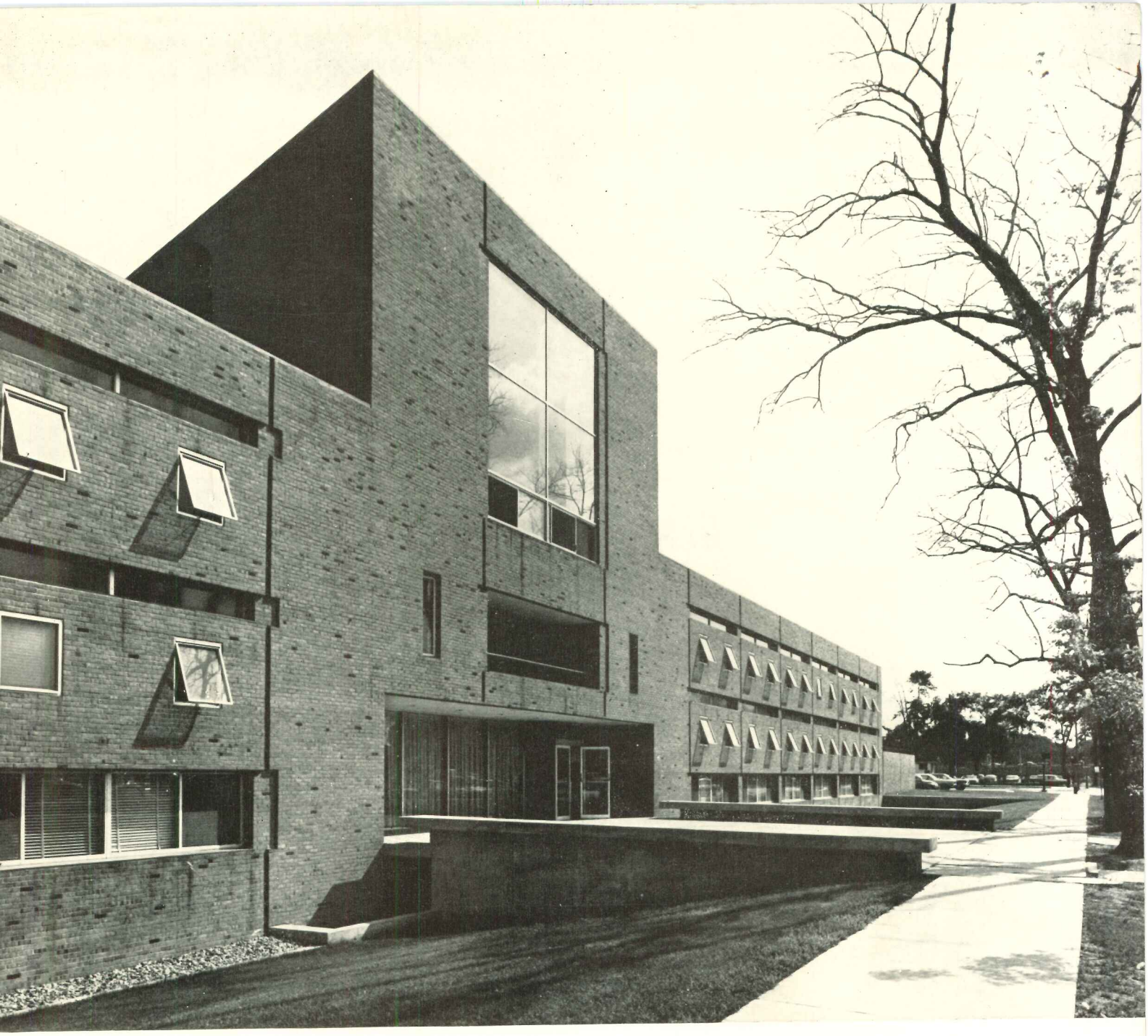

ARCHITECTURAL RECORD

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BUILDING TYPES STUDY: COLLEGE DORMITORIES

"NEW DIRECTIONS FOR URBAN RENEWAL" BY ROBERT C. WEAVER

SMALL BUILDINGS FOR GROUP MEDICAL PRACTICE

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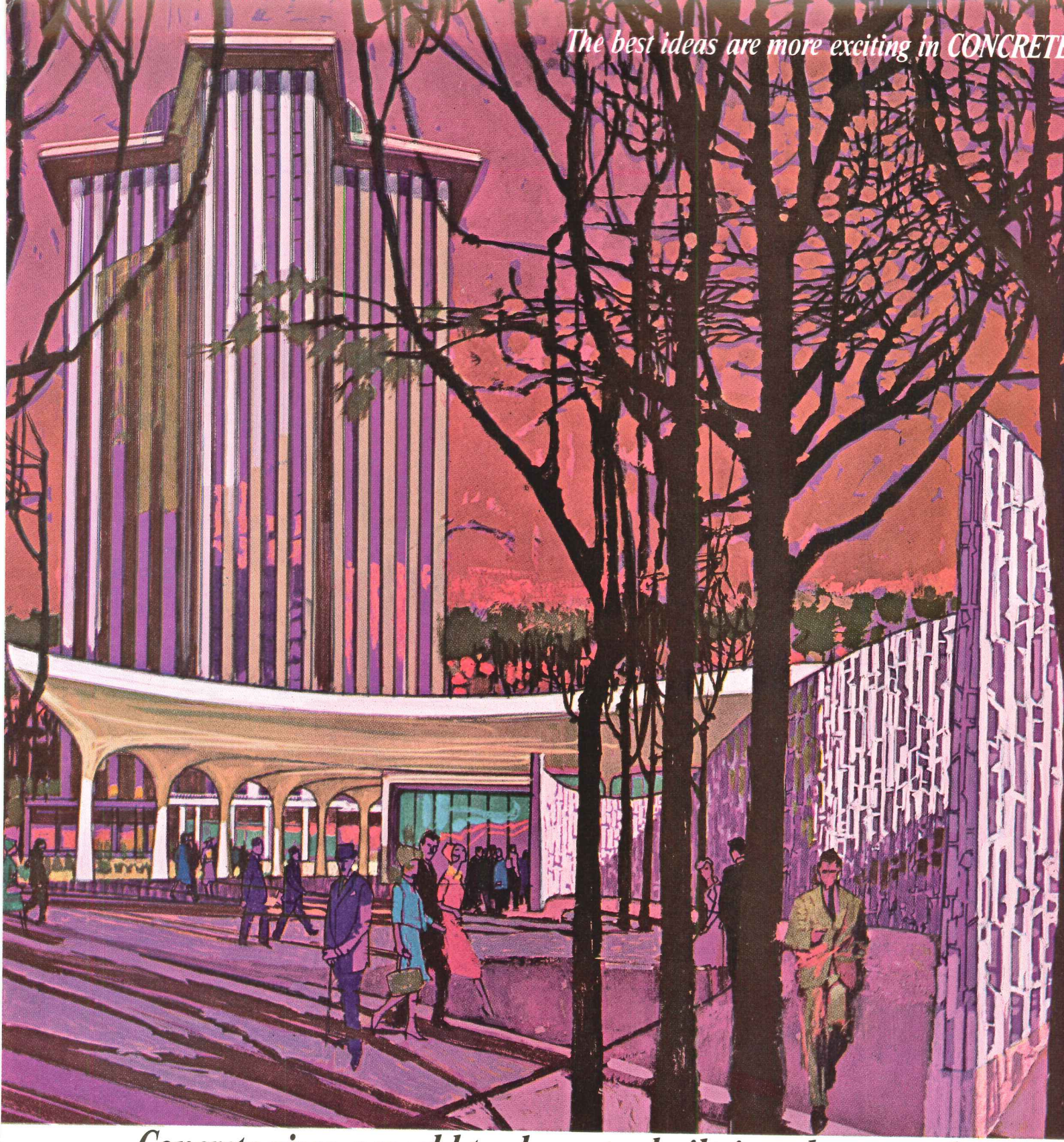

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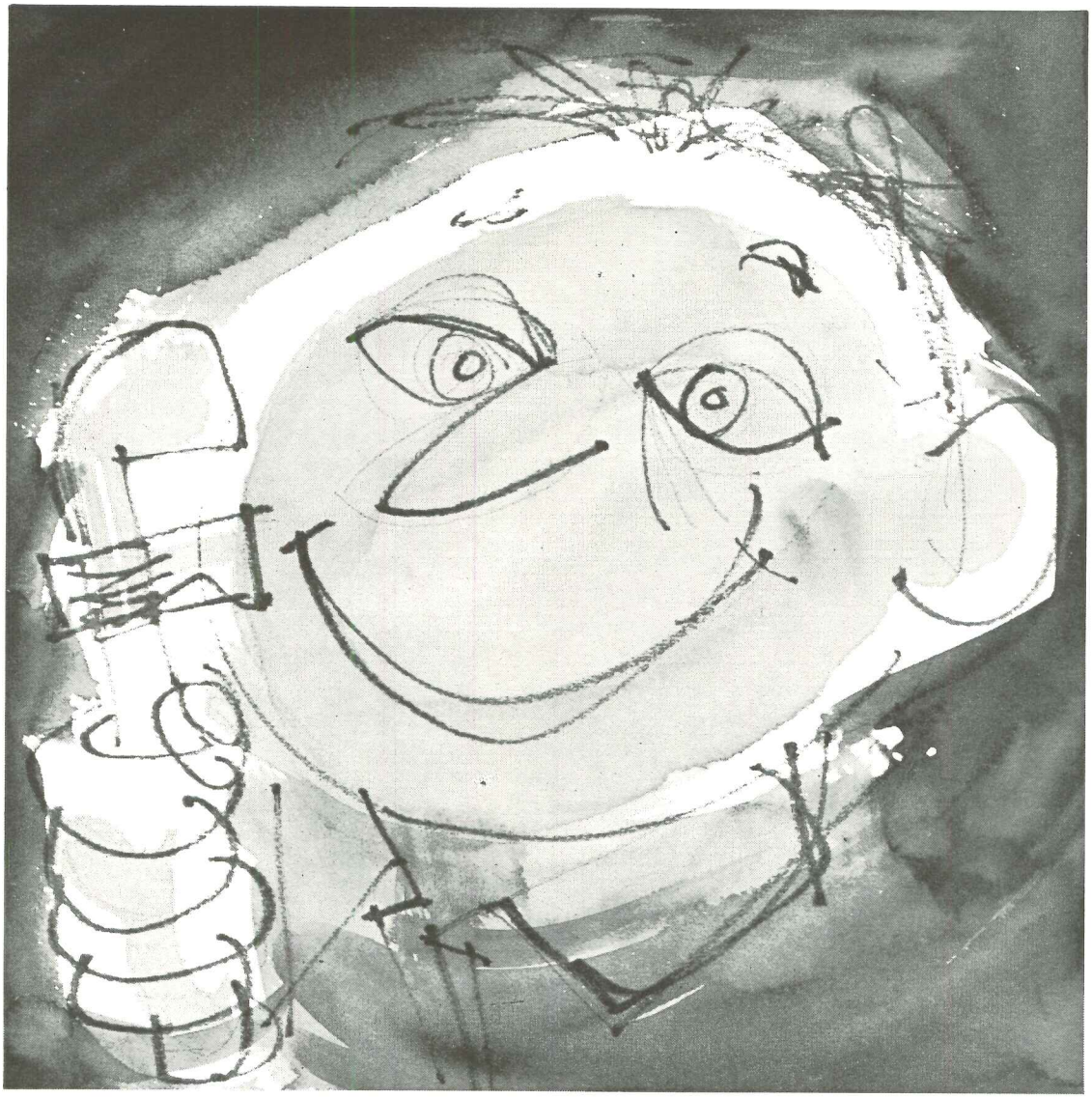

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Designer: Stuart O. Baesel
Project Architect: Robert French
Chief Engineer: Fred G. Franklin
Mechanical Engineer: Harold B. Swygert
Electrical Engineer: Herbert L. Stokes
Structural Engineer: Gilbert H. Rowe
General Contractor: Yeargin Constr. Co., Greenville, S. C.
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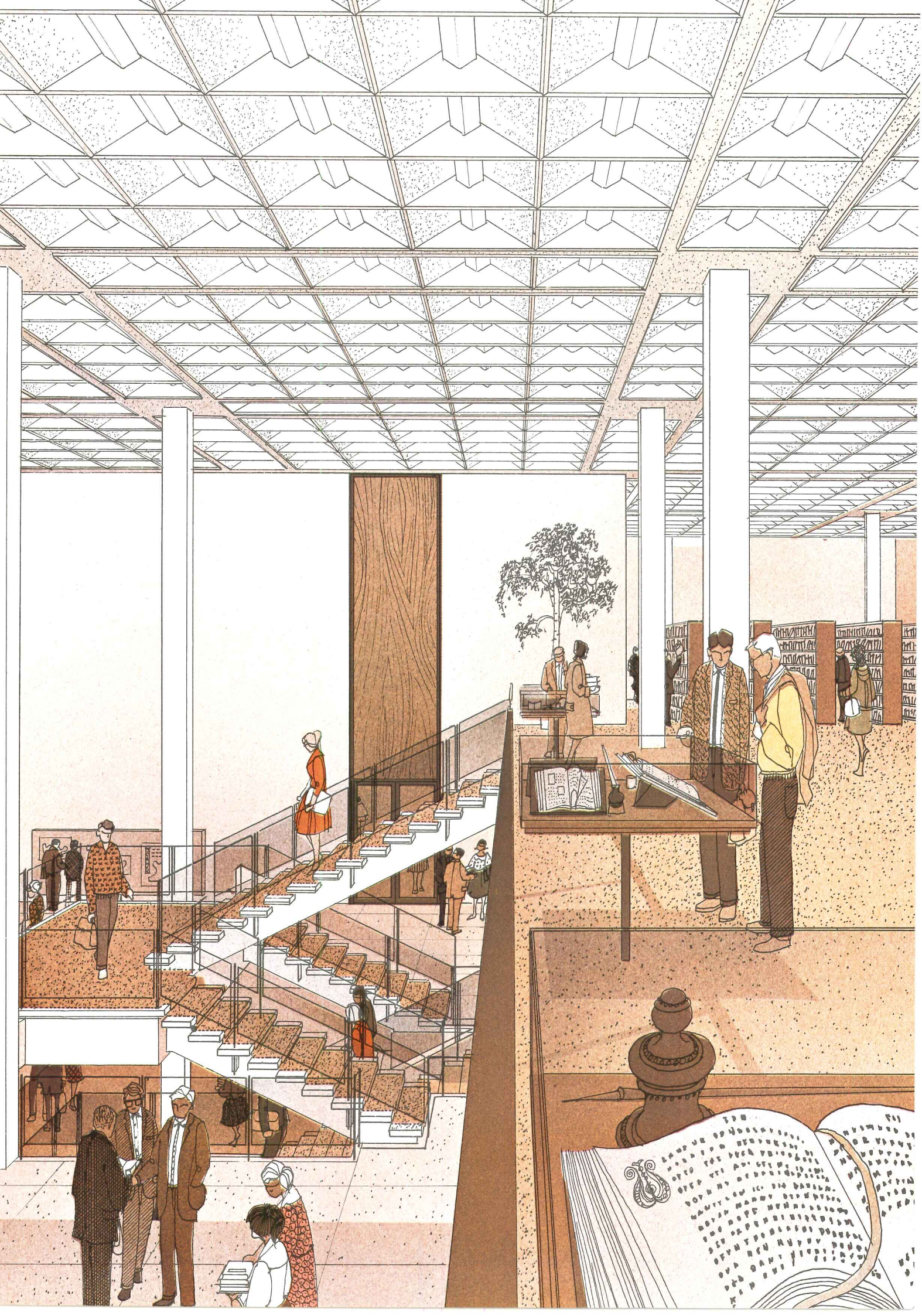

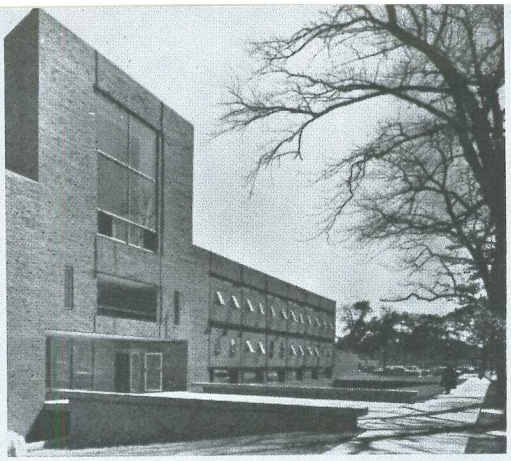

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DESIGN BY ARCHITECTS FOR ARCHITECTS

When architects design for themselves, as most would ruefully admit, they deal with the most difficult of clients. On the other hand, they find opportunities even the most understanding of ordinary client relationships do not often offer, and the architectural results are generally more than usually interesting. Next month's feature on 11 houses designed by 11 architects for themselves provides a look at a wide variety of directions in the architecture of the house.

TRENDS IN HOSPITAL PLANNING

The Building Types Study on Hospitals will focus chiefly on the general hospital, offering a representative cross-section of outstanding recent work with attention to both large and small hospitals. It will also offer a glimpse of some important upcoming assignments in the field of mental retardation and psychiatric care.

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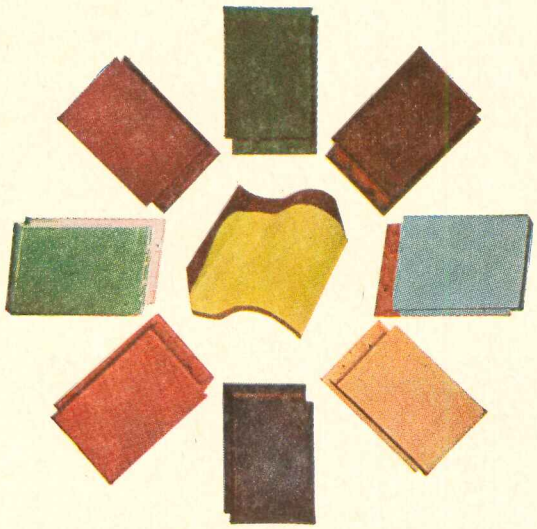

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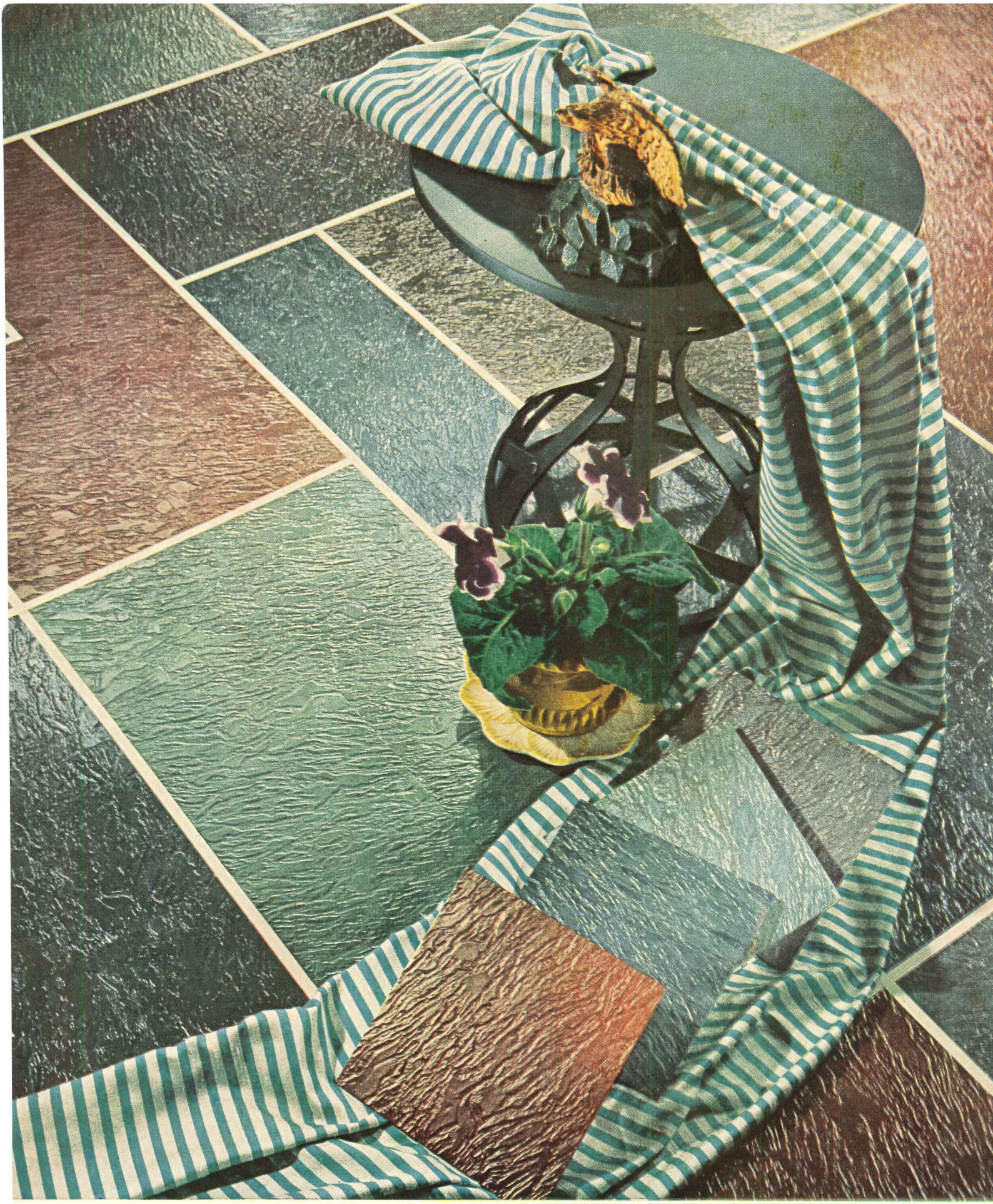

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The Architect as Leader in a Golden Age?

The thought of the flowering of the architectural profession in a world newly appreciative of its services, mentioned before in this column, came up again in the recent A.I.A. convention. President Arthur Gould Odell, Jr. reaffirmed his confident statement:

"I am optimistic about the future and I know that the profession will grow tremendously in numbers. It also will grow in its services to society and in its influences upon the betterment of our environment . . . I am convinced that architecture as a profession has the potential to strengthen itself much further as the one profession skilled in the design of man's physical environment and capable of correlating all of the services required to create that environment."

A reporter for the New York Times was something less than completely persuaded. She wrote that architects at the convention, which was supposed to be dealing with Cities of the New World, seem more interested in the next martini than in the future of our cities. How she arrived at this summary statement was not too clear. It is just possible that anybody interested in the future of our cities could do with a martini or two on occasion.

Certainly there is nothing easy about dealing with environmental conditions in our ballooning cities. And if the newly-ex-president was optimistic in his statement, he included such phrases as "will grow in its services," and "the potential to strengthen itself." He was not saying that the architectural profession has it all neatly tucked away in its intuitions, ready to be rolled out on demand. He was saying it "will grow in its services to society."

Perhaps it takes a martini to embolden the architect to face the problems of cities. Some reservations were expressed recently by Dean José Luis Sert, of Harvard's Graduate School of Design. At their recent Urban Design Conference the dean said, "Schools cannot instruct in everything . . . we must be modest . . . we must get rid of the unrealistic notion of the architect as God with the social sciences in his pocket . . . I am tired of the arguments about who should direct the planning process, architects or social scientists or whomever . . . leaders are born leaders. They are not produced by university degrees. It is nonsense for you to think because you are the architect, you are the leader. We must have an end to the misgivings and hostilities among the professions."

Since this was the ninth of Harvard's conferences on urban design, one might assume that the Golden Age has eluded a considerable search. At least it requires more than some conferences on design to bring it to a glow.

No, you are not a leader, in urban environmental matters, just because you are an architect. Physical designs alone will not bring back hordes of suburbanites, or turn back tides of poverty, or of racial violence, and so on.

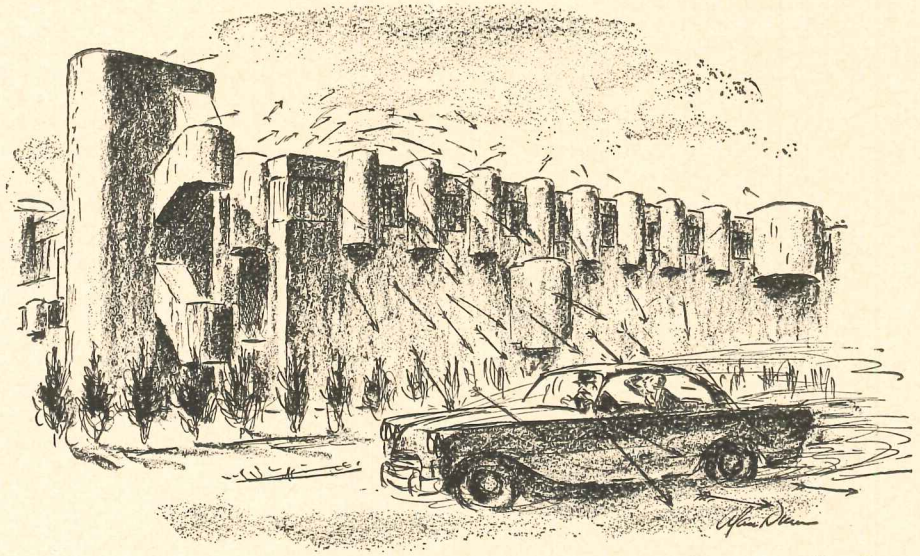
But those problems will not be solved *without* good physical planning and good design. If the architect has no magic wand, neither has any other group, as is plainly evident in the present wobbly progress toward urban renewal. There are no builders, no investors, no legislators, no social workers, educators, or city administrators, no highway engineers, planners, conservationists, landscape architects, lawyers or merchants, nobody else with ready answers.

Somebody has remarked that perhaps architects have already been too much in the limelight in city living problems. That too much has been expected of them, that they are asked to make too many decisions for which they are not trained.

But there is precious little training, anywhere, for anybody, in urban problems. And urban problems are being solved, negatively if not constructively, as the months go by. What is more natural than to ask the architect to get going?

So I'll string along with Odell—the profession "will grow in its services to society."

—*Emerson Goble*



—Drawn for the RECORD *by Alan Dunn*

So Ya Wanna Be an Architect?

While President Odell (now ex) was telling the A.I.A. convention (preceding page) about the Golden Age for architects, he also mentioned a few of the architect's responsibilities: "The architect's legal responsibilities to his client embrace esthetic, mechanical, electrical, structural, civil, acoustical, landscape, interior, urban and regional design, and any other design developed under the architect's coordination, whether associates involved be partners, employes, or outside consultants of the architect. Notwithstanding the number of engineers, planners, bookkeepers, administrators, landscapers, or economists that an architectural firm may have on its staff, the architect is the generalist legally responsible for the activities of the specialists who contribute to architectural practice . . ."

What, No Op?

Wolf von Eckhardt, who writes continuously and effusively about architecture, writes recently in Modulus 65, a publication of the School of Architecture at the University of Virginia, deploring a certain escapism in current architecture. He refers to an exhibition of American architecture destined for the Soviet Union:

"Good modern architecture—the kind we tell others about—consists of isolated outdoor museum pieces widely scattered over the landscape. It has as yet, some 50 years after the modern revolution in architecture, no more to do with shaping our actual visual environment than the paintings of Rauschenberg, Maxim Gorki or de Kooning or abstract expressionism, Pop, Op and all the rest . . .

"Afraid to be overrun by the machine age, our architectural stars seem to seek refuge in Freudian, individual 'self-expression.' We've had abstract expressionist architecture and Pop architecture. I am breathlessly waiting for Op architecture."

Well, Wolf, Alan Dunn starts it off —page 15, our Mid-May house issue.

Let's Buy Our Art at the Low Bid

This old conventioneer would do better to put his camera away—all those friendly candids I took at Washington turned out to be duds. Seems they've changed the flash bulbs, so my trusty technique is obsolete. But the A.I.A. hired a professional, and he had some bad results too. It turns out that that photographer, poor lad, had no staff, no help, so he shot pictures all day and all evening and printed them between 12 P.M. and 5 A.M. Small wonder something got fuzzy. He was just in over his head.

But poor photographic performance is a serious error for a convention press organization. It may be impolite to mention it, but it seems the A.I.A. bought its art, its photographic art, at the low bid price.

Maybe You Shouldn't Design for Yourself

We were talking the other day (Albert Mayer and self) about those much-heralded responsibilities of the architect in the environmental matters of cities. We had been saying that the population explosion seemed to be unrecognized yet, except possibly in California, and that architects would be learning about congestion problems and densities and their effect on design. Mayer made an observation that architects may be missing another point that's new in our time—they will have to be designing for somebody other than themselves. Through the ages architects have been accustomed to working for people or institutions whose tastes and ideas paralleled their own. But the architect must broaden his field of acquaintance. And perhaps dirty his hands in the process.

You say he's been doing that for many years in public housing? Maybe he has and maybe he hasn't. Perhaps public housing wouldn't be in such a sorry state if more architects had got better acquainted with the people they were to house. And possibly less entranced with their own doctrines or assumptions. Corbu had some great ideas, but public housing wasn't exactly the place for them.

In any case, it's a point. While flying by the seat of his intuitions, the designer will have to make sure he's sitting in the right point of view.

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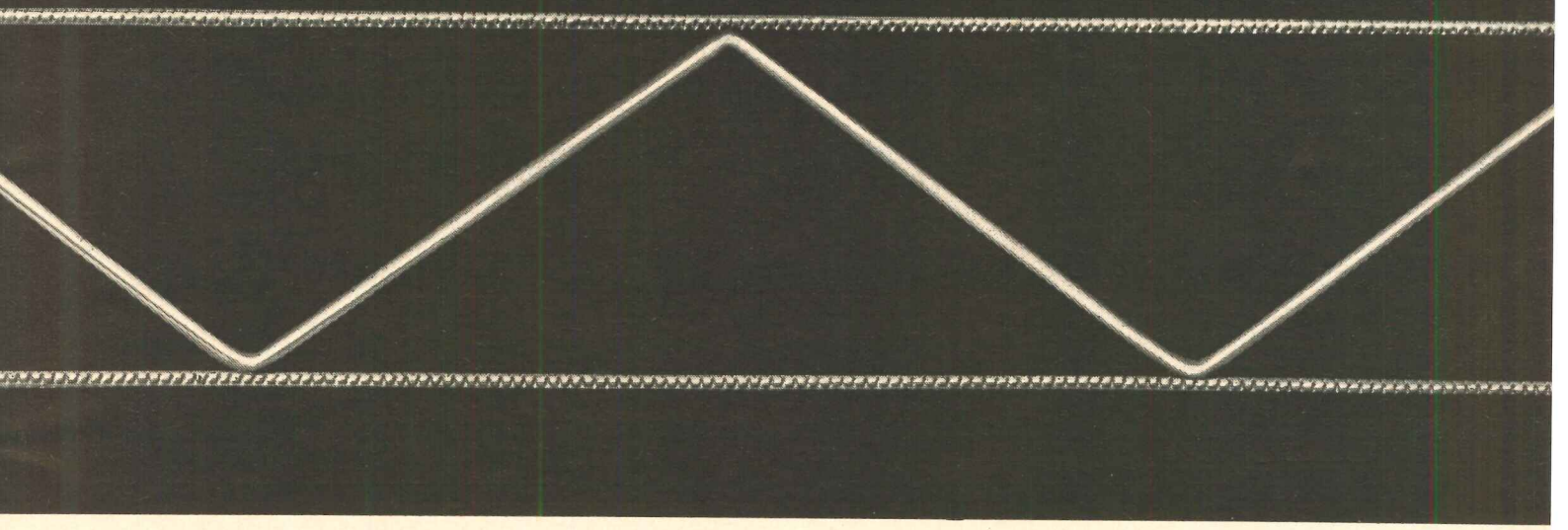


These code approvals say DUR-O-WAL®

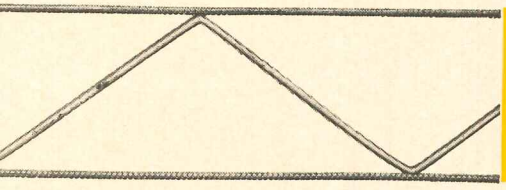
Truss-designed Dur-O-waL brand reinforcement carries code approvals for multiple use in masonry wall construction by *Building Officials Conference of America* (BOCA), *Southern Building Code Congress* (SBCC), *International Conference of Building Officials* (ICBO).

On the basis of tried, proved, and approved quality, Dur-O-waL has become *the* reinforcement for better masonry walls.

Dur-O-waL is more widely specified than any other brand by architects who want their wall designs to live. Dur-O-waL is more widely used by builders who want their walls to last.

And Dur-O-waL is more widely distributed—by more than 8,000 dealers from coast to coast. Wherever masonry walls are built, Dur-O-waL is the available brand of masonry wall reinforcement, and the brand that meets official material standards.

When you ask for Dur-O-waL, make sure it's Dur-O-waL. Look for the truss design. Write for free comprehensive Data File and Installation Details Brochure. DUR-O-WAL, P.O. Box 150, Cedar Rapids, Iowa.

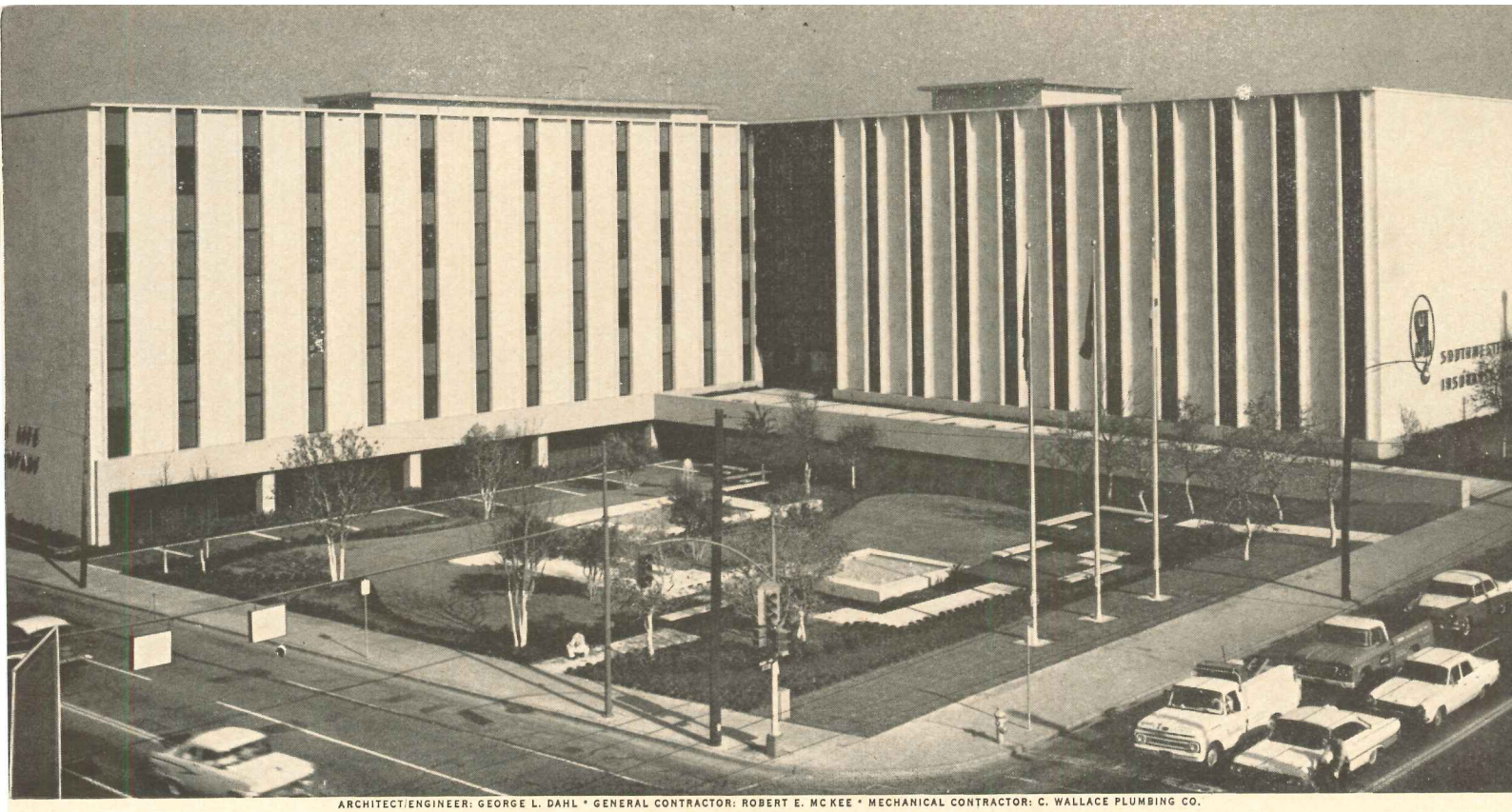


DUR-O-WAL®

THE ORIGINAL MASONRY WALL REINFORCEMENT WITH THE TRUSS DESIGN

DUR-O-WAL MANUFACTURING PLANTS • Cedar Rapids, Iowa, P. O. Box 150 • Baltimore, Md., 4500 E. Lombard St. • Birmingham, Ala., P. O. Box 5446 • Syracuse, N. Y., P. O. Box 628 • Toledo, Ohio, 1678 Norwood Ave. • Pueblo, Colo., 29th and Court St. • Mesa, Ariz., 213 So. Alma School Rd. • Aurora, Ill., 625 Crane St. • Seattle, Wash., 3310 Wallingford Ave. • Minneapolis, Minn., 2653 37th Ave. So. • Hamilton, Ont., Canada, 789 Woodward Ave.

For more data, circle 5 on Inquiry Card



ARCHITECT/ENGINEER: GEORGE L. DAHL • GENERAL CONTRACTOR: ROBERT E. MC KEE • MECHANICAL CONTRACTOR: C. WALLACE PLUMBING CO.

Ideal climate for savings: Carrier cooling, powered by the Gas-fired heating boilers

Southwestern Life Insurance recently completed this striking new headquarters building in Dallas. One of its ultra-modern features: a year-round Carrier Gas absorption refrigeration system.

Optimum temperature control and dependability were important determinants in the choice. But economy was the big factor. Gas-fired boilers supply hot water for winter heat *and* for the Carrier cooling unit in summer. And an exclusive solution-capacity control makes Carrier's partial cooling load efficiency unbeatable.

Add to this the trouble-free simplicity of Carrier equipment. (No major moving parts.) And the low energy costs of clean-burning Gas. Insure the economy of your next project—with Carrier and Gas. For details, call your local Gas Company sales engineer. Or write: Carrier Air Conditioning Company, Syracuse 1, N. Y.

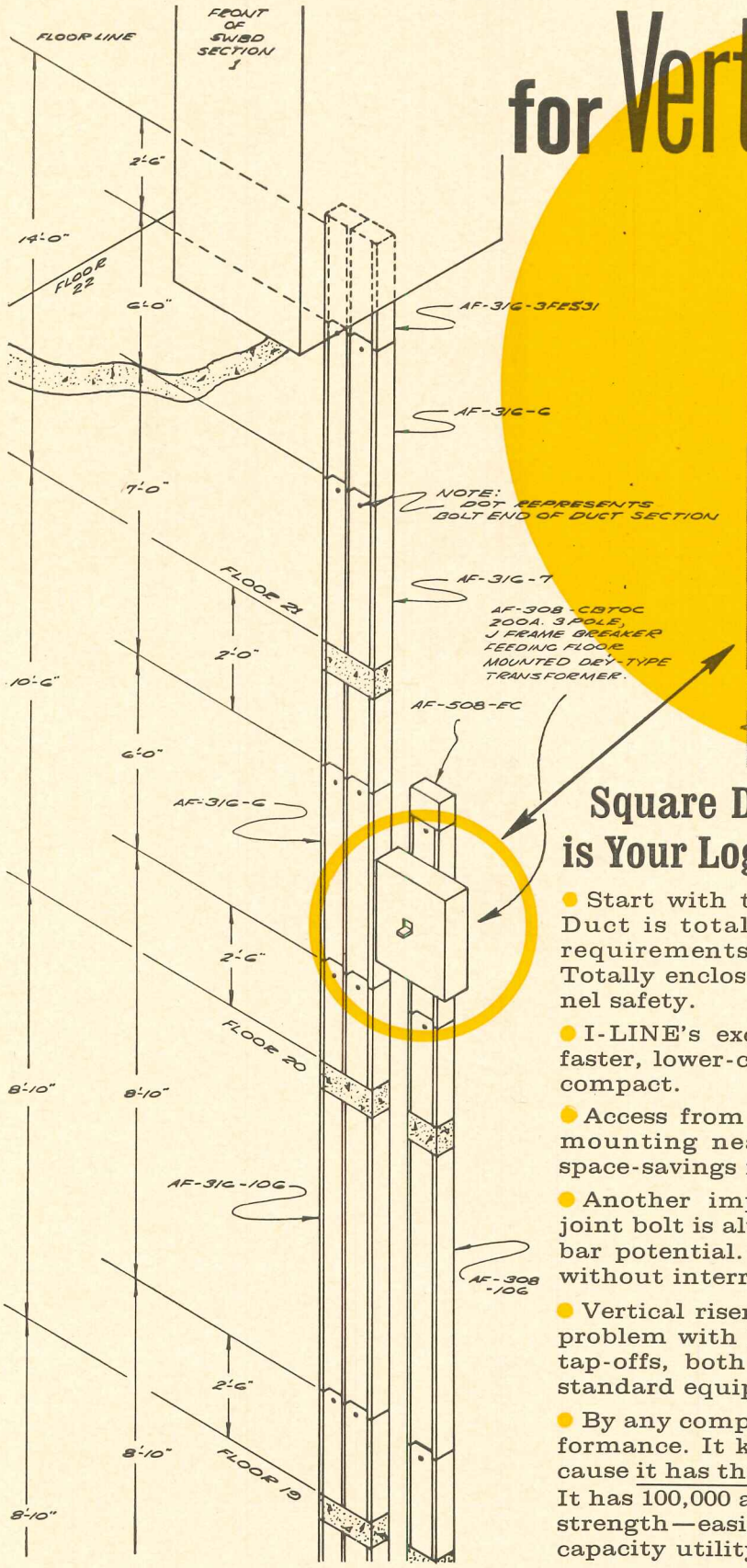
AMERICAN GAS ASSOCIATION, INC.

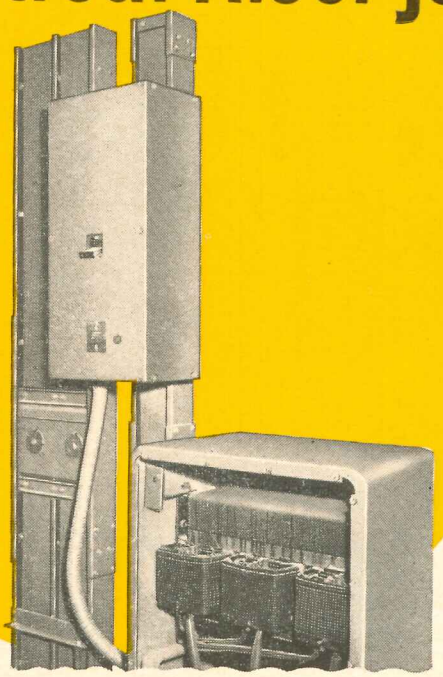
For heating and cooling... Gas is good business.

Visit the spectacular Festival of Gas Pavilion at the New York World's Fair 1964-1965

For more data, circle 6 on Inquiry Card

for Vertical Riser jobs





Square D's I-LINE® Feeder Duct is Your Logical Choice—*Here's Why...*

- Start with this basic advantage—I-LINE Feeder Duct is totally enclosed, thus meets NEC code requirements without expensive modifications. Totally enclosed design also means greater personnel safety.
- I-LINE's exclusive one-bolt joint means easier, faster, lower-cost installation. Light in weight and compact.
- Access from any side for joint assembly enables mounting near walls or ceilings—an important space-savings feature.
- Another important safety feature—the I-LINE joint bolt is always at ground potential—not at bus bar potential. So, it can be checked for tightness without interrupting the power.
- Vertical riser applications need tap-off-units—no problem with I-LINE. A complete line of compact tap-offs, both plug-in and bolted, is available as standard equipment.
- By any comparison, I-LINE is outstanding in performance. It keeps voltage dips to a minimum because it has the lowest reactance of any feeder duct. It has 100,000 amps., RMS, symmetrical short circuit strength—easily meets the requirements of high capacity utility networks.

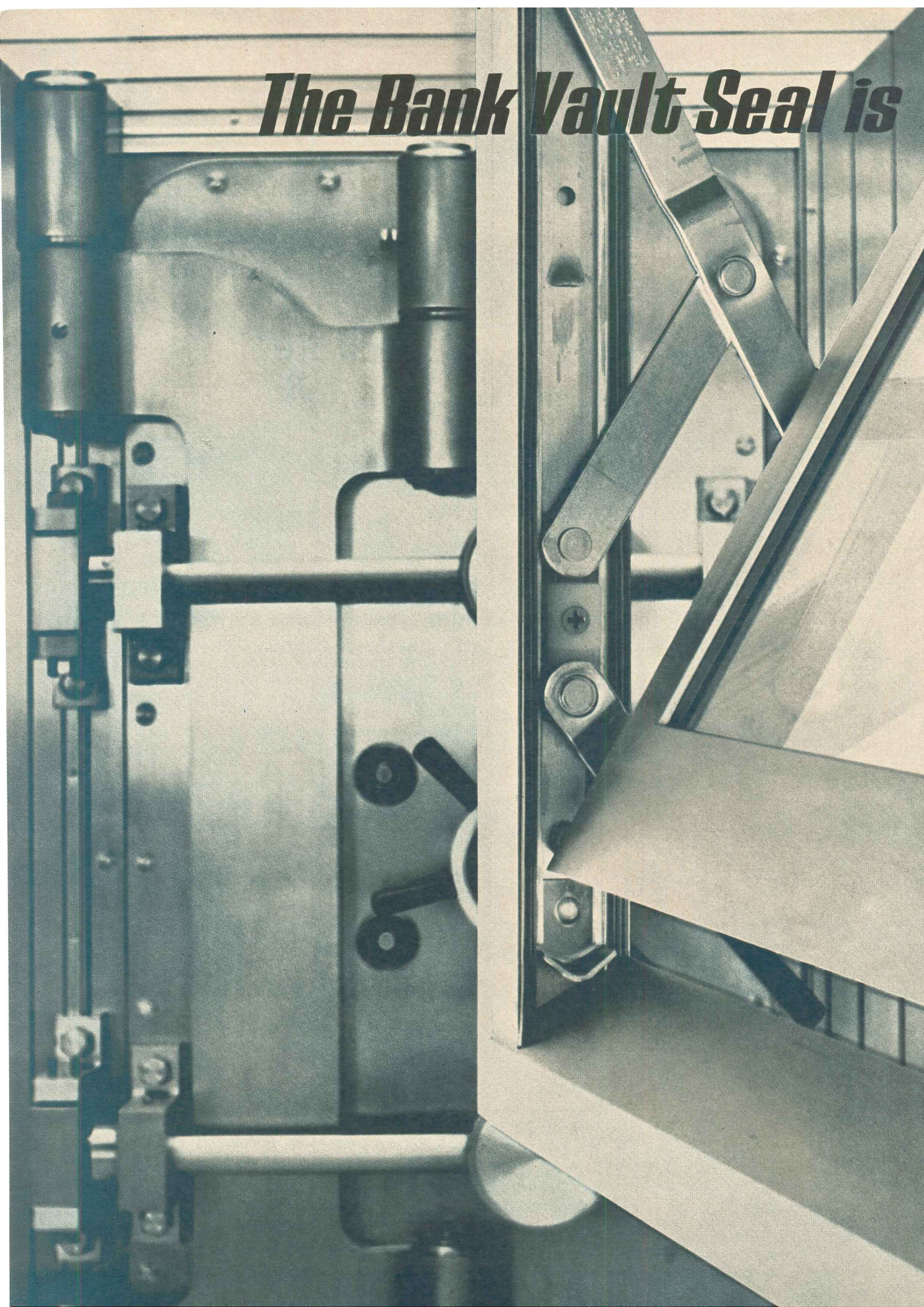
Write for Bulletin SD-148. *Address Square D Company, Dept. SA, Mercer Road, Lexington, Kentucky 40501*

SQUARE D COMPANY

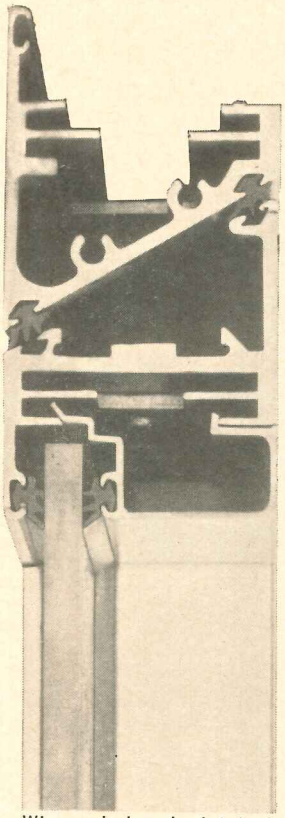
wherever electricity is distributed and controlled

For more data, circle 7 on Inquiry Card

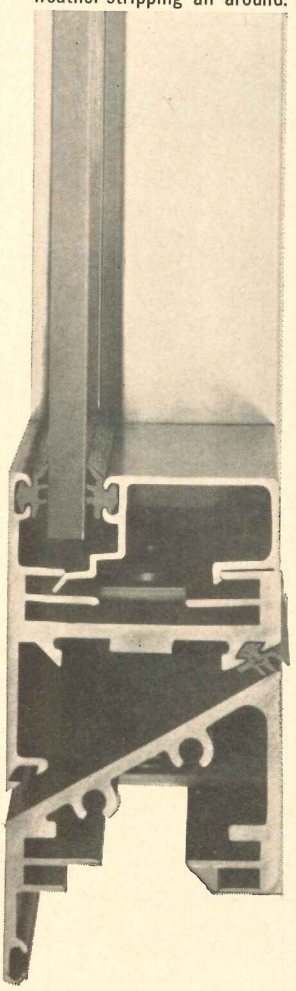
The Bank Vault Seal is

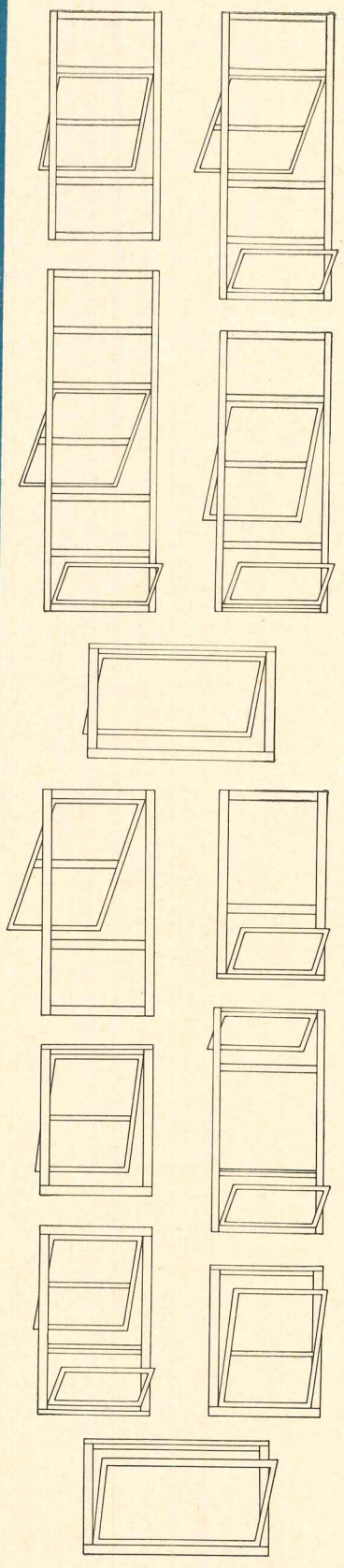


Weather-Tight... in Amarlite



When window is latched, hinge arms exert leverage to equalize pressure on two-step weather-stripping all around.





Amarlite's unique concept of combining components provides virtually unlimited variety of sizes and arrangements.

versatile aluminum windows

New AMARLITE windows are superior *commercial quality* . . . built to standards of the finest *entrances.* Compare the heavier extrusions, the craftsmanship of fabrication, the handsome hardware, the vinyl glazing and weather-stripping, the positive, smooth, balanced operating action . . . and, of course, the Amarlite finish!

Designs are trim, simple, and clean. Sill slopes to exterior—can't trap water or dirt. Neatly mitered corners are joined with massive extruded clips, locked into channels of frame and sash. Hinges are patented Anderberg Balanced Arms that respond smoothly, yet hold the sash open to any desired position. Latch is chromium-plated white bronze. Glazing is dry-set vinyl bead, on both sides of the glass, with snap-in molding with no visible fastenings.

Why settle for less, when Amarlite quality gives you more . . . at a competitive price! Specify trouble-free windows from AMARLITE . . . now available coast-to-coast.

AMARLITE

DIVISION OF ANACONDA ALUMINUM COMPANY

MAIN OFFICE • P. O. BOX 1719 • ATLANTA 1, GEORGIA

Sales Offices and Warehouses: Chicago, Cleveland, Dallas, Paramus, Atlanta, Los Angeles

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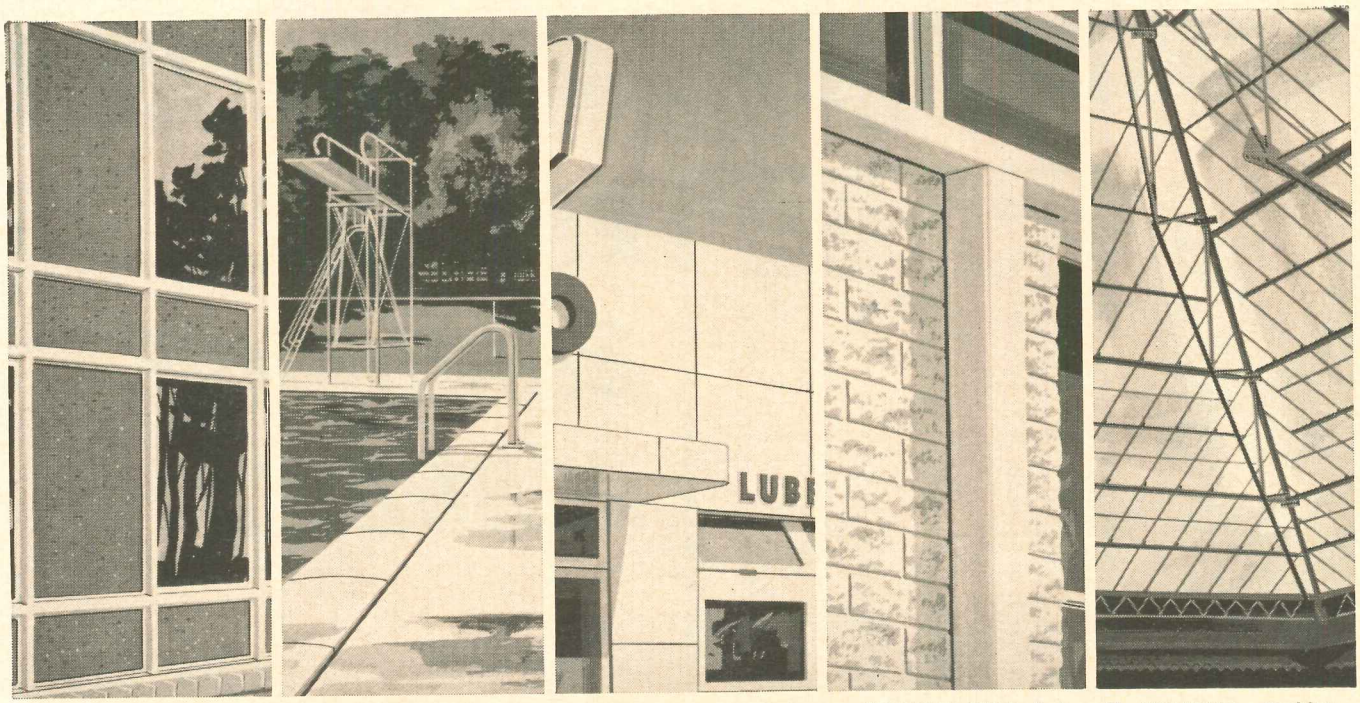

1. PRE-CAST CONCRETE PANELS. **Problem:** Water leakage around pre-cast concrete panels in curtain wall and tilt-up construction. **Solution: DAP Flexiseal.** Conforms to all irregular sealing surfaces, makes a tough bond for watertight, airtight protection. Gives long-term, trouble-free service.

2. SWIMMING POOLS. **Problem:** Sealant between pool's concrete coping and concrete apron is subject to brittleness and cracking in winter, tar-like gumminess in summer. **Solution: DAP Flexiseal.** Forms a rubbery, watertight seal that sets to a non-tacky cure and remains permanently flexible.

3. PORCELAIN PANELS. **Problem:** Severe expansion and contraction — plus the sun's ultraviolet rays — take the life out of ordinary sealants. **Solution: DAP Flexiseal.** Balanced adhesion and cohesion gives exceptional durability and flexibility regardless of temperature and climate.

4. EXPANSION JOINTS. **Problem:** Shear stress causes adhesion or cohesion failure of ordinary sealants between dissimilar materials. **Solution: DAP Flexiseal.** Provides outstanding shear strength for tough, flexible, long-lasting seals between aluminum, brass, copper, steel, glass, concrete, marble, wood.

5. SKYLIGHTS. **Problem:** Temperature extremes and wind pressure cause excessive movement of glass lites with resulting breakdown of seal between glass and metal frames. **Solution: DAP Flexiseal.** Sticks tenaciously to glass and metal, flexes indefinitely to maintain positive, long-lasting seals.

HOW DAP® *FLEXISEAL*® SOLVES 5 CRITICAL PROBLEMS OF **expansion and contraction**

No matter how critical the sealing job, Balanced Modulus is your assurance that DAP Flexiseal will give positive, flexible, permanent seals. You can't beat it for tenacious adhesion and resilient cohesion under the most severe conditions of expansion and contraction, temperature and exposure. Formulated with Thiokol* polysulfide polymers, Flexiseal flexes easily . . . won't crack . . . won't shrink . . . bonds tightly to virtually all construction materials.

A two-part sealant, Flexiseal has a smooth, buttery consistency for easy blending and application. And remember: DAP makes Flexiseal in one premium-quality grade only . . . assuring performance that always meets or exceeds Interim Federal Specification TT-S-00227a, and ASA Specification 116.1-1960.

*Trademark of Thiokol Chemical Corp.

DAP®, WORLD'S LARGEST MANUFACTURER OF QUALITY SEALING MATERIALS, OFFERS YOU TECHNICAL SPECIFICATION SERVICE ON SPECIALIZED SEALANTS FOR MODERN CONSTRUCTION.

DAP INC., DEPT. AR • GENERAL OFFICES: DAYTON 31, OHIO • SUBSIDIARY OF *Plough, Inc.*

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AWARENESS

...as important to us as to the architects we serve. To many, the Rixson name is virtually synonymous with the term "concealed door closer." Awareness led us to pioneer the concept; it leads us now to endless technical effort to prepare for the architectural concepts and conditions of tomorrow.

