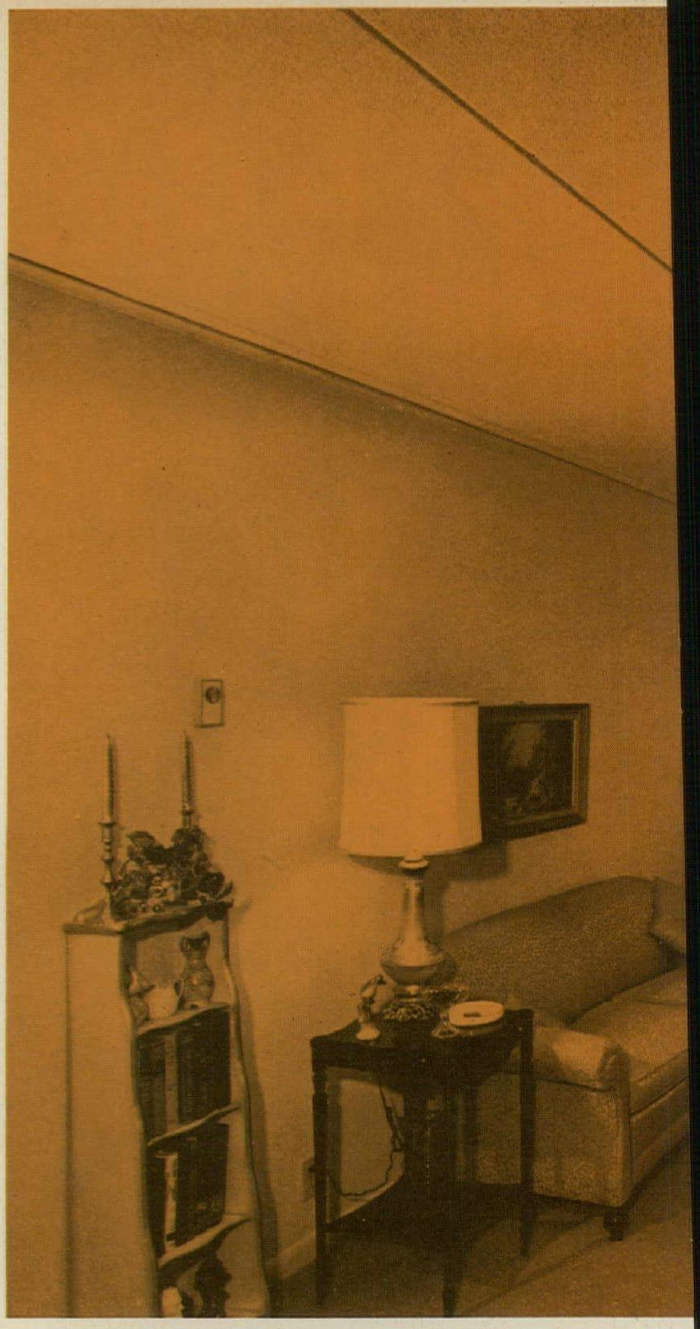

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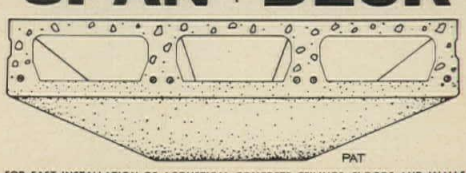

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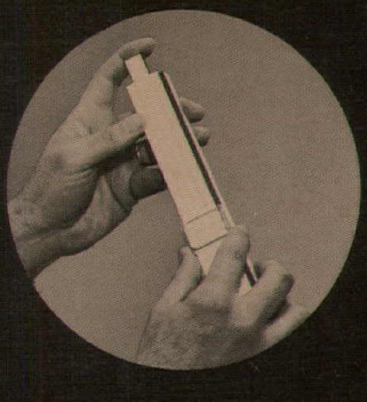
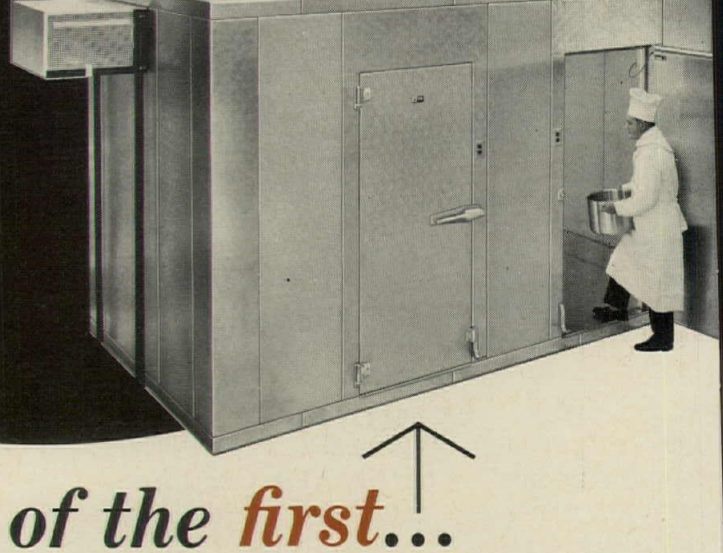


When it comes to planning a walk-in cooler or freezer...too often the last thing considered is the refrigeration system...



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The job a good walk-in will do can be downgraded fast by a "just so-so" refrigeration system. Top results demand that refrigeration get the same research, design and manufacturing skill devoted to the production of the walk-in itself.

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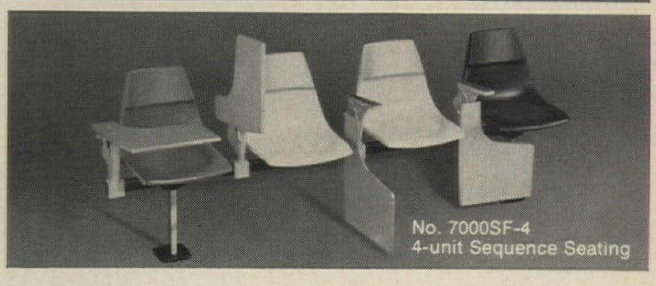
Specially designed shell affords rigid support, attentive comfort. Tablet arm folds to storage with fingertip ease.



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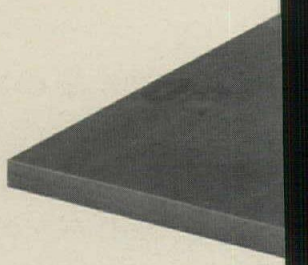

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continued from p

enlarged the scope of its servic merging with **Richard Paul Mille** other principal design members now dissolved firm of **Wiley and** **Inc.** The firm's main office is at California Rd., Elkhart, Ind.

Kennedy, Brown & Associate chitects announce the change of name to **Kennedy, Brown & Trueb** architects at 3925 North College Indianapolis.

Edward A. Kern and **Herma Weber, Jr.** have formed a partne for the practice of architecture u the firm name of **Kern & Weber,** 818 Baldwin Building, Erie, Pa.

Arthur A. Edwards, partner i firm **Krey and Hunt,** announces the ing of his own office for the practi mechanical and electrical enginee as **Ben H. Krey** and **Darl H. Hunt** nounce their retirement. The new will be located at 551 Fifth Ave., York City.

The architectural firm of **Lawrie Green** announces that **J. Harlan L A.I.A.** has become a partner. The is at 321 North Front St., Harrisburg

Sherman Schneider, A.I.A. has appointed executive architect of **Ch Luckman Associates,** planners and chitects in New York and Los Ang **Herbert K. Hopp** has joined the York office as project architect.

Clinton Marr, A.I.A. architect Riverside, Calif. has named two ass ates, **Lee Tracy** and **Richard P. Frick.** firm will be known as **Clinton Marr & sociates,** architecture and planning.

The firm of **Yosh Nakazawa & sociates, Inc., Architect-Engineer,** nounces the appointment of **Willian Cobb, A.I.A., Walter S. Hallen, Jr., D ald H. Garbowicz** and **Harry E. Patter** as associate architects. The firm is loca at 53 W. Jackson Blvd., Chicago.

P & W Engineers, Inc. announces appointment of **E. Alfred Picardi** as ecutive vice president in charge of E ern operations. The firm is at 309 Jackson Blvd., Chicago.

John B. Parkin Associates, Archite and Engineers announce that **Lloyd Laity** has become permanently located the Los Angeles office of the firm vice president/design. The office is 1801 Avenue of the Stars, Los Angel

Joseph L. Pellis and **Donald J. Le rich** announce the formation of a pa nership **Pellis & Lettrich** for the practi of architecture with offices located 124 West Pittsburgh St., Greensburg,

Henry A. Pfisterer, Consulting E

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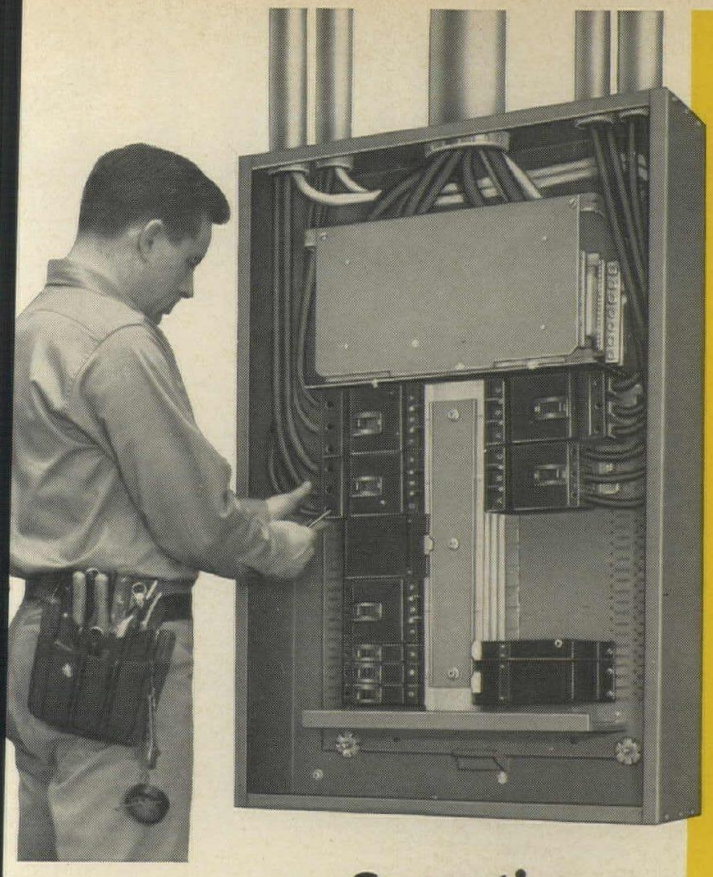
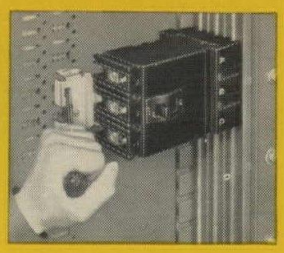
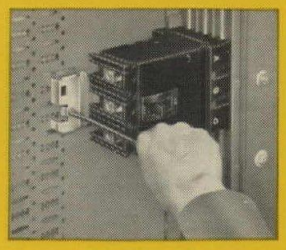
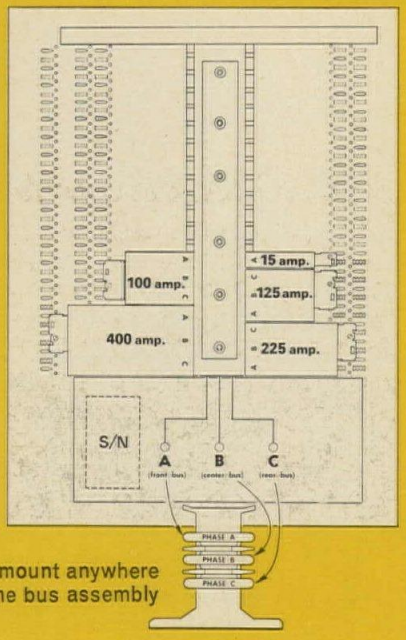




Breakers install with a screwdriver. Position the unit, lever it in place, screw down tight





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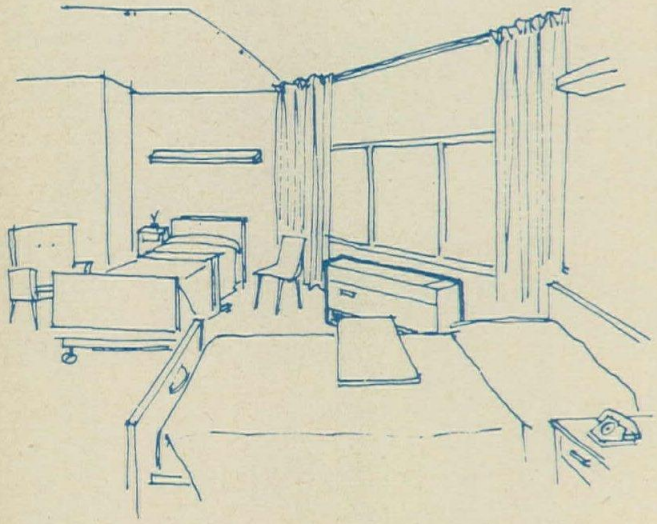
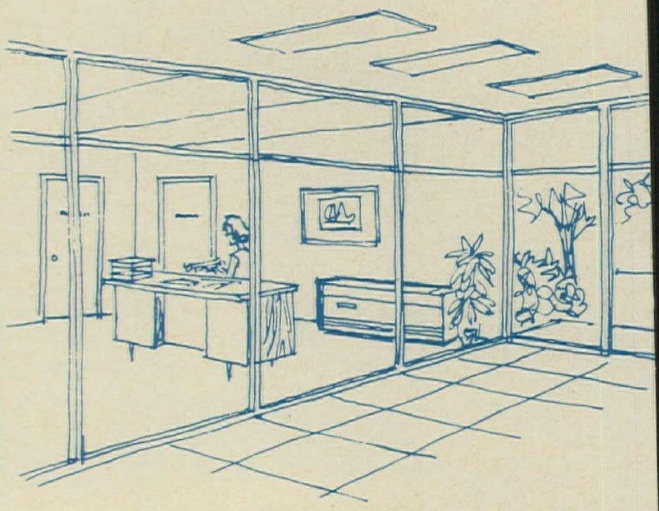


HOSPITALS/NURSING HOMES



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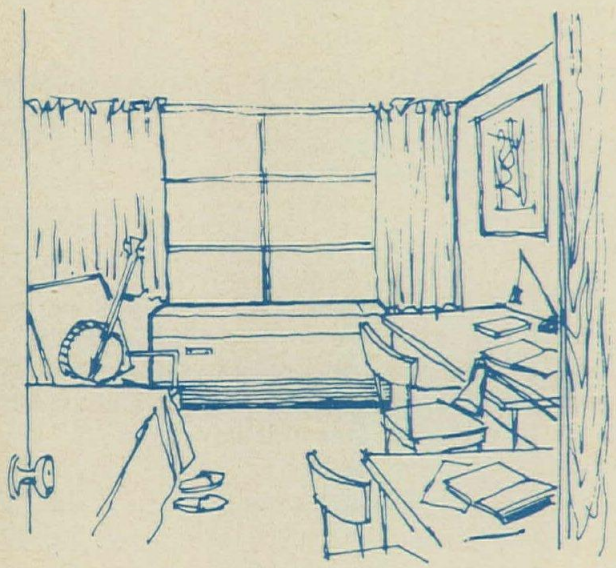

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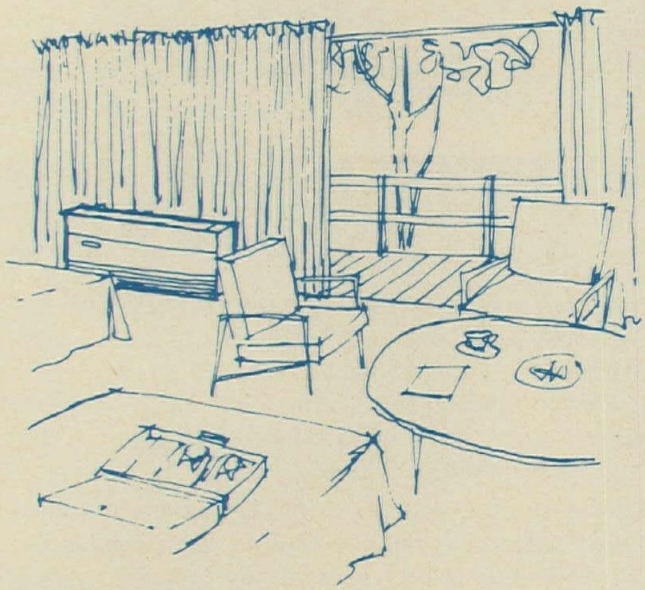

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continued from page 84

gineer announces the naming of **Abba A. Tor** as senior associate and **William S. Kaminski, Walter Shapiro** and **Anthony J. Calini** as associates. The firm name will be **Henry A. Pfisterer and Associates, Consulting Engineers** at 111 Whitney Ave., New Haven and 101 Park Ave., New York City.

Roger/Nagel/Langhart, a Denver architectural firm has announced the appointment of **Gary T. Merideth,** interior designer; **John M. Elmore** and **James E. Millensifer,** associate architects; and **Kennon B. Stewart,** associate mechanical engineer. The firm is located at 1626 Stout St., Denver.

Harold L. Adams has been made managing architect by **Rogers, Taliaferro, Kostritsky, Lamb**—planners and architects at 806 Cathedral St., Baltimore.

Schauder and Martin Architects announce that **Robert Fessler** has been appointed associate with the firm which is located at 4227 Monroe St., Toledo, Ohio.

Neil P. Frankel, A.I.A. has been appointed vice-president and director of design of **Milton M. Schwartz & Associates, Inc.** located at 173 West Madison St., Chicago.

Thomas J. Holzbog & Associates announces the formation of an office in collaboration with **Environments Inc.,** a design and planning firm, 19 Mt. Auburn St., Cambridge, Mass.

NEW ADDRESSES

Chan/Rader and Associates, Architects and Planning Consultants, 710 Sansome St., San Francisco.

Hugh Hardy & Associates, 257 Park Ave. South, New York City.

Heery and Heery Architects and Engineers, 1705 Commerce Drive, N.W., Atlanta.

Hoag-Wismar-Henderson-Associates and HWH Associates, Inc., 1150 West Third St., Cleveland.

Win Hoffman Architect, 600 Hempstead Tpke., West Hempstead, N.Y.

T. Y. Lin & Associates, Inc., 130 N. Franklin St., Chicago.

Eberle M. Smith Associates, Ltd., Consultants, 1787 Walker Rd., Windsor, Ontario.

Stone, Marraccini and Patterson, Architects and Planners, 455 Beach St., San Francisco.

R. Bruce Widstrom Associates Architects, Place 90, 8998 "L" St., Omaha.

Richard Weingardt & Associates, Consulting Structural Engineers, 500 Right of Way Road, Sterling, Colo.

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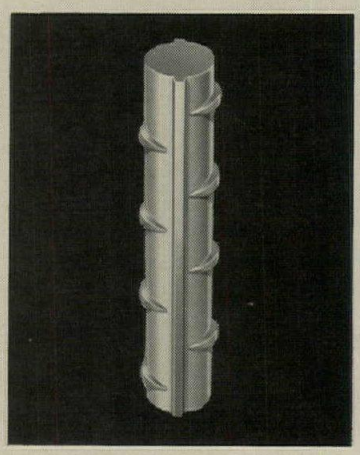

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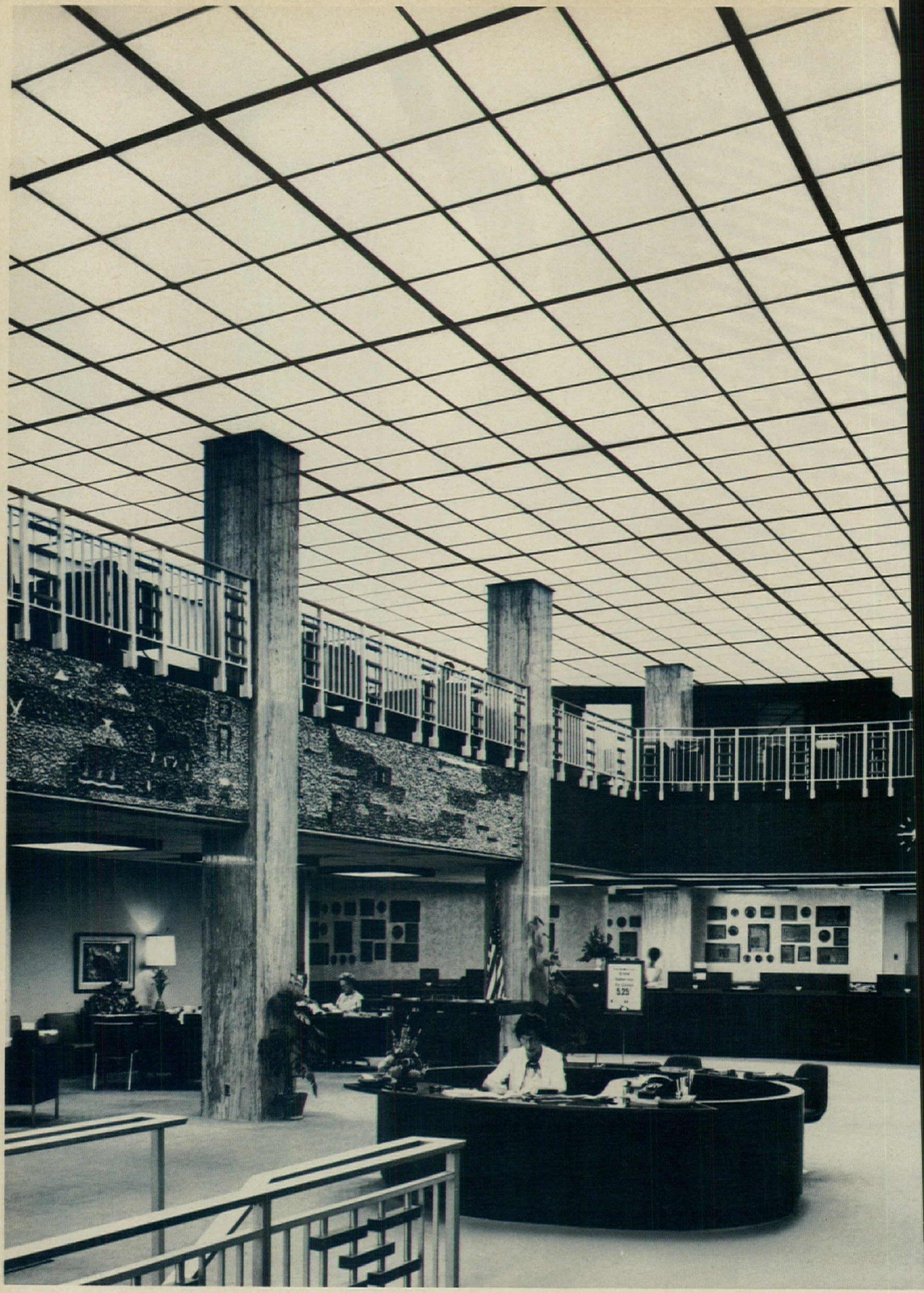
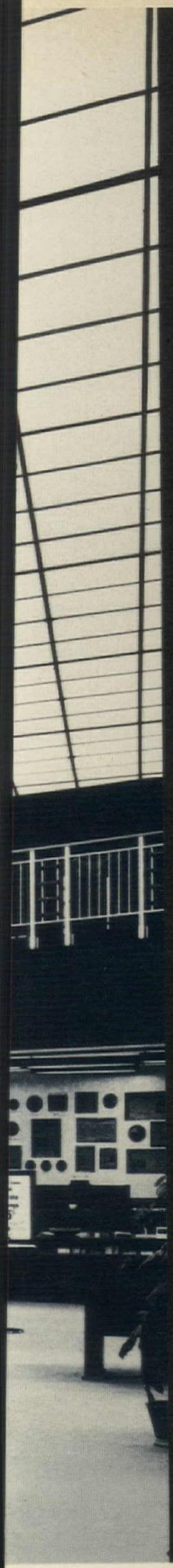
8-65

1000 Lake Shore Plaza Apartments, Chicago, Illinois
Developer: Harold L. Perlman
Architects: Sidney H. Morris & Associates
Structural Engineers: William Schmidt & Associates





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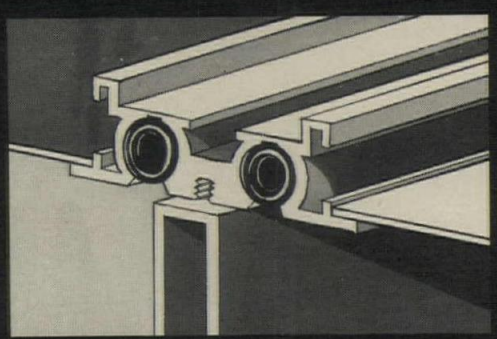

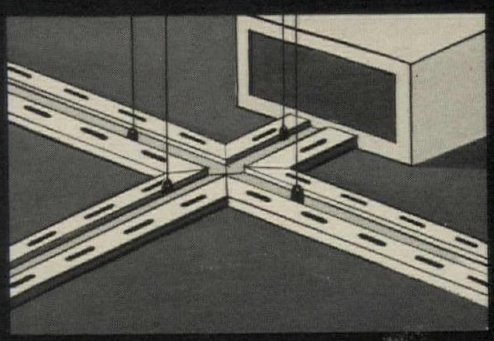

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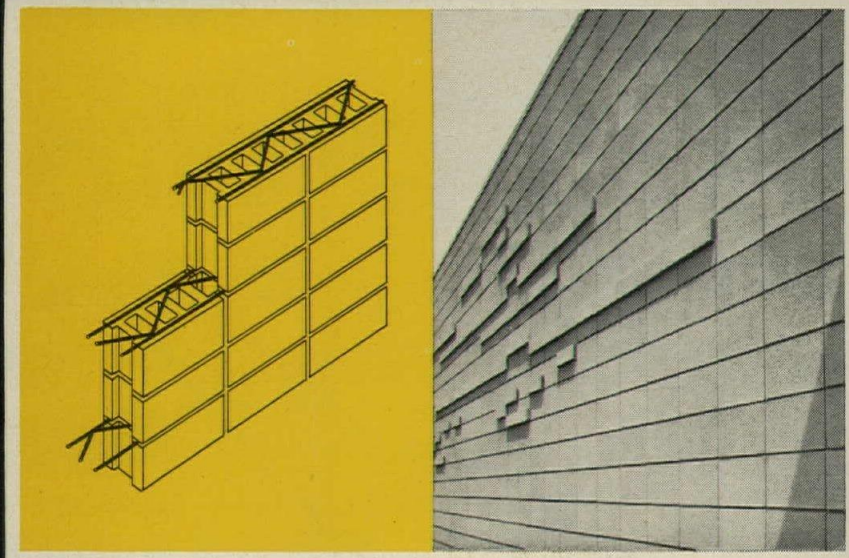

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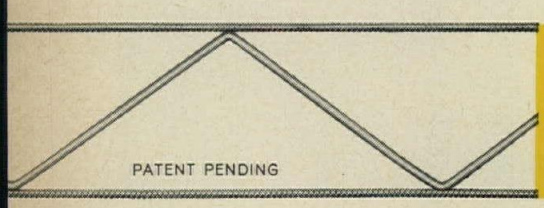

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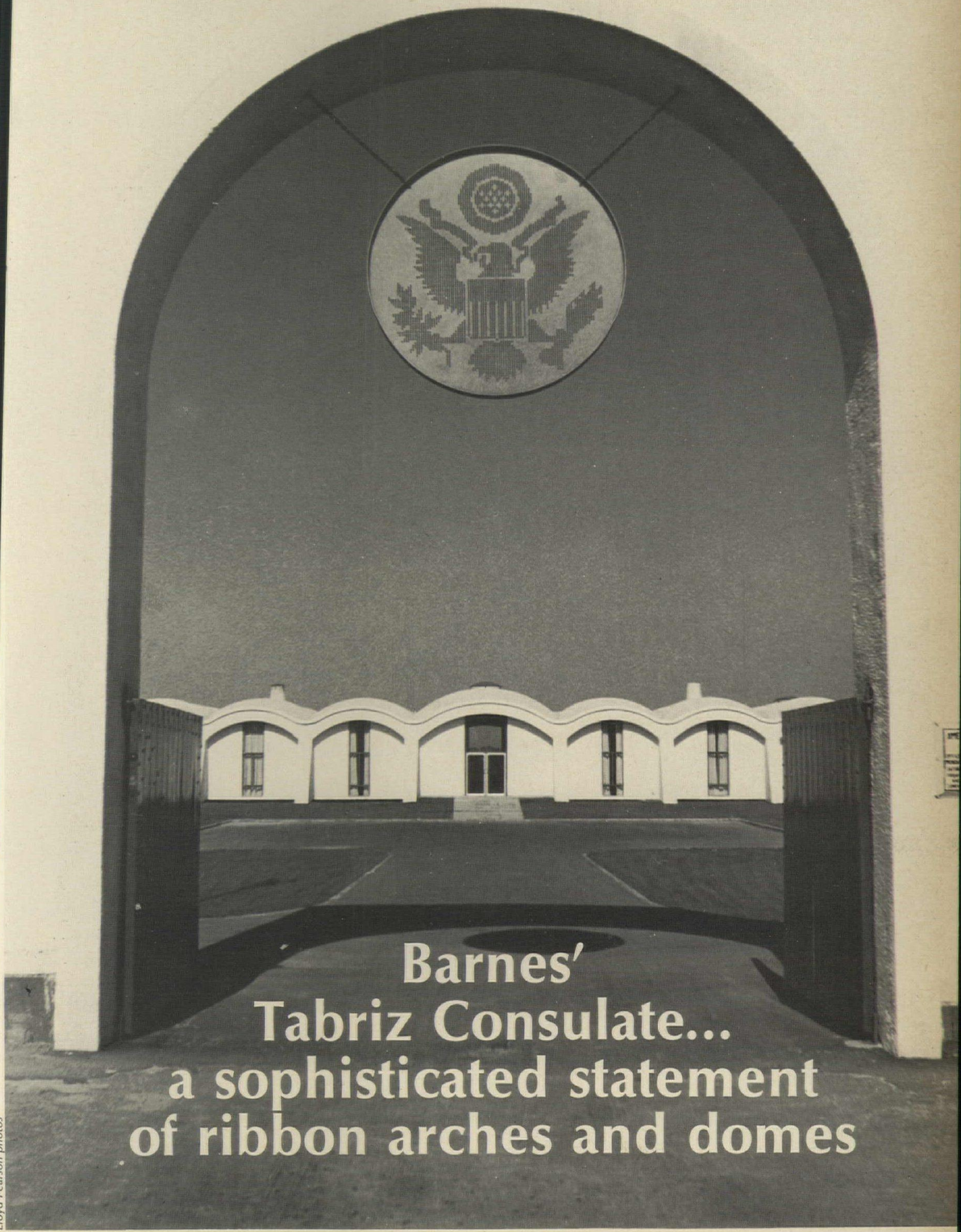
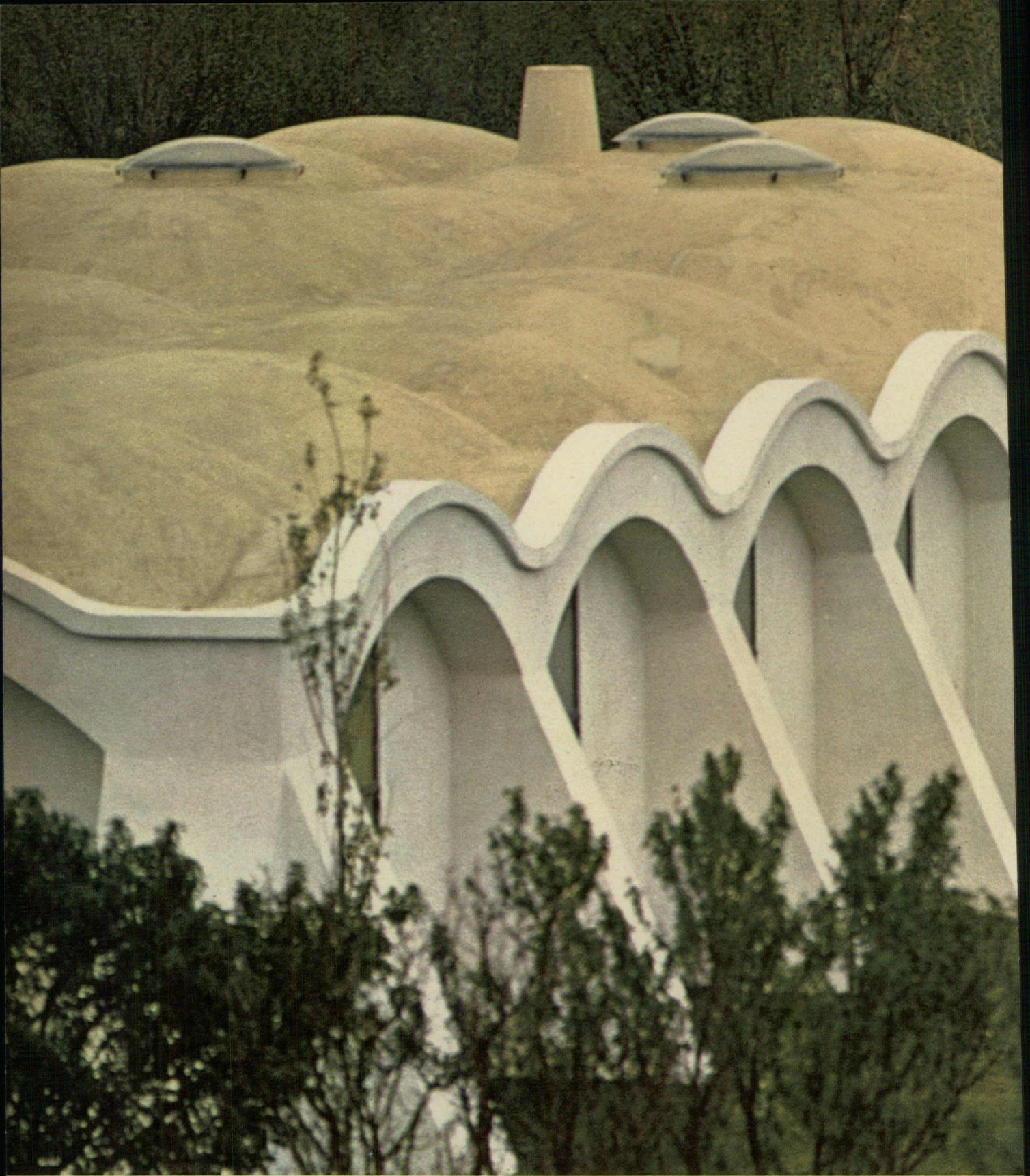


Barnes' Tabriz Consulate... a sophisticated statement of ribbon arches and domes

Lloyd Pearson photos



Tradition, which has been creeping back into architectural vocabularies under various guises for some time, has a handsome new representation in the United States Consulate for Tabriz, Iran.

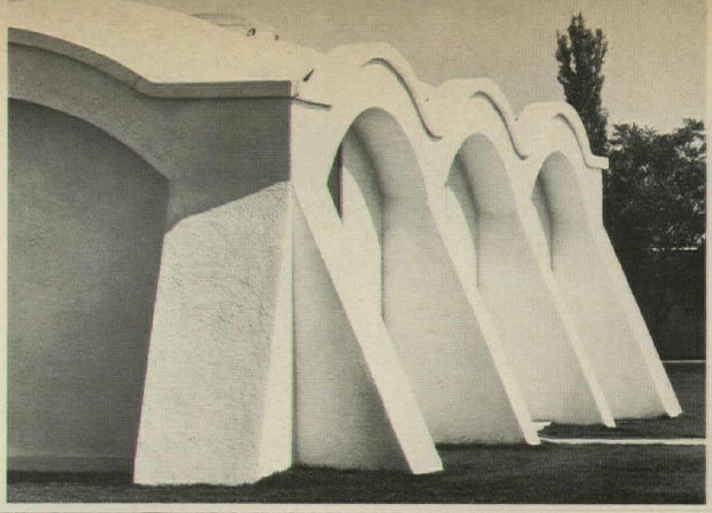
In his development of the design, Edward Larrabee Barnes has given reasoned sway to his theory of "continuity" in architecture—that "any single building is conditioned by what is around it, and by what came before". The conditioning, in this case, came from the native Iranian villages, with their mud-covered brick walls, domes, walled compounds and gardens.