A DIVISION OF RIXSON INC

RIXSON CLOSERS

FRANKLIN PARK, ILLINOIS • REXDALE, ONTARIO, CANADA

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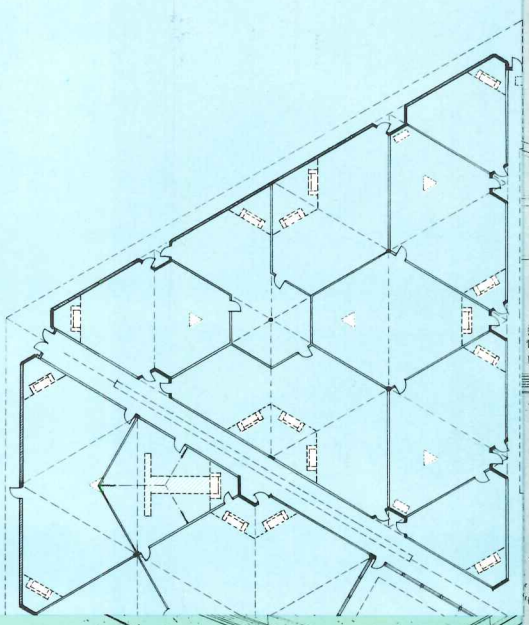
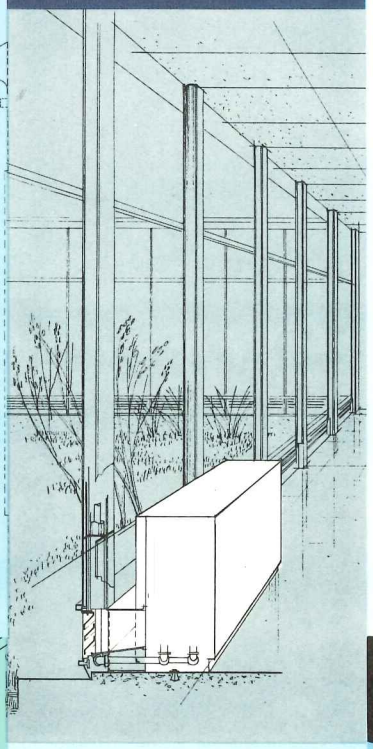
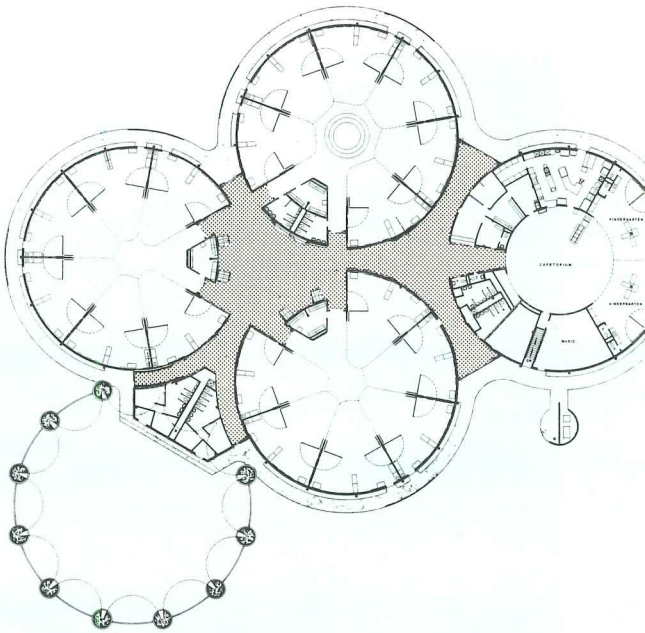
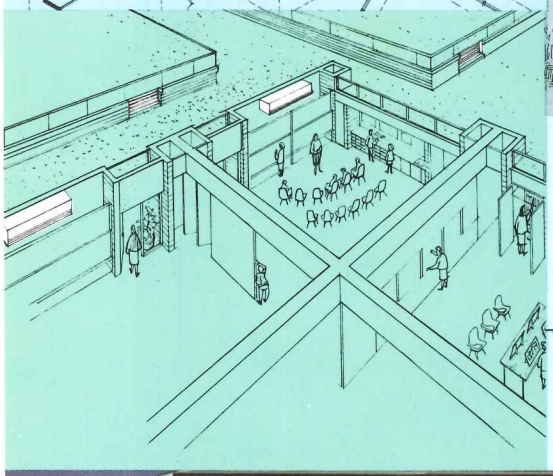
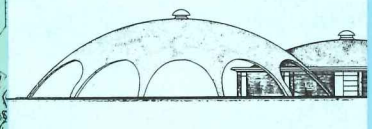


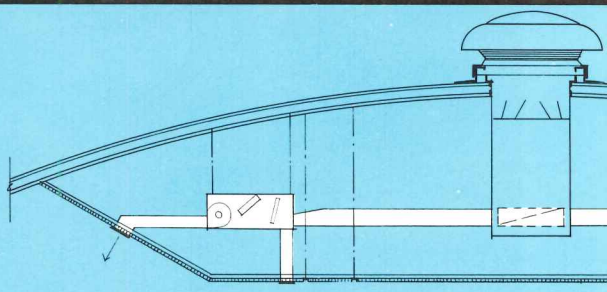


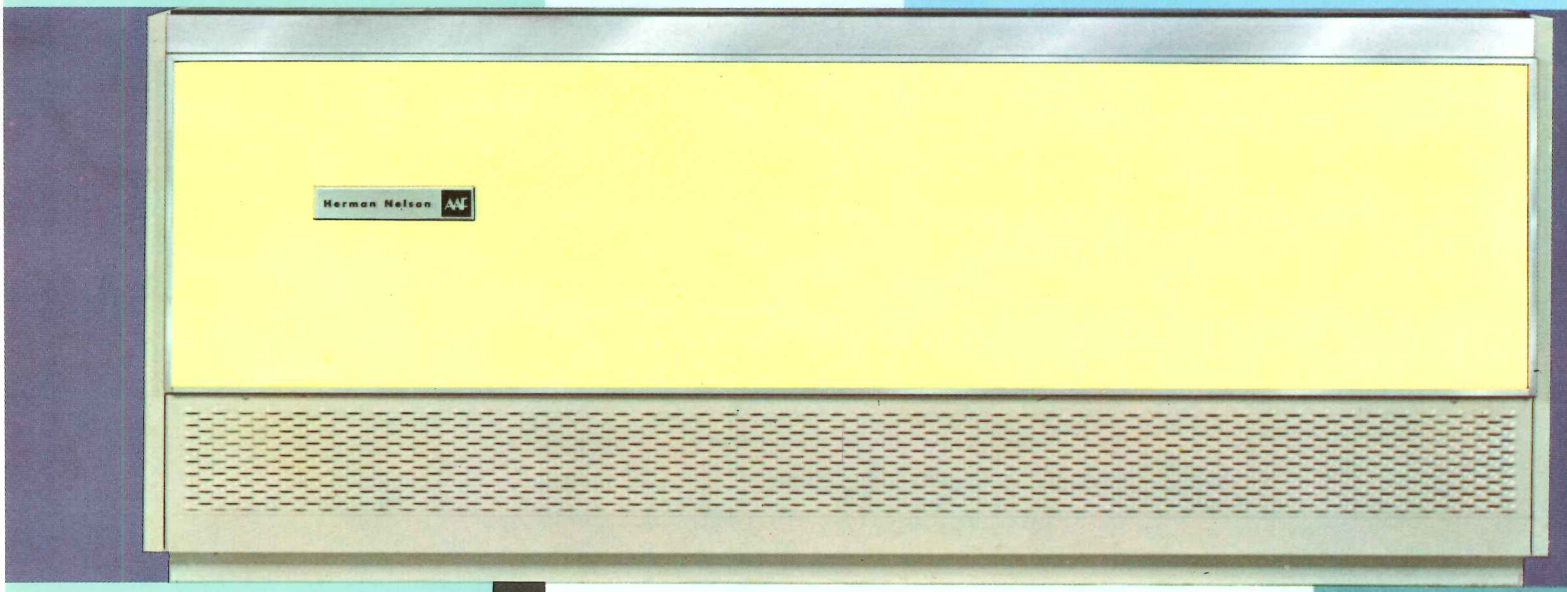


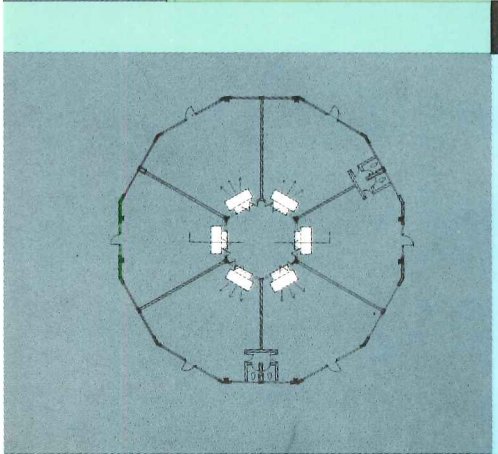
SCHOOL PLANS shown here are from a new AAF/Herman Nel
brochure showing how unit ventilators fit into the most advanced sch
designs by some of America's leading architects. Write for your co

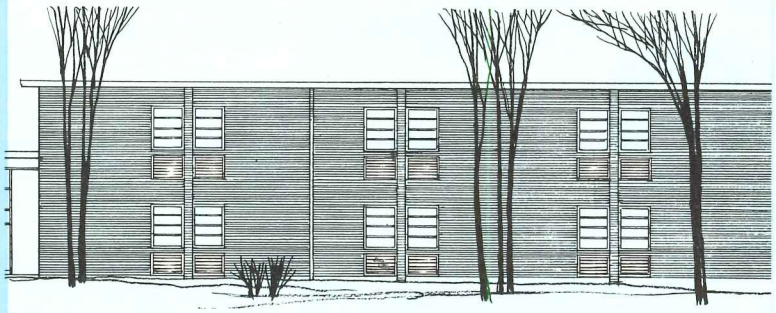


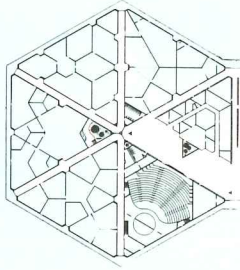












If Herman Nelson classroom unit ventilators cost a little more

...why do so many budget-wise architects select them as the base bid?

Simply put: they're designing a far greater value into their schools.

A 5% saving on unit ventilators for an average school represents a savings of about .0032% of the total school cost. And that .0032% can begin to look smaller and smaller in a few years should the lower-cost units need replacement, as they did recently in one Long Island school.

We don't say that Herman Nelson heating, air conditioning, ventilating unit ventilators are ten times better-built than others. Not even twice so perhaps. But they *are* worth any slight difference you *might* have to pay. Here are some reasons why:

ONE-PIECE UNITIZED FRAME (something you'll probably never even see) helps make sure Herman Nelson unit ventilators last as long as your building.

DRAFT/STOP DESIGN captures chilling down-drafts from the windows without adding additional (and unneeded) heat to the room.

5-YEAR WARRANTY (Type G units)—Covers *both* parts and labor should our units not perform as we promised. It backs up your decision to specify Herman Nelson with *action*, not talk.

If we build them a little better than the others, it's for a good reason. We want them to last the life of the school building. We think you do too. Write for the new booklet *"Architects Are Ingenious People—and the Ways They're Using Unit Ventilators Today Prove It."* American Air Filter Company, Inc., 215 Central Avenue, Louisville, Ky., 40208. In Canada: American Air Filter of Canada, Ltd., Montreal 9, Quebec.

FAR-SIGHTED PLANNERS CHOOSE HERMAN NELSON.

AAF **Herman Nelson**
SCHOOL PRODUCTS DEPARTMENT

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Late w ndows are none of the arch tect's bus ness

iii or are they?

Late deliveries are a chronic problem. They delay jobs. They make blood boil. And late window deliveries reflect badly on everybody connected with the project — including the architect.

At The William Bayley Company we have cured the disease. To back our responsibility to the contractor, and to you, we have put metal windows and curtain walls on the critical path. You can count on our service, our high quality, and our computer to keep you out of the soup. Ask us to prove it. Call in the Bayley window man on your next job. The William Bayley Company, Springfield, Ohio.

BAYLEY

For more data, circle 20 on Inquiry Card

New Ionian Terraflex®... the beautiful floor tile built to take abominable abuse

Beefing up a floor tile to give it extra strength is easy. However, making one that has delicate beauty *at the same time* is a beast of a different color. But that's what makes new Johns-Manville Ionian Terraflex stand out from the horde. It offers *both*.

Ionian's massive swirl design, high gloss and subtle blending of colors give it a glowing elegance that blends with any decor. Yet there's no sacrifice in durability. That's because the pattern goes all the way through and is uniformly distributed throughout the thickness of the tile. Even years and years of the heaviest commercial traffic won't mar its looks.

So there you have it. Beauty *and* the beast. All in one 9" x 9" x 1/8" (or 3/32") tile. And it's available in eight different shades. Incidentally, no two tiles have the same pattern thus assuring the over-all random shading characteristic of real marble. For details see your J-M Representative.

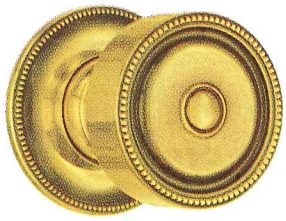
Johns-Manville JM

For more data, circle 21 on Inquiry Card

101 DIFFERENT LOCK DESIGNS

23 DIFFERENT FINISHES

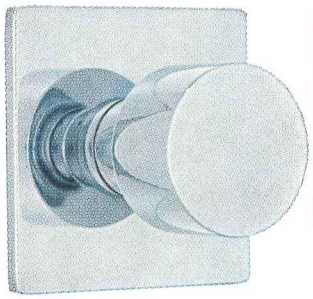
CROWN
Polished Brass Oxidized
Knob, 2-1/4";
rose, 2-9/16"



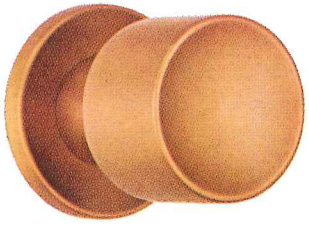
NOVO
Satin Aluminum
Knob, 2-1/4";
rose, 2-9/16"

MERCURY
Polished Bronze
Knob, 2";
rose, 3-5/8"

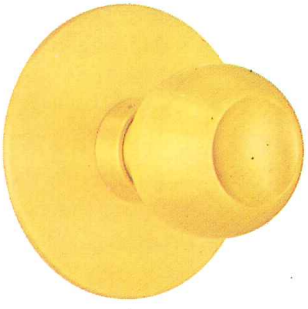
CENTURY
Polished Chromium
Knob, 2-1/8";
rose, 3-5/8" square



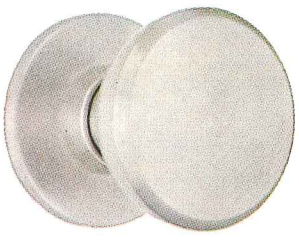
LUNA
Oil Rubbed Bronze
Knob, 2-1/8";
rose, 2-9/16"



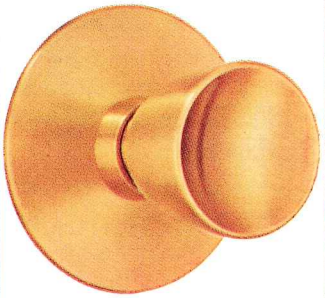
VISTA
Satin Brass
Knob, 2-1/16";
rose, 3-5/8"



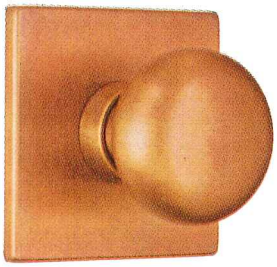
CUPRA
Satin Chromium
Knob, 2-1/2";
rose, 2-9/16"



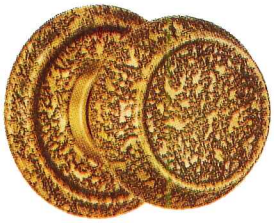
MAGNOLIA
Satin Bronze
Knob, 2-3/32";
rose, 3-5/8"



HANOVER
Oil Rubbed Bronze
Knob, 2-1/4";
rose, 3-1/4" square

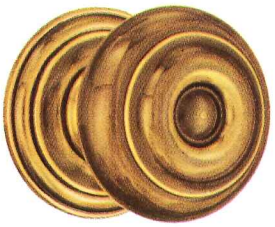


CLAREMONT
Oxidized Bronze
Knob, 2-1/4";
rose, 2-9/16"



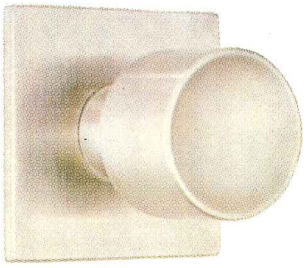
LOTUS
Satin Nickel Oxidized
Knob, 2-3/32"
rose, 2-9/16"

COLONIAL
Polished Brass Oxidized
Knob, 2-1/2";
rose, 2-9/16"



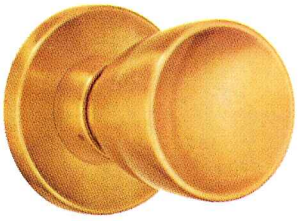
PLYMOUTH
Polished Brass
Knob, 2-1/4";
rose, 2-9/16"

METEOR
Satin Chromium
Knob, 2-1/8";
rose, 3-1/4" square



SATURN
Satin Brass
Knob, 2";
rose, 2-9/16"

TULIP
Satin Bronze
Knob, 2-3/32";
rose, 2-9/16"



Schlage gives you so much more freedom of choice in specifying locks...with 101 different lock designs and up to 23 different finishes. You're sure to find the exact answer to any residential or commercial locking requirement. Flawless performance through the years has given Schlage a world-wide reputation for dependability. Architects, builders, and building managers know this as "the lifetime lock." In the planning stage, plan to invest the few extra dollars it takes to include Schlage quality, Schlage beauty. Schlage's heavy-duty line shown here ("D" locks) are just a few of the designs and finishes available. For an even wider look at the Schlage line, call your Hardware Distributor. Or write directly to Schlage Lock Company, P.O. Box 3324, San Francisco 19, California.

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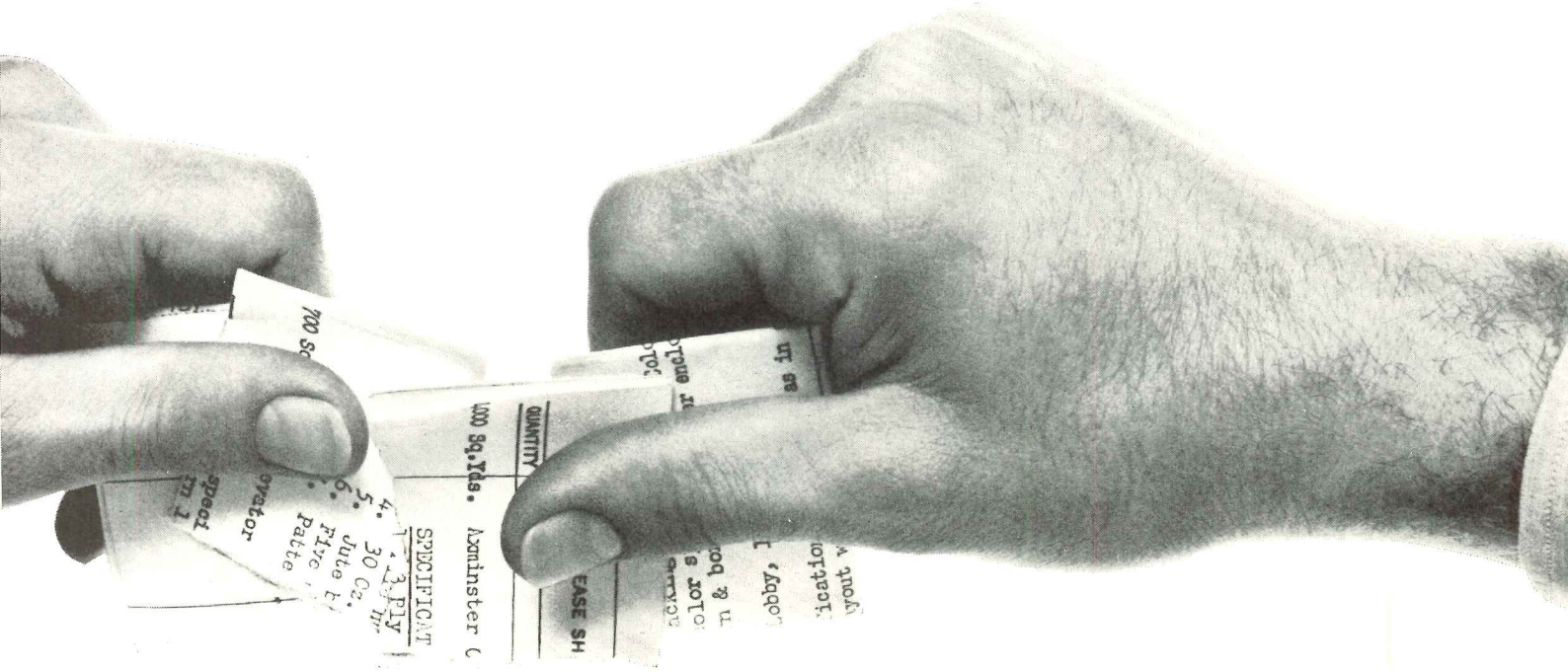
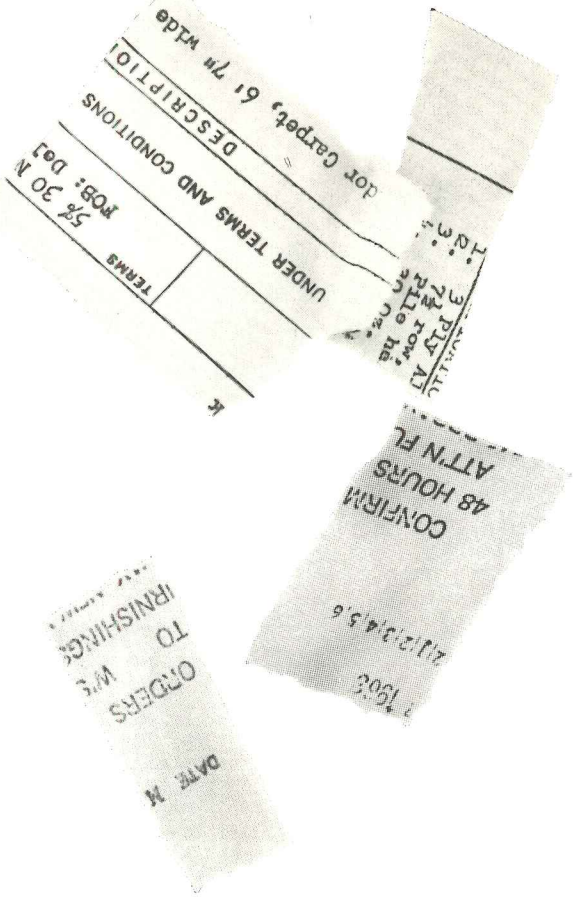


If Lees does this to your specs, don't take it personally.



Sometimes we get specs we just can't follow as they are.

If we did, we'd have to cut corners. Make up a "bargain" carpet.

Sorry, but we won't do it.

We won't give up quality.

But. If we won't settle for second-rate, neither should you.

So when you give us specs we *can* afford to follow, even then we may not follow them exactly.

Instead, we'll try to do better.

If we can give you more luxury for the same price, we'll do it. In fact, we do it a lot. Lees has a huge contract program, with more carpets in stock than anyone else. With so many carpets already made up, we're often able to give you $12 luxury for the $10 you specify.

Or instead of that $10 carpet, we may try to sell you one for $8. (We're not trying to palm something off. We've got the carpet you want already in stock, so we can give it to you for less.)

Even colors you thought had to be custom, might be run-of-the-mill with us. Lees has over 100 colors in stock all the time. More than any other company. And more fabrics, too.

So if we do rip into your specs, it's to give you the best possible carpet we can.

But don't take it personally.

If you weren't satisfied with your Lees carpet, you'd go to someone else the next time.

And that's the sort of thing that really hurts.

Write us. And we'll tell you more. Commercial Carpet Department, James Lees & Sons, Bridgeport, Pennsylvania.

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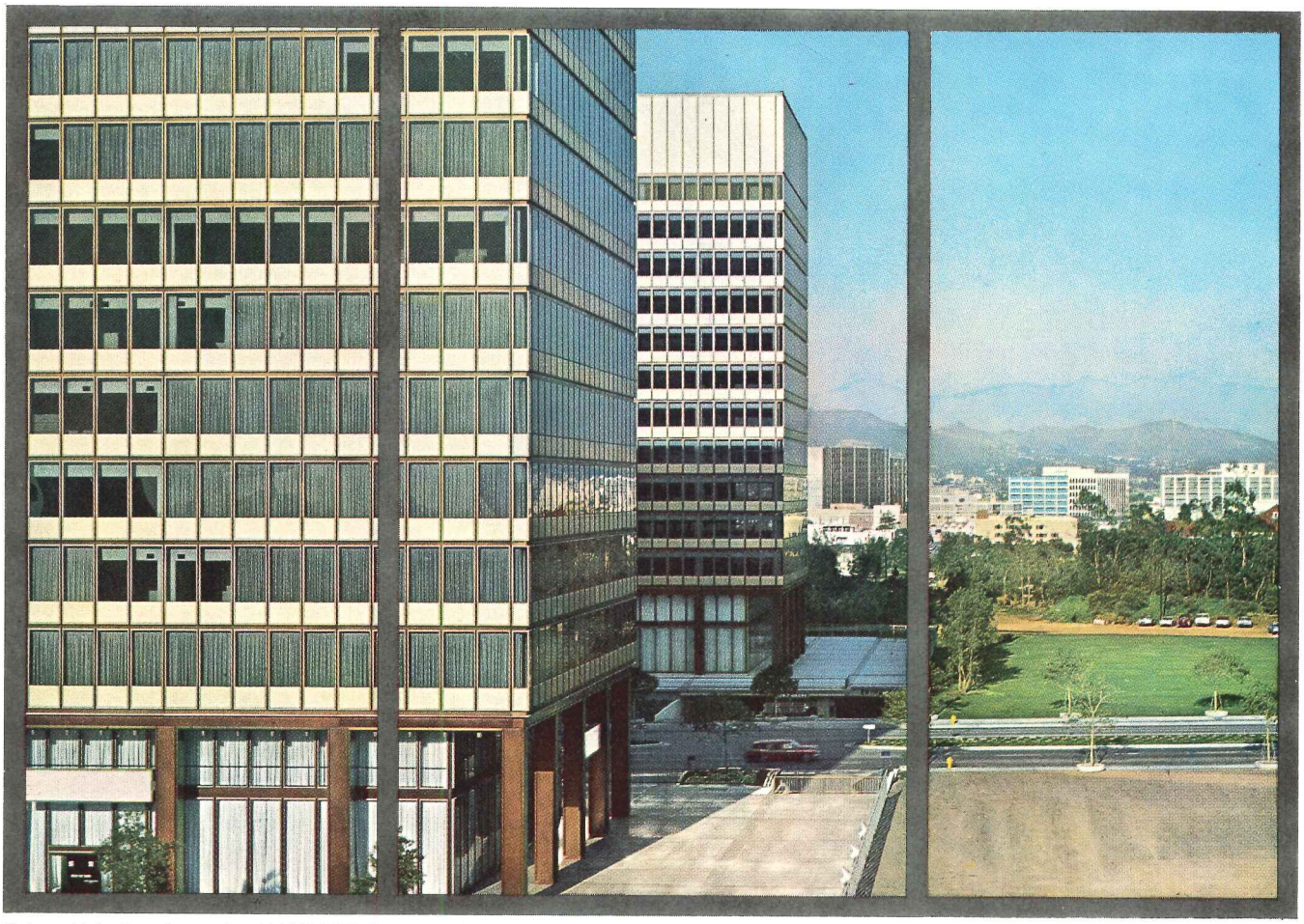
You're looking at Los Angeles through a new glass from PPG that shuts out 70% of the sun's heat and has a "U" value of .35



Photograph taken through a sample of SOLARBAN TWINDOW simulating typical building location. Camera: 4 x 5 Linhof, 1/50 second at f/11 with Ektachrome daylight.

COMPARATIVE PERFORMANCE DATA		U Value	Maximum Heat Gain (BTU/hr./ sq. ft.)	Visible Light Transmittance %
PLATE GLASS				
Regular Plate Glass	¼"	1.1	200	88
Solargray®	¼"	1.1	150	42
Solarbronze®	¼"	1.1	150	51
Solex®	¼"	1.1	150	73
SHEET GLASS				
Clear Sheet Glass	3/32"	1.1	205	90
Graylite™ 31	⅛"	1.1	170	31
Graylite 61	3/16"	1.1	195	61
Graylite 56	7/32"	1.1	190	56
Graylite 14	7/32"	1.1	150	14
Graylite 52	¼"	1.1	185	52
HIGH PERFORMANCE (Insulating, Heat and Glare Reducing)				
Clear Twindow®		.60	170	78
Solarban Twindow		.35	65	20
LHR Solargray Twindow		.60	90	22
LHR Solarbronze Twindow		.60	90	25
LHR Solex Twindow		.60	90	32
Solargray Twindow		.60	115	36
Solarbronze Twindow		.60	115	45
Solex Twindow		.60	115	65

THE MOST COMPLETE LINE OF ENVIRONMENTAL GLASSES.

It's called PPG SOLARBAN™ TWINDOW®—the latest and most effective product for Glass Conditioning.* It transmits only one third as much heat as regular ¼" plate glass, cutting winter heat loss and summer heat gain by 66%. This makes PPG SOLARBAN about twice as effective as a regular double-glazed insulating unit. And it transmits only about 20% of the sun's visible rays, greatly reducing glare.

What gives PPG SOLARBAN TWINDOW these remarkable properties? Actually, it's two panes of glass enclosing a dry air space. On the air space side of the indoor pane, an exclusive coating reflects approximately 46% of the sun's total energy.

SOLARBAN TWINDOW is the ideal environmental glass in any climate or location. It permits the ultimate in indoor comfort. And the savings in heating and air conditioning costs may more than make up the difference in price.

PPG makes environmental glasses to control the sun's heat and glare on any orientation, of any building, in any environment. For details on these modern glass products, contact your nearest PPG Architectural Representative, consult Sweet's Catalog or write: Pittsburgh Plate Glass Company, One Gateway Center, Pittsburgh, Pennsylvania.

Pittsburgh Plate Glass Company, Pittsburgh, Pa.

PPG makes the glass that makes the difference

another product for Glass Conditioning from PPG

*Glass Conditioning is a service mark of the Pittsburgh Plate Glass Company

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Designer Paul McCobb added an exciting new style to our functional equipment.

Paul McCobb, one of America's leading contemporary designers, says there is every reason to believe that heating and cooling equipment can be beautiful as well as functional. He proved it.

Mr. McCobb architecturally styled and coordinated the design of each of the Nesbitt products shown here . . . Sill Line radiation, Syncretizer unit ventilator (free standing or with storage cabinets), as well as the Roommate

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kg and Roommate III cabinet air condition-
rs. The result: a contemporary look, a dis-
nctive style that works right along with your
esigns.
s important. After all, Nesbitt products *are*
distinct part of the room. Now with new
olors, textures and patterns an integral part
the total design, the units blend with the
om, with the building, with each other.
his gives architects complete freedom. You
an organize and complement various ar-
rangements of Nesbitt classroom ensembles, select the units that unify all your design elements.

More Nesbitt unit systems are installed in schools and institutions than all other systems combined. That's reason enough to write for the facts on the exciting new style in Nesbitt heating and cooling equipment.

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Dow Corning® 780 building sealant is giving leak-free service on thousands of structures built since 1958. It's easy to see why.

A true elastomer, this silicone rubber sealant *stays rubbery indefinitely.* It provides the "give and take" essential to joint integrity . . . permanently allows expansion and contraction without affecting joint soundness. No other caulk or sealant even approaches silicone rubber's permanent flexibility, and its capability for maintaining a watertight joint.

Sealant flows as easily as toothpaste at temperatures ranging from zero to 120° F. Handling and performance qualities are uniform, consistent, because Dow Corning is the sole manufacturer of this premium product.

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DOW CORNING

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LOOKS AS GOOD AS IT LOCKS

Some locks have to do more work than others. (This one not only locks sure, but makes opening doors much easier.) To us, just because a lock does more work doesn't mean it has to look that way. So, after we make sure a Yale lock does the job it was meant to do, we go to great lengths to see that it does it with style. Sheer beauty can never replace hard work. But hard work can never replace beauty, either.

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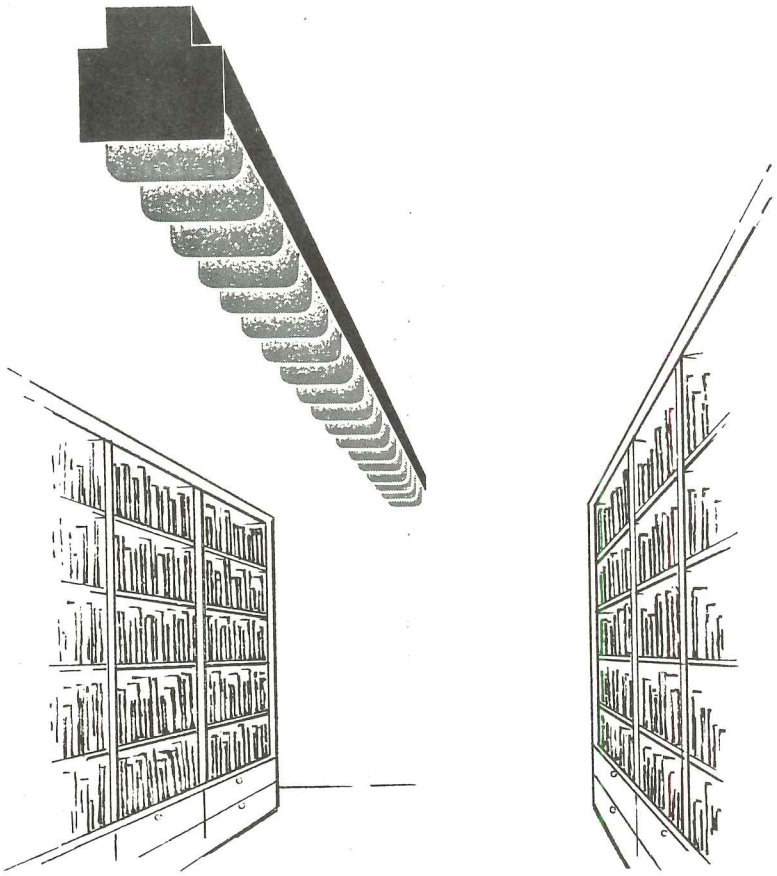
THE FINEST NAME IN LOCKS AND HARDWARE
YALE & TOWNE

Saxon lever handle shown with Yale Mono-Lock.



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From

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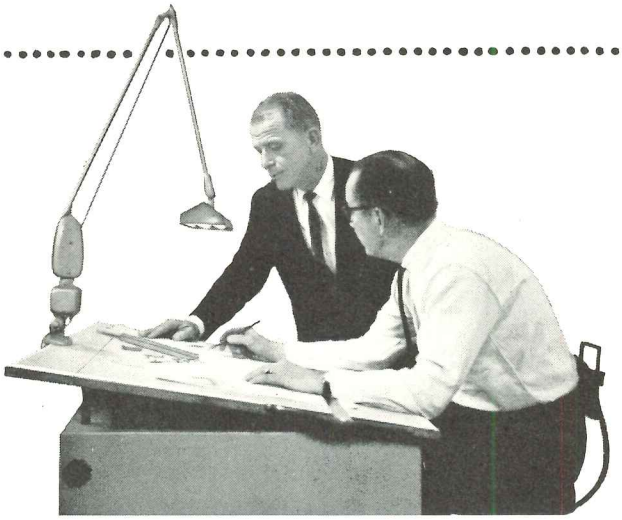

LITECONTROL CORPORATION • 36 PLEASANT STREET • WATERTOWN, MASSACHUSETTS

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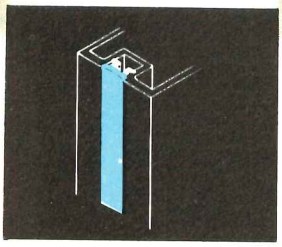
One extrusion can accommodate glass or panels of different thickness.



Snap-in inserts can add shadows or color accents to the mullion face.

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...with Reynolds Aluminum Multi-Framing System

Beautiful, durable aluminum is a natural for store fronts. And Reynolds Multi-Framing System adds new versatility and economy.

In this system, a single mullion can accept a variety of thicknesses of glass or panels. using snap-in flush glazing members. Weather protection is superior because the major portion of the store front is behind the glass line, inside the building. Units are removable, for inspection or repair.

You will appreciate the simplicity of this system, which uses a minimum of components, stocked by distributor-fabricators, who also install.

Details are available in a portfolio which also shows the system's application to Curtain Walls, Re-Facing and Partitions. 57 sheets of drawings. For your set, and name of distributor, write Reynolds Metals Co., Dept. AR-8, Richmond, Va. 23218.

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They are available in a wide variety of colors and finishes suitable for any type of surface—whether interior or exterior.

And the technological know-how and vast research facilities behind the famous Mobil emblem means you can specify Mobil paint products for any job with confidence.

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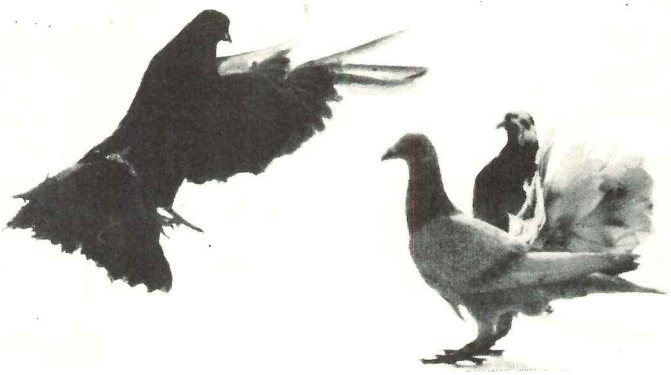

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wooden dormitory furniture
that has the flexibility
only freestanding furniture can give,
yet still offers the convenience
of built-ins.
American of Martinsville,
working hand in hand with our own designers,
came up with exactly what was needed.
It's a pleasure to work with a large,
reputable manufacturer who can deliver quality
and design at a sensible price."

Kenneth W. O'Meara, President, O'Meara-Chandler Corporation, Houston, Texas

Experts in complete student housing and dormitory planning and construction. Builders of The Madison House, University of Texas; The Men's Dorm, Andrews University, Berrien Spring, Mich.; Rogers Hall, Old Dominion College, Norfolk, Va.; Co-ed Dorm, Calif. State College, Hayward, Calif., plus many other outstanding on- and off-campus student dwellings.

O'Meara-Chandler came to us because of our long-established reputation as a manufacturer of fine furniture for the home and quality hotel-motel furniture. Our design department and product engineers worked in close collaboration with Mr. O'Meara and his staff to help solve his specific problems. Whether you are a Director of Housing, an Architect or a Contractor, we will be glad to do the same for you. For details, wire, write, or phone: Martinsville, Virginia (708) ME 2-9843.

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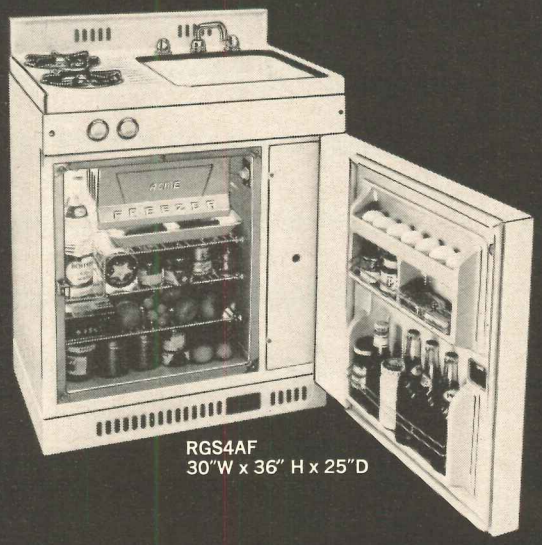
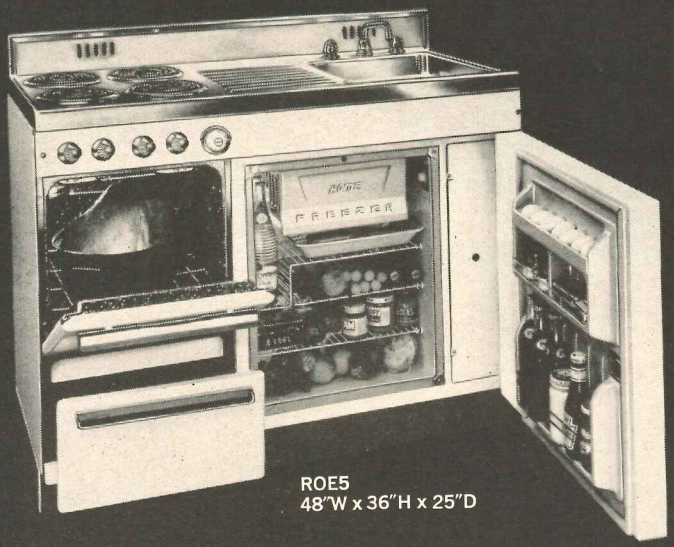
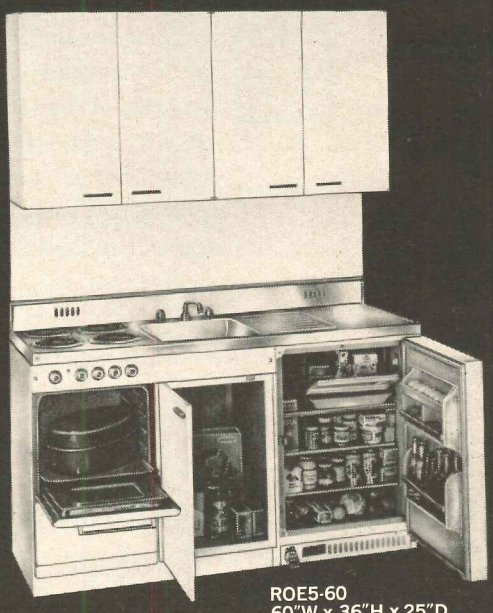
RE5F
27"W x 36"H x 25"D



RGS4AF
30"W x 36" H x 25"D



ROE5
48"W x 36"H x 25"D



ROE5-60
60"W x 36"H x 25"D

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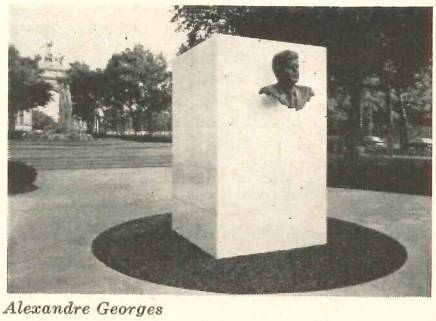


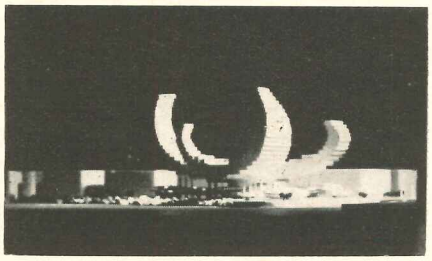
Alexandre Georges

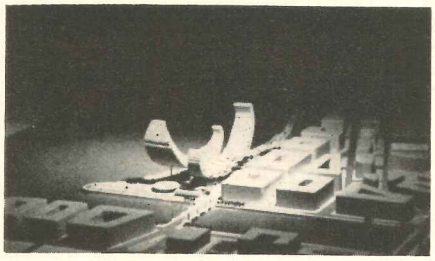
Memorial in Brooklyn

A stark simplicity characterizes the monument to John F. Kennedy in the Grand Army Plaza, Brooklyn, New York, designed by Morris Ketchum, Jr. and Associates, Herbert Riemer, partner in charge. The monument is a five-foot-square, eight-foot-high shaft of white Vermont marble. The representation of the President was executed by sculptor Neal Estern. The monument stands on a circular surface of black ebonite amazon pebbles within a walkway paved with precast granite blocks arranged in a hexagonal pattern.

Winner in Spain

The winners of the San Sebastian, Spain, international competition revolted against the concept of architecture as a discipline of single-buildings-for-single-purposes and designed what they call a "container", —a conceptual and formal solution in terms of a multi-occupancy structure. Contained in this structure are 105 luxury residences and apartments; a luxury hotel accommodating 300 guests; 300,000 square feet of shopping arcades; underground parking for 350 cars; an auditorium seating 1,000; a covered skating rink; indoor swimming pool and various sports facilities; elevated public terraces surrounded by gardens; and restaurants and cafes. The winners, architect Jan Lubicz-Nycz in collaboration with architect Carlo Pelliccia and structural consultant William Zuk, are all members of the faculty of the School of Architecture at the University of Virginia. The promoters of the competition, the Gran Kursaal Maritime and Real Estate Company of San Sebastian, intend to build the project at an estimated cost of $6.25 million. Members of the jury included architects Secundino Zuazo Ugalde; Heikki Siren; Ernesto N. Rogers; Pierre Vago; Julio Cano Lasso; Rafael La Hoz Arderius, and sculptor Eduardo Chilida Juantegui.





Interiors in the News

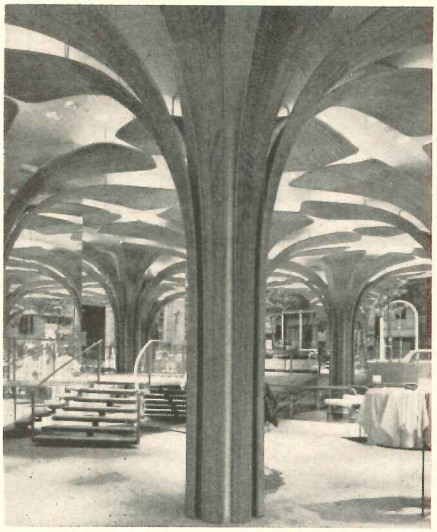
Architect Victor Lundy relied heavily on hand-crafted wood-abstract forms and the extensive use of mirrors to create a primeval setting for the Singer Company Center (below *left*) which occupies 10,000 square feet in Rockefeller Center in New York City. Utilizing existing columns and ceiling as a base, Mr. Lundy introduced a filigree effect of hemlock strips, set off from the columns.

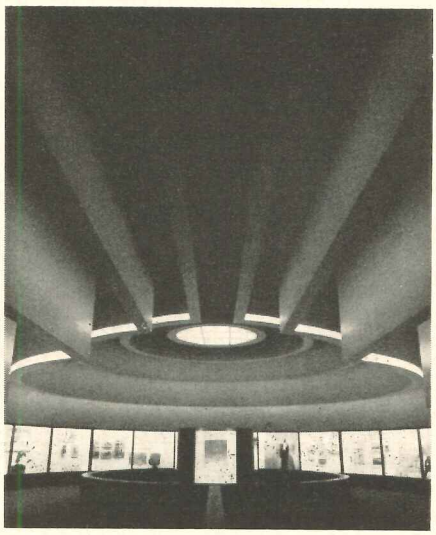
Architect Gordon Chadwick of George Nelson & Company in creating the Hall of Presidents at the New York World's Fair (below *center*), felt that "the space should look 'Presidential' (that is dignified and somewhat monumental)." Because the space was interrupted by a structural brace and stairwells, it was divided into two main areas—a circle and a square. These spaces are defined by hanging "baffles" which contain the general lighting and hide the exposed air-conditioning ducts above. Graphics are by Nicholas Fasciano and the contractor was the Kreisler Borg Construction Company.

Architect Walter Pfeiffer of Morristown, New Jersey, who specializes in restorations, was asked by the West End Brewing Company of Utica, New York, to recreate an 1880's setting for plant tours and a hospitality center for the brewery.

Victorian grandeur unfolds throughout the tour and is culminated in the "hospitality center," the 1888 tavern (below *right*). According to Mr. Pfeiffer, the bar and glass from the swinging doors were rescued from a hotel in Kingston, New York. The bar, made of walnut and oak, with a mahogany top, has carvings on the front, including a representation of the head of the god Bacchus.

George Cserna





Abrams

Anderson

Belluschi

Giurgola

Hejduk

Salvadori

Sappenfield

Smith

Academic Appointments

Auburn University, Auburn, Alabama: Three faculty appointments have been made to the department of architecture at the Auburn University School of Architecture and the Arts. **Edward Earl Pickard** became assistant professor at the beginning of the summer quarter. For the past two years Mr. Pickard has been engaged in private practice as a partner in the firm of Fountain & Pickard, Architects, in Biloxi, Mississippi. **Ralph K. Morrill** and **Adnan S. Iaspinar** will become associate professors in September. Mr. Morrill taught architectural drawing, design and history at Wentworth Institute in Boston during the past year. Mr. Iaspinar, who is visiting prof. for one year, has served, since 1958 on the faculty of the Middle East Technical University in Ankara, Turkey.

Ball State University, Muncie, Indiana: **Charles M. Sappenfield** has been named first dean of the newly created College of Architecture and Planning, which will accept its first freshman class in September, 1966. Mr. Sappenfield, who has his own five-man firm in Asheville, North Carolina, is also assistant professor of architecture at Clemson University. More than 50 architects applied for this position.

University of California at Berkeley: Garrett Eckbo will become chairman of the Department of Landscape Architecture in the College of Environmental Design. Mr. Eckbo will continue his professional practice as a member of the firm of Eckbo, Dean, Austin and Williams.

Cooper Union School of Art and Architecture, New York: **John Hejduk** will become head of the Department of Architecture effective in September. Professor Hejduk will take over the position held for 33 years by Dean Esmond Shaw, who retained the title of head of the department when he became dean of the school two years ago—a position that he will continue to hold.

Columbia University, New York: In a sweeping revision the School of Architecture has been reorganized under three divisions: Architecture, Urban Planning and Architectural Technology. **Kenneth Alexander Smith** has been named dean of the school. He had been acting dean since the resignation of Charles R. Colbert in 1963. **Romaldo Giurgola** of Philadelphia was named professor of Architecture and chairman of the Division of Architecture. He has taught design and theory at the University of Pennsylvania since 1954 and has his own firm, Mitchell/Giurgola, Associates, in Philadelphia. **Charles Abrams** has been appointed professor of Urban Planning and chairman of the Division of Urban Planning. Mr. Abrams is a noted author and consultant on urban planning, and has been a visiting professor at the Massachusetts Institute of Technology and the Graduate Faculties of the New School for Social Research. He has also taught at the University of Pennsylvania and at the City College of New York. **Mario G. Salvdori,** professor of Civil Engineering and Architecture, has been appointed chairman of the Division of Architectural Technology. Dr. Salvadori is a partner in the firm of Paul Weidlinger, consulting engineer.

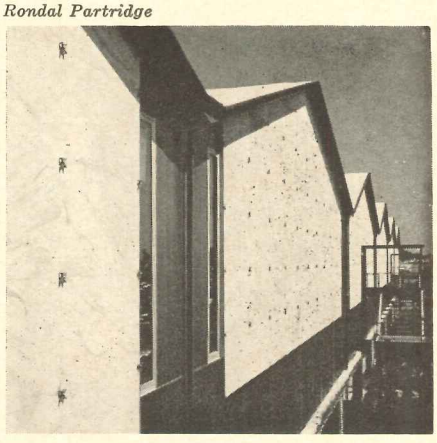
Hampton Institute, Hampton, Virginia; **Bertram Berenson** will become chairman of the Department of Architecture in September, succeeding **William H. Moses.** Mr. Berenson was formerly associate professor of architecture at Louisiana State University. Mr. Moses has become chairman of the Department of Building Construction Engineering. The appointment of **Bernard Jensen** to the faculty has also been announced. Mr. Jensen, who received degrees from the University of California and Stanford University, is a member of Highland Hospital Architects of Berkeley, California.

Massachusetts Institute of Technology, Cambridge: **Lawrence B. Anderson** became Dean of the School of Architecture and Planning, succeeding **Dean Pietro Belluschi** who retired on June 30. Professor Anderson, who has been head of the Department of Architecture since 1947, is a partner in the firm of Anderson, Beckwith & Haible, architects. Dean Belluschi will continue to be active in professional practice as the head of his own firm.

O'Neil Ford Is Given One-Man Show In Texas

O'Neil Ford, F.A.I.A. of San Antonio, Texas, has been honored with a one-man show of his work at the McNay Art Institute in San Antonio. The show, which consists of photographic panels, highlights significant aspects of Mr. Ford's work dating back to the early 1930's. The show, which was exhibited at the McNay Art Institute from June 20 to August 1, will be on display at the Dallas Museum of Fine Arts later this summer. Included in the exhibition is the plant for Texas Instruments, Inc., Dallas (*right*), which was designed by Mr. Ford in partnership with Richard Colley. Shown is a view of the semiconductor components unit. General contractor was Robert McKie.

Rondal Partridge



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.

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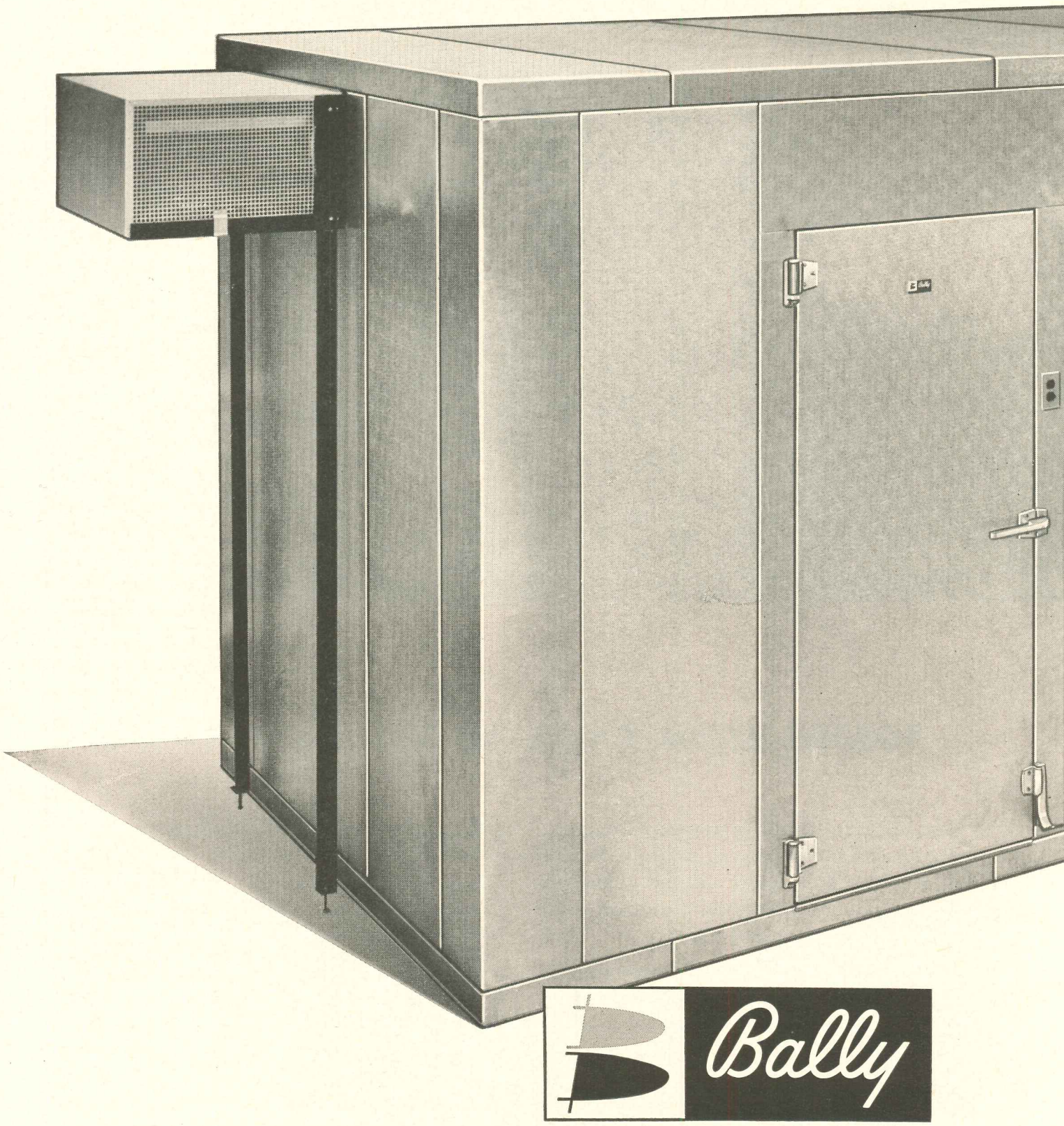
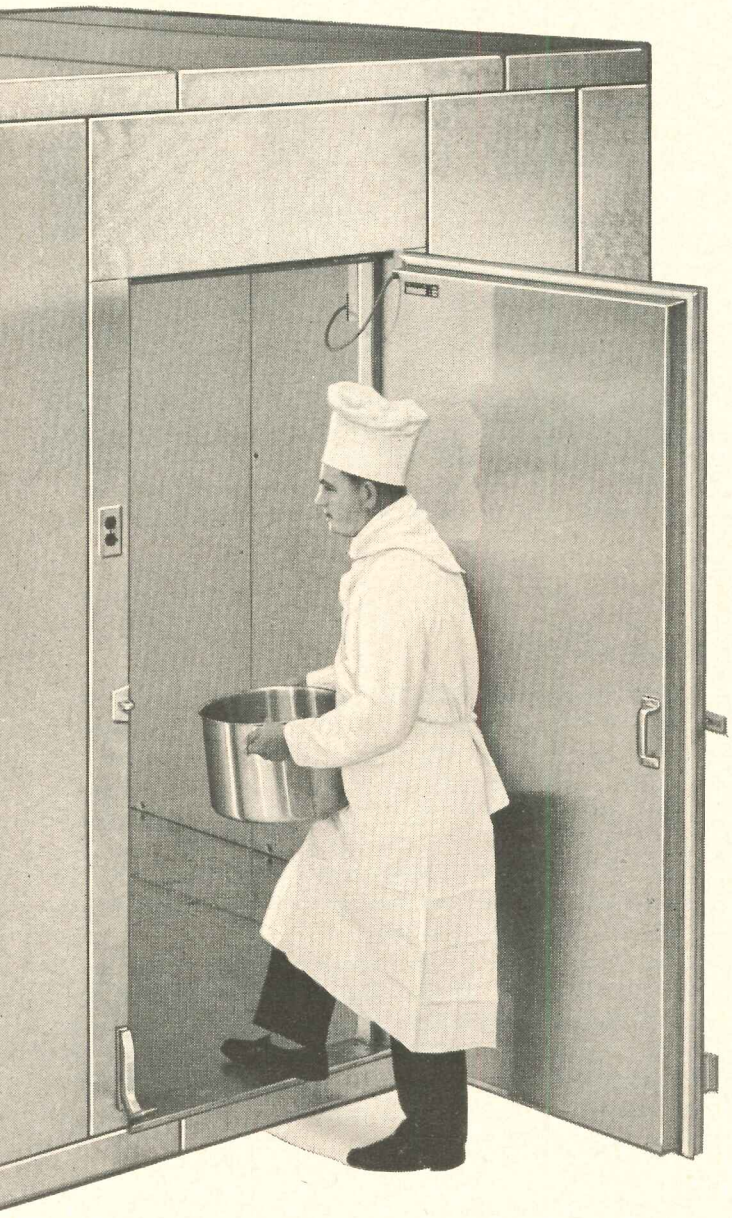
For more data, circle 40 on Inquiry Card

There is no such thing as



Bally

or equal to a Bally Walk-In Cooler or Freezer



THE PROBLEM OF "OR EQUAL" HAS LONG BEEN THE CONCERN OF MANY ARCHITECTS AND ENGINEERS

Everyone knows the use of "or equal" in specifications encourages the attempt to establish non-equals as equals . . . even invites outright substitution.

However, when it comes to Walk-In Coolers or Freezers there is no "or equal" to a Bally. The proof of this is that no other Walk-In made today has all of these important construction techniques and unusual features developed for exclusive use in Bally Walk-Ins:

Urethane insulation 4" thick is foamed-in-place (not frothed). Has efficiency of 8½" fibreglass. Suitable for minus 40° F. temperature.

Assemble any size or shape from standard modular sections. Urethane has 97% closed cells and is ideal for outdoor use.

Superior section strength resulting from urethane foamed against metal skins eliminates need of wood structure. 100% of every section is hospital-clean insulation (vermin and rodent proof).

Bally Speed-Lok fasteners join sections quickly and accurately. Unlock easily for enlargement or relocation.

Foamed lightweight door has self-closing hinges, modern hand lock (inside safety release) and convenient foot treadle. Opens and closes with feather touch. Magnetic gasket provides tight seal.

Metal interior and exterior provides maximum sanitation. Your choice of hammered aluminum, galvanized steel or stainless steel.

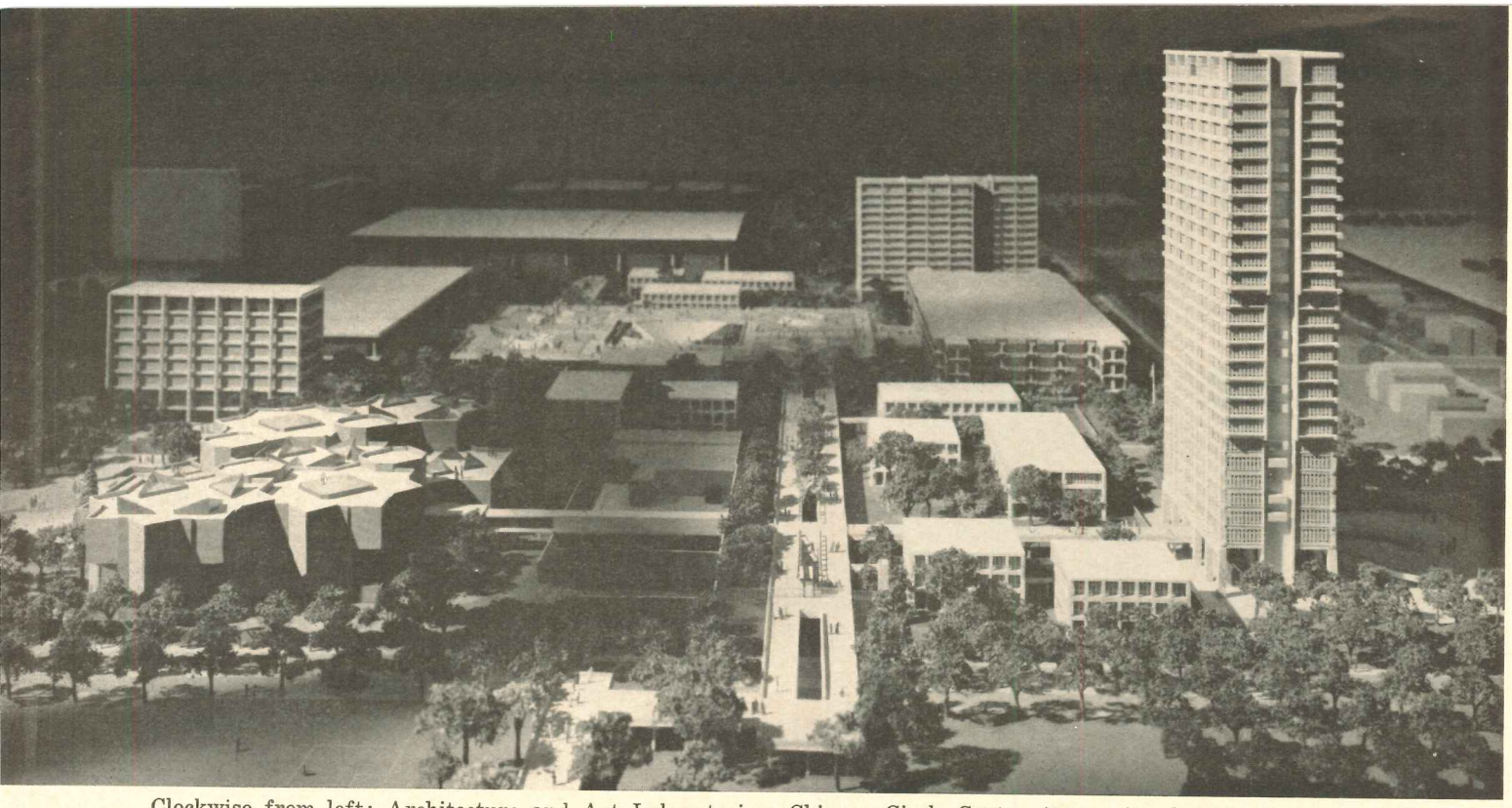
Hermetically-sealed refrigeration systems, self-contained, available for all sizes of normal and low-temperature Walk-Ins. Easy to install . . . reduce service problems.

Mass-produced to be substantially lower in cost than "built-ins" constructed by building trades. Cubic-foot cost is less than half that of "reach-ins".

When you specify a Bally there is never a need to accept an "or equal" or a substitute. Bally Walk-Ins are available to all dealers everywhere at uniform established prices. *Write for Fact File with 12-page brochure, specification guide, sample of urethane wall. Learn about our on-the-spot engineering program that provides assistance in layout and specifying.* Bally Case and Cooler, Inc., Bally, Pa.

Look for this hallmark on the Bally Walk-In you specify. It is our registered guarantee that your specifications have been fulfilled with the highest quality workmanship and materials.

For more data, circle 41 on Inquiry Card



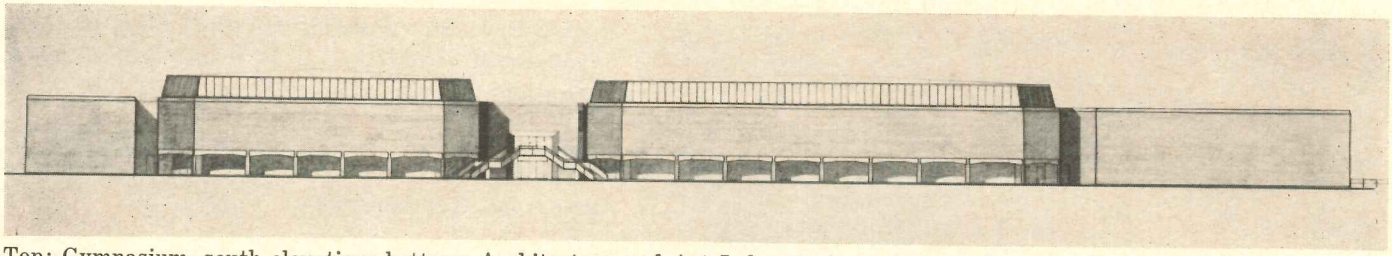
Clockwise from left: Architecture and Art Laboratories; Chicago Circle Center (two units shown); Science and Engineering Laboratories; Physical Education Building (behind laboratories); Science and Engineering Staff Offices; Library; Classroom Buildings; and University Hall (far right).

Phase II Begins at University of Illinois at Chicago Circle

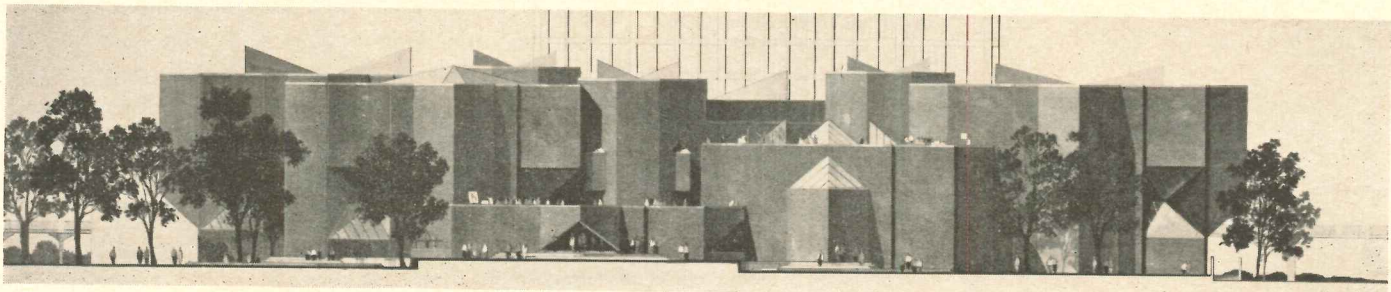
Phase II for the new campus of the University of Illinois at Chicago Circle will include Science and engineering staff offices, architecture and art laboratories, a physical education building, addition to existing library, two classroom buildings and site development work. The new buildings will increase the capacity of the original scheme (August 1963, pages 117-124) from 8,200 students in the fall of 1965 to 14,000 students in the fall of 1967. Further additions will be required to accommodate 20,000 students by 1969. Architects for all buildings in Phase II, except for the physical education building which is designed by Harry Weese and Associates, are the Chicago office of Skidmore, Owings and Merrill. The cost of Phase II construction is estimated at $34.5 million.

The science and engineering staff offices will be a 13-story structure of reinforced concrete and will contain 155,900 gross square feet. The architecture and art laboratories are designed on the cluster plan of studio-laboratories of approximately 80 square feet with mezzanines surrounding a central work space. The building will be five stories and will be constructed of reinforced concrete and brick. The physical education building, three stories in height, of reinforced concrete faced with brick, will contain 226,400 gross square feet and will house athletic facilities for the entire campus.

The library will have four-story additions on the north and south sides of the existing building which will total 126,000 square feet of gross area. Construction is of reinforced concrete and brick. Two classroom buildings will have 46,000 gross square feet of area and the addition to the science and engineering laboratories will total 264,000 square feet.



Top: Gymnasium, south elevation; bottom: Architecture and Art Laboratories

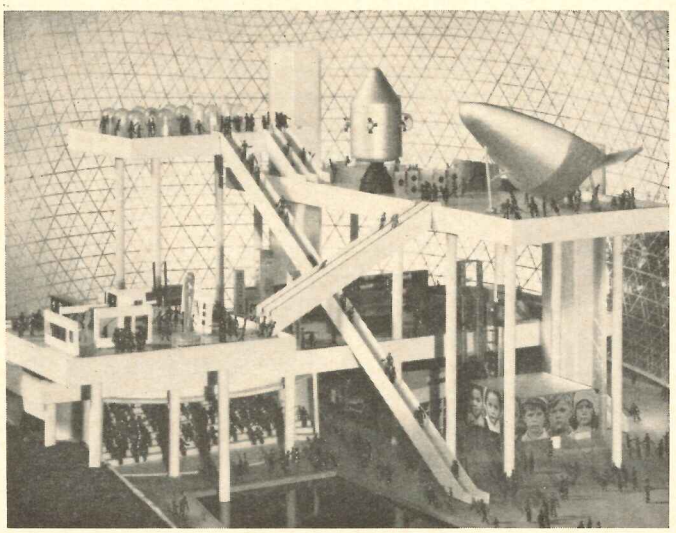


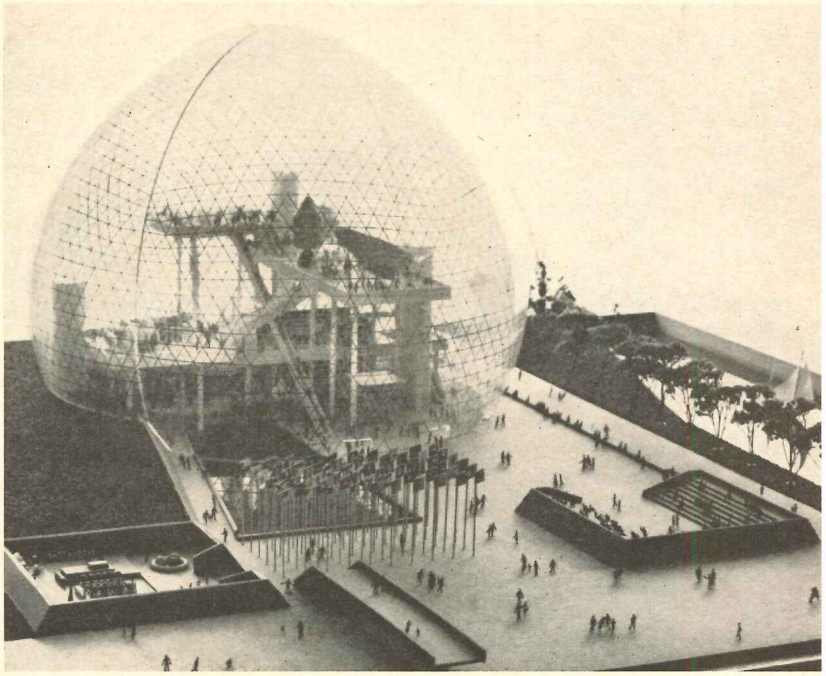
American Structure for EXPO '67

The United States Pavilion for EXPO '67, the international world exhibition to be held in Montreal in 1967, will be a geodesic bubble, 250 feet in spherical diameter and 187 feet in height. Congress has appropriated $9.3 million for the design, construction and operation of the pavilion. Pavilion architect is R. Buckminster Fuller, associated with Shoji Sadao and Geometrics, Inc. Architect Peter Floyd will be project officer for Geometrics. The exhibit architects and designers are the Cambridge Seven of Cambridge, Massachusetts.

As the architects describe it, "the structure will be a lightweight metal space frame supporting a transparent enclosing surface. This surface will be composed of different materials in different locations. Most of these will be newly developed plastic or glass films and sheets. . . . The bubble enclosure, though transparent throughout, will not be invisible. In different areas, the various materials will be tinted and shaded or made partially reflectant by a thin metallic film. The final choice of materials and their location on the surface has not yet been decided, and will be in large measure dependent on the results of both mathematical and physical climatic models of the structure which are now under development. Among the materials now under active consideration are photochromic glass sheets, tinted acrylic sheets, oxygen porous silicone films, and vinyl and polyester transparent films with or without aluminum metallizing coatings. Another concept under consideration is retractable shading screens that will travel across the surface of the bubble following the course of the sun through the sky."

The underlying theme of the exhibit within the structure will be "Creative America," and the subjects to be covered will include: a lunar exhibit; a fine arts exhibit; a new technology exhibit; an "American heritage" exhibit; a "creative America" film, and a special events theater.

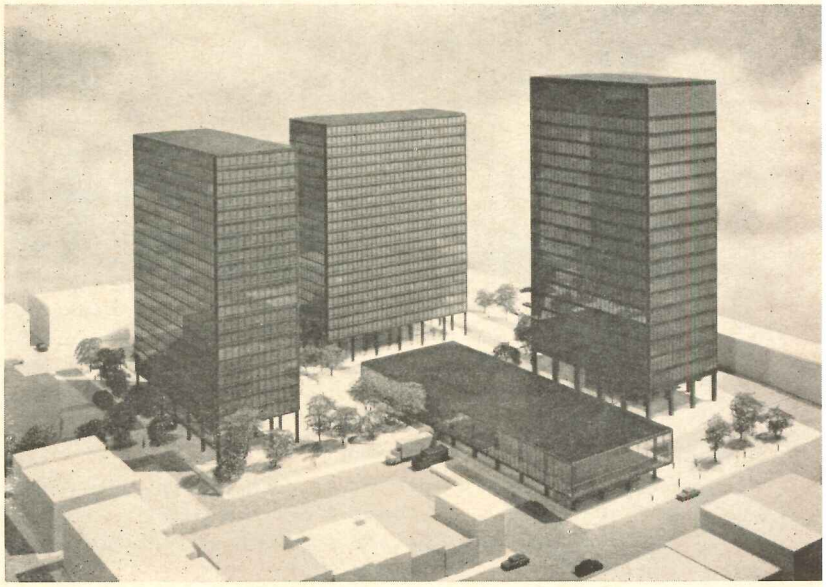




Building Complex Designed by Mies

The $20 million Westmont Center project in Montreal, designed by Mies van der Rohe, consulting architect, and Greenspoon, Freedlander and Dunne, architects, will consist of two 21-story apartment towers, a 21-story office structure containing 250,000 square feet of gross area, and a one-story department store and mezzanine with a floor on concourse level and one half story on first parking level. Underground parking will be provided on two levels for 800 cars. The two apartment structures will contain 160 units each, with 30 per cent having one bedroom; 30 per cent two bedrooms; 30 per cent three bedrooms, and 10 per cent four bedrooms. Structural engineer is Irving Backler and mechanical and electrical engineers are I. Semenic & Associates. Construction is expected to begin on September 1.

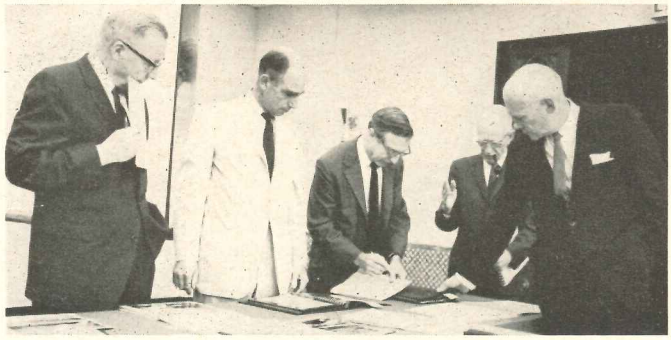
Hedrich-Blessing



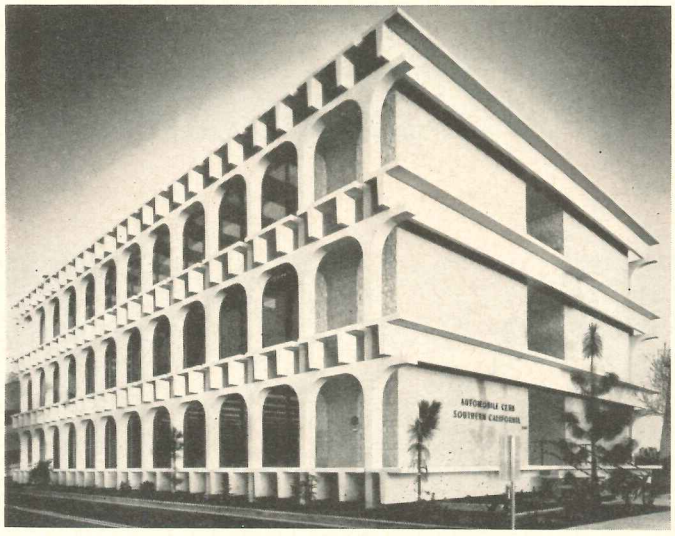
P. C. I. Announces Annual Awards

Two first place awards and eight awards of merit were given in the Prestressed Concrete Institute's 1965 Awards program. The Hudson Hope Bridge in Hudson Hope, British Columbia was a first place winner, in addition to the other top winner, shown on this page. Engineers for the bridge were Phillips, Barratt and Partners and the general contractor was Hans Mordhorst Ltd.

Three merit awards were presented in addition to those shown here: (1) the Columbia River Bridge in Kinnaird, British Columbia. Engineers were Choukalos, Woodburn & McKenzie, Ltd., consulting engineer, Professor R. Morandi, and general contractor, J. W. Stewart, Ltd.; (2) MacKinnon Avenue Overcrossing designed by the Division of Highways, California. General Contractors were R. E. Hazard and W. F. Maxwell & Matich Constructors; (3) Vicente Creek Bridge, Monterey, also by the Division of Highways of California. The general contractor was the Thomas Construction Company.



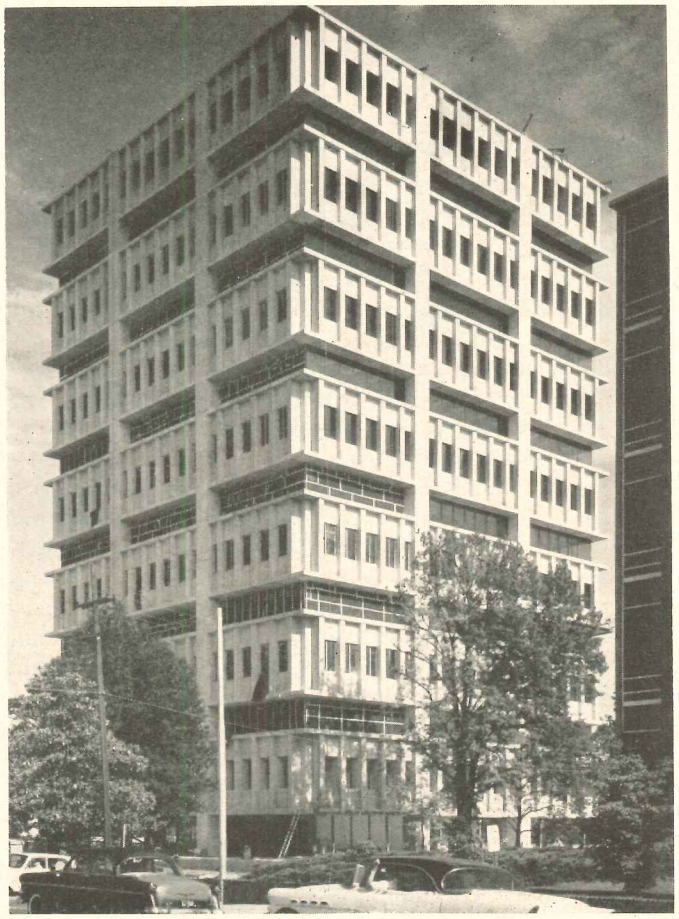
Jury at Work: (*left to right*) Wallace L. Chadwick, president of the American Society of Civil Engineers; Edward D. Dart, A.I.A.; Max Abramovitz, F.A.I.A., jury chairman; Murray Wilson, past president of the National Society of Professional Engineers; and Arthur G. Odell, Jr., F.A.I.A.



"A pure expression of all structural elements and their functioning both on the exterior and on the interior. Prestressed concrete single tees and tree forms, as well as long span elements, are carefully correlated. They express themselves as an architecture of their own."

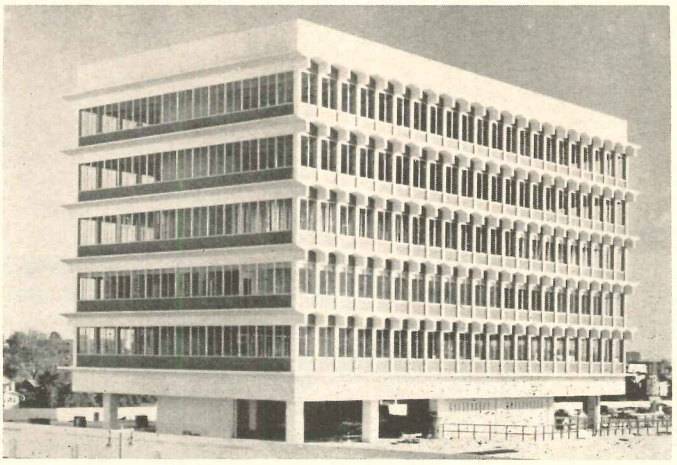
Automobile Club of Southern California, Beverly Hills-Westwood District Office. Architects: Welton Becket and Associates; structural engineers: Stacy & Meadville; general contractor: Oltmans Construction Company.

First Place Award



"The new fresh attack of the concrete problem shown in the North Carolina Mutual Life Insurance Building has a great potential for the future. It represents an economy of effort we hope we'll see further explored by architects."

North Carolina Mutual Life Insurance Building, Durham, North Carolina. Architect: Welton Becket, F.A.I.A.; associate architect: M. A. Ham, Associates, Inc.; Consulting engineers: Seelye, Stevenson, Value & Knecht; general contractor: G. C. Rea Construction Company.

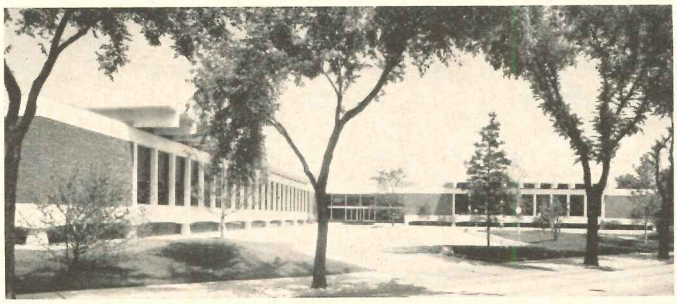


"The prestressed single-tee shape is used in a composition that carries its rhythm throughout and expresses itself forthrightly."

MacArthur-Broadway Office Building, Oakland, California. Architects: Irving D. Shapiro & Associates; structural engineers: T. Y. Lin, Kilka, Yang & Associates; general contractor; C. J. Pankow and Associate.

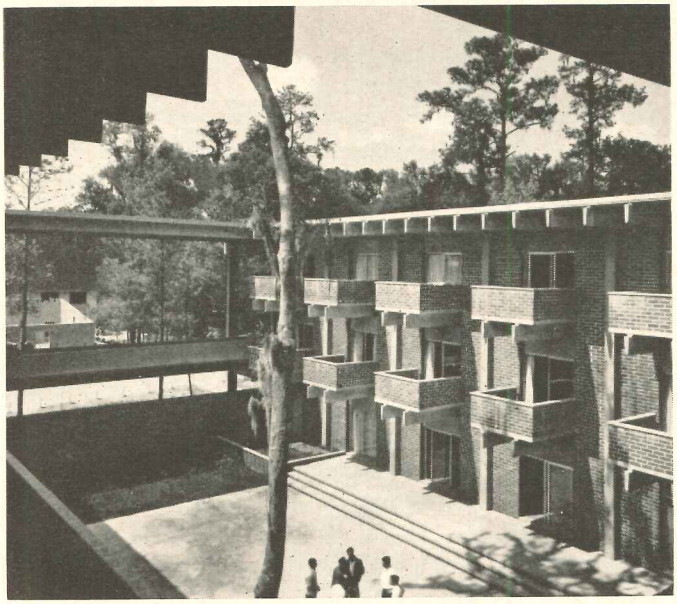
"Satisfying in its whole proportion relationship. A well balanced piece of construction, reflecting the science of prestressing. It makes a strong visual statement as a symbol of strength, accomplishing the architect's and client's objective."

Ventura Savings and Loan Association Building, Buenaventura, California. Architects: William L. Pereira, F.A.I.A., & Associates; structural engineers: Woodward Tom Associates; general contractor: William Simpson Construction Company.



"Excellent use of the basic alphabet of prestressed concrete. Here is a harmonious assembly of the many component parts and units of a building complex resulting in considerable harmony with the landscape in a unified total composition."

Medical Merchandise Mart, Lincolnwood, Illinois. Architects: Fridstein & Fitch; structural engineers: George Kennedy & Associates; general contractor: Fred Berglund & Son, Inc.

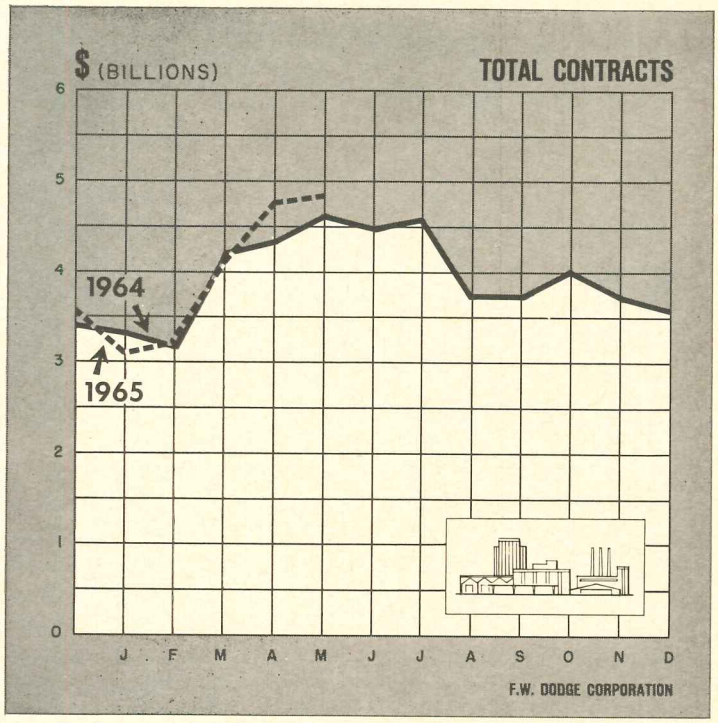


"A straightforward articulation of prestressed concrete units. It shows a variety in the play of light and shadow and in texture and surface not ordinarily associated with prefabricated component parts."

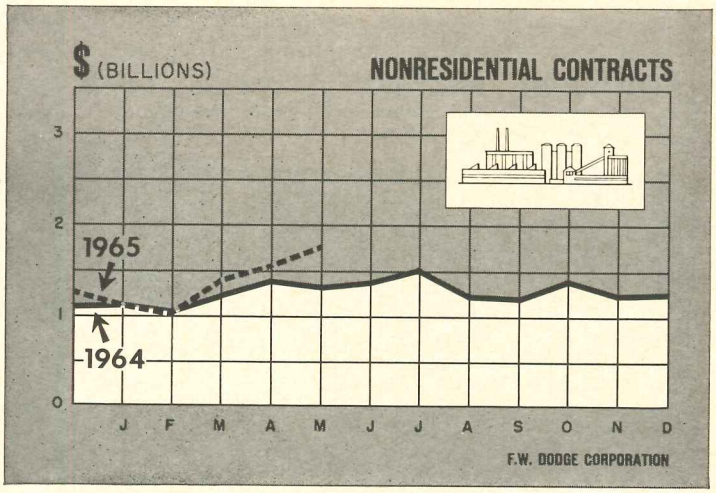
S.A.E. Fraternity House, University of Florida, Gainsville. Architect: Gene Leedy; general contractor: Guy Cleveland Construction Company.

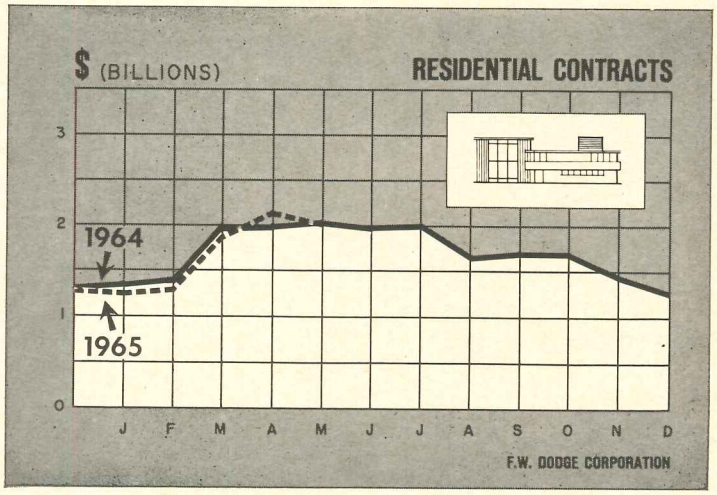
Countway Library Is Dedicated at Harvard

The recently dedicated Francis A. Countway Library of Medicine at Harvard University in Boston, designed by Hugh Stubbins and Associates, is faced with buff-colored limestone with a smooth surface on structural elements and a rough finish on the story-high exterior wall panels. The square, vertical structure presents similar facades on all four sides and faces inward towards a central court. The $6.284 million building contains 162,000 square feet and has a capacity of 750,000 volumes. It has eight stories, two of them below ground, and is set in a sunken court which is paved in brick. Mechanical engineers was Sidney J. Greenleaf Associates; electrical engineer was the Thompson Engineering Company; structural engineer was William J. LeMessurier and Associates; and general contractor was the George A. Fuller Company.



Total contracts include residential, nonresidential and non-building contracts





COMMERCIAL BUILDING STRONG AT MID-YEAR

This year commercial building is heading for its biggest gain in at least a decade. New contract value reported so far in 1965 for this important building category (which is made up principally of stores and their related warehouses, and office buildings) has already set a first-half record, and looks certain to top $5 billion for the full 12 months. That would put this year's *increase* at well over half a billion dollars of construction, or about 13 per cent over 1964's big $4.6 billion total.

Over the past decade or so, an interesting pattern has developed in the year-to-year behavior of commercial building. While the *total* value of these building contracts has advanced more or less steadily (only one small decline since 1956), this continuing expansion in the total has at one time been due to a spurt in store building, and at another time to a burst of office construction. It is in fact an unusual year when both of these two prime components of commercial building are found to be moving in the same direction—either up or down.

During the past few years, most of the growth in commercial construction has been sparked by office building, which expanded sharply in 1962 and kept on rising to its 1963 peak. Then, just as office building began to falter last year (it declined seven per cent in 1964), store building broke away from its slow-moving trend with a healthy jump, and once more the total moved up a notch.

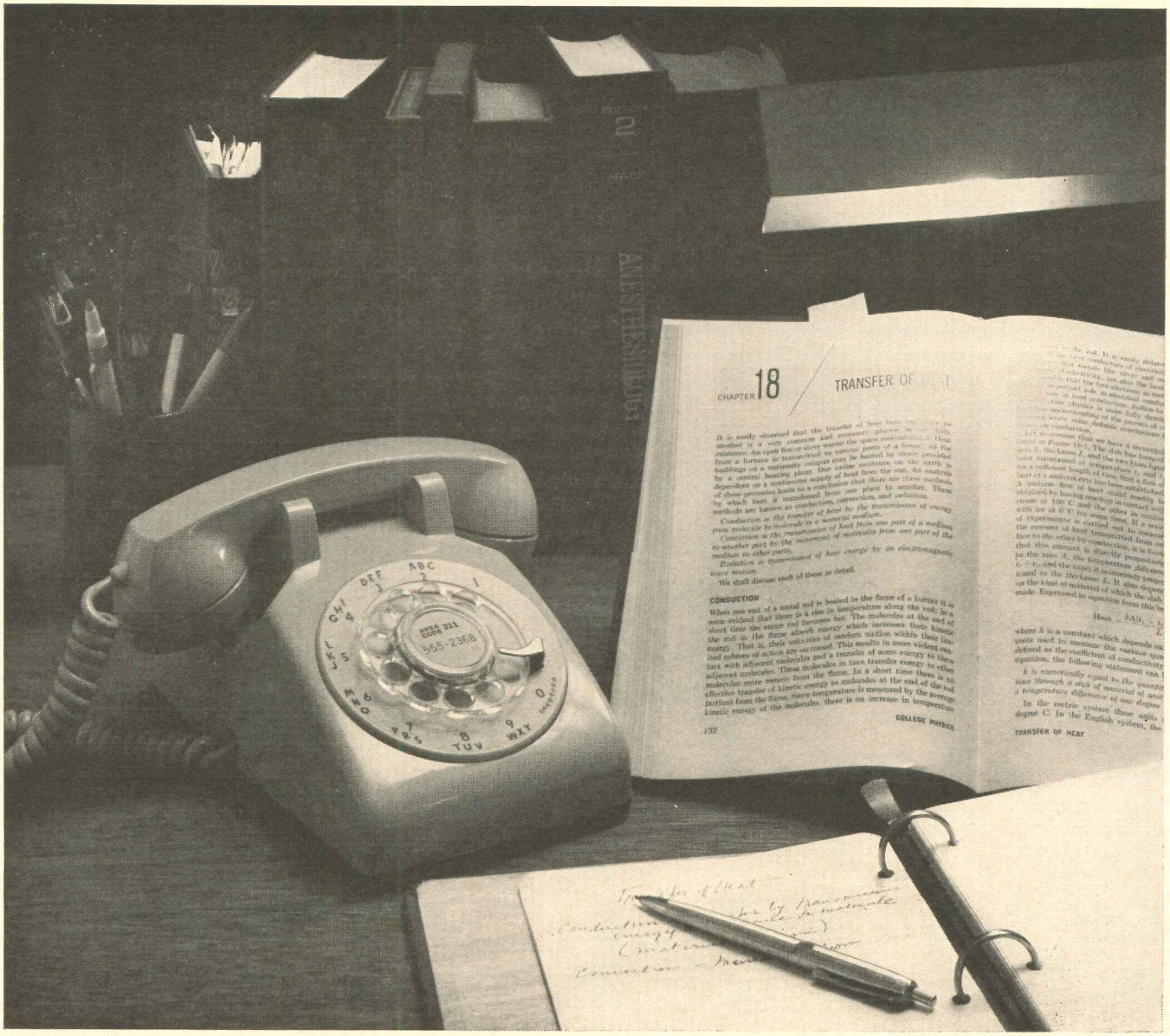
This year's big difference is that for the first in a long time *both* offices and stores are moving ahead vigorously, and without one or the other of these building types acting as a drag, as has been the pattern in the past, total commercial building in 1965 is booming ahead.

The gain in store building this year is mainly a matter of 1964's momentum rolling on into 1965, but the current strong pickup in office building is something else again. The 1964 slump in offices (actually, it began late in 1963) was generally considered as a symptom of overbuilding. What's more, the condition was further complicated by the after-effects of New York City's recent change in high-rise building codes.

It all looks a bit different in mid-1965. Office vacancy rates have been holding firm at a 140-city average of eight per cent; New York's rate is even below the average. And the big projects—the ones that usually make the difference between a good year and a poor one—are flowing in heavily. While the first five months of 1964 produced only $20 million worth of *large* office contracts, the same months of the current year have offered almost 10 times as much—more than was reported in *all* of 1964. And that doesn't count another billion or so worth of new jobs on the drawing boards of architects and engineers which haven't yet reached the contract stage—roughly twice the volume at this time last year.

With all this activity taking place, it's certain that commercial building (and offices, especially) will be holding the key role it now has for some time to come.

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



STUDENTS WILL TALK...PLAN ON IT

Thousands and thousands can talk right now from telephones in their rooms to aid their studies, conduct campus business, keep in touch with faculty advisers. Besides room phones, many colleges are using closed-circuit TV, tele-lecture, Data-Phone* data communications service and many other Bell System communications services.

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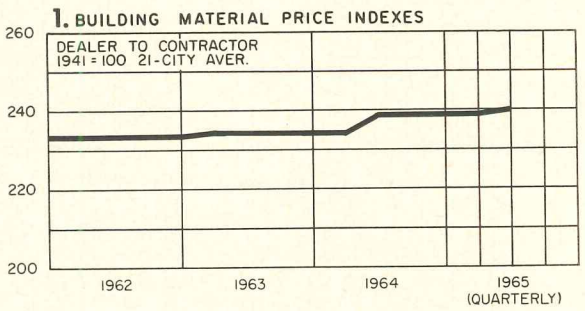
Building Construction Costs

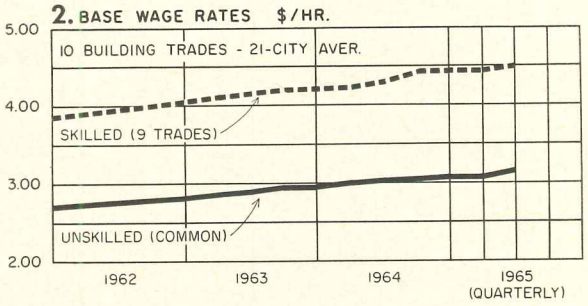
By William H. Edgerton
Manager-Editor, Dow Building Cost Calculator,
an F. W. Dodge service

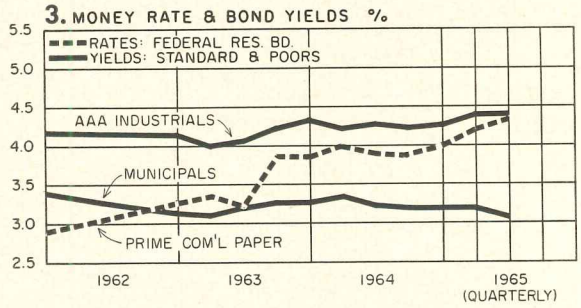
The information presented here permits quick approximations of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). The tables and charts can be used independently, or in combination as a system of complementary cost indicators. Information is included on past and present costs, and future cost can be projected by analysis of cost trends.

A. CURRENT BUILDING COST INDEXES—JULY 1965
1941 Averages for each city = 100.0

Metropolitan Area	Cost Differential	Current Dow Index Residential	Current Dow Index Nonresidential	Per Cent Change Year Ago Res. & Nonres.
U.S. AVERAGE— 21 Cities	8.5	267.7	285.6	+1.36
Atlanta	7.2	303.9	322.3	+1.63
Baltimore	7.9	269.2	286.4	+0.46
Birmingham	7.5	249.3	268.1	+1.46
Boston	8.5	242.2	256.4	+1.69
Chicago	8.9	296.8	312.2	+0.78
Cincinnati	8.8	258.0	274.2	+1.00
Cleveland	9.2	270.9	288.0	+1.68
Dallas	7.7	252.3	260.6	+0.70
Denver	8.3	274.7	292.0	+1.08
Detroit	8.9	269.5	283.0	+1.52
Kansas City	8.3	241.7	255.8	+1.48
Los Angeles	8.3	262.5	296.5	+1.04
Miami	8.4	266.0	279.2	+1.02
Minneapolis	8.8	270.0	287.0	+2.08
New Orleans	7.8	242.5	256.9	+1.52
New York	10.0	280.2	301.4	+2.32
Philadelphia	8.7	266.6	279.9	+1.02
Pittsburgh	9.1	252.4	268.3	+0.64
St. Louis	9.1	264.5	280.3	+2.56
San Francisco	8.5	343.3	375.6	+1.49
Seattle	8.4	244.8	273.6	+1.40







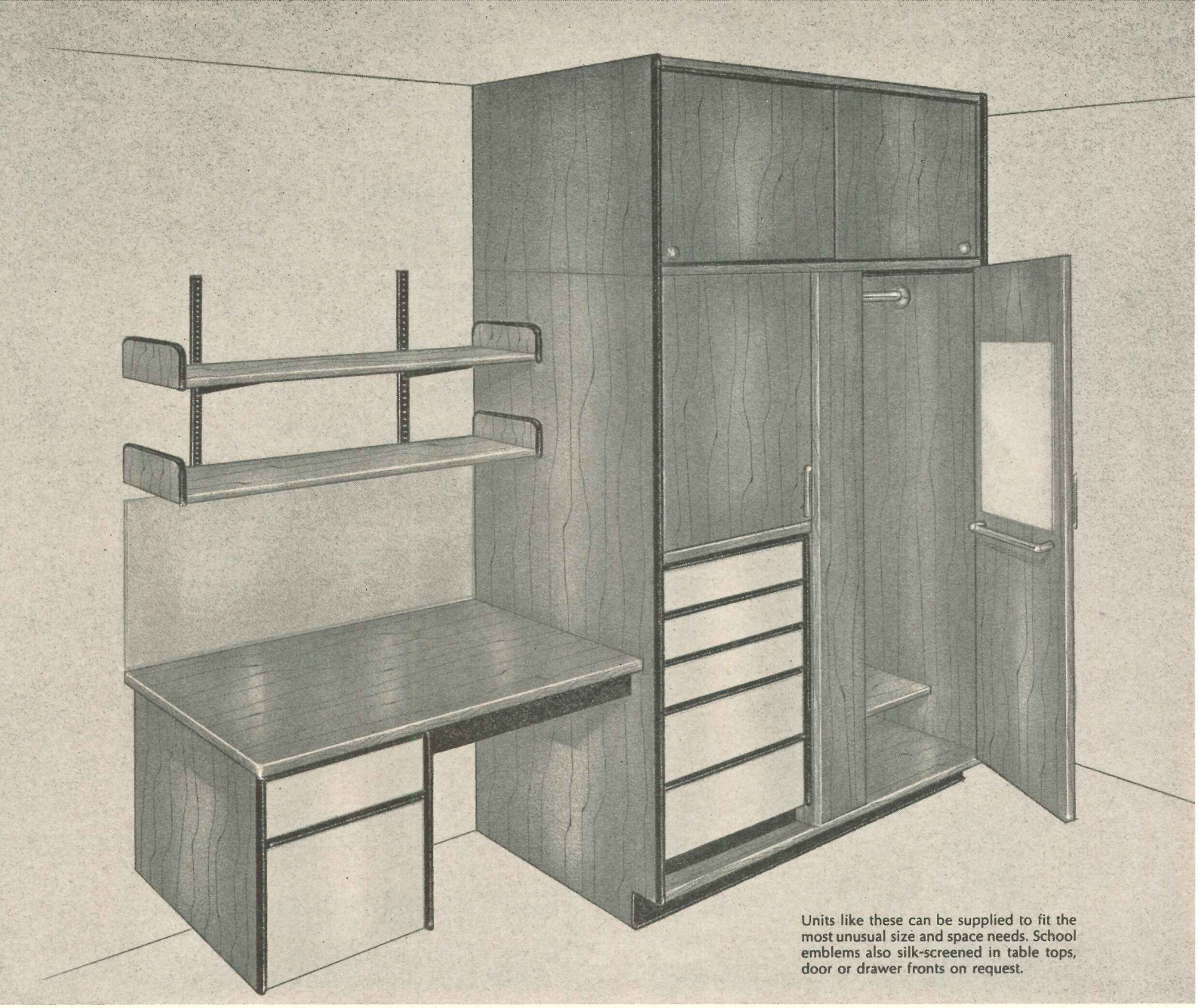
B. HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES — 1941 average for each city = 100

Metropolitan Area	1952	1958	1959	1960	1961	1962	1963	1964 (Quarterly) 1st	2nd	3rd	4th	1965 (Quarterly) 1st	2nd	3rd	4th
U.S. AVERAGE 21 Cities	213.5	248.9	255.0	259.2	264.6	266.8	273.4	274.7	276.8	278.6	279.3	279.5	281.0		
Atlanta	223.5	277.7	283.3	289.0	294.7	298.2	305.7	310.0	312.3	313.4	313.7	313.9	317.9		
Baltimore	213.3	251.9	264.5	272.6	269.9	271.8	275.5	277.2	279.3	280.5	280.6	280.5	281.0		
Birmingham	208.1	233.2	233.2	240.2	249.9	250.0	256.3	258.0	259.9	260.1	260.9	261.2	264.1		
Boston	199.0	230.5	230.5	232.8	237.5	239.8	244.1	246.1	247.9	251.3	252.1	251.7	252.6		
Chicago	231.2	273.2	278.6	284.2	289.9	292.0	301.0	302.2	304.5	305.1	306.6	306.5	307.3		
Cincinnati	207.7	250.0	250.0	255.0	257.6	258.8	263.9	265.1	267.1	268.9	269.5	269.4	270.2		
Cleveland	220.7	257.9	260.5	263.1	265.7	268.5	275.8	276.3	278.4	282.0	283.0	282.3	283.4		
Dallas	221.9	230.5	237.5	239.9	244.7	246.9	253.0	253.7	255.6	255.6	256.4	256.9	257.9		
Denver	211.8	252.8	257.9	257.9	270.9	274.9	282.5	282.6	284.7	287.3	287.3	287.3	288.2		
Detroit	197.8	239.9	249.4	259.5	264.7	265.9	272.2	272.7	274.7	277.7	277.7	277.7	279.3		
Kansas City	213.3	235.0	239.6	237.1	237.1	240.1	247.8	246.2	248.0	249.6	250.5	251.2	252.0		
Los Angeles	210.3	253.4	263.5	263.6	274.3	276.3	282.5	284.0	286.1	286.1	288.2	288.9	289.7		
Miami	199.4	239.3	249.0	256.5	259.1	260.3	269.3	270.1	272.1	273.1	274.4	274.4	275.4		
Minneapolis	213.5	249.9	254.9	260.0	267.9	269.0	275.3	275.0	277.1	281.6	282.4	283.4	283.6		
New Orleans	207.1	235.1	237.5	242.3	244.7	245.1	248.3	247.1	248.9	249.3	249.9	250.5	253.1		
New York	207.4	247.6	260.2	265.4	270.8	276.0	282.3	284.8	286.9	289.7	289.4	290.2	294.0		
Philadelphia	228.3	257.6	262.8	262.8	265.4	265.2	271.2	271.1	273.1	274.5	275.2	275.5	276.4		
Pittsburgh	204.0	236.4	241.1	243.5	250.9	251.8	258.2	260.8	262.7	262.9	263.8	264.0	264.9		
St. Louis	213.1	239.7	246.9	251.9	256.9	255.4	263.4	266.8	268.8	271.4	272.1	272.9	276.1		
San Francisco	266.4	308.6	321.1	327.5	337.4	343.3	352.4	358.2	360.9	364.1	365.4	366.6	366.9		
Seattle	191.8	225.8	232.7	237.4	247.0	252.5	260.6	260.1	262.0	265.7	266.6	265.1	266.3		

HOW TO USE TABLES AND CHARTS: Building costs may be directly compared to costs in the 1941 base year in tables A and B: an index of 256.3 for a given city for a certain period means that costs in that city for that period are 2.563 times 1941 costs, an increase of 156.3% over 1941 costs.

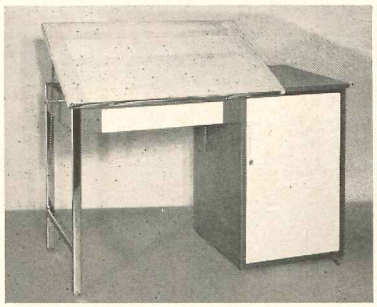
TABLE A. Differences in costs between two cities may be compared by dividing the cost differential figure of one city by that of a second; if the cost differential of one city (10.0) divided by that of a second (8.0) equals 125%, then costs in first city are 25% higher than costs in second. Also, costs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

TABLE B. 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 index for a city for one period (200.0) divided by index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than those of the other. Also, second period costs are 75% of those of the other date (150.0 ÷ 200.0 = 75%) or 25% lower in the second period. CHART 1. Building materials indexes reflect prices paid by builders for quantity purchases delivered at construction sites. CHART 2. The $1.20 per hour gap between skilled and unskilled labor has remained fairly constant. CHART 3. Barometric business indicators that reflect variations in the state of the money market



Units like these can be supplied to fit the most unusual size and space needs. School emblems also silk-screened in table tops, door or drawer fronts on request.

LIFE CAN BE BRUTAL to dorm furniture



Artist's or draftsman's desk with adjustable drawing board, lockable storage area.

But technologists make Daystrom warp-proof, stain-proof, split-proof, fade-proof, wobble-proof, blister-proof, moisture-proof, kick-proof, and dent-proof . . . indestructable as a rhino. Built-ins or free-standing units uniquely constructed in all plastic laminate — tops, sides and fronts. Available in pastels or laminated wood grains.

For full information, write Commercial Division, Daystrom Furniture, South Boston, Virginia.

Built to take it . . . beautifully

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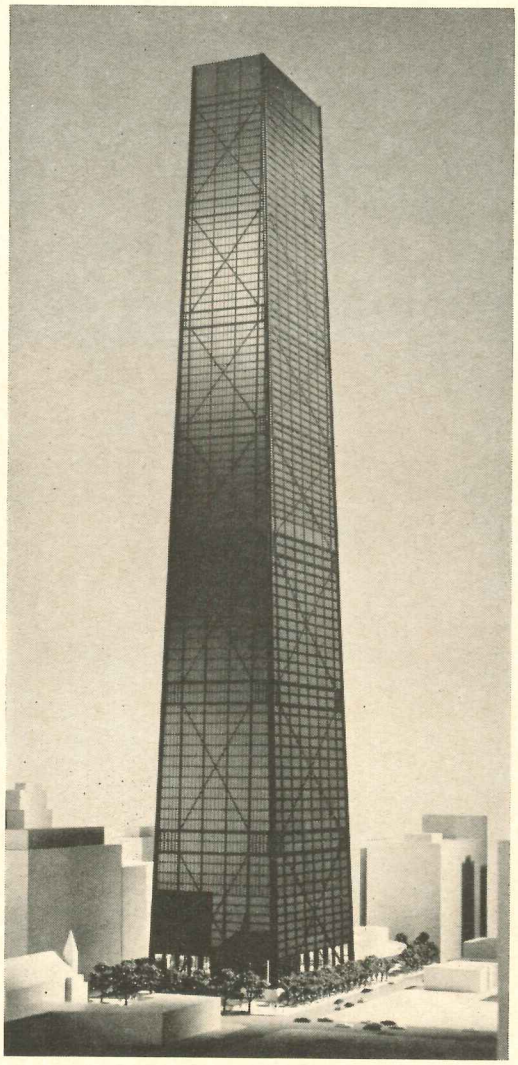

We are pleased to announce that we have been awarded the General Contract for the construction of the John Hancock Center, a 100-story combination apartment and office building in Chicago as designed by Skidmore, Owings & Merrill.

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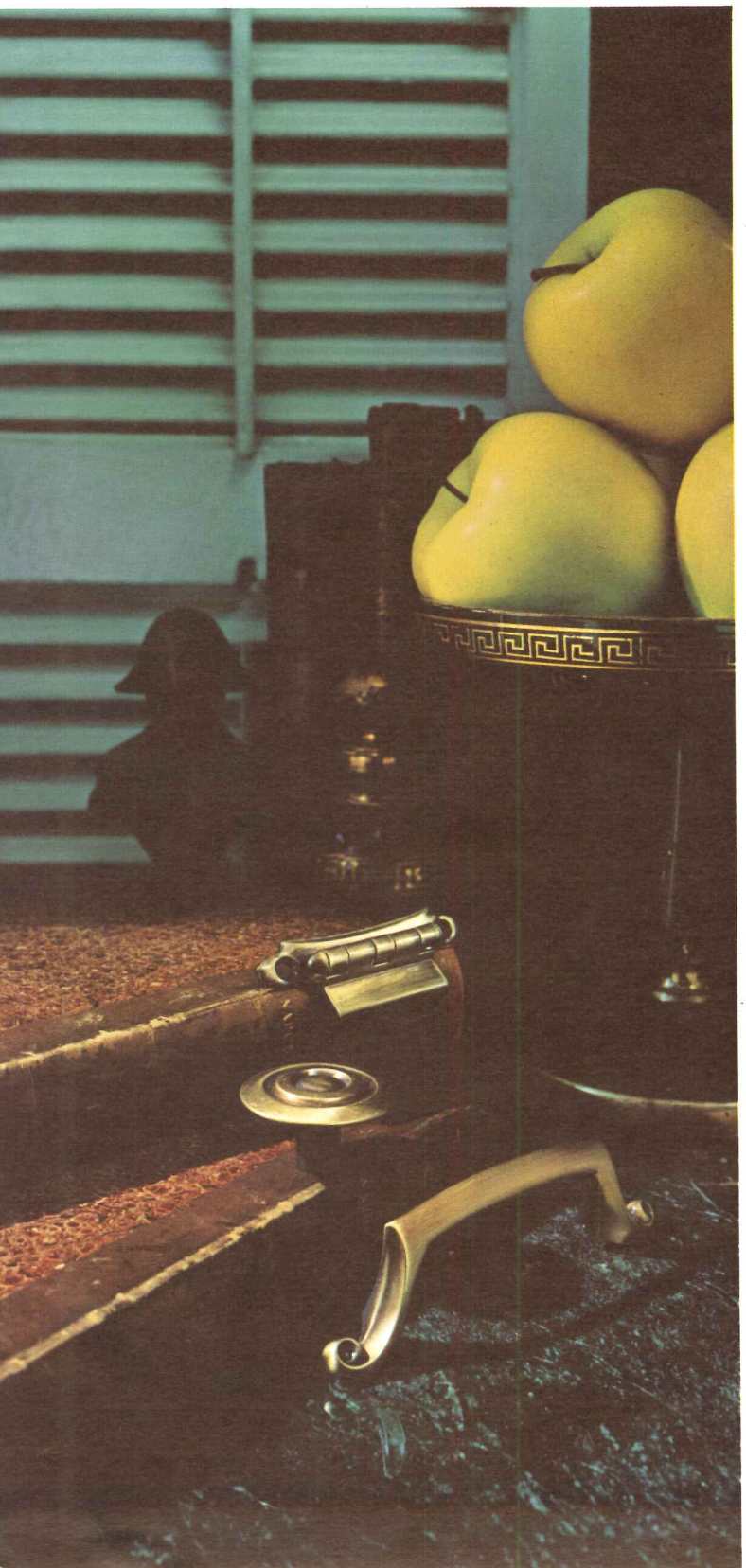
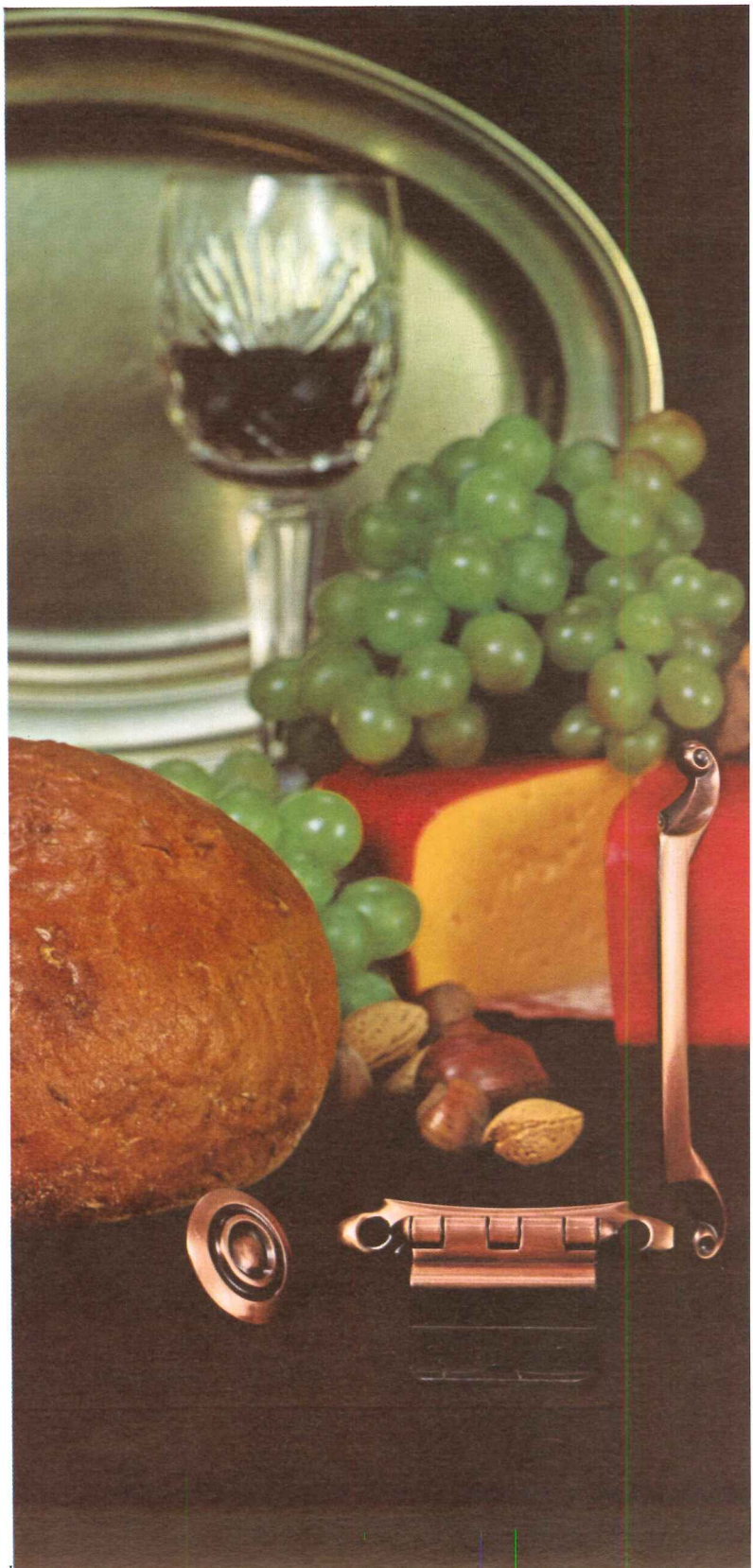
Amerock Imperia Cabinetware Says Elegant Things

Handsome *Imperia* makes elegant kitchens. Still, there's a warmth and charm about it that says friendly things. Unmistakably continental, *Imperia* has been styled with an eye for authentic detail and finished to absolute perfection—like all Amerock cabinetware. *Imperia* is shown in beautiful still life photographic illustration in our new 32-page full-color idea brochure No. 100. See it—and all the other lovely cabinetware patterns and hardware. We'll send you a copy which you'll find a helpful working tool in your business. Amerock Corporation, Rockford, Illinois; Meaford, Ontario.

Amerock *makes it authentic*





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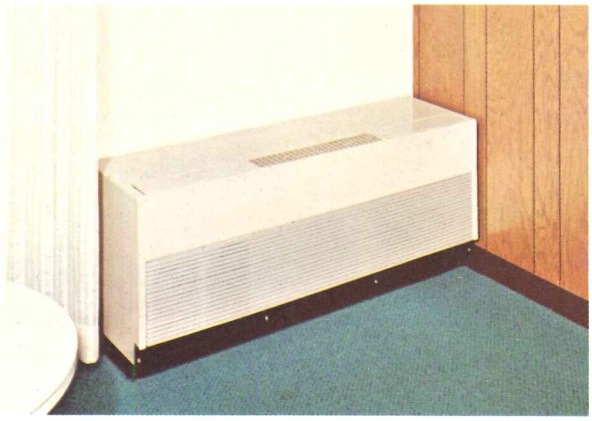
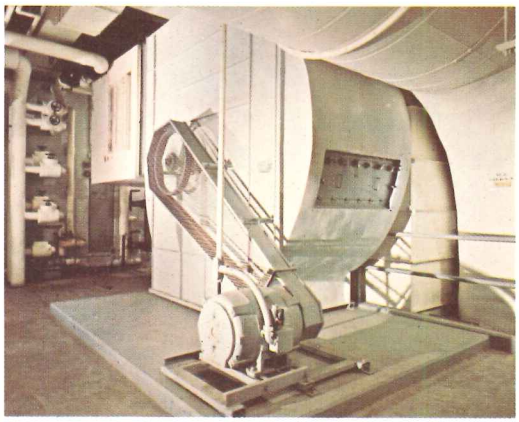
Air: Conveyer of heat, cold, dirt, pollen. Prime supporter of life.
A raw material that is heated, cooled, dried, dampened, cleaned, moved and directed to keep people comfortable in your building by the products and capabilities of Westinghouse.

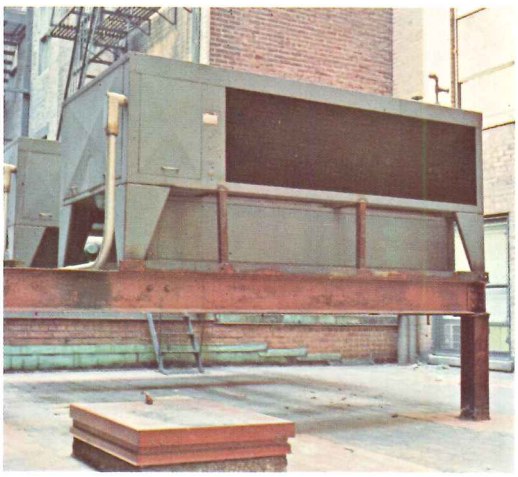
Westinghouse conditions air in offices, churches, schools



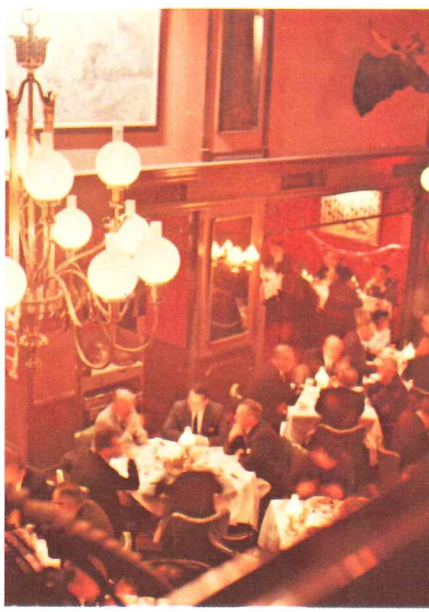
A. Complete through-the-wall heating and cooling system with individual room control. Called the Type-Y, it combines steam, hot-water or electric heating with direct expansion cooling. Ideal for hospitals, motels, nursing homes, offices, dormitories and apartments.

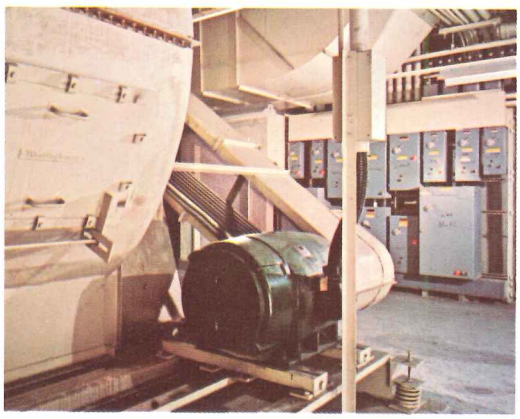


B. 110 Westinghouse-Sturtevant 73-inch fans, like this one, take in, circulate, return and exhaust air through large built-up air handling system in new home of Smithsonian Institutions' Museum of History and Technology (right). Total area serviced is 754,000 square feet.

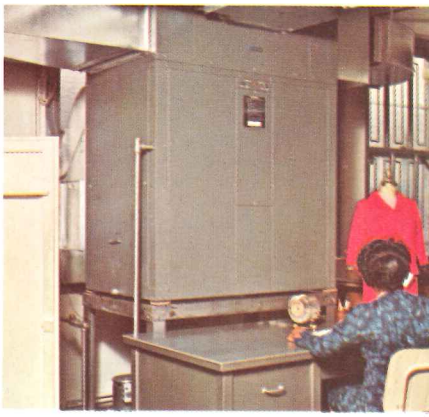


E. Westinghouse completely air-cooled packaged chiller on roof of famous Cattleman's Restaurant in New York (right), keeps customers comfortably cool while they enjoy elegance out of the Old West.





G. In the famous Pan Am Building, world's largest commercial building, every cubic inch of air is handled by Westinghouse equipment. Total of 82 Westinghouse fans includes Centriline® fans, industrial fans and centrifugal fans. 236 Westinghouse specially designed large air handling units complete the job.

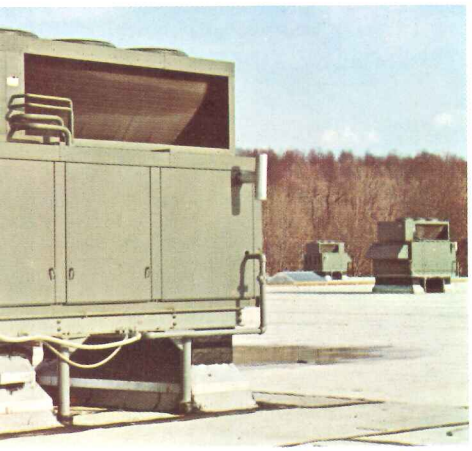


H. Ten tons of air conditioning in a window! New Westinghouse UJ-120 unit makes buildings modern, cool and comfortable without major remodeling expenses. Only connections needed are ducts and electricity. So quiet, employe of Capriel, Inc., works undisturbed next to unit. Cools up to 4,000 square feet.

actories, shopping centers, restaurants, and museums.

. Quiet, vibration-free Westinghouse air handling equipment gives the First Methodist hurch in LaGrange, Georgia, a peaceful, comfortable environment for its congregation. nstallation includes Westinghouse-Sturtevant air distributing units, hot-water coils and two 0-ton PB packaged water chillers.