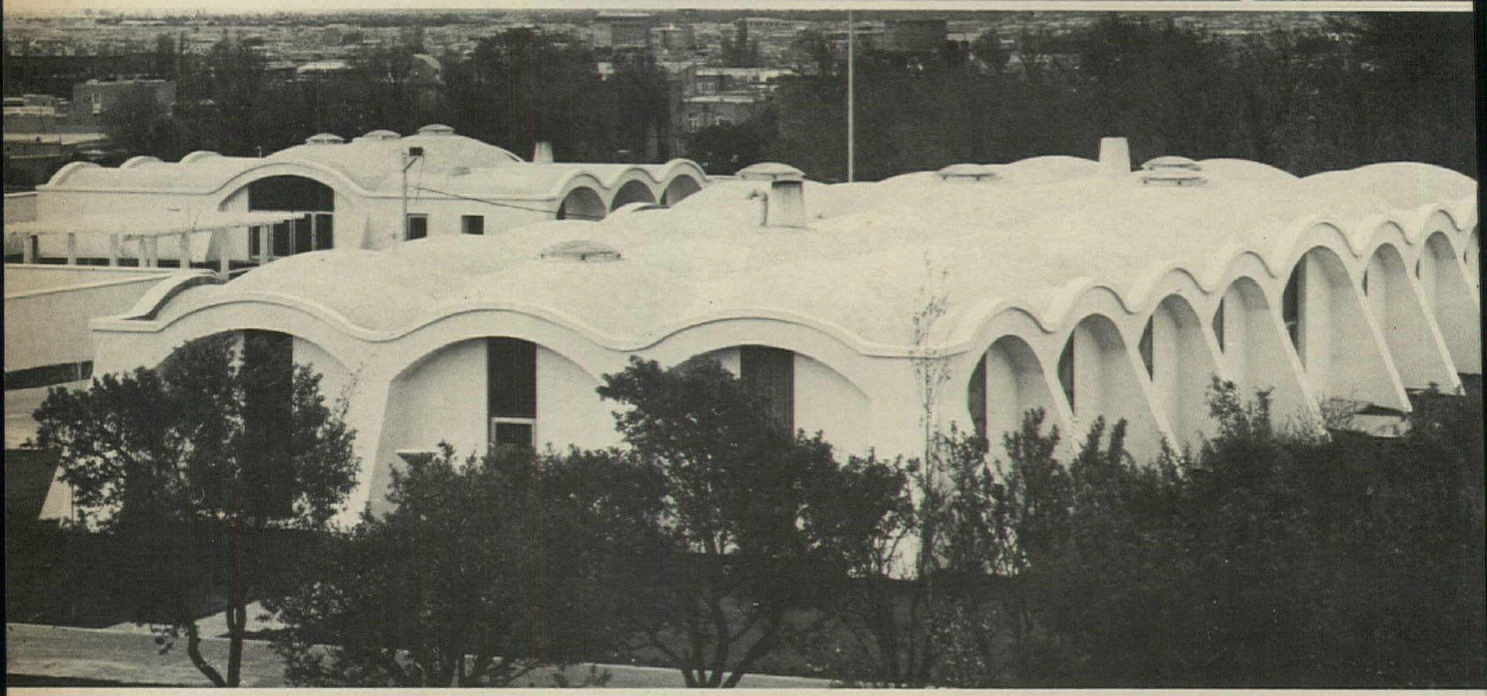
"In an advanced industrialized country such as the United States", Barnes has written, "the likelihood is that, if the architect resorts to primitive means of construction, such as solid masonry walls laid out by hand, or a mosaic floor, he is doing it for effect. Such effects have their place, but they are essentially decorative and peripheral to the main courses of architectural development . . . However, in backward countries, the architect who employs advanced techniques imported from industrialized countries may be forcing the impractical. Where labor is cheap, the work of human hands becomes a part of a matrix of an architecture reserved for special locations. In northern Iran, where there is still a strong use of brick vault construction, it seemed to me that the natural idiom for architecture would be just that—brick."

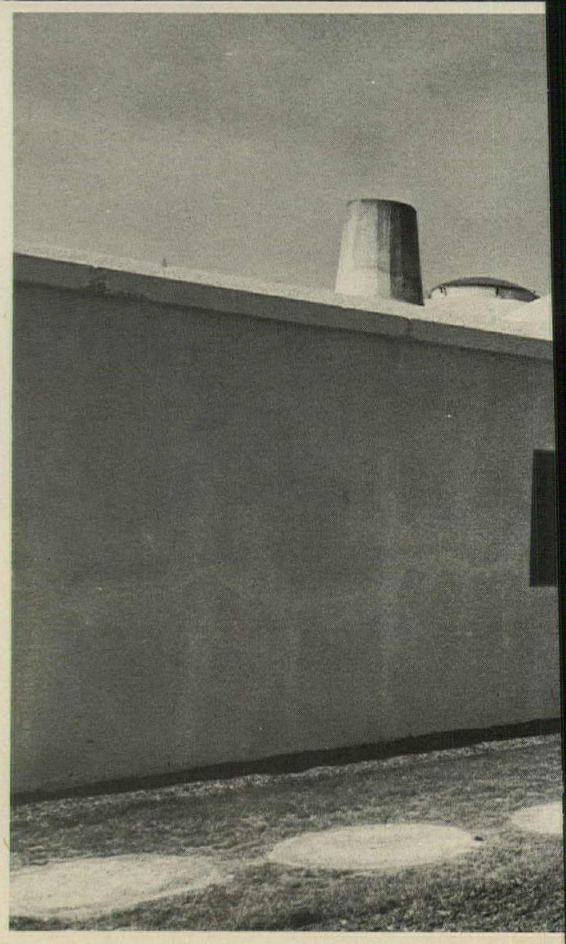
ARCHITECT: *Edward Larrabee Barnes*

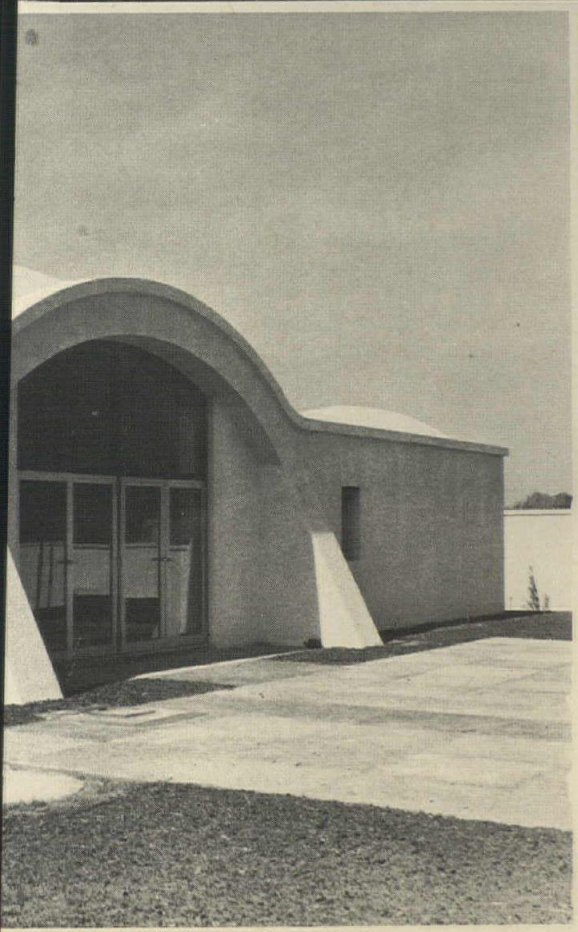
STRUCTURAL ENGINEERS: *Severud-Elstad-Krueger Associates*

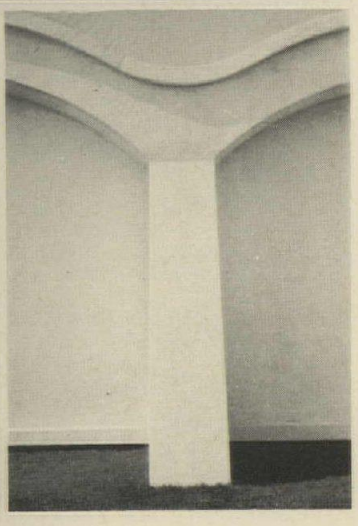
MECHANICAL ENGINEERS: *McGuiness and Duncan*









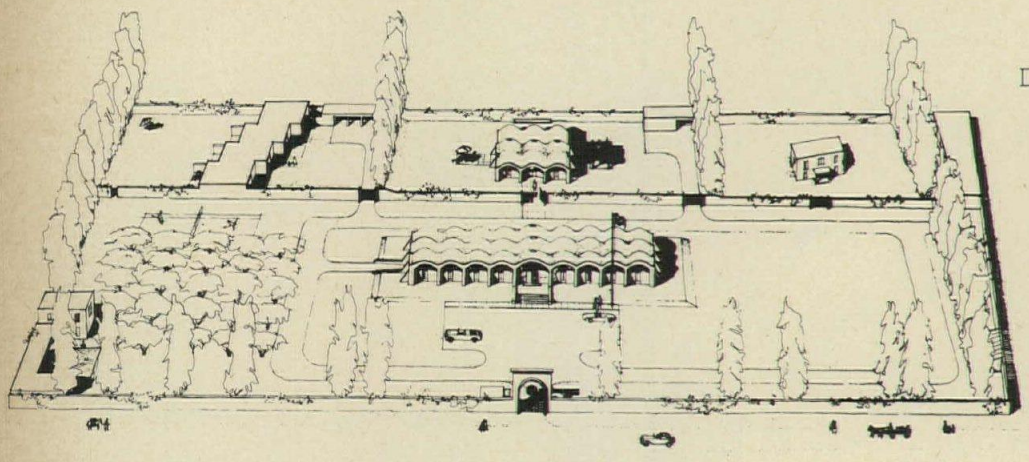


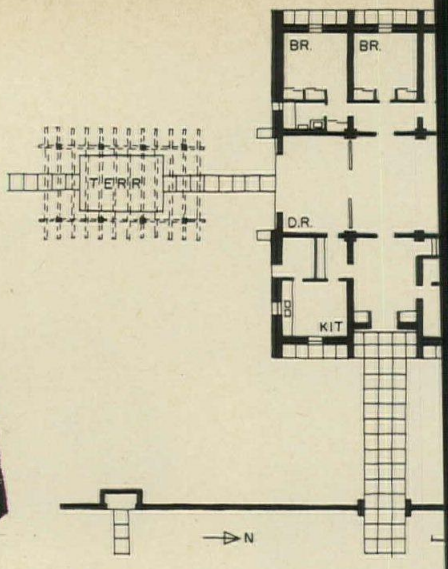
Revolt, in the sense of some degree of architectural assertiveness, is one quality which Barnes pits against that of architectural continuity. In this consulate, assertion is made by its color.

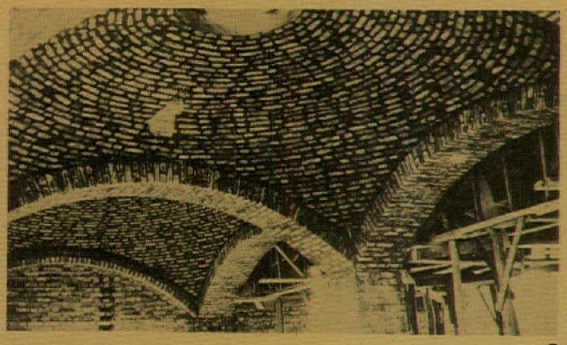
"For hundreds of miles around Tabriz," Barnes comments, "the little mud brick villages are self-sufficient and primitive. The soil is red-brown, so are the towns, and when the dust blows so are the people." In contrast to this ambience, Barnes has injected white-stuccoed, strong-shadowed and sculptural angularities which forcibly recall snapshots of the buildings on the Greek island of Mykonos.

The original brick walls of a farm and almond grove previously occupying the site have been retained, with an arched white gate leading into the compound of offices, consul's residence, and a few existing buildings which have also been retained. Staff apartments have been planned for later construction. Each of the buildings is given its own inner court by white walls and rows of poplar trees.

The structural shapes of the ribbon arches, barrel vaults, thin-shell domes and buttresses have been carefully studied and refined into a sophisticated, abstract sculpture, as can be clearly seen in the photos. The larger office building is a cascade of repeated domes, while the consul's residence (three detail photos this page) has three elliptical domes. abutting six barrel vaults.







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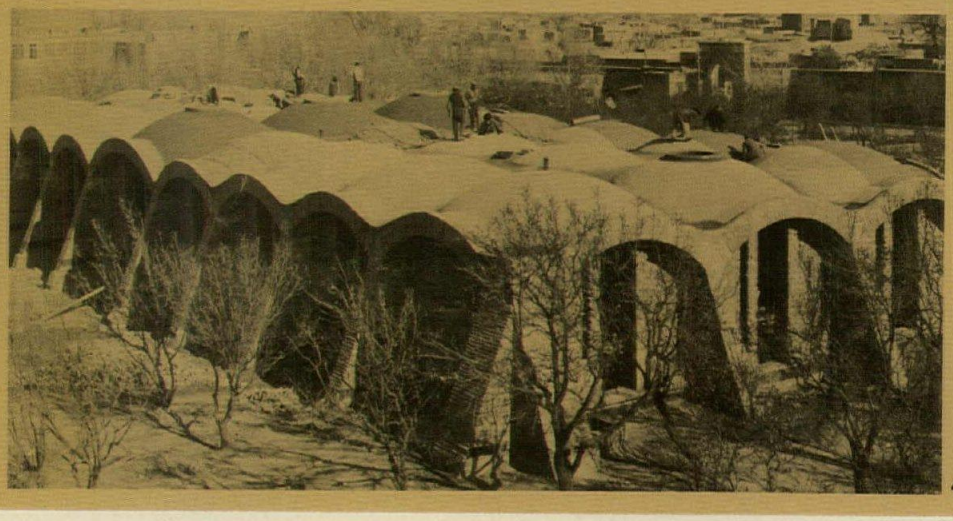

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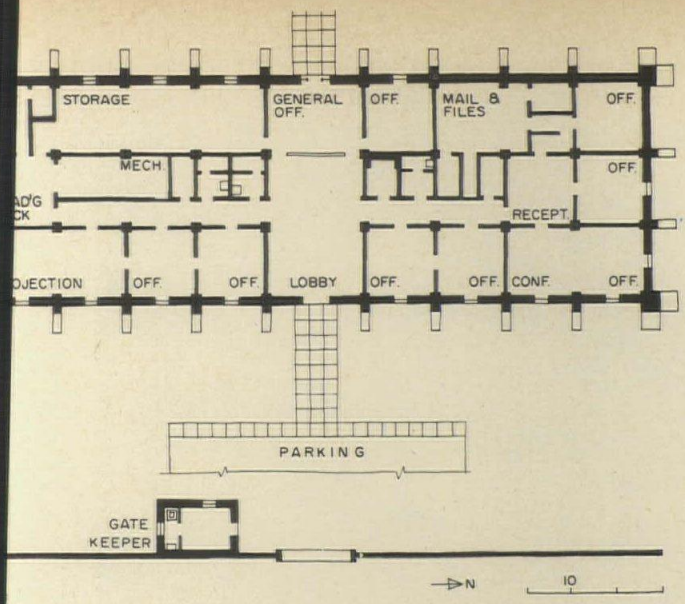


TABRIZ CONSULATE

Synthesis of age-old construction methods with contemporary engineering has been made in the buildings. "What luxury to find a fully-developed, highly-refined system of compression architecture, 2,000 years old, with craftsmen able to carry it out," Barnes has commented. "All we added to the local esthetics was, we hope, a sophistication and refinement not found in their architecture. Our buildings are disciplined for the engineering, it is true, and proportions and spaces are carefully considered. We took care of the earthquake problem by keeping buildings one-story and by adding an earthquake ring—a poured concrete beam around the periphery which binds it together. Our whole vocabulary consisted of the arch (and its extension, the barrel vault), the dome (which is essentially the intersection of two arches), and the elliptical dome (which is a logical next step)."

The progressive stages of the brick construction are seen in the tinted photos at left: the ribbon arches in place (1), addition of the domes (2), addition of the infilling walls (3), and topping the roof (4). The exteriors are all stuccoed, and the finished interiors are plastered. Both the office building and the consul's residence are somewhat formally planned with regular bays, and a dome or vault over each.

The only significant change from the original sketch (upper left) is the shifting of the residence from the central axis.

Timelessness is a possibly-not-unexpected quality achieved through Barnes' approach to the design of the Tabriz Consulate. Though it is decisively contemporary in its simplicity, strength and sophistication, there is an inherent romantic recall in the mere use of flowing curvilinear shapes. Such forms are in themselves a significant departure from Barnes' usual concern with the varied disposition of flat planes. However, he has developed them in much the same manner: use of a single material, adherence to and repetition of a single strong design idea.

In addition to reflecting the local village construction and scale, the flat compound and domes of the consulate also echo the terrain—a plain edged with rounded mountains near the Russian border.

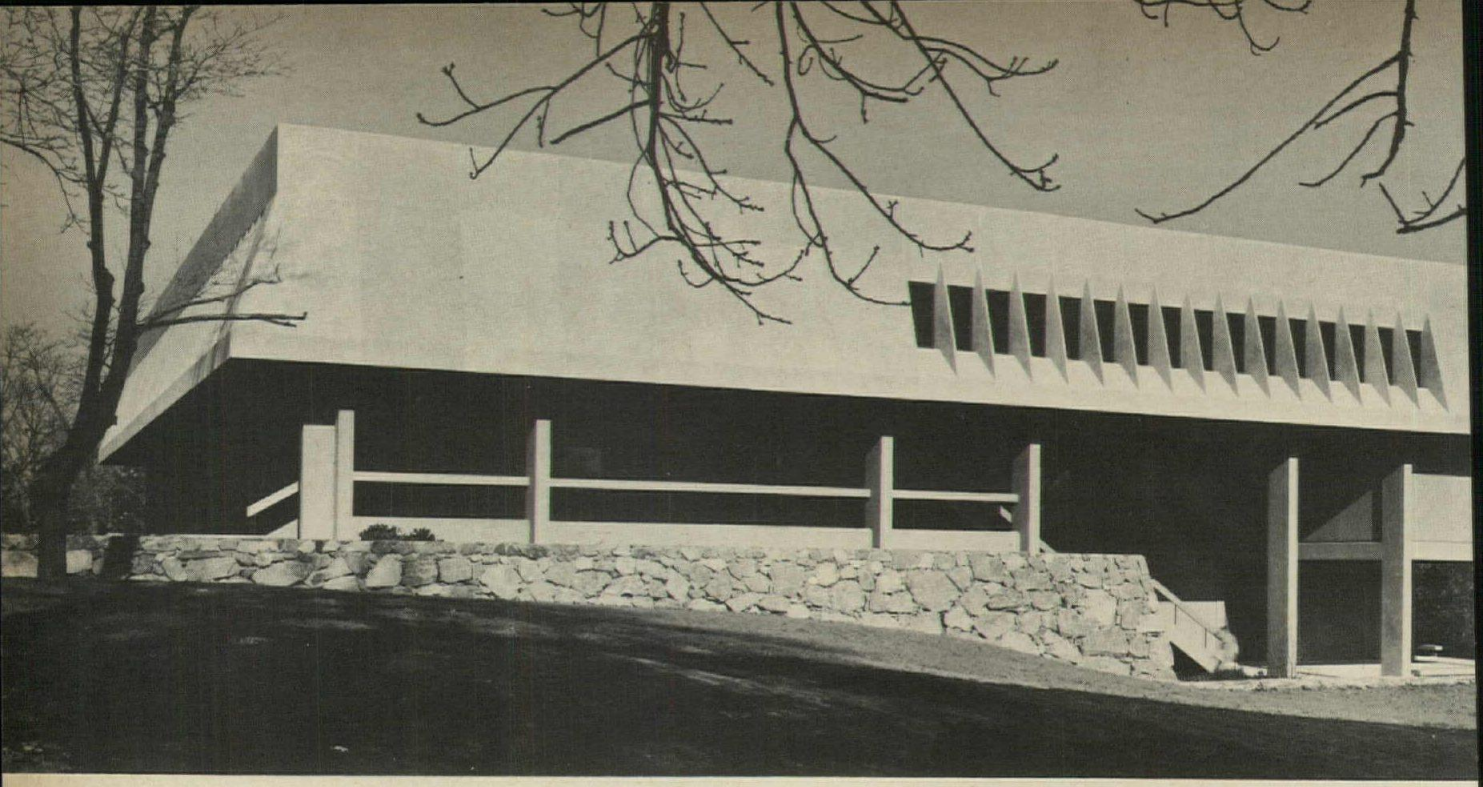
Phokion Karas photos

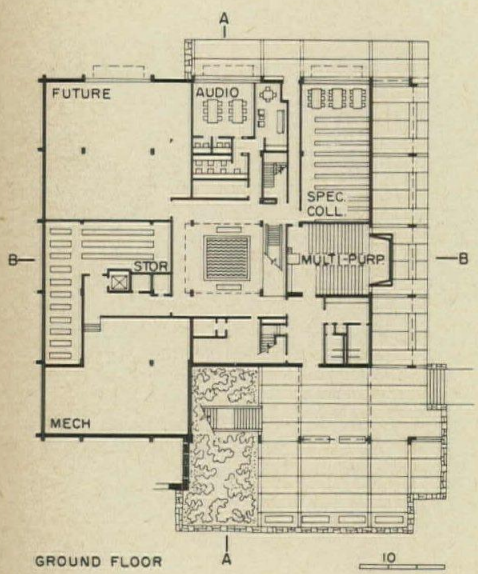
A seminary library sets a high architectural standard for the archdiocese of Boston

■ St. John's Seminary's new library in Boston's Brighton district occupies a wooded rise within sight of the large and imposing official residence of Richard Cardinal Cushing, located just within the border of the St. John's Seminary campus. Because the new library was to be constructed in the Cardinal's back yard, so to speak, the religious institution's directors and the Cardinal himself were eager to build a distinguished work of architecture. In addition, function as well as proximity seemed to justify major architectural effort, since the library was planned not only as a facility for the college, but also as a resource center for the entire archdiocese, the many pastors and curates, and 17 small missionary seminaries in the greater Boston area.

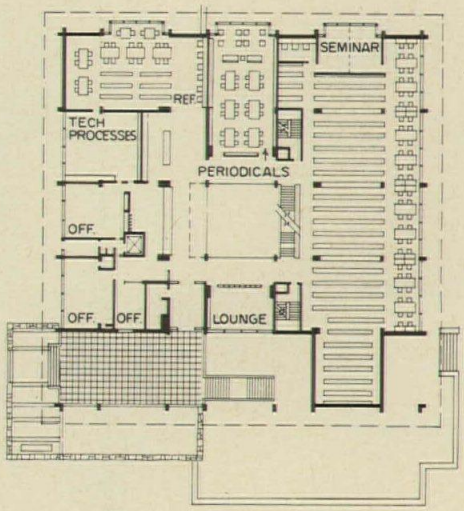
Architects Paul J. Carroll and Sanford R. Greenfield have produced an essentially symmetrical building of poured-in-place and precast concrete constructed upon a strict module established by the spacing of book stacks. Within this rigid discipline they have achieved a strong basic shape, excellent interior spaces and a well-integrated mechanical and electrical system.

The seminary's administrators, intrigued and pleased by their interesting and good new building, have recently improved their curriculum by the addition of a well-attended course in architectural design.

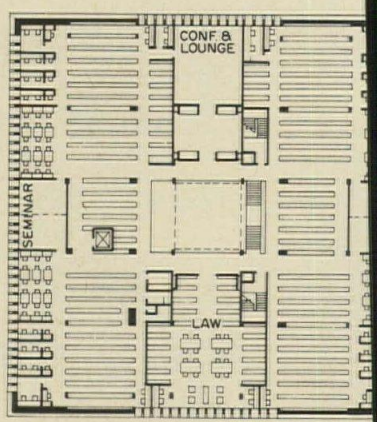




GROUND FLOOR



FIRST FLOOR



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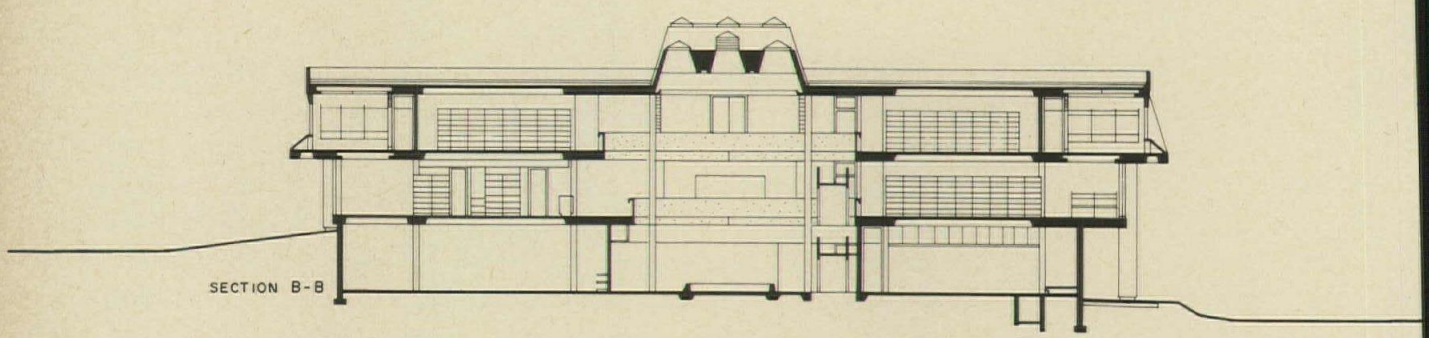
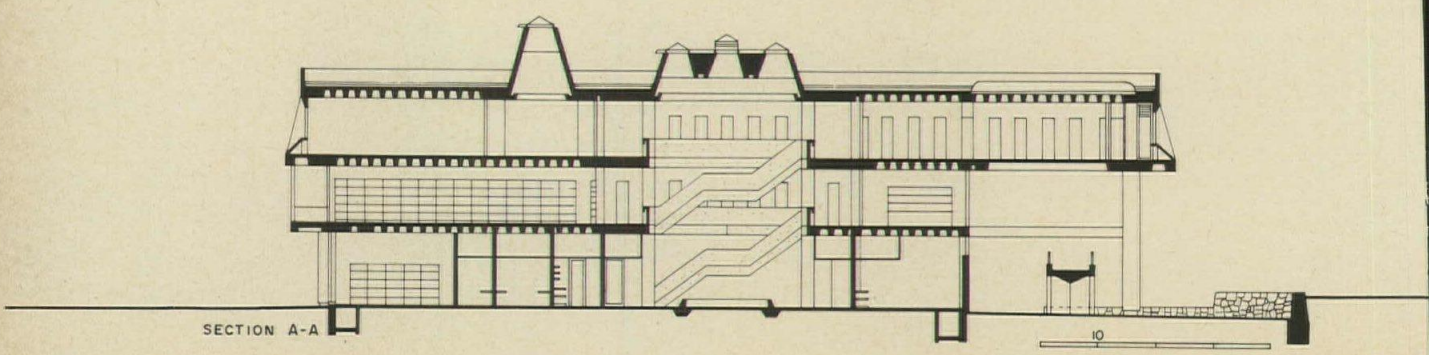
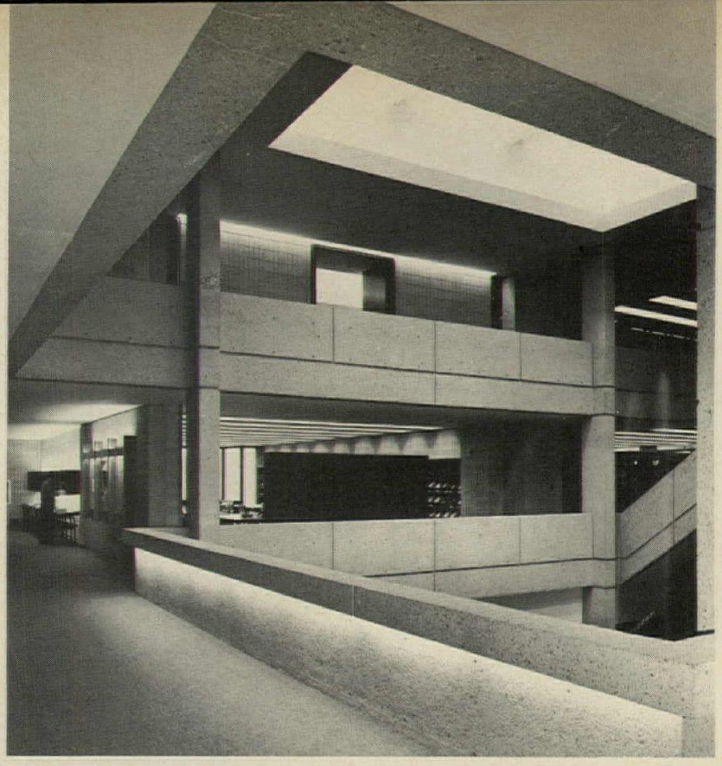


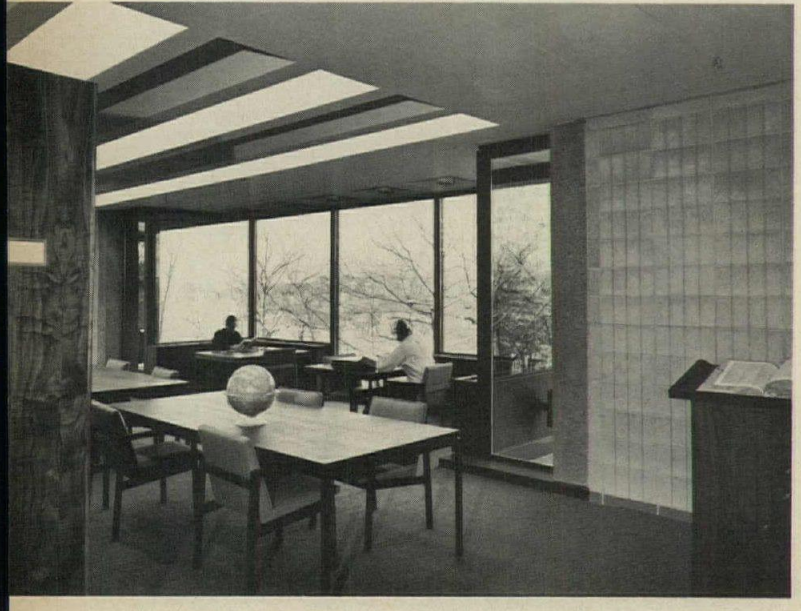


basic structural system for
book stack areas, as shown
e plans and sections at left,
sts of one-way ribbed slabs
nforced concrete spanning
ot by 27-foot bays. The ribs
7 inches on center to cor-
nd with stack spacing and
inches wide. The voids left
e pans are 20 inches wide
16 inches deep. Every other
is equipped with a fluores-
troffer, and becomes a re-
or casting light upon the
shelves and the aisles be-
n them. Corridor and auxil-
spaces are located within a
ot-6-inch by 27-foot column
ule. Perimeter bays of the
nd floor are punctuated at
projecting outside edges by
ntinuous band of 30-inch- by
nch- by 12-inch-deep domes.
e form a very handsome sof-
s can be seen in the photo-
h at the right. Fan coil units
pipes are located within the
gular space at this cornice
e as shown in the section.
h air intakes and ducts for the
coil units are located in a con-
ous joint at the perimeter.

e ratio of reader space to vol-
es in open stacks is relatively
as called for by the program,
ich accounts for the absence of
ge reading areas and the rela-
ely high percentage of small
dy carrels. The central well
ilitates visual control of all
ee floors from the main desk.



Central skylighted wells of the type shown at the right are not permitted by the technologically outdated building codes still in force in Boston. The Boston Building Commission, after a formal appeal, made their first major exception for this three-story vertical space.



Interior spaces are well lit, as in the periodical room shown above. Broad expanses of glass shaded by deep overhangs and surrounding trees bring a generous amount of daylight to reading areas, technical and office space, and stacks. Adjacent to the periodical room is a reference area, shown at left.

LIBRARY FOR ST. JOHN'S SEMINARY, Boston, Massachusetts. Architects *Carroll and Greenfield;* structural engineers: *Souza and True;* mechanical engineers: *Fitzmeyer and Tocci;* electrical engineers: *Harman Associates;* landscape architect: *Homer K. Dodge;* materials technologist: *Herman Protze;* library planning consultant: *Philip McNiff;* general contractor: *Monahan Corporation.*

Bill Maris photo

HOUSE AND SITE INTEGRATED BY SENSITIVE DESIGN, METICULOUS DETAILING

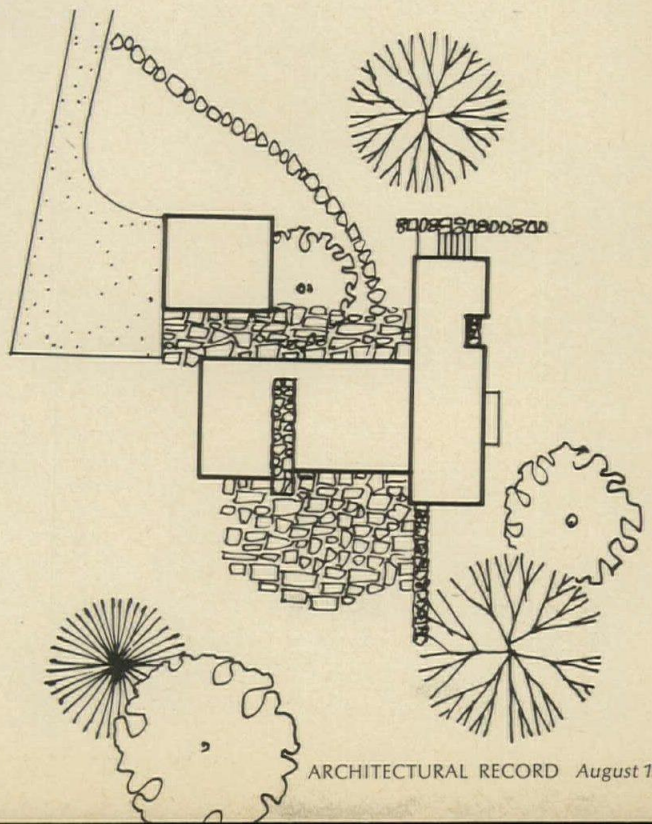
The pleasant informality of this house—so well attuned to its wooded site—is in fact the result of considerable design sophistication shown most clearly in the straightforward plan, the carefully balanced exterior massing, and the meticulous detailing.

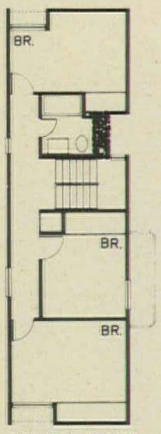
The plan, a simple though unusual one, provides excellent zoning by placing the master bedroom on the ground floor separated by the living pavilion from the two-story guest, children's and service wing at the other end of the house. The master bedroom is itself separated from the living area by a dominant rubble-stone fireplace wall. In addition to the wall's importance inside, its height and mass balance the two-story bedroom wing outside.

The architect has accomplished an easy and natural relationship between the house and the outdoors through the use of glass walls that give direct access to the garden and visual continuity of indoor and outdoor spaces.

Exteriors are of vertical cypress siding—stained dark grey—to blend quietly and effectively with the surrounding woodlands.

RESIDENCE for Mr. and Mrs. Michael Costello, Kings Point, New York. Architect: *George Nemeny*—associates: *Richard Henderson, Debora Reiser;* engineers: *Edward Klausner;* contractor: *William Whaley.*





SECOND FLOOR

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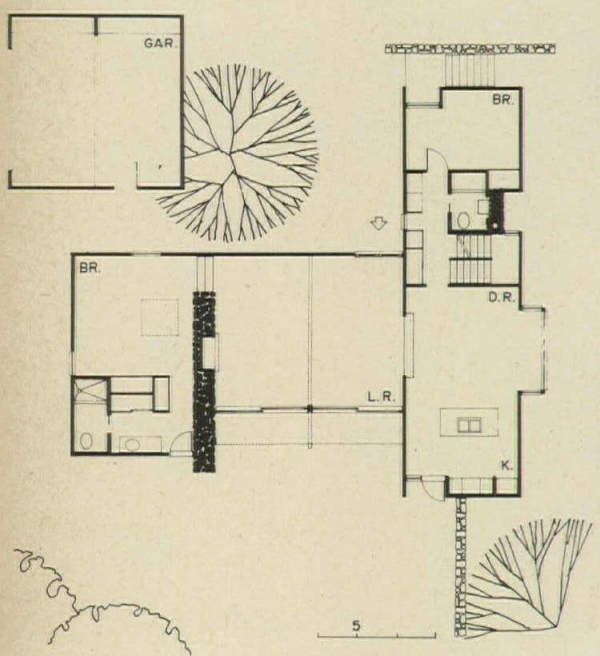
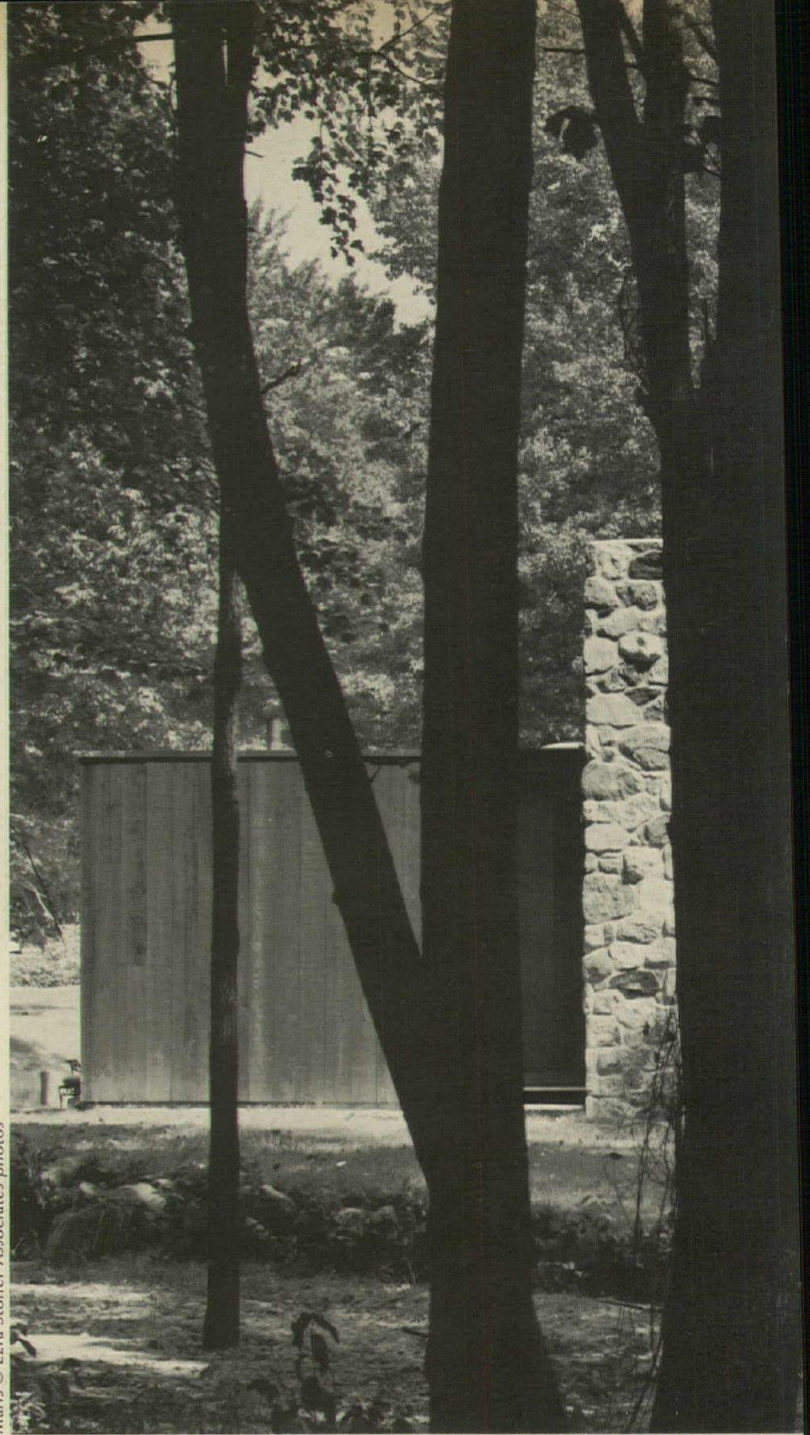


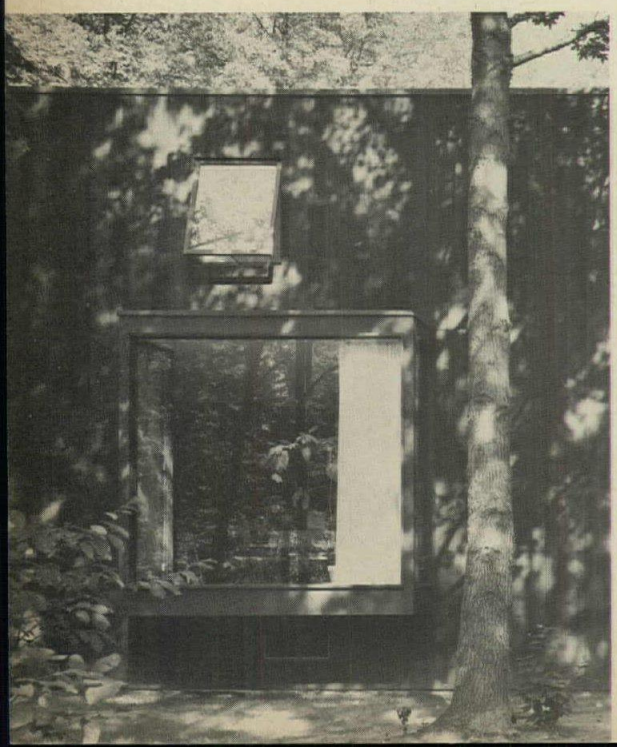


Maris © Ezra Stoller Associates photos

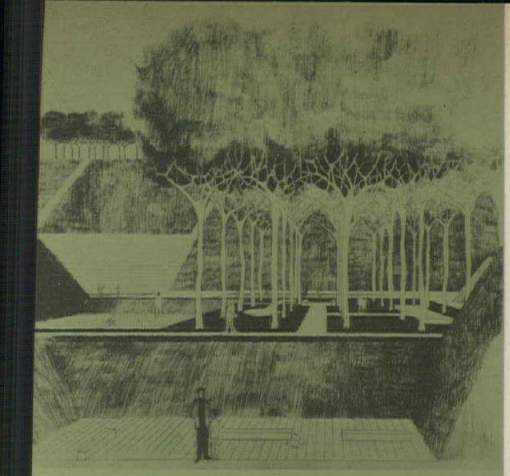
Natural stone retaining and fireplace walls contrast effectively with the wood and glass and give an added strength and sense of permanence to the structure. The living room gains considerable character by having one wall of stone, the strength of which is to some extent balanced by the exposed ceiling beams and some well-designed, but fairly solid modern furniture. The structure of the house is wood frame on concrete foundation with stained cypress walls and a built-up roof. Cypress is also used extensively on interior partitions. Other interior materials include: white plaster ceilings, blue stone floors in the living areas and ceramic tile in the bathrooms. Construction cost—exclusive of lot, landscaping and furniture—was about $60,000.