D. Westinghouse Precipitron® electronic air cleaner removes up to 95% of all dirt particles, smoke and pollen circulating throughout a building. Traps particles as small as 1/100th micron. Holds contaminants on electrically charged plates, without reducing flow of air through the cleaner.



. Zoned heating and cooling control is provided y ten Westinghouse IC Roof Mounted units at the erox Corporation's Eastern Regional Distribuion Center, Blauvelt, N.Y. The unit's low silhouttes do not interfere with looks of building. Four apacities available: 7½, 10, 15 and 20 tons.

B. Architects: McKim, Meade and White, Washington, D.C.
Associate Architects & Engineers: Mills, Petticord & Mills, Washington, D C.
Consulting Engineer: Jaros, Baum and Bolles, Washington, D.C.
Contractor: Norair Engineering Corporation, Washington, D.C.

C. Architect: Bothwell & Associates, Decatur, Ga.
Mechanical Engineer: Donald Lindstrom & Assoc., Atlanta, Ga.

E. Architect: Raymond Loewy and William Snaith, New York, N.Y.
Mechanical Contractor: Jaffie Contracting Company, Inc., New York, N.Y.

F. Builder: Milau Associates, Inc., Great Neck, N.Y.
Engineer and Mechanical Contractor: Abbott, Lester & Company, Inc., New York, N.Y.

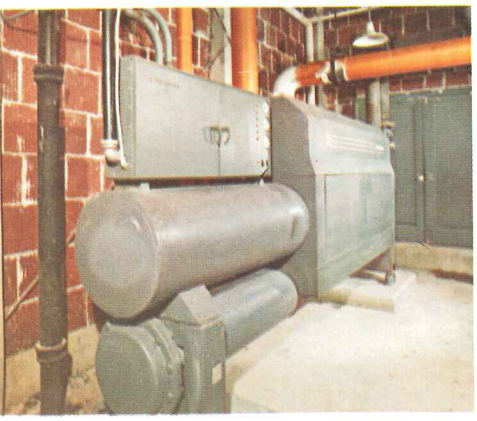
G. Architect: Emery Roth & Sons, Inc., New York, N.Y.
Consulting Engineer: Jaros, Baum & Bolles, New York, N.Y.
Mechanical Contractor: Raisler Corporation, New York, N.Y.

H. Engineer: Fred Roslyn, New York, N.Y.
Mechanical Contractor: Temperature Design Corporation, New York, N.Y.

J. Architect and Engineer: Stevens & Wilkinson, Atlanta, Ga.
Mechanical Engineer: Brewer & Mundy, Atlanta, Ga.
Mechanical Contractor: Sockwell Company, Atlanta, Ga.

K. Architect: Percy H. Perkins, Jr., A.I.A., Atlanta, Ga.
Engineer: Derek C. C. Peters Jr., Atlanta, Ga.

M. Architect: Emery Roth and Sons, Inc., New York, N.Y.
Engineers: General Engineering Associates, Washington, D.C.
Mechanical Contractor: William Schlosser Company, Washington D.C.



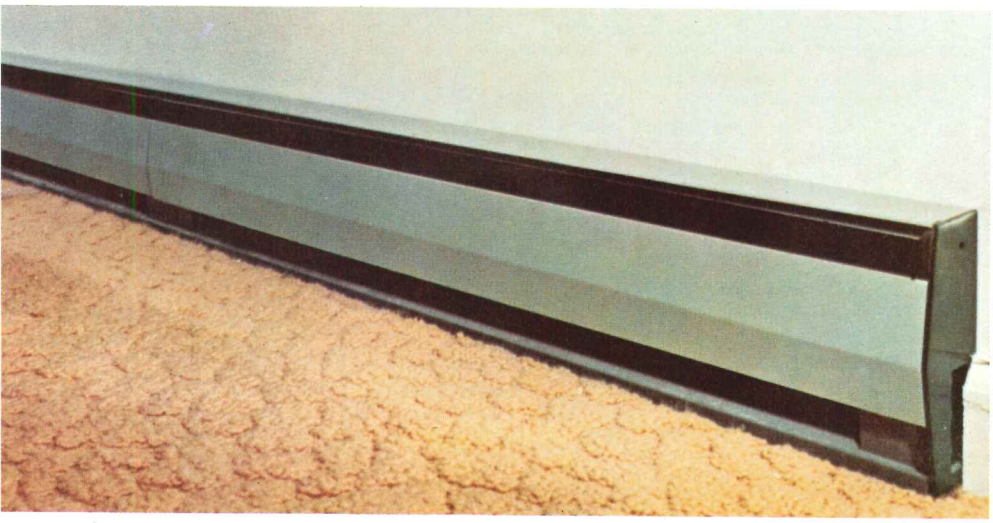
J. This 137-ton PE direct expansion packaged chiller fits through a 30-inch door. Installed in three-story addition to the Sheffield Memorial Building, Atlanta, Ga., it is completely factory assembled, pretested and charged. Also included in job are Westinghouse-Sturtevant fans and air handling equipment.

K. Hinesville, Ga., award-winning school has total heating and cooling comfort in one through-the-wall system: It's WhispAir®, the complete family of packaged air conditioning and heat pumps for apartments, homes, schools and small commercial buildings. Uses no indoor space. Requires no usable outdoor space.

In homes, apartments, hotels—more comfort by Westinghouse

L. Four 60-ton packaged chillers air condition 250,000 sq. ft. of ballroom and adjoining banquet rooms in the Shoreham Hotel in Washington, D.C. Cooling controlled in 12 steps to suit various-sized crowds and outside temperatures. Quiet, reliable operation through factory pretesting, Guardistor® motor protection and single-unit construction.

M. Individual-room-controlled air conditioning is used in Shoreham Hotel's new 168-apartment addition. It is supplied by two new Westinghouse centrifugal PE chillers. PEs are smaller, quieter, simpler than any centrifugal equipment now available. Capacities range from 100 to 140 tons.



N. Handsome Westinghouse Plug-Together Baseboard heating system, the most convenient, easiest-to-install heating system you can buy. Gives individual room control. Other Westinghouse heating equipment includes electric and gas furnaces, heat pumps and infrared lamps.

P. Westinghouse space-saving ceiling system gives lighting, acoustical control and air handling capability in one installation. Flexible to fill individual requirements. Eliminates separate lighting and air-handling fixtures. Gives architect complete design freedom.

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Please send me further details of the equipment described in the caption(s) lettered_____

The installation I am considering it for is_____

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☐ Please have a salesman call

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FIRM_____

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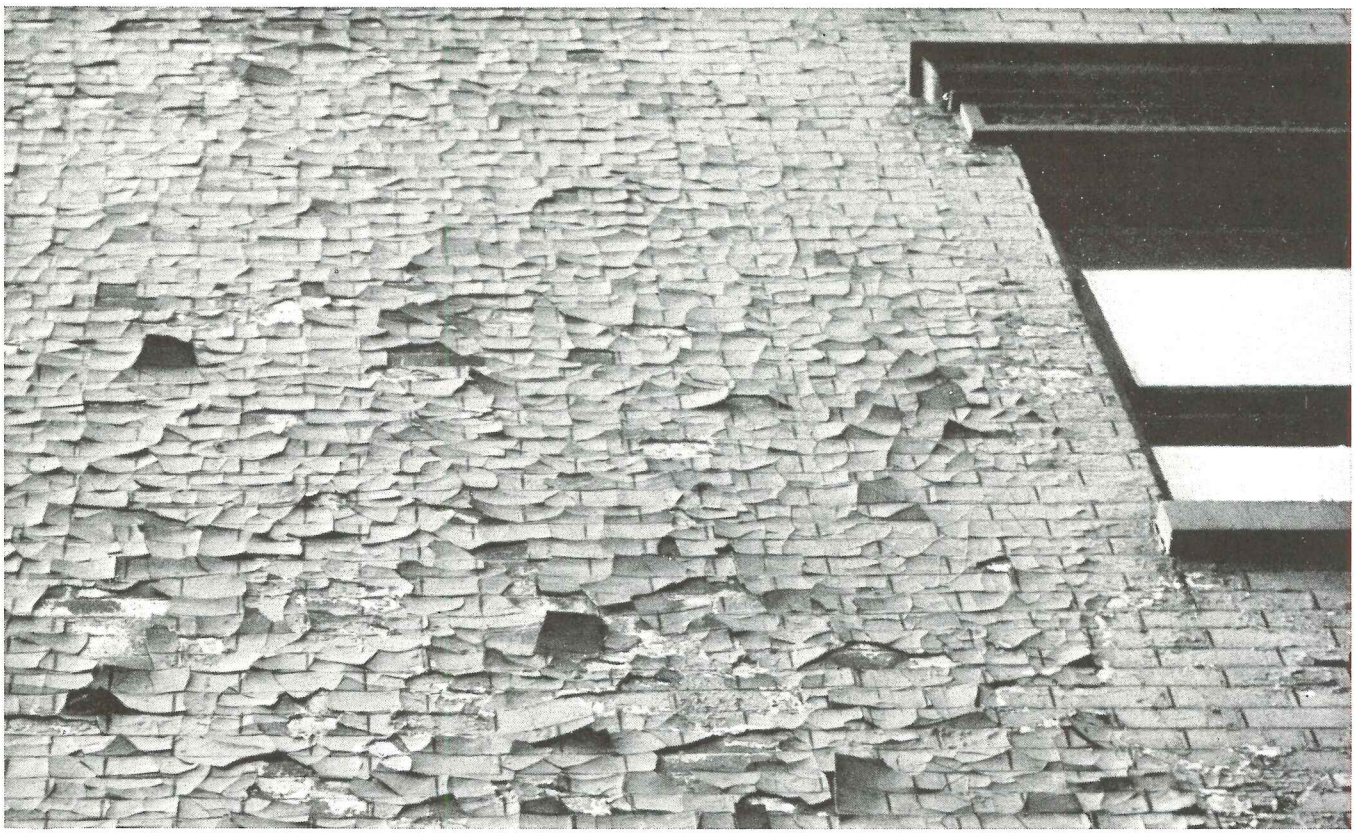
STATE_____ ZIP CODE_____

Total Westinghouse capability in air conditioning, air handling and heating installations ranges from individual room units for use in the smallest spaces to a variety of roof-top systems for use in the most spacious areas. If you're interested in any further information for your new building or modernization program, just fill out and mail this coupon.

JI-9421

You can be sure if it's Westinghouse

What good is "I'm sorry"



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A Goodyear synthetic resin that's chemically inert. Dries to a tough film. Protects the finish against weather, wear, alkalies in masonry—all the common causes of paint failure.

And clings even to a chalky stucco wall, where ordinary binders can't get a "grip."

PLIOLITE based paints have proven their durability in all weathers, all parts of the country. You can't get better assurance of a long-lasting finish.

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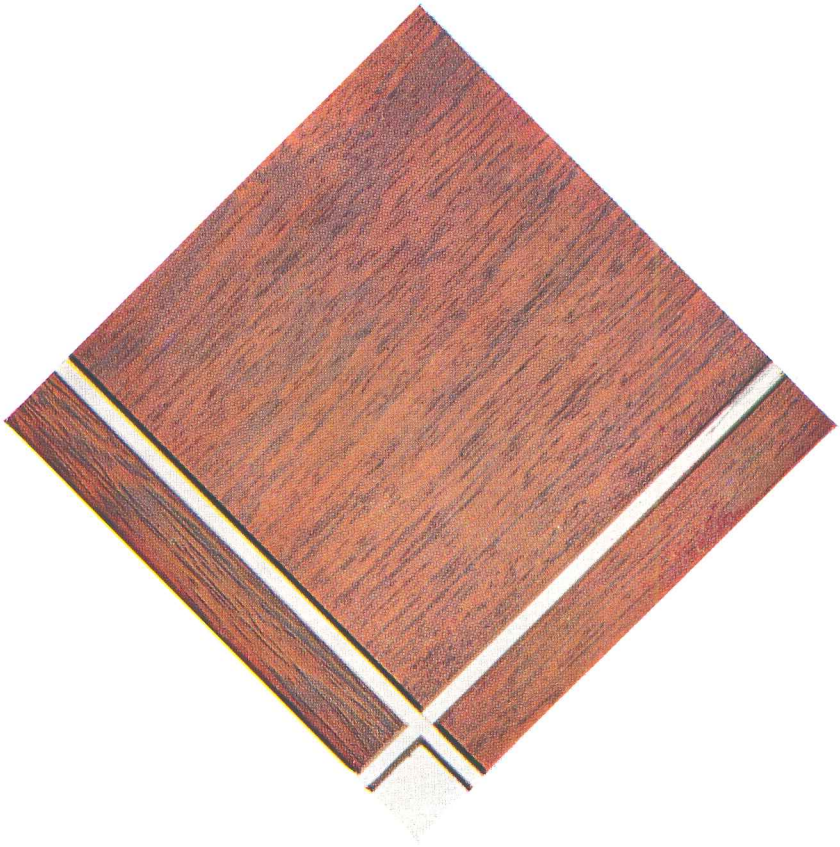

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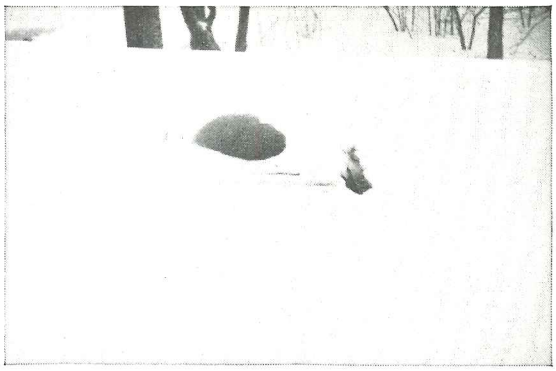
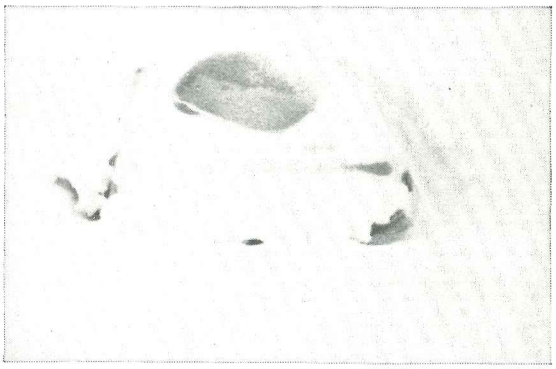
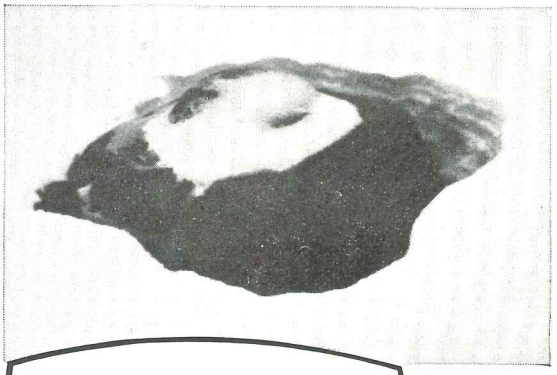
AVAILABLE IN FINE WOODS WITH BRUSHED OR POLISHED CHROME.

NO "FAIR WEATHER FRIEND" . . . Here's evidence that the Jenn-Air UNITARY Exhauster performs as well in January as it does in July: almost completely covered by drifting snow, this UNITARY cleared a trough around the vinyl curb in minutes . . . and kept right on going!







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ROOF EXHAUSTERS

that are neither seen nor heard...

SNOW HEIGHT PROBLEMS DISAPPEAR WITH THE

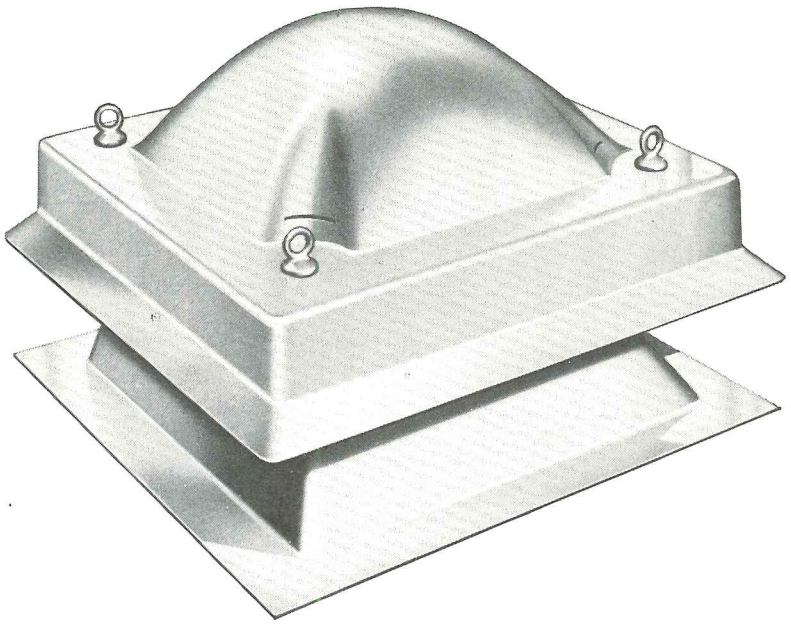
NEW UNITARY

Throughout much of the United States, 1965 will be remembered as the winter it *really* snowed! Although business, transportation and communications were completely stalled at times, these paralyzing storms failed to hamper the operation of Jenn-Air UNITARY Exhausters.

Available in centrifugal belt, direct drive, and relief vent units, these roof-hugging Hi-Temp (PVDC) vinyl exhausters were able to blow aside covering snows.

Thanks to Old Man Winter, the UNITARY has had the opportunity to flex its muscles, proving that these unobtrusive, low contour roof exhausters need have no limitations in any kind of weather.

Specify the UNITARY LINE and get curb, fan and backdraft damper in one low silhouette. Write for your copy of Bulletin No. 5-UV or call the Jenn-Air Representative in your area . . . he is listed under "Fans—Ventilating and Exhaust" in the Yellow Pages.



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World's Largest Producer of Power Roof and Wall Exhausters

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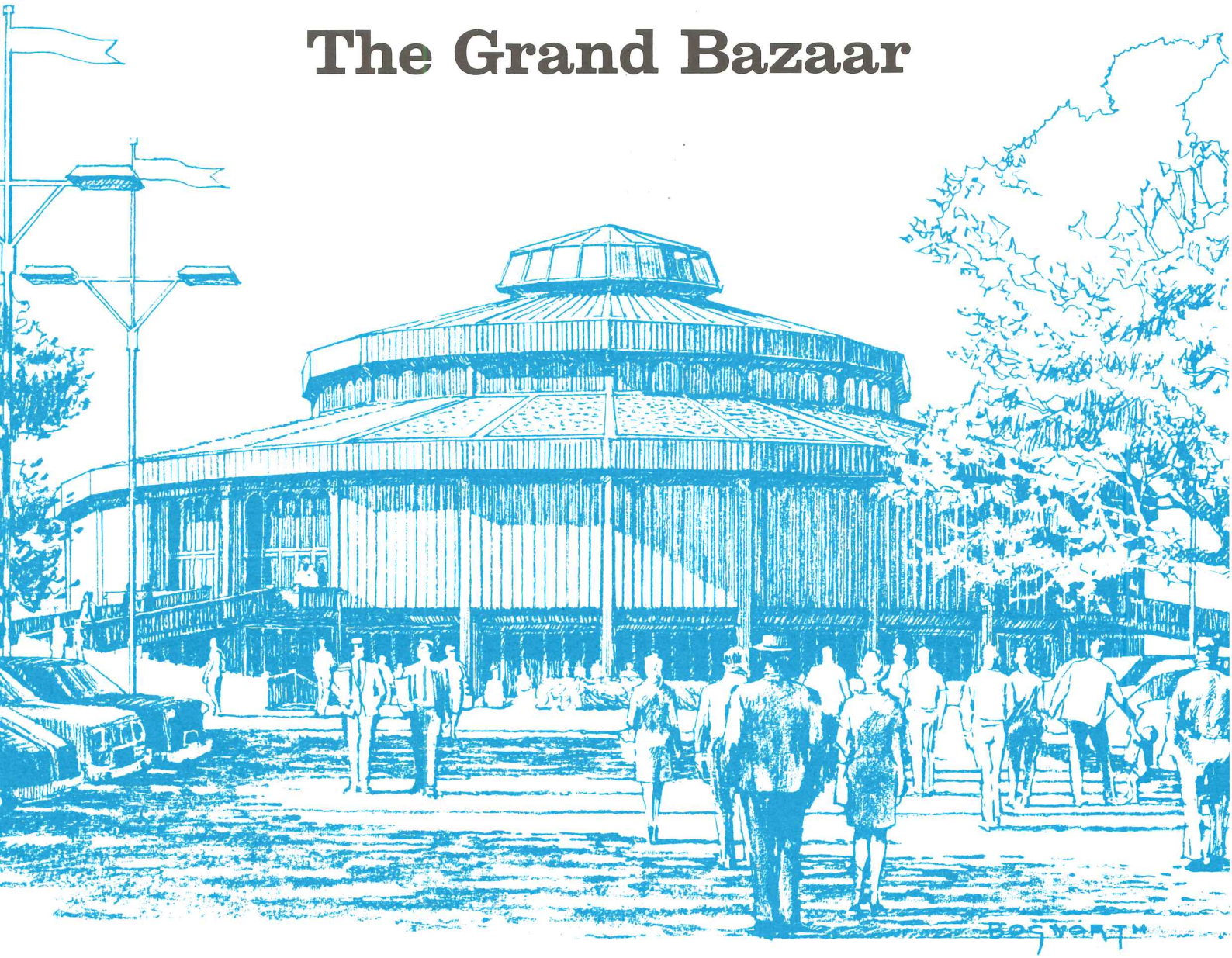
Charles Warren Callister
designs a new kind of shopping center
in wood

The Grand Bazaar



One of a series of design investigations commissioned by Weyerhaeuser Company

"An Old-World Market in a great wooden structured space"

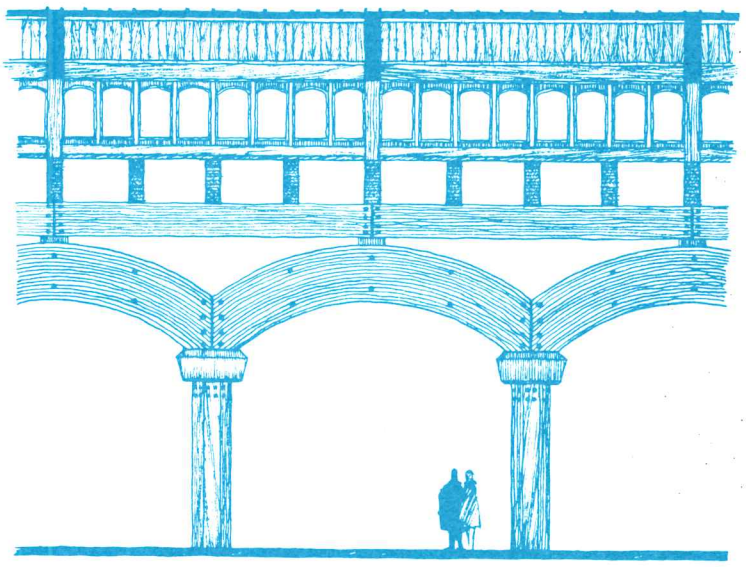
Weyerhaeuser Company has commissioned a number of leading architectural firms to create design innovations which highlight the potential of wood in commercial buildings. This imaginative structure, by Charles Warren Callister of the architectural firm of Callister and Payne, Tiburon, California, is the first of this series.

Warren Callister's comment on the concept:

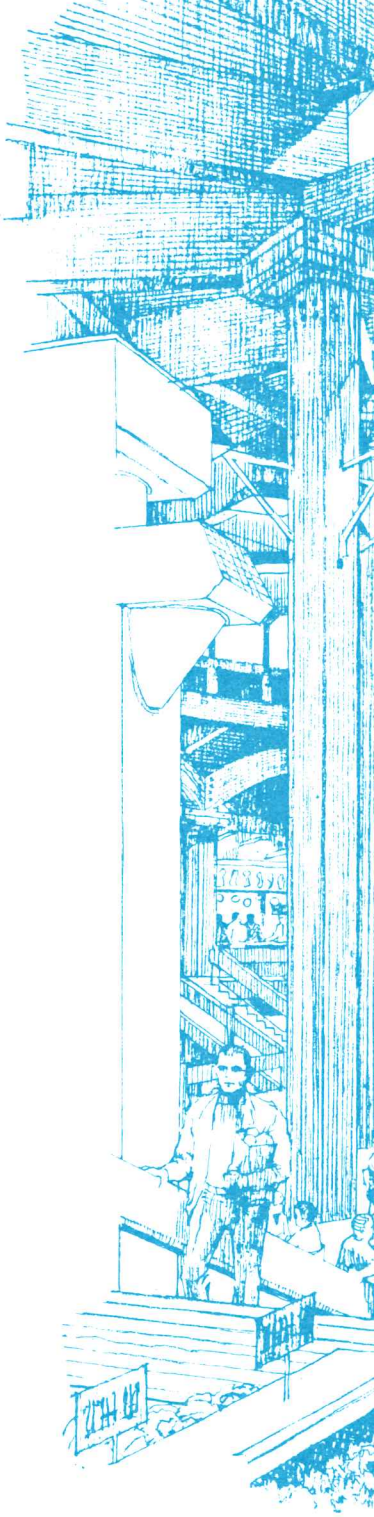
The opportunity to use wood in terms of heavy timber brought about this concept of a vast building and the grand bazaar idea. The scale of laminated wood construction achieves a bold architectural approach. This shopping center in-the-round combines the people excitement of the old-world market place and the western country store with all the practical necessities of modern merchandising. It provides the festival atmosphere of a State Fair exhibit hall or a farmer's market in a great, barnlike structure.

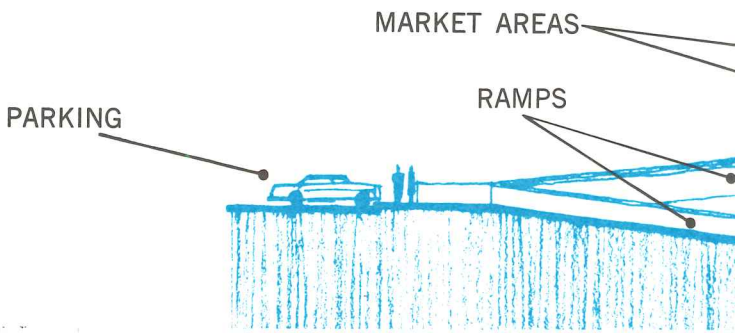
The parking is at the half level between the upper and lower floors and connected by ramps to the selling areas. The sales counters are organized along the lines of a departmentalized variety or grocery store . . . as booths in an exhibition hall. The interior rotunda has a cafe open to the excitement of the activity and the great wooden structured space.

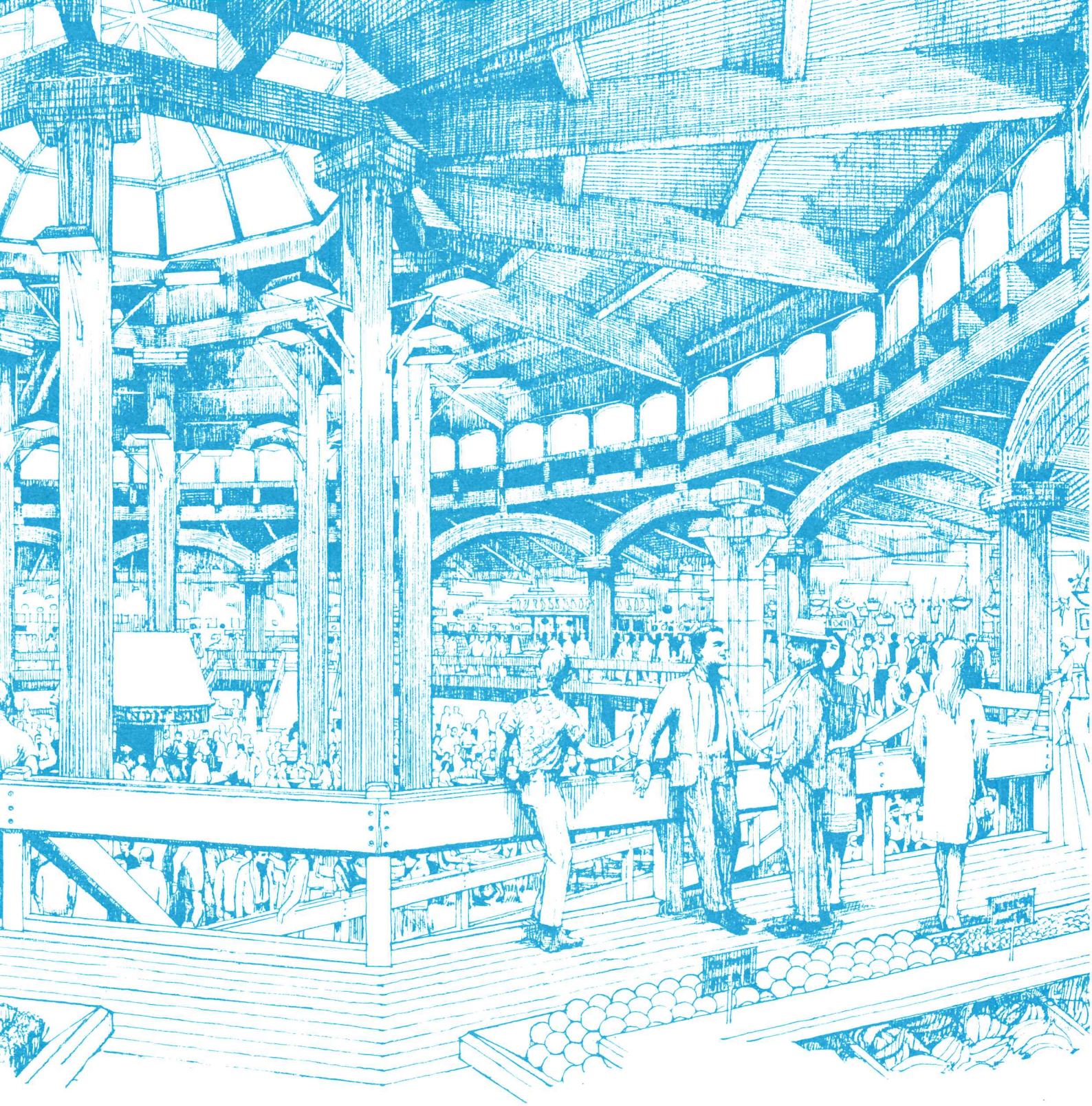
Weyerhaeuser laminated products give the building rugged strength and fire durability. They also produce a warmth and elegance which are enhanced with age and use. A copper sulphate pressure treatment for the exterior surfaces will weather to a soft green, providing a muted counterpoint to the bright colors of the market place.

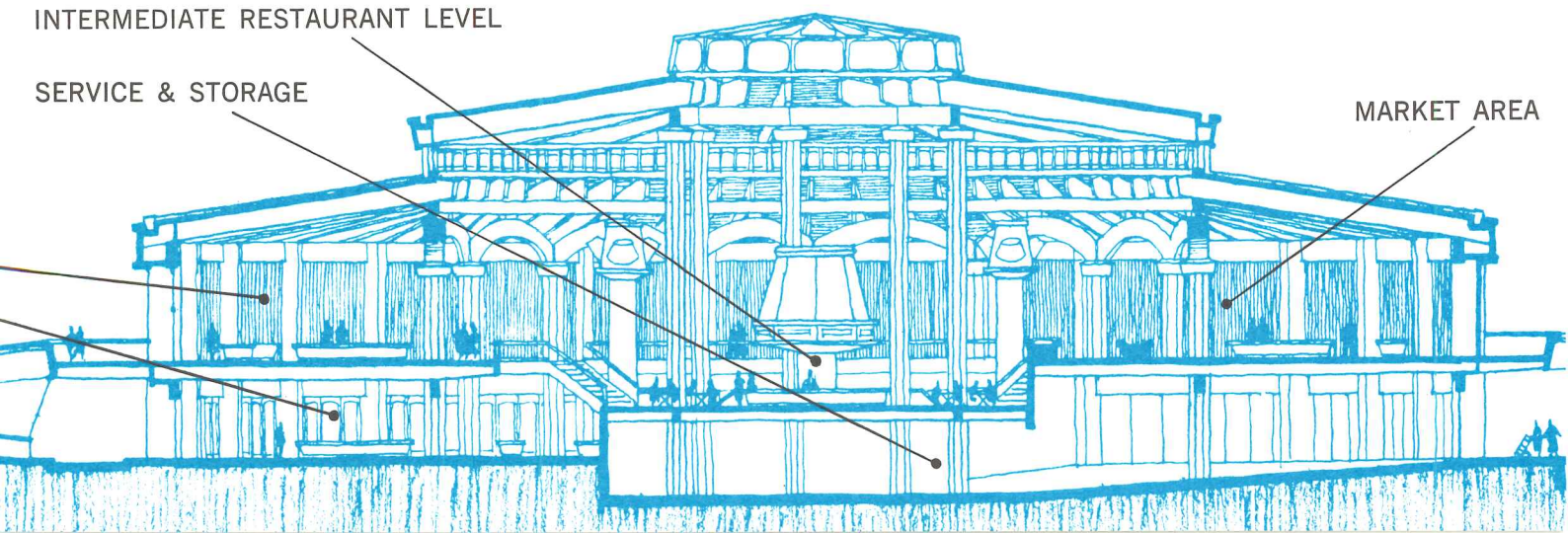


Decking, beams, girders, arches, and octagonal columns in the Grand Bazaar are Weyerhaeuser laminated structural products.





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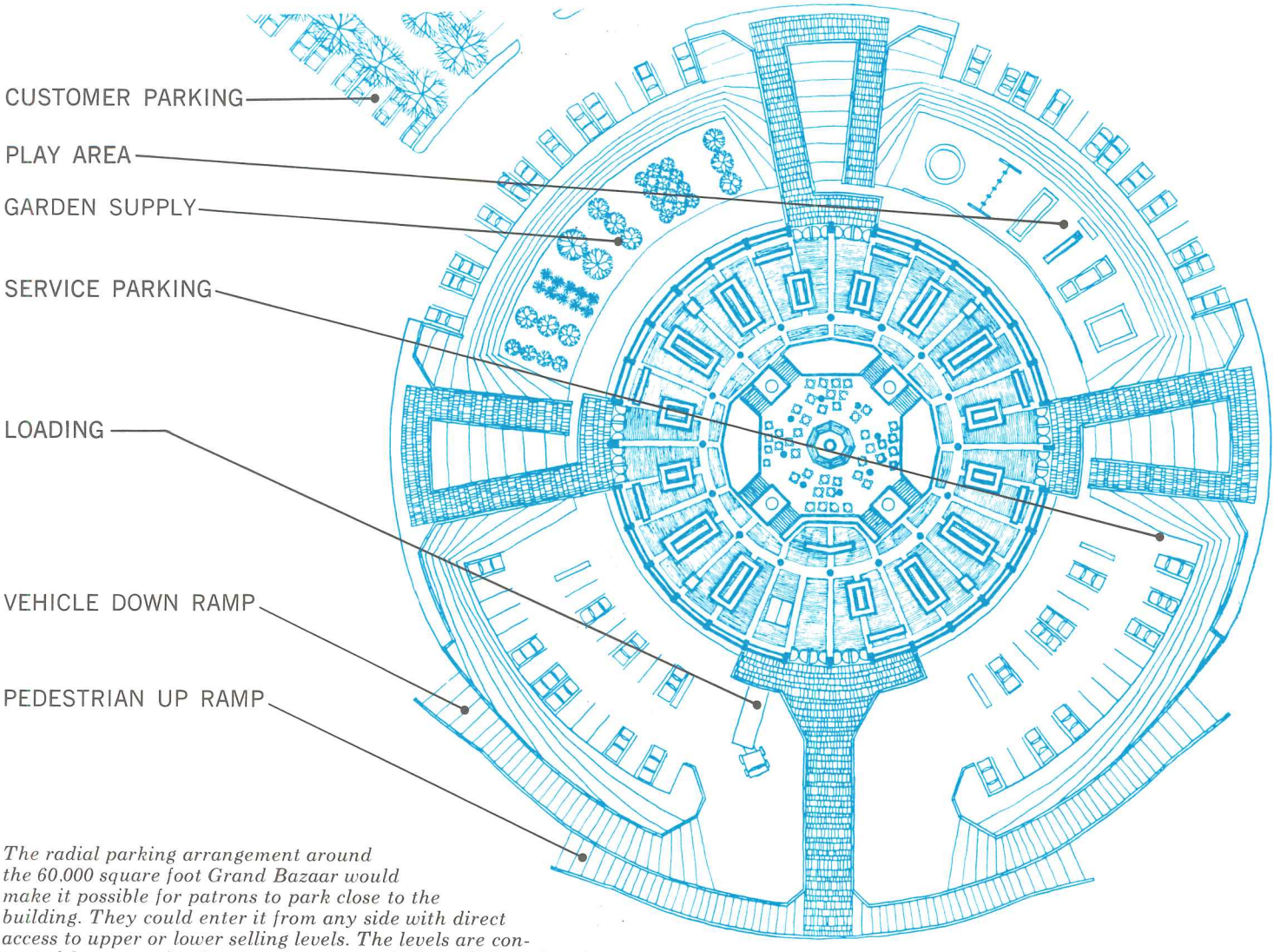


The radial parking arrangement around the 60,000 square foot Grand Bazaar would make it possible for patrons to park close to the building. They could enter it from any side with direct access to upper or lower selling levels. The levels are connected by conveniently placed ramps and short flights of stairs.

"The scale of laminated wood construction achieves a bold architectural approach."

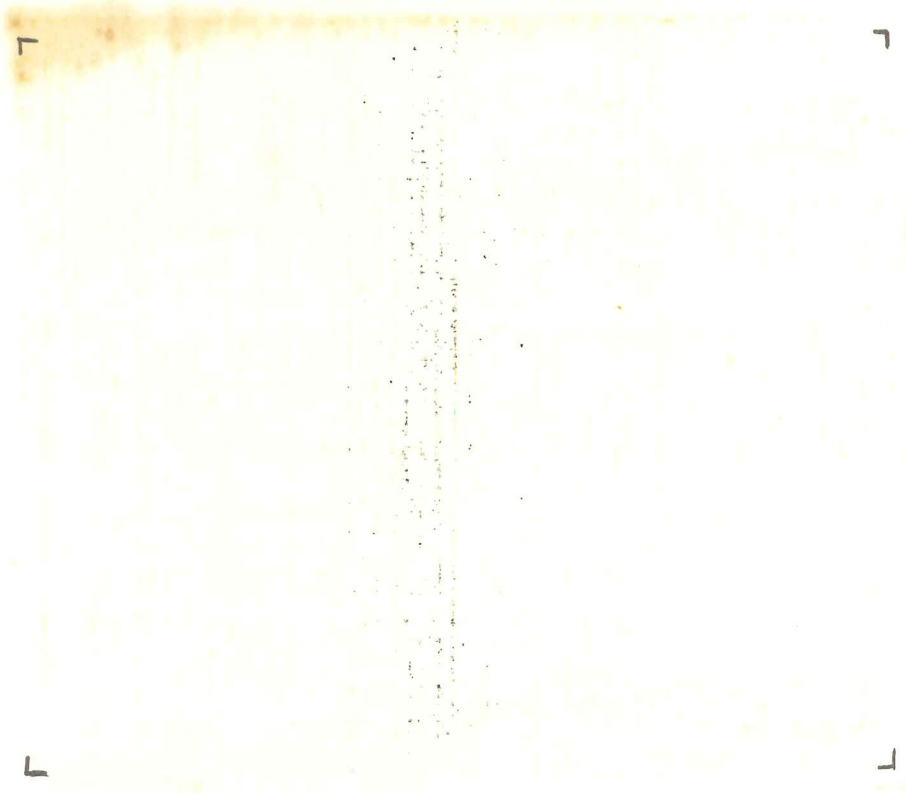
The laminated decking, columns, girders, and arches in the Grand Bazaar are part of Weyerhaeuser's full line of architectural wood products. These structural members are manufactured from kiln-dried lumber and special adhesives to conform with the strict specifications of the American Institute of Timber Construction.

In addition to this complete line of wood products, the new Weyerhaeuser Architectural Services program includes highly trained field representatives, comprehensive technical literature, and a technical services staff to provide technical and engineering data.

Your local Weyerhaeuser architectural representative is your source for all this data. Call him or write us at Box B-112, Tacoma, Washington 98401.

Weyerhaeuser Company

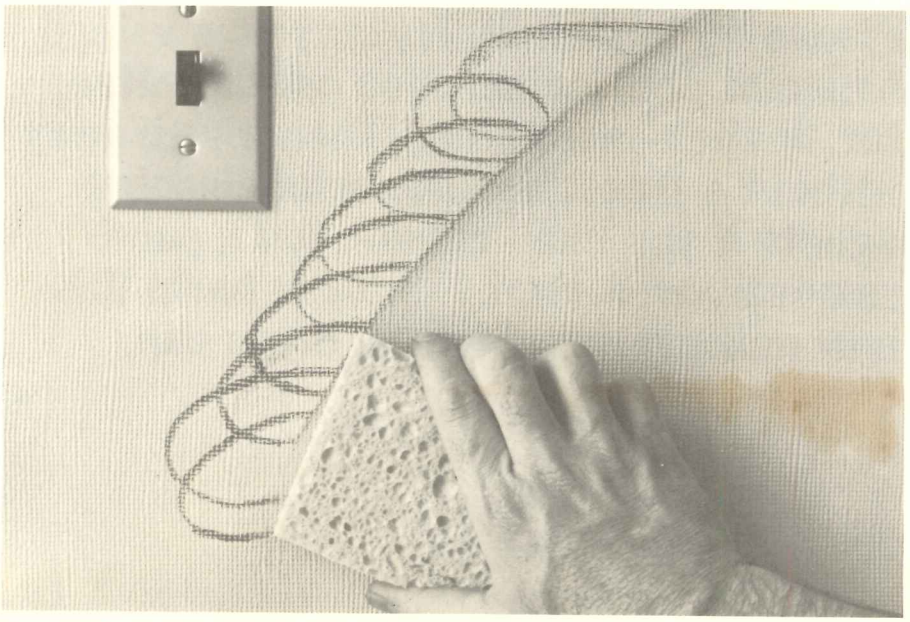
This new vinyl wallcovering is surfaced with TEDLAR®. It is as stainless as ceramic tile. Please try to stain it. Try crayon, mustard, ballpoint pen, iodine, shoe polish, coffee, tar, lipstick—even blood. Then wipe it away without a trace. Use powerful cleaning agents if you like—caustic soda, paint-remover, even MEK. None can harm this new wallcovering. Stain it, if you can.



This new vinyl wallcovering is as stainless as ceramic tile. Its surface of Du Pont TEDLAR* PVF film is so inert to chemicals that stains lie on the top, and can be wiped away. This wallcovering will stay new-looking—its colors fresh—for many years. For illustrations and more details, turn the page.

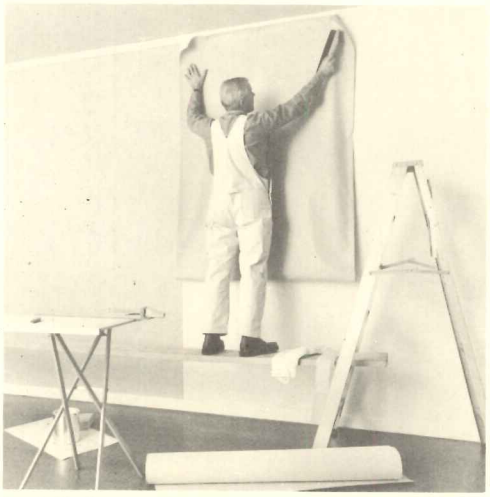
*Du Pont registered trademark.

This new vinyl wallcovering, surfaced with Du Pont TEDLAR®, is as stainless as ceramic tile. Already, it's in wide use.



Even ink lies on face of vinyl wallcovering surfaced with TEDLAR, and can be wiped away. Neither severe stains nor harsh cleansing agents can harm appearance of material.

Surface of TEDLAR gives wallcovering durable, stain-resistant finish, yet preserves warmth and appeal of textured vinyl.



Installed as easily as conventional vinyl wallcovering, products surfaced with TEDLAR provide lasting beauty, easier cleaning and lower maintenance costs.

Vinyl wallcovering surfaced with TEDLAR is now available in many colors, patterns and gauges, from leading manufacturers. For case-history information and samples, write Du Pont Company, Room 2681, Wilmington, Delaware 19898.

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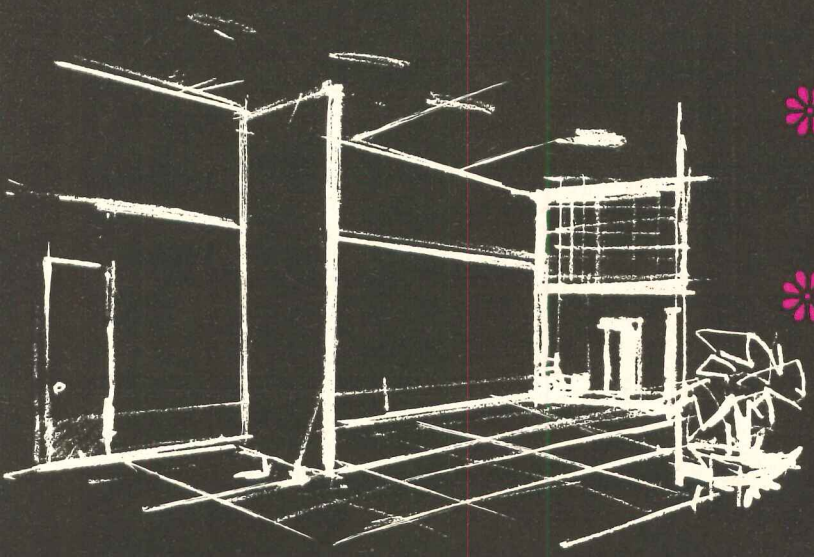


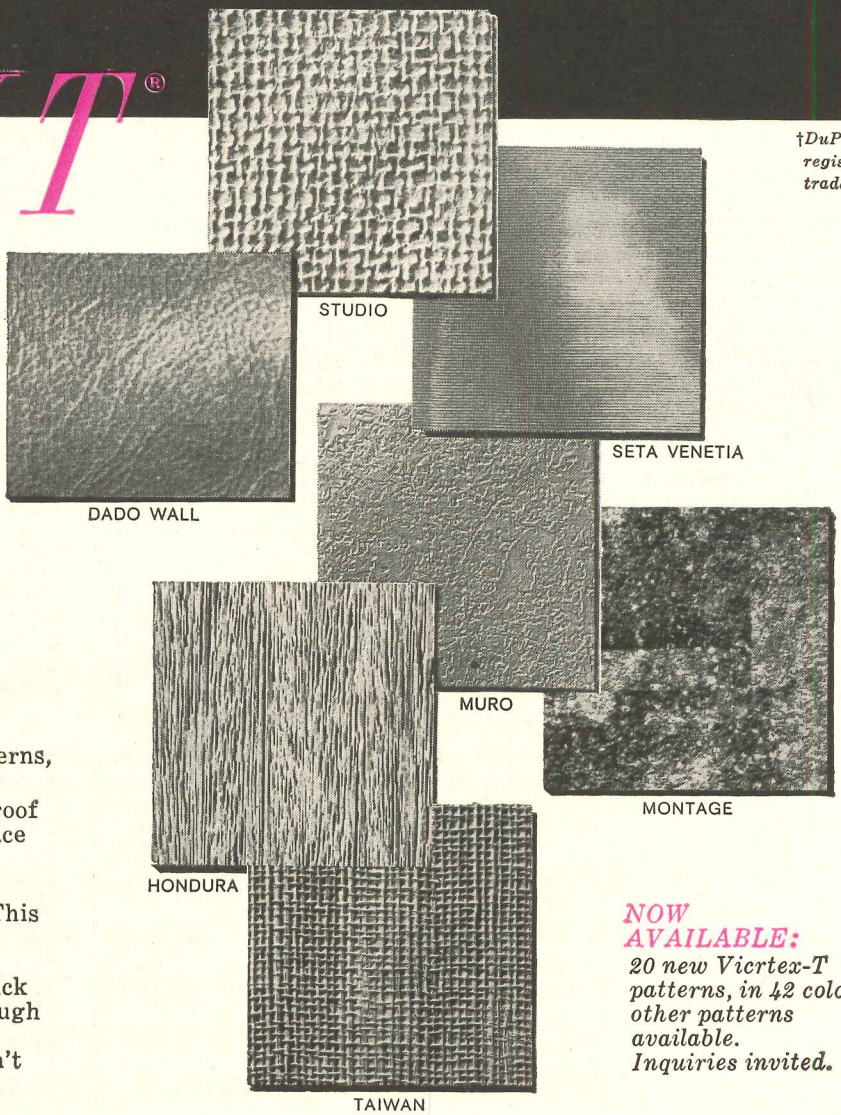
* *high style VICRTEX V.E.F. patterns and colors*

* *low maintenance DuPont TEDLAR† surface*

VICRTEX®

†*DuPont registered trademark*

V.E.F. Vinyl Wallcovering armored with stainproof DuPont TEDLAR†



Now! You choose from Vicrtex' broad range of patterns, textures, and sparkling colors.

. . . and you get *the added protection* . . . as stainproof as ceramic tile . . . provided by Vicrtex-T's new surface of TEDLAR PVF film.

Vicrtex-T, like regular Vicrtex, is easily applied to walls, pillars or panels—on wood, plaster or metal. This great new plus-value wall-covering defies the stains and blemishes so common to heavy traffic areas. Ballpoint pen ink, merthiolate, magic marker, lipstick . . . even shoe polish . . . simply wipe off! And the tough surface of TEDLAR is unaffected by the harshest cleaning agents. Even toluene, acetone or MEK won't affect Vicrtex-T's permanent beauty.

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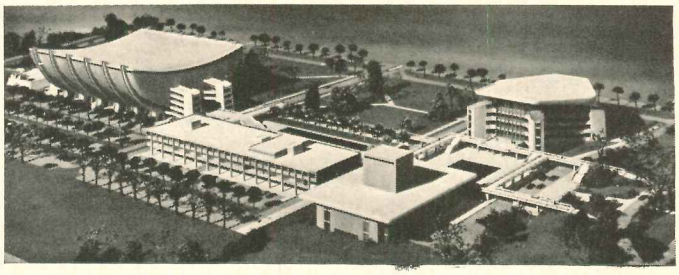
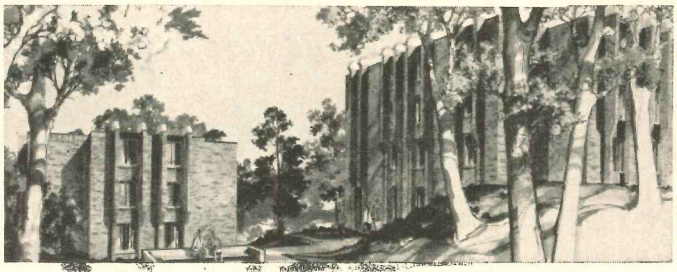


Louis Checkman

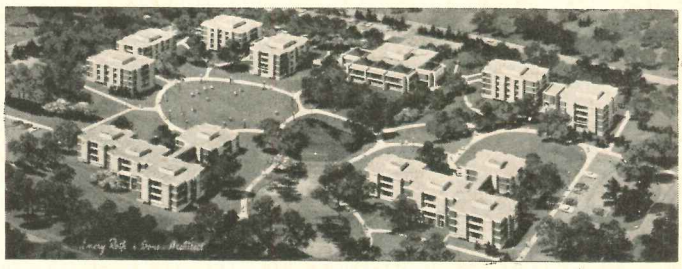
Cultural Center in Iowa

The proposed cultural center at Iowa State University in Ames, designed by the firms of Brooks-Borg and Crites and McConnell, will consist of four main buildings on a 67-acre site. From left to right (*above*) are a coliseum seating 14,000 and costing an estimated $4.6 million; a continuation center containing meeting rooms, permanent exhibit area and small auditorium with an estimated cost of $1.6 million to $2.5 million; a little theater seating 500 and costing from $500,000 to $930,000; and an auditorium-theater seating 2,622 and costing $3.2 million.



Dormitories in Indiana

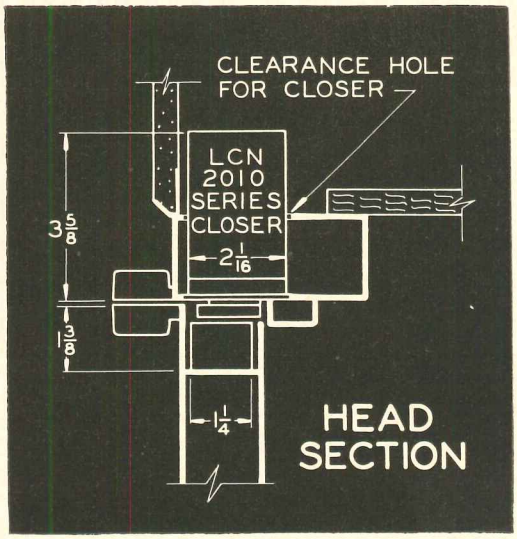
Three four-story dormitories, identical except for slight variations at ground level, are under construction at Rose Polytechnic Institute in Terre Haute, Indiana. Each of the residence halls, designed by the Perkins and Will Partnership, will accommodate 78 students, and on a typical floor there will be four suites each with three double bed-study rooms and one bathroom. The vertical jibs of the brick exterior serve dually as stiffeners of the wall bearing construction and as sunshades. General contractor is the J. L. Simmons Company.



Adolph Studly

Dormitories for 1000

The $6.5 million dormitory-dining hall complex for 1,000 students at the State University of New York in Stony Brook, Long Island, will have buildings clustered to form a self-contained campus setting. The brick and poured-in-place concrete buildings, designed by Emery Roth & Sons, will employ the suite system, each suite containing a living room, bathroom and two or three bedrooms. Structural engineer is Robert Rosenwasser; mechanical engineers are Meyer, Strong & Jones; and landscape architects are Zion and Breen.



Construction Details

for LCN overhead concealed door closer installation shown on opposite page

The LCN series 2010 OP closer's main points:

1 Efficient, full rack-and-pinion, two-speed control of the door

2 Mechanism entirely concealed in head frame and top of door; arm shows when door opens, is hidden when door is closed.

3 Hydraulic back-check cushions door if thrown open violently, saving door, wall, etc.

4 Hold-open available at 75, 85, 90 or 95 degrees setting.

5 Closers are made for heavy duty and long life

Descriptive matter on request—no obligation, or see Sweet's 1965, Section 19e/Lc

LCN

LCN CLOSERS, PRINCETON, ILLINOIS

A Division of Schlage Lock Company

Canada: LCN Closers of Canada, Ltd., P.O. Box 100, Port Credit, Ontario

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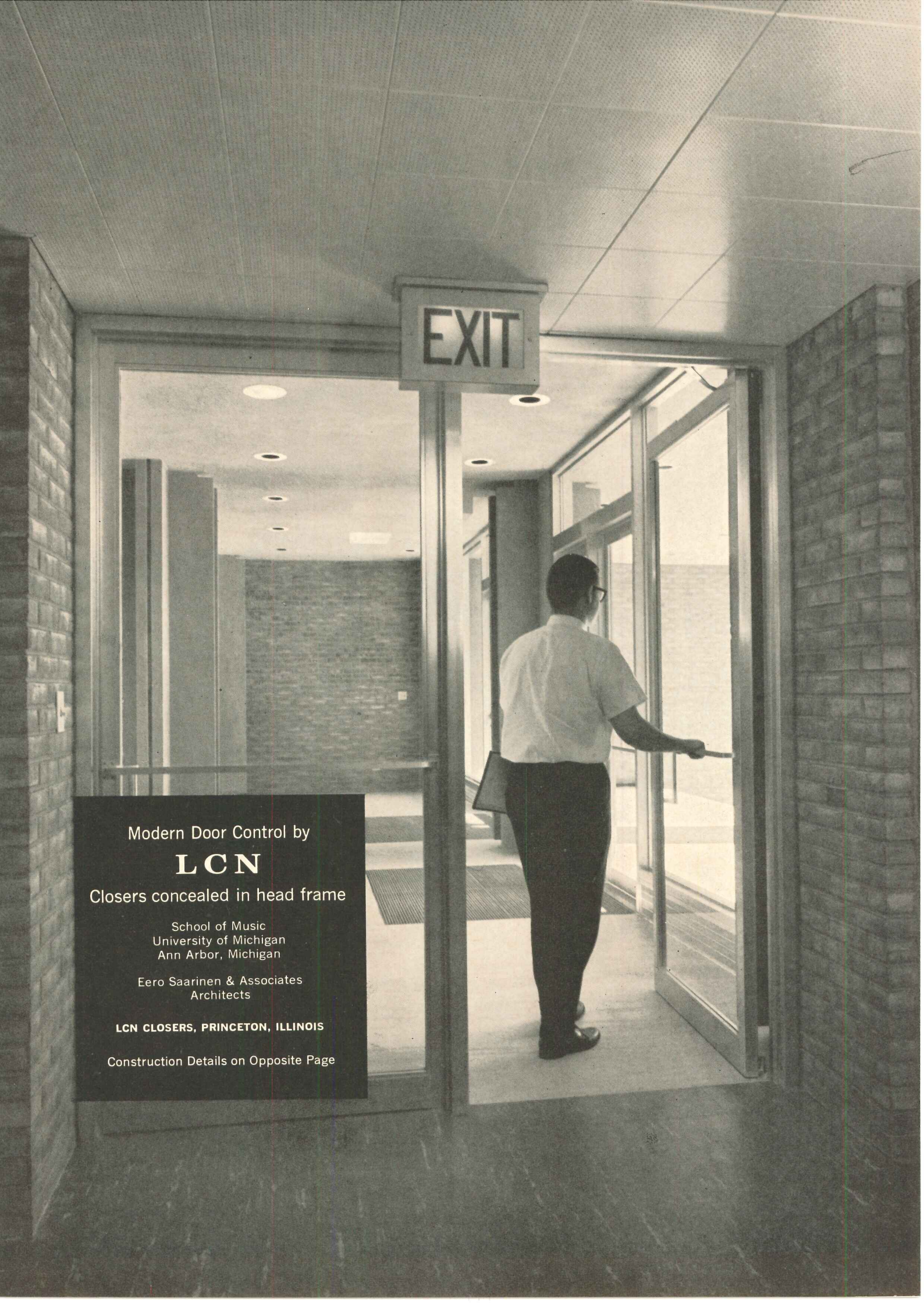


Modern Door Control by

LCN

Closers concealed in head frame

School of Music
University of Michigan
Ann Arbor, Michigan

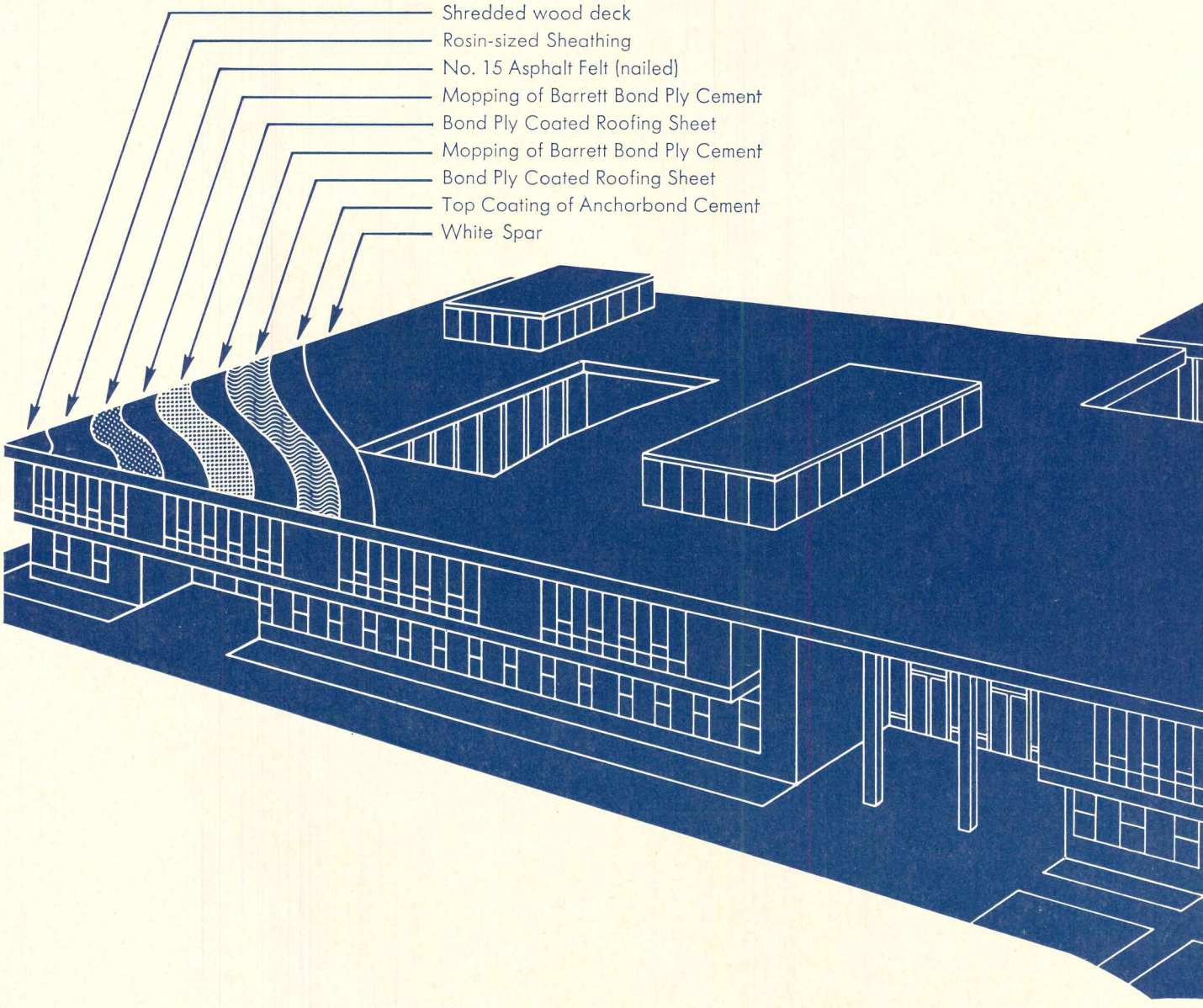
Eero Saarinen & Associates
Architects

LCN CLOSERS, PRINCETON, ILLINOIS

Construction Details on Opposite Page

Half of this roof was built in a factory.

It meant less time and trouble to put it down, and extra quality to boot.



Northern Highlands Regional High School, Allendale, N.J.

Architects: The Perkins & Will Partnership, White Plains, N.Y.
Builder: A. A. La Fountain Inc., Hackensack, N.J.
Roofer: Advanced Roofing & Sheet Metal Co., Wallington, N.J.

Here's a new roof system that gives you the same 20-year bonded protection that conventional systems offer, but makes life a lot easier. It's a Barrett Bond Ply Roof. Perkins & Will used it on the spanking new Allendale, N. J. Northern Highlands Regional High School.

A Barrett Bond Ply System consists of Barrett Bond Ply Coated Roofing Sheet—coated on each side with a heavy, uniform layer of asphalt—and put down with Barrett Bond Ply Cement. This means extra quality because a big chunk of the labor originally done on the job is done in our factory under conditions of strict quality control.

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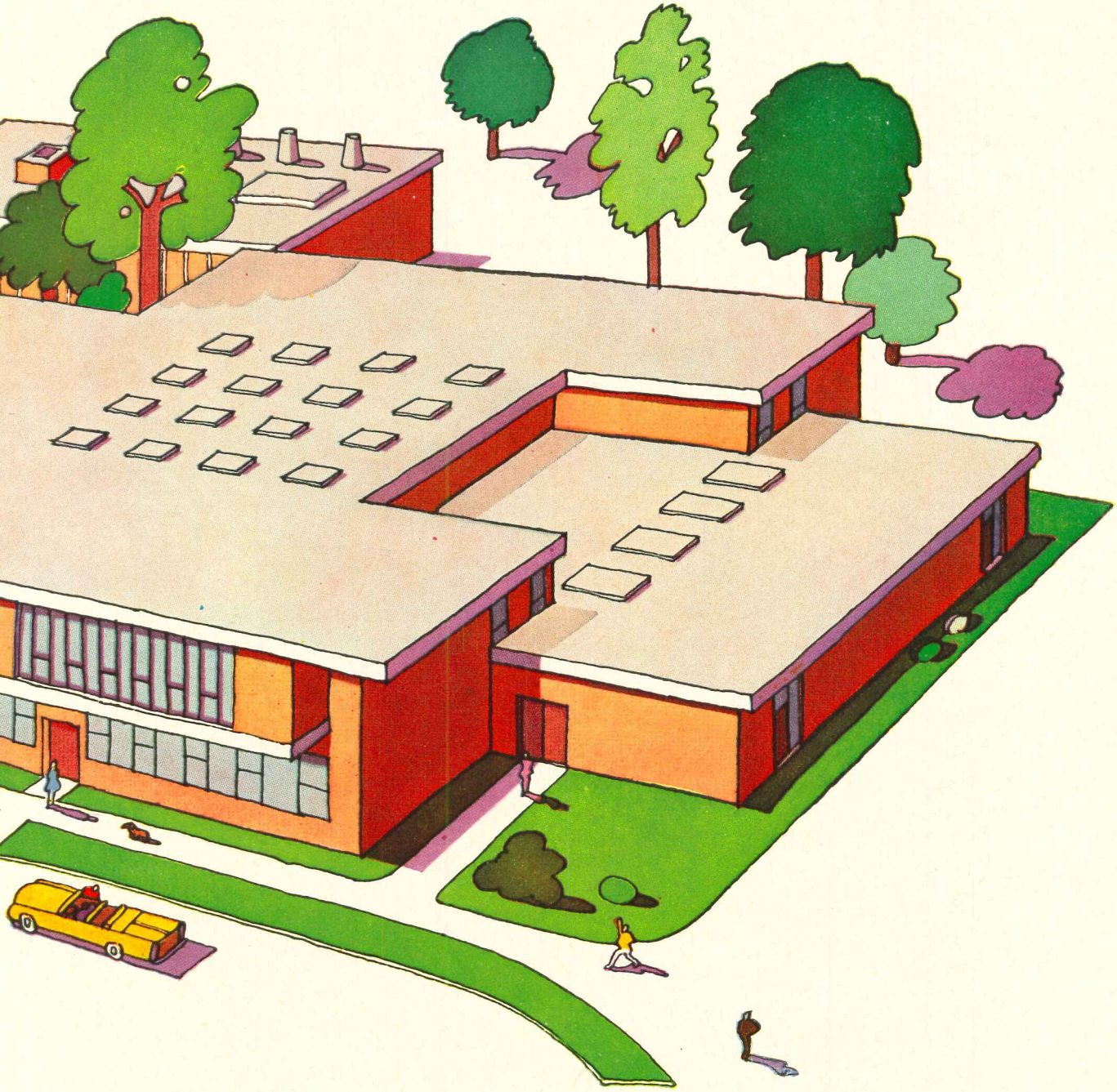

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*T. M. Reg. U. S. Pat. Off.

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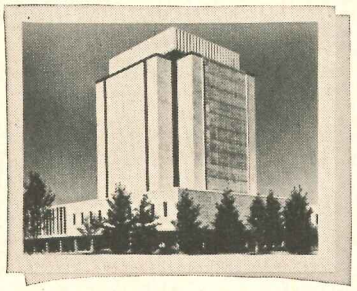
Radiation Research Building

Computing Center



Memorial Library

North Dining Hall

What have these university buildings in common?

These four—and a fifth, the Ave Maria Press—are all air conditioned from a central power plant on the Notre Dame campus.

Two Carrier steam-turbine-driven Centrifugals chill water that is piped 2200 feet to the buildings.

The same pipelines also supply steam for heating.

Central refrigeration using steam-turbine-driven equipment was selected for this job for several reasons.

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3. Proximity of buildings to the power plant made piping chilled water economically feasible.

If you are planning a complex—for campus, urban renewal, government center, industrial park, apartment, airport or hospital—the use of central refrigeration may well be the practical answer to air conditioning.

Whatever the power source, Carrier has the type of refrigeration machine to match it, as well as a background of job experience that can be helpful.

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A monthly roundup of reports on new books of special interest to architects and engineers

This Month's Books

REVIEWS

F. Cuthbert and Christine F. Salmon, The Blind—Space Needs for Rehabilitation . . . 86

Walter Gropius, The New Architecture and the Bauhaus . . . 72

Ebenezer Howard, Garden Cities of Tomorow . . . 72

Arthur Siegel, Chicago's Famous Buildings . . . 86

BOOKS RECEIVED . . . 94

From the past for today

THE NEW ARCHITECTURE AND THE BAUHAUS. *By Walter Gropius. Faber and Faber Ltd., 24 Russell Square, London, W.C.1. 112 pp., illus. Paperbound, 13s 6d.* GARDEN CITIES OF TOMORROW. *By Ebenezer Howard. Faber and Faber Ltd., 24 Russell Square, London, W.C.1. 168 pp., illus. Paperbound, 9s 6d.*

A review by Robin Boyd
first published in The Australian *of Canberra and republished by permission.*

Two Classics of the literature of early twentieth-century design have been re-issued in paperback. After 63 years in one case and 30 years in the other, each has at once historical fascination and vital relevance to our cities and buildings of today.

Both of them sought a bridge, in a physical sense, between two cultures. In 1935 Walter Gropius was concerned with uniting rationalism and poetry in architecture. A generation earlier, around the turn of the century, Ebenezer Howard sought to combine the best things of city life with the good things of country living and in effect founded modern town planning.

For some years now both men have been misunderstood, often deliberately, and their writings ignored, because it was easier and more comfortable to avoid the disciplines they proposed. Howard's great garden city idea has degenerated, except in Britain, into petunias and the suburban sprawl. Walter Gropius' great concept was discredited in the 1950's, called a cold materialist, functionalist, and considered to be internationally-minded to a suspicious degree and insensitive to regional nuances.

Many architects then revolted against the moralistic overtones of Bauhaus teaching and the seemingly puritanical ban on ornament. Historical styles crept back, as well as decoration, and false effects for art's sake. Evidence of this phase is available to us wherever we care to look. But in 1965 there is also evidence—though less in Australia than in some parts overseas—that this period of adult delinquency in 20th century architecture has almost run out its time.

Thus the appearance of Gropius' definitive statement on the "New Architecture," which he helped decisively to found, could hardly be more timely. Exactly one generation after it first appeared in 1935 his book returns to find the international modern movement which it celebrated in a confused, cynical, unsettled state.

But how confident, morally upright, and hopeful it was then in its youth. And to reread it today acts as a tonic. We can recapture the assurance and the heroic stance.

The Gropius statement is not long; hardly more than an essay. It is quite personal, starting with a brief explanation of his theory of architecture and going on to describe the teaching of the Bauhaus school in concept and practice. It finishes in Gropius' cantering off downhill on two of his favorite hobby-horses of that time: prefabricated houses and skyscraping flats.

It was written in England, during the short interlude in Gropius' career between his flight from the Nazis and his present, continuing success in the U.S.A. It often possesses a noble and classical simplicity, and to architects is almost as full of quotations as Shakespeare.

Gropius' famous early buildings are illustrated along the way. Some of them, such as the Berlin flats of 1929, are clearly dated to their period by their white box shapes gashed by strip windows. They represent the visual style that sometimes came out of the Bauhaus involuntarily, a purging style, that had few lovers next morning. But others, like the Werkbund Exhibition offices at Cologne of 1914, retain a capacity to excite and delight, and to amaze at the sheer precociousness of their design half a century ago.

The sobering fact is that the newest, most avant-garde, with-it archi-

continued on page 77

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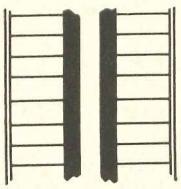
Modern Partitions, Inc.—in answer to client demands for quiet, maintenance-free offices—offers sound-deadening, abuse-resistant, movable partitions surfaced with VIDENE panels from Goodyear.



Modern's movable partitions offer an exclusive sound core with a sound transmission class of 43 as tested by Riverbank Acoustical Laboratories.

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VIDENE comes in a wide range of stunning wood veneer simulations, in many architecturally oriented interior colors, and a variety of pleasing decorative patterns.

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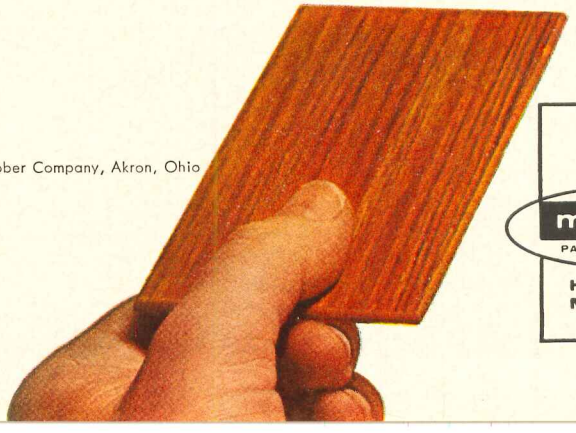
For more information about VIDENE paneling, write: VIDENE Division, The Goodyear Tire & Rubber Company, Akron, Ohio 44316.



Videne—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

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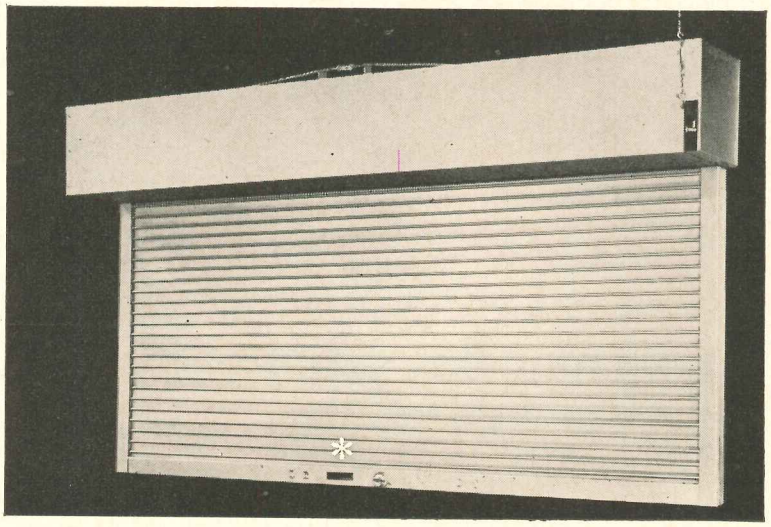

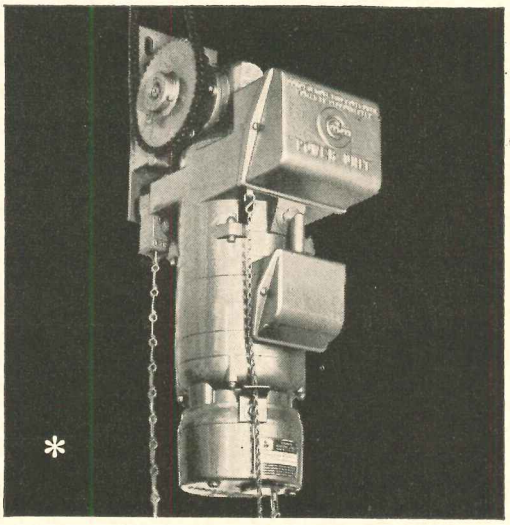

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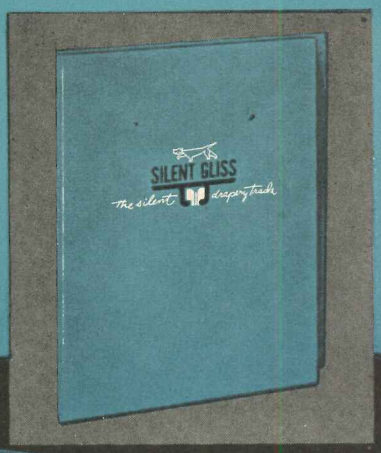

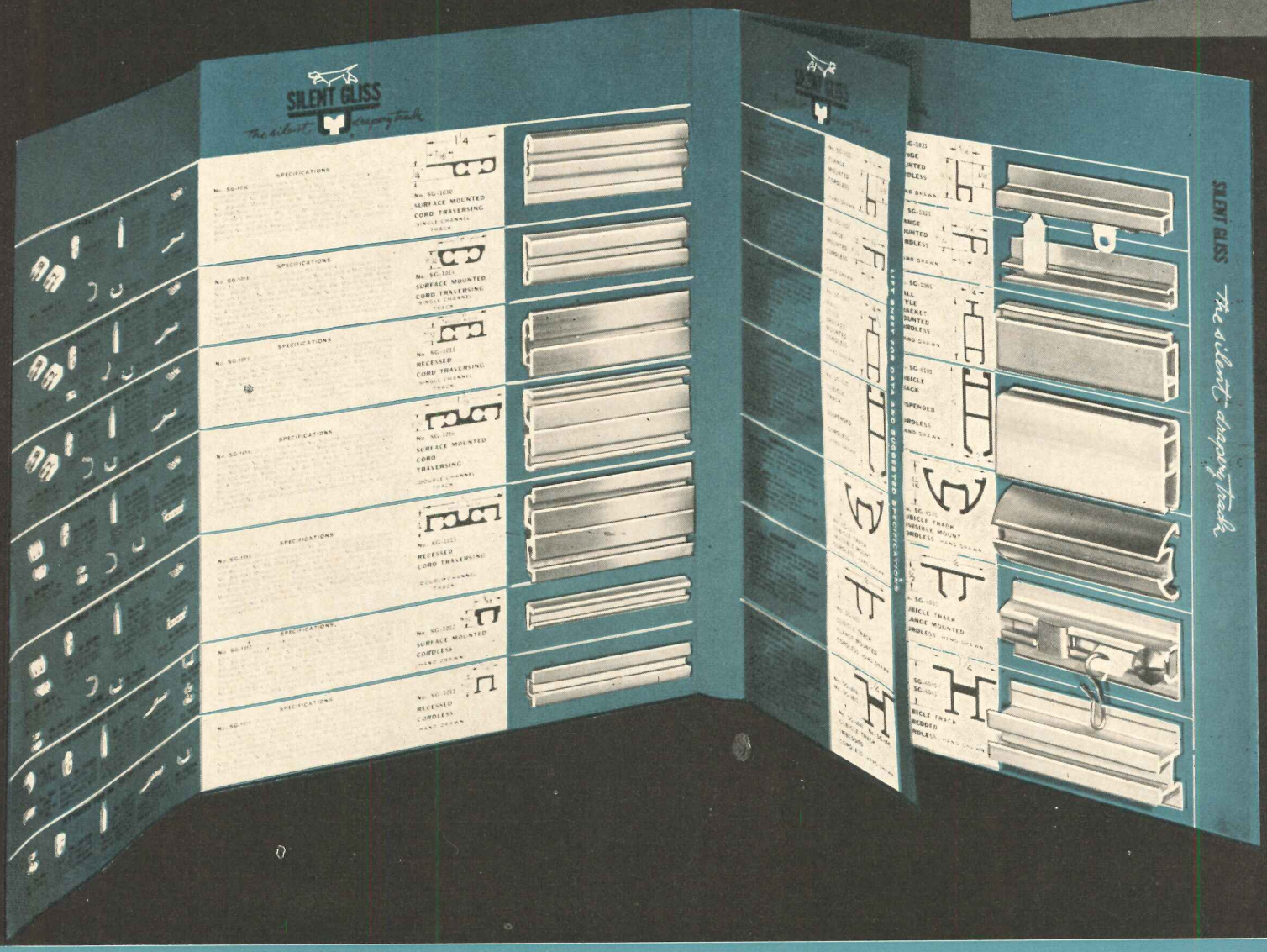

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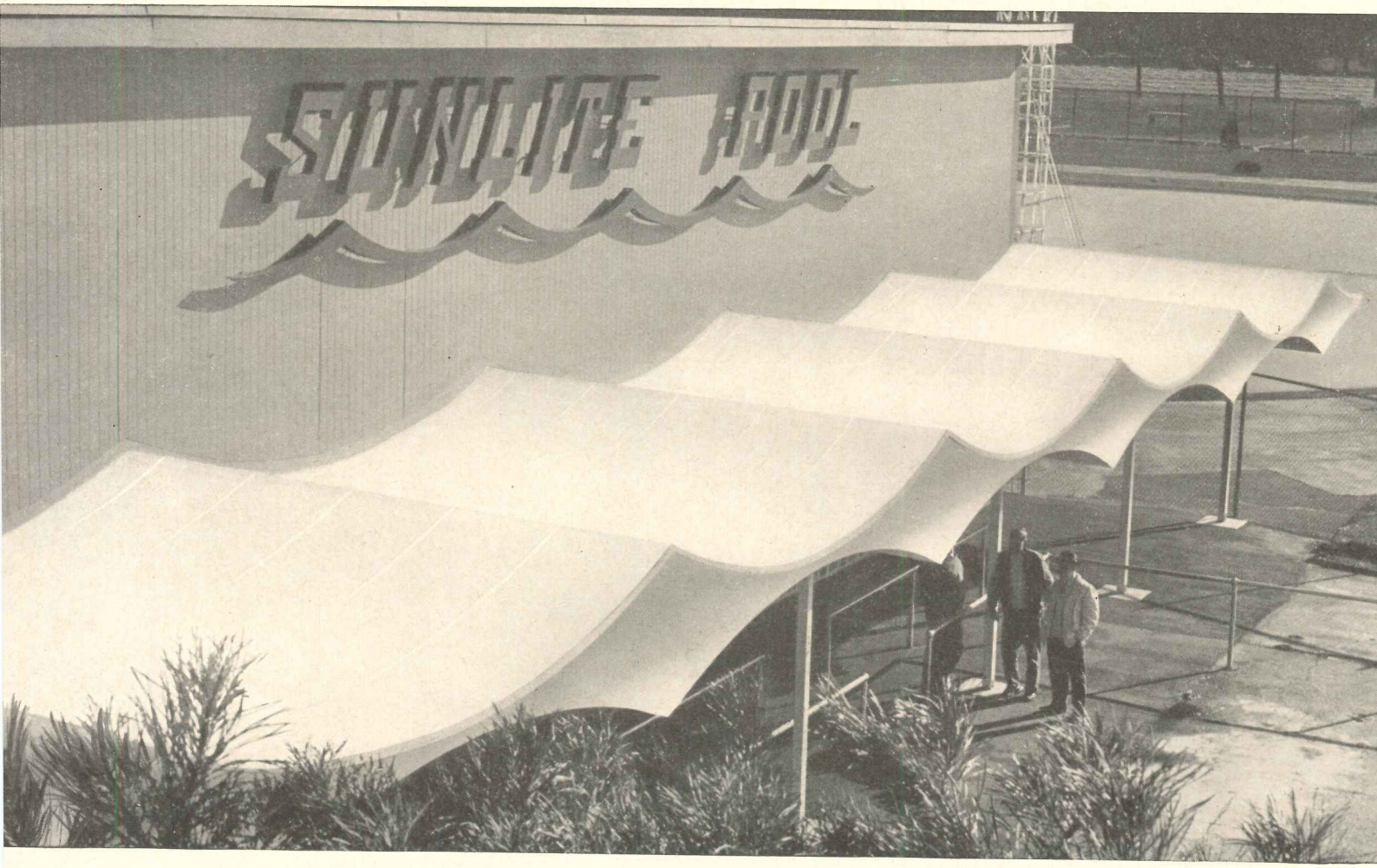
This canopy was under flood water for 8 days, yet was *completely undamaged!*



The roofing is RUBEROID T/NA 200® (made with Du Pont TEDLAR*)

In 1964, the Ohio River rose 6 feet above the entrance canopy of Cincinnati's Sunlite Pool. Eight days' immersion left the roofing completely intact, however. The Ruberoid T/NA 200 membrane kept its attractive whiteness after simple cleaning. It still adhered tightly to the plywood base—still was water-tight. A good indication of its *long life* under normal service!

After the flood water receded, the canopy was completely unharmed! Canopy was prefabricated of Ruberoid T/NA 200 and stressed-skin plywood by Batavia Plywood Fabricators, Inc., Batavia, Ohio. The Sunlite Pool is part of Coney Island Amusement Park in Cincinnati.

Ruberoid T/NA 200 is as versatile as it is rugged. It was specified because it was the *only* roofing material that could conform to the scalloped curves of the canopy. It's flexible and tough—fits unusual contours of any slope.

This revolutionary roofing is easy to apply, too. Goes on quickly with conventional roofing techniques.

For complete facts on Ruberoid T/NA 200 for institutional, commercial and industrial designs, contact this address:

*Du Pont's registered trade-mark

RUBEROID®

TECHNICAL SALES AND FIELD ENGINEERING DEPT.
733 Third Avenue, New York, N. Y. 10017

For more data, circle 63 on Inquiry Card

Required Reading

continued from page 72

tecture in the most sophisticated centers of construction today (too new indeed to have been more than hinted at here) has great overlaps of character in common with that epochal building by Gropius.

But a topical relevance closer to home is the reminder of the Bauhaus methods in this year in Australia when several institutions of higher learning are groping in the dark for an idea on which to base a new school of architecture.

The Bauhaus and the early Continental modern movement which it crystallized has been misrepresented often, but here 30 years ago Gropius words which are up to date because the argument is timeless he stresses that rationalization of building is no more important than "the other side: the aesthetic satisfaction of the human soul," that "architecture implies the mastery of space," that "respect for tradition does not mean the complacent toleration of . . . individual eccentricity . . . or bygone aesthetic forms." He advocates "realistic" building, deriving its architectural significance "solely from the vigor and consequence of its own organic proportions, true to itself, logically transparent and virginal of lies or trivialities . . ."

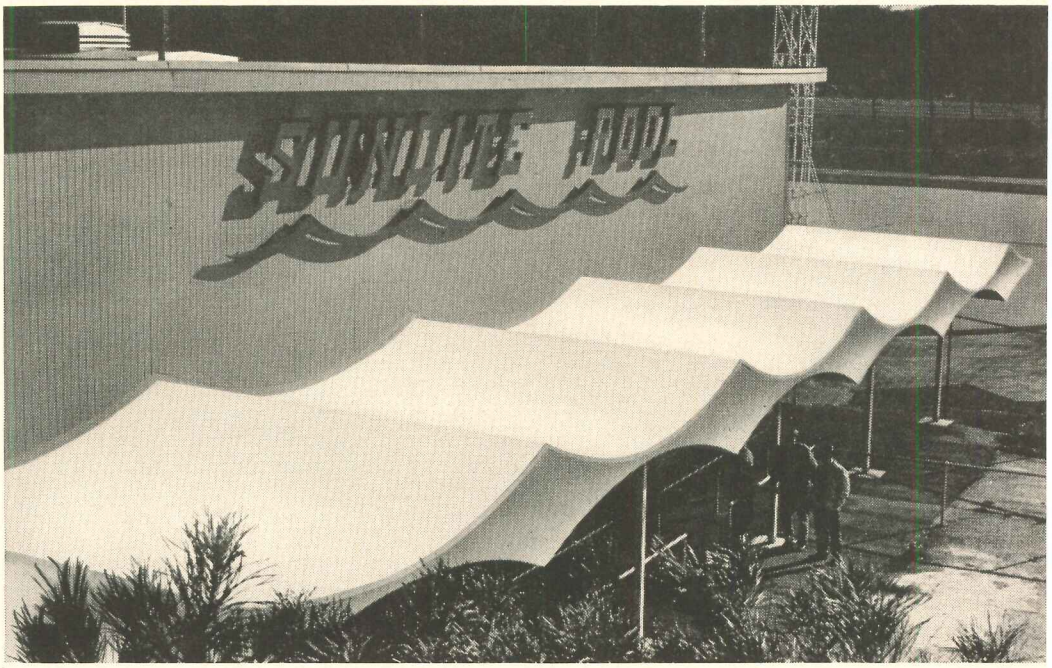
No aesthetic argument can hold much water against such remarks and the Bauhaus ethic will surely never die so long as the source material remains available.

Howard's book is more for the specialist: the townplanner or social historian, and for them it is essential reading. Yet it is perhaps the least read most influential book of town planning.

Sir Ebenezer Howard (1850-1928), the son of a shopkeeper, was an inventor of unsuccessful mechanical gadgets who later turned to the problem of the crowded, sordid city. In this book he describes the physical, financial and administrative design for an ideal satellite town, a town-country rather than a country-town, here beauty and intellectual pursuits could mix, a town planned for the delight as well as the convenience of its citizens, and limited in size by a green belt (he cited Adelaide as a partial example).

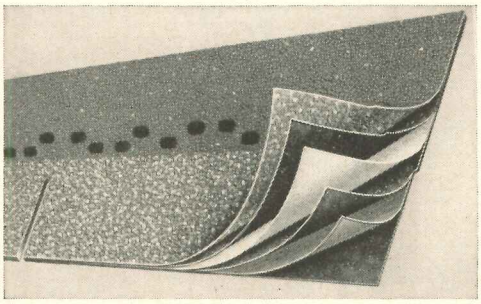
continued on page 86

...tough roofing from RUBEROID®



and

fire-resistant shingles



Ruberoid FIRE-GUARD 325-lb. residential shingles feature a built-in, special fiberglass blanket, in addition to other flame-resistant layers. U.L. puts these self-sealing shingles in top Class A rating for fire and wind resistance. Good looks too, in 6 modern colors!

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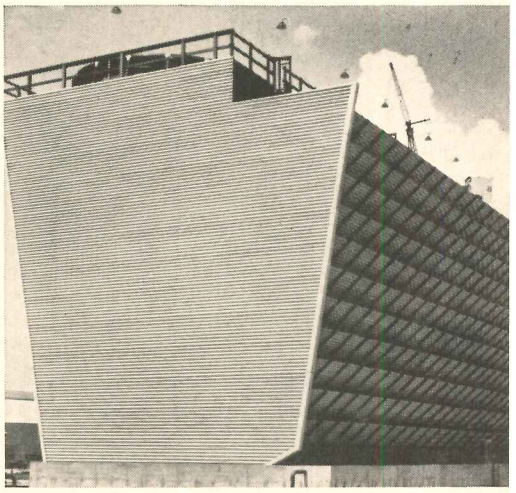
Ruberoid offers the most widely varied line of vinyl asbestos floor tile. Pattern shown above is ROYAL STONEGLOW® which combines the looks of stone with the practicality of vinyl asbestos. There are dozens of other exciting patterns to choose from.

corrosion-resistant siding



Ruberoid Corrugated Asbestos Sheets are an economical, weather-proof and fire-proof construction material for industrial buildings. This combination of cement and asbestos gives maintenance-free service *indefinitely!* Impervious to corrosive atmospheres. Easy to assemble without sheathing.

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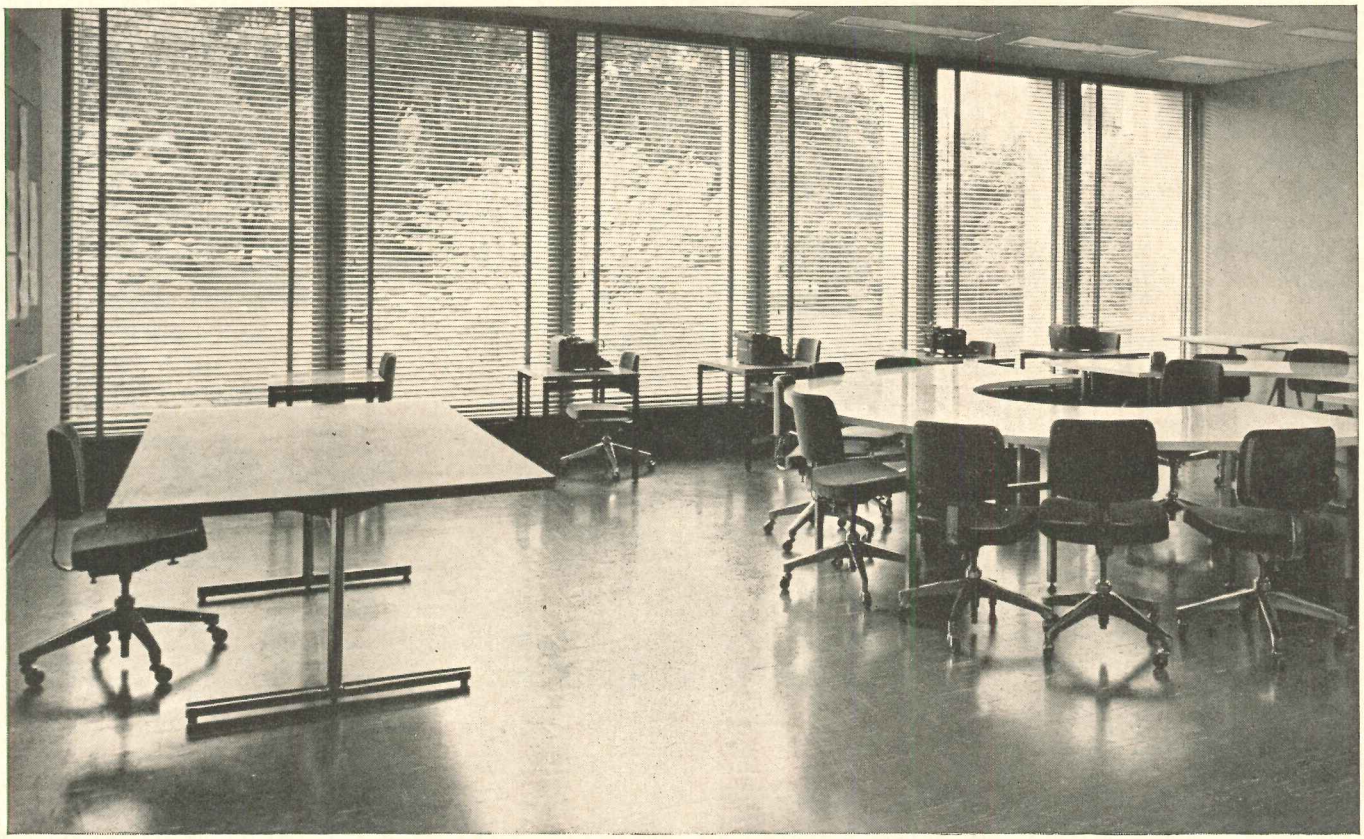
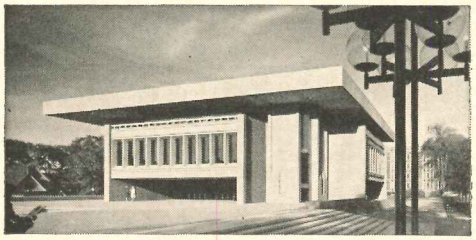


Perfect light control

at the Newhouse Communications Center*



Levolor Venetian Blinds were selected for use in this AIA-award-winning building for the ideal control of light they offer. Installed in ceiling pockets, these blinds not only are perfect for audio-visual use, but follow the architect's precise concept: the preset cord locks insure that the blinds are either fully raised or fully lowered so as to present a uniform appearance from outside or inside the building. No wonder Levolor is at the head of the class. For full details write LEVOLOR LORENTZEN, Inc., 722 Monroe St., Hoboken, New Jersey.

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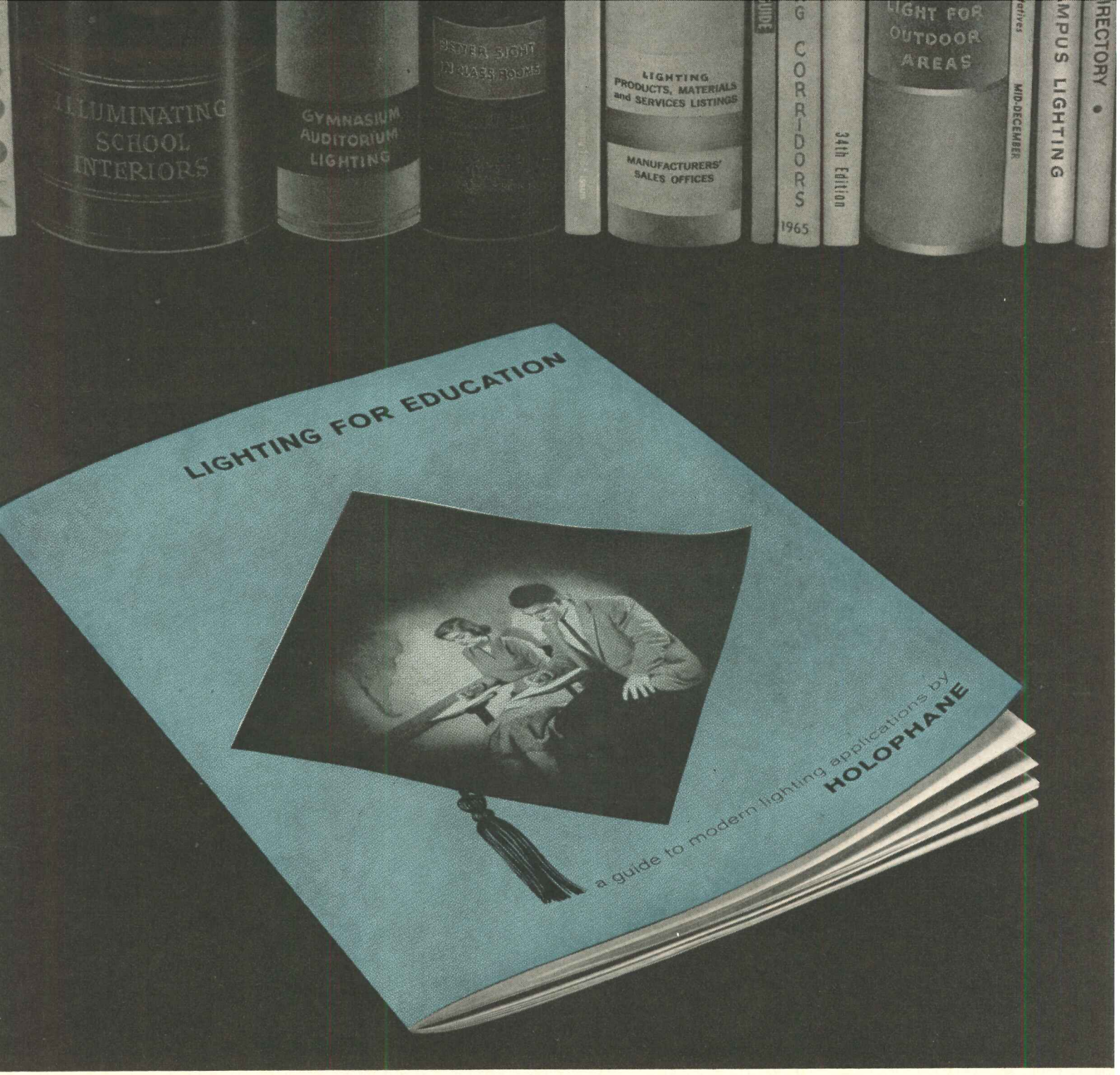

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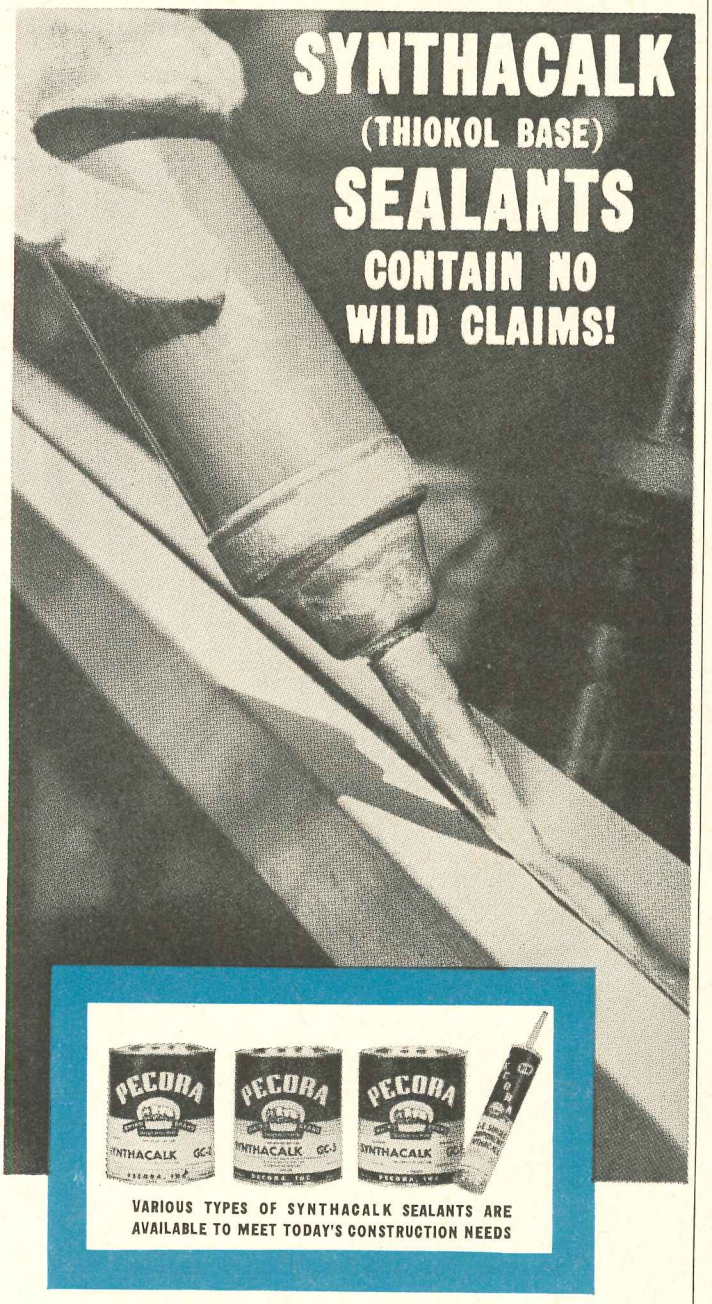

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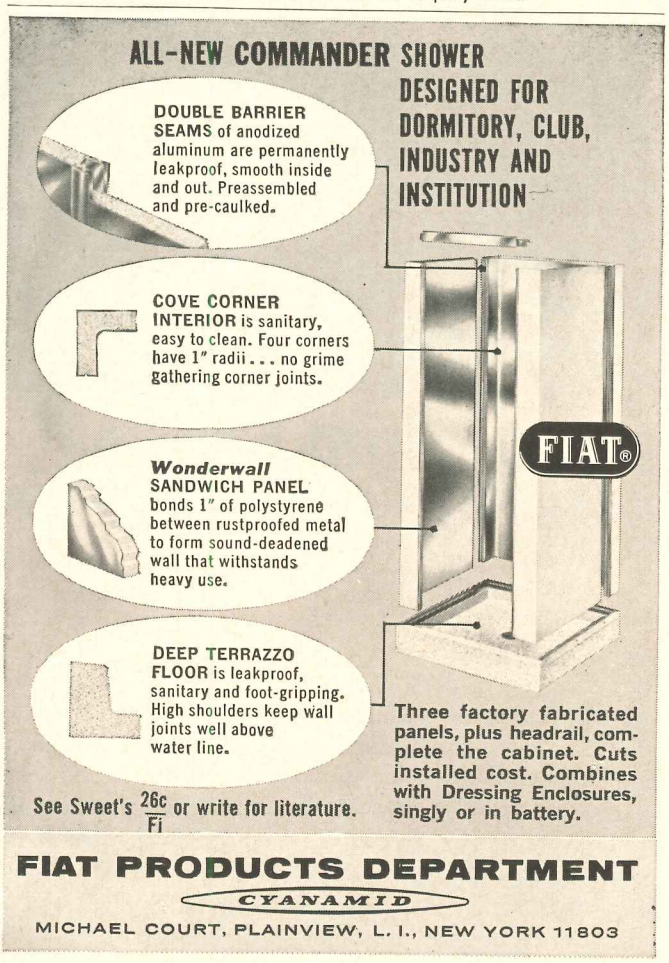

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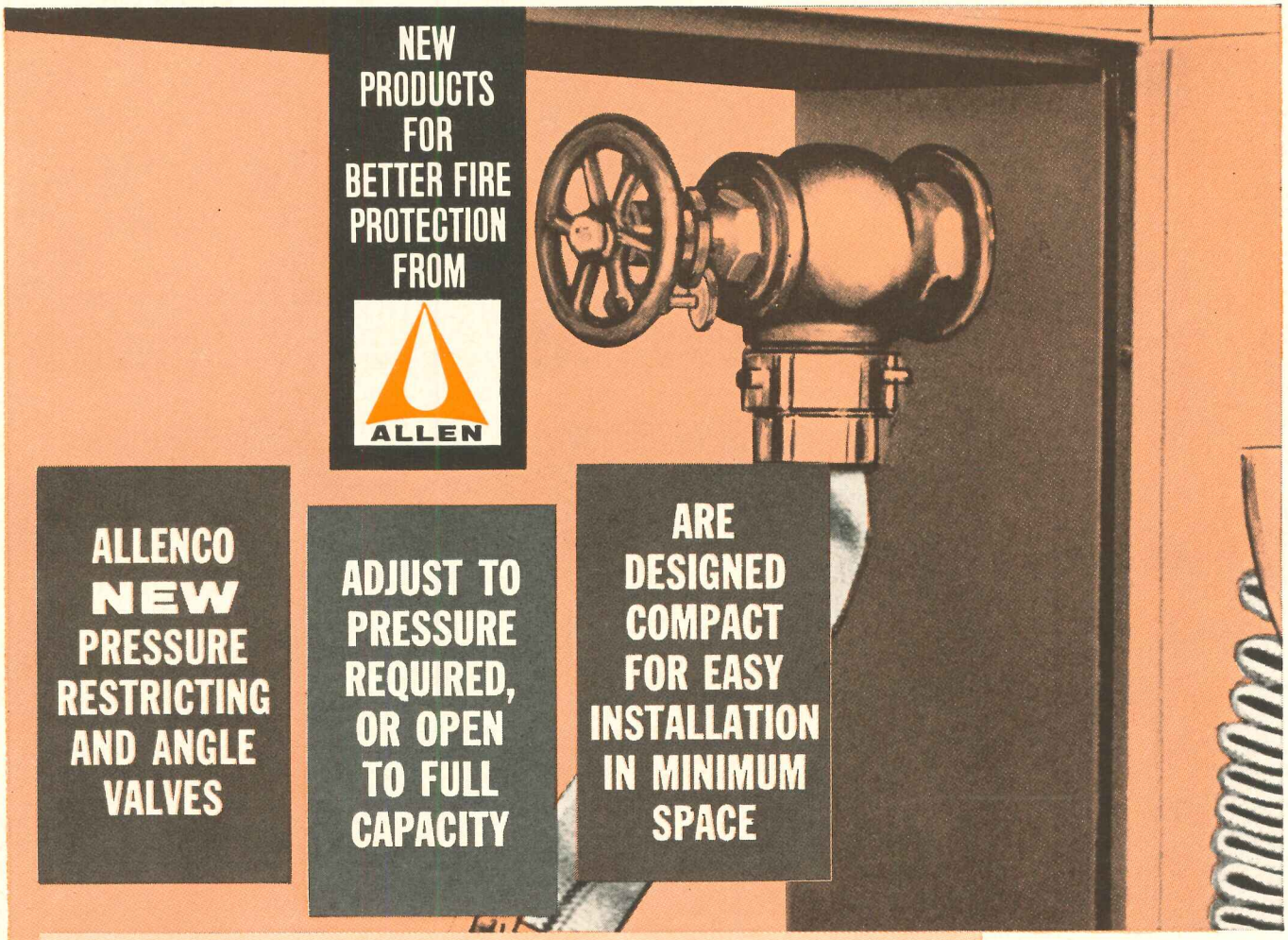

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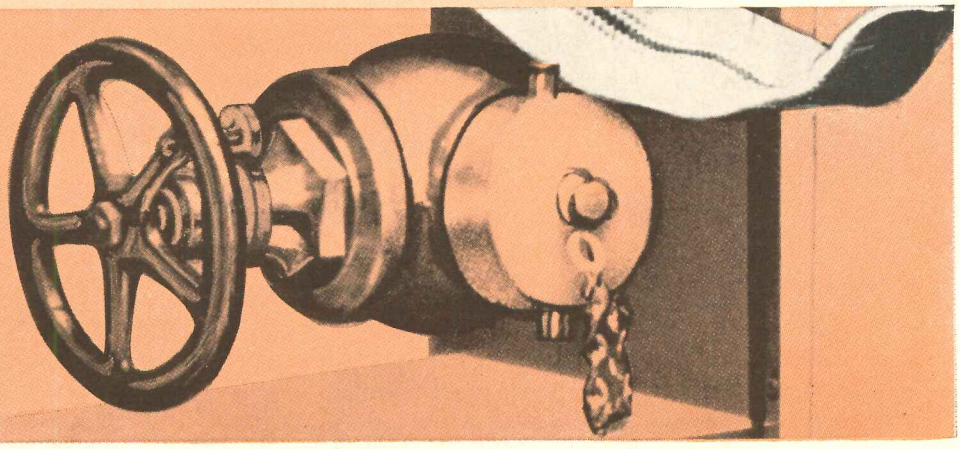

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Only one moving part, two bearings

It just stands to reason. The simpler the design, the fewer the parts. The fewer the parts, the more reliable a machine will be.

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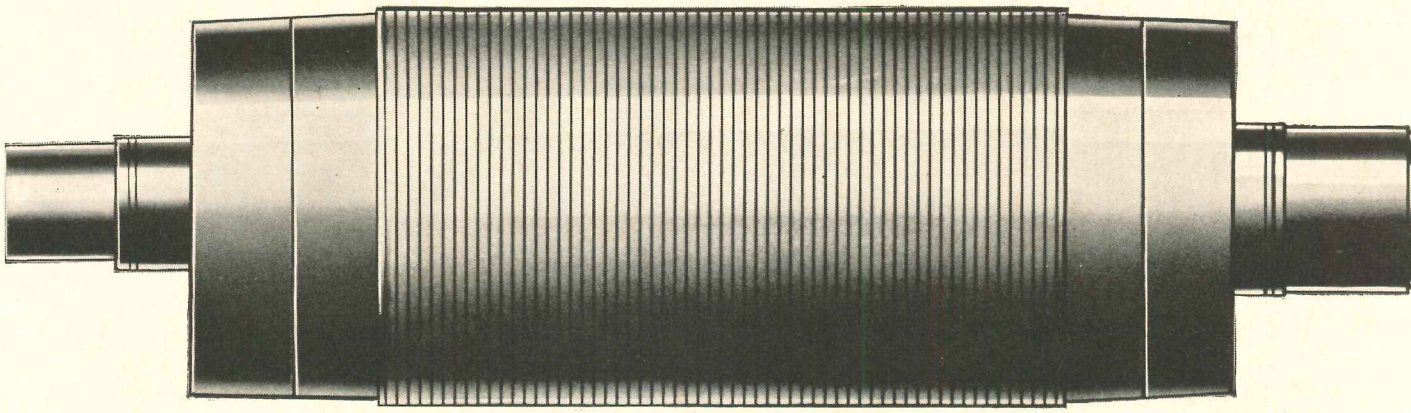
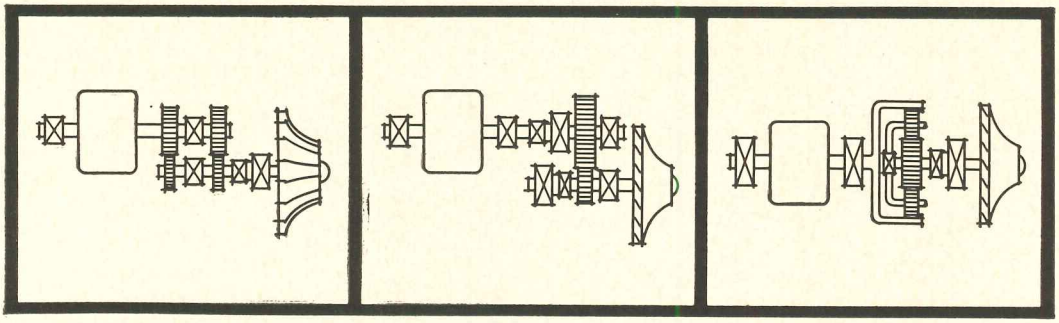
That's the key to the success of TRANE's compact CenTraVac. Compare its simplicity with other water chillers.





Make "A" Gear-drive, including four gears, three bearings, plus a high-load thrust bearing.

Make "B" Gear-drive, including two gears, four bearings, plus two high-load thrust bearings.

Make "C" Gear-drive, including five gears, seven bearings, plus a high-load thrust bearing.

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In the words of a leading paper company divisional chief engineer (name on request): "Two compact, direct drive CenTraVacs have been in operation during the past year with no maintenance problems whatsoever."

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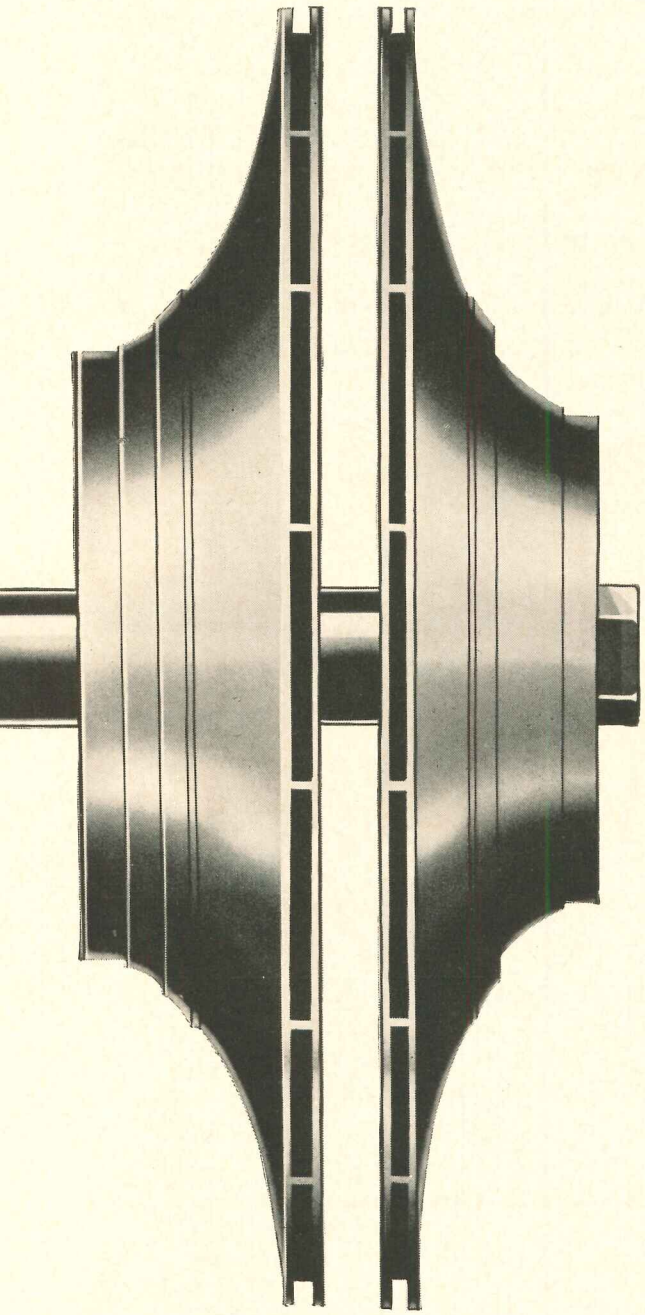
And, he concludes, additional CenTraVacs are planned for their new Los Angeles plants.

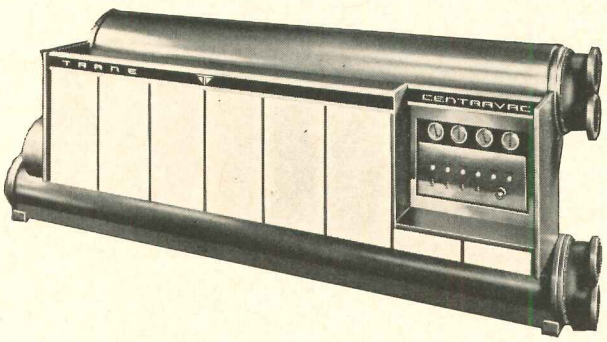
This experience is typical. In a comprehensive field test program, a number of compact CenTraVacs operated up to the equivalent of three years of normal air conditioning service. No operating problems were encountered, confirming extensive laboratory test results.

The CenTraVac is a complete factory-assembled water chiller. Only external and auxiliary water piping connections and main electrical connections are necessary. Sizes range from 225 to 555 tons.

For complete information, call your nearest TRANE Sales Office. Or, write for the CenTraVac Catalog, DS-399P.



CENTRAVAC the reliable one.



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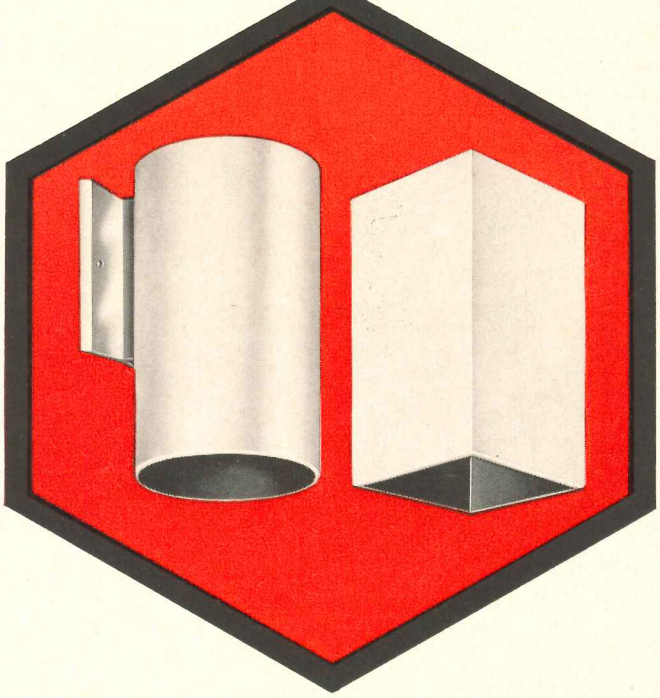

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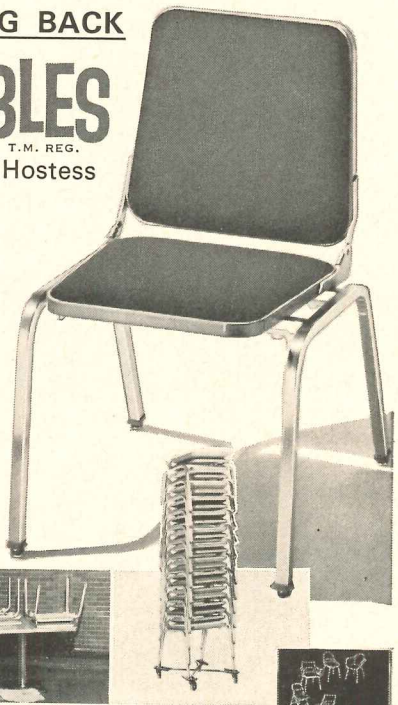

All-steel design with Polyfoam seat and backrest upholstered in mix-or-match colors of Scotchgarded, woven fabric or Naugahyde Chromata. Brushed Brass or Chrome wide-stance legs add seating stability. Tops in compact storage, units stack safely to 12 high on dolly and still clear 80" doorway.

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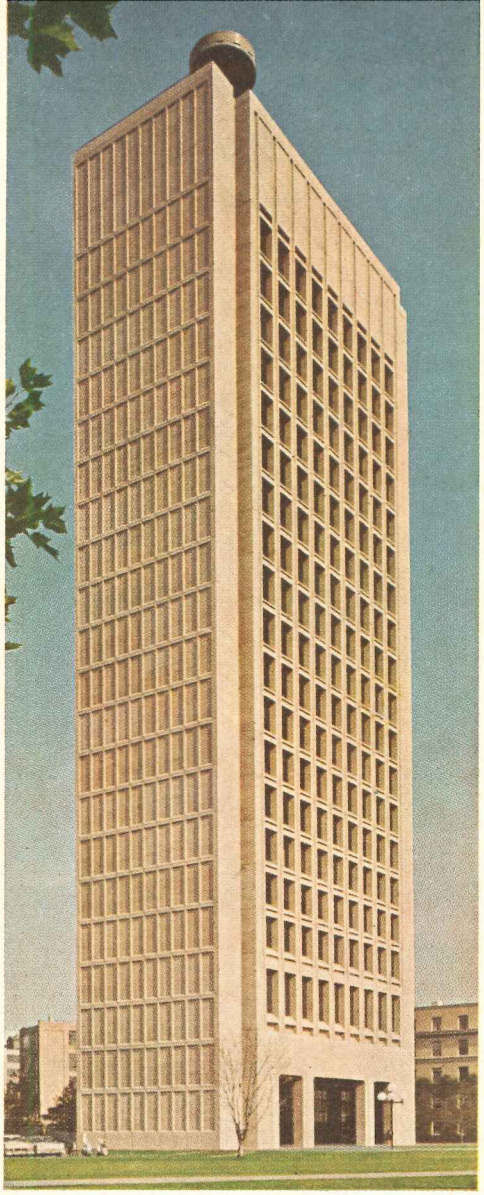

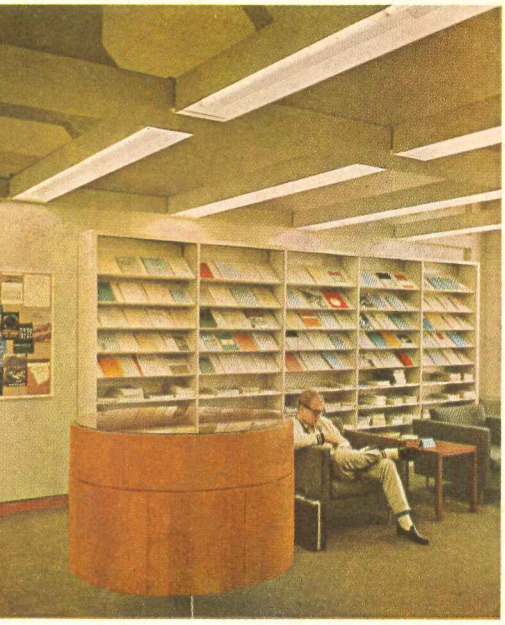

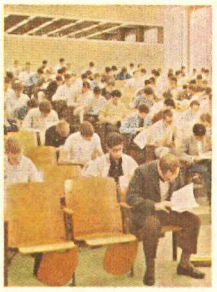

Earth Science Center, M.I.T., Cambridge, Mass.
Architect: I. M. Pei & Associates, New York; Painting Contractor: H. Newton Marshall Co., Inc., Boston Mass.

The reasons top architects specify DEVOE add up to quite a story

It takes only minutes to tell

Here is a case where one of the country's leading architectural firms—I. M. Pei and Associates—specified DEVOE paints for the handsome new Earth Science Center they designed for M.I.T. There is nothing unusual about the paint requirements in either type or color—unless you would consider using top quality paint something unusual. Why, then, was DEVOE the choice?

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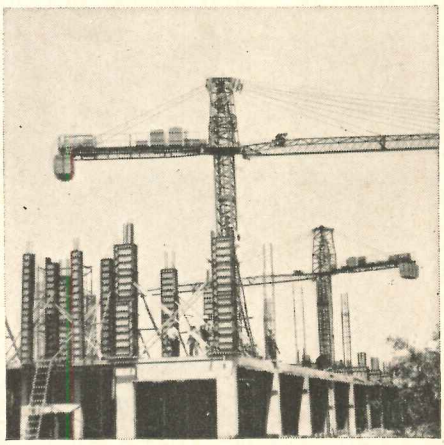
SYMONS SLAB SHORE SYSTEM SPEEDS HIGH RISE ERECTION



Using the Symons Slab Shore System for all floor slab forming, the concrete sub-contractor on the new Hague Towers luxury apartments in Norfolk, Virginia, completed each 15,500 sq. ft. floor in a 6-day period.