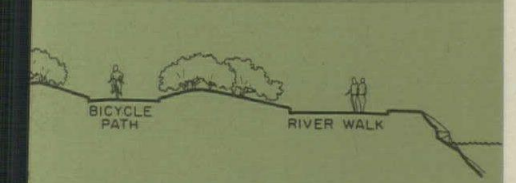
Bill Maris photo

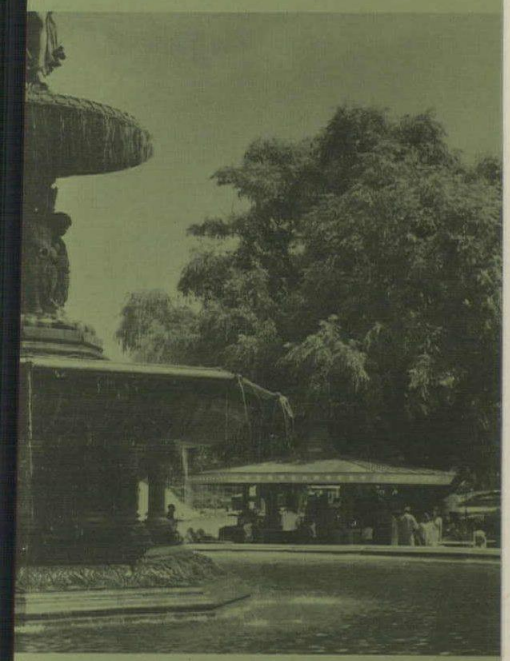
Maris © Ezra Stoller Associates photos

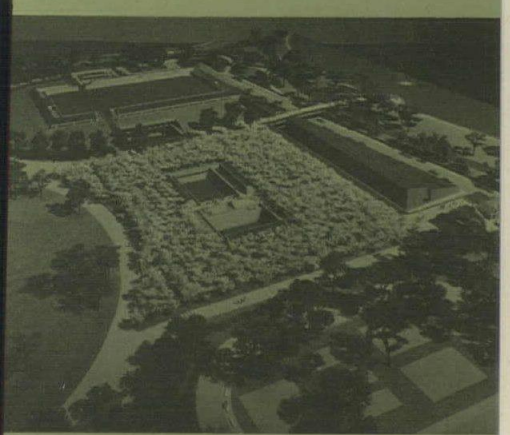


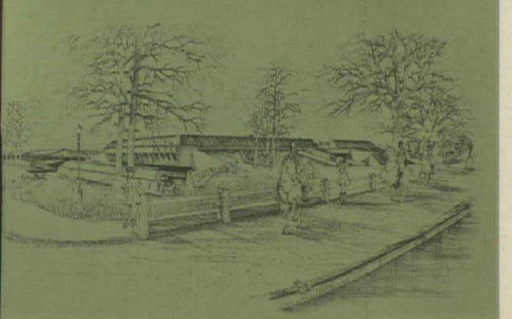
Well-planned and well-executed details are an important factor in the success of any building, but perhaps particularly so in a house of this kind, where so much reliance is placed on restrained, uncluttered form and the textural effect of natural materials. Fenestration is especially important in this context and if mishandled can considerably detract from the over-all design. In the Costello house, although there is considerable variation of window treatment, the placing, detailing and careful juxtaposition of sizes, and of projected and recessed glazing gives vitality to the elevations without in any way destroying the unity of the total scheme. The same care and attention to detail can be seen throughout the interior.











RECREATION:

a chance for innovative urban design

More people, more free time, more people with free time—and a mounting need for recreation within the boundaries of the places where people are, the already crowded cities. Solving such a problem takes imagination and vision, and one city—perhaps the least likely, New York—is setting the pace for the country in using both imagination and vision to provide a program of recreation activities and facilities for the creative use of leisure.

The key to New York's innovative program is its insistence that only the best design is acceptable for its program. With the goal of making the city a more pleasant place to live, it should do no less. The Department of Parks' recognition that design is its most potent tool for effecting quality is a giant step toward achieving its goal.

Clearly (see following pages) architects and allied designers have the talent to share the challenge and the responsibility.

—Elisabeth Kendall Thompson

From top to bottom:
Rochdale Village Park, Queens.
Architect: Richard Stein.
River Walk, Hudson River Parkway, Manhattan.
Landscape architects: Zion & Breen.
Fountain Cafe, Central Park, Manhattan.
Architect: James Lamantia.
Riding Stables and Police Precinct Station,
Central Park, Manhattan.
Architects: Kelly & Gruzen.

OPEN SPACE DESIGN: NEW YORK SHOWS HOW IN ITS PARK PROGRAM

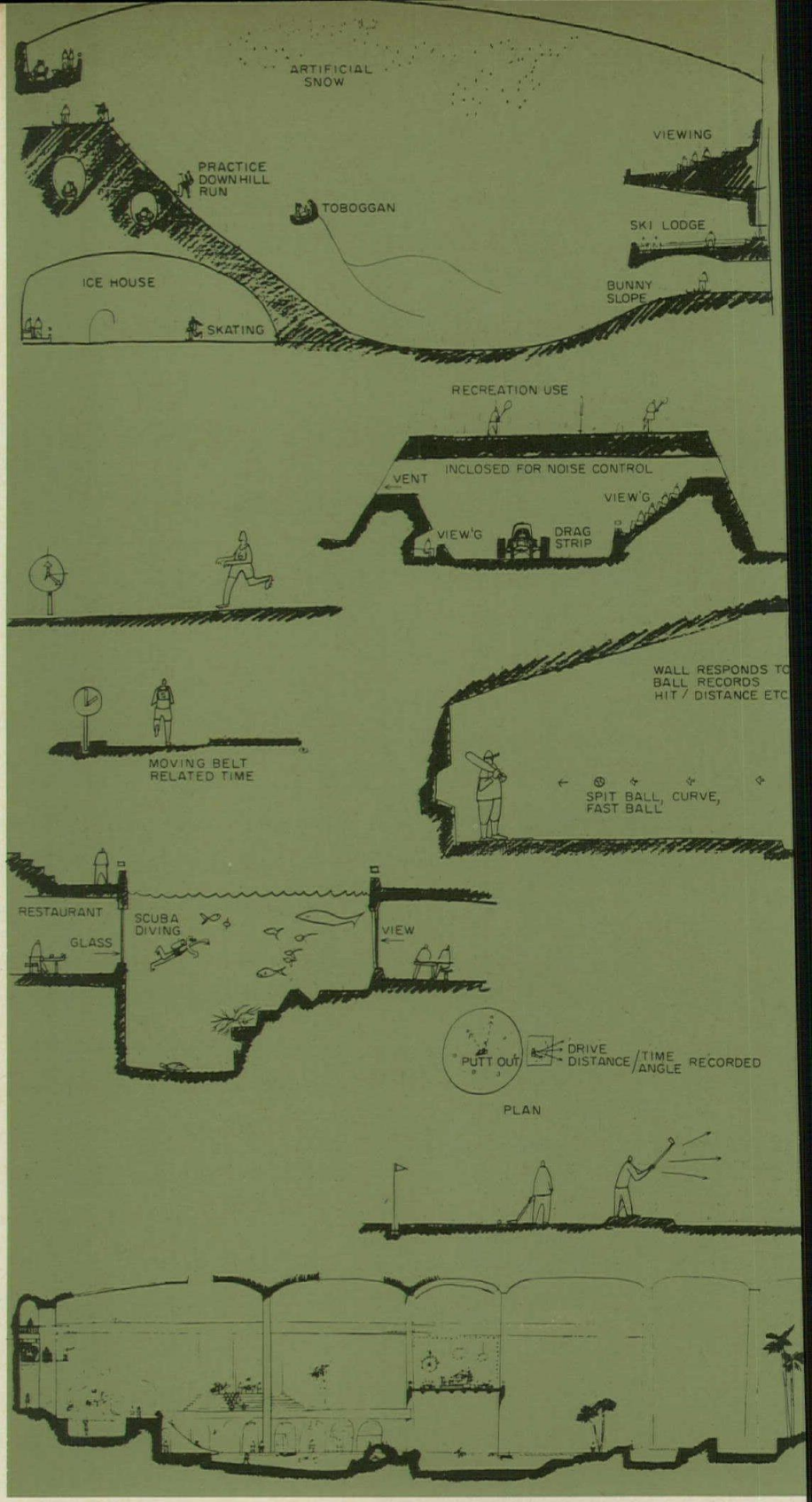
By Arthur Rosenblatt, A.I.A.
First Deputy Administrator
Recreation and Cultural Affairs Administration
Department of Parks, New York City

Among the assets of urban living for which New York City is noted, mention is seldom if ever made of the city's open spaces and recreational opportunities. And for good reason. In amount and quality of open space and recreational facilities, New York is and has been—like so many cities—for a long time notably deficient.

But New York has begun to make up for its apathy, and its beginning is more than just modest, even though the accomplishment still falls short of the need. The problem of overcoming the many years of marking time is not easy, interwoven with politics and personalities, the changing economic mix in our cities and stagnation of urban facilities.

What can a city do in the face of such obvious need for breathing spaces, particularly in the most crowded lower-income neighborhoods? What can it hope to do without the most creative analysis of the problems and the most creative search for solutions? What can it hope to do without calling upon the best talents of the best designers for the maximum (and most innovative) contribution they can make? But how often does "the art of the possible" become the limit of the policy-maker's horizon?

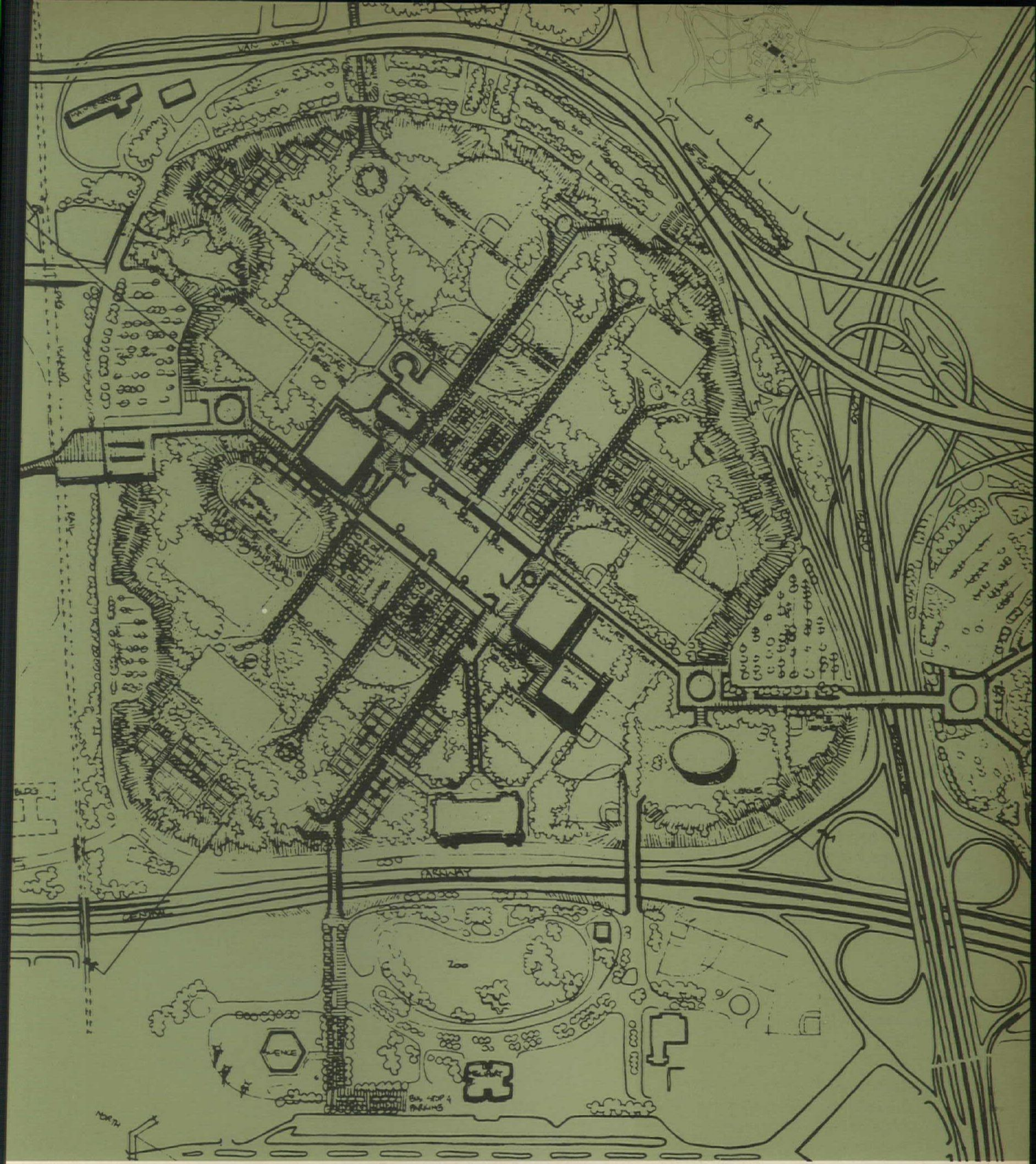
The history of New York City's Department of Parks from 1934 to 1965 is one of decreasing attention to open space and recreational needs. Although Robert Moses, commissioner of parks from 1934 to 1959, was responsible in the early years of his administration for some of the Parks Department's proudest accomplishments, in the later years his incredible civic energies seemed to be focused in other directions. First arterial highways, then a World's Fair, distracted his attention from a primary concern for parks and playgrounds, and from



To meet new urban problems: a new kind of urban park with an "endless variety of activities"

CORONA-FLUSHING MEADOWS SPORTS PARK, Borough of Queens, New York. Phase I, site planning and programing: *Lawrence Halprin & Associates;* architectural consultants: *Marcel Breuer & Associates, Kenzo Tange and Urtec.* Phase II; architects: *Marcel Breuer and Associates* (indoor arena, swim-bath complex, court buildings), *Kenzo Tange and Urtec* (recreation and performing arts complex); site planners and landscape architects: *Lawrence Halprin & Associates.*

Corona-Flushing Meadows Sp Park—programed by Lawre Halprin & Associates with ar tect/consultants Marcel Bre and Kenzo Tange-Urtec—will a new kind of urban park, signed to meet the needs of p ple with more free time, and m discretionary time. It is to b park with something for nea everyone to do, a park in the r of providing not one passive tivity (in the old rus in urbe w but a multitude of activities of kinds, recreational and cultu



ive and passive, for participant
l for spectator, an "endless
iety of activities." These will in-
de outdoor playing fields of all
ds, indoor courts, tracks, ski
l toboggan runs, ingenious de-
es for improving one's game
etches, left); swimming and
thing in a romantic, spa-like en-
onment, where statuary, plants,
e music (from platforms sus-
nded over the pools and baths)
ould recall San Francisco's fa-
ed Sutro Baths; and cultural ac-
ities such as arts and crafts, amateur orchestra and choral singing, dancing and dramatic arts. There is ample room for all this on the site, where two World's Fairs have taken place. The site plan skillfully deals with the problems of the site, diking some of the areas which periodically flood (this is an old flood plain and a river bed) with the sculptured land forms which are an important visual element in the over-all design. It turns the park inward, away from its mediocre surroundings, to make its own environment, and to minimize some of the noise from the various transit ways all around it. It creates a great open court—between the recreation-performing arts complex and the indoor arena swim-bath complex—which will be the meeting place, the place for events, the focal point of the park, and a central point for internal circulation. Some 100,000 persons at a time will use the park, 38,000 in specific activities, the others walking around its 1,257.6 acres, sitting or picnicking.

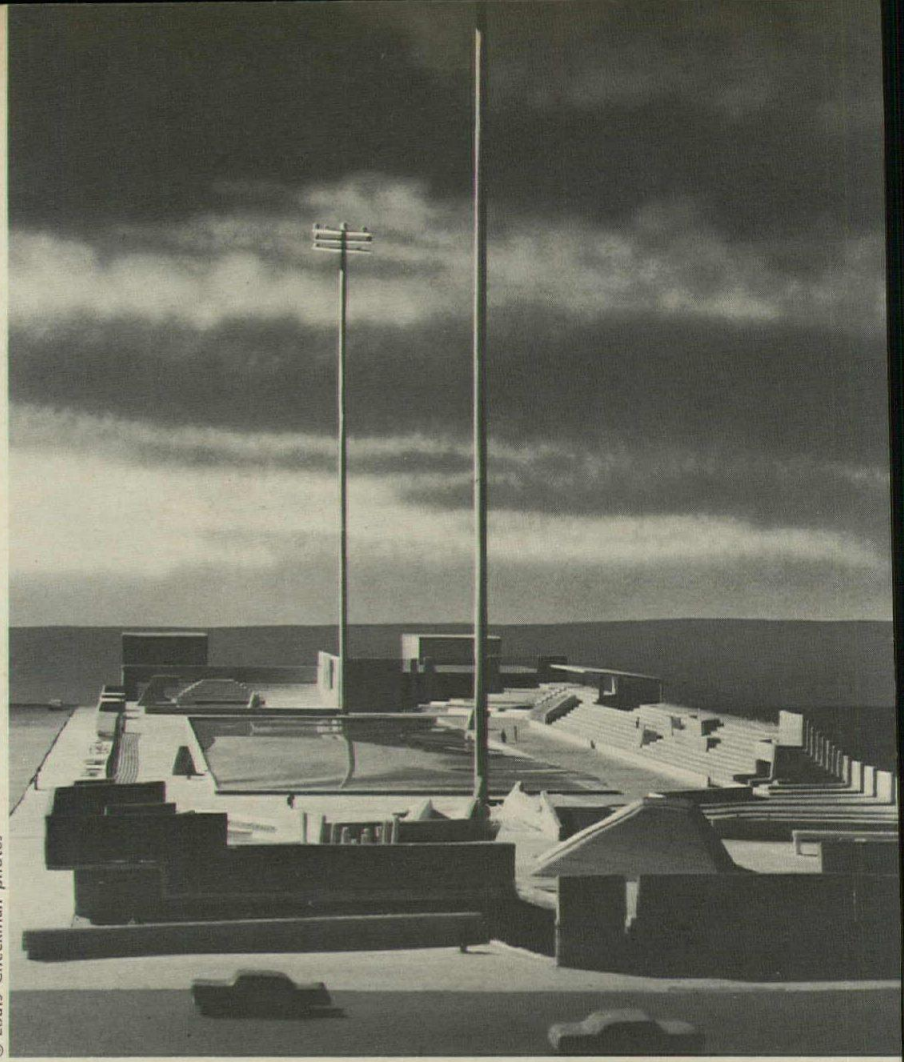
his early insistence on excellence of design, for which he had used the talent of some of the liveliest and ablest young designers of that day. In his new interest in parkways and fairs, Mr. Moses left the design of parks and playgrounds to parkway engineers whose true dedication was (not unnaturally) to parkways rather than to urban parks. The Parks Commissioner became a conservator rather than an innovator; and after the late Newbold Morris succeeded Mr. Moses in 1959, Mr. Morris continued in that role.

But the election of Mayor John V. Lindsay in late 1965, and his stated objective of making New York City "a city for people and for living," resulted in, among many other actions, a White Paper on parks and recreation—written by Thomas P. F. Hoving—scholar, art historian and at that time curator of The Cloisters, the Metropolitan Museum of Art's unique medieval department. The White Paper called for sweeping reform of the parks and a renewed pleasure in their use: and their use by *all* the people.

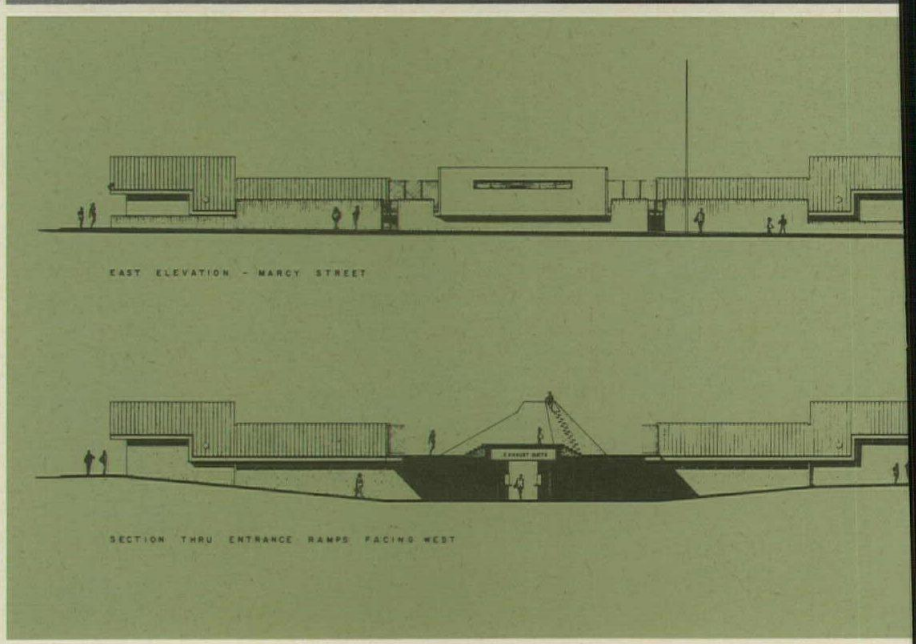
In Mr. Hoving's 14-month tenure as commissioner everything about the park department underwent change. As a beginning, he initiated a program to fill the parks at night—through a series of events and "happenings" designed to draw the people back into the parks they had been afraid to use, and to prove that, by their very presence and continuing use, the parks *could* be both safe and pleasant.

Design excellence: tool for the new purposes

To implement his program of making the Department of Parks the leader, not only in recreation and culture, but in architectural quality as well, Mr. Hoving's reforms were both internal and external. Internally, he instituted (with private funds because city funds were not available for such a policy-level position) the office of design consultant, which he asked me to fill. The position subsequently became that of director of design, and when Mr. Hoving left in March of 1967 to become director of the Metropolitan Museum of Art, and August Hecksher became administrator of



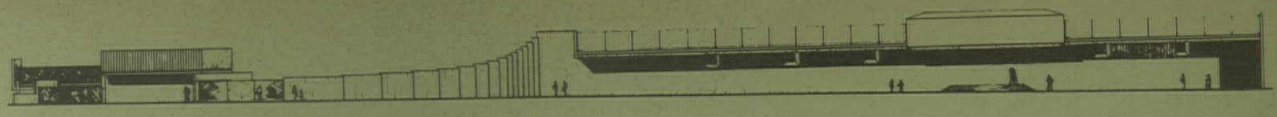
© Louis Checkman photos



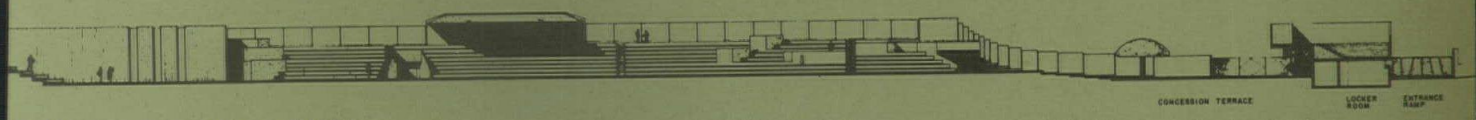
An exuberant outdoor center to give vitality and identity to a city neighborhood

MUNICIPAL SWIMMING POOL, BATHHOUSE-RECREATION COMPLEX, Bedford-Stuyvesant, Brooklyn, New York. Architect: *Morris Lapidus Associates—Morris Lapidus, Alan H. Lapidus, John Bowstead, designers;* structural engineer: *Ralph Dell'Abate;* mechanical engineers: *Herman Scherr Associates;* lighting consultant: *Abe Feder.*

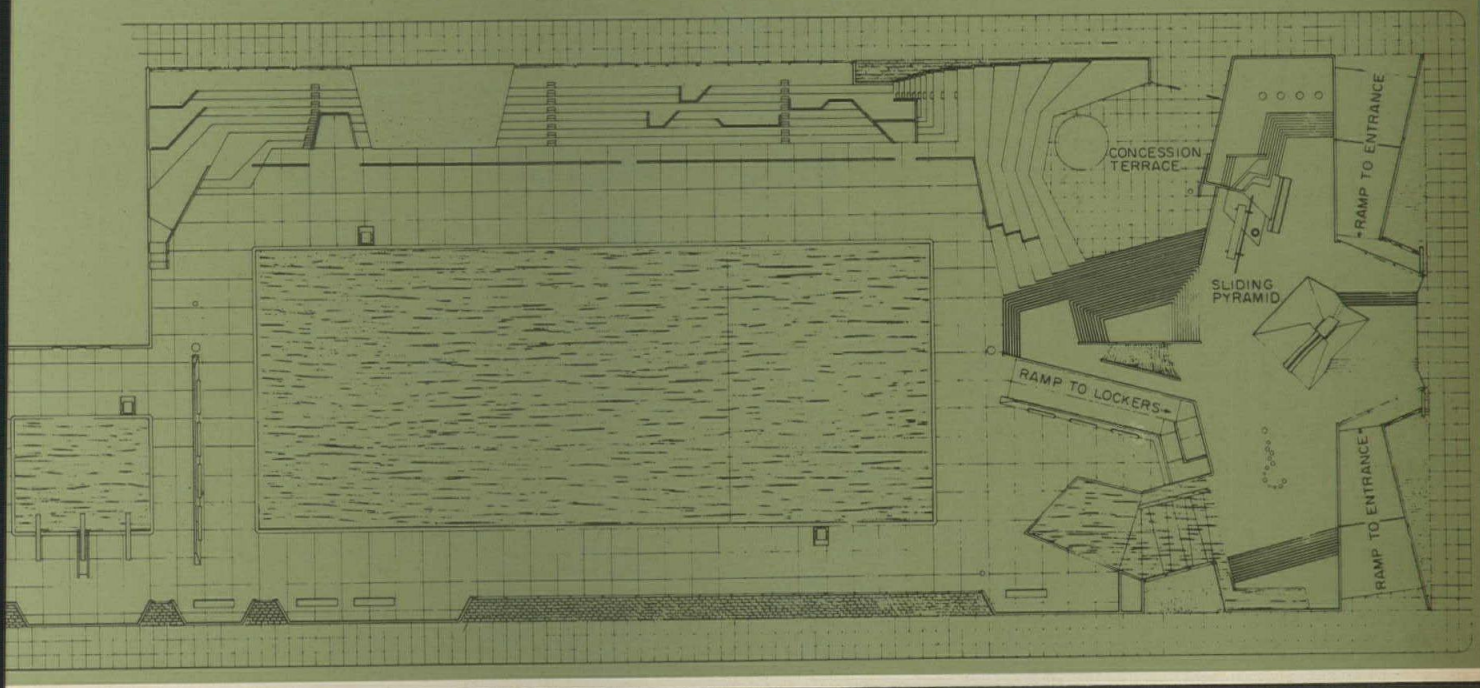
This outdoor recreation center, with its competition-sized pool, looks not only handsome but lively—and can act as strong focal point for the crowded Bedford-Stuyvesant neighborhood in Brooklyn. The bathhouse is half a level below grade to permit use of its roof for a children's playground, where exhaust fan housings are designed as pyramid slides and vent stacks as climbing poles. The line of the exterior walls is varied—voids and solids alternate—to invite participation.

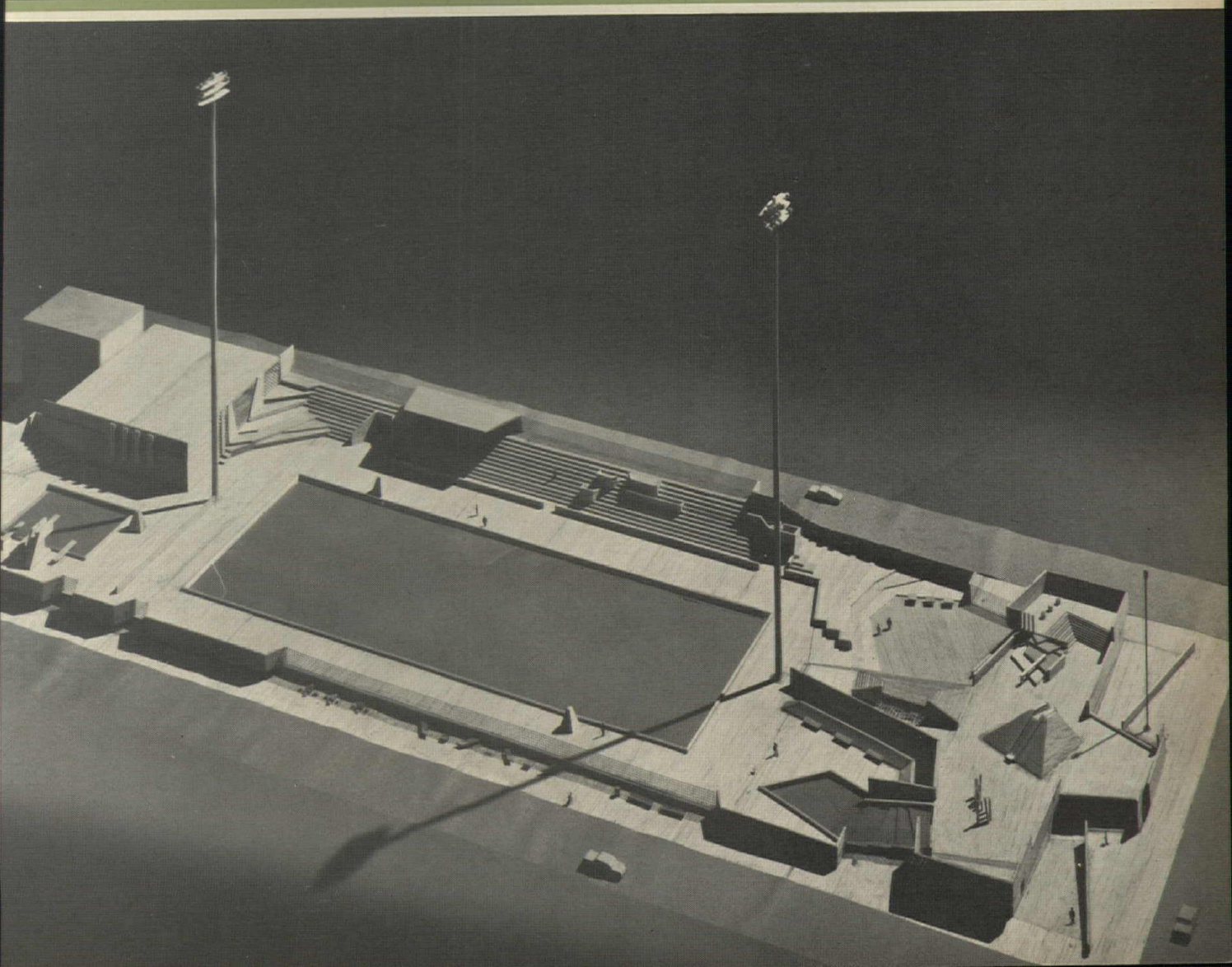


NORTH ELEVATION - DEKALB AVENUE



EACHER ELEVATION - FACING NORTH



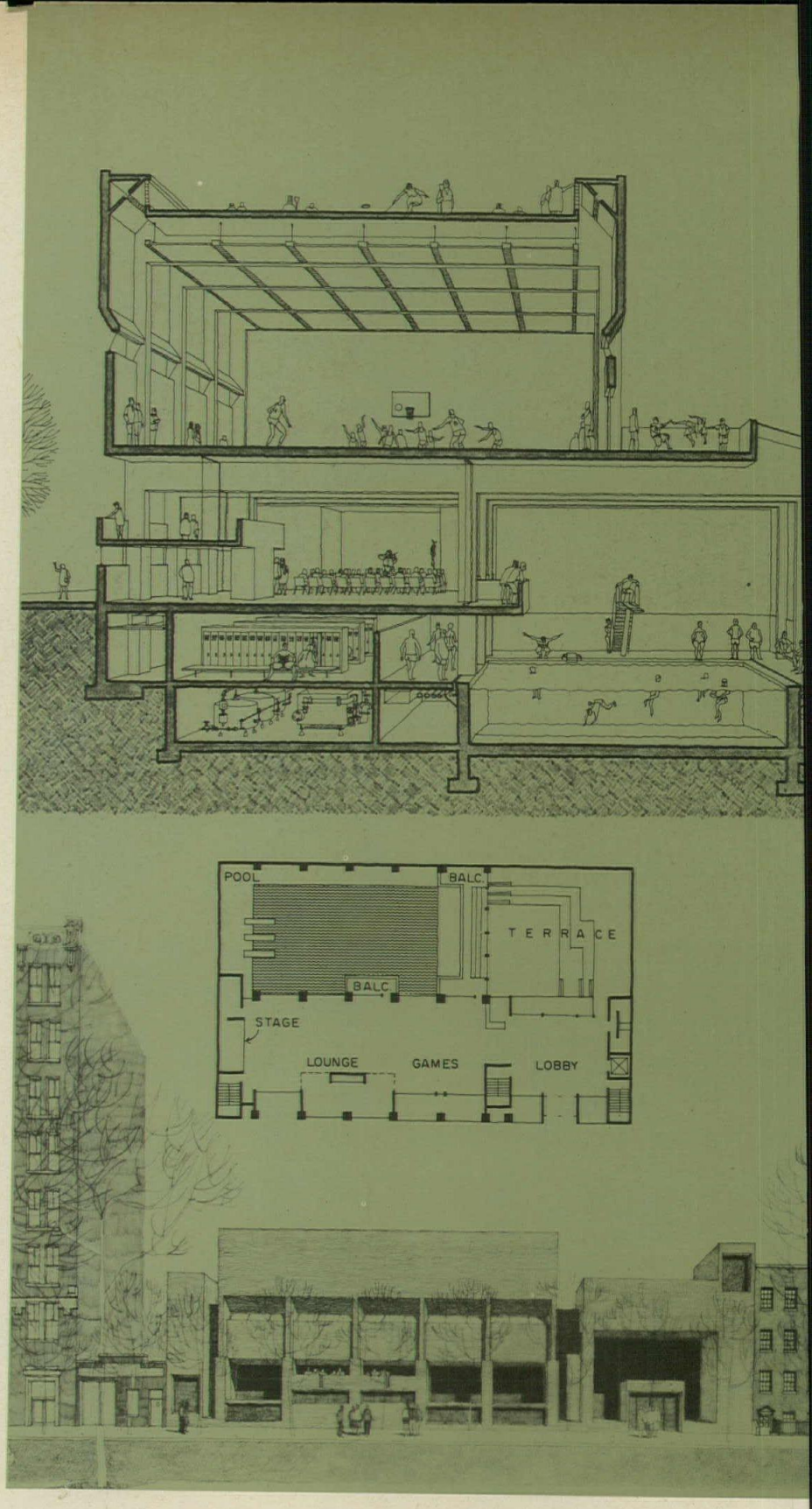


recreation and cultural affairs, I was named first deputy administrator.

Externally, this program sought the finest design talent anywhere to carry out its proposed developments. But wanting this kind of talent and actually enlisting it to do work were two different things, given the past history of the Department of Parks and the cynicism generated by the old era. But the imagination and flair of the Hoving program, the dynamic personality of the commissioner himself and some of the immediate results of his appointment—the happenings, the events in the parks and the people's response—caught the attention of the professionals. Among the architects and landscape architects who answered our call and who are now doing or have done work for the Department are Paul Rudolph, Marcel Breuer, Felix Candela, Edward Larrabee Barnes, Kenzo Tange, John Carl Warnecke & Associates, Davis, Brody and Associates, Conklin and Rossant, Ulrich Franzen, Lawrence Halprin and Associates, Philip Johnson, Hoberman and Wasserman, Paul Friedberg and Associates, Richard Stein. Less well known, younger architects and landscape architects also have been engaged: Richard Dattner, Norman Jaffe, Albert Barash, Robert Malkin, Rolf Myller.

To get the participation of such firms, the Department's existing fee schedule, out of line even with other city agencies, had to be re-evaluated and up-dated. The new schedule, with consultant's fees on a par with those of other departments, recognizes the variety of recreation facilities and of the services required for them, and provides separate fee curves for innovative playgrounds, for instance, and for large structures such as swimming pools, recreation buildings, restoration of historic monuments, and so forth. We are now reviewing these new schedules for further improvement.

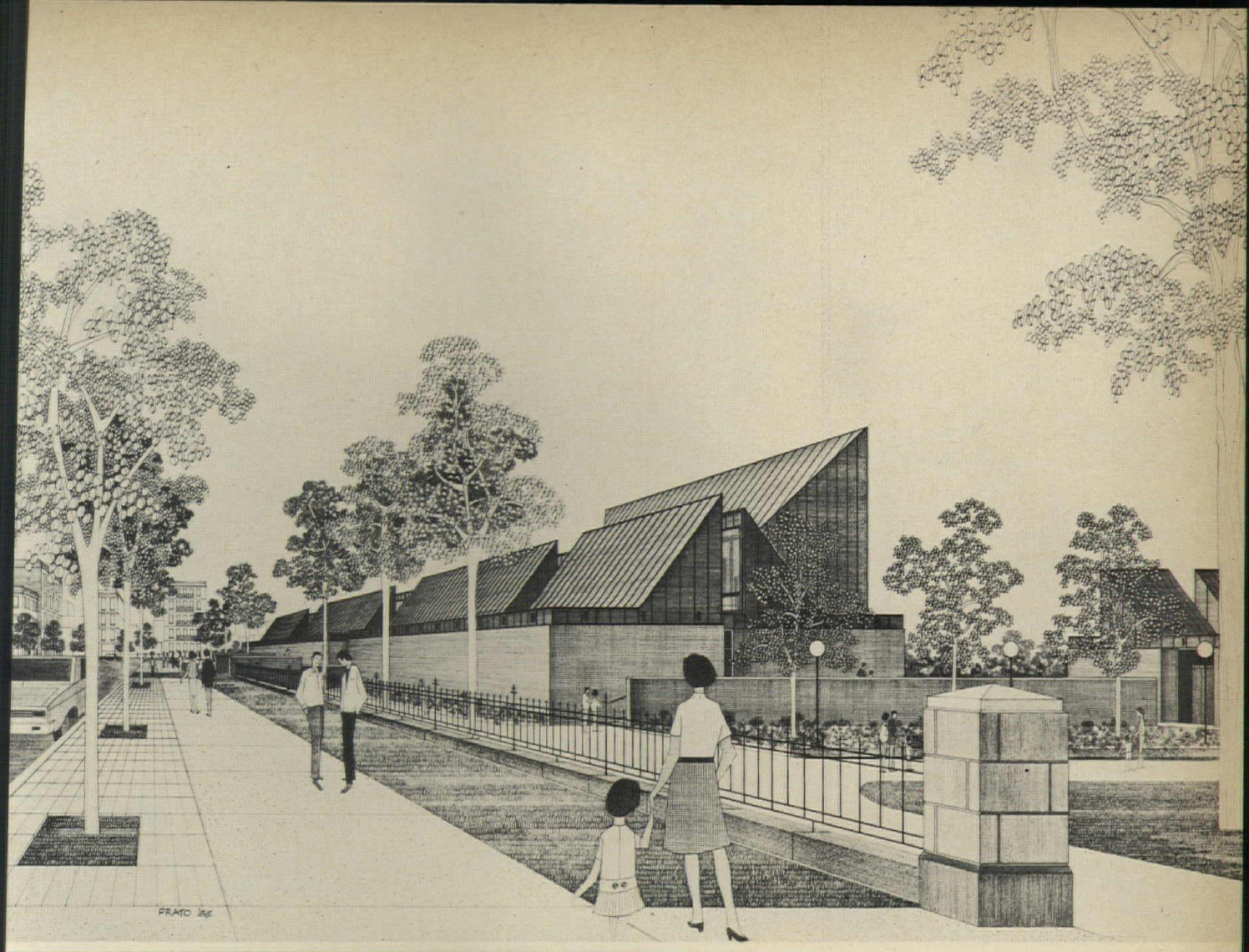
The capital improvement program on which the Department has embarked includes great variety: from a small sitting park in Queens to a youth center in Chelsea, from "vest pocket playgrounds" to a riding stable and police facility in Central Park, from "portable" play

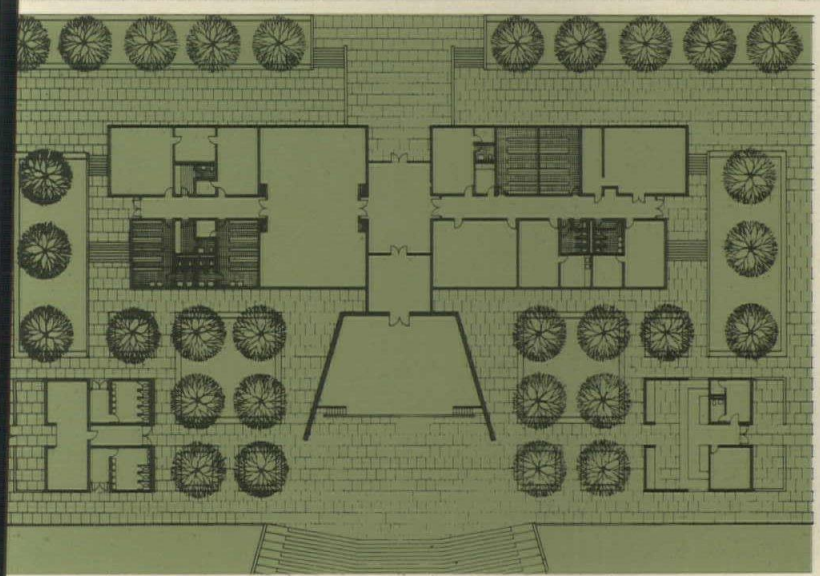


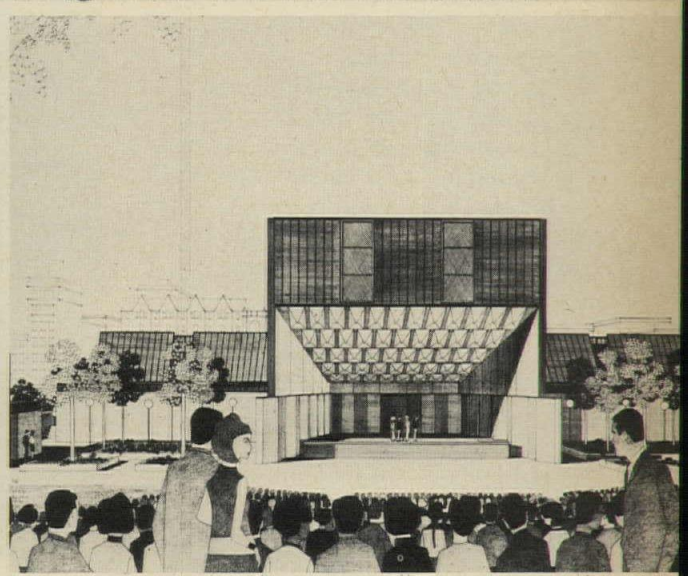
A community center with fun, beauty and excitement for young and old alike

CHELSEA RECREATION CENTER, New York City.
Architects: *Davis, Brody and Associates;*
structural engineer: Herman Speigel;
mechanical engineers: Cosentini Associates

This community center, for a dr neighborhood on Manhattar West Side, is designed as a pla for things to happen: swimmir dancing, reading, sports, game meetings, plays, lounging, or ju meeting people. Some rooms a large for general gatherings, othe are small for intimate meeting The plan interrelates spaces ar activities to create social contac among people of varied interes and ages so that social skills ca develop and dispel the anonymi of city living.







ood looks, low maintenance for recreation center in high-maintenance area

CREATION CENTER AND AMPHITHEATER,
. Morris Park, Borough of the Bronx, New York
y. Architects: *Lundquist & Stonehill;*
nsulting engineers: *Werner Jensen & Korst;*
nstruction: Phillips Construction Company, Inc.

The handsome design for this recreation center and amphitheater answers special considerations of program and of maintenance. Located in a "hard-use area" of the city, the building's windowless walls discourage vandalism (and provide wall space for hanging in the arts and crafts room), and its materials (brick finish for exterior and interior walls, quarry tile floors, asphalt block paving, copper batten roof on insulating concrete plank) are to be durable and need little maintenance. But the eye-catching forms, color and texture show how the architects have made their design express a conviction that minimum maintenance and maximum durability do not necessarily mean minimum visual quality. The complex consists of a one-story building with skylighted rooms for arts and crafts, rehearsal and various group activities; a band shell and 1,600-seat amphitheater; a comfort station and concessioners' stand. Grouped, these form a backdrop and baffle for the stage.

areas to a vast recreation complex on the old World's Fair site. The architects for all these projects, and the others in our program, have the opportunity to develop the programs for their jobs, and are given free rein—even to the point of levity—in their design. The city has at last assumed the role of enlightened client, of client understanding and tolerant of innovation.

Competitions—and an unusual precaution

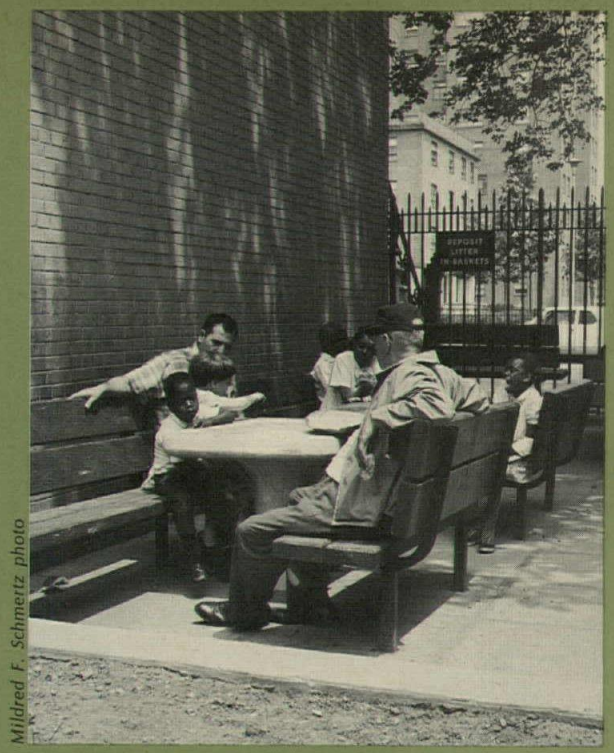
In its search for talent, the Department has turned to architectural competitions and has so far carried through two—one open, one closed—and is planning a third, open competition for the redesign and development of Von Breisen Park, overlooking New York Bay, on Staten Island. The first, for a refreshment kiosk in Central Park, was won by William Maurer, a 29-year-old Harvard graduate. The second was for a $5.7-million combined riding stable-police precinct station in Central Park. The invited contestants were the firms of Marcel Breuer, Conklin and Rossant, Kelly and Gruzen, Edward Larrabee Barnes and Philip Johnson. Kelly and Gruzen were named winners by a jury made up of architects Paul Rudolph, I. M. Pei, William Breger and Lewis Davis, landscape architect Paul Friedberg, the commissioners of parks and of police, and myself.

Competitions are time-consuming and expensive, but with proper controls they are worth while. In the stable-police station competition we took an unusual precaution: an estimating firm was assigned to each contestant to ensure that the winning design could be built within the budget. Also, we required that the $15,000 entrance commission and the right to compete be forfeited if the submission exceeded the budget. All five of the contestants in this competition honored these requirements.

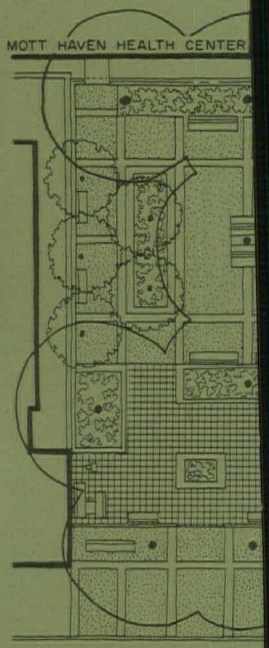
Both of these competitions were privately financed.

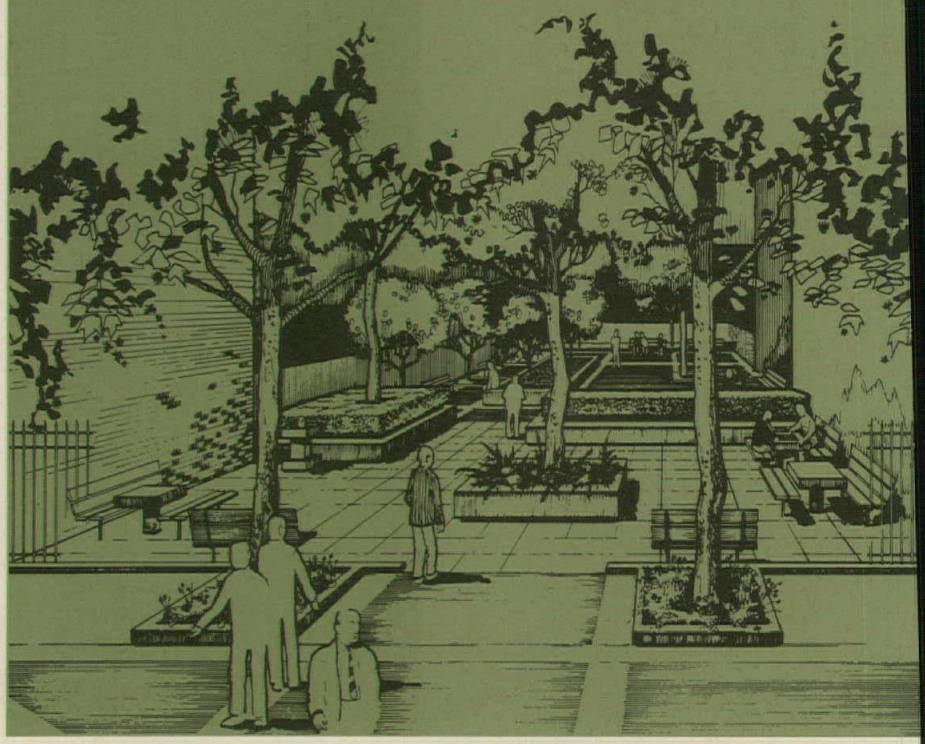
Portable parks, pocket parks

If there is one guiding principle—beyond that of architectural excellence—which has motivated the Department, it is that parks should



Mildred F. Schmertz photo

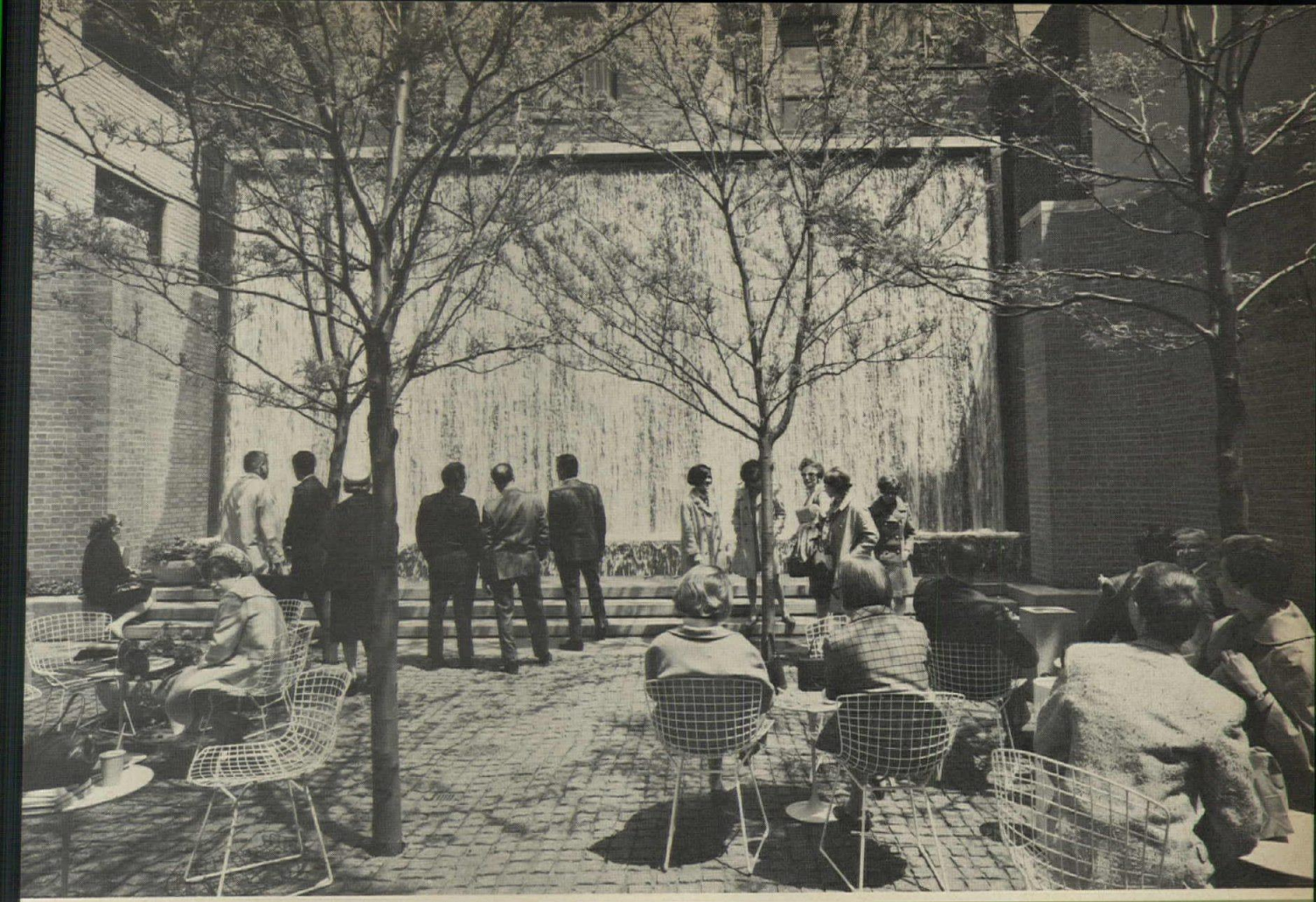


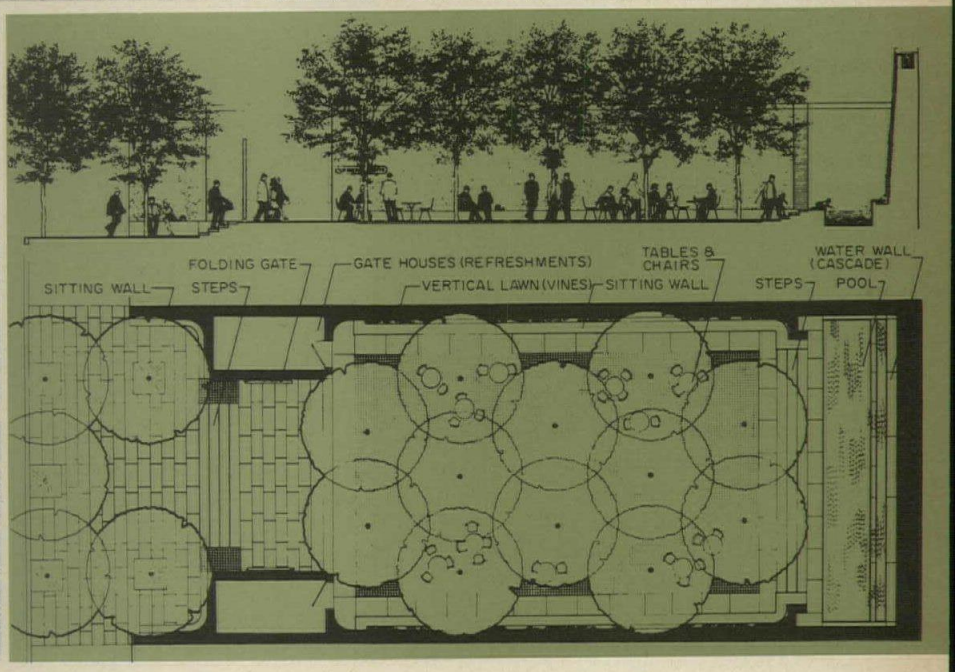


A sitting park for talk, or for games, or for resting in the sun

MOTT HAVEN SITTING AREA, Borough of the Bronx, New York. Landscape architects and architects: *Coffey, Levine and Blumberg;* associate landscape architect: *Howard Abel;* contractor: *Edenwald Contracting Company*

This vest pocket park in a low-cost housing development area is only 50 by 100 feet in size, but its skillful design makes possible a variety of quiet activities. Designed for adults, its sunny benches and game tables, its secluded spots and ample circulation attract other ages as well. Raised planter boxes in a dynamic pattern provide massed shrub and tree planting and serve as sitting walls. Concrete colors—white, dark gray and standard—differentiate areas. A pleasant place for quiet leisure.





In midtown Manhattan, a small park located "where the people are"

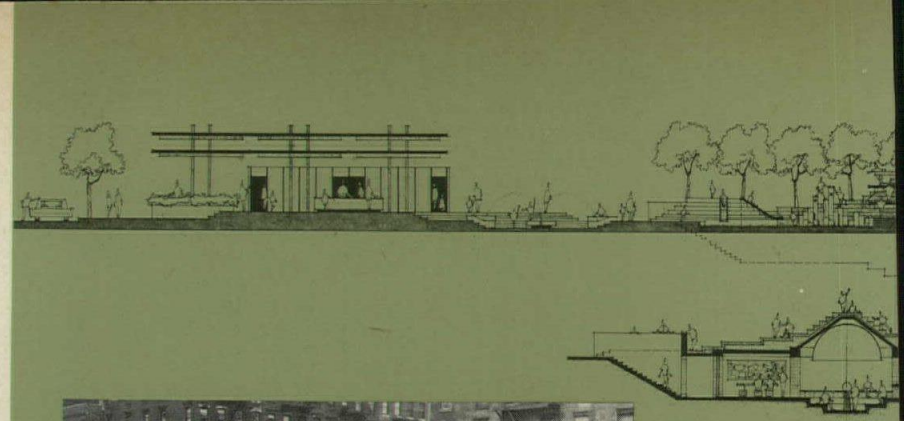
AMUEL PALEY PLAZA, 3 E. 53rd Street, New ork City. Site planners and landscape chitects: *Zion & Breen Associates;* nsulting architect: *Albert Preston Moore;* nsulting engineer: *Caretsky & Associates;* ntractor: *Robert Johnson, Inc.*

A park in the center of a busy commercial area should not be an astonishing sight, but it is. When Samuel Paley Memorial Park was opened a few months ago on the site of the Stork Club in midtown Manhattan, people hesitated to enter it until a sign was posted that it was "open to the public." This small park—its plot is 45 by 100 feet—makes space with what its designers call "vertical lawns" of vines on the side walls; delights the eye with a "water wall", 20 feet high, which falls into a pool 6 feet wide; and canopies its white tables and chairs with the branches of trees planted at 12-foot intervals. Mahogany-colored granite, with pink granite borders, is used for paving. Pink granite is also used for sitting walls and for the sidewalk in front of the park entrance. A refreshment stand is in one of the gate houses, storage in the other; pumping equipment for the water wall is in the basement. As the photographs show, this little park already serves as a humane oasis in the city's heart.

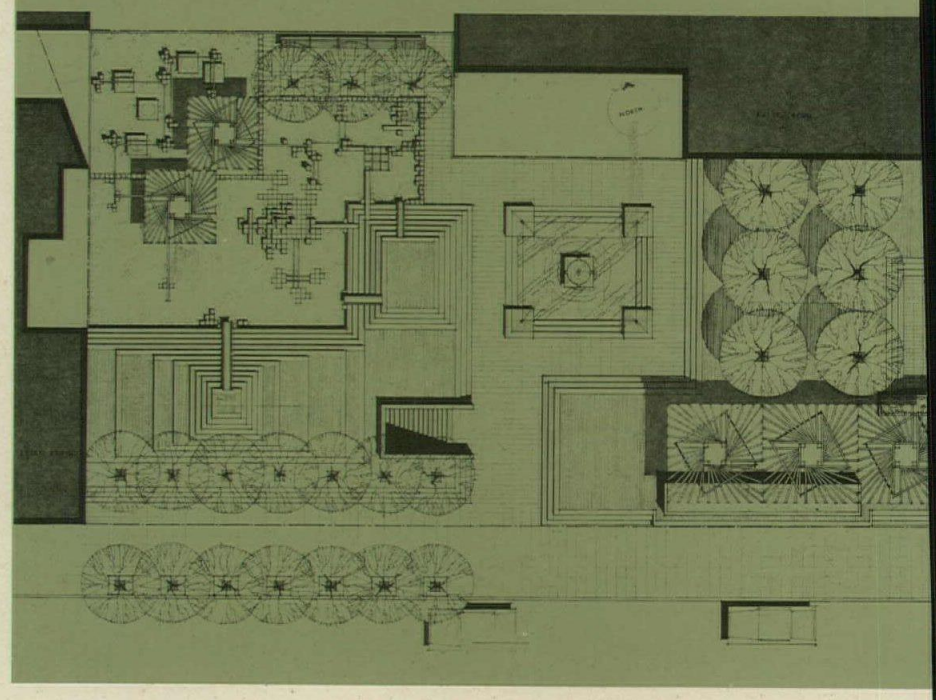
be where the people are, especially where there are lots of people. And that is what we have been doing since the revitalization of the Department. One of the most ingenious means of putting parks where people are is the portable park program developed by landscape architect Paul Friedberg under a grant from the Department of Housing and Urban Development. Mr. Friedberg has designed a variety of kinds of play equipment which can be placed on city-owned, unused vacant lots—and easily demounted and moved elsewhere when necessary. Even if a lot is available for only a brief time, the neighborhood will be improved by its development, for vacant lots are eyesores (and worse) in the poorer, more densely populated parts of the city. Some of these lots are only 20 feet wide and 75 feet deep, but with our pre-packaged, prefabricated parks and equipment we can quickly install a pleasant oasis in an area which otherwise has no outdoor play areas except the street. This fall we will begin construction of 10 prototype "portable parks," thanks to the HUD grant. Ten "vest pocket parks" have already been completed.

Recreation and culture on Flushing's Meadows

At the other end of the scale in size is the Department's largest single project: Corona-Flushing Meadows Sports Park, a great complex of recreational facilities, some enclosed, some in the open air. This will be built at Flushing Meadows Park, recently turned over to the city by the 1964 World's Fair Corporation. But the administration of the Parks Department has felt that the role of Flushing Meadows Park could be much greater—that we might perhaps invent for it a role unique to the 20th Century, that we might make of it a truly urban park. The City's need for sports sites is great and growing. Baseball diamonds are booked solid throughout the season; tennis courts, handball courts and other athletic fields operate from morning to dusk, and until midnight where there is night-lighting. The line forms at four in the morning for golfers hoping to use our public golf courses.



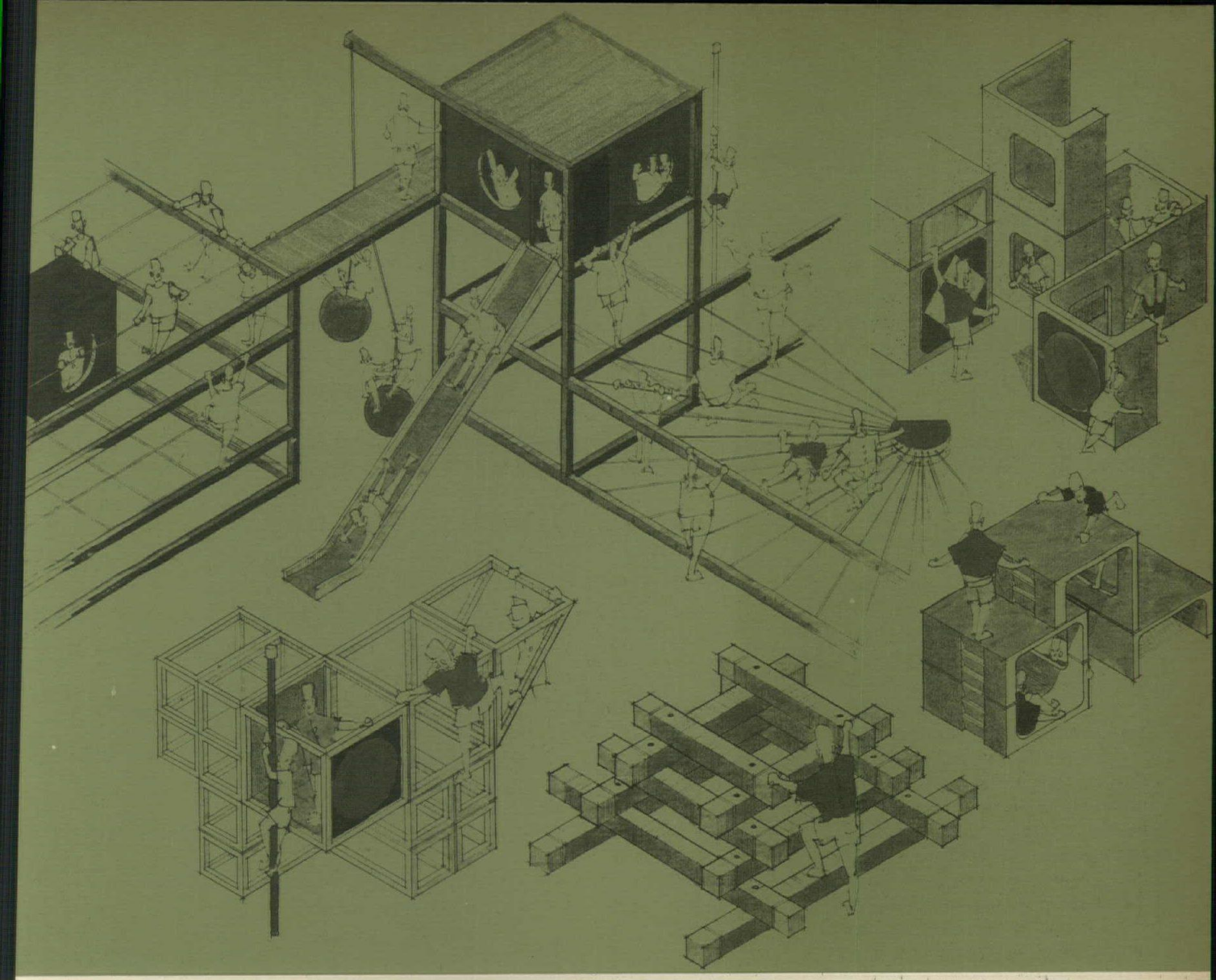
Martin Andrews photo

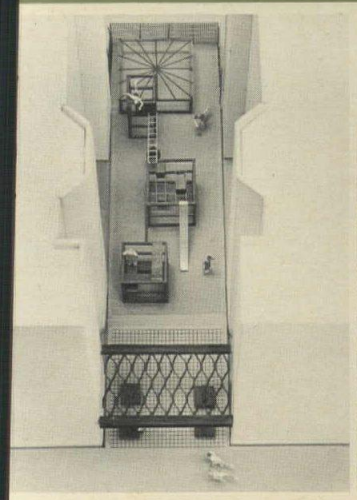


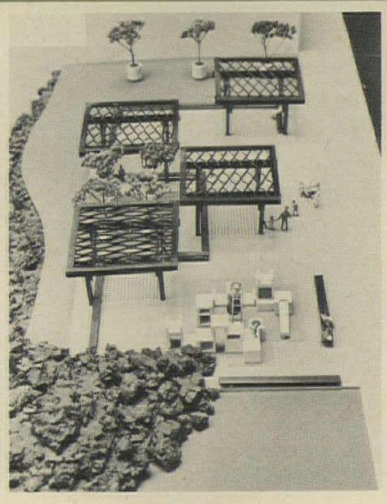
For city dwellers, renewed contact with nature in study-play parks

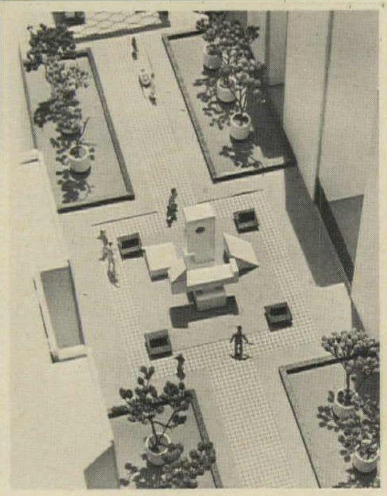
TWENTY-NINTH STREET "VEST POCKET" PARK, Manhattan, New York City. Landscape architects: *M. Paul Friedberg & Associates;* consulting architect: *Samton Associates;* structural engineer: *Robert Sillman;* science consultant: *Robert Lewis;* contractor: *East Bay Paving Company.*

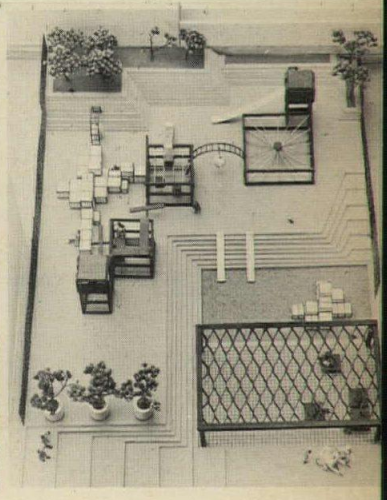
The vest pocket park at East 29th Street and Second Avenue is both playground and nature study center, an innovation for the city, and a possible prototype for other parks, each focusing on a different facet of natural science. Here the center is a planetarium, placed below grade to free the playground surface area. Its dome is a pyramid for climbing, so no play area is sacrificed. A laboratory has work tables for individual study. Center and play area work together educationally.











Open-ended playthings for portable playgrounds on vacant city lots

PERIMENTAL "PORTABLE" PLAYGROUNDS.
ndscape architects: *M. Paul Friedberg sociates;* architect for modular sunbreaks: *aude Samton;* sculptors: *William Tarr, onzalo Fonseca, Paul Van Ringleheim;* inters: *Sam Weiner, Tania, Mon Levinson.*

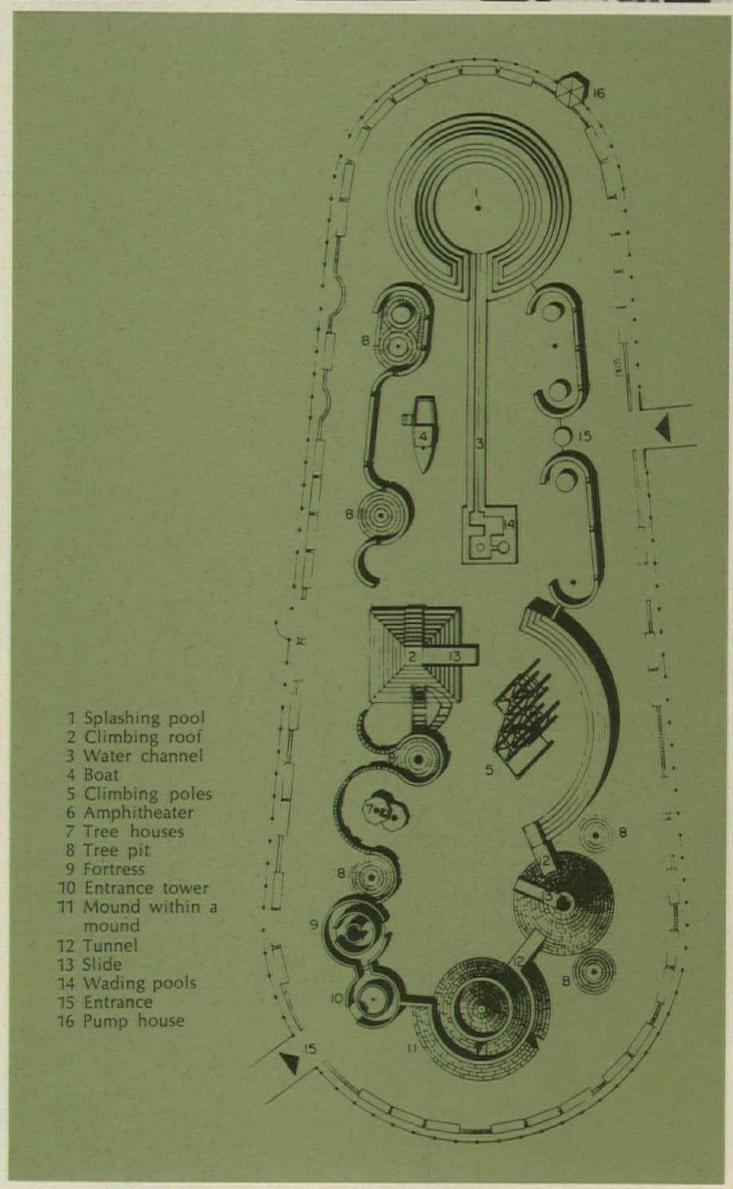
The portable playground developed for the Department of Parks by landscape architect Paul Friedberg is an ingenious system of modular play equipment which requires no foundation, can be bolted together, is quickly assembled and demounted, and quickly transferred from one site to another. In fact, the elements —pipe frame and concrete modules, lengths of wood, pipe and cable units—can be stockpiled and used by any designer. The four systems above show prototype uses: rigid steel frames for climbing, with slides, balls, swings and seesaws; concrete U- and V-shaped modules to put together in many ways; wood logs, shown here bolted as a climbing pyramid. Many of the objects can be moved during play. Ten portable playgrounds are being developed under a HUD grant. Temporarily vacant lots, some as small as 20 by 75 feet, are being converted into play areas for a two- or three-year period. A welcome respite in crowded areas.