The contractor divided total floor area by three, and worked pours in sequence, stripping the first pour at the same time the third pour was finished.

In addition to forming each of the 20 floors on the high rise building, the Slab Shore System served as bottom support for the spandrel edge-beam on the second floor.

Symons Steel-Ply Forms were also used to form columns varying in dimension from 12 in. x 12 in. to 28 in. x 28 inch, and in height from 8 ft. 1 in. to 15 ft. on each floor.

Contractor on the job was Standard Construction Co., of Washington D.C. The concrete sub-contractor was Con-Corp., Inc., of Rockville, Maryland. The architects were W. L. Mayne & Associates, of Alexandria, Virginia.

Symons' forms and Slab Shore System may be rented, purchased, or rented with purchase option.

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MORE SAVINGS WITH SYMONS

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Required Reading

continued from page 77

In an introduction written in 1945, Lewis Mumford describes his concept and the airplane as two equally important inventions at the turn of the century.

Howard lived to see two garden cities built near London to his idea: Letchworth and Welwyn, and after World War II about 20 new towns were founded in Britain, all essentially based on his concept.

In Australia the idea has fared less successfully. We have tried reserving green belts, but always have allowed them to become cut and tattered. Nevertheless Yallourn, Victoria, and Elizabeth, South Australia, are Howard towns, and Canberra today would have had his most enthusiastic approval.

Chicago

CHICAGO'S FAMOUS BUILDINGS. *Edited by Arthur Siegel. The University of Chicago Press, 5750 Ellis Ave., Chicago, Ill. 60637. 230 pp., illus. Paperbound, $1.00.*

Here is a photographic guide for your next visit to Chicago, vicarious or real. The guide is expansive yet concise.

In addition to the descriptive text of Chicago's architectural monuments and other notable buildings, it contains street maps, lists and indexes of buildings and architects. Also, and not least, "The Chicago School: Principles" by Hugh Dalziel Duncan and "The Chicago School . . . and Practice" by Carl W. Condit.

Designing for the Blind

THE BLIND—SPACE NEEDS FOR REHABILITATION. *By F. Cuthbert and Christine F. Salmon. Oklahoma State University, Stillwater, Okla. 82 pp., illus. $2.50.*

The architectural needs for rehabilitation of the blind are, of necessity, complex. The architect tends to strive for an environment that conserves

continued on page 94

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P.O. Box 1558, Greensboro, N. C.
Peachtree City, Georgia
P.O. Box 47546, Miami, Florida

INLAND SCHOKBETON
A Division of
Nebraska Prestressed Concrete Co.
P.O. Box 4208, Lincoln, Nebraska 68529
2582 Long Lake Road, St. Paul, Minnesota 55113
9915 East 63rd Street, Kansas City, Missouri 64133

ROCKWIN SCHOKBETON
Division of
Rockwin Prestressed Concrete Corp.
Subsidiary of United Concrete Pipe Corp.
P.O. Box 2536, Santa Fe Springs, Calif.

TEXAS SCHOKBETON, INC.
P.O. Box 52549
Sam Houston Station
Houston, Texas 77052

BUEHNER-SCHOKBETON COMPANY
301 West 60th Place
Denver, Colorado 80216
640 Wilmington Ave.
Salt Lake City, Utah 84106

CANADA
SCHOKBETON QUEBEC INC.
P.O. Box 240, St. Eustache, P.Q., Canada

For more data, circle 75 on Inquiry Card →

shocked concrete

why?

It has been clearly established that placement of concrete by shocking provides superior mix consolidation. This gives greater density and enables the use of concrete with a minimum water/cement ratio which results in higher strength, better uniformity, dimensional accuracy and lower water absorption — in plain words, better concrete with outstanding durability proven under all climatic conditions. Only SCHOKBETON provides you with shocked concrete. Specify

SCHOKBETON®

SCHOKBETON PRODUCTS CORP. 1270 AVE. OF AMERICAS, N.Y.C. 20, N.Y.—A SUBSIDIARY OF THE KAWNEER DIV. OF AMERICAN METAL CLIMAX INC.

"We chose G-E air conditioning because it blended in so well with our decor..."

... say Salvatore and Anthony Simonetta, owners of the Casa Continental Restaurant, Willow Grove, Pennsylvania.

"We spent a lot of time and money decorating the Casa Continental, so we didn't want any air conditioning equipment showing that would spoil the effect. You can bet we did a lot of looking around. We found that the only air conditioning that filled the bill was General Electric.

"Our G-E air conditioning is so unobtrusive and so quiet that the only way you can tell we have it at all is the great job it does."

Another plus for General Electric: each of the three G-E Central air conditioning systems at Casa Continental can be individually controlled. "With G-E we can have just the right amount of air conditioning whether it's in the ballroom and dining area or in the cocktail lounge," say the Simonettas.

"If anyone is doing a big job decorating his place and doesn't want the air conditioning to get in the way, just send him to us," say Salvatore and Anthony Simonetta. "We'll tell him about General Electric."

B. J. Parola, installing contractor, with Salvatore and Anthony Simonetta.

If the Simonettas are talking about you, write:

Air Conditioning Dept., General Electric, Appliance Park, Louisville, Kentucky.

GENERAL ELECTRIC

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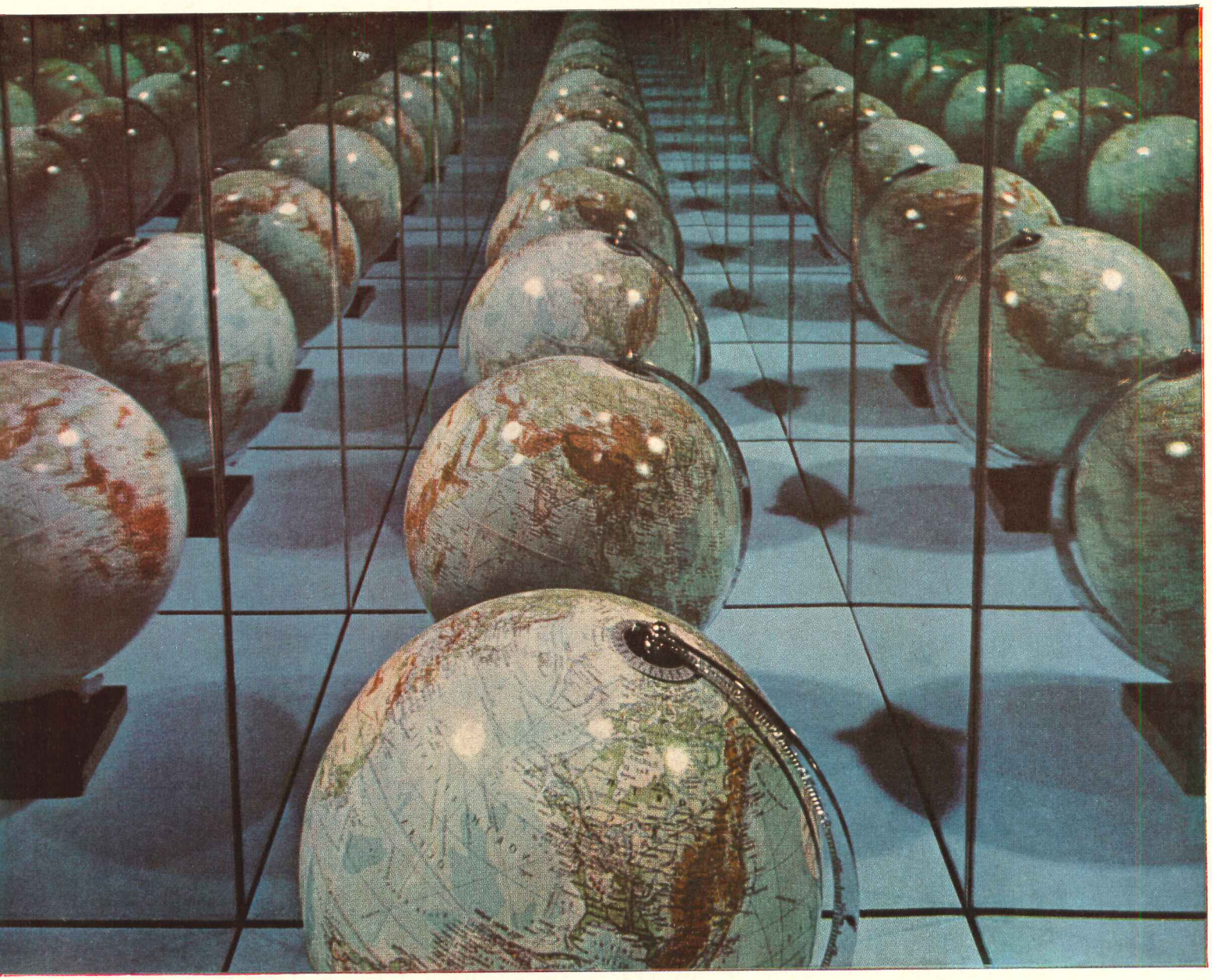
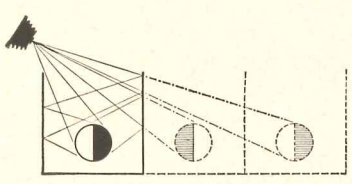
PILKINGTONS lead the world in glassmaking



There's no more searching test of a glass than to make it into a mirror, and reflect an object in it again and again. There's no doubt which glass makes today's finest, truest mirrors. It is Float glass, invented and developed by Pilkingtons.



Pilkington glass is made or processed in up-to-date plants in nine countries, and behind every product are the vast resources of some of the glass industry's largest laboratories, working on quality control, and on research and development. Pilkington research and development produced Float glass which, with its new clarity and brilliance, outdates Plate glass in modern building, for mirror making and for toughening into safety glass. For the finest glass specify Pilkingtons.

There's an up-to-the-minute glass in the Pilkington range for every building need:
Float • Plate • Sheet
Patterned • Wired • Heat-Absorbing
British Structural Glass
"Armourplate" and "Armourcast" Doors
Coloured Cladding Glass
Domes • Glass Blocks
"Insulight" Double Glazing Units
Diffuse Reflection Glass
Louvre Blades

For further information please write to: U.S.A. Sales Dept., Pilkington Brothers (Canada) Ltd., 55 Eglinton Avenue East, Toronto, Ontario
PILKINGTON BROTHERS LIMITED, ST. HELENS, LANCASHIRE, ENGLAND.

FOR MODERN BUILDING SPECIFY GLASS BY PILKINGTONS—INVENTORS OF FLOAT

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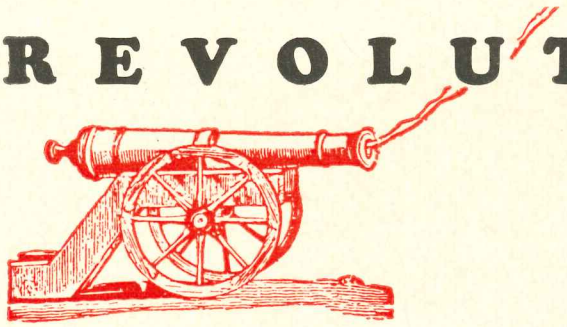
REVOLUTIONARY



The shot heard round the industry

HOPE'S WEATHERSTRIPPED STEEL WINDOWS!

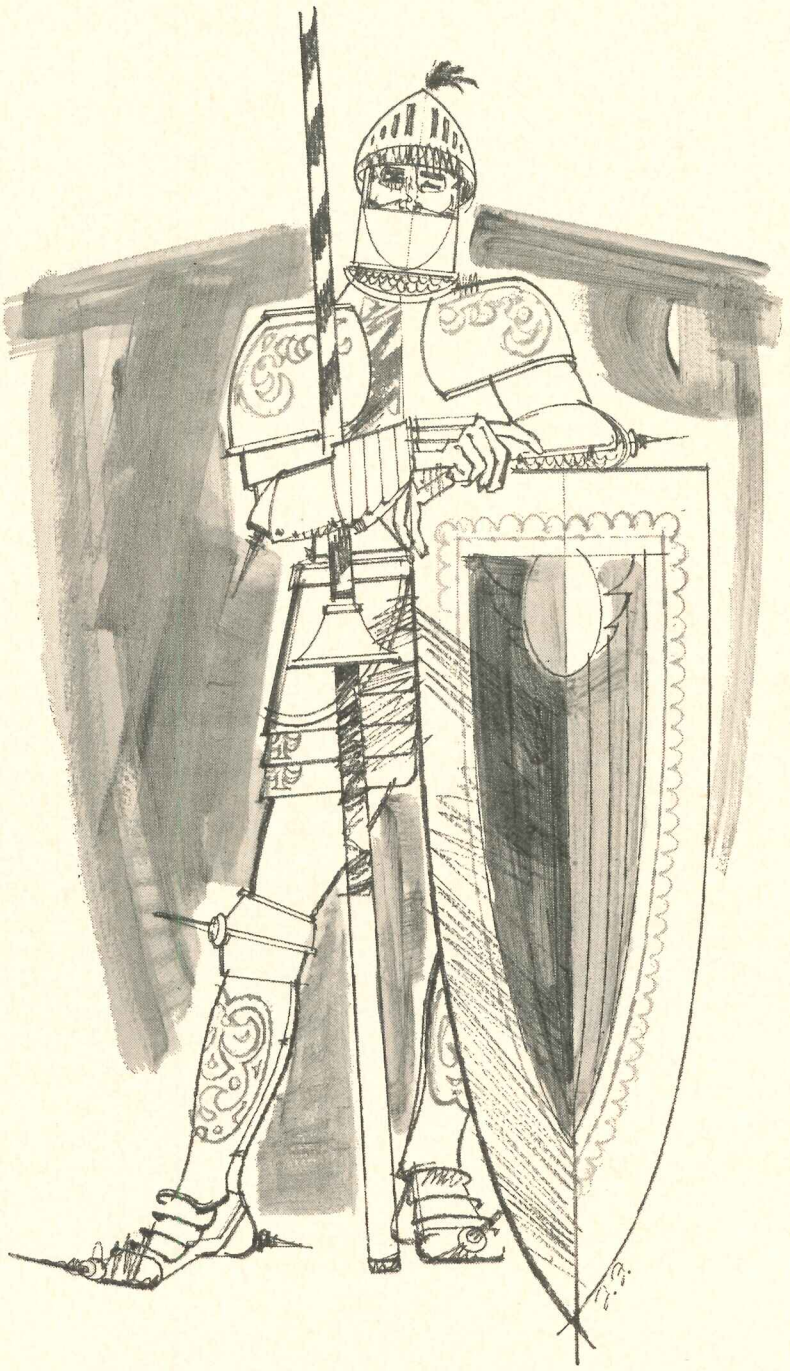
Reduces air infiltration

by over 60%

(Confirmed by independent testing laboratory)

GET THE FACTS from your **HOPE'S** representative listed in the yellow pages.

HOPE'S WINDOWS INC., JAMESTOWN, N. Y.



For metal protection with design flexibility

...NEW FLUROPON BY DESOTO

Specify Fluropon(TM) and have the ultimate in metal protection—*now* and *20 years* from now!

This new exterior metal coating *fuses* to aluminum or steel to form a hard film that lasts far longer than ordinary metal finishes. Fluropon will not delaminate; will not chip or shatter; will not show color differences from panel to panel.

Fluropon provides excellent resistance to humidity, salt atmosphere, acids, alkalies, corrosive chemicals, most solvents. Since detergents and acid cleaners do not affect its finish, Fluropon simplifies maintenance.

Wide Range of Applications

Flexibility in designing with metal is assured since Fluropon-coated metals can be roll formed, press formed, drawn, stamped—all without affecting adhesion. This makes it an ideal metal coating for components such as windows, doors, louvers, roofing, trim, hardware—as well as for colorful exterior panels.

For more complete information about Fluropon, ask for our colorful new booklet: "Now Exterior Color with a 20-Year Life."

Architectural Finishes Dept.

DeSoto Chemical Coatings, Inc.
1700 South Mt. Prospect Road, Des Plaines, Illinois 60018

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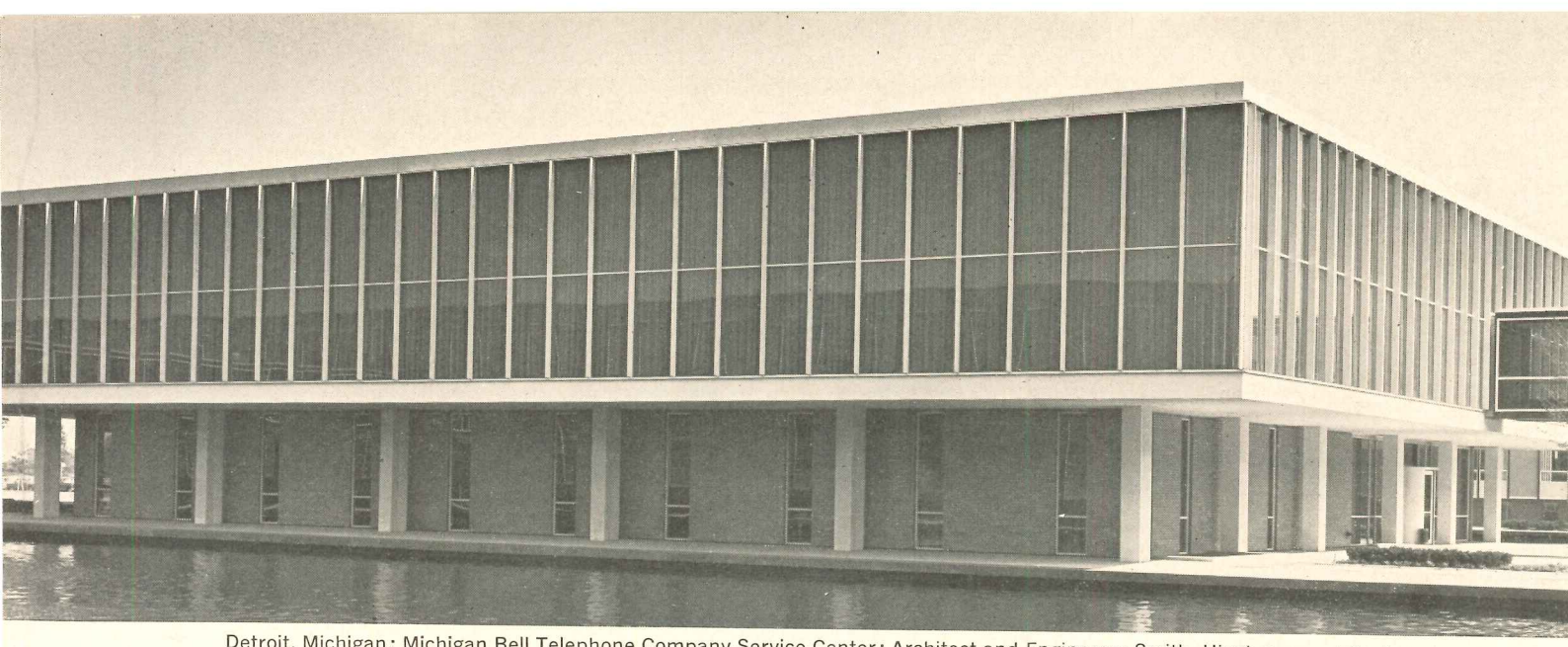
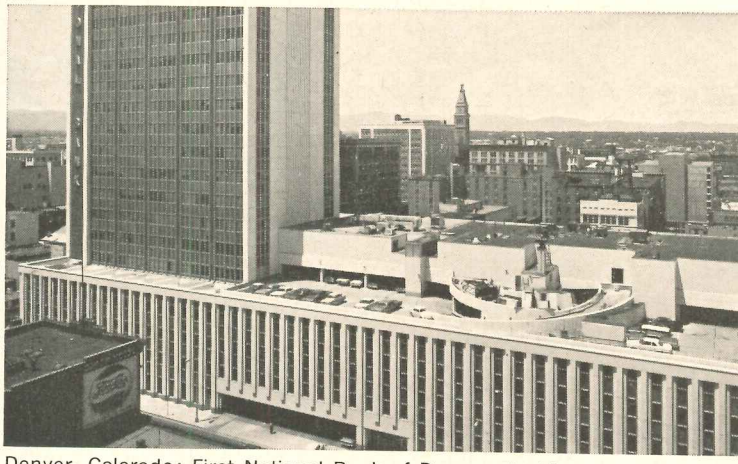


Detroit, Michigan: Michigan Bell Telephone Company Service Center; Architect and Engineers: Smith, Hinchman and Grylls.

PROBLEM: Provide conditioned air over cantilevered slab to large glass areas at perimeter.

Albuquerque, New Mexico: Kistler-Collister; Architect: William H. Ellison & Associates.

PROBLEM: Provide: 1. Level floor to compensate for uneven structural slab. 2. In-floor electrification. 3. A means to insulate exposed structural slab.



Denver, Colorado: First National Bank of Denver; Architects: Piel, Slater, Small and Spenst. Engineers: Anderson, Koerwitz and Hawes.

PROBLEM: Install level floor for office addition over sloping parking deck, holding dead load to minimum. Provide power, telephone distribution at desired module.

The problems are different, but the solution is the same: GRANCO A-E FLOOR

A-E Floor provides air, power and telephone distribution *above* the structural slab.

A thin, high-strength floor is supported above a clear plenum of optional height. Optional in-floor electrification provides a versatile system readily adaptable to the unique problems of today's architecture.

That's why A-E Floor is an answer when you need to run air and electrical services out into cantilevered or mezzanine floors. That's why the A-E Floor system even lets you compensate for uneven structural slabs. That's why A-E Floor is a solution where dead load is limited.

The complete story of A-E Floor's problem-solving capabilities is in our Catalog A-E-641. Write for your copy today: Granco Steel Products Company, 6506 North Broadway, St. Louis, Mo. 63147.
A subsidiary of Granite City Steel Co.

GRANCO

GRANCO / **IMAGINATION IN STEEL**

FOR THE NEEDS OF TODAY'S ARCHITECTURE

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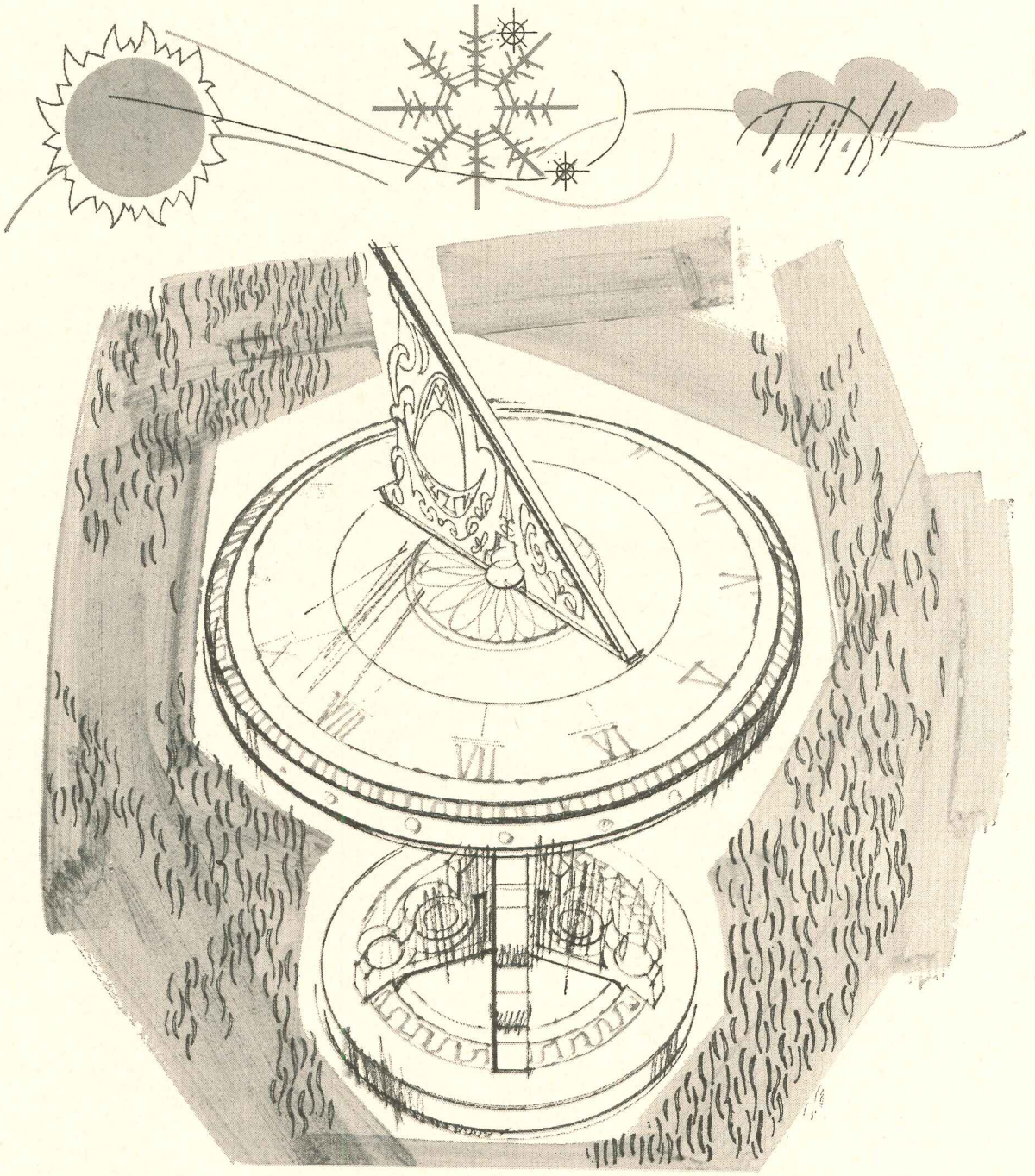

For exterior colors with timeless beauty

...NEW FLUROPON BY DESOTO

Time, sun, the elements leave Fluropon's(TM) colors virtually unchanged for 20 years.

Why? Simply because this newly developed fluorocarbon polymeric coating far surpasses today's conventional finishes in color retention. Even under severest weather conditions, Fluropon won't fade, won't chalk.

With Fluropon, color match is never a problem—even in combination runs. Spray painting after forming not only allows exact color matching, but also provides flexibility in designing such building components as panels, soffits, doors, louvers, trim, hardware.

Fluropon's wide range of standard colors makes it a simple matter to attain dramatic effects using one color in mass, a complementary color in trim. And cleaning, even with strongest solutions, does not dim the luster of Fluropon-coated metals.

For more information about Fluropon, send for our new booklet: "Now Exterior Color with a 20-Year Life."

Architectural Finishes Dept.

DeSoto Chemical Coatings, Inc.
1700 South Mt. Prospect Road, Des Plaines, Illinois 60018

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Required Reading

continued from page 86

energy, whereas those interested in rehabilitation want an environment sufficiently challenging to condition the blind to daily living. The authors, both architects, have presented architectural recommendations that were established by a comparative analysis of programs and physical facilities for the blind. The project was conducted at the Oklahoma State University through a grant from the Vocational Rehabilitation Administration of the U.S. Department of Health, Education and Welfare.

Books Received

1965 BOOK OF ASTM STANDARDS. *By the American Society for Testing and Materials. 1916 Race St., Philadelphia, Pa. 19103. Part 5, Copper and Copper Alloys; 726 pp., illus. $13.00. Part 11, Bituminous Materials for Highway Construction, Waterproofing, and Roofing; Soils; Skid Resistance; 754 pp., illus. $13.00. Part 15, Paper; Packaging; Cellulose; Casein; Flexible Barrier Materials; Leather; 850 pp., illus. $13.00. Part 28, Rubber; Carbon Black; Gaskets; 1086 pp., illus. $19.00.*

ADMINISTRATION AND OPERATION OF THE COLLEGE UNION. *By Boris C. Bell. College Unions at Work. The Association of College Unions-International, Willard Straight Hall, Cornell University, Ithaca, N.Y. 152 pp., illus. No charge.*

CHRIST AND ARCHITECTURE. *By Donald J. Bruggink and Carl H. Droppers. William B. Eerdmans Publishing Company, Grand Rapids, Mich. 708 pp., illus. $20.00.*

HISTORIC DEERFIELD. *By Samuel Chamberlain and Henry N. Flynt. Hastings House Publishers Inc., 151 E. 50th St., New York, N.Y. 10022. 182 pp., illus. $8.50.*

THE COLLEGE UNION OUTDOORS. *By Theodore Crabb. College Unions at Work. The Association of College Unions-International, Willard Straight Hall, Cornell University, Ithaca, N.Y. 28 pp., illus. No charge.*

ARCHITECTURE: CITY SENSE. *By Theo Crosby. Reinhold Publishing Company, 430 Park Ave., New York, N.Y. 10022. 96 pp., illus. Hardcover, $4.95; Paperbound, $2.25.*

CONSTRUCTION ESTIMATING AND JOB PREPLANNING. *By George E. Deatherage. McGraw-Hill Book Company, 330 W. 42nd St., New York, N.Y. 10036. 307 pp., illus. $14.50.*

HOUSING IN LATIN AMERICA. *By Albert G. H. Dietz, Marcia N. Koth and Julio A. Silva. The M.I.T. Press, Cambridge, Mass. 02139. 259 pp., illus. $10.00.*

ARCHITECTURE IN PUERTO RICO. *By Jose A. Fernandez. Architectural Book Publishing Company, 151 E. 50th St., New York, N.Y. 10022. 267 pp., illus. $15.00.*

ENVIRONMENT AND DESIGN IN HOUSING. *By Lois Davidson Gottlieb. The Macmillan Company, 40 Fifth Ave., New York, N.Y. 10011. 258 pp., illus. $6.95.*

MASTERPIECES OF AMERICAN FURNITURE. *By Lester Margon. Architectural Book Publishing Company, 151 E. 50th St., New York, N.Y. 10022. 256 pp., illus. $12.50.*

ART IN THE UNION. *By Norman F. Moore. College Unions at Work. The Association of College Unions-International, Willard Straight Hall, Cornell University, Ithaca, N.Y. 34 pp., illus. No charge.*

HOW TO BUY THE RIGHT HOUSE AT THE RIGHT PRICE. *By Robert W. Murray Jr. The Macmillan Company, 60 Fifth Ave., New York, N.Y. 10011. 220 pp. Paperbound, $.95.*

HANDBOOK OF AIR CONDITIONING, HEATING AND VENTILATING. *Edited by Clifford Strock and Richard L. Koral. The Industrial Press, 93 Worth St., New York, N.Y. 10013. 1472 pp., illus. $30.00.*

a Complete Line of Electric/Manual Wood Folding Partitions

Torjesen

1st IN ENGINEERING AND DESIGN INNOVATIONS!

Among the many Torjesen firsts:

1958 Vinyl at the same price as Duck

1959 Aluminum I-beam construction for track

1959 Magnetic Slip Clutch (automatic emergency release mechanism)

1959 "Toroply" pre-finished paneling at the same price as Duck or Vinyl

1960 Electro-pneumatic floor seals for absolute closure

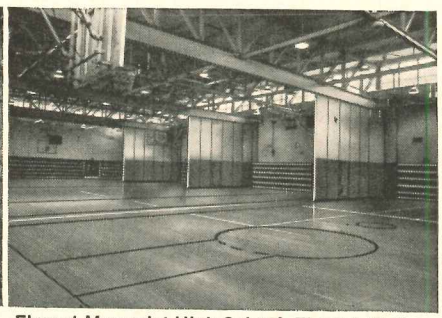
1961 Largest wood folding partitions ever built. (McCormick Place — Chicago, Illinois)

1962 LeadX Acoustical Curtain

1964 Architectural Fabric Folding Doors

● Write for fully detailed catalog with 3″ scale drawings, specifications and full color installation photographs; contains Toroply panel samples and Vinyl color swatches

I.B.M., Yorktown, N. Y.
Architect: Eero Saarinen & Associates



Elmont Memorial High School, Elmont, N. Y.
Architect: Frederic P. Wiedersum

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TORJESEN OF CANADA, LTD., 10 RONSON DRIVE, REXDALE, ONTARIO

Affiliates: BAR-RAY PRODUCTS, INC. • X-Ray Products and Radiation Protection
CAPITAL CUBICLE CO., INC. • Hospital Cubicles and Track

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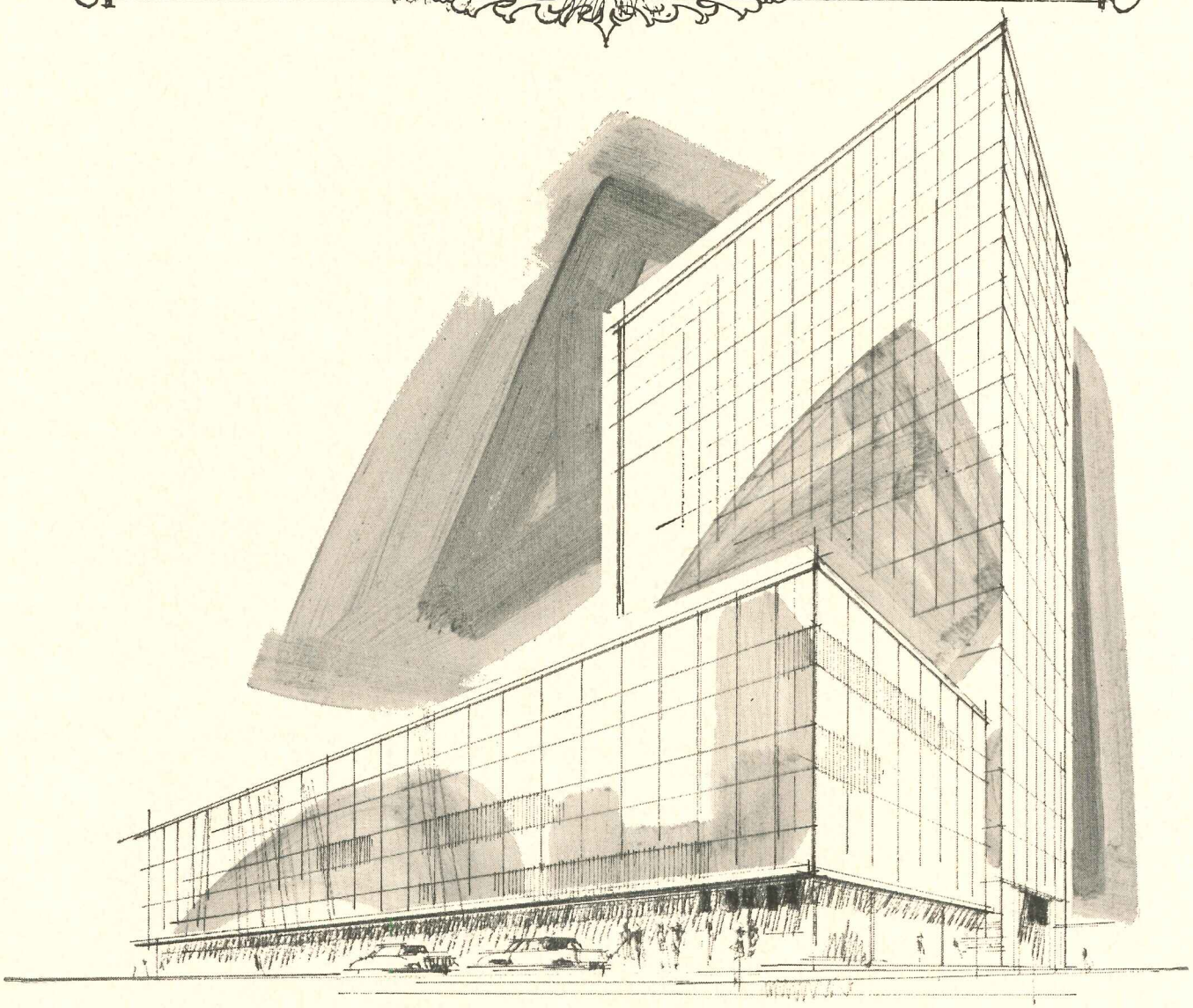
DeSoto guarantees to its customers a minimum of 20 years of useful decorative and protective life for Fluropon when applied according to the manufacturer's specifications.



For *real economy* in exterior metal protection

...NEW FLUROPON BY DESOTO

This new and colorful exterior metal coating costs less to *apply* to aluminum or steel than any other long-lasting finish. Costs less in the long run, too! Here's why:

Fluropon's(TM) *applied cost* is one-sixth that of porcelainizing (and there's no chipping or shattering); one-fifth that of anodizing (and there's no color difference from panel to panel); one-half that of laminated films (and there's never any delaminating to worry about).

Forget About Maintenance

As for maintenance or *long run* costs, consider this: Fluropon's tough, smooth surface resists practically all atmospheric conditions, detergents, cleaners; retains colors at full value.

DeSoto guarantees to its customers a minimum of 20 years of useful decorative and protective life for Fluropon when applied according to the manufacturer's specifications.

For the full story of Fluropon, send for our new color brochure: "Now Exterior Color with a 20-Year Life."

Architectural Finishes Dept.

DeSoto Chemical Coatings, Inc.
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NOW—ALL KAISER ALUMINUM ARCHITECTURAL ALLOYS ARE PRODUCED TO KALCOLOR® STANDARDS

And here is a list of manufacturers who now produce extrusions from KALCOLOR billet and fabricate architectural building products from Kaiser Aluminum architectural alloys. □ Alert to the architects' requirements for quality, they know that "produced to KALCOLOR standards" means the finest in aluminum alloys—that no producer of basic aluminum exercises greater control over production practices than does Kaiser Aluminum. □ These manufacturers stand ready to serve your design needs in aluminum. We urge your consideration of their products.

THE ADAMS & WESTLAKE CO.
Elkhart, Indiana—Telephone: 219/CO 4-1141. The Architectural Products Division designs, constructs and installs a broad line of reversible, double hung, projected, sliding, venetian blind and thermal break windows and curtain walls. It extrudes, anodizes and assembles all components in its own plant.

AMARLITE
DIVISION OF ANACONDA ALUMINUM CO.
4785 Fulton Ind'l Blvd., S.W., Atlanta, Ga. —Telephone 404/344-2750. Offices in Paramus, N.J., 201/CO 2-1540; Chicago, 312/RE 1-6050; Dallas, 214/ME 1-6620; Atlanta, 404/355-0915; Cleveland, 216/OR 1-1819; Montebello, California, 213/685-6340. Manufacturer of architectural aluminum products. Doors and entrances in standard and custom sizes. Store fronts including sash, division bars, fascia, and awning bars and hoods. Curtain walls from light to monumental construction. Sliding doors in residential (suburban series), commercial (metropolitan series) and also multi-sliders and pocket units. La Porte decorator doors with aluminum or vinyl laminated steel skin and foamed urethane core.

THE WILLIAM L. BONNELL CO., INC.
Offices in Newnan, Ga.; New York City; Miami; Houston; Springfield, Mo.; Nashville, Tenn.; Virginia Beach, Va. Complete aluminum extrusion package with extrusion presses of 1,500,000 lbs. capacity per week. Conventional and Kalcolor anodizing. Hard coat anodizing. Thermo setting acrylic lacquer applied electrostatically. Primary fabrication of all types, including mechanical finishes, welding, drilling, punching, tapping. World's largest independent aluminum extruder with the knowledge, capacity and experience to serve every extrusion need.

THE CECO CORPORATION
5601 West 26th Street, Chicago, Illinois—Telephone 312/BI 2-2000; in Cicero: 312/TO 3-4000. Manufacturers and erectors of a full line of steel and aluminum building components for the construction industry, including aluminum windows, curtain walls and grid wall systems with Kalcolor finishes. Inquiries are solicited from other manufacturers requiring large volume Kalcolor work. Sales offices in principal cities.

FENTRON INDUSTRIES, INC.
2801 N.W. Market St., Seattle, Washington—Telephone 206/SU 2-2000. In California: South El Monte—Telephone 213/448-7671; Sunnyvale—408/RE 6-2020. Manufacturers of architectural metal products. Complete facilities for design, engineering, research and testing, aluminum billet casting, extruding, fabricating, natural and color anodizing and erection. Competitive and custom curtain walls, windows, doors, store front systems, glass and glazing building wall panels, service stations, guard railing. In-plant facilities for producing related products permit fully coordinated building package.

KAWNEER CO.
Division of American Metal Climax, Inc. Offices in: Niles, Michigan—Telephone: 616/683-0200. Richmond, California—Telephone: 415/BE 2-1821. Atlanta, Georgia—Telephone: 404/478-8841. Products in Kalcolor: Duty-rated entrances, narrow line framing, unit wall systems, custom curtain walls, extruded store fronts, Sealair windows, railcraft, sliding doors.

MILLER INDUSTRIES, INC.
Reed City, Michigan—Telephone 616/832-4911. Custom extruders and fabricators of architectural aluminum shapes. Complete line of standard and custom narrow line and wide stile doors. Full flush panel doors and commercial sliding assemblies, frames, grids, guard rails, etc. Quotations on custom and specialty items will be furnished on request.

NAARCO™ (Formerly Modu-Wall, Inc.)
NORTH AMERICAN ALUMINUM CORP.
5575 N. Riverview, Parchment, Michigan—Telephone: 616/349-6626. Products include curtain wall, windows, interior door frames, solar screens, fascias, panels. We supply complete fabrication, including extrusion press and both sulfuric and Kalcolor anodizing. Our facilities include 94,000 sq. ft. of plant area.

SOUTHERN EXTRUSIONS, INC.
P.O. Box 750, Magnolia, Arkansas—Telephone 501/CE 4-4260. Quality extrusions and sheet with Kalcolor finishes and other anodized finishes. Engineering, design and custom fabrication services available.

STANLEY BUILDING SPECIALTIES DIVISION OF STANLEY WORKS
1890 N.E. 146th Street, Miami, Florida—Telephone: 305/947-7531; 120 Industrial Road, Summerville, S.C.—Telephone: 803/873-7111. Extruders and manufacturers of architectural and residential aluminum windows and related products. Curtain walls, sliding doors, bath enclosures and a full range of windows—projected, inswing, single-hung, double-hung, awning, pivoted and sliding. Representatives in principal cities. Illustrated brochure on request.

TEXAS ALUMINUM COMPANY, INC.
Dallas, Texas—Telephone: 214/741-3521. Texas Aluminum Company Division: for soft and hard alloy extrusions. Aluminum Finishing Inc. Division: for buffing, etching, dyeing, anodizing and Kalcolor processing. Aluminum Fabricating Division: for painting, K.D., and fabricated parts of all kinds. Aluminum Fronts Division: for store fronts, and related architectural products.

VALLEY METAL PRODUCTS COMPANY
800 East Bridge Street, Plainwell, Michigan—Telephone: 616/685-8711. Vampco's major products are aluminum windows, curtain walls, entrance doors and extrusions. We have a 2000-ton and a 1250-ton extrusion press, cast house, stretching, heat treating, machine fabricating and ample packing and shipping facilities. We also have etch and lacquer and anodizing equipment operated by skilled workmen.

WARE ALUMINUM WINDOWS, INC.
3700 N.W. 25th Street, Miami, Florida—Telephone: 305/634-8511. One of the pioneer aluminum window manufacturers engaged exclusively in the design and creation of architectural windows and curtain wall systems. Experience in qualified engineering services assures complete satisfaction from the design stage to the ultimate finalization of the project. Specialists in consultation with architects in their aluminum window needs. Regional offices maintained in Chicago, Washington, D.C., Houston, Atlanta.

For more information on KALCOLOR or other architectural aluminum, contact any of the above companies or your nearest Kaiser Aluminum architectural sales office: □ ATLANTA 404/451-1342 □ CHICAGO 312/679-4100 □ DALLAS 214/254-4251 □ DETROIT 313/272-5525 □ LOS ANGELES 213/685-4181 □ NEW YORK CITY 201/926-5911 or 212/964-9560 □ OAKLAND 415/271-3170 □ or write: Kaiser Aluminum, 2047 Kaiser Center, Oakland, California 94604.

KAISER ALUMINUM

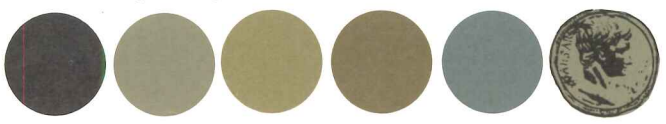
Kaiser Aluminum salutes the National Association of Architectural Metal Manufacturers and the Architectural Aluminum Manufacturers Association for their outstanding work in the establishment of quality standards for materials and workmanship in the field of architectural metals.

For more data, circle 81 on Inquiry Card

University Properties, Inc., IBM Building, Seattle; Associated Architects: Naramore, Bain, Brady & Johanson; Minoru Yamasaki and Associates; KALCOLOR® aluminum curtain wall: Kawneer Company

FIGURED PANELS ADD TO IBM'S GRAND TOTAL—THEY'RE DEPENDABLE KALCOLOR® ALUMINUM

Between the new IBM Building's bold mullions you'll see a rich example of sculptured KALCOLOR aluminum—amber colored spandrel panels formed to the architect's design. KALCOLOR anodizing provides superior color uniformity and endurability for this application. KALCOLOR is sunfast, highly corrosion resistant, twice as resistant to abrasion as ordinary anodizing and may be applied to almost any aluminum building product. Most important, only KALCOLOR can be specified in ten color values—in the wide range represented by the circles below. See Sweet's File 6a/Ka for technical information on KALCOLOR aluminum. To locate KALCOLOR products of our fabricator customers, call Kaiser Aluminum in your city... or write Kaiser Aluminum, Dept. 845j, Kaiser Center, Oakland, Calif. 94604.

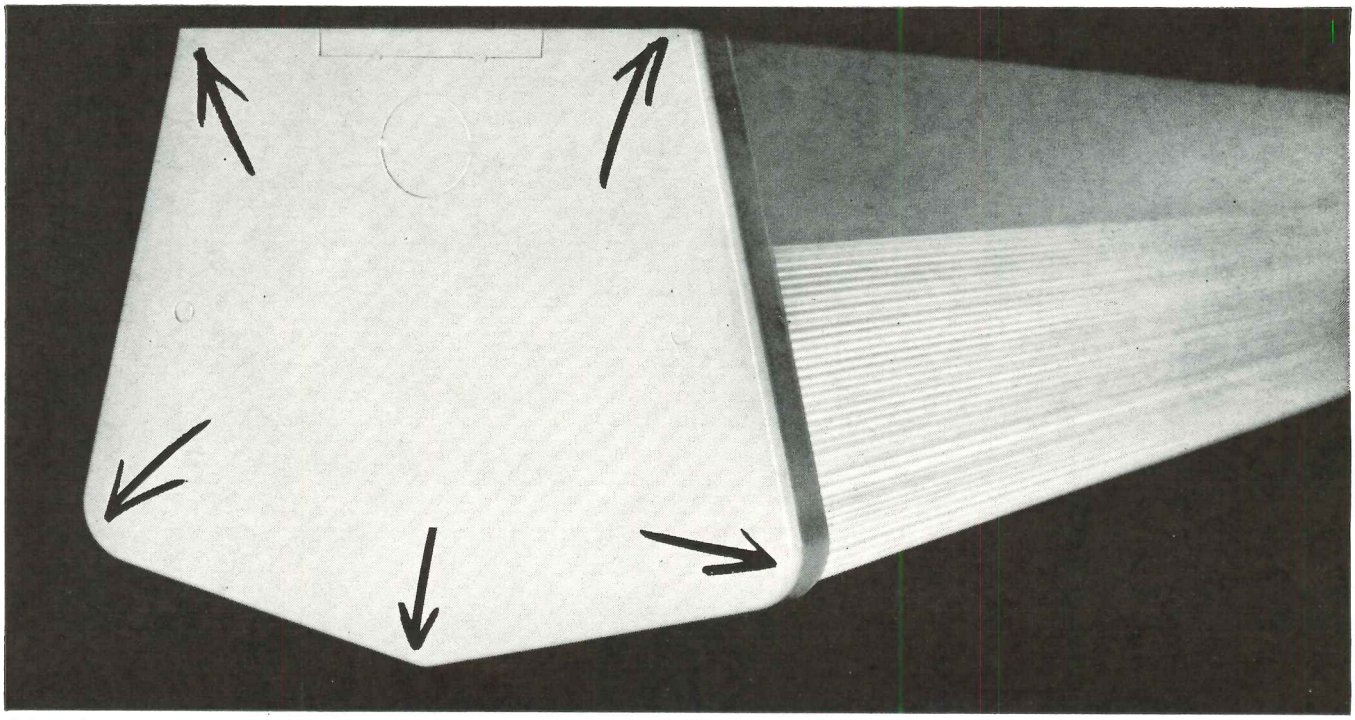


KAISER ALUMINUM

COLOR IN ARCHITECTURE...ACHIEVED WITH ALUMINUM

You need an angle to make a good corridor light.

Our new Corway has 5 perfect ones.



We tried every possible angle for our new Corway-Corridor Luminaire. A 110° angle here. (A 109° angle turned out to be better.) A 78° angle there. (We finally decided on an 87°.) A 17° angle there. (The best of 360 considered.)

Finally: perfection. The best vertical illumination. And wide distribution of light.

A one-piece wraparound plastic enclosure was specified for clean styling. One that's sturdy and tough. That comes off in a jiffy for lamp replacement. That doesn't collect dirt because it's destaticized and its contour follows the fixture.

Prismatic polystyrene plastic or white diffusing plastic. The prismatic has prisms on the sides and bottoms for extra-wide light distribution and near-uniform brightness. The white gives subdued brightness.

These fixtures were designed to be mounted directly on the ceiling—or may be suspended for special applications. 4-foot or 8-foot channel lengths.

Result: the best in lighting for limited areas. Corway-Corridor Luminaire.

(For extra-low operating costs, use Sylvania 40-Watt rapid start lamps with them.) Other fixtures from our complete line include three different Air Handling Troffers. For details, write Sylvania Electric Products Inc., Lighting Equipment Division, One 48th St., Wheeling, W. Va. 26004.

SYLVANIA

SUBSIDIARY OF
GENERAL TELEPHONE & ELECTRONICS GT&E

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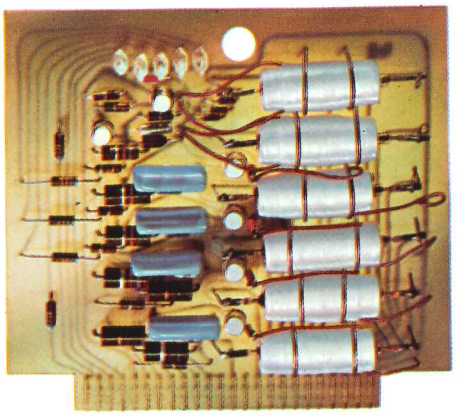

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Haughton Elevator Company / Division of Toledo Scale Corporation / Toledo, Ohio 43609

The beauty of marble...the durability of concrete

Shelby High School, Shelby, North Carolina. Architect: Holland & Riviere, Inc., Shelby

Terrazzo throughout for a new high school

In the new Shelby High School, the architect chose terrazzo, not only for high-traffic areas, but for attractive, low-upkeep floors throughout the entire building. The school was built at a cost of $9.25 per square foot for the building—*and this included terrazzo in the classrooms.*

Few flooring materials have the history of terrazzo. Few can match its beauty. Terrazzo floors laid centuries ago still serve as dramatic tests of time and use. Terrazzo's long life and low maintenance make it a highly desirable flooring material for today's structures.

More and more, architects are choosing terrazzo for its esthetic advantages and remarkable practicality in structures of every size and type.

Portland Cement Association
33 West Grand Avenue, Chicago, Illinois 60610

An organization to improve and extend the uses of portland cement and concrete, made possible by the financial support of most competing cement manufacturers in the United States and Canada

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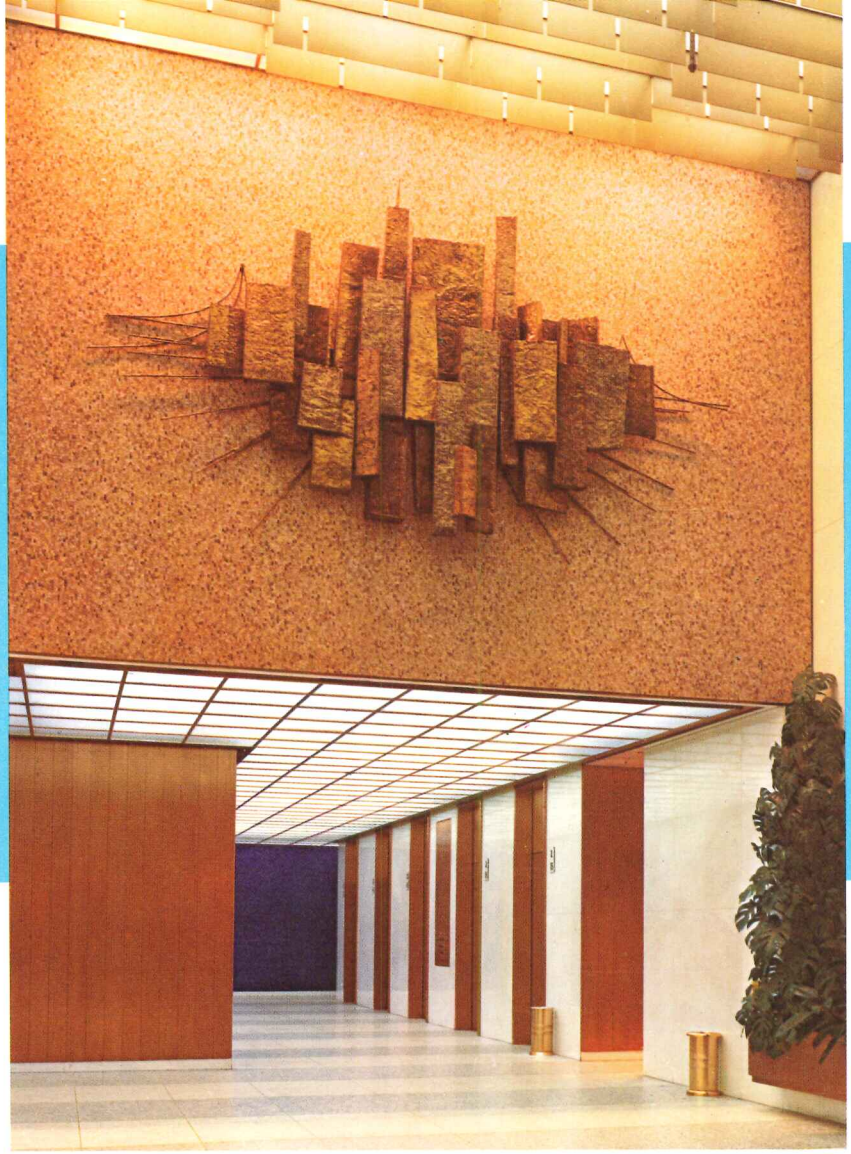

Beautiful WAY TO ILLUMINE A LOBBY

One of the main attractions in the lobby of the 450 Seventh Avenue Building, New York City, is the ceiling of light dramatically transmitted through textured 7/32″ BURLAP glass by Mississippi. Kaufman Management Company, builder and owner, wisely selected translucent glass for its lasting beauty and brilliance . . . qualities that are unaffected by time or exposure. For glass possesses the chemical stability, permanence of finish, color, shape, surface hardness and noncombustibility available in no other glazing medium. Specify Mississippi glass. In a wide variety of patterns and surface finishes at better distributors of quality glass.

Architect: John J. McNamara, New York, N. Y.
Contractor: M & J Construction Co., New York, N. Y.

NEW CATALOG
Contains pattern descriptions, light distribution charts, transmission data. Send for your free copy today.
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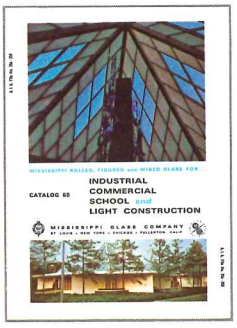

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Light filtered through patterned glass offers another dimension for achieving exciting beauty as well as functionality, wherever employed. Rolled glass, with its primary functions of diffusion, decoration and protection, along with a secondary function of heat absorption, provides wide scope for creating interiors and exteriors high in interest and utility. See your nearby Mississippi glass distributor.

a.

a. A new peak of practical beauty is achieved with skylight of Polished MISCO wire glass in the "Parisian," Sherman Oaks, Calif., owned and built by E. W. LaTourette and designed by Robert Weaver Stevens.

b. Blue-green ¼" Luxlite COOLITE MISCO, heat absorbing glass, glazed in terrace railings—175 E. 74th Street, New York, N. Y.
Cohen Brothers
Realty & Construction Corp.,
200 Park Avenue, New York, N. Y.
Glazing: Pittsburgh Plate Glass Co., Brooklyn, N. Y.

c. & d. Nighttime and daytime versions of windscreen glazed with lustrous BROADLITE glass in architectural establishment of Thor Hesberg, AIA, Los Angeles, Calif.
Glass: Ful-Trim Division of Texas Aluminum Co.
Glazing: Giroux Glass Company.

b.

c. d.

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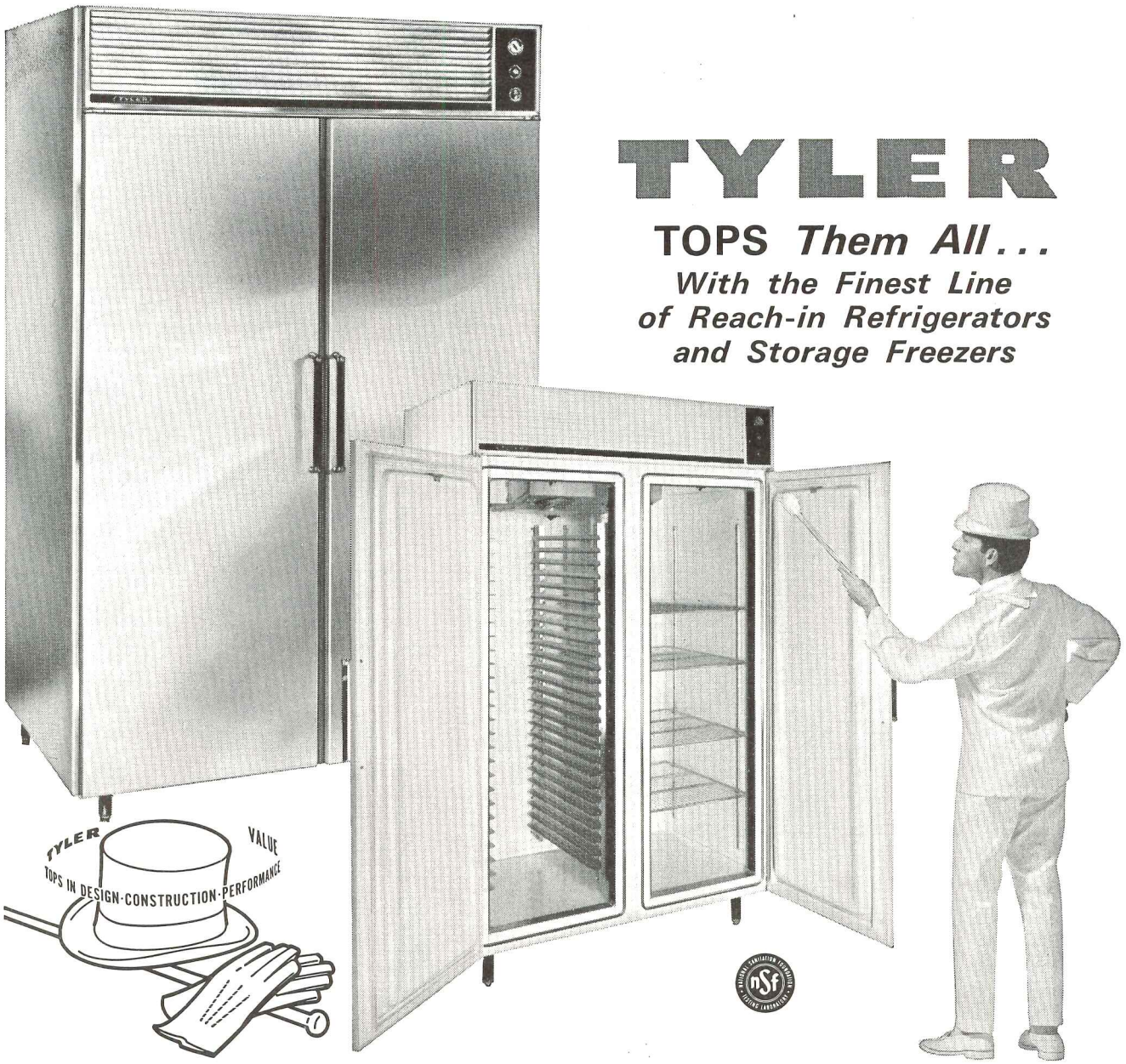

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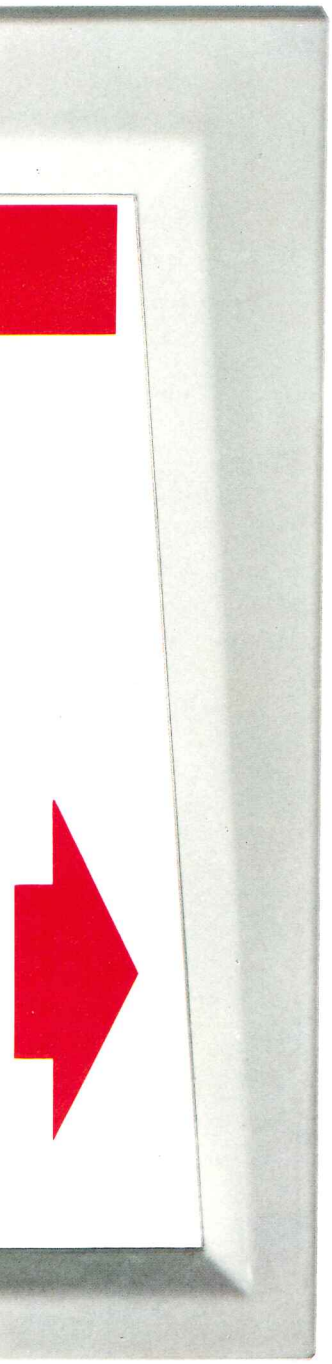
EXIT



Benjamin makes its entrance into exits

Here's the latest news in exit units. It's the Benjamin EXO line, pronounced EX-OH. When we say line, we mean complete. Every fixture combination for every need, every surface: end mount, top mount, suspended, single face, double face, arrows right or left, double arrows, red or green letters, stencil face or acrylic face.