For Flushing Meadows we have evolved a program that would make it not only a great sports park but the cultural center for Queens (largest and second most densely populated borough of the City). In an unusual marriage of unusual talents, the Department has engaged Lawrence Halprin and Associates, Marcel Breuer and Kenzo Tange and Urtec to design this new park. Site planning and programing is being done by the Halprin firm; Marcel Breuer and Kenzo Tange are each doing two buildings which will house facilities for the performing arts—amateur theater, choral and orchestral, arts and crafts—and indoor athletics.

A "fun palace" for the young

Municipal recreation and community centers in Manhattan are usually the last places that young people—for whom they are intended—want to go. Most of these centers are undistinguished in architecture, boring, listless places whose banal appearance does little to attract youngsters, and nothing to provide beauty for the community. When an existing such center had to be replaced because of a new post office building, the Department of Parks engaged Davis-Brody and Associates, architects of the unique "Waterside" river development on the East River, to design the new Chelsea Recreation Center (see page 114). This young, energetic firm is designing a great "fun palace" which we hope will be brilliantly illuminated—like a theater—and which, because of its design, will draw young people into it. What we wanted was the kind of building that a private enterpreneur would build. The Center will have the things that young people want but do not find in the usual municipal recreation center: a dance floor with a juke box, overlooking a swimming pool, club rooms, game rooms, sports courts. This Center has excitement and creates a positive environment in a community and on a street desperately in need of a better environment.

At Mount Morris Park in Harlem (see page 115), we cancelled an old contract that would have provided a standardized rehabilitation



Norman McGrath pho
Opposite: bottom rig
Richard Dattner photo

Adventures in play at a playground designed as "landscape for kids"

This playground in Central Park is the first of five "Adventure Playgrounds," privately sponsored and developed. A "landscape for kids" (the architect's words), the playground has a variety of spaces, different but related to each other. Imaginative mounds and pyramids for climbing and sliding, tunnels, "volcanoes", tree-houses and a wooden stockade were designed by the architect to permit a wide range of interpretation by children and to stimulate their own invention.

ADVENTURE PLAYGROUND, Central Park, New York City. Architect: *Richard Dattner;* contractor: *Kreisler-Borg Construction Co.;* sponsor: *Estee and Joseph Lauder Foundation, Inc.*

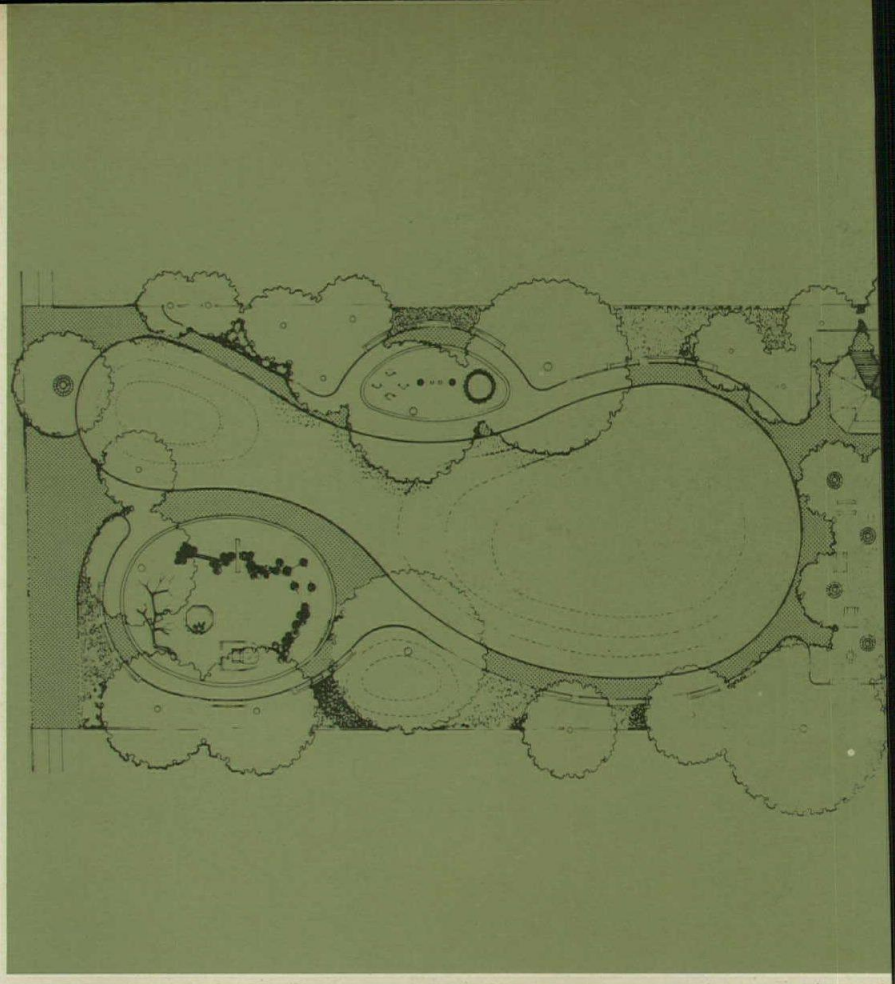
of the park and substituted what the people of the area wanted; a community swimming pool. Now we are about to start construction of a unique amphitheater, designed by the young firm of Lundquist and Stonehill.

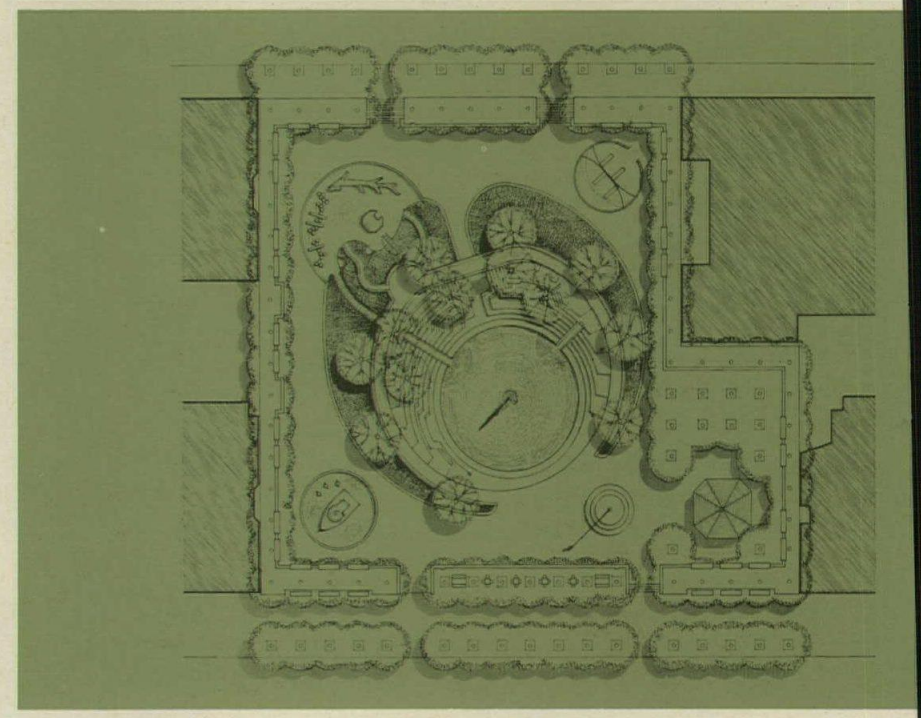
The Bedford-Stuyvesant area of Brooklyn, is going to have a delightfully flamboyant recreation complex and Olympic-size swimming pool, designed by the architects of some of the world's most luxurious hotels and pools, Morris Lapidus and his associates. In the same area we have initiated a tree-matching program in which we give approximately four trees for each tree paid for by the local residents.

At Central Park, change without changes

The changes at Central Park have particular importance because the park is a focus for the whole city. These have been sensitively made so that the essential character of the park has been kept intact; there have been no encroachments on the natural beauty of the place. The Fountain Cafe (RECORD, December 1966) on Bethesda Terrace, a site of great beauty, is such a change: in its installation nothing —not a blade of grass, not a shrub, not a tree—was disturbed. Its design, entirely contemporary, nevertheless complements the park's Victorian design. The restaurant has brought life to a place long deserted after dark.

An "adventure" playground at 67th Street and Central Park West provides imaginative play equipment for children of a wide age range. Its delightful environment and the happy kinds of play it offers attract children and parents from all parts of the city. This playground, privately financed by the Estee Lauder Foundation, was designed after thorough interchanges between a citizens' committee and the architect. This sort of interchange is fostered by the Parks Department's Community Relations Division, established out of the belief that only by discovering what the people want can the designers develop programs for new buildings or parks which are uniquely suited to their locations.



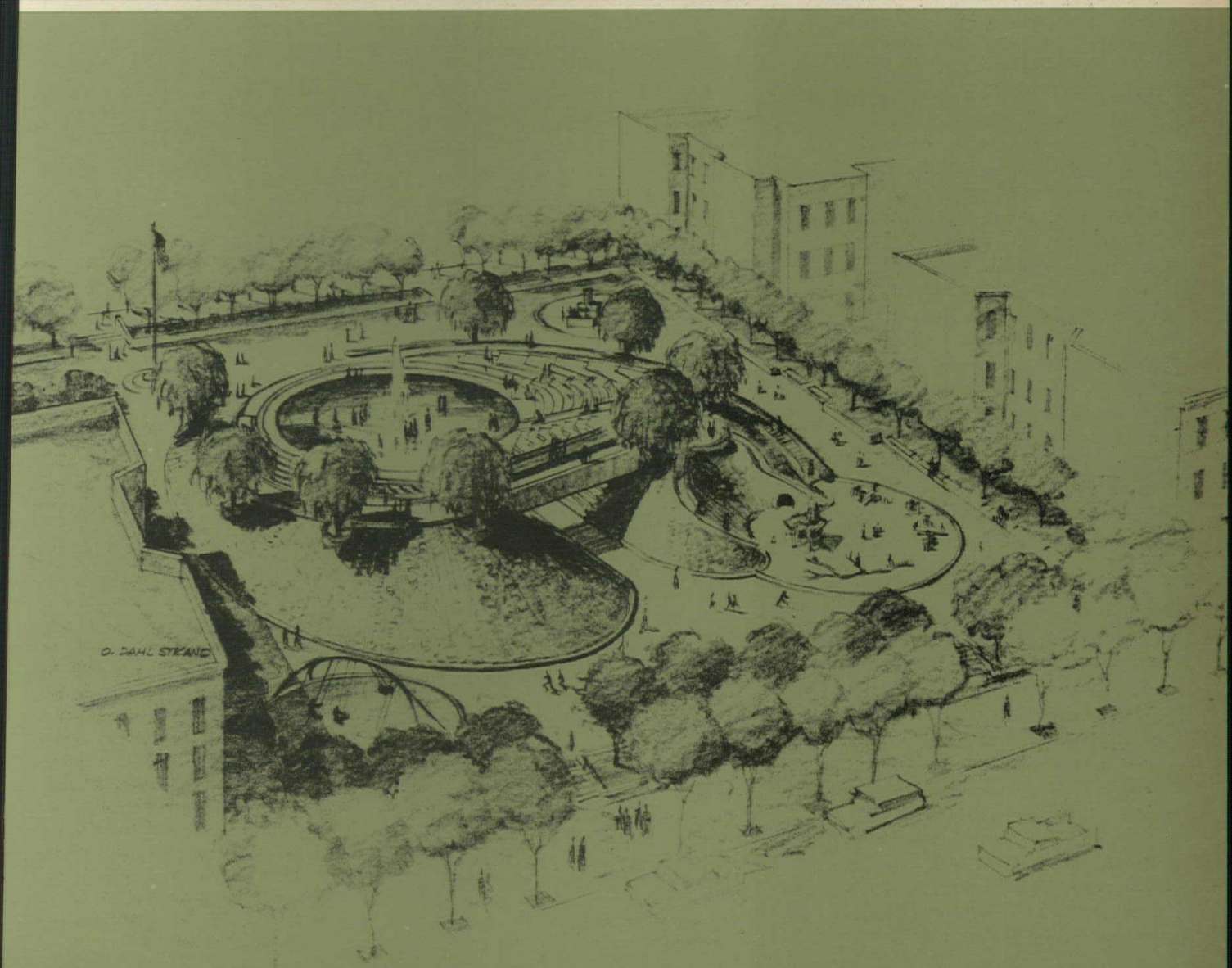


Two design solutions, similar in size, opposite in character

NEW DORP PARK, Borough of Richmond; 138TH STREET PLAYGROUND, Borough of the Bronx, New York City. Architects, planning consultants and landscape architects for both projects: *John Carl Warnecke and Associates—partner in charge: Michael Painter.* 138TH STREET: civil engineers: *Kirker, Chapman and Associates;* electrical engineers: *Meyer, Strong and Jones;* sponsor: *Children's Recreation Foundation, Inc.*

New Dorp park, in a single-family area of Richmond Borough (Staten Island), and 138th Street park, in a densely populated part of the Bronx, are identical in size—but their concepts are opposite, meeting each location's needs. New Dorp's central lawn, serpentine walk, sitting and play areas are suburban. Urban 138th Street's central pool and fountain are for wading by day; and can be drained for plays and dancing. New Dorp is city-financed; 138th is privately sponsored.


O. DAHLSTRAND


O. DAHL STRAND

No easy way to a renaissance

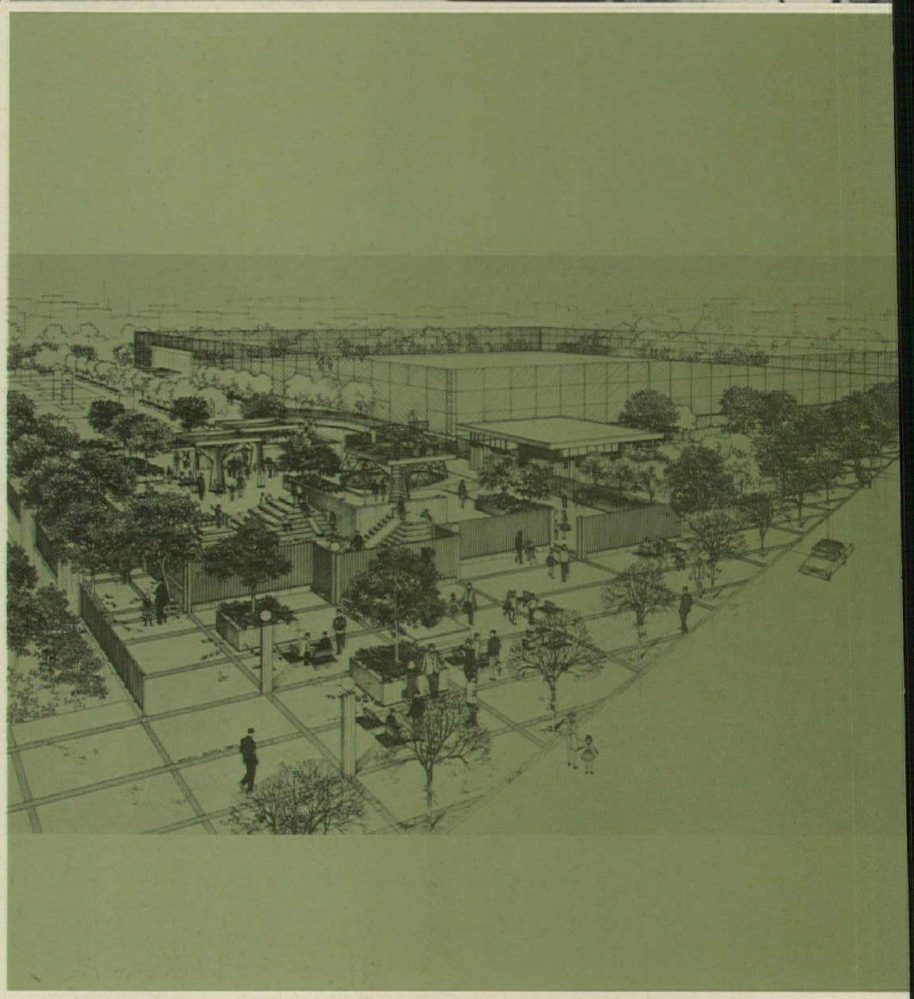
It would be misleading to imply that this program, for all of its exciting overtones, has dispelled the problems and frustrations of doing business with a bureaucratic system. Doing business with the City of New York is no easy task, particularly for architects committed to good architecture. Negotiating contracts with the city is a long-drawn out process, for there are delays in approvals for contracts from the Parks Department, the budget director, and the comptroller. First the writing of programs is time-consuming; then acceptance of the programs by various participating city agencies takes time. And the approval of submissions encounters delays. Vouchers for payment of consultants are subject to delays by the comptroller. Distinguished architects of long experience, as much as the younger architects, have had these same problems.

What is gratifying is that these consultants have stuck to their commitments. For in staying with the job regardless of the problems, they have paved the way for greater creativity, imagination and vision in civic architecture and landscape architecture. The first year of the new administration was difficult; the second is proving more productive. Problems that seemed insurmountable are being ironed out. We hope that the third and fourth years will see the end of time-consuming, bureaucratic, red-tape delays, and bring even greater design accomplishment.

Quality design pays off. Excellence in civic architecture can change the environment of entire areas of a city, not only evoking further physical improvement but lifting the spirit of those who live in such areas.

Our program—under the imaginative and thoughtful leadership of August Hecksher—is to expedite the construction of remarkable and exciting park facilities so that New York City will in fact lead the nation in a renaissance of urban space design, and create for the city an administration environment that not only encourages good architecture and urban environment—but *insures* it.

David Hirsch photo



Imaginative play areas on garage roof and deck over train tracks

COMBINED PARKING GARAGE AND PLAYGROUND, Flatbush and Nostrand Avenues, Brooklyn, New York. Landscape architects: *M. Paul Friedberg & Associates;* consulting engineers: *Brill Engineering Corporation;* sculptor: *Bill Tarr;* architect for shade structure: *Bernard Morrison.*

Combining a playground with a parking garage has gained a lot of otherwise unused space for recreation. The garage roof will be a sports playfield; a deck over the adjacent ravine (and railroad tracks) will be a children's playground. To encourage creative play experiences, "standard equipment in unstandard uses"—slides pressed into "mountains", sculptured stepping stones (with spray heads for hot weather), playful structural frames for shade—was especially designed.

ir conditioning: new interpretation for architects

Numerous factors influence the selection and design of air-conditioning systems, from type of building, to type of equipment available, to the ever-changing nature of the design professions and the construction field. One of the most significant developments in equipment is the trend toward pre-engineered packages of larger size and variety, and of greater sophistication. Architects and engineers are re-examining education and training as owners increasingly demand "guaranteed" performance and more exacting cost evaluations. Both parts of this article have been prepared in collaboration with F. J. Walsh, consulting engineer. —*Robert E. Fischer*

While paradoxical at first thought, today's trend in air conditioning is toward larger central systems on the one hand, and toward decentralized unitary installations on the other. Common to both, but perhaps not readily apparent, is the fact that advancement of these two seemingly opposite approaches stems largely from advances in packaged equipment which is smaller, quieter, more reliable, and available in larger capacities and with a wider range of components and controls. The trend toward larger central systems is aided by the availability of more sophisticated and complex control systems which, combined with the computer, promise greater optimization of system operation.

Room-by-room and zone-by-zone unitary air conditioners are, in effect, complete air-conditioning systems in a single unit. Today's unitary equipment is highly reliable, increasingly more quiet (particularly in room-size units), capable of operating at lower outdoor temperatures, and can even be designed for remotely located control panels for start-stop, sequential starting, and other similar features.

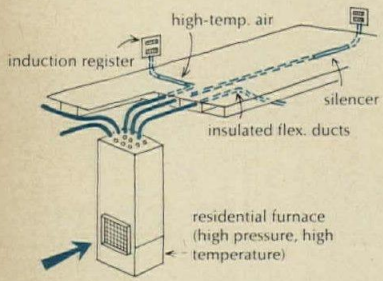
Most architects are familiar with "pre-engineered" residential heating systems. Heating systems are, of course, simpler than air conditioning systems or combined heating-air-conditioning systems. There is little "design" involved with packaged heating systems—pipe and duct sizes really do not have to be calculated since runouts are relatively short. The systems usually function properly as long as heating elements or outlets are properly placed, and the thermostats properly located.

The trend toward larger central systems involves larger unitary central systems as well as built-up central systems using packaged components. Unitary air conditioners are available in sizes up to 100 tons of refrigeration, for example. What is more important than mere physical size of unitary equipment, however, is the increasing application of the more flexible and sophisticated multi-zone and double-duct unitary air conditioner, used in sizes up to perhaps 50 tons. This type of unitary system is particularly significant because of the manufacturer's selection of all unit controls, zone controls, ventilation-air-ratio controls, etc.

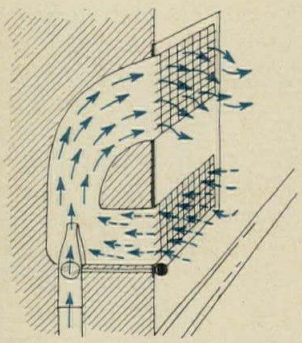
Each of the major elements going into any over-all air-conditioning system —with the exception of the air-and-water distribution system and various system controls—is in itself a "package." That is, it is a matched combination of standard components, either preassembled at the factory or designed for simple field assembly.

The package approach has expanded

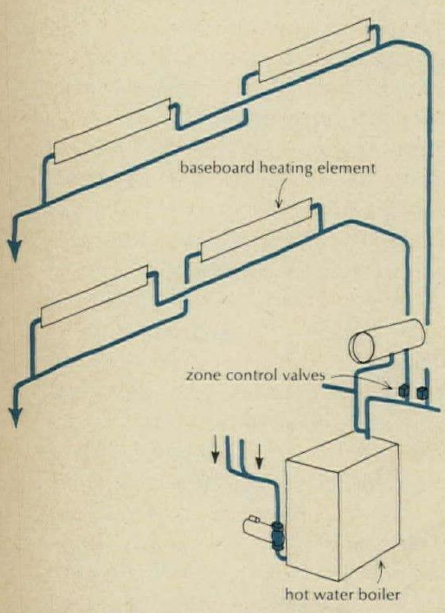
THE SIMPLEST TYPES OF PACKAGED SYSTEMS



Packaged residential warm-air system. The manufacturer supplies all of the components, including the high-pressure, high-temperature furnace, the small-diameter ducts and the induction-type room outlets.



Induction-type room outlet for the warm air system shown above uses high-velocity air to induce room air into the unit for mixing.



Packaged residential hot-water system. This is almost a complete packaged system, except for the distribution piping, which is a standard size, and perhaps some controls.

mainly because of increasing problems in field installation, involving both cost of labor and the shortage of trained mechanics and technicians. And it was logical for "packages" to grow larger and larger, since today's components are higher speed, lighter in weight and smaller in size for the same capacity. Packaged absorption and hermetic chillers are available in sizes up to 1000 tons, and steam and high-temperature water generators also are available in extremely large sizes. Packaged fan-coil units, filters, etc., are available in capacities up to perhaps 40,000 cfm, for all pressure ranges.

The application of packages is limited mainly by problems of physical transport (i.e., trucking and rigging), although labor union restrictions are also a factor. Obviously, a built-up central system, consisting of multiple packages is possible up to almost any size. For a unitary central system, however, the over-all size is limited by the size of the air-moving and conditioning (fan-coil) package.

The architect really does not have to understand what is in the various packages of a built-up central system—it is enough to merely recognize and identify them. It is more important for him to be familiar with the most advanced unitary room-by-room equipment, and with unitary multi-zone and double-duct air conditioners, because he will be more directly involved with these.

While the first unitary, packaged multi-zone air conditioner (cooling only) was on the market over 10 years ago, application was not as rapid as might have been expected, and various operating problems related to the use of air-cooled condensers and part-load operation had to be overcome. These problems were, in general, resolved several years ago

It now makes sense to consider much more extensive application of unitary air conditioners than was the case until recently. As long as five years ago, certain members of the Air Conditioning and Refrigeration Institute outlined future applications of central unitary air conditioners, including double-duct, multi-zone and variable-air-volume applications. Knowledgeable engineers should use such equipment now for custom-designed installations. Some manufacturers may not be particularly eager to proceed in this direction, however, for two reasons. First, they cannot afford to develop sophisticated equipment for which there may not be a market. Secondly, they are concerned that, in some cases, such equipment might be misapplied and give them a bad name. Certain manufacturers, while they do not make multi-zone unitary air cond ers, will quite often cooperate v knowledgeable consulting engine the custom design of an identical t system using a central-station air tioner with a direct-expansion refr tion coil and a custom-selected cor ing unit package.

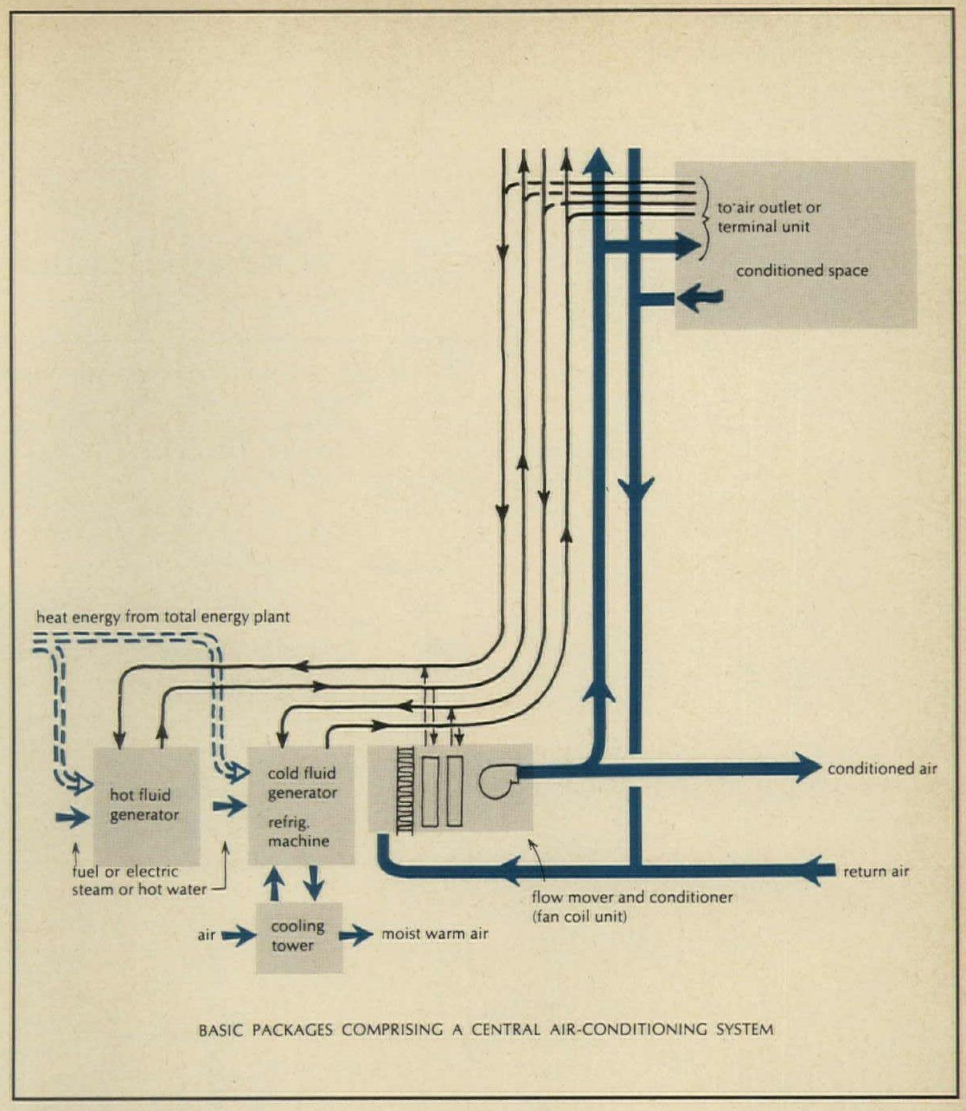
The extent to which unitary-e ment manufacturers will get involv producing equipment packages for sophisticated application is conjec For one thing, consulting engineers erally are not sufficiently familiar refrigeration cycles in unitary equip and are reluctant to become involv other than standard applications. often, they equate roof-top equip only with very speculative, low building projects.

The fact that it is practicabl design and produce central unitar conditioners having a two-fan se for double-duct distribution or a iable-air-volume fan, utilizing m ing types of air and air-and-water minals has never really been explo despite the obvious potential. It is vious however, that it would take p tically a "guaranteed" market—suc the volume purchasing approach o School Construction Systems Deve ment project to induce any manu turer to design modification of his e ing unitary packages, particularly i basic approach favors built-up pac systems rather than unitary.

From the standpoint of pote application of large unitary air co tioners to multi-story buildings, the chitect should give special attentio space installation and noise proble

Despite machinery advances, lac standards on equipment and sys noise—for use at a practical design l —has been, and still remains, a probl This area of design is complex, problems are more likely to occur cause of today's use of low-mass, l rigid structures.

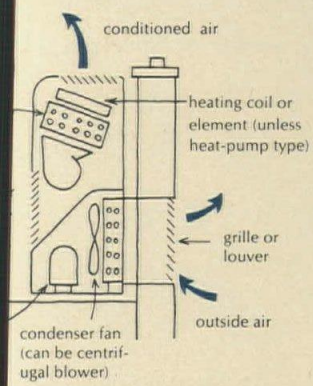
Acoustical performance ratings system elements start, naturally enou with those elements that occur in oc pied spaces such as air outlets, fan-c units, induction units, etc. More me ingful ratings are being developed window, through-the-wall and small u tary air conditioning equipment—a these new standards have grown out owner complaints about noise leve Industry standards for larger equipme will be longer in coming; however, chitect insistence on a guaranteed rati according to various available rati standards is possible today. Usually sp cial tests can be arranged at additio cost, and the results and test data c be certified.



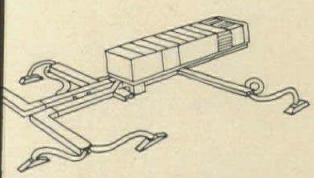
BASIC PACKAGES COMPRISING A CENTRAL AIR-CONDITIONING SYSTEM

engineered packages can be nbined to form a "built-up" tral system, but in some cases fully integral units, except haps for the air distribution.

e role of the engineer, the manufacturer and the client



-contained, through-wall air-ditioner may require nothing re than an electrical connection make it operable.



e packaged multi-zone system in-des everything except the air-dis-bution system. It can have hot d cold fluid generators, flow overs, multi-zone dampers and ntrols.

Building services consulting engineering —like architecture—is in transition, with owners expecting an expanded scope of services in specialty areas of engineering such as energy plant design. But beyond this there has been a growing demand from owners for greater engineer involvement in balancing, testing, adjusting, and operating and maintenance procedures for air-conditioning systems. Centralized responsibility is a compelling concept that management is anxious to buy. Client management is also interested in the sometimes rather vague and abstract approaches which purportedly will allow them to evaluate whether or not proper decisions have been made —some of the key words are systems engineering, feasibility study, value engineering and cost effectiveness, performance, criteria, etc.

To a large extent, many owners and architects do not really understand how the consulting engineer approaches and handles system design—what he does and does not do.

Building service engineering might in one sense be called, "engineering of the catalog." The reason is that each system and sub-system is composed of an assemblage of standard components and "packages" which can be "tied together" by means of a fluid-flow (air, gas, water, steam) network and terminated in energy distribution outlets (i.e., air outlets or terminal units, or room-type unitary air conditioners). Beyond this are the superimposed electrical, electronic and pneumatic controls.

The major problem for the consulting mechanical engineer—aside from budgetary and, to some extent, systems analysis considerations—has always been the design and drafting required to coordinate the selected systems with the building envelope, floor layout and the structure.

Whether or not air-conditioning systems are termed "built-up central systems" or "packaged systems," is somewhat irrelevant, since the real difference between the two is the extent to which "packaged" equipment is utilized, and the range of components and controls within the "packages."

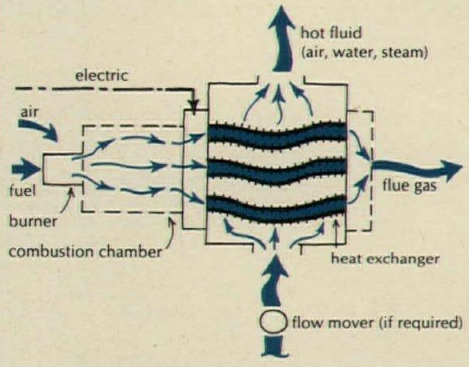
text continued on page 131

Packaged components range all the way from hot and cold fluid generators, to flow movers and conditioners, to control devices.

The basic component packages of air-conditioning systems

Hot or cold packaged fluid energy generators may or may not constitute a complete plant. The generator is a complete plant if the thermal fluid energy produced is ready for utilization merely by making final con tions (liquid flow mover is required for hot or chilled water unit). If the heatin cooling energy is supplied by a fuel an electric power, rather than from a sepa steam or hot water supply, then the eq ment comprises a unitary (self-contai plant.

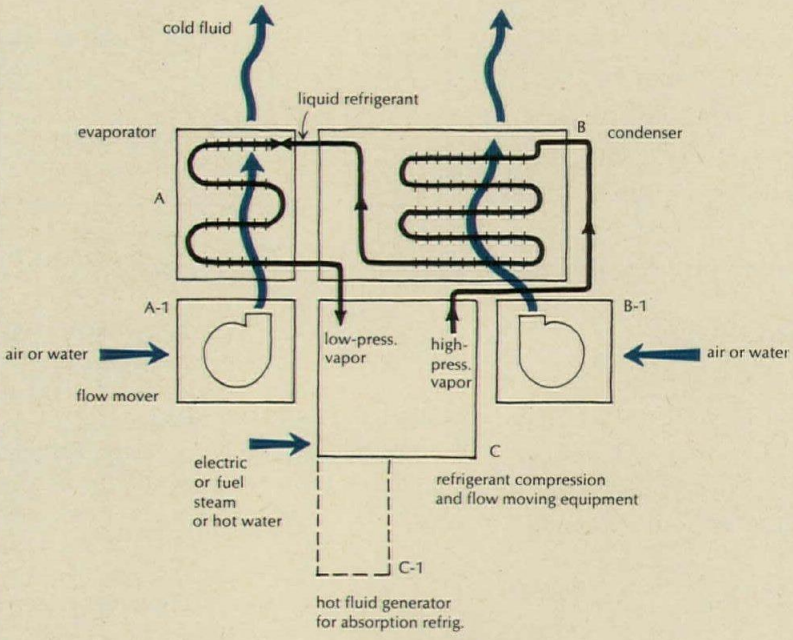
A parallel can be drawn between a uni packaged chiller and a unitary packaged conditioner. They are identical in func except that the fluid in one case is water, in the other case it is air.



HOT FLUID GENERATOR (BOILER)

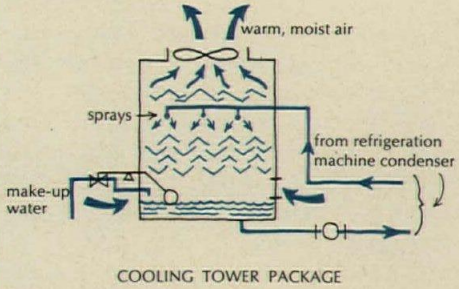
Note: The hot-fluid generator could supply en to an absorption refrigeration machine to pro cooling effect.

Note: 1) When the flow of the refrigerant betv the condenser and the evaporator can be rever the package is called a heat pump. 2) When the f tion of the unit is to produce heat it becomes a fluid generator.



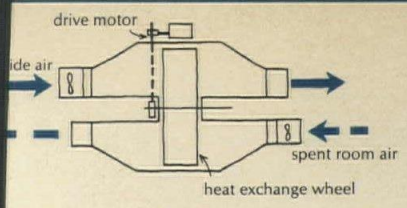
COLD FLUID GENERATOR (REFRIGERATION)

The cooling tower is an auxiliary package for rejection of refrigeration cycle waste heat.



COOLING TOWER PACKAGE

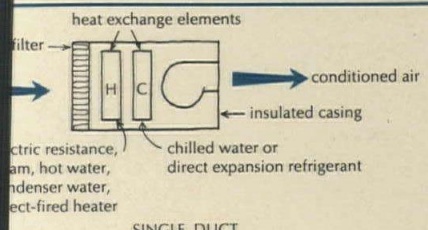
(When the air conditioner is air cooled, re frigeration cooling is an integral part of th package.) The condenser water is an inte mediate thermal fluid in this case. In orde to prevent any dirt or contamination picke up by cooling tower sprays from fouling th refrigeration machine condenser, the flow i split into two circuits by means of a hea exchanger. This, however, reduces the ne amount of cooling available. Direct coolin of the condenser water in a coil by contac with air is not practical except when the out side air is cold. Protection of the intermediat fluid from freezing would be a problem.



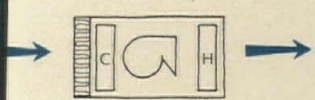
WASTE HEAT RECOVERY DEVICE

heat-exchange wheel abstracts heat from lowest temperature level space air. High ormance filters are required for each air am before it enters the wheel. Cross-con-ination is small, and special designs can uce this effect to a minimum.

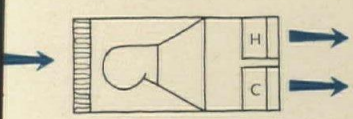
s: Other packages involving heat recovery at er temperature levels are:
eat-recovery lighting fixtures utilizing spent room r circulating water,
umping of heat-utilizing refrigeration machines fixed direction of refrigerant flow, with cooling of spent exhaust air and utilization of higher-tempera-ture water or air discharged from the condenser, reversible direction of refrigerant flow (heat pump). Conventional cooling with the ability to abstract heat from an internal source, as above, or from external sources, e.g., outdoor air, well water, etc.



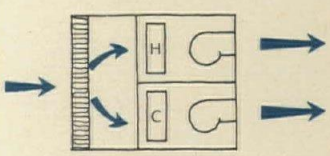
SINGLE DUCT
DRAW-THROUGH



SINGLE DUCT
BLOW-THROUGH

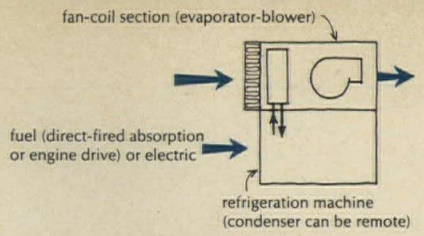


TWO DUCT
BLOW-THROUGH
(for multi-zone or
double duct appl.)

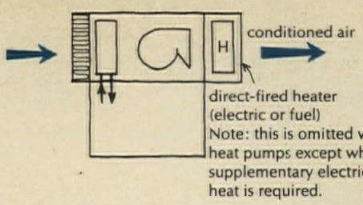


TWO DUCT
TWO-FAN SECTION
(for double duct
application only. Not now
available as a package.)

Air flow moving and conditioning (fan-coil) packages. The additional packaged functions which can be added, related to conditioning of the air, in addition to basic heating and cooling are: 1) automation of filter renewal or cleaning, 2) air purification (removal of odors, vapors), 3) preheating of air (to prevent coil freeze-up too low an air temperature to spaces), 4) reheating of air (related to temperature and humidity control, 5) dehumidification (beyond that incidental to moisture removal when air is cooled, e.g., utilization of solid or liquid adsorbents or absorbents), 6) humidification by steam, evaporation from sprays, pans or grids, or by "atomization"), 7) evaporative cooling (extends range of "free" cooling).

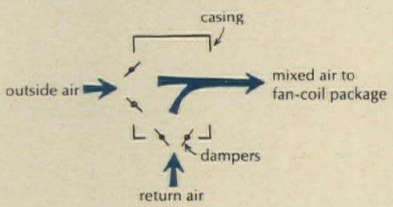


UNITARY "COOLING ONLY" PACKAGE
(addition of hot-water or steam coil optional)

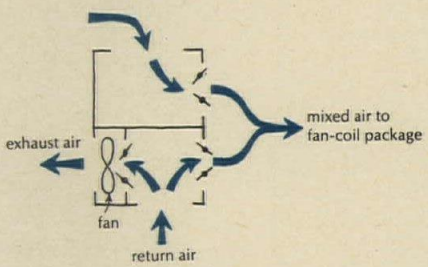


BASIC UNITARY COOLING-HEATING
AIR CONDITIONER

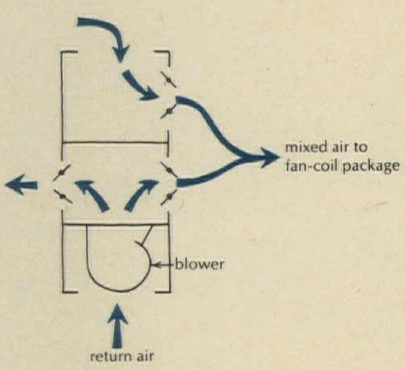
Basic unitary air-conditioner packages. Reference to sketches and notes for the hot and cold fluid generating packages as well as to those for air-flow moving and conditioning packages will indicate the types of sub-packages employed. With the unitary air conditioner, a more limited selection of air-flow moving and conditioning package generally applies, and varies considerably depending on the manufacturer.



a. BASIC

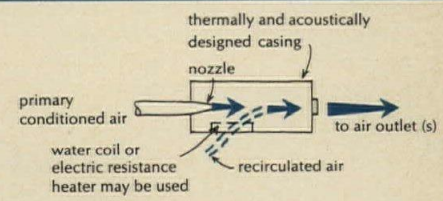


b. WITH POWER-EXHAUST

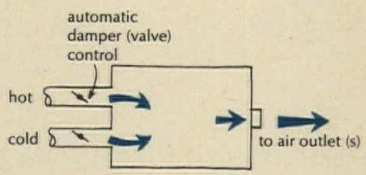


c. WITH POWER-RETURN

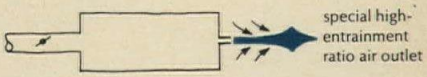
Ventilation supply- and exhaust-ratio control packages. These are an imporant feature of any air-conditioning system, being necessary to insure positive outside ventilation air and to utilize outside air for "free" cooling. Control must be properly sequenced with heating, cooling, and humidity control provided for the package. Design of the return air duct system must be carefully checked against the static-pressure exhaust capability of the package. The dry air "free" cooling can be supplemented and followed by an evaporative cooling package, but this adds complexity to the related controls. Further, the water sprays used will require that an outside air preheater and its control be added to the package.



a. SINGLE DUCT, INDUCTION TYPE



b. MIXING TYPE



c. SINGLE DUCT, NON-INDUCTION,
VOLUME-CONTROL TYPE

Air-powered terminal units. These packages are designed for either room or zone application. The induction type, where used with a water coil, can be applied for either a two-, three- or four-pipe system, similar to fan-coil system application.

Packaged control systems. Standardized (but not packaged) control systems are recommended by many control and equipment manufacturers, but the integration of these into a multi-function package by an air-conditioning equipment manufacturer necessarily limits choices and options. This is particularly true with unitary heating and cooling plants which are an integral part of a unitary air conditioner (e.g., for the complete package including a direct gas-fired heater, a condition of approval is the complete listing of all related controls).

Air-powered terminal units often have integral, packaged air-powered damper controls for the room unit, powered from system air pressure.

Water-and-air and water-type room terminal units can have the unit water valve controlled from the thermal expansion of fluid in a power bulb placed in the recirculation air stream.

GLOSSARY OF TERMS RELATED TO PACKAGE EQUIPMENT

BOILER—Term used to describe steam or hot water generators used in the residential and small commercial building market.

BOILER-BURNER UNIT—A packaged hot fluid generator comprised of a fuel burner and controls, a matching combustion chamber, a direct contact heater and auxiliary trim and safety valves.

COMBUSTION CHAMBER—An insulated enclosure designed for high temperature to provide efficient air-fuel mixing and burning.

COMPONENT—A single basic element or device in a multi-component assembly or an over-all system (e.g., a fan; a motor for a fan; a pump; a pump impeller; a thermostat; an air outlet; a baseboard heating element; etc.).

DIRECT CONTACT AIR HEATER—A direct fired heater in which the combustion gases (intermediate fluid) transmit heat to the primary fluid (air) through a heat exchanger. Alternately, an electric resistance heater in the primary air stream.

DIRECT EXPANSION AIR CONDITIONING—Cooling by means of the expansion of the refrigerant into a vapor contained within the tubes of an air cooling coil.

EVAPORATIVE COOLING—Cooling of primary air by means of the evaporation of sprayed water into vapor (used as the refrigerant)—within the primary air stream. Applicable only when outside air moisture content is low relative to desired room conditions.

FLOW MOVER—A device such as a fan, a pump or a compressor, which is utilized to move or pressurize a thermal fluid.

FLOW MOVING AND CONDITIONING (FAN-COIL) PACKAGE—A matched assembly containing in the basic package an air flow mover, an air filter, a heating element and a cooling coil. The basic process of conditioning supply air is done by this unit. Many other functions can be included.

HEAT REJECTION—The dissipation of waste heat to the outside (air, well water, etc.) which is generated in conjunction with the operation of (1) engines producing shaft power from the energy in fuel (2) refrigeration machines.

HERMETIC—A term applied to completely sealed equipment—usually applied to refrigeration equipment.

INTERMEDIATE FLUID—A thermal fluid used to transmit heating, cooling or humidification effect to the primary fluid, through the medium of heat exchange.

MULTI-ZONE AIR CONDITIONER—A fan coil unit with air heating and cooling arranged in two parallel streams with zone mixing provisions integral within the unit rather than at remote terminal units (as in a double duct system). Units may be completely unitary for both cooling and heating (in this case the fan coil section would be part of the complete package) or the condensing unit only might be unitary with the fan coil package separately selected.

PACKAGE—A matched grouping of two or more component capable of fulfilling a definable function (e.g., baseboard heate with integral thermostat; standard in-line non-overloading pump motor combination; a unitary air conditioner, etc.)

PACKAGED COLD FLUID GENERATOR—A central packaged sec ondary energy generating unit producing chilled water by mean of a refrigeration machine.

PACKAGED CONTROL SYSTEMS—Manufacturer pre-selected system controls, e.g., for any or all of the following: (1) centra energy producing unit-heating and cooling; (2) ventilation ai ratio control; (3) zone control—either for multi-zone, double duct, variable air volume or other types of control; (4) humidity control; (5) evaporative cooling control; (6) reheat control.

PACKAGED HERMETIC REFRIGERATION COMPRESSOR—A compressor in a sealed refrigeration unit which is driven by an electric motor placed in the inlet vapor stream entering the compressor. Any heat due to motor inefficiency or starting power surges is removed from the motor windings by the flow of refrigerant suction vapor.

PACKAGED HOT FLUID GENERATOR—A central packaged secondary energy generating unit producing steam or hot water by means of a direct contact heater, waste heat heat exchanger, heat pump, etc.

PRE-ENGINEERING—The selective matching by a single manufacturer of limited groupings of standardized components, packages and controls to suit a range of anticipated application engineering design requirements of actual systems.

PRIMARY FLUID—Conditioned supply air (in an air-conditioning system).

THERMAL FLUID—Heat transfer fluid (air, water, gas, vapor) circulated within a system to produce heating or cooling either by direct mixing or by conductive heat exchange in a heat exchanger.

UNITARY AIR CONDITIONER SPLIT SYSTEM PACKAGES—Matched, multi-package assemblies wherein the condenser package only or the condensing unit package is remote from the evaporator blower (fan-coil) package.

UNITARY PACKAGED CONDENSING UNIT—A refrigeration unit similar to that contained in a unitary air conditioner, complete except for the evaporator-blower section. Units can always be matched with fan-coil packages designed for "built-up package" air-conditioning systems—even though some are designed specifically for application with matching evaporator-blower "split system" unitary air-conditioner packages.

UNITARY PACKAGED EQUIPMENT—(1) Completely self-contained secondary energy producing plant (with integral provisions for thermal fluid flow moving); (2) a unitary air conditioner for cooling only or cooling and heating, which includes such plants.

WASTE HEAT—Secondary energy in the form of exhaust gases, engine jacket water heat, space exhaust air, warm refrigeration machine condenser air or water, lighting fixture heat, etc. which is normally dissipated to the surrounding ambient.

ctually, there can be no such thing *ompletely* pre-engineered general- ir-conditioning system. It is pos- to come close to this with pack- systems or unitary central systems re were complete standardization ilding design and construction for ticular building type in a specific tological area. But, in practice, complete pre-engineering is not ble because: 1) heat loss and gain lations must always be made and wed, 2) thermal fluid distribution ms always require careful sizing un- one is dealing with small, constant systems where standard-size (prob- over-sized) mains and runouts can mployed, 3) placement of terminal utlets, heating elements or air-con- ning terminal units is critical to performance, 4) the location and tion of the space thermostat is y important, and its location within space must be carefully selected.

The designer of an air-conditioning em is not expected to be an expert e design of system components and pment; conversely, the manufac- r is not likely to be proficient in the -all design of an air-conditioning em. Obviously, the consulting engi- must be fully conversant with in- try standards on equipment; further this, he must know how to indicate ortant details of construction and formance in his specifications in such ay that the contractor will be obliged provide them.

It is understandable that industry ndards are, necessarily, minimum cification criteria; thus the prudent ineer will want to familiarize himself h important detailed information on the elements in a package. The prob- is more serious today because pack- s include a much wider range of mponents, and the manufacturer may furnish information on all the com- nents since he takes responsibility for matched selection of the compo- nts.

Basically the function of industry ndards is to establish a minimum ality to which the members of a man- acturers' association agree to meet as requirement for product certification listing. A secondary function of real portance is protection of the public's terest. The result is, of course, lower sts to manufacturer and consumer.

All manufacturers are involved to a eater or lesser extent in providing ap- ication information, and with the in- easing variety and scope of packages, is information is even more important the engineer.

With larger central systems, manu- cturers involvement in providing over- all system application guidance is relatively at a minimum. The manufacturer is concerned mainly with the proper physical installation of each package, particularly with respect to proper connections, foundation, and provision for clearances for proper operation and maintenance.

The engineer, by his very nature, must be "systems oriented," while the manufacturer does not have to be. When there were fewer system types and combinations, the manufacturer was able to afford more "back-up" engineering services to the engineer in the systems selection and appraisal phase of preliminary design. Obviously the manufacturer whose product line contains a broad range of components can afford to provide more application engineering information. He, of course, will want to limit the cost of his involvement—his objective being to furnish adequate information to help insure that plans and specifications for the systems using his components are correct and adequate.

The mechanical engineer's available sources of over-all design information and guidance are considerable. The trend, however is to short-form load calculations, standardization of design details and system selection. Some reference sources, while valuable for detailed information, may seldom be referred to because the information is too diffuse and detailed for practical, day-to-day use. Various manufacturers, the Air Conditioning and Refrigeration Institute, and individual engineering firms have all developed reference data in easy-to-use form. The danger is that such data can be used indiscriminately if the limits of use are not clearly set forth.

Architects should realize that mechanical engineering for buildings is hardly a precise science. Manufacturers do not guarantee equipment capacity closer than 5 per cent; air balance cannot be closer than, say, 10 per cent. Thus the presumption that design accuracy on any commercial or institutional installation is closer than 10 to 15 per cent at best is highly unrealistic. It is important, therefore, that there be flexibility for balance and adjustment within the system to meet actual, "as-built" load conditions.

All consulting engineering firms of any size, and most particularly those in heavy industrial, power plant and process industry field, have engineering design manuals for "in-house-only" use. Further, various government agencies such as the General Services Administration, Department of Defense, Post Office Department, Corps of Engineers, and the Navy have set forth many standards for the guidance of outside consultants.

While the engineer is not heavily involved in detailed information on separate components of packages, the installing contractor and the building owner's operating engineers—who will be involved in replacement and service —will be concerned with this sort of information.

Today, the design of the more complex air-conditioning systems and their supporting energy plants involves knowledge in a good many different areas, frequently beyond the range of any one person. And unfortunately, the most knowledgeable engineers involved in field analysis of installations do not have time to commit their knowledge to writing. On the other hand, some problems arise because of the misapplication of components or controls within a system or because of misapplication of the package, itself, within the system. (An example of the latter is the use of a package water chiller with no provision for capacity control in a system operating much of the time at low load.)

Manufacturer involvement must be at a maximum when the "package" is a combination of smaller packages. An example is a unitary heating-cooling air conditioner with pre-selected packaged controls for sophisticated multi-zone application. In this case the manufacturer must furnish complete and detailed application information on over-all system design and on any application limitations. Another factor the manufacturer must account for is the nature of the building in which the package is to be used. If, for example, the system relies on overhead air distribution, it is important for the manufacturer to emphasize that the architect insulate on-grade floor slabs and give attention to exterior window and wall construction.

While such systems have been termed "pre-engineered" systems, this is to some extent a misnomer, since the manufacturers make it very clear that the equipment package has certain application limitations, and that load calculations, design of the air distribution system and the selection of air outlets is very much a custom design.

The big advantage in the use of such a system is single-manufacturer responsibility, with single-source back-up engineering, service and maintenance responsibility.

The last 15 years or so have seen many improvements in equipment such as fans, pumps, compressors, boilers, cooling towers, etc.

Dimensions of units—both components and packages are smaller, per unit of capacity. While "miniaturization" may not be the proper word to use, "size-reduction"—a less romantic term —has been the order of the day.

Of all the systems the architect deals with affecting the physical environment, air conditioning is by far the most complex in an engineering sense.

How much should the architect know about air conditioning?

This is a most difficult question to answer since air conditioning, beyond its effect on human comfort, exerts an influence on over-all ownership and operating costs of a building, its appearance, the selection and design of its structural system; and involves the acoustical considerations of noise and vibration.

At the very least, the architect should appreciate the fact that, while thermal environmental control systems can be designed to cope with very severe loading conditions caused by sun, lights and people, costs can be outrageous, and *optimum* comfort conditions may be very difficult to provide, particularly when there are wide fluctuations in the Btu load due to sun.

It is true that even the most elementary air-conditioning system can help people avoid extremes of discomfort. And, despite the vagaries of peoples' subjective reactions to the thermal environment, most people can be provided not only acceptable conditions, but even pleasant ones.

What is not realized by many building designers is that it is much more difficult to provide a pleasant thermal environment for a system providing cooling than one providing heating. Air movement and humidity control become critical in the cooling situation. This calls for both careful selection and design of the basic system, and proper selection and location of room air-supply inlets. Some investigators have suggested that "built-in" fluctuations in air velocity can provide more stimulating conditions. For example: one scientist found that in calm air at 66 F, with mild air current impinging on the face, a sudden increase of speed from 12 to 30 fpm was enough to produce a just-perceptible feeling of coolness. Air speeds below 15 feet per minute, or so, at head level cause complaints about stagnant air; speeds of 25 fpm are considered favorable, and 50 fpm is approaching the maximum tolerable velocity for seated persons in an air-conditioned environment. Another investigator found that 30 fpm velocity was perceptible at 54 F, while 120 fpm was just perceptible at 86 F.

Everyone is aware that excessive humidity is a cause of discomfort. C
practice recommendations are that
tive humidity be confined to a rang
from 40 to 60 per cent for office sp
Relative humidity above 60 per ce
undesirable.

With air conditioning, the refrig
tion apparatus supplies both coolin
supply air and control of its humi
For optimum comfort conditions
important that there always be a ce
amount of air movement in the sp
and that swings in humidity be limi
An example of less-than-optimum
ditions is that of a typical room win
air conditioner operating at low
conditions. If room temperature co
tions are satisfied, the refrigeration c
pressor goes off, but the fan is still m
ing room air. It is possible then,
room humidity to swing up because
recirculated room air can pick up m
ture from the air conditioner's coo
coil. Such a situation can be avoided
selecting a unit which artificially lo
the compressor at low demand
keeps it running continuously.

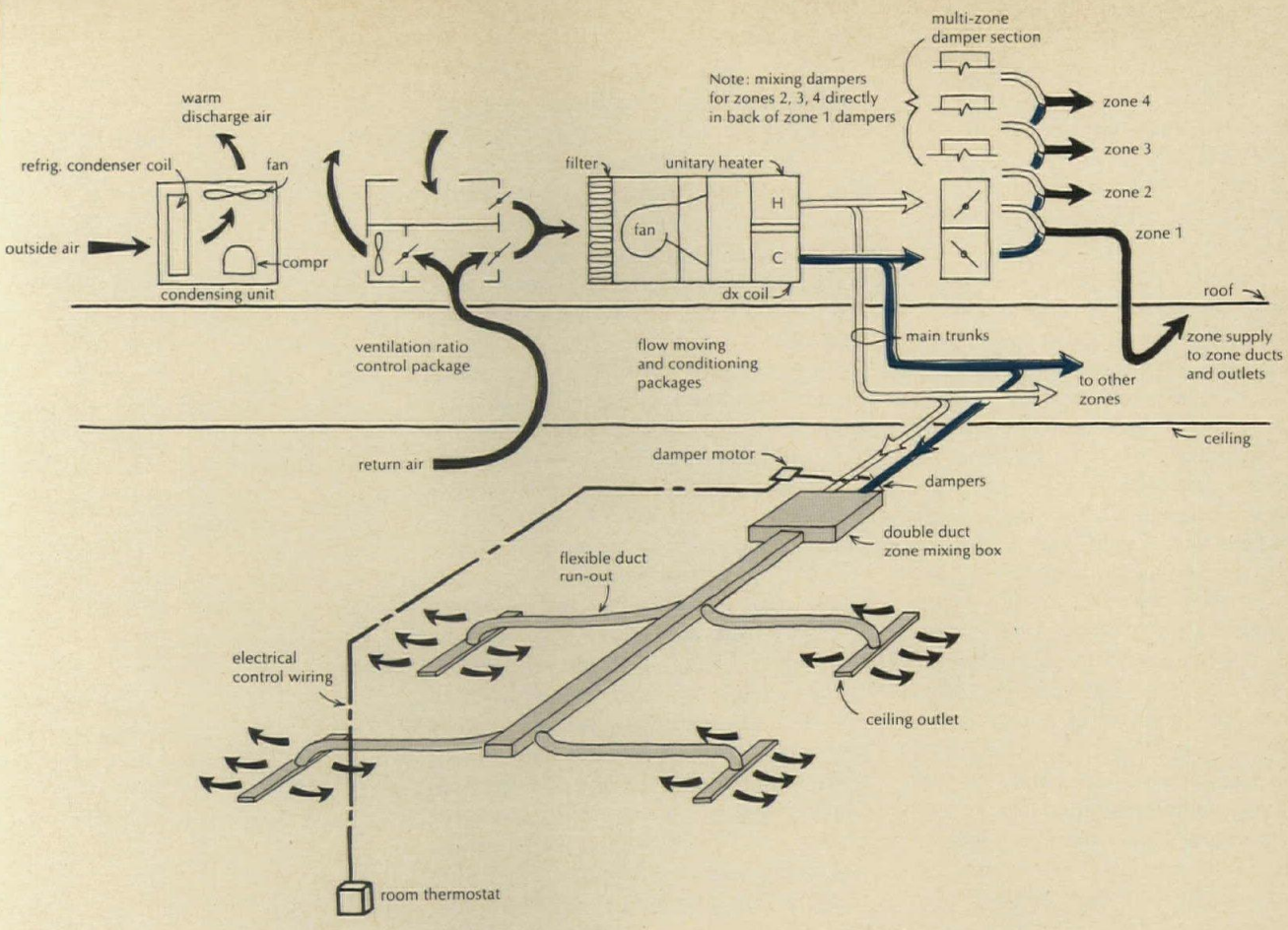
How good is good enough for the air-conditioned environment?

One of the things that makes air-con
tioning system design difficult is t
there are so many different possi
ways to do it for a given building.

Many architects probably feel th
the crux of the air-conditioning proble
is the physical coordination of pipes a
ducts with the structure, coordinati
of room air distribution devices in t
ceiling system and at the perimeter; a
working out equipment rooms so th
as little usable area as possible is co
sumed for cooling equipment and fa

While these are among the more o
vious considerations of air conditionin
that the architect must deal with,
must now recognize that there may b
other more basic considerations whic
will affect system selection and dete
mine the impact of the air-conditionin
system on a given building. Example
1) the relative economics of various en
ergy sources, 2) the write-off period fo
the equipment, 3) the importance of op
erating costs, 4) the availability of an
cost of supervisory and operating per

text continued on page 13



FLOW DIAGRAM OF MULTI-ZONE ROOF-TOP UNITARY AIR CONDITIONER

he large-size pre-engineered package air onditioner assumes more and more impor- nce as the industrialized building systems nd volume purchasing concepts continue to row. The first major application of this ap- roach was the School Construction Systems evelopment project which employed 22- on, roof-top, multi-zone packaged units.

In order that there be maximum profes- ional involvement in the building system esign process and participation in the devel- pment of future advanced air-conditioning ystems employing pre-engineered packages, he following approach is suggested:

1. Inclusion of knowledgeable consulting ngineers, application engineers, and instal- ation and maintenance engineers in any dvisory group involved in a "volume pur- hasing" approach.

2. Development of specific system perform- nce criteria by owners and designers.

3. Development of standards with greater egard to requirements of the system as a whole. This implies the establishment of meaningful standards by volume purchasers that go beyond those of A.R.I. to more ade- quately reflect the many operating condi- tions met in practice. Standards for large-size packages should include standard sound rat- ings and cover the dynamic unbalance.

A manufacturer's approach to pre-engineered systems for S.C.S.D. The manufacturer who was awarded the contract for the air-conditioning system component of the School Construction Systems Development project could not supply equipment "off-the-shelf." He therefore specially developed a low-outline, lightweight, multi-zone air conditioner which suited the project's requirements as to function, appearance and weight. Lacking a multi-zone unit, a custom-appearance unit was developed by the manufacturer which then became a part of his standard line.

From his pre-S.C.S.D. product line and pre-engineered systems approach, the manufacturer was able to employ certain of his standard components such as the ventilation supply and exhaust ratio control package; separate unitary cooling and heating packages matched with the air-control package; an over-all system and sub-system pre-engineered control package.

All of these sub-system components were combined in a newly designed, low-profile package. In addition newly-developed matching air outlets and air-mixing terminal units were provided. The over-all system and sub-system control package was completely pre-engineered, following the manufacturer's pre-S.C.S.D. approach.

Over-all system design with pre-engineered unitary systems. The steps involved in applying pre-engineered unitary systems, and the suggested respective responsibilities of consulting engineer and manufacturer are as follows:

1. The fluid-distribution system design (involving stability, noise problems, heat loss or gain) will be performed by the consulting engineer.

2. Proper matching of the air-flow mover and ventilation supply and exhaust will be done by the consulting engineer.

3. Matching of the energy generating packages with auxiliaries, and the co-ordination of the energy packages with energy output control is the responsibility of the manufacturer.

4. Matching of the energy generator output with the air-flow distribution system is the manufacturer's responsibility, while matching capacities for ranges of heating and cooling loads is the engineer's role.

5. Co-ordination of the over-all and sub-system control packages will be done by the manufacturer, but the consulting engineer will need to understand the various control functions and know what the limits are.

6. System design for distribution of energy into the space, including proper thermostat location is the consulting engineer's job.

sonnel, 5) the criticality of the air-conditioning effect in relation to people and equipment, 6) the growing demand for greater flexibility in adapting to short-term and long-term changes in building layout.

Obviously, these are all matters that concern the architect in his programing of a particular building—and matters that should have a significant influence in his over-all planning. How, then, can the practicing architect gain more knowledge about the efficacy of different approaches, beyond that he has acquired in his own practice?

Perhaps the most effective way is to make personal inspections of a number of buildings similar to the one he is designing, make his own critical evaluations of such subjective factors as comfort and noise, and find out from operating personnel how well the system performs in terms of energy usage and maintenance. What may have seemed to be a most logical choice on paper may, in fact, pose problems that only a behind-the-scenes examination will bring to light.

Further, it now is important to the architect to familiarize himself a great deal more with air-conditioning system components and thermal environmental effects, particularly as the "performance concept" becomes an increasingly used business management tool. In the first place, this will help the architect in making a more sophisticated and knowledgeable presentation to a client. It is bound to be helpful in the early design stages.

Architects, of course, have the greatest familiarity with the visible elements of air-conditioning systems such as diffusers and terminal elements. Beyond the architect's concern for how these affect room appearance, he can help make physical coordination of various system elements easier by knowing what sort of installation space is required for such components.

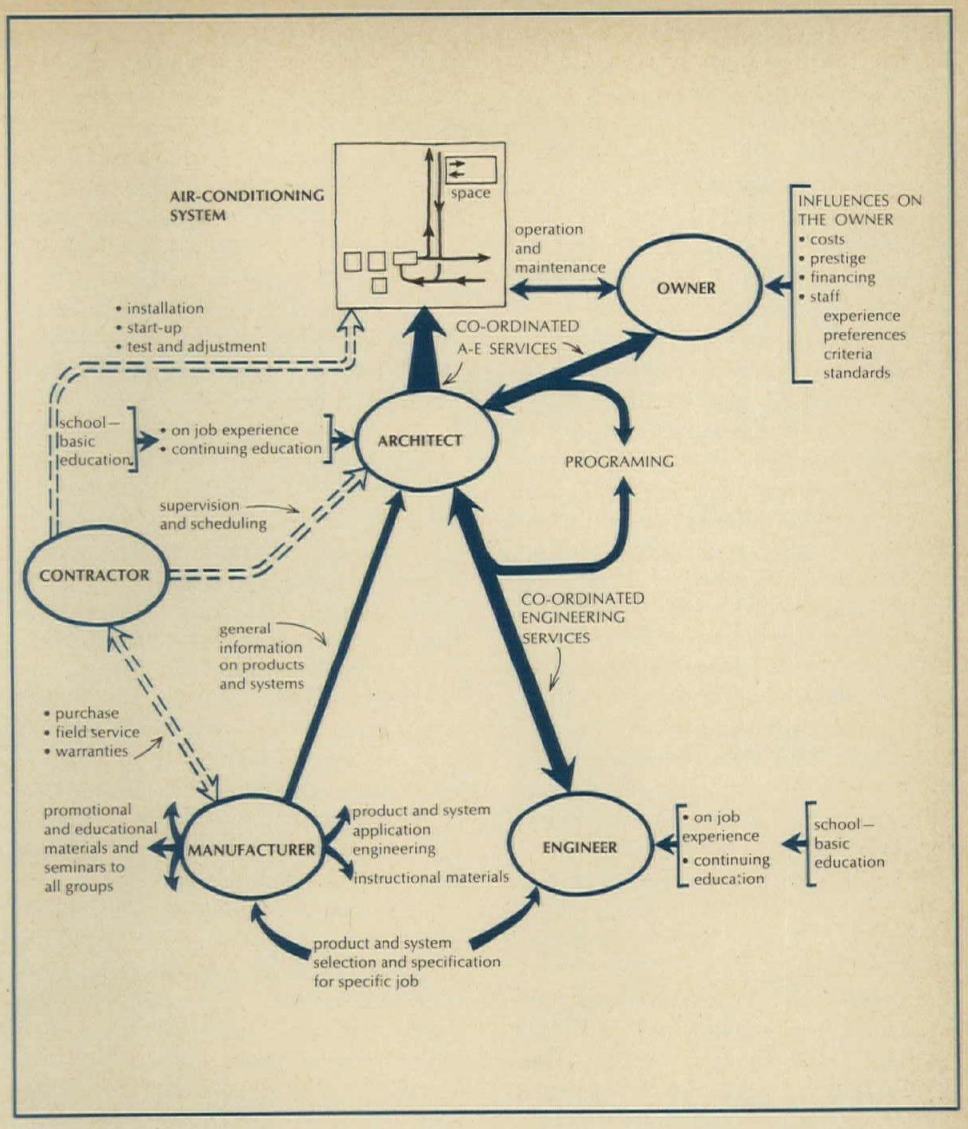
Space requirements for duct runs, shafts and equipment rooms are probably next in order of interest to the architect. He would prefer to have some general rules of thumb that he might use in his early planning. It is doubtful that many architectural firms have accumulated this kind of information on an organized basis. Many consulting engineers working in the building field have, however, over a long period of time developed "design standards" which include quick methods for determining sizes of pipes, ducts, fan rooms, and the like. Most of this information is available only to the consultant's own personnel. There is no reason, of course, why the architect can't develop more general guidelines for his own special purposes. Hopefully, the architect will call in his mechanical consultant very early in preliminary planning. But obviously in some of the early studies on a given project he would find some general rules helpful.

It has become very apparent in the last few years that greater architect-engineer communication is required at the programing stage to avoid inordinate costs and operational problems with mechanical systems. For example, excessive radiant effects from the sun or even lights, can cause difficulties with system design. A building space that alternately calls for heating and cooling during the fall and winter requires a more expensive system, and poses possible control difficulties, e.g., three- or four-pipe systems or dual-duct all-air system.

Now that mechanical refrigeration is the rule, it seems that less attention is paid to site conditions than was the case when natural breezes were relied on. This neglect is unfortunate, because microclimate and orientation factors can aid or adversely affect mechanical systems. Often forgotten are the implications of depressed sites which miss the breeze and lie in stagnant air; or the reflection and absorption of the sun's heat by such as reflecting pools or parking lots.

Another area requiring careful discussion among architect, engineer and client is that of energy source selection. The architect should recognize the special plants such as total energy, dual-use engines (normal use, refrigeration drive; emergency use, standby power) and district heat are more difficult to design.

Competition between opposing utilities on the one hand, and improved energy utilization equipment on the other, puts architects and engineers in the position of having to make recommendations concerning on-site electric power generation, all-electric buildings, engine-driven refrigeration, engine-heat recovery, and district heating and cooling distribution. Today the architect and owner are often uncertain as to the relative advantages and disadvantages of the various types of energy plants. Previously choices were less numerous and the plants, themselves, were simpler. And the consulting engineer, unless he has developed some expertise in these areas, may be overwhelmed by the vast amount of engineering details and studies prepared by various fuel and energy advocates to sell to clients directly. Much of the equipment used in on-site power plants is unfamiliar to the build-services consultant. The energy cycles are complex, and the controls, sophisticated.



intertwining relationships of
itect, engineer, manufacturer,
tractor and owner are complex,
, nonetheless, definable. And
r sources of design information
multitudinous.

ucation: undergraduate, post-graduate, professional

By and large, most mechanical courses in architectural schools still are generalized surveys of mechanical equipment, together with some elementary problem solving—heat-loss calculations and pipe-sizing exercises. As a matter of fact, it is probably not possible to give a very comprehensive mechanical course in the basic architectural curriculum. At the minimum, however, undergraduates should be given some instruction on how heating and cooling effects get to a space; how heat gains and losses are offset, and what their relative magnitudes are. They should be given a layman's analysis of basic system components—what they are and how they work. It would be helpful if they were made aware of the importance of quality materials and workmanship and of proper specifications. But most of all, students should have an opportunity of seeing systems as they are being installed in buildings, so they will have an appreciation for the scale of various components, how they are put together for various sub-systems, where they are located, how the sub-systems combine to form a total system, and how the total system relates to the building as a whole. This should be augmented by visits to working installations, particularly during severe loading conditions so that impressions can be formed of system characteristics and efficacies.

At the graduate level, it should be possible to develop new courses in thermodynamics and control theory which would comprise an explanation of concepts and terms in layman's language. Armed with this sort of knowledge, the architect, once in practice, will be better able to appraise various approaches to energy utilization: economics of various fuels, heat recovery techniques, heat pump applications, etc. As a matter of fact, these courses in engineering schools might benefit from a similar approach. Basically, the trouble is that students learn how to manipulate the mathematics and memorize the laws and rules without ever understanding their practical implications.

Few engineering schools offer undergraduate courses in mechanical engineering for buildings. Such courses

are being dropped rather than added, and this trend is likely to continue. For that matter, it is doubtful that any formalized academic programs can be developed and sustained to train mechanical engineers for the building field. Consulting engineering firms now find it difficult to attract graduate engineers, and this trend is likely to continue. To a lesser extent, manufacturers of air-conditioning equipment find it more difficult to attract graduate engineers. Consulting engineers will continue to get their engineering personnel as they have formerly—from manufacturers, from industrial-type consulting engineers, from contractors, and through in-house and technical-institute training. The nature of consulting mechanical engineering for buildings has changed somewhat in recent years, although it still has the attraction for the engineer of greater individual expression than many businesses. Practice has changed in the sense that, because of the increased complexity of buildings themselves, from 80 to 90 per cent of the total effort (percentage of fee) is represented by design (system layout) and drafting. Thus only 20 to 10 per cent involves "real" engineering which includes review and analysis in special areas.

In an effort to get away from the hackneyed equipment-survey approach in mechanical courses, some architectural schools have called in practicing consulting mechanical engineers for lectures and seminars. This can afford a greater sense of realism related to current practice, and possibly stimulate thinking in regard to better system integration and space planning.

The consultant as a lecturer would probably be of most help to students if he were to outline first of all what consultants do and how they function; then present rules of thumb (order of magnitude or degree, not design) relating to system choice, space requirements, load calculations, etc.; tell what goes on the engineering drawings, and why; describe how a typical job proceeds through the office in terms of system selection, design and drafting; describe problems that arise in physical coordination and space allocation; outline what the engineer does during the installation phase, and then later on during initial system start-up, and during the balancing, testing and adjustment phase; and explain what the owner and his maintenance people will do regarding system operation during occupancy.

It is doubtful that discussions of "sample" jobs are of very much value, unless they are used to give general ideas of relative differences in system performance—minimum acceptable performance to optimum performance. A more helpful and instructive activity would be critiquing of student work from an over-all viewpoint. The hazard of the sample-job approach is that it offers only a limited, and perhaps biased, point of view; and, in addition may encourage students to look for architectural design statements and novel approaches rather than to achieve an understanding of basic principles.

Similarly, it would seem worthwhile to invite participation from manufacturers and various mechanical and electrical contractors. Even now there are the beginnings of manufacturer participation in environmental control courses at some schools. Manufacturers have the resources to do this. And, of course, it is to their own best interests to have such involvement as architectural decisions continue to have an ever-increasing influence on mechanical systems.

At the professional level, "continuing education" programs have been developed for the various architectural technology subjects. Also, manufacturers, professional and trade organizations have initiated various types of educational and reference aids as well as professional courses in air-conditioning topics.

Background for this series has been supplemented by discussion and consultation with all elements related to the air-conditioning field.

The RECORD wishes to express appreciation to numerous individuals for their contributions. Organizations contacted included architectural and consulting engineering firms, manufacturers, building owners, contractors and government agencies.