There are 32 different combinations (from only 8 basic components)—including two housing styles, four face pack styles, accessory bracket and stem set. The housings include cool, dependable transformers and low voltage lamps offering a life expectancy of about 10 years.

There's no way out, but EXO, if you want long life, top performance, and the most competitive prices in the business. All the details are in our new 48-page Lighting Classics catalog. Tell us where to send it.

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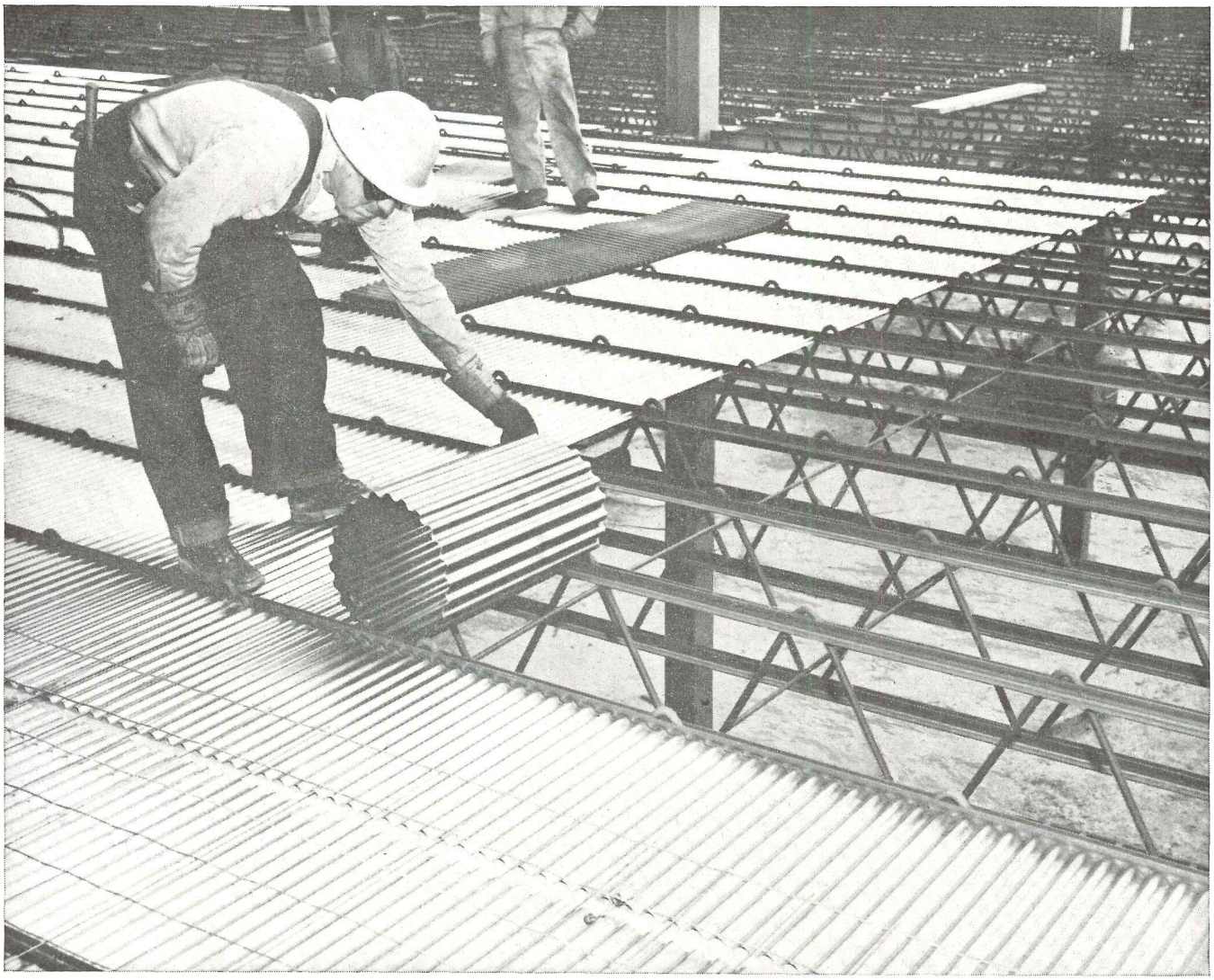

SCRUGGS, VANDERVOORT & BARNEY
Northwest Plaza Store, St. Louis County, Mo.
Architects: Architectural Design Associates
Engineer: Bergmeier & Siebold
General Contractor: Millstone Construction, Inc.

NEW LACLEDE COMPOSITE JOISTS

provide more rigid floors for St. Louis department store

The economy and structural advantages of the new Laclede Composite Joists are demonstrated in the latest suburban addition of Scruggs, Vandervoort & Barney, one of St. Louis' oldest and best known department stores.

The joists, which combine the best features of concrete and steel into a new concept for floor design while offering construction efficiency and economy, have gained fast acceptance in the design and building fraternity. When load tested to almost twice the design load, the two hundred and twenty tons of joists incorporated into the floors of the handsome new Scruggs addition developed a deflection of less than half that allowed for normal design load, and upon unloading showed no permanent deformation whatever.

For complete information on these unusual joists, write today for detailed, illustrated brochure.

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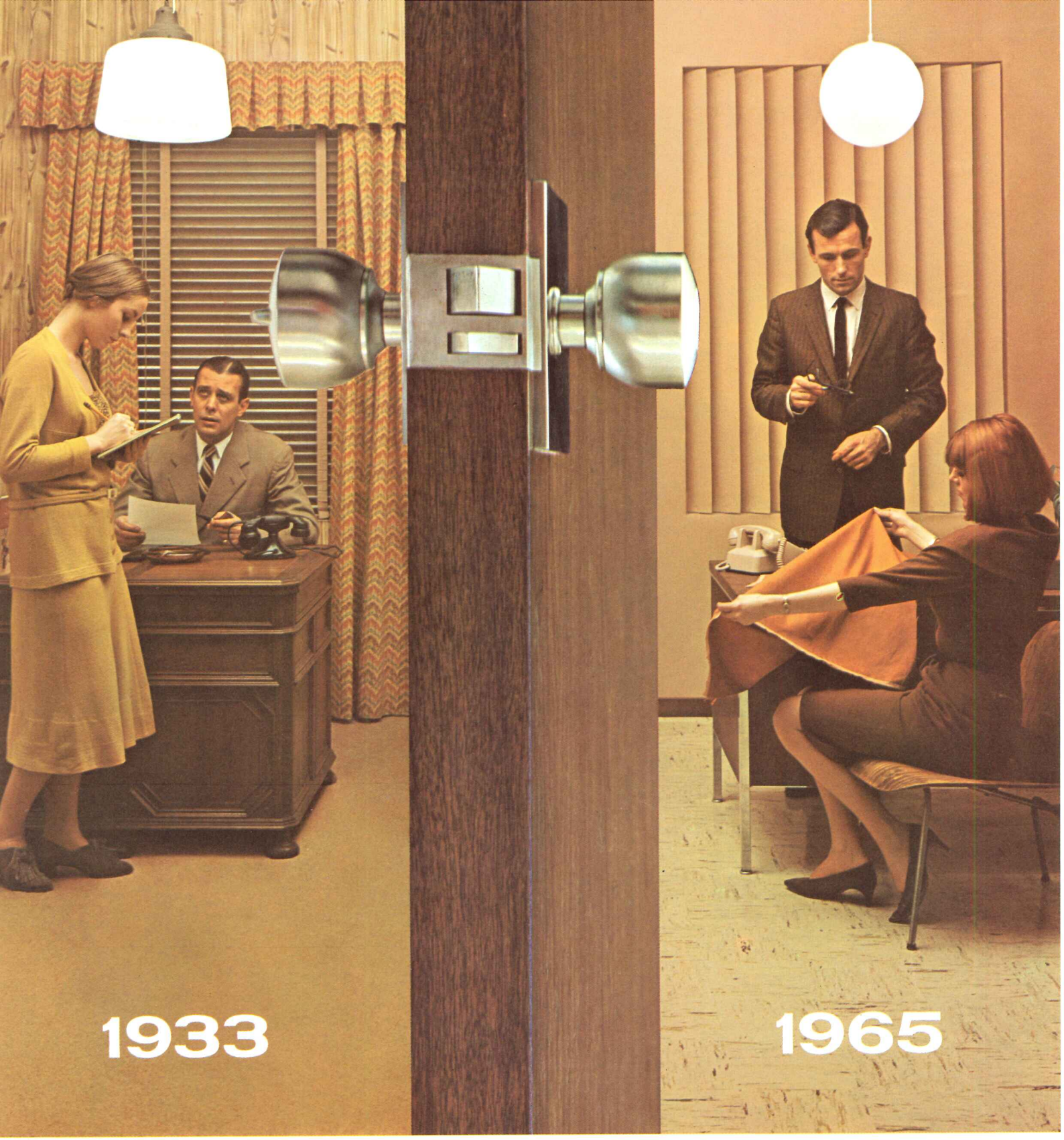
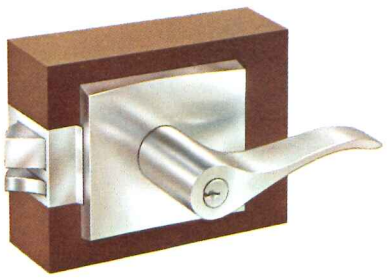


QUALITY: built in with hardware by Corbin



Imagine . . . the same basic lockset specified for the finest buildings of the day—a span of over thirty years! That's clear proof of inherent CORBIN quality: proof, too, that when you insist on holding specifications you reap long-term rewards. You virtually eliminate costly breakdowns, constant call-backs, and endless maintenance. The moving parts of your building deserve top-quality hardware. And that's CORBIN . . . with established favorites or such advanced designs as the new 300 series. To see for yourself, simply turn the page . . .

P. & F. CORBIN DIVISION OF EMHART CORPORATION, NEW BRITAIN, CONNECTICUT

CORBIN®

OVER 50,000 DOORS IN ROCKEFELLER CENTER DEPEND ON THE QUALITY OF HARDWARE BY

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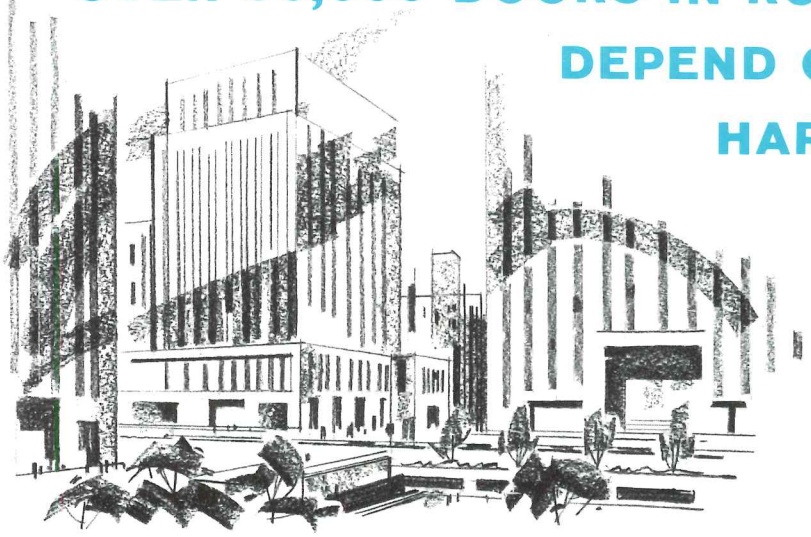
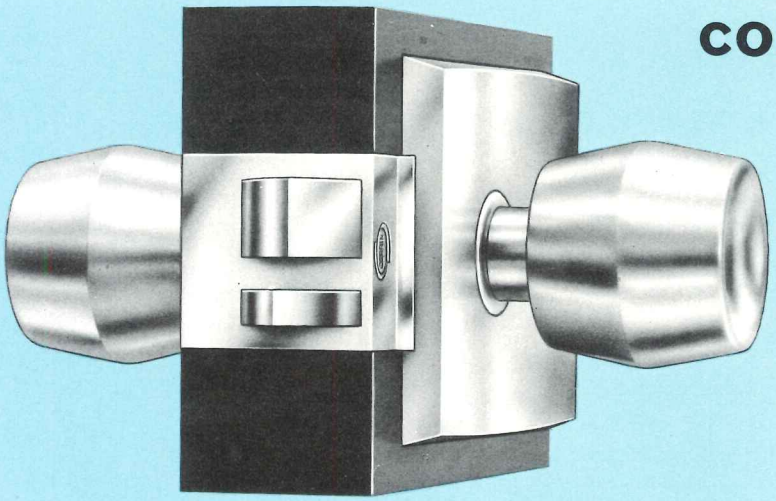


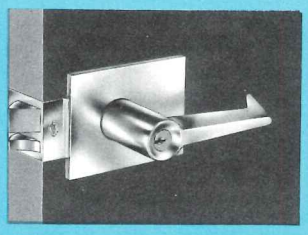
Quality is the key to Corbin Unit ®Lockset construction. In 1933, over 50,000 Corbin extra-heavy-duty unit ®locksets were installed in the then new Rockefeller Center Project. In 1963, new additions to the Project included the same basic unit ®lockset specified 30 years earlier.

CORBIN UNIT® LOCKSETS

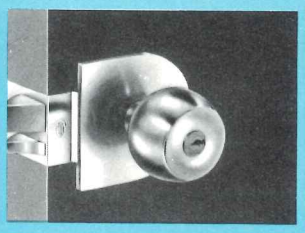


No. 921 Menlo

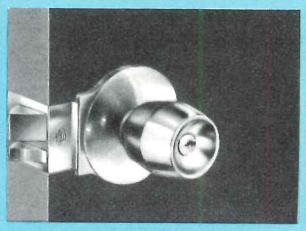
You can specify — or install — this famous lockset with confidence. Today's modern new buildings demand top-quality hardware plus up-to-the-minute smartness and design. Corbin has it. Three simple, fast steps and this lock is in the door . . . to stay. To handle heavy daily traffic year after year after year — with a minimum of maintenance.



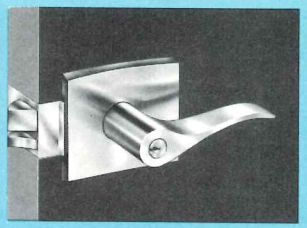
No. 912LR Essex



No. 922 Melva



No. 908 Knollwood



No. 921L Menlo Lever

Available in a variety of metals and finishes. Plus the advantage of Corbin's Master Ring Cylinder for absolute security with practically limitless keying combinations.

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for a TERRAZZO SEAL that penetrates, protects, beautifies

PRODUCT NAME: *SUPER ONEX-SEAL®*

DESCRIPTION:

An ester-type penetrating sealer that may be buffed to provide a hard wear-resistant lustrous finish on terrazzo and other masonry surfaces.

SPECIFICATION AND HOW TO APPLY:

Floor must be thoroughly cleaned and free of stains. Agitate material until uniform. Apply in thin even coat with lamb's wool applicator. Let dry, not to exceed 20-30 minutes until pressure of the fingers pulled across the surface produces a squeeking sound. Buff each coat after application to provide greater lustre. Apply second thin coat and buff.

COVERAGE:

600 square feet per gallon first coat, 900 square feet per gallon second coat.

TECHNICAL DATA:

NVM-10.5% minimum. Film properties: Drying time-45 min. maximum; Appearance-free from particles—semi-transparent; Tackiness-none; Water resistance-no loosening of film, no removal of gloss. General Appearance: Color-light, shall contain no pigments or dyes; Odor-non-objectionable at any time; Viscosity-heavy-bodied liquid mixture.

GUARANTEE:

When applied in accordance with manufacturer's directions, it is guaranteed to meet all claims made for it in the proper sealing and finishing of terrazzo floors.

MAINTENANCE:

Sweep daily with a Super Hil-Tone treated dust mop (do not use an oily mop dressing). Buff periodically. When floor is soiled, clean with Super Shine-All, a safe neutral chemical cleaner. Traffic lanes may be patched in and buffed to blend in with the rest of the floor. Reseal as needed depending upon traffic and kind of use.

APPROVALS:

This is the type of a penetrating seal recommended for use by the National Terrazzo and Mosaic Association. U/L listed relating to fire hazard and slip resistance.

REFERENCES:

Hillyard A.I.A. File No. 25G.
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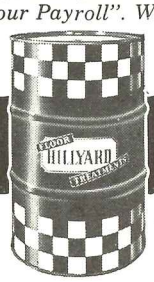

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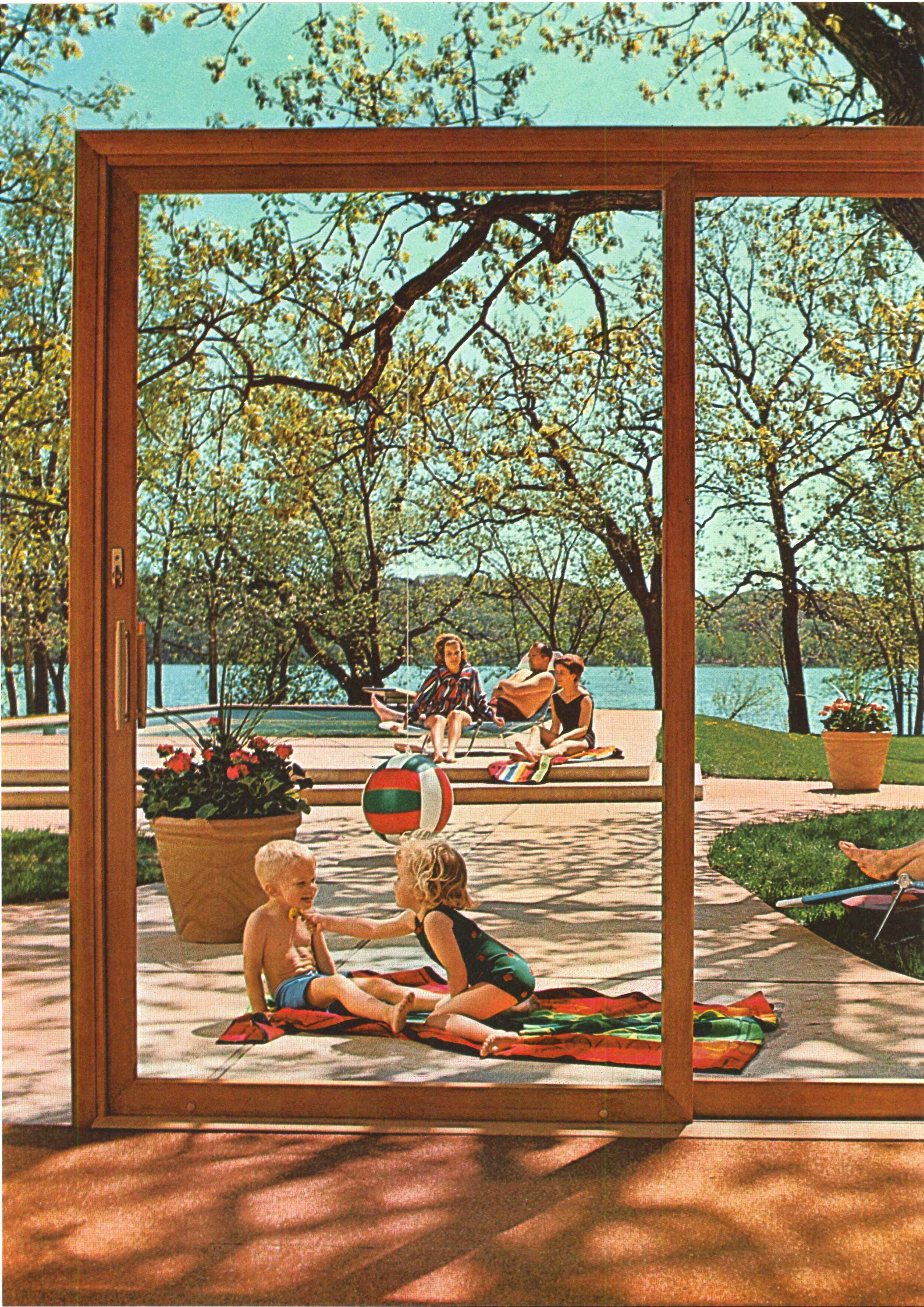

Build excitement into your plans with a new Andersen Wood Gliding Door!

It's designed for exciting living! Just the thing to bring a fresh look of elegance to new homes, motels and apartments.

The new Andersen Wood Gliding Door lets you bring the outdoors into any room; yet its **extra weathertightness** combined with the natural warmth and insulating value of wood will mean substantial fuel savings.

It opens and closes smoothly, silently, easily. It features the same famous construction that makes all Andersen Windows extra weathertight (up to 4 times tighter than ordinary windows).

For added convenience, outside key lock can be adapted to a master key system. And the entire unit comes **factory primed** (outside) and factory glazed in several options. Custom-designed hardware complements both traditional and contemporary designs.

Dual rollers provide **extra-smooth operation;** doors feature a self-contained leveling adjustment. Thermal barrier in anodized aluminum sill reduces loss of heat to outside, checks condensation on inside of sill.

Consider a new Andersen Wood Gliding Door for the plans on your drawing board right now. You can get a **complete demonstration** at your nearby Andersen distributor or dealer. Ask for a descriptive catalog and tracing details.

AW® **Andersen Windowalls**
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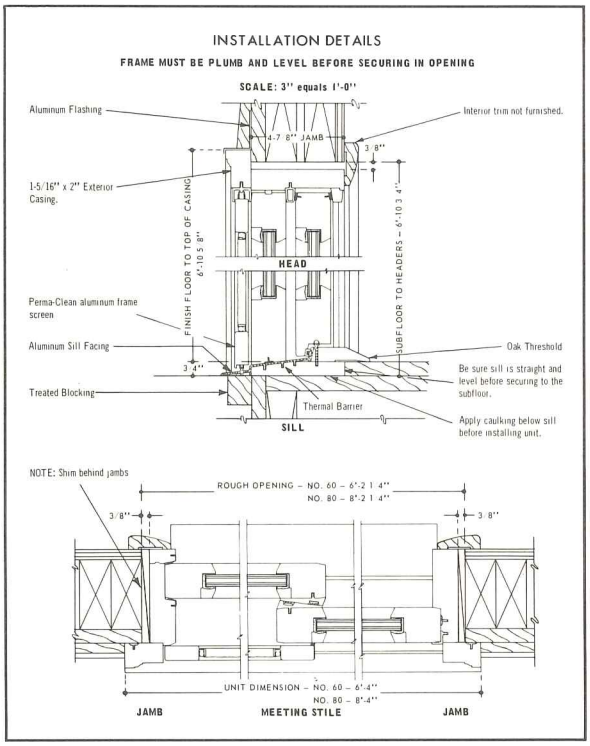
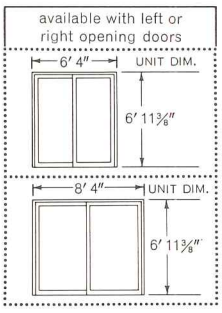
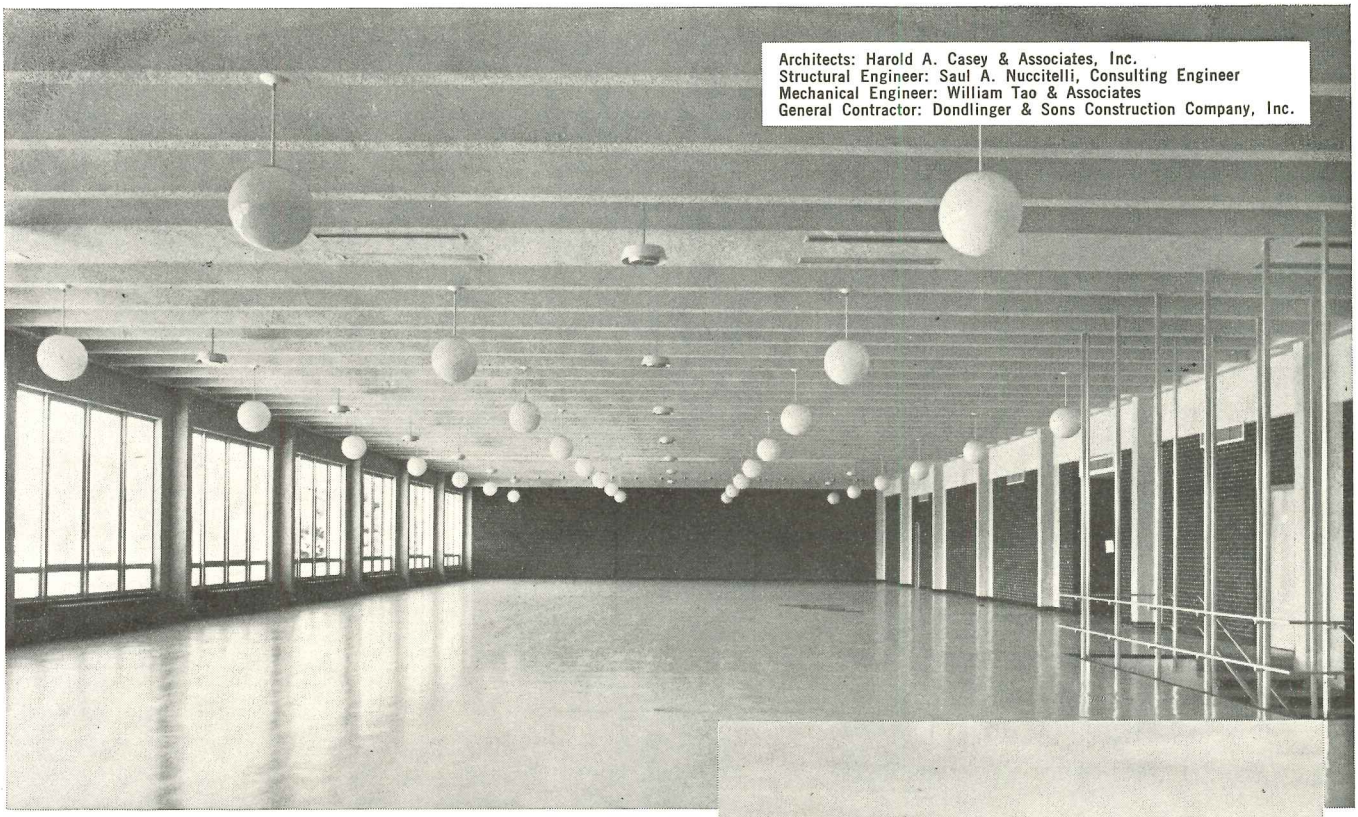
Window Beauty is Andersen

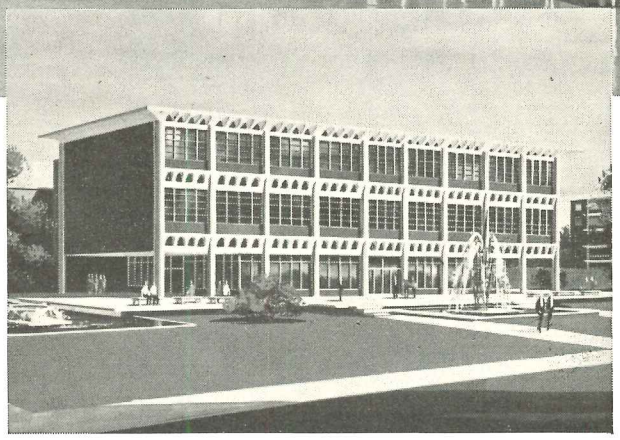




Litho in U.S.A.



Architects: Harold A. Casey & Associates, Inc.
Structural Engineer: Saul A. Nuccitelli, Consulting Engineer
Mechanical Engineer: William Tao & Associates
General Contractor: Dondlinger & Sons Construction Company, Inc.



NEW SMS STUDENT UNION POST-TENSIONED by PRESCON SYSTEM FOR 55' CLEAR SPAN

Rib Slabs for Floors and Roof

Prescon positive end anchorage post-tensioning tendons were selected for construction of the Student Union Building at Southwest Missouri State College, Springfield, a part of a $3,590,000 expansion program.

The post-tensioned prestressed second and third floors and the roof of the structure have 4″ slabs with 6½″ wide ribs or joists spaced on 3′-4″ centers. Total depth of the floor construction is 2′-7½″. The roof structure depth is 2′-11″. All concrete was placed monolithically using seven-sack lightweight concrete. Sufficient strength was reached to initiate the post-tensioning operation in 3 to 5 days. Post-tensioning placed transversely in the slabs provided crack control, insuring a seal against possible water leaks, and tendons positioned in the ribs made the achievement of the long clear spans practical.

Camber control in these 55′ spans was almost perfect. Actual field measurements indicated camber varying from a minimum of ⅝″ to a maximum of ⅞″. Post-tensioning, with the Prescon System, further enhanced the design by controlling creep and shrinkage in the concrete.

This is another example of use of the Prescon System by progressive architects, engineers, and contractors to achieve outstanding designs at economical costs. WRITE for Prescon brochures for ready reference material for many other examples and design information.

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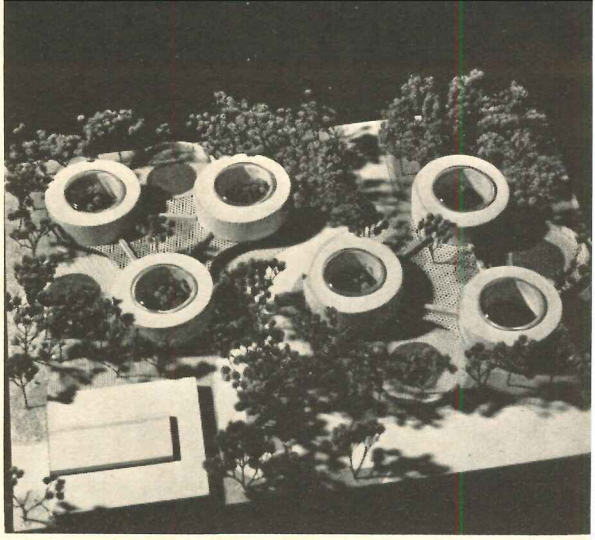

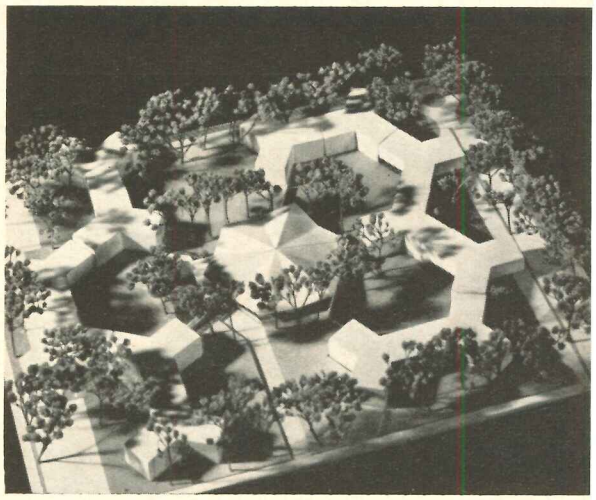

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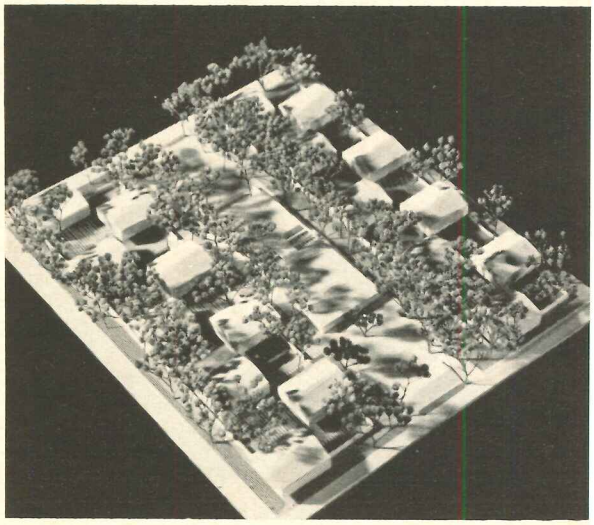
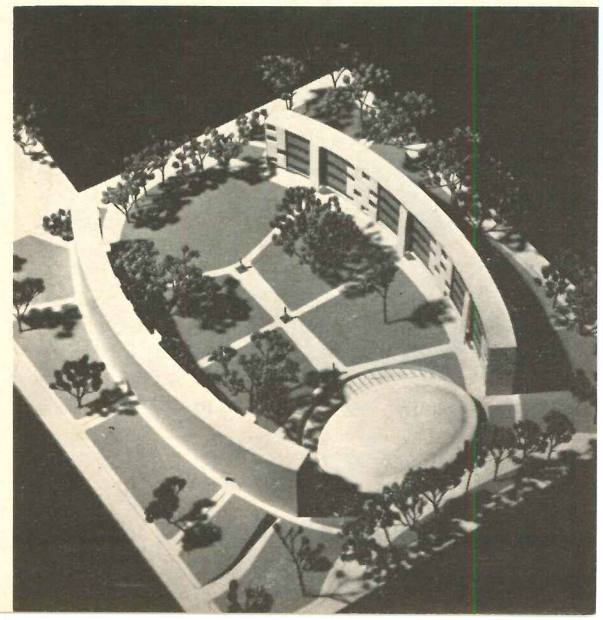
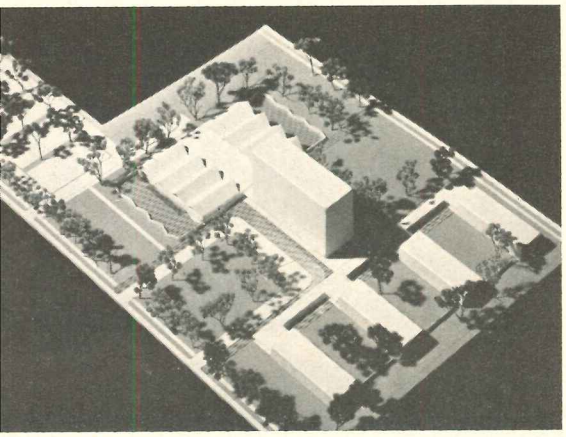
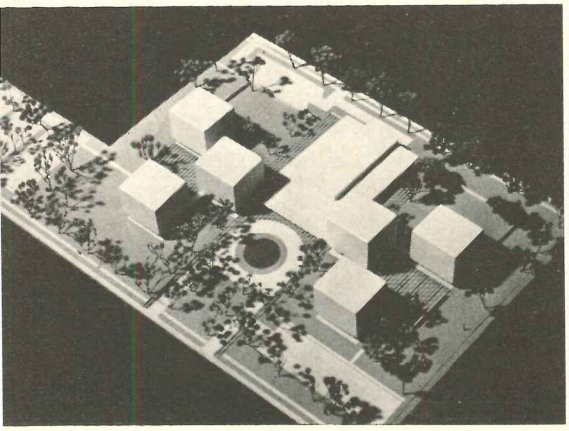
BUILDING TYPES STUDY 349
®

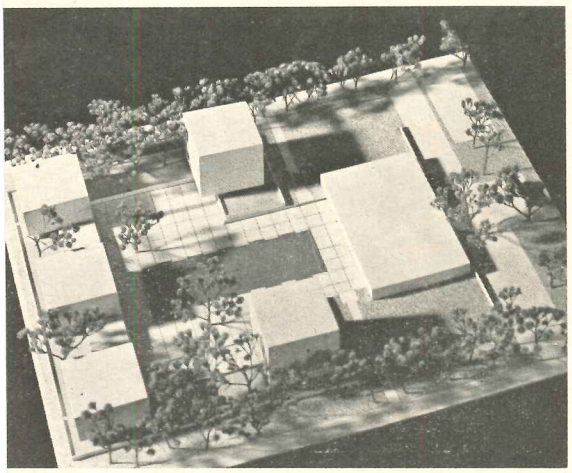


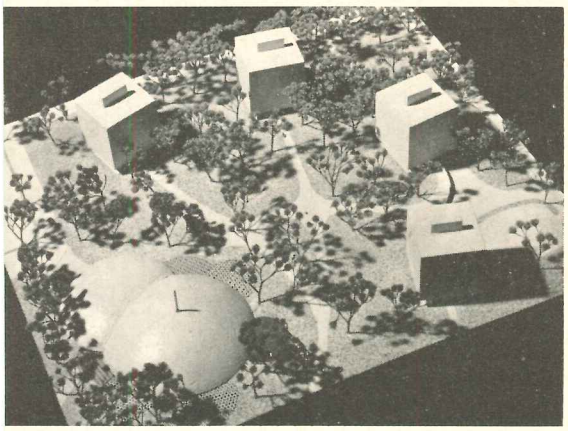
A discussion of the problems of designing dormitories and the attendant debates on what the appropriate character for them should be recurrently bring to mind that here is the essence of designing an architectural statement that must enhance, or at least live at peace with, neighboring buildings. It is brought to this more distilled state by the single ownership and administration of entire campus building complexes—and very sizable communities many of them are growing to be. We have assembled on the following pages a collection of extremely interesting college residence halls, each of which has its own statement to make, and each of which seriously seeks to cope well with its environment. We are also pleased to include a discussion examining the many factors involved in the design of dormitories, by the Director of Housing at the University of Illinois, where some 20,000 housing units have been built in the past few years, and the senior partners of a firm of architects which has been concerned with the construction of many of them.











Design studies for undergraduate housing prepared for the University of Illinois at Urbana by Richardson, Severns, Scheeler and Associates, Inc., Architects

THE DESIGN OF RESIDENCE HALL UNITS

A discussion of the University of Illinois housing program between Ambrose M. Richardson, president, John E. Severns and James A. Scheeler, vice presidents, of Richardson, Severns, Scheeler and Associates, Inc., and Paul Doebel, Director of Housing at the University's Urbana-Champaign Campus

Factors affecting location

Paul Doebel: There are obviously many factors that affect site selection and the importance of each will vary from one campus to another. One of the most important factors is the availability of land; but not only must the land be available, it must be available at costs which are within the budget limitations of the institution. An important factor affecting the location of housing is the need to disperse housing facilities around the campus so as to minimize travel time and distance between housing units and academic facilities. If possible, housing should be sited close to existing utility distribution systems, otherwise the initial advantage of a low land cost may be more than offset by the high cost of bringing in utilities. The organization of the university also has considerable influence: if the university is organized around college units, such as liberal arts, engineering, etc., it may be desirable to locate housing facilities in reasonable proximity to each of these. Students on a large campus are likely to have to travel a good deal from one part to another. Even if a student is housed near his college, at one end of the campus, it is conceivable that meal facilities will be at the opposite end, which would involve a long journey at meal times from college to dining room. Some provision should therefore be made for providing meals for such students at the college end of the campus.

In our discussions, let us assume a well dispersed campus of some 20,000 or more students. Whatever the size of the campus, much will depend on the specific type of housing with which we are concerned. For example, there will be some students who work for their meals, some who prepare their own and do their own housekeeping. These students will obviously be pressed for time, and will need to have light housekeeping units placed near the campus to save on travel time. Room-only facilities for those wanting meal jobs ought to be located in areas where there are such work opportunities.

Much also depends on the transportation system on the campus and the policy with regard to student vehicles. If the policy permits students to rely on their own vehicles, the housing site must be large enough to accommodate a reasonable number of automobiles, or parking space should be provided within a reasonable distance of the housing unit. If, on the other hand, the institution provides intra-campus transportation, a more distant parking area would be feasible as students would use their cars only for social functions or week-end trips. If parking has to be located near to housing, then obviously a greater amount of land is needed for the housing project.

John E. Severns: On the question of the location of student housing, I think two things are particularly important. First, the integration of academic and recreational programs and facilities as part of the housing function, and second an awareness of the scope of the "total" university, which includes the foundations, churches, quasi-university functions and private residential and commercial areas. We need, therefore, to relate the housing facilities to these areas as well. In a sense, we are dealing with an urban situation compounded, if you will, by the special requirements of an institution. I think also that one of the things which is giving us a good deal of concern is the relative urban scale of the university community. Inevitably, even an institution in a rural setting begins to develop its own urban surrounds with both institutional and private development. Housing has to relate in a meaningful way to all of these functions if it is to be appropriately sited.

James A. Scheeler: One must also consider the balance of housing which exists within the university

environment. After all, housing at an institution like the University of Illinois encompasses more than just single student housing. We have single undergraduate housing for men, single undergraduate housing for women, a coed housing program, single graduate housing, the fraternity and sorority system, the organized independents and the more or less unorganized independent housing, apartments, dormitory apartments, married student and faculty housing. In each instance, it seems to me, there is a problem of the balance between privately developed units and the units which must be developed by the institution, as well as the scale of these units relative to the total environment. Doesn't this relate to the problem of availability of land and availability of utilities when you are speaking in terms of large projects? In large projects don't you have a different scale of land acquisition problem and a different problem relating that to "market demands" than you do when you are considering the smaller units of housing, regardless of type?

Paul Doebel: I don't think that anyone would want to have a large instructional structure overshadow a small group of private housing units. On the other hand, it is certainly desirable to have a mixture of smaller units and larger units in any particular area. If this weren't done then we would have large concentrations of students in small areas and then small concentrations of students in larger areas. We would have a very great unbalance on the campus.

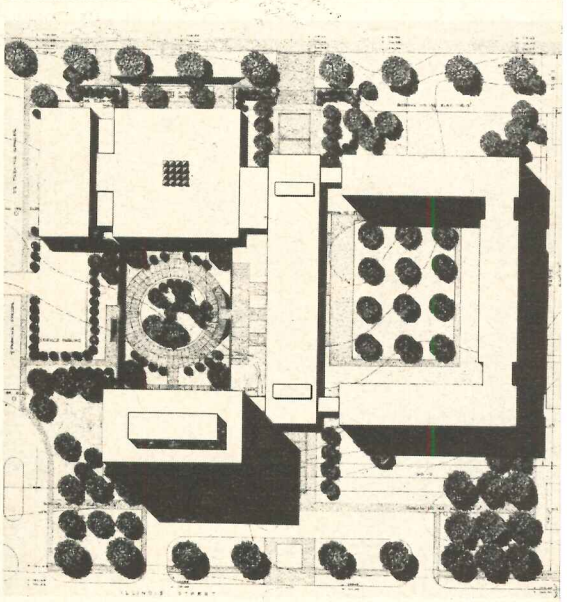
Ambrose M. Richardson: In summary, I think we are saying that there are various factors which affect location, but obviously the type of housing is a very important one. For example, married housing might well be more remote because of children and other factors, while the single graduate might be close to the campus because of night work and research. Parking is yet another factor. While individual cases all have to be treated on their own merits, there are certain guiding principles which affect them all.

Factors affecting design

Doebel: Some of the basic factors affecting the design of a particular building are: the category of student to be accommodated—undergraduate, graduate, single or married; the sex of the student; whether or not the project is to be coeducational; the size and location of the site; the character of adjacent buildings; the extent of social and educational programing to be provided in the living units. Current policy provides for coeducational developments, for high rise construction where land is dear, for planning which will enhance private development, for maximum cultural programing in residence halls consistent with budget limitations, etc.

Richardson: Here, at Illinois, the food service has been a major factor in terms of the size of units. It was established that food service for less than 1,000 was not economically appropriate, and consequently for some time our units for undergraduates where food service is provided have been in increments of 1,000 students or more. Another thing which substantially affects siting and all aspects of the design is financing and how much the market will bear. For example, at Harvard, their financing is, I know, very different from ours and I am sure that facilities there are very different because of this. Another factor which has noticeably changed our thinking on student housing is the development of the policy of housing women and men in the same complex—not in the same building —but with common food services, etc. This change of policy has certainly had an affect on design. Parking and transport facilities are again influential factors.

Scheeler: One of the policies that definitely affects design is that of the specific type of student facility required. In the development of student housing at the University of Illinois, the basic 2-man room, which provided combinations for study and sleeping in one space, became a "standard" and this then was related to another size unit which might be called the counseling unit. At present this counseling unit is made up of something in the order of 50 to 60 students. This can be called the "policy" for single un-

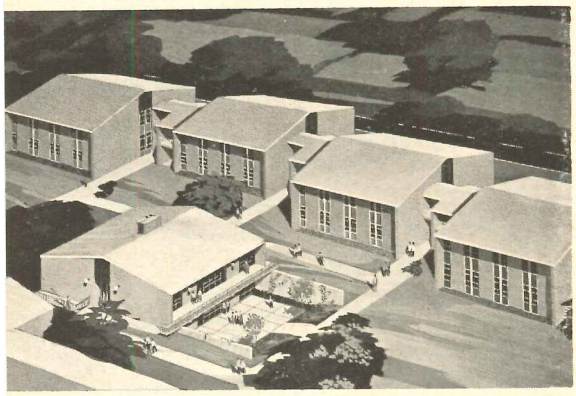


Richard E. Koch, photos

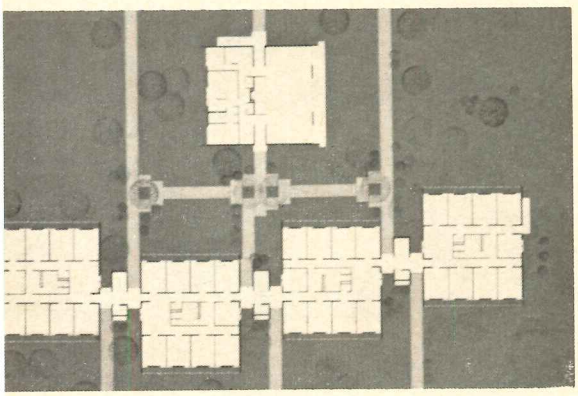
Undergraduate residence halls for men and women, Illinois Street, University of Illinois. Design architects: Richardson, Severns, Scheeler & Associates, Inc. Associated architects: Mittlebusher & Tourtelot

Hedrich-Blessing photos

Men's residence hall, Olivet Nazarene College, Kankakee, Illinois. Architects: Keys & Hestrup; Design consultants: Richardson, Severns, Scheeler & Associates, Inc.



Richard E. Koch



Men's residence hall, Eureka College, Eureka, Illinois. Architects: Richardson, Severns, Scheeler & Associates, Inc.

dergraduate housing, and is a very basic influence in the design of a project regardless of whether it be for 200 or 1,200 students.

As a result of housing both male and female students in a combined facility, the importance of making provision for physical education and recreation programs and the importance of academic activities within the housing unit, the inclusion of study facilities, reference library facilities, discussion and actual teaching spaces has been brought into sharper focus. These programs and provision for them have been evolved through a number of projects and have now become statements of policy which are integrated with other programs of the University.

A rather highly specialized influence should, perhaps be added. The paraplegic program is very strong here and is reflected in all of the housing programs and buildings.

Severns: One of the most important aspects of housing policy at Illinois is the recognition that the policy is not static. It is, rather, subject to constant re-evaluation, appraisal and change. We can see many features presently characteristic of the housing program which were introduced in years gone by as accidents, experiments or variations on the basic theme.

Evolution of student housing at Illinois

Doebel: The community and the fraternity and sorority systems provided most of the housing units on this campus for a number of years. These were primarily small housing units, few of which were large enough to warrant the provision of any extensive amount of space for programed cultural activities or for social and recreational purposes. Facilities for these activities were provided in the student union. As the need for the University to provide large scale student housing facilities developed, it became apparent that facilities for social, cultural and recreational programs could be provided economically in the housing facility because the cost was being spread over the 1,000 to 1,500 students accommodated in each housing complex. These new housing complexes thus took on the stature of something more than just living units, they became living units and student activity centers. Thus, because of the scale on which the University was forced to build in order to accommodate rapidly expanding enrollments, the total character of the residential units on the campus changed and they are now being built to include lounges, libraries, meeting-seminar rooms, recreational facilities and so forth. These facilities now are programed as basic requirements in the design of residence halls.

When university residence halls were first developed, men's units were located on one side of the campus and women's on the other; the provisions for dating were made primarily in the women's halls, yet extensive non-dating recreational facilities had to be provided for the men. We found that when we put the men's and women's living units in close proximity to each other in one complex, it was possible to provide a common center which permitted men and women to join together in certain social, recreational and cultural programs and for meals. At times this common space is available for the sole use of either of the sexes. The net result is that the amount of space per capita devoted to recreation, social and cultural purposes is much less than when it was necessary to provide facilities for the separate use of each of the sexes, and the over-all use of this space is much greater than when separate facilities were provided for each of the sexes.

Richardson: In tracing the history of our experience at Illinois, I recall that when I was first involved in housing design, very little experience had been accumulated with respect to high rise structures. However, as we developed and grew at the University, it was apparent that our land costs in certain areas where housing was desirable were so high that we were more or less forced into high rise—and now have how many in operation? We've had experience with at least one large unit for over a year, and we are planning and constructing others. It is interesting to evaluate our experience with this type of building.

Doebel: The experience has been very good. Initially it was of con-

cern to many that the high rise unit might take on the atmosphere of a hotel, that is, an impersonal atmosphere. This was not the experience, however. With high rise buildings we were able to provide accommodations for a large number of students on a relatively small site, and yet provide a certain intimacy in the individual living units by holding the floor capacities to 50 or 60. Thus students are able to identify themselves with a small group yet have the advantages of a large center—a large variety of programs, special study areas, libraries, lounges, recreation and hobby rooms, and a professional staff. These spaces could not have been provided had we developed the smaller sites less densely.

Richardson: I think it is very interesting that large size, that is a complex for a thousand or more students, is not wrong in itself. In other words, as you have so clearly pointed out, the size, in terms of all the additional facilities which could not be provided in small units, is a distinct advantage.

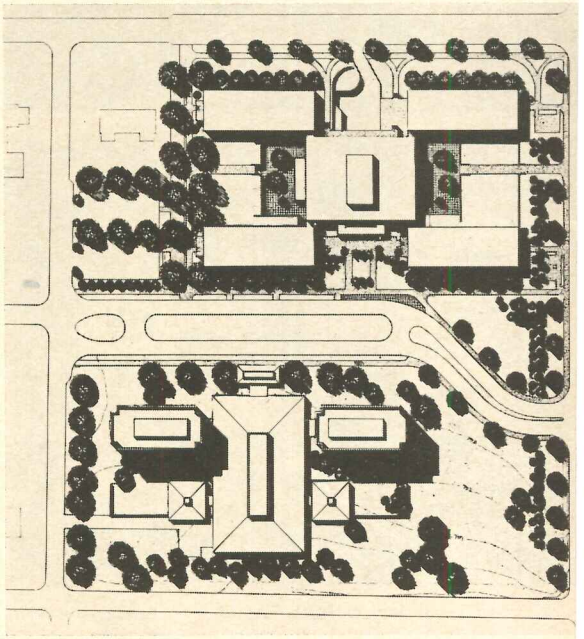
In our experience we have tried, even though the complexes are designed for both men and women students, to design permissively so that if there is a change in the future in terms of the numbers of men versus women, and so forth, we haven't designed specifically for either sex. We have designed so that the facilities could be used interchangeably if needed. Another thing I think we should point out in respect to size and our experience here is that, in your first statements about location, the flexibility of types and the choice of types is very important, and I think that we have all agreed that there is no cure-all. Housing shouldn't be all large units, but on the other hand it should not all be small units. There is a place for both, depending on the institution. At the current time, as I think that you have mentioned, the demands are more for smaller housekeeping units, or for rooms for the students who are working and who don't require food service, perhaps working in food jobs, etc. Obviously the total program must be a balanced one.

Future Trends

Richardson: I think we might conclude by discussing some of the trends that we all think are important in housing based on our experience to date, not only here but at other places. For example, we hear a great deal about incorporating the teaching facilities within the residence hall units to a greater extent than we do now. We also hear a great deal about breaking down the units in various ways. Perhaps we can consider where this will lead in the future.

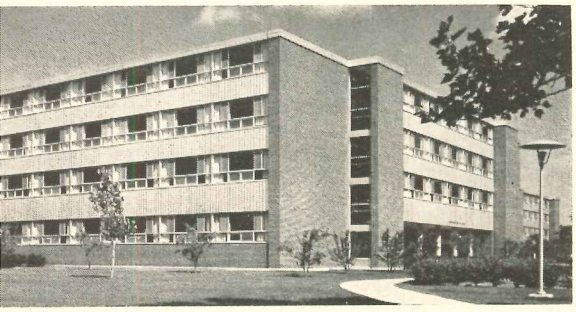
Severns: One of the problems that many students have is using their time efficiently. If we are not careful in the way we mix together the learning, recreational and social environments and mechanism, the tools of normal living, we may compound some of this problem. In short, I can applaud the development of the entire campus community as a total learning environment, but I think we have to be a little cautious as to how best accomplish it.

I think there are some other aspects that are pretty fundamental at major institutions. One is the potential of food service preparation. This we have discussed as an important facet in the development of any housing program. It has a good deal of significance in terms of serving not only the resident student population housed in university accommodations, but, of course, everyone on the campus. We need to think more in terms of centralized food preparation and dissemination to catering points as one means of offering a variety of food service to the students and faculty alike. This would apply directly to University housing programs. I think also we need to recognize that a major institution may have some responsibility in dealing with the private housing facilities around the campus. We have been concerned here about the economic feasibility of smaller housing units, whether they be privately operated or within the fraternity-sorority system. Food service is a major element in the economic operation of these units. Perhaps we can look towards a time of catered services provided on a contract basis, not only to provide an economic way of maintaining these facilities but also, in my experience at least, provide a

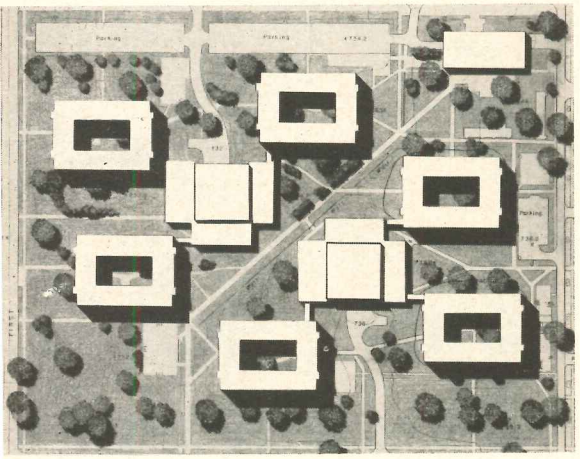


Richard E. Koch

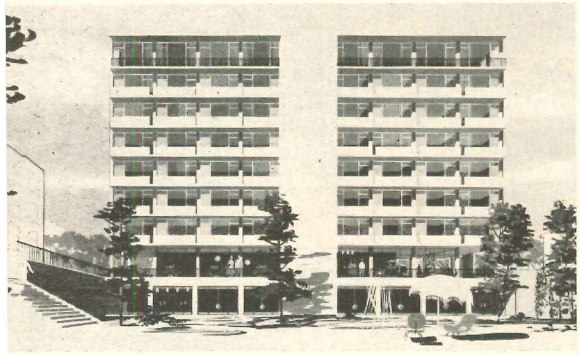
Men's and women's undergraduate housing, Pennsylvania and Florida Avenues, University of Illinois. Design architects: Richardson, Severns, Scheeler & Associates, Inc.; Associated architects: Fugard, Burt, Wilkinson & Orth



Richard E. Koch



Men's undergraduate residence halls, Gregory Avenue and Peabody Drive, University of Illinois. Design architects: Richardson, Severns, Scheeler & Associates, Inc.; Associated architects: Berger, Kelly, Unteed & Associates



Faculty graduate Center (*top*) and model of single graduate residence halls, University of Illinois. Design architects: Richardson, Severns, Scheeler & Associates, Inc.; Associated architects (residence halls) L. Lattin Smith & Associates

better balanced diet for the student. You may recall that we did some planning studies based on this concept.

Doebel: When considering the question of facilities for learning in the residence hall—I think there are a number of advantages in conducting regularly scheduled credit courses in the residence halls.

One of the advantages is that it brings the academic climate directly into the residence halls. It brings closer to home the realization of the basic purpose of the student on this campus—to learn, to be interested in academic matters, etc. The other advantage is that it increases the space utilization factor. We know that many of the facilities provided in the residence halls are used after students are out of class, that is, after four o'clock in the afternoon and very little between eight a.m. and four p.m. By providing a little more flexibility in the design of these facilities it is possible to comfortably accommodate classes which would otherwise require space in academic buildings. One of the other factors that I think we must recognize in the future in designing housing accommodations is the growing independence of our undergraduate student population, particularly in the more senior years. The upper class student is not interested in participating in student government affairs and in programed activities. He is interested in social and cultural programs, but he is less interested in organizing these programs and in running them himself. This means that many students will want to live where they can avoid an involvement in group activities, yet participate as a spectator in certain activities.

One of the housing types that we have been considering for this campus is the supervised apartment, where three or four students might live together in a single unit and do their own cooking and housekeeping, and where there is less dependence on student government and programed activities. There is also need to recognize that today's students are less willing to conform to a set living pattern. This means that we have to increase the variety of types of accommodation, and I think we have come up with some four or five basic types that need to be developed or expanded on this campus. These are: (1) the residence hall board-and-room accommodation that we have been providing here for a number of years; (2) co-op housing units where 30 or 40 students would live together and share the housekeeping and cooking responsibilities on a group basis; (3) the supervised apartment mentioned earlier for the more mature undergraduates, where three or four students live together and share their cooking and housekeeping responsibilities; (4) the room-only accommodation for those who are on a limited budget and need to work for their meals; and (5) room accommodations with cooking facilities shared by 30 or 40 students, for those who desire to do a limited amount of cooking. Need for additional tyes may be apparent on other campuses, but without question we need to be sensitive to the changing needs and the growing independence of the student population and their need for variety of accommodations.

Scheeler: I think that when you consider a university of the size of the University of Illinois you see a relationship between the student and the institution which demands that the student relate himself to the environment very much in the same way as he would to any urban environment. In other words, the student at the University of Illinois belongs to a college, is enrolled in a given course of studies and through this makes a number of personal contacts which relate him as an individual to the larger organization of the university. He has living accommodations through which he relates in another way to a different group. Through quasi-university facilities and the social and cultural activities at the university, he will build up other relationships. This is, in my opinion, a definite part of his education in that it is not a dissimilar experience to what he will find in a highly urbanized environment. After all, most of our students will be going into an urban environment in which their primary contacts will be through their work, civic activities, through churches, clubs, etc.; so that while there has been criticism of size of the university, it seems to me that this very size may be a vital part of educating a student today, educating him to the fact that he will be part of a complex urban environment and must know how to exist and be creative in it.

Married Students Housing

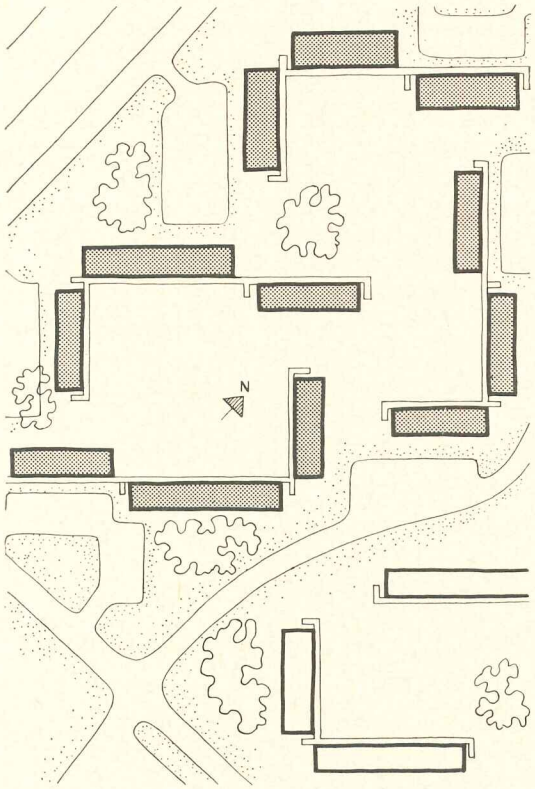
University of Georgia

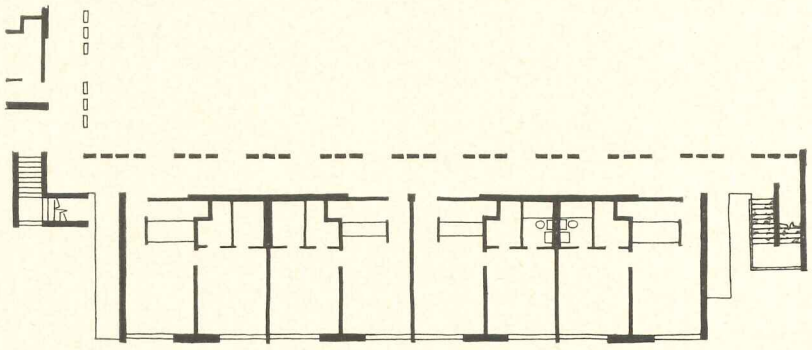
A very pleasant environment has been achieved in this married students residence complex at an extremely reasonable cost. The architects comment that "the cost on this job has been quite favorable, less than $10,000 per unit—somewhere around $10 per square foot. This was the first of a multiple phase project, each containing approximately 100 units. Two more phases are under construction now, and we have developed a master plan for both high-rise and garden-type housing."

This complex organizes four groups of three buildings each to form pleasant grassed courtyards. Each building has either four or six apartments per floor; there are about an equal number of one- and two-bedroom units. Apartments are arranged in a split-level fashion to fit the terrain, and are connected by covered, but open, corridors and stairs. Exteriors are surfaced with brick, cedar shakes and granite rubble. Heating is by electric baseboard units and cooling by built-in room air conditioners.