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

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

nd repainting costs. Paint grips ger 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. H-84, Box 9115, Akron, Ohio 44305.

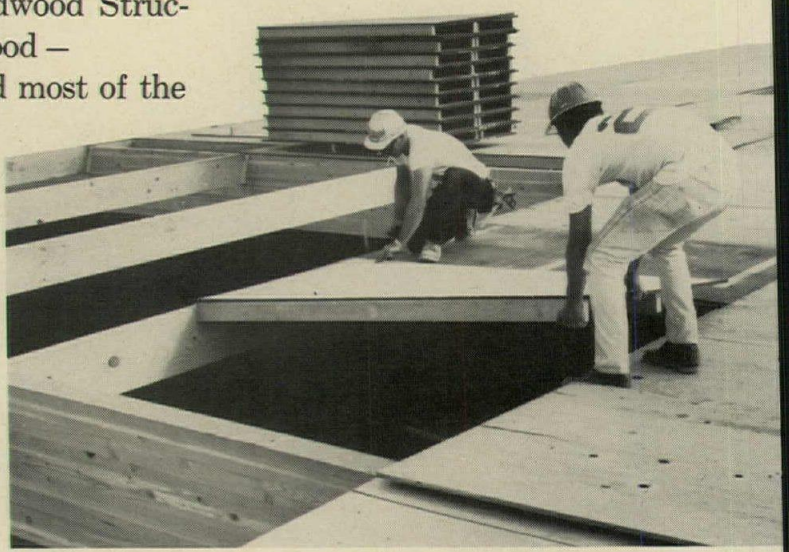
GOODYEAR CHEMICALS

For more data, circle 65 on inquiry card

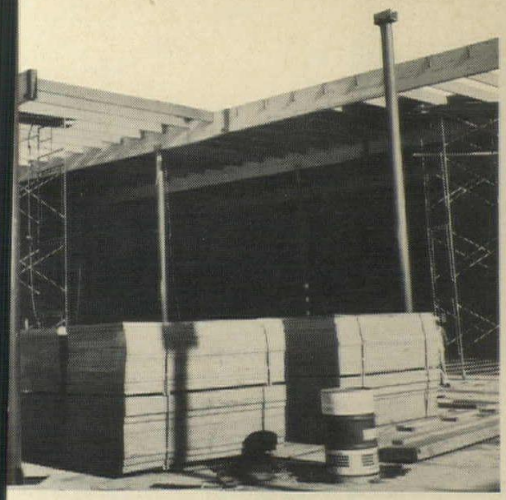
If the problems sound familiar, the solutions may surprise you.

1. Contractor A had to lay 4 acres of roof in 10 days.

Preframed plywood panels over glulam beams were the answer for the new Levi Strauss office-warehouse in San Jose, Calif. Roof contractor (Weldwood Structures, division of U.S. Plywood – Champion Papers) assembled most of the panels at the site. Installed them at the rate of more than 20,000 sq. ft. a day. And actually finished the job one day ahead of schedule.

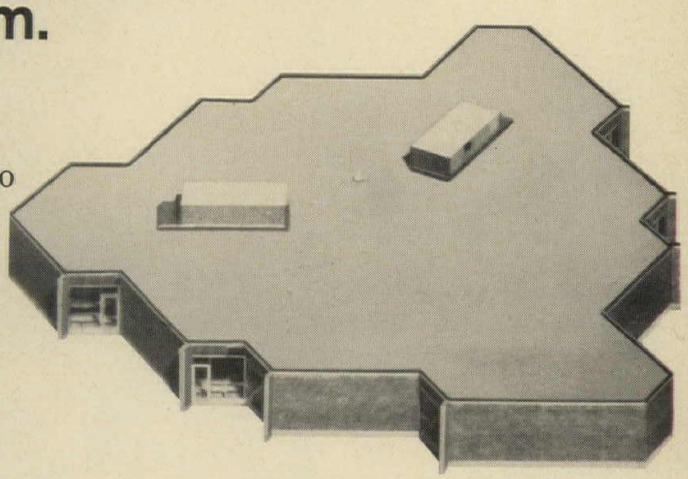


2. Client B wanted a roof that cost less than steel.



Switch to plywood from steel saved Owens-Illinois about $21,000 at this Waco, Texas warehouse. Contractor says he's convinced it's the least costly roof system he's ever used. And San Francisco architect John Sardis says plywood's diaphragm strength solves the earthquake design problem, too.

3. Architect C needed a highly adaptable roof system.



Plywood decking over open web joists solved a complex problem for architect Philip Padawer, designer of this Chicago school. Six hexagonal-shaped classrooms, all under one roof, required 47 different truss lengths. Plywood and Trus-joist® system proved most flexible, manageable and economical.

For still more surprising facts on these and other plywood roof systems, send the coupon.

AMERICAN PLYWOOD ASSOCIATION

American Plywood Association, Dept. AR
Tacoma, Washington 98401

TESTED DFPA QUALITY

☐ Please send more information on plywood roof systems — including new books on apartment design, and how to specify under new Product Standard.

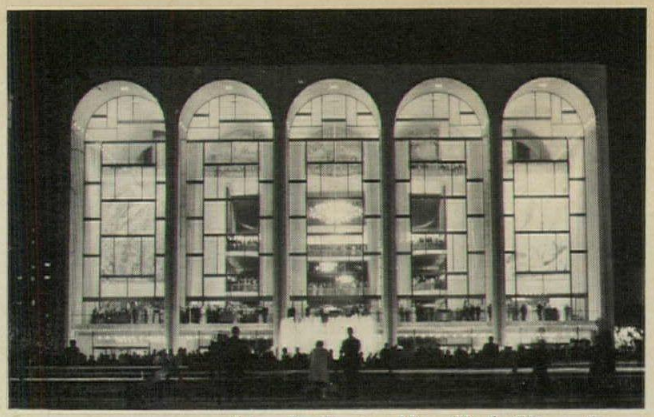
☐ Please ask a field engineer to call. Regional offices: Atlanta, Chicago, Dallas, Detroit, Los Angeles, Minneapolis, New York, San Francisco, Tacoma, Washington, D.C.

Name_____

Firm_____

Address_____

City_____ State_____ Zip_____
(USA only)



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

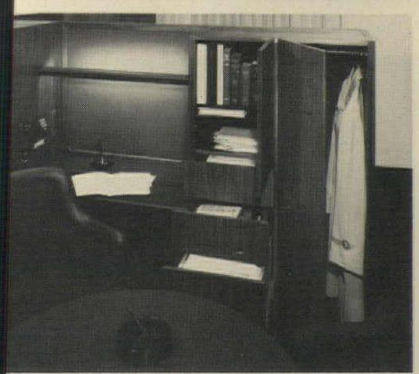
These extremes of complexity and cost illustrate the versatility of Dover Stage Lift engineering. Utilize this unique breadth of experience on your projects by contacting Dover for imaginative suggestions on achieving the effects you want with Oildraulic® Stage Lifts. There are practically no limitations 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-4, P.O. Box 2177, Memphis, Tenn.

For more data, circle 66 on inquiry card

For more information circle selected item numbers on Reader Service Inquiry Card, pages 221-222

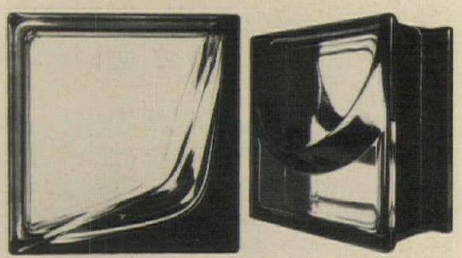


NK FURNITURE / A compact unit "to vide more relaxed customer-banker tions" has been designed for Exnge National Bank of Chicago by D., Inc., the Interior Space Division of kins and Will Partnership. Shown is *Centriform,* which occupies less ce than four desks and chairs yet proes necessary privacy. Units contain ting ledge and work area, drawers, g units, a built-in phone system, and ardrobe for coats and hats. ▪ Lehigh niture Corp., New York City.

Circle 300 on inquiry card

OOFING AND SIDING / *Zip-rib,* an alunum system for industrial and comercial applications, consists of indidual roofing panels that are "zipped" gether with an electrically operated hand tool that simultaneously locks the panels together and anchors fastening clips. The "zipper" tool rides down the seams as rapidly as 50 ft per min. The panels join tightly to form a solid roof or wall with no through fasteners. The locking system, combined with custom-length panels in ridge-to-eave lengths, eliminates all end and side laps, producing a fully watertight structure. ▪ Kaiser Aluminum & Chemical Corp., Oakland, Calif.

Circle 301 on inquiry card

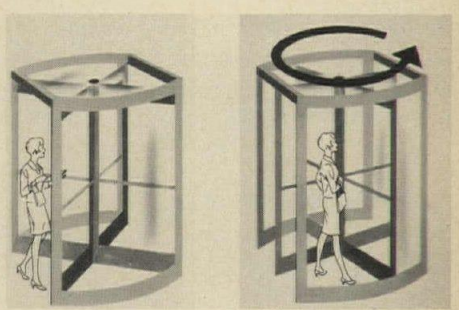


GLASS WALL UNITS / Two sculptured clear glass units with fired-on black ceramic frit change appearance with each shift in light and from different angles. *Cameo I's* sculptured relief surface is in the shape of a semi-circle, while *Cameo II's* is in the form of a sharply angled crescent. Since the patterns may be used singularly, in combination, or with other masonry materials, a variety of designs and applications are possible. Units measure 8 in. by 8 in. by 4 in., are hollow and hermetically sealed. They have a high insulation value, permit no surface condensation or dust and air flow from the exterior, and cut sound transmission. ▪ Pittsburgh Corning Corporation, Pittsburgh.

Circle 302 on inquiry card

PAINT / *Kem-1-Coat* is guaranteed to cover with one coat any previously painted house, regardless of color. Upper photo shows test in which house was painted in bold, multi-colored vertical stripes; lower photo shows house after one application of *Kem-1-Coat.* Paint has a patented anti-flatting compound to reduce tendency towards spotting and loss of gloss or flatting of freshly applied paint under dew, high humidity or fog conditions, and is reported to "last considerably longer." ▪ The Sherwin-Williams Company, Cleveland.

Circle 303 on inquiry card



REVOLVING DOORS / When activated by a slight push, a power control unit turns a door at walking speed, then slows it and brings it to a stop with all wings in contact with the door enclosure. The door remains closed preventing the loss of conditioned air. The *Revolvomatic* drive mechanism fits a space 3 in. by 8 in. by 25 in. A separate control panel permits adjustment of starting pressure, speed of rotation and safety override. ▪ International Steel Company, Evansville, Ind.

Circle 304 on inquiry card

more products on page 144

OFFICE LITERATURE

For more information circle selected item numbers on Reader Service Inquiry Card, pages 221-222

LIGHTING / A 16-page 1967 lighting handbook covers all phases of interior mercury vapor lighting. It serves as a reference and a guide in selecting, specifying, and installing high-, medium-, and low-bay mercury vapor lighting in industrial applications. ▪ The Spero Electric Corporation, Cleveland.

Circle 400 on inquiry card

SOUND CONTROL / How added value through effective sound control can be built into garden apartments is explained in a technical brochure on RC-1 Sheetrock Resilient Channel Systems. ▪ United States Gypsum Company, Chicago.*

Circle 401 on inquiry card

ROLLING DOORS / Steel doors, grilles and shutters designed for commercial, industrial, warehousing, institutional, and governmental service buildings are covered in a 16-page ready-reference fact file. ▪ R. C. Mahon Company, Warren, Mich.*

Circle 402 on inquiry card

FLOORING / A report shows the results of a series of tests to determine the spotting and staining resistance of various flooring materials. Chemicals and staining agents were applied to the surface of asphalt tile, vinyl asbestos tile, vinyl tile and *Sancoura*, seamless poured floor. ▪ Seamless Systems, Inc., St. Louis, Mo.*

Circle 403 on inquiry card

PLAZA WATERPROOFING / A 6-page brochure describes how a durable and impermeable moisture barrier of butyl rubber sheeting was applied at Ohio's Bowling Green University. The butyl rubber was installed between the roof of the new library, which is partially below grade, and a 1000-sq-ft plaza above. ▪ Enjay Chemical Company, New York, N.Y.*

Circle 404 on inquiry card

RECREATION EQUIPMENT / An 8-page catalog includes a circular picnic table, four-seater and traditional rectangular park tables, park benches, and portable bleachers. ▪ Dentin Mfg. Co., Bellwood, Ill.

Circle 405 on inquiry card

ELEVATED FLOORING / A comprehensive 34-page handbook is available for planning computer facilities and areas such as broadcasting studios, laboratories and offices where free access to sub-floor mechanical and electrical systems is required. ▪ Liskey Aluminum, Inc., Glen Burnie, Md.*

Circle 406 on inquiry card

CURTAIN WALL / A 16-page selection guidebook covers protective/decorative insulated metal curtain walls, firewalls, and single-sheet siding and walls for interior partitions. ▪ R. C. Mahon Company, Detroit.*

Circle 407 on inquiry card

COLD STORAGE DOORS / In addition to standard types, the 16-page catalog of manual and power-operated doors shows cool-zone and freezer doors with several kinds of controls and operators. ▪ Clark Door Company, Cranford, N.J.*

Circle 408 on inquiry card

BASE FOR CONCRETE / Metal forms for a permanent concrete floor and roof slab base are the subject of a 4-page brochure. The *Fab-Form* brochure includes information on standard and heavy-duty centering material produced in lengths up to 35 ft for continuous span installation. ▪ Steelite Buildings, Inc., Pittsburgh.

Circle 409 on inquiry card

STORAGE EQUIPMENT / A revised 48-page catalog offers descriptions and selling prices on a complete line of steel equipment for plants, offices, and institutions. The catalog covers 91 standard shelving units, accessories, and shop equipment. ▪ Penco Products Inc., Oaks, Pa.*

Circle 410 on inquiry card

COMMUNICATIONS WIRING / A booklet analyzes the revolution in communications in office buildings and the growing need for additional wiring to handle new equipment in existing buildings. The booklet describes *Flexicore "Plug-In" Floors* that are designed to accommodate the present and future wiring needs in low-rise or high-rise buildings. ▪ The Flexicore Co., Inc., Dayton, Ohio.*

Circle 411 on inquiry card

INFRA-RED HEAT / An 8-page catalo scribes how gas-fired infra-red heat vides instantaneous, directed heat needed, with no fans or blowers, ve or ductwork. The catalog also exp zone temperature control that allow dividual sections to be heated. ▪ Dorn Co., Cleveland.*

Circle 412 on inquir

OFFICE FURNITURE / One bo shows the 6000 series desks; an presents William Sullivan chairs. Bot aimed at complementing buildings " ceived by America's young architects Marble/Imperial Furniture Comp Bedford, Ohio.

Circle 413 on inquir

INTERNAL COMMUNICATIONS / A page quick-reference illustrated cat is directed toward school, office, indu church, hotel, and sport-recreation stallations. Various systems and com nents are described. ▪ Dukane Co ration, St. Charles, Ill.

Circle 414 on inquiry

ANODIC FINISHES / A 12-page boo includes sections on color and alloy lection, design and fabricating consid tions, and descriptions of pre-and treatments and finishes. ▪ Kaiser A minum & Chemical Corporation, O land, Calif.*

Circle 415 on inquiry

BUILDING CERAMICS / An 8-page bo let demonstrates the design possibili with *Brickplate*, showing that an alm limitless variety of custom design effe for walls, floors, and siding can developed through the use of spec colors, textures, shapes and patterns. Gail International, San Francisco.*

Circle 416 on inquiry c

PLYWOOD / Three recent guides clude: 1) sheathing for floors, walls a roofs; 2) use with concrete forms; and sidings. ▪ American Plywood Associ tion, Tacoma, Wash.*

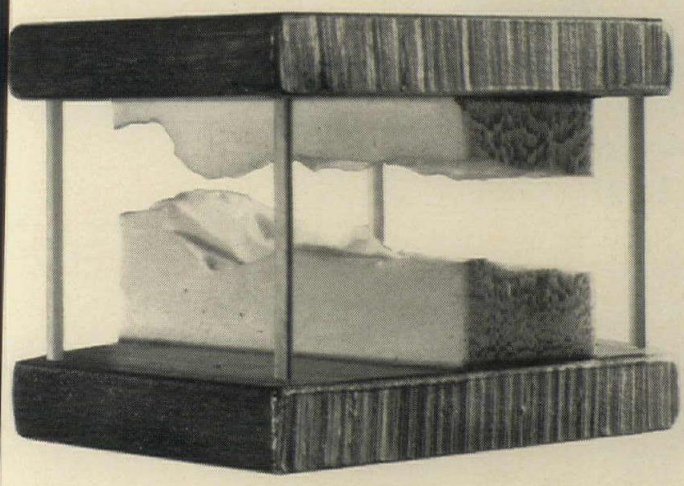
Circle 417 on inquiry c

* *Additional product information in Swee Architectural File*

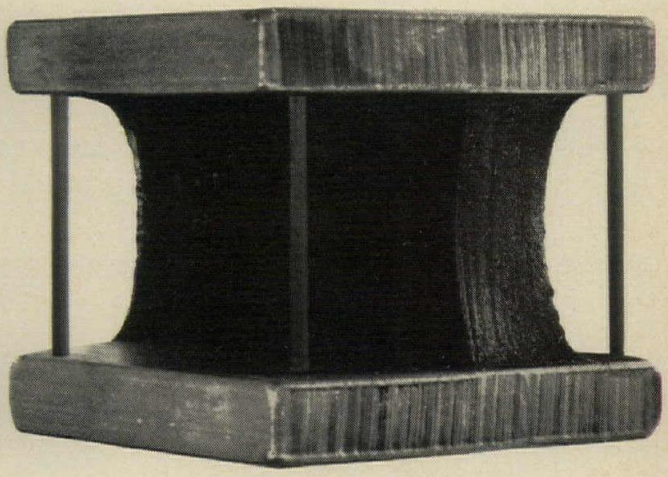
more literature on page 1

Which sealant would you use in your next building?

SILICONE



POLYSULFIDE



Random samples of silicone and Tested-Approved polysulfide-base sealant compared in expansion test.

Result: silicone (photo above left) fails cohesively at 50% stretch. Polysulfide (photo right) holds up at 50%, 100%, 150% elongation –and recovers.

Conclusion: Tested-Approved polysulfides promise a true seal of security even in face of most pronounced joint movement.

For sheer strength—the kind that keeps buildings leak-free and sound at the joints under severest conditions—no sealants can touch Thiokol Tested-Approved LP® polysulfide base compounds.

Their adhesive bond to all materials, even without priming, is virtually indestructible. Their cohesive muscle and rubbery flexibility permits greatest expansion and contraction—and return to normal dimension without rupture.

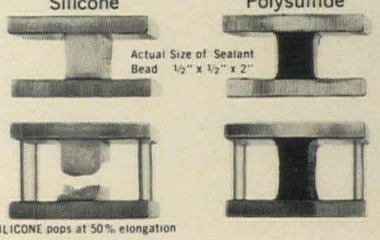
Tested and Approved polysulfide base sealants are formulated to meet the industry's most demanding performance specifications. They are identified by Thiokol's "Seal of Security"—your guide to total long-term weatherproofing protection.

SEALANT SAMPLES BEFORE AND AFTER TEST

(Samples used in test were of same dimensions, used same substrate, cured in accordance to manufacturers' recommendations. Sets of comparable samples were also immersed in water for 48 hours and then tested to determine effects of exposure to water. Photographic results shown below.)

Cured at room temperature

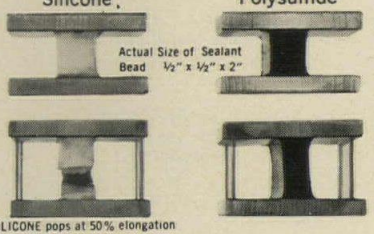
Silicone Polysulfide



SILICONE pops at 50% elongation

Cured, and water-immersed 48 hrs.

Silicone Polysulfide



SILICONE pops at 50% elongation

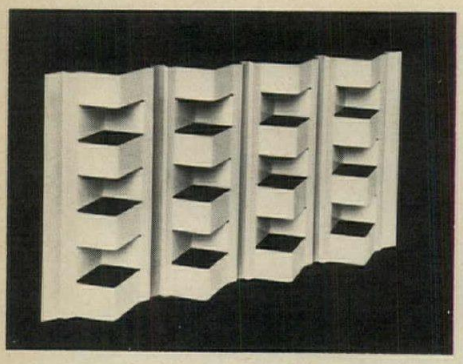
*The manufacturer warrants by affixing this seal to his label that the product is a duplicate of materials independently tested and approved by– and in accordance with standards established by—Thiokol Chemical Corporation. The seal means you can specify with confidence.

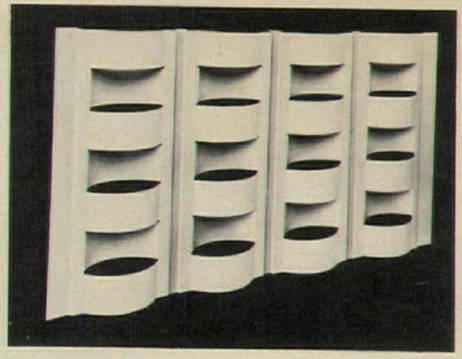
Building Sealant Technology...
part of the Widening World of Thiokol

THIOKOL CHEMICAL CORPORATION 780 N. Clinton Avenue, Trenton, N.J. 08607. In Canada: Thiokol Canada, Ltd., 377 Brant Ave., Burlington, Ontario

For more data, circle 67 on inquiry card

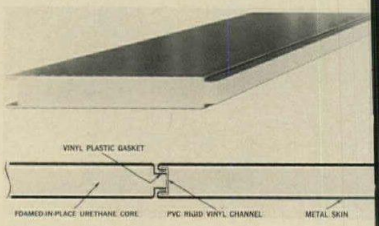
continued from page 141





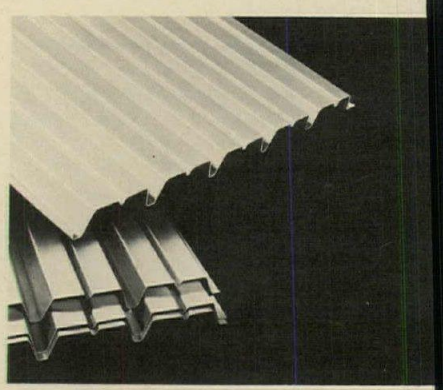
REFACING / A building refacing made from .050 gauge aluminum ha basic patterns, a diamond and an e cal. The two may be alternated, gered, or intermixed in a panel. Mo are 8 in. by 3 in. by 3 in. and are avai in a range of clear and color fini Erection is by screw anchorage of to and groove panels to horizontal m bers, either continuous aluminum a or wood furring. ▪ Construction cialties, Inc., Cranford, N.J.

Circle 305 on inquiry



BUILDING PANELS / *Foamwall* is a bu ing panel of flat embossed alumin sheets permanently bonded to foam in-place rigid urethane insulation to fo the complete unit. The panels are c tom-designed and factory-fabricat delivered ready to erect in thickness fr 1 in. to 3 in. Depending on thickness is possible to span up to 15 ft or m with no intermediate supports. T double-faced panels can form both t exterior and interior walls. Conceal fasteners give an over-all smooth exteri There are no insulating voids, and no h or cold conducting areas. ▪ Elwin Smith & Co., Inc., Pittsburgh.

Circle 306 on inquiry c



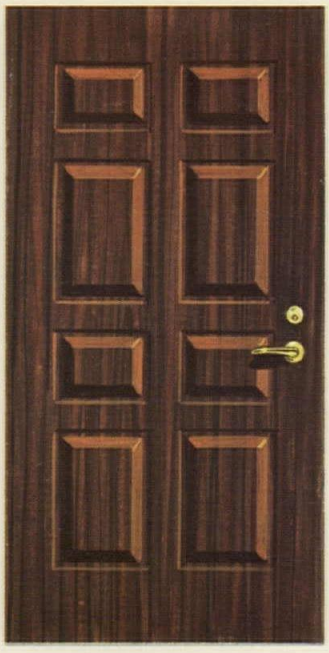
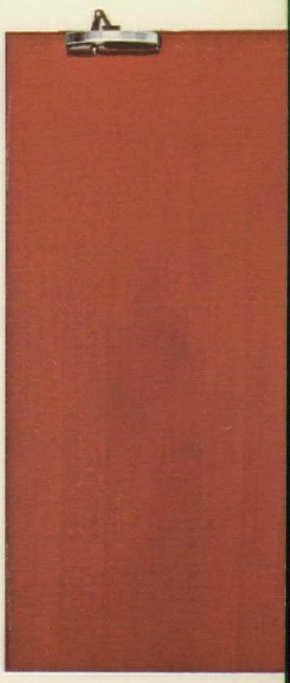
ROOF DECK /*Type FN Roof Deck* is stee decking that can be nested togethe when being shipped or stored. Roof deck panels are made of light-gauge steel and are suggested for commercial and light manufacturing construction. Panels are 30 in. wide and 50 ft long. Wide rib openings allow fast and easy plug welding. ▪ Wheeling Corrugating Company, Wheeling, W. Va.

Circle 307 on inquiry card

more products on page 148

For more data, circle 51 on inquiry card



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hardware specialist at your Corbin distributor is the man to
for the Corbin "Gallery of Design Ideas."

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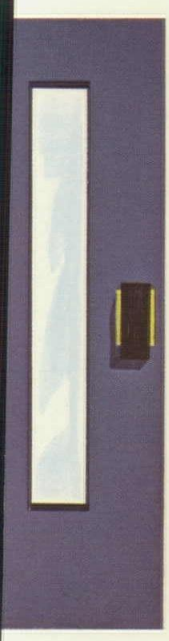
Belleville, Ontario

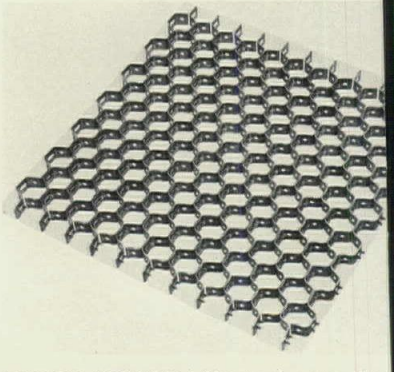



66-1363

continued from page 156

MEMBRANE SYSTEM / *Thio-Deck C.T.* is a two-component, elastomeric, black compound that produces a 30 to 50 mil thickness in one application and cures at ambient temperatures above 40 deg F. The membrane becomes a chemical resistant rubber sealant compound that remains serviceable in temperatures of —40 deg F. to 175 deg F. without loss of bond or elasticity. It resists water, salts, alkali, acid solutions and remains inert to other natural elements and bacterial attack. This heavy-duty membrane waterproofing is mixed and applied at the job site, and forms a continuous se flexible impervious membrane. It r used in above- and below-grade i tions for two-course concrete sl parking decks, bridges, roadway mall areas. It may be applied as a proofing adhesive, under conver terrazzo and quarry tile, as a roofin subject to later topping with co and as flashing in roofing syste Toch Brothers, Inc., Paterson, N.J.

Circle 311 on inqu



FLOOR ARMOR / *Hexteel*, a steel su floor armor, promises to prolong th of industrial surfaces exposed to s traffic conditions. It will withstand rolling and standing loads on fl ramps, docks, and aisles. *Hexteel* ca imbedded in fresh concrete or used surface wood or concrete floors mastic (asphalt cement), hot or col phalt, or magnasite. A continuous ored floor can be attained by side- end-clinching the panels on-site. St ard panel sizes are 10 ft by 3 ft. Pa are available in 1010 carbon steel stainless steel and offer resistance to rosion and oxidation. ▪ Klemp Co ration, Chicago.

Circle 312 on inquiry

SUN CONTROL / A *Sun Control* promises to solve four fenestration pr lems: solar heat gain, sun glare, sun li and sound transmission. Unit consist two fully tempered panes of glass se rated by a 2-in. air space, hermetic sealed. In the air space, hollow alumin louvers, 1½ in. wide and free-span, tate through 180 deg to control heat light. ▪ Polarpane Corporation, Pe sauken, N.J.

Circle 313 on inquiry

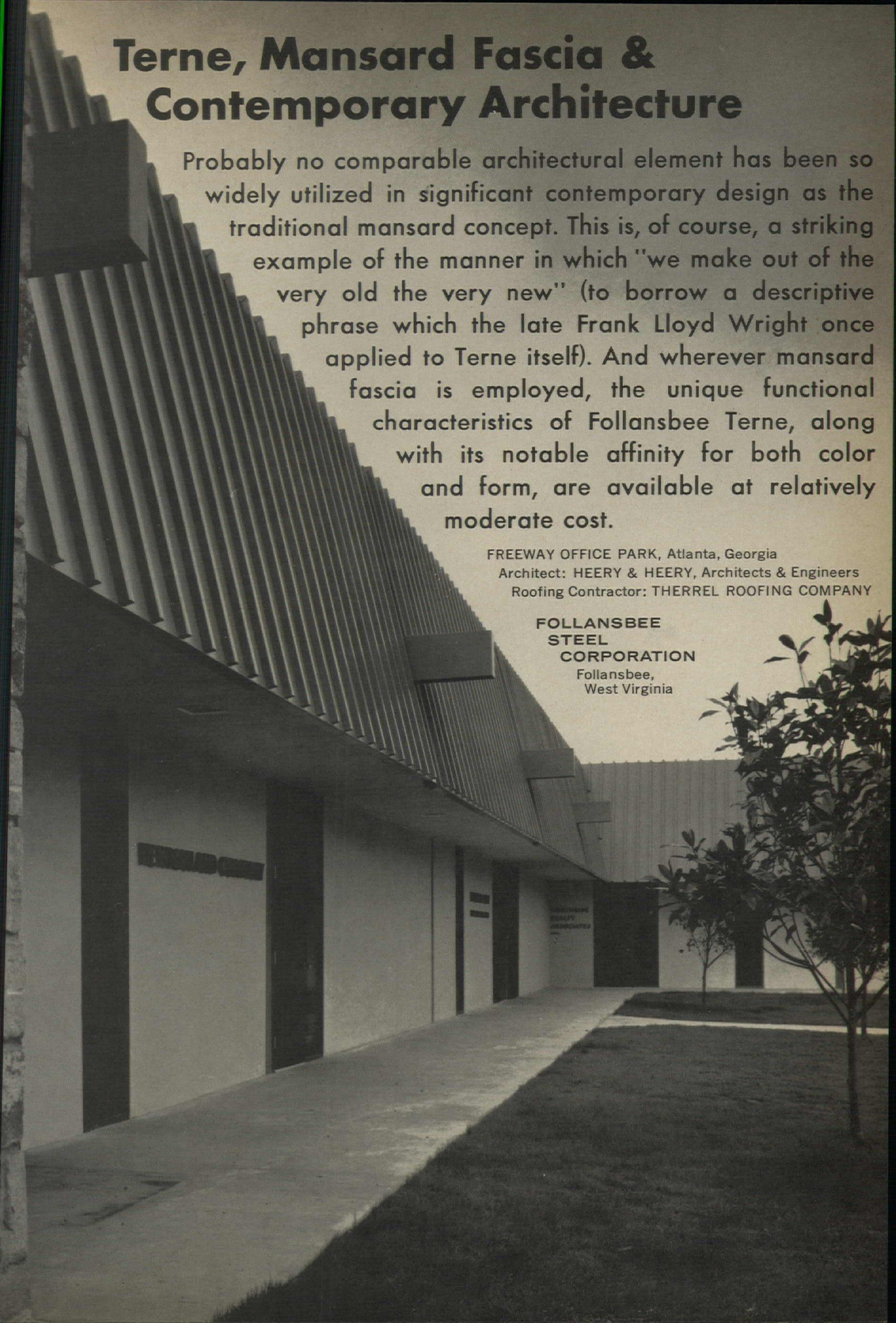
more products on page

For more data, circle 79 on inquiry card

For more data, circle 81 on inquiry c

Terne, Mansard Fascia & Contemporary Architecture

Probably no comparable architectural element has been so widely utilized in significant contemporary design as the traditional mansard concept. This is, of course, a striking example of the manner in which "we make out of the very old the very new" (to borrow a descriptive phrase which the late Frank Lloyd Wright once applied to Terne itself). And wherever mansard fascia is employed, the unique functional characteristics of Follansbee Terne, along with its notable affinity for both color and form, are available at relatively moderate cost.



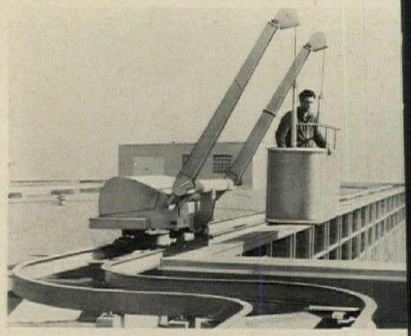
FREEWAY OFFICE PARK, Atlanta, Georgia
Architect: HEERY & HEERY, Architects & Engineers
Roofing Contractor: THERREL ROOFING COMPANY

FOLLANSBEE STEEL CORPORATION
Follansbee,
West Virginia

continued from pa

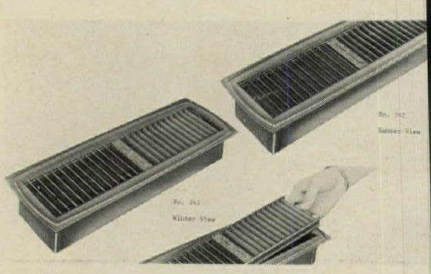
WATERPROOFING / A waterpro chemical for wood, *Chemstop*, can trate to a depth of ½ in. to seal the ous structure of wood from within a clear liquid that has no silicones therefore serves as a primer for o water-base paints. For shingles, shak decorative woods to be left a na color, no finish or coating is nece after applying *Chemstop*. A preserv in the chemical prevents rot due to gus, bacteria, and chemicals. ▪ C stop Manufacturing and Sales Corp., bank, Calif.

Circle 317 on inquiry



POWER SCAFFOLD / This power-op ated window-washing scaffold is a ro mounted self-contained unit that reach every point on the facade. double-jib arm design affords three mensional movement—horizontal, ve cal, and to-and-from the building fa Access to and from the platform can made safely from the roof. The cablel control system is operated by one m and movement occurs only when operator depresses the button. Electri conductors are encased in steel hoisti cable. ▪ Patent Scaffolding Co., Lo Island City, N.Y.

Circle 318 on inquiry c



DIFFUSER / *The Air Control Seaso Changer* is a floor diffuser with a rever ible face that provides two complete different air patterns. For heating, the di fuser provides a wide blanketing pattern while for cooling, the diffuser directs high velocity air column toward the ceil ing. No tools are required to change th diffuser. ▪ Leigh Products, Inc., Coop ersville, Mich.

Circle 319 on inquiry car

BEFORE YOU DECIDE WHICH LIGHTING PANEL, TRY ONE OF OURS FOR 25 YEARS.

Glass won't yellow. Ever.
Glass won't warp. Ever.
Glass does not attract dust.
Glass does not burn.
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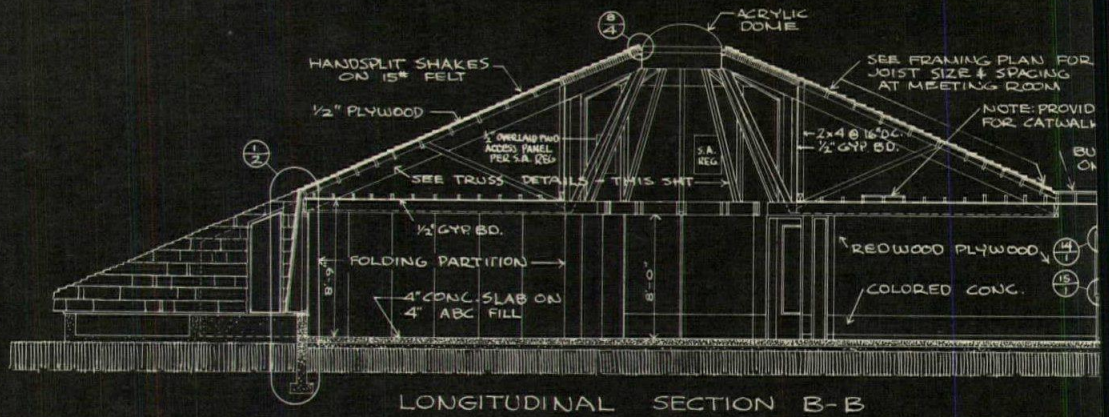
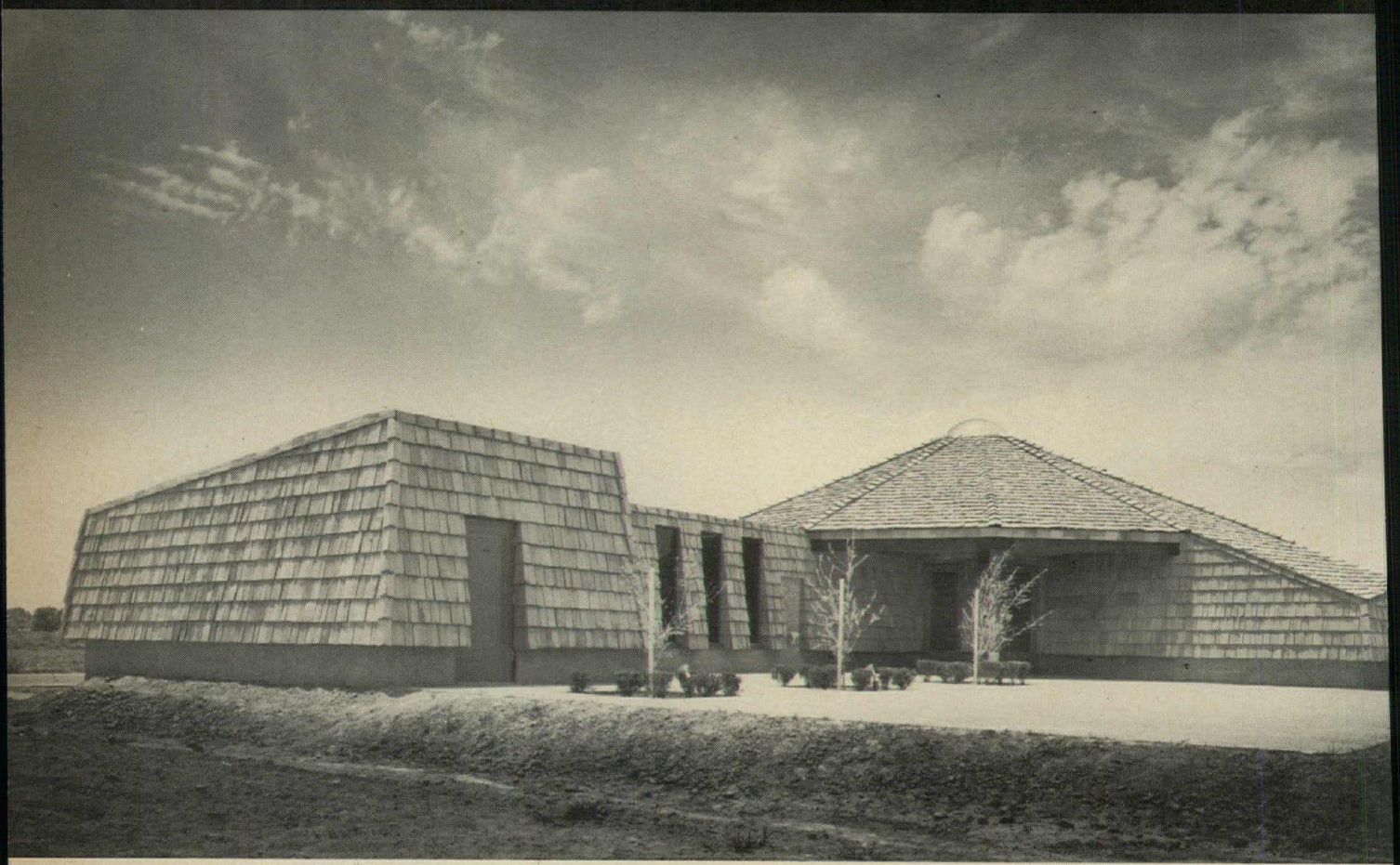


THE CROWNING TOUCH OF QUALITY · RED CEDAR SHINGLES & HANDSPLIT SHAKES ·

Mennonite meeting house, Phoenix, Arizona. Architect: Logan E. Van Sittert / Certi-Split Handsplit / Resawn Shakes: 24" x ½" to ¾" with 10" to the w



Handsplit shakes have a way of saying what you want them to.

Take the church meeting house above.

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continued from pa

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OUTDOOR LIGHTING / An 8-page chure illustrates luminaires to ac special area lighting, floodlighting, landscape lighting effects. ▪ R Electric Manufacturing Co., Chicag

Circle 419 on inquir

STAINLESS STEELS / "Fabrication of S less Steels" is a 36-page booklet cov every phase of fabricating and tre stainless steel. ▪ Universal-Cyc Specialty Steel Division, Pittsburgh.

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HARDWOOD PLYWOOD / "Vers Hardwood Plywood" is a 16-page booklet supporting what the title cla The booklet has as its theme a quote Frank Lloyd Wright, "hardwood plyw has emancipated the beauty of wo ▪ Hardwood Plywood Manufacturers sociation, Arlington, Va.

Circle 421 on inquiry

HARDWOOD VENEERS / "Fine H wood Veneers for Architectural In ors" is an 8-page brochure that inclu color photographs of installations and formation on veneer species, colors, signs, and possible effects. ▪ Fine H woods Association, Chicago.

Circle 422 on inquiry

COPPER / An 88-page catalog illustra the design principles and techniques applying sheet copper in many phase building construction including ro flashing, fascias, gutters and expans joints. There are detail drawings photos. ▪ Revere Copper and Brass corporated, New York, N.Y.*

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GENERATORS / A 12-page bulletin scribes units for low-pressure steam hot-water operation with gas, No. 5 lighter oil, or combination gas-oil firi Units covered are suggested for heati office and store buildings, schools, m tels, hospitals, small factories, apartme and other medium-sized buildings American Standard, Detroit.*

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* *Additional product information in Swe Architectural File*

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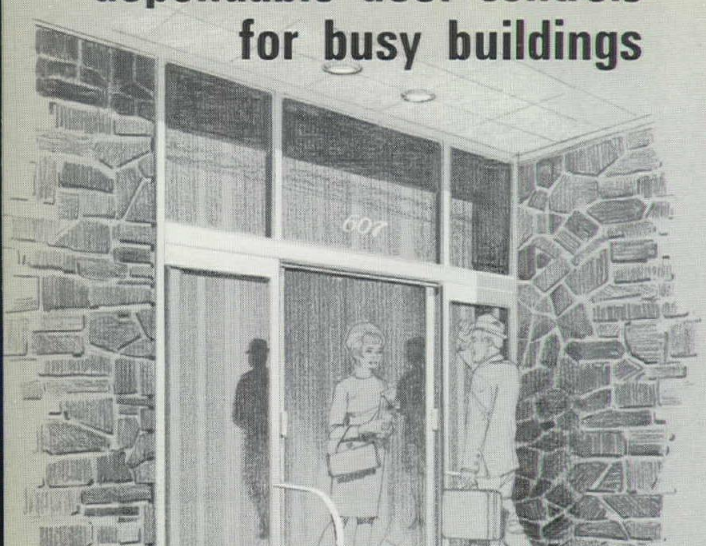

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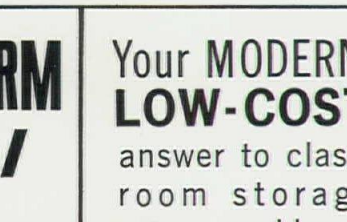

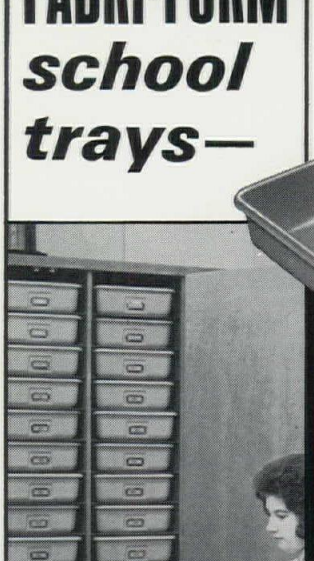

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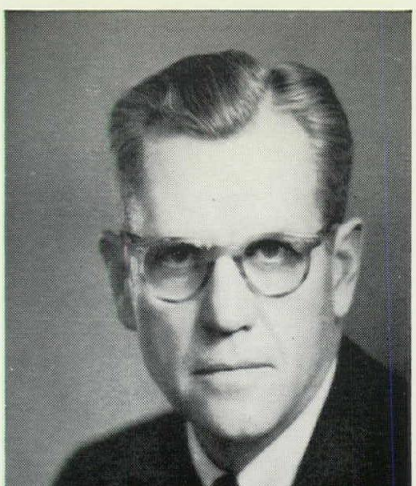

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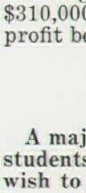

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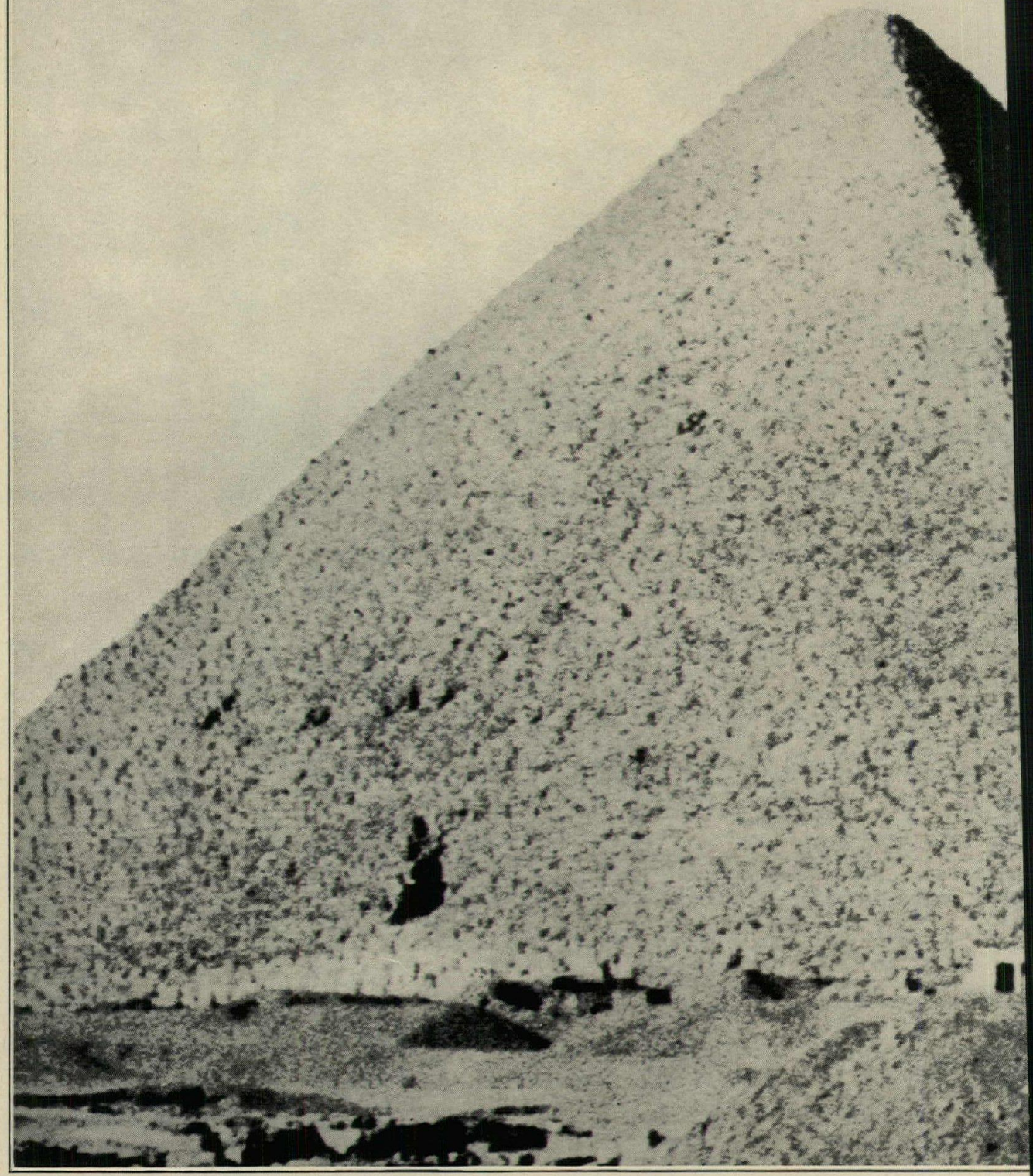


The business of architecture

ARCHITECTURE: A PROFESSION AND A BUSINESS. *By Morris Lapidus. Reinhold Publishing Corporation, 430 Park Avenue, New York, N.Y. 10022. 224 pp. illus. $12.25.*

Morris Lapidus—an architect best noted among his colleagues, perhaps, for the business acumen and architectural *elan* with which he has caught the spirit of hotel clients in Miami and New York—has written a book about the practice of architecture which will be of considerable value to the profession, particularly to those who have just started their own offices or are about to do so.

Architecture: a Profession and a Business is primarily concerned to demonstrate to architects that there is no inherent reason why they cannot make a financial and business success of their offices and at the same time maintain their professional integrity. Lapidus goes on to examine in detail the kind of office procedures, accounting methods, partnership agreements and client-architect relationships that make success possible. Occupational hazards, popular fallacies, frequently-made errors of administration and organization also come in for discussion.

Lapidus is well aware of many of the deeply ingrained prides and prejudices which make architects hesitant to sell their skills too vigorously to prospective clients, but he vigorously scoffs at any such inhibiting delicacy of feeling: "Architecture must be sold like any other commodity" he says. "You will probably object to this statement, saying that architecture is a personal service, and just as the doctor or lawyer sits in his office and waits for patients and clients, so, too, the architect should wait for his clients to come to him. This idea went out with the artist's smock and the flowing black tie. . . . This is the day of the soft or hard sell. Whichever it is, the architect must somehow present himself to possible clients. . . . Although the ethics of the architectural profession prohibit advertising, every good businessman has learned how to sell his product or service. Many and varied are the techniques used. It is just as important for the architect to have some method of projecting himself, his services and his work to the buying public—his potential clients. Hiding your light under a bushel will only draw insects not clients."

There are some very good chapters on cost and job control in which Lapidus emphasizes the importance of establishing an accepted system and style of work, of making sure that all employees know and follow the established office procedure, of making constant checks on time and expenditure involved in individual jobs. All this is illustrated by detailed examples of working, programing and control systems for jobs and offices of varying size and complexity.

The reader should not be misled by the simple style of writing or the careful statement of what may seem obvious to the seasoned practitioner into dismissing this book as trivial or irrelevant. On the contrary, as Thomas Creighton says in his introduction: "I don't know where else you can find such penetrating, realistic discussions of such subjects as the risks of partnerships, the ways to achieve budget control, the methods of assaying and negotiating fees and many other down-to-earth matters" which are, after all, a critical part of the profession.

Urban low-rise group housing

ROW HOUSES AND CLUSTER HOUSES, AN INTERNATIONAL SURVEY. *By Hubert Hoffmann. Frederick A. Praeger, Publishers, 111 Fourth Avenue, New York, N.Y. 10003. 176 pp., illus. $18.50.*

Urban low-rise group housing, although not a new invention, is one which, this author concludes, can satisfy the owner's desire for a home of his own to the same extent as has the conventional free-standing one-family structure. He does not see an exclusive application of this method of housing but rather the use of this building type in an amalgamation of small building units of various types, with the inhabitants a mixture of differing occupants, income classes, educational levels and family ages.

Many opponents of low-rise group housing have given economic, sociological and psychological objections t
use. This author has taken exceptic
these objections in his discussion o
technical and economic comparisc
low-rise and multi-story housing, an
sociological and psychological cons
ations of such grouping. A principal a
ment against low-rise housing in u
areas is the allegedly greater area req
ment—a feeling arrived at from
spontaneous association with the
suburban sprawl surrounding c
Studies are sited which provide conv
ing proofs that the area gain obtain
by multi-story housing is minute if
built-up areas of the residential dist
are related to the gross areas of the tc
And finally, the advantages of diag
arrangement—*Habitat*—and the pa
ularly favorable industrial prefabrica
of such housing are discussed.

After the author's worthwhile r
sessment of the advantages and dr
backs of this method, an internatic
selection of row and cluster hou
makes up the larger part of the bc

BOOKS RECEIVED

YEARBOOK OF THE AMERICAN BUREAU OF M
STATISTICS. *By the American Bureau of Metal S
tics, 50 Broadway, New York, N.Y. 10004. 148
$4.50.*

EDUNET, *Report of the Summer Study on Informa
Networks. By George W. Brown, James G. Miller
Thomas A. Keenan. John Wiley & Sons, Inc.,
Third Avenue, New York, N.Y. 10016. 440 pp. $*

TALL BUILDINGS WITH PARTICULAR REFERENCE
SHEAR WALL STRUCTURES, *The Proceedings of a S
posium on Tall Buildings held at the University
Southampton. Edited by A. Coull and B. Staf
Smith. Pergamon Press Inc., 40-01 21 Street, L
Island City, New York 11101. 607 pp., illus. $26.00*

THE LEGACY OF RAYMOND UNWIN: *A Human
tern for Planning. Edited and with an introduction
Walter L. Creese. The M.I.T. Press, 50 Ames Str
Cambridge, Mass. 02142. 234 pp., illus. $10.00.*

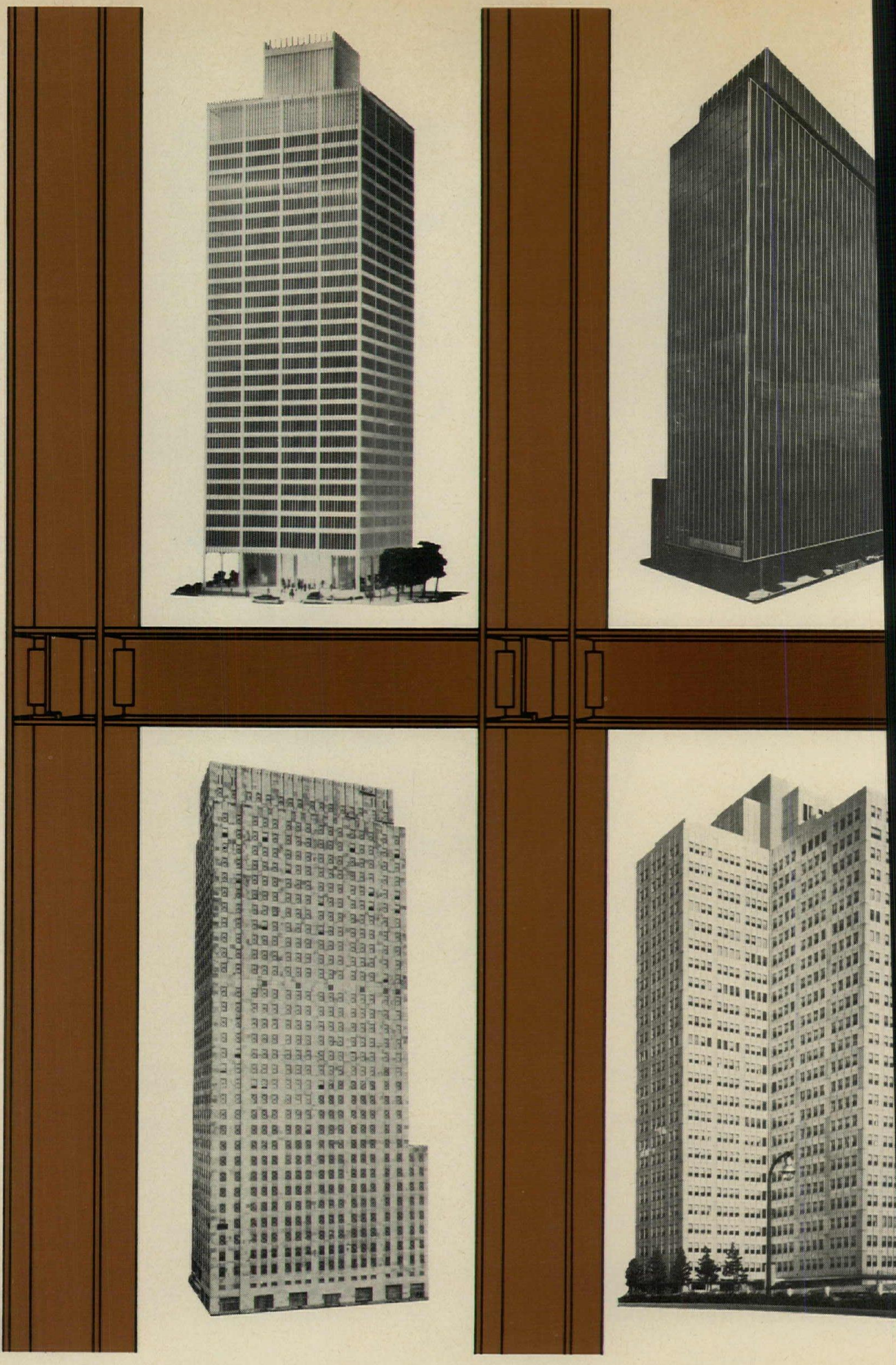
GEORGIAN ARCHITECTURE IN AUSTRALIA. *By M
ton Herman. Taplinger Publishing Co., Inc., 29 East
Street, New York, N.Y. 10003. 148 pp., illus. $13.*

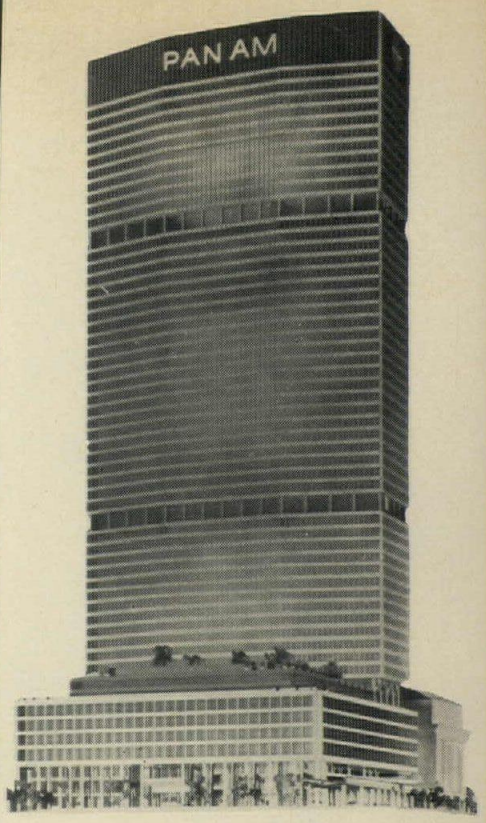
CITIES IN A RACE WITH TIME. *By Jeanne R. Lo
Random House, Inc., 457 Madison Avenue, New Yo
N.Y. 10022. 601 pp., illus. $10.00.*

NEW DIMENSIONS IN REGIONAL PLANNING,
CASE STUDY OF IRELAND. *By Jeremiah Newman. T
National Institute for Physical Planning and Constr
tion Research, 4 Kildare Street, Dublin 2, Ireland
pp., illus. 25/-.*

PROGRESS REPORT 1965-1966 of *HUD Low Incor*

continued on page 2





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continued from page 202

Housing Demonstration Project "Cost Reduction Methods for High Rise Apartments." By the School of Architecture, Pratt Institute, Brooklyn, New York 11205. 75 pp. No charge.

MODERN PRESTRESSED CONCRETE. *By H. Kent Preston and Norman J. Sollenberger. McGraw-Hill Book Co., 330 West 42 Street, New York, N.Y. 10036. 337 pp., illus. $13.50.*

1967 DIRECTORY OF BEHAVIOR AND ENVIRONMENTAL DESIGN. *By the Research & Design Institute, P.O. Box 307, Providence, Rhode Island 02901. 126 pp. Paperbound, $2.00.*

LOST NEW YORK. *By Nathan Silver. Houghton Mifflin Company, 2 Park Street, Boston, Mass. 242 pp., illus. $15.00.*

HOW TO FIND OUT IN ARCHITECTURE AND BUILDING. *By D. L. Smith. Pergamon Press Inc., 44-01 21 Street, Long Island City, New York 11101. 232 pp. $5.50.*

PROSPECTOR, COWHAND, AND SODBUSTER—HISTORIC PLACES ASSOCIATED WITH THE MINING, RANCHING, AND FARMING FRONTIERS IN THE TRANS-MISSISSIPPI WEST. *By the National Park Service. Superintendent of Public Documents, U.S. Government Printing Office, Washington, D.C. 20402. 320 pp., illus. $3.00.*

DUMBARTON OAKS, *The History of a Georgetown House and Garden, 1800-1966. By Walter Muir Whitehill. The Belknap Press of Harvard University Press, Cambridge, Mass. 147 pp., illus. $6.95.*

URBAN DEVELOPMENT IN SOUTHERN EUROPE: SPAIN AND PORTUGAL. *By E. A. Gutkind. The Free Press, Macmillan, 866 Third Avenue, New York, N.Y 10022. 534 pp., illus. $25.00.*

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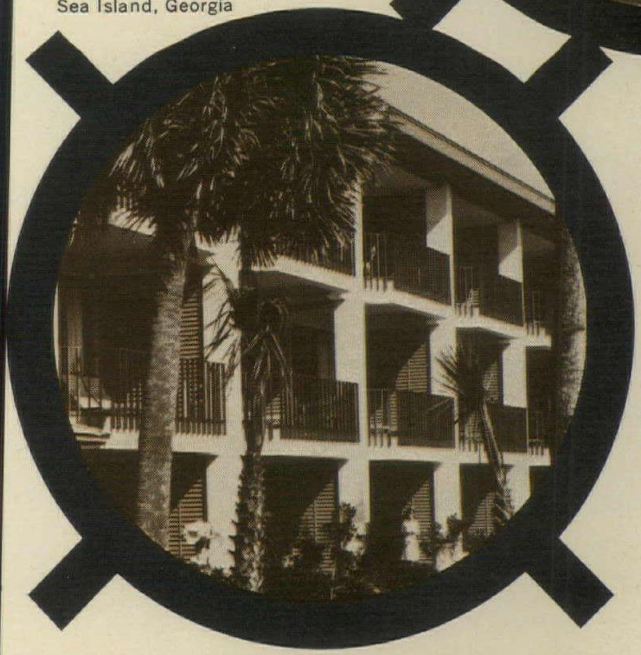

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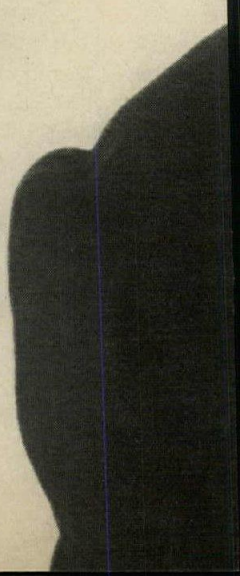

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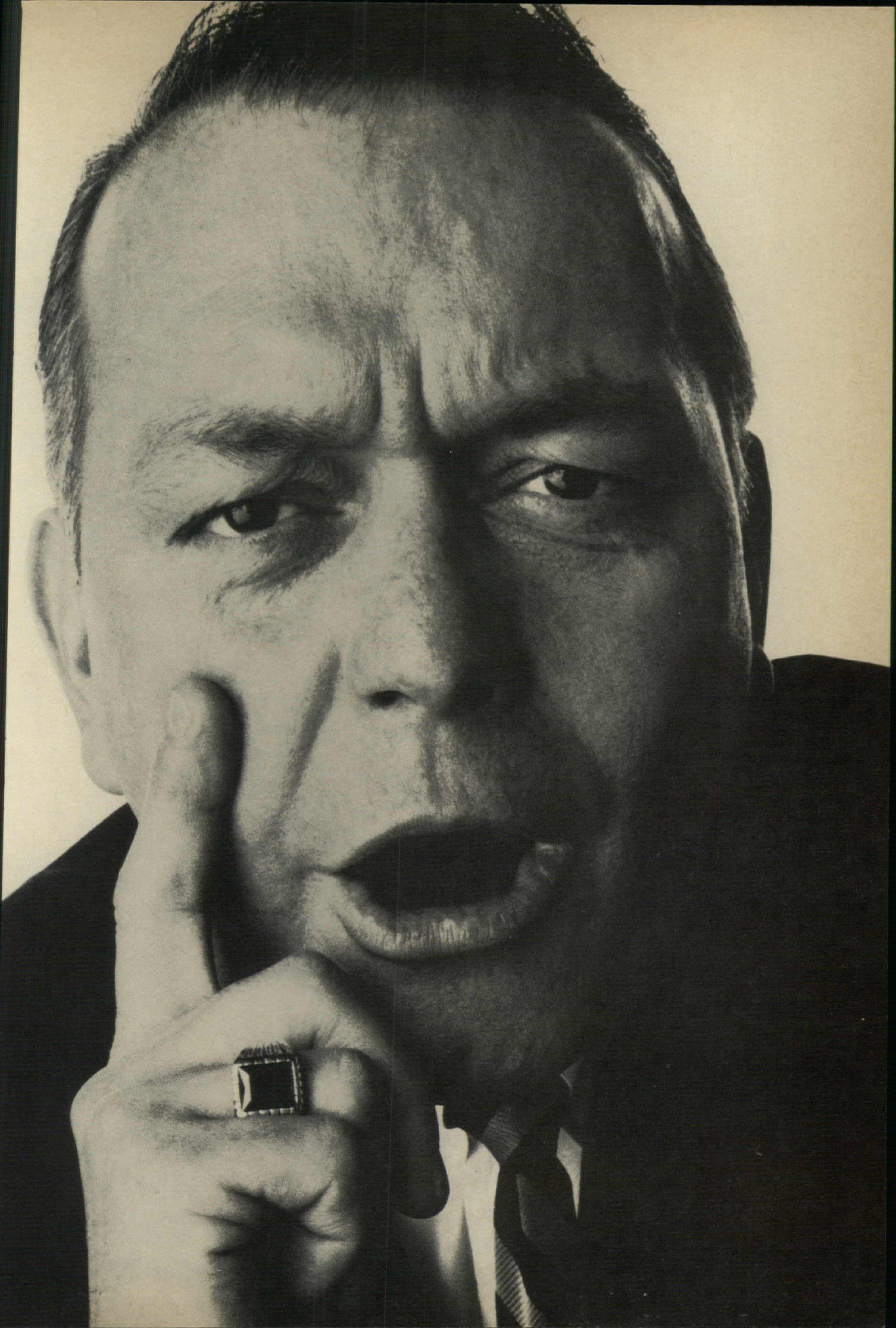

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A&E News	13	14	7
AIA Journal	9	19	18

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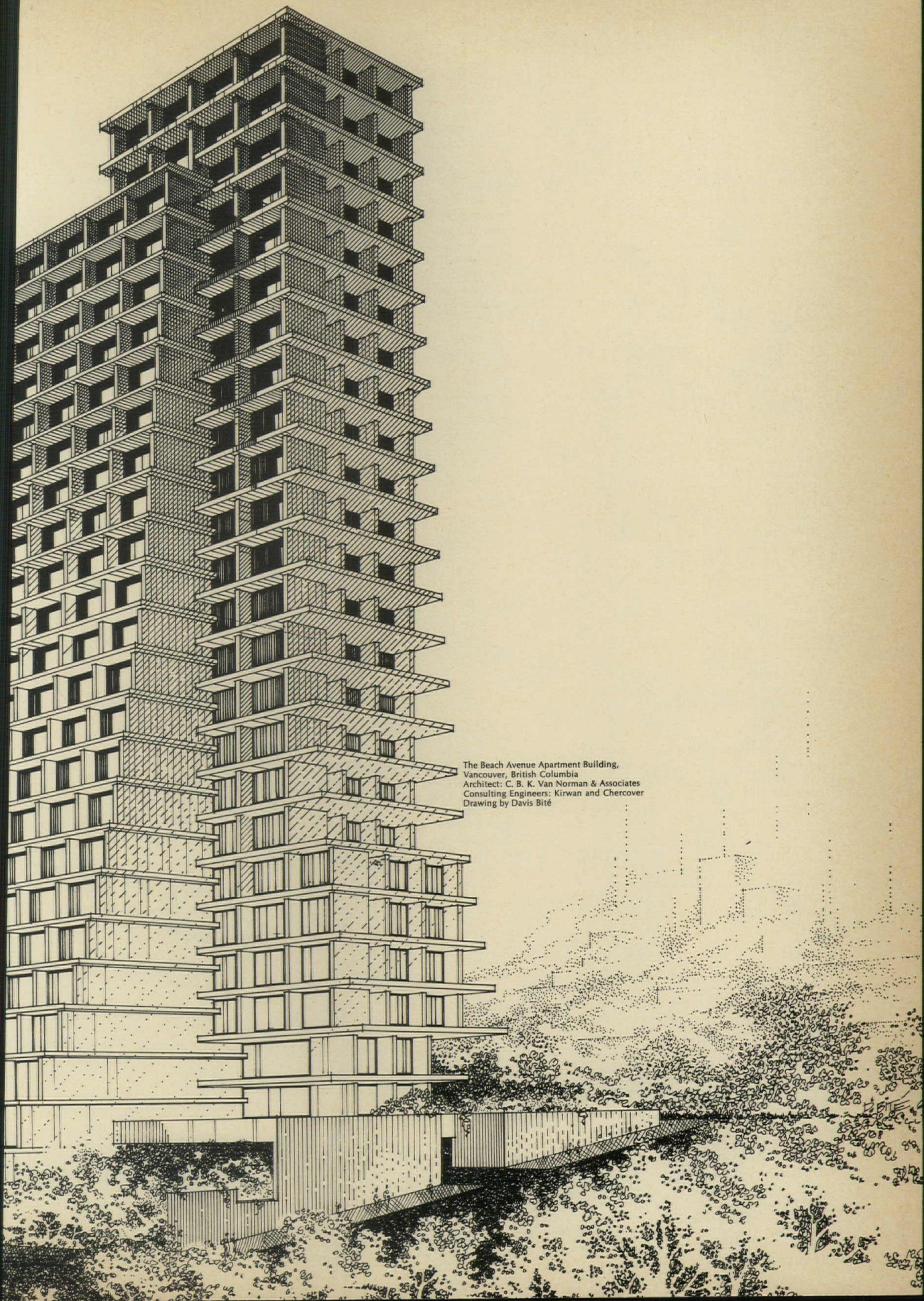

The Beach Avenue Apartment Building,
Vancouver, British Columbia
Architect: C. B. K. Van Norman & Associates
Consulting Engineers: Kirwan and Chercover
Drawing by Davis Bité

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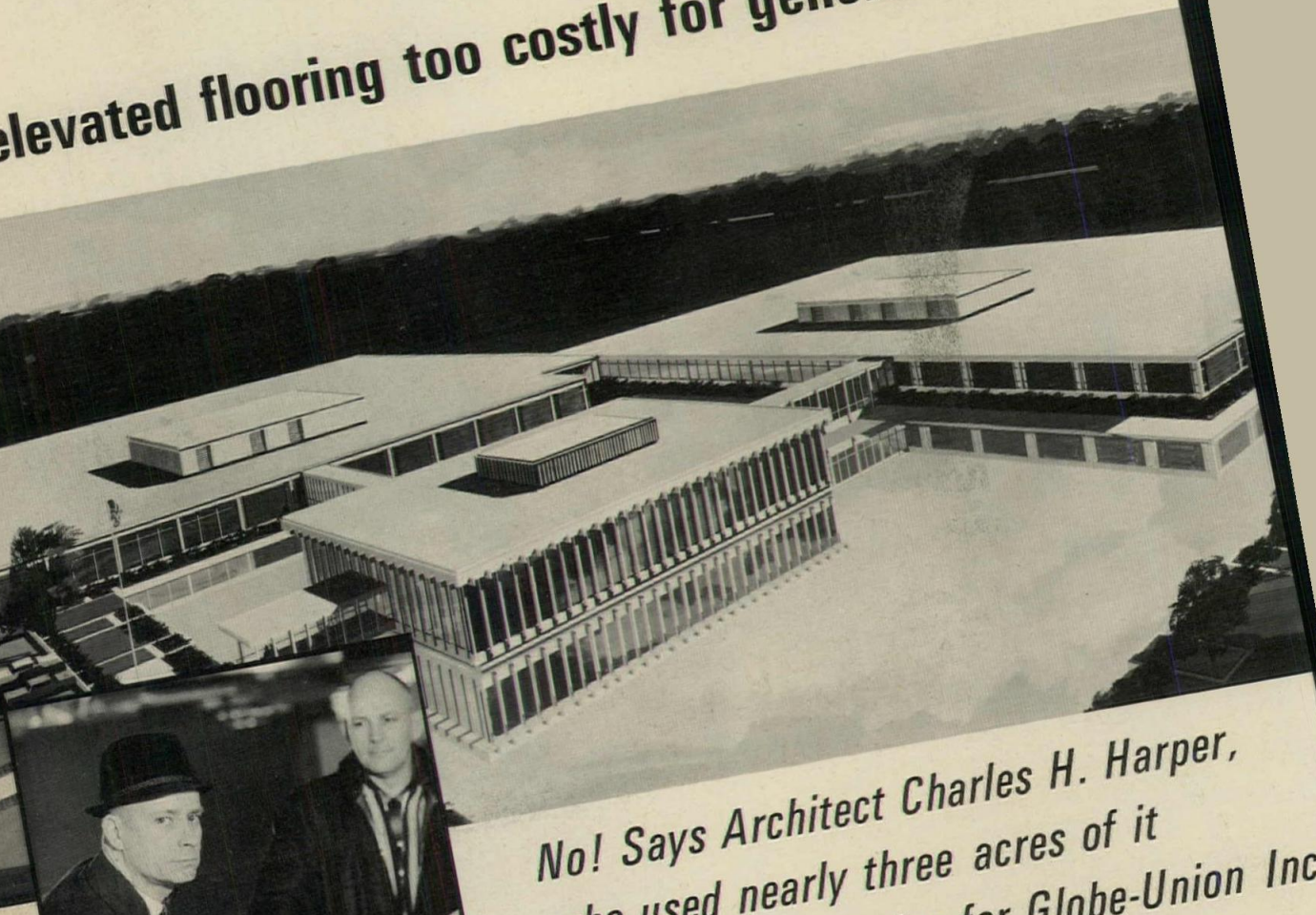
elevated flooring too costly for general construct



Architect Charles H. Harper (left) discusses floor installation with James Lawton, job foreman for general contractor, Joseph P. Jansen.

No! Says Architect Charles H. Harper, who used nearly three acres of it in this giant complex for Globe-Union Inc.

If you think of elevated flooring as a specialty item reserved for computer rooms, take a tip from Charles H. Harper, the Milwaukee architect who designed this 3-building research and administrative center for Globe-Union Inc. His plan called for 120,000 square feet of Weber elevated flooring, which Harper says netted out at about $1 per square foot. (That's for finished flooring, about half of which was carpeted.)

But cost was only one of Harper's problems. Time was precious. He had only 10 months to design and build the entire complex, and Weber elevated flooring gave him the flexibility he needed to meet this tight deadline. Walls and top decking were built first with a slab foundation. All utility lines, including plumbing, electrical, telephone, heating, ventilating and sewage, were installed on top of the slab after completion of the building shell. Installers worked rapidly and accurately under comfortab conditions. Globe-Union gained too in structural fl Offices and laboratories can be rearranged at without tearing up expensive flooring to relocate

Charles Harper proved that elevated flooring is for general use and offers many advantages. For specifications on Weber flooring and the full st use at Globe-Union (as reprinted from ARCHITE RECORD), write today.

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