Married Students Housing, University of Georgia, Athens, Georgia. Architects: Heery and Heery, Inc.; contractor: Lake McDonald Company; structural engineer: Richard B. Ellis; mechanical engineers: R. F. Niedernhofer and J. W. Austin Jr.; electrical engineer: Charles T. Owen; landscape architect: E. L. Daugherty

Alexandre Georges photos



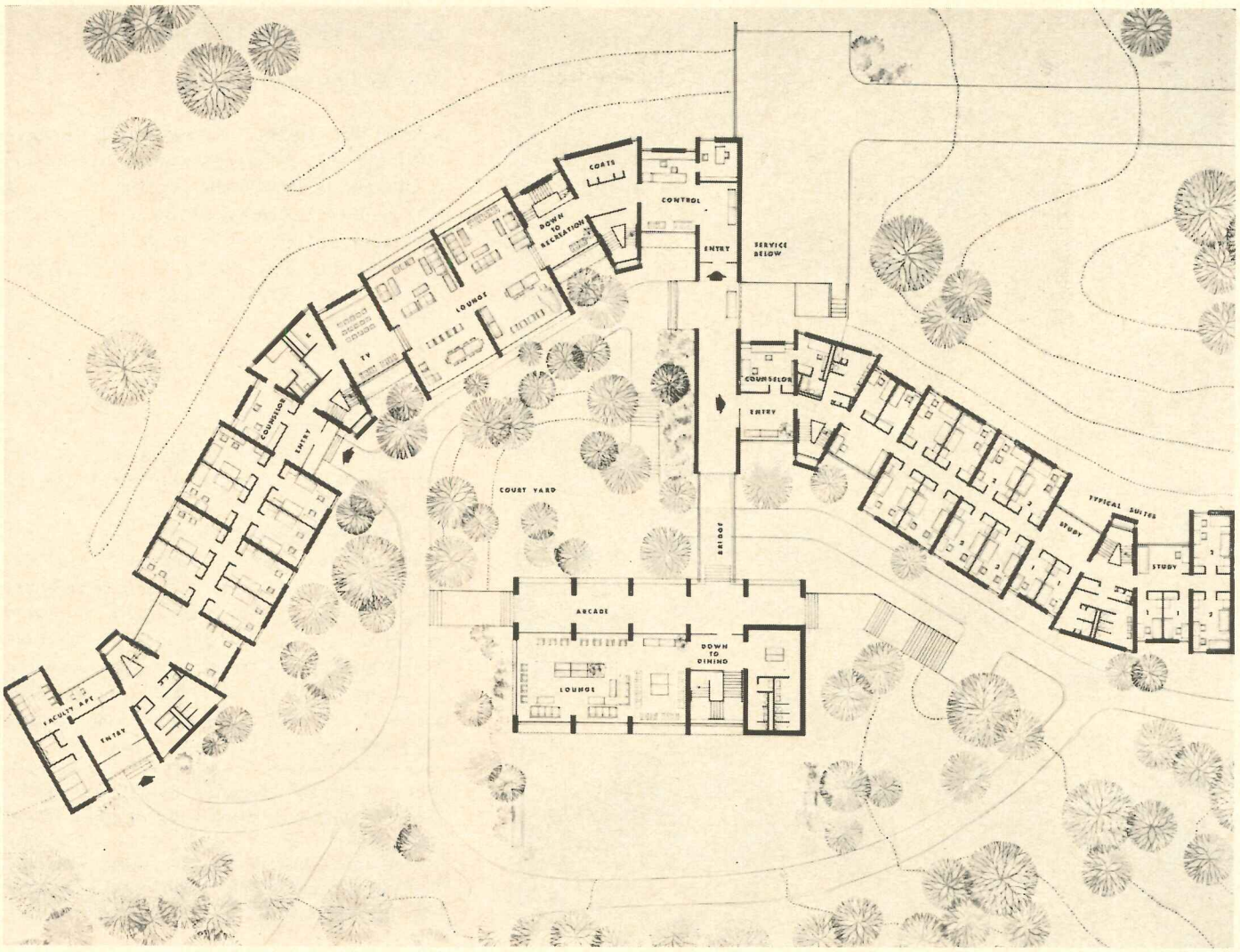


Coeducational Dormitories

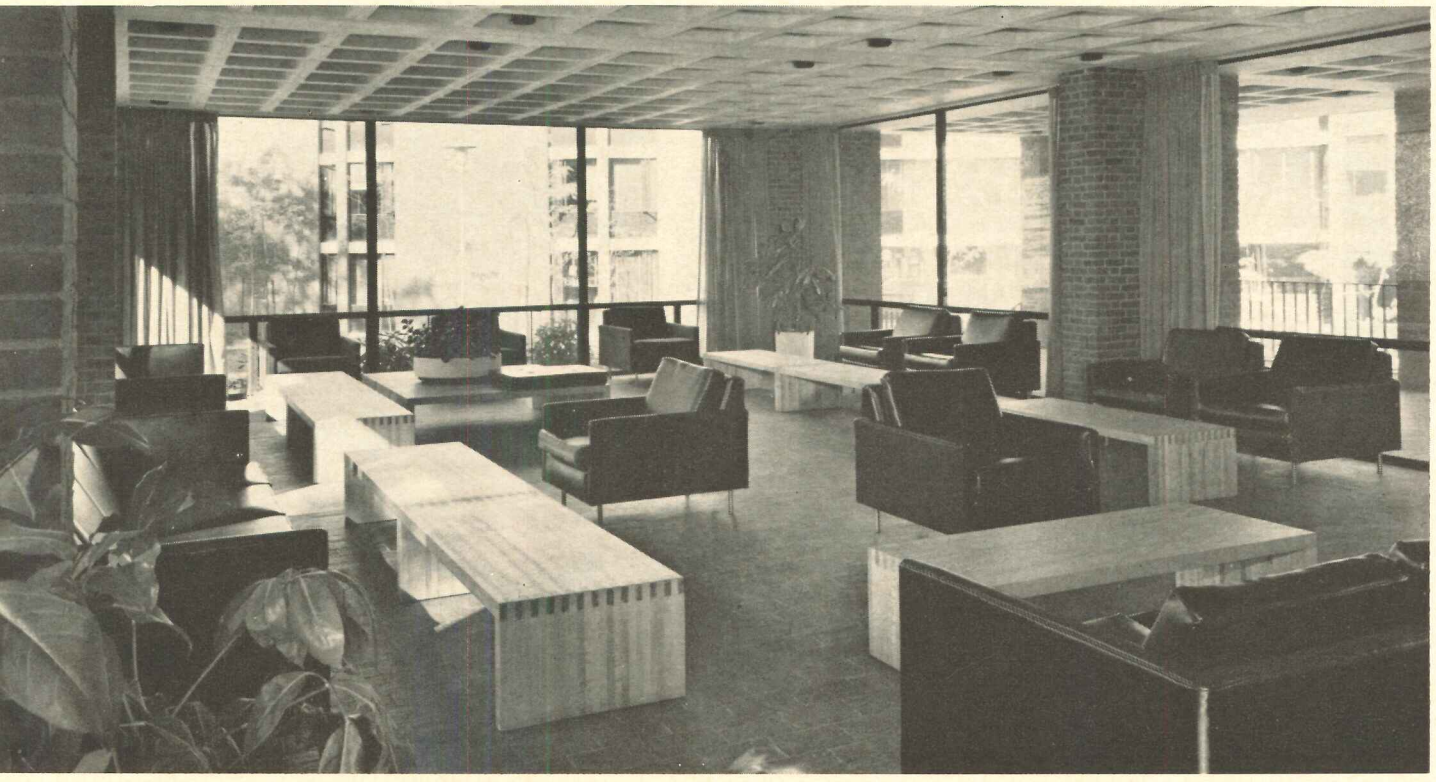
Brandeis University

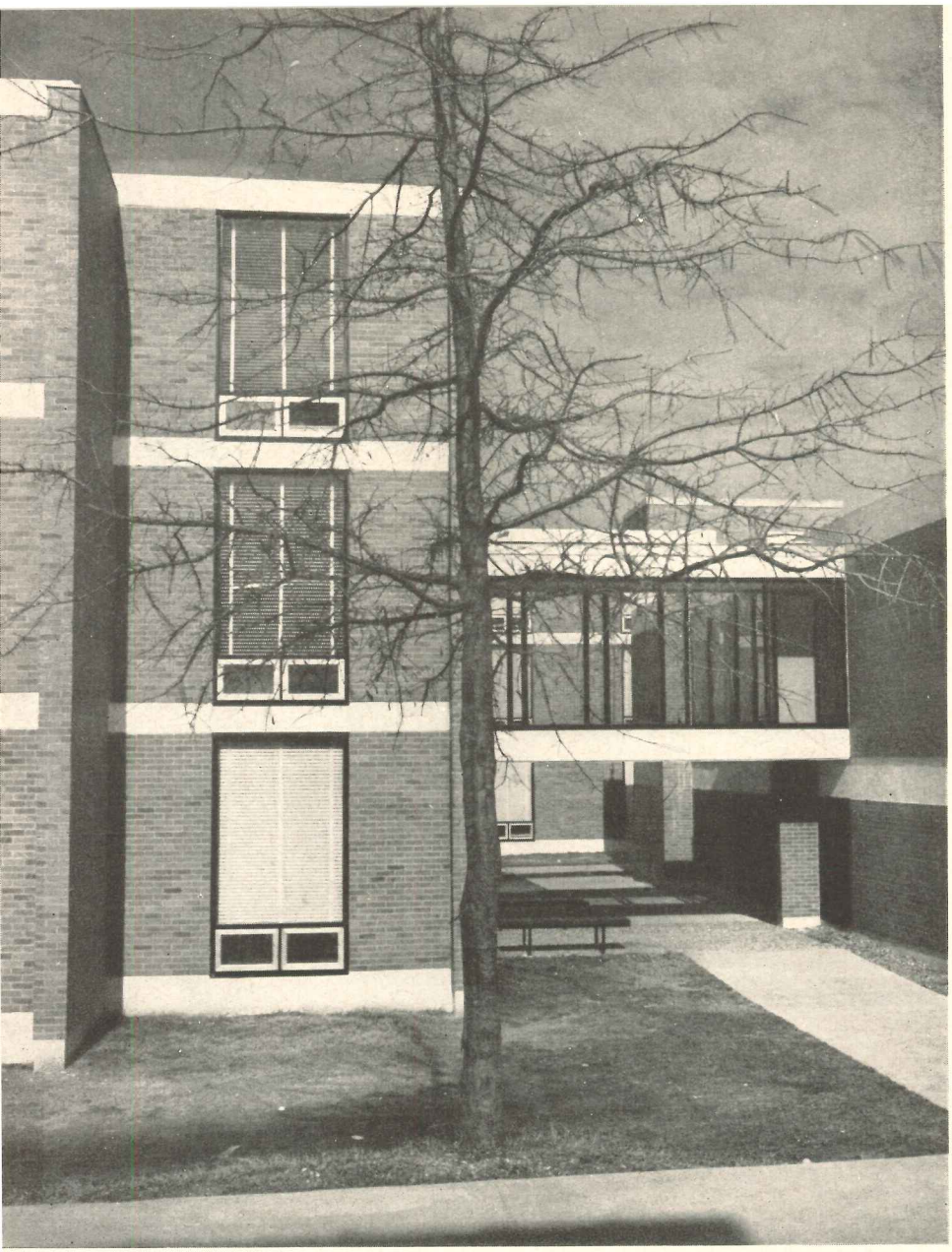
Though dubbed "coeducational," this handsome residence hall provides separate living and recreational facilities, in opposite wings, for 200 girls and 150 boys. A common dining and living center is shared by both. The architects note—"the long undulating dormitory follows the downhill contours and the irregular campus boundary from which the curving form generates. Students live in groups of 10. Four double rooms and two single rooms share a common study. Room units are all basically similar, and the change of direction of the long building is handled by the trapezoidal service towers. Pedestrian circulation moves around a central court, through an arcade adjacent to the dining center, and across a bridge into the dormitories." The structure has brick bearing walls, exposed inside and out, and exposed concrete grid slab floors. Interior partitions are brick or plaster, and floors are black slate, carpet or vinyl asbestos tile. The interiors were also designed by The Architects Collaborative, Inc.

East Quadrangle, Brandeis University, Waltham, Massachusetts. Architects: The Architects Collaborative, Inc.; partner in charge: Benjamin Thompson; contractor: Charles Logue Building Company; structural engineers: LeMessurier & Associates, Inc.; mechanical engineers: Reardon & Turner; electrical engineers: Thompson Engineering



Louis Reens photos





Oscar Menzer

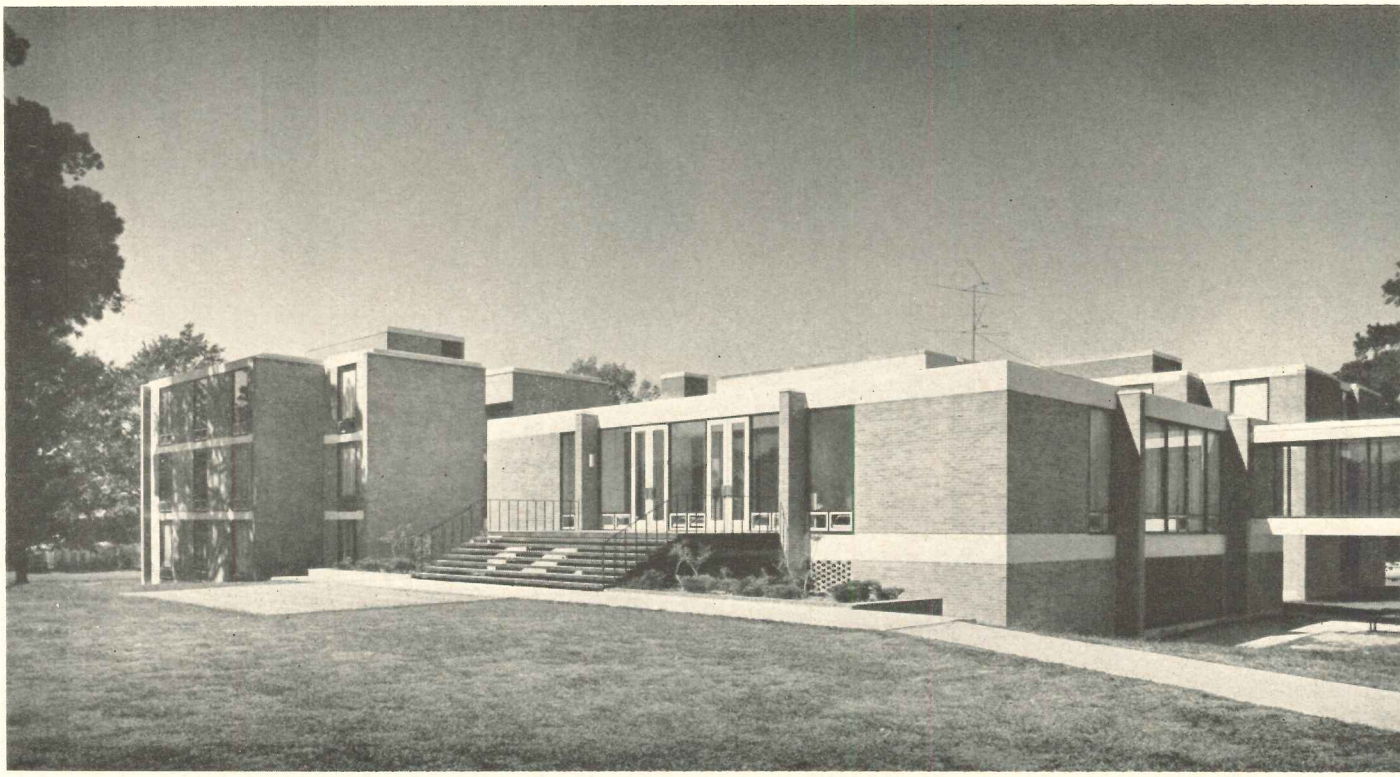
Men's Dormitories

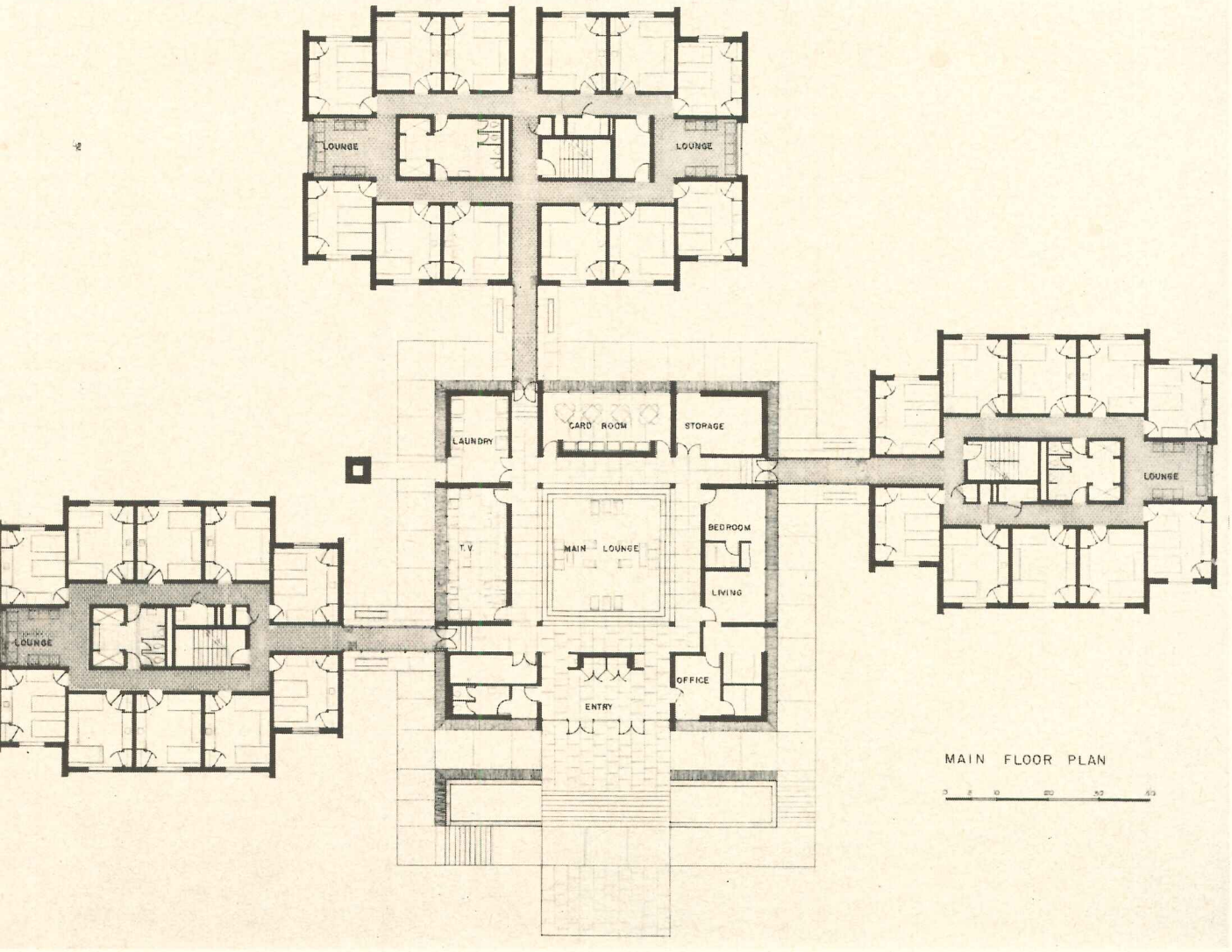
Southern State College

A satellite "house" system has been developed for this Arkansas campus to preserve a smaller scale for the student residences. The architects describe it as a system where "two men share a room; 20-24 men live on a floor sharing bath facilities and a lounge; three floors comprise a 'house' or unit; and three units share a central facility containing a lounge, TV room, laundry and an apartment for a housemother." Two such complexes have now been built, with others projected for the future.

Masonry bearing walls and reinforced concrete slabs comprise the basic structure of the living units. The architects state: "We felt it important to maintain a similar scale and use the same brick as the older buildings on the campus. The white-finished concrete repeats the white trim on the old structures." The result is a series of quietly handsome buildings. All are air conditioned by a hot and chilled water system, circulated to fan coil units in the living areas through the bridge connections.

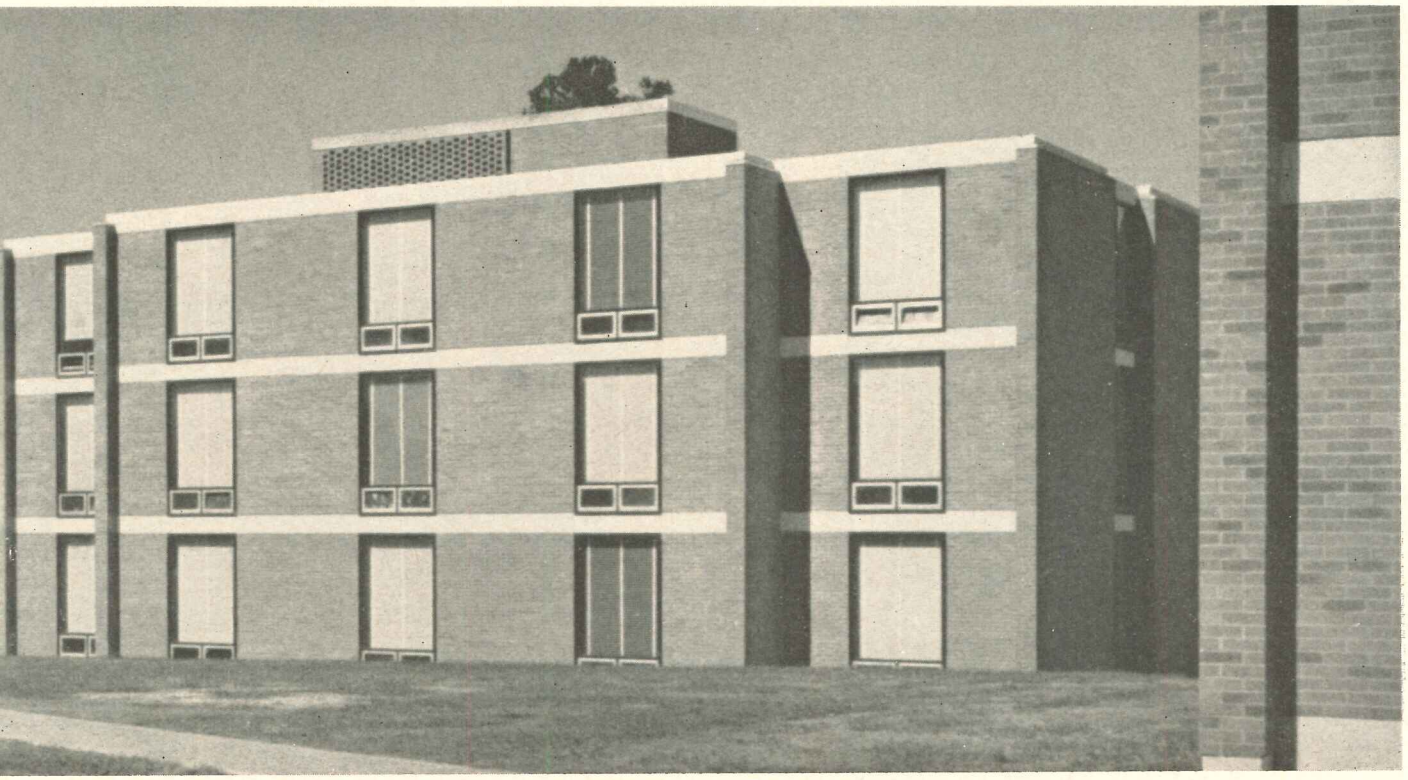
Men's Dormitory Complex, Southern State College, Magnolia, Arkansas. Architects: Wittenberg, Delony & Davidson, Inc.; contractor: Texarkana Construction Company; structural engineer: Price Roark; mechanical and electrical engineers: Blaylock, Cook, Threet & Associates

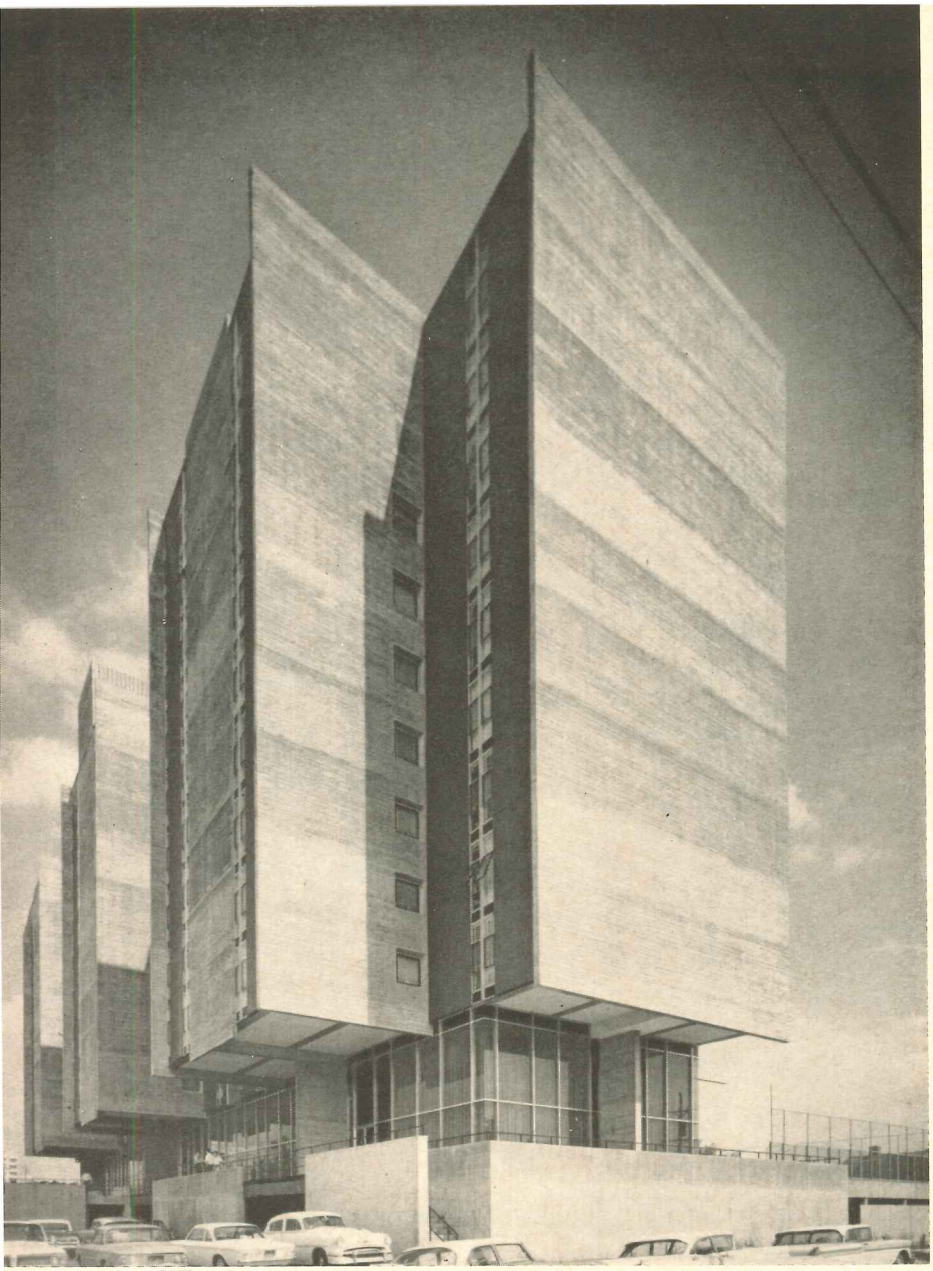




MAIN FLOOR PLAN

Earl Saunders photos





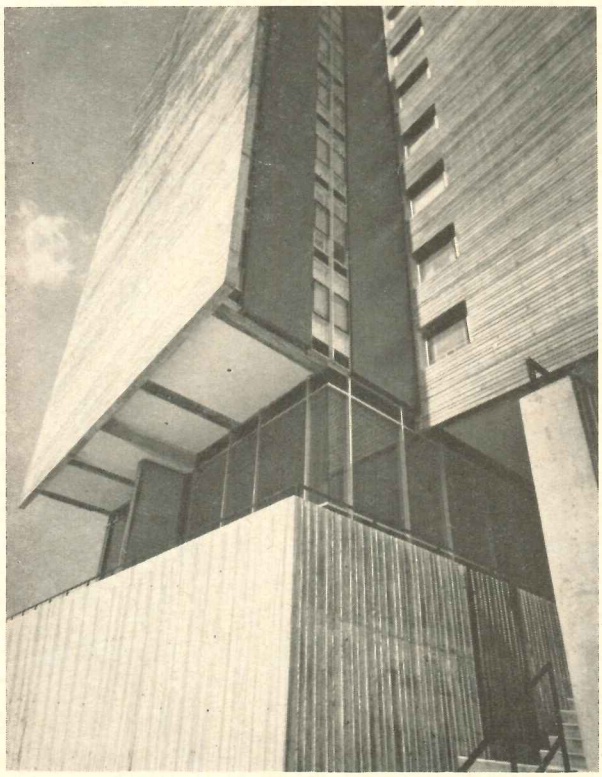
Frank Lotz Miller photos

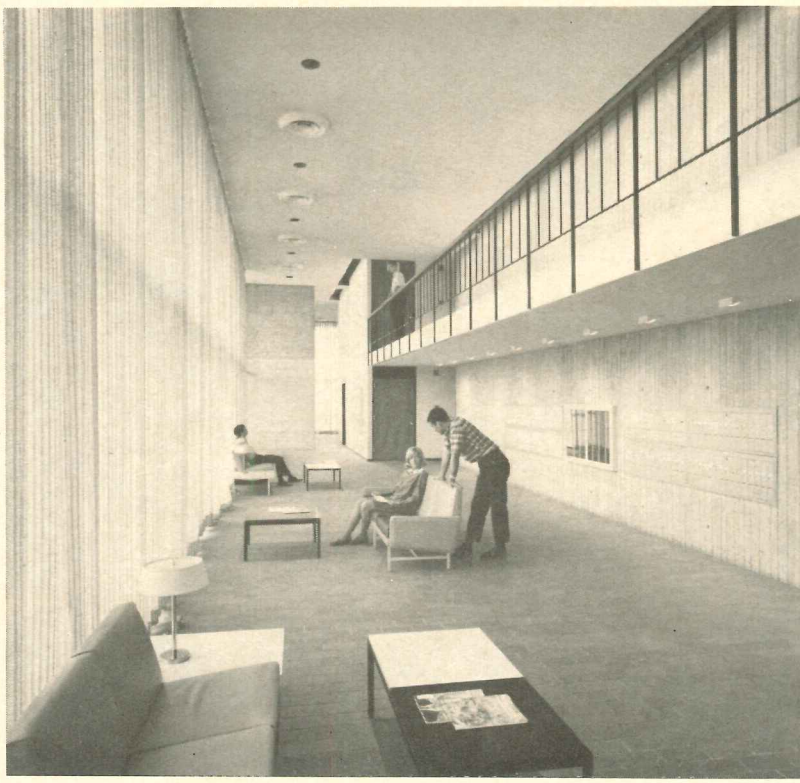
Residence Hall

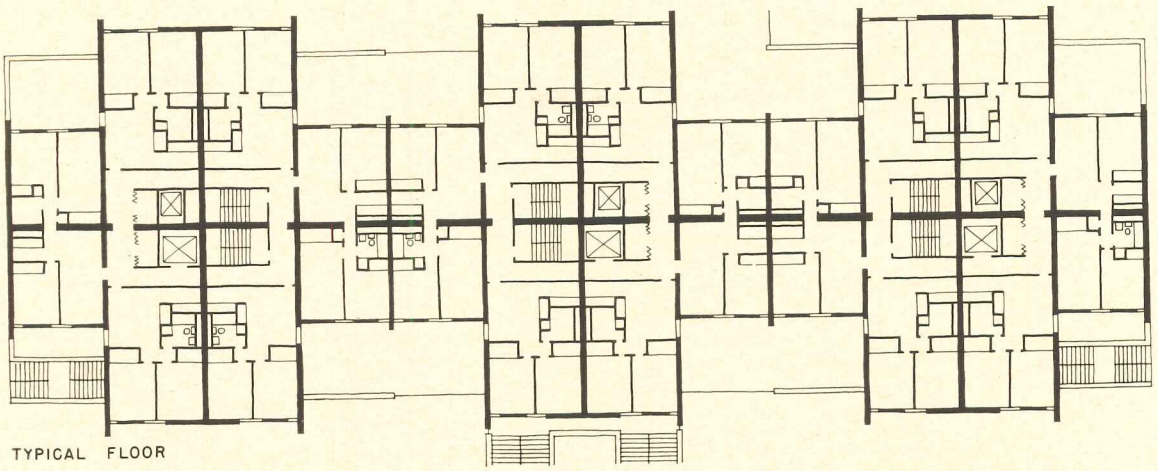
Louisiana State University

This powerful, rough-concrete building serves as a combined residence hall and student center for the L.S.U. School of Medicine in downtown New Orleans. To separate them somewhat from the surrounding neighborhood, the various student center activities and the outdoor recreation areas are raised to the second floor level, with the ground level serving as a parking garage, as can be seen in the early, 1961 design sketch, *below right*. The upper floors contain a combination of one, two and three bedroom apartments, dormitories for unmarried students, nursing student residence, mechanical rooms, and a childrens nursery. To separate these different groups, the upper floors are separated into three cross-shaped towers with individual elevator and service cores. As the architects note, "the structure is poured lightweight concrete, with concrete shear walls cantilevered from a central longitudinal spine. This reduces foundations and columns."

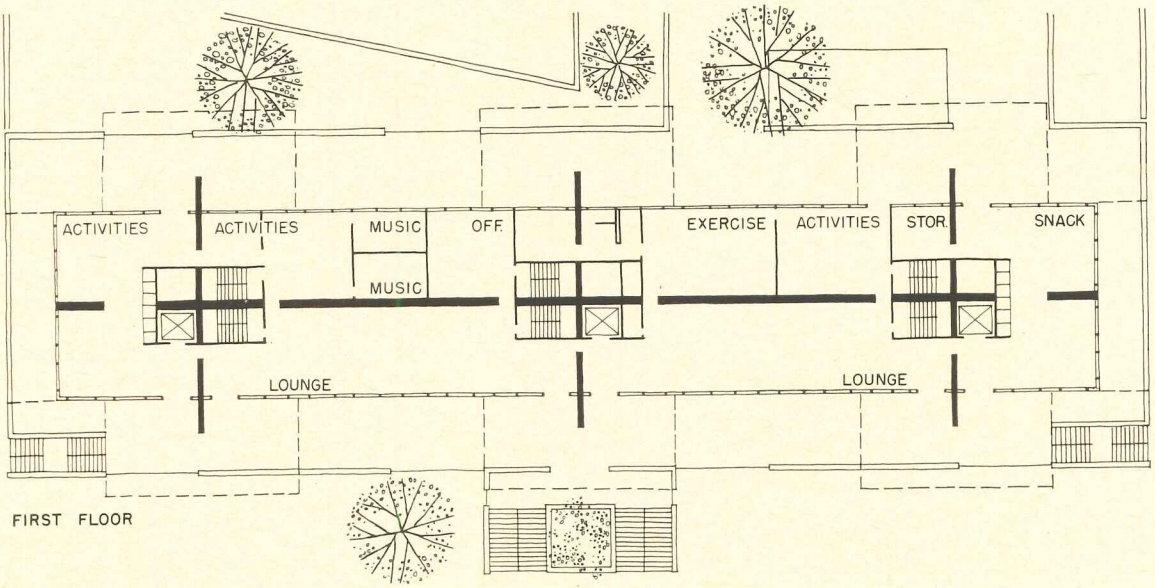
Residence Hall and Student Center, School of Medicine, Louisiana State University, New Orleans, Louisiana. Architects: Charles Colbert and Lowrey•Hess•Boudreaux•Farnet; associated architects: H. T. Underwood & Associates; structural engineers: Ogle & Associates; mechanical engineers: Guillot, Sullivan & Vogt; contractor: Keller Construction Corporation



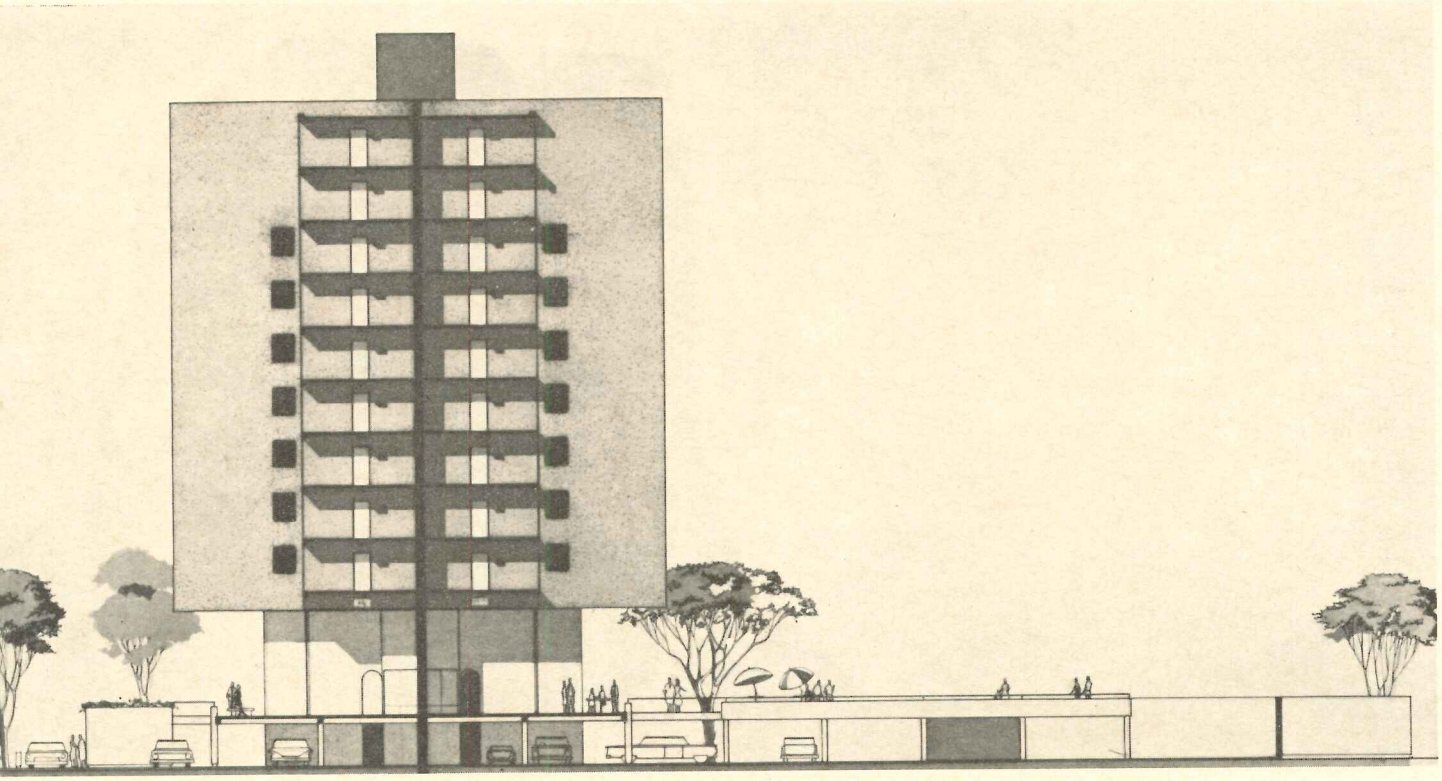


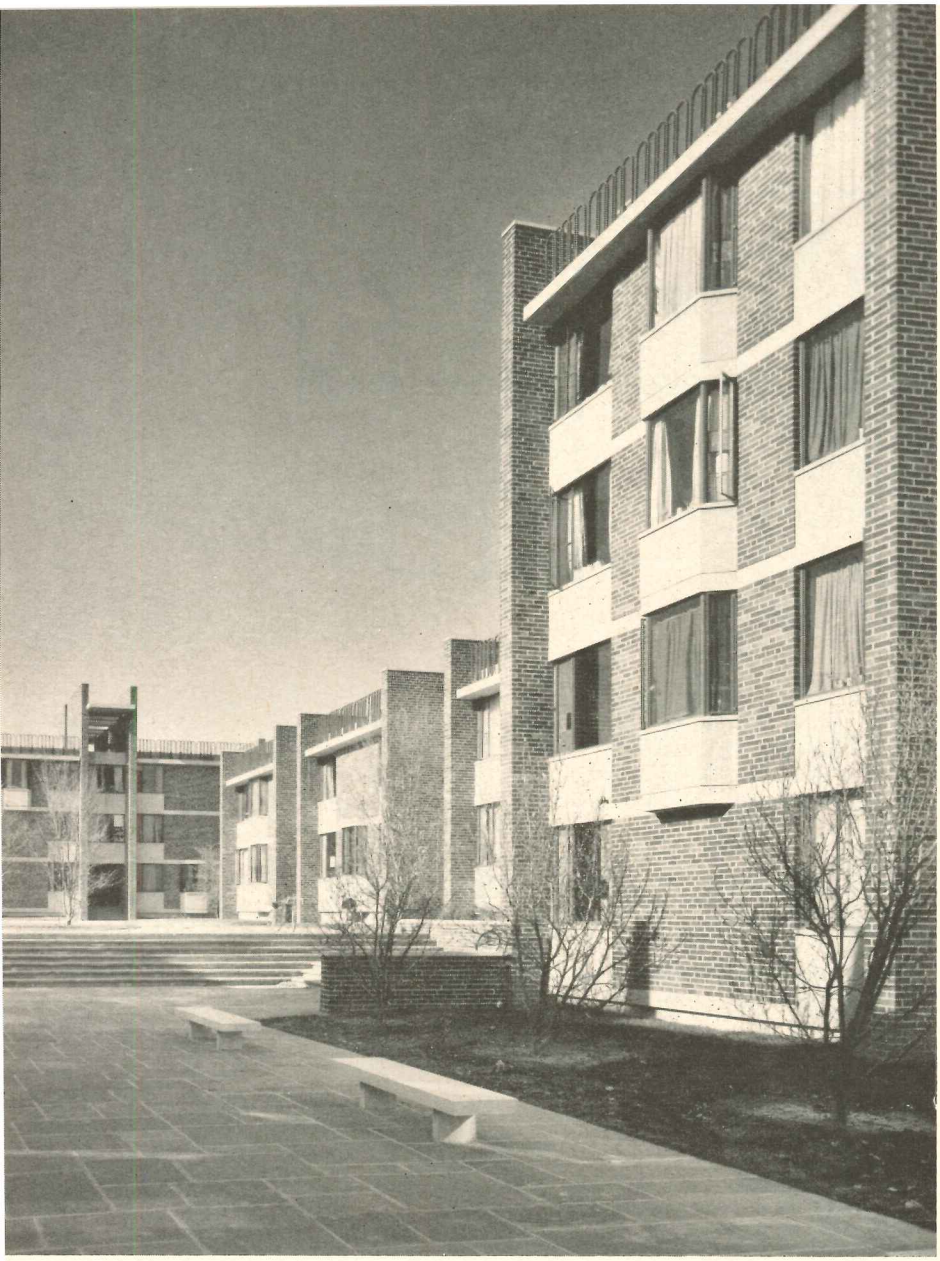


TYPICAL FLOOR



FIRST FLOOR





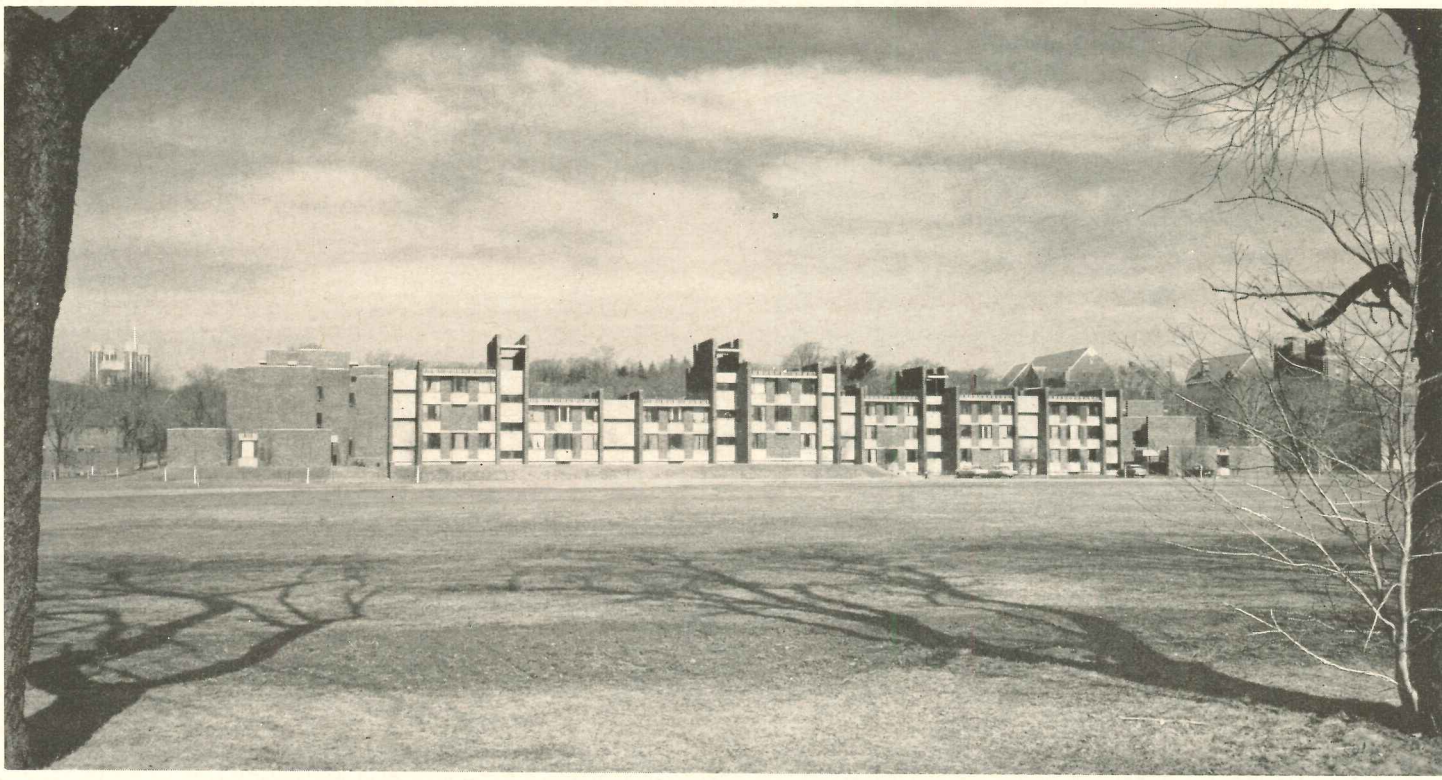
Undergraduate Dormitories

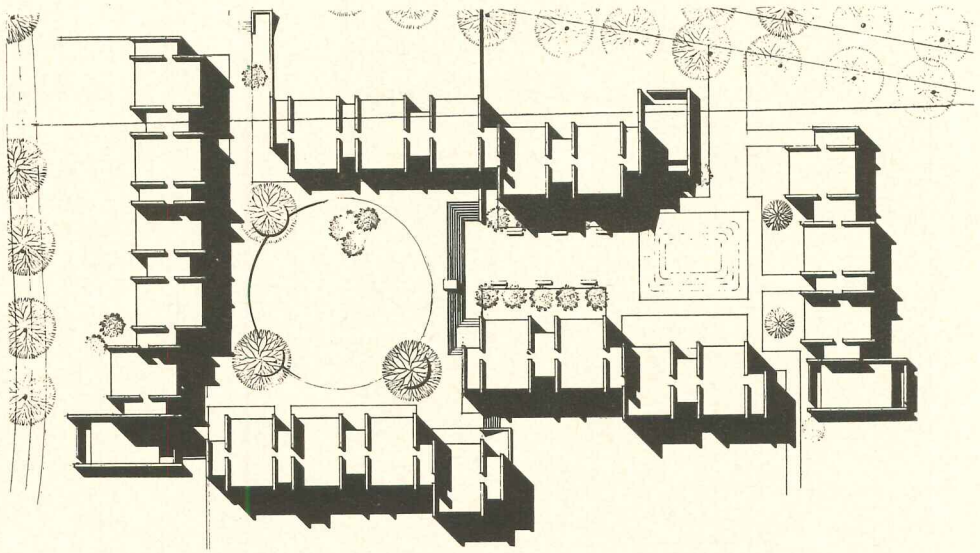
Princeton University

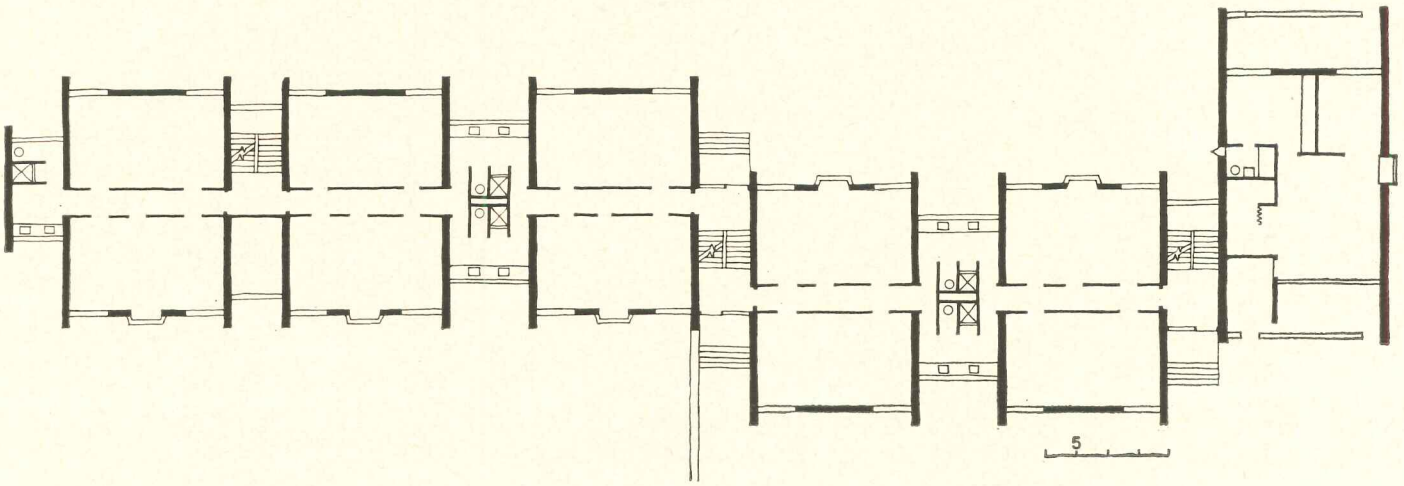
Stubbins' new dormitory quadrangle, designed to be a contemporary neighbor "which would be on speaking terms with those nearby Princeton buildings which are in the Gothic Style" (see ARCHITECTURAL RECORD, March 1963), seems, indeed, to have become a very compatible part of the campus scene. Its varied skyline is shown below.

Possibly the most interesting part of the scheme is the handling of the interior court, with its alternating swelling and constriction of spaces, its unexpected byways for exits, and the changes in level created by fill. The ins-and-outs of the individual buildings, accented by projections of the walls, more or less define the stacks of rooms and the banks of stairs and baths which separate them. The complex will accommodate 361 students, mostly in single rooms; there are also three single-story faculty apartments (one is shown at the far right in the floor plan). The structures have brick bearing walls and waffle concrete slab floors.

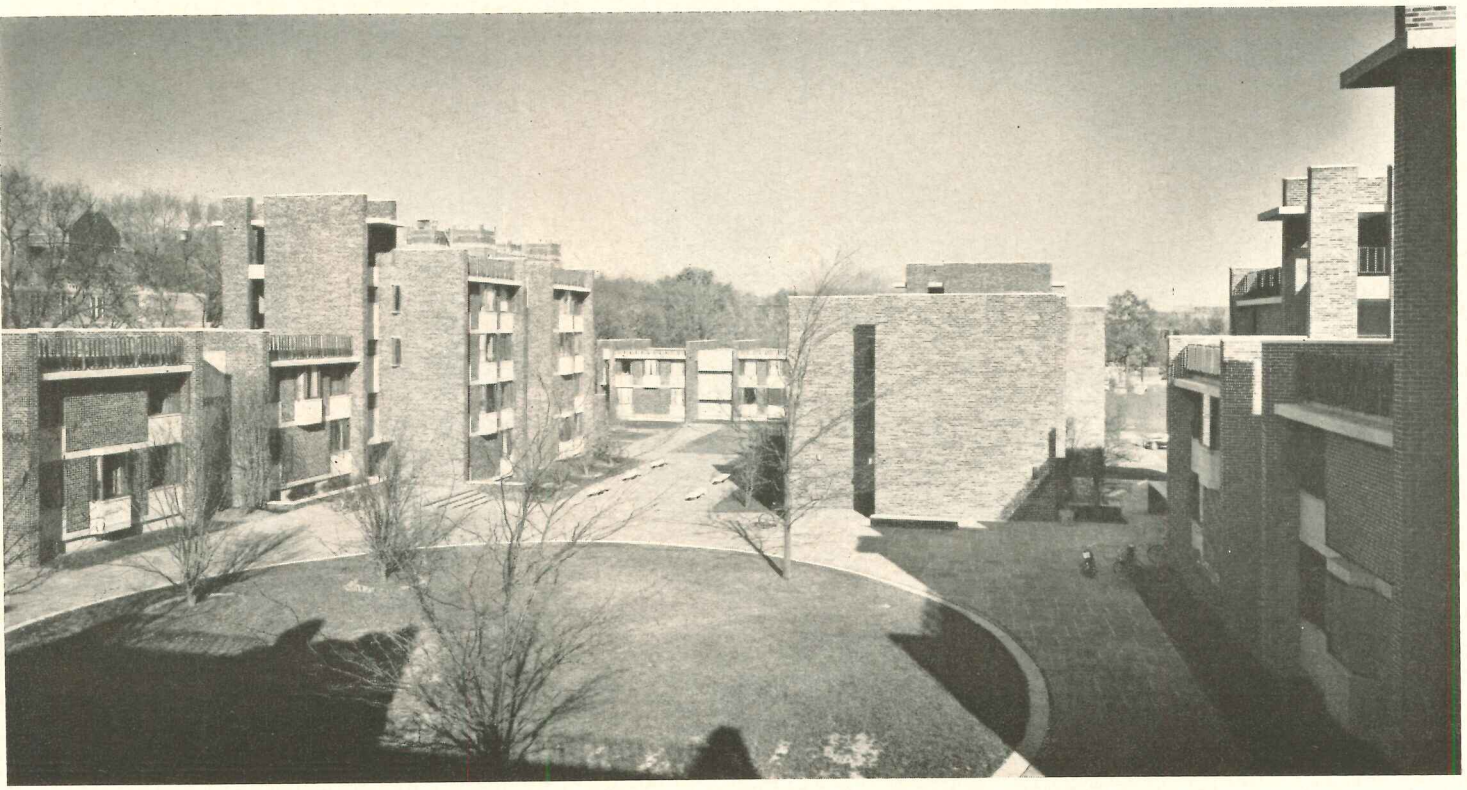
Undergraduate Dormitories, Princeton University, Princeton, New Jersey. Architects: Hugh Stubbins and Associates, Inc.; contractor: John McShain, Inc.; structural engineer: Le Messurier and Associates, Inc.; mechanical and electrical engineers: Greenleaf and Wong, Inc.

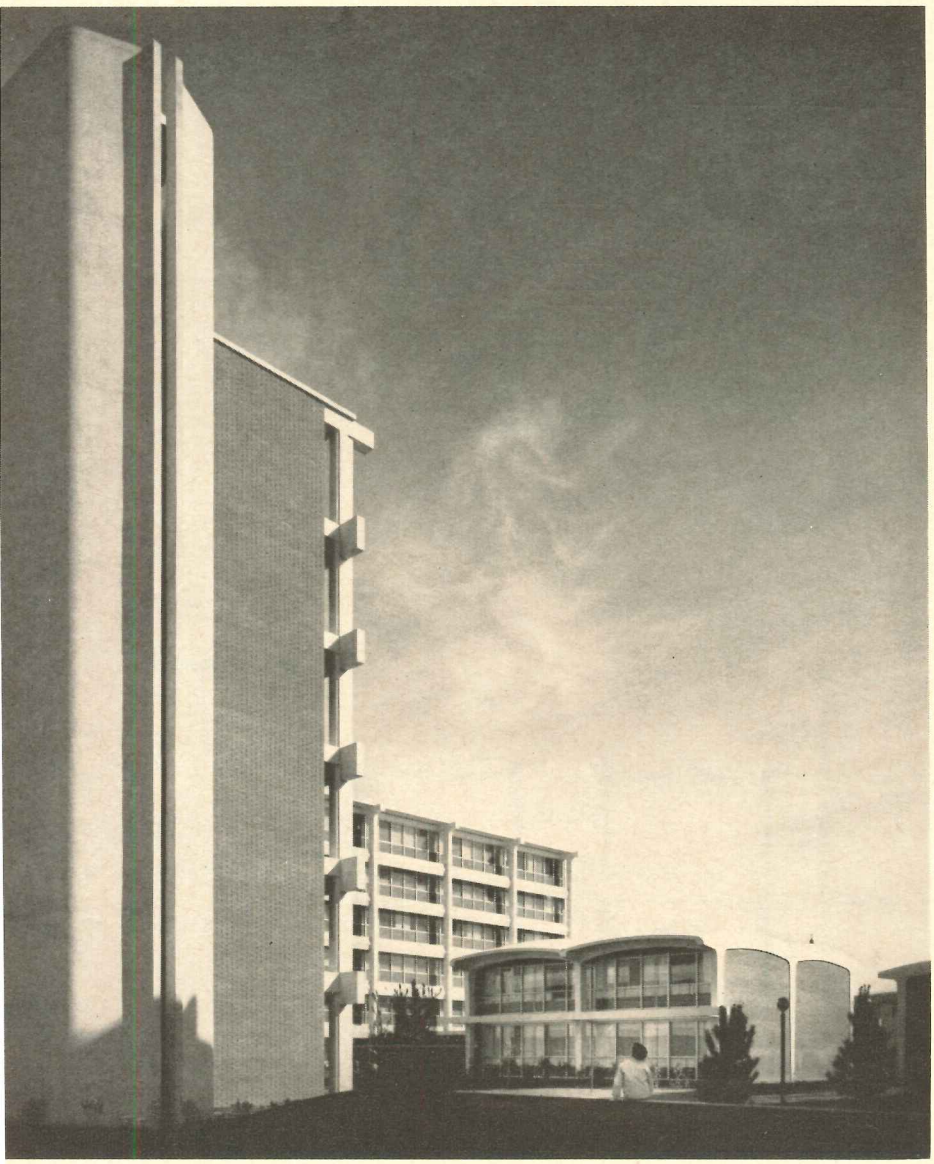




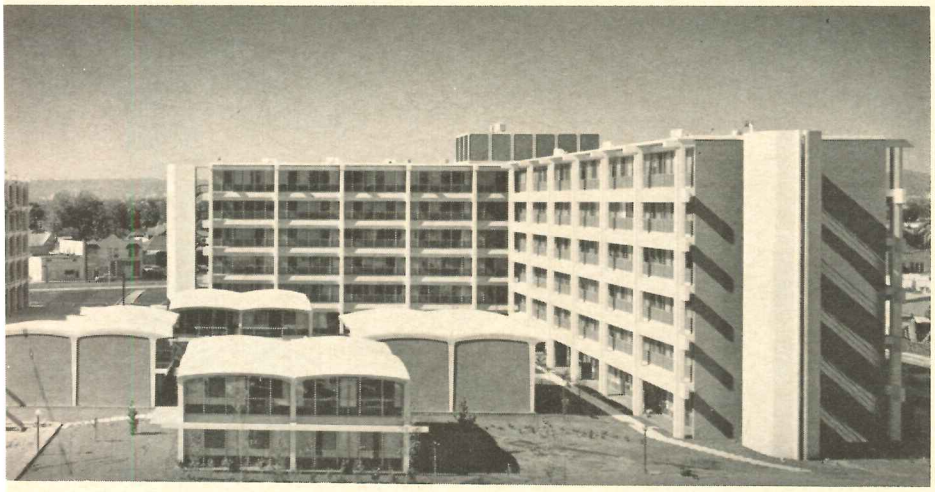


Joseph W. Molitor photos

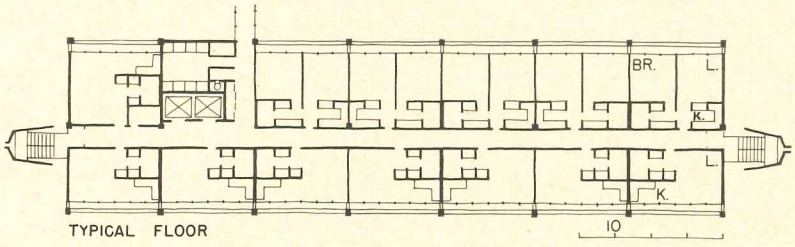




Marvin Rand



Preston E. Mitchell

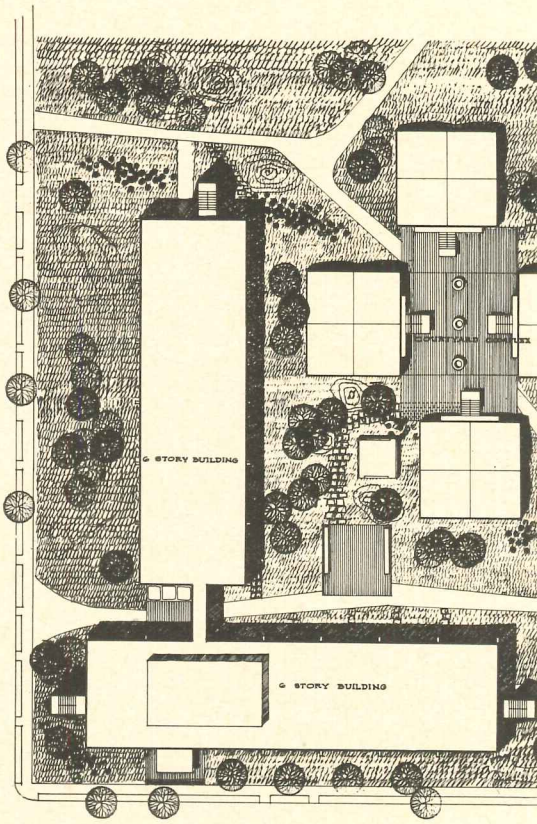


Married Students Housing

University of Southern California

Following the master plan for the University prepared by William Pereira and Associates, this housing quadrangle consists of three buildings of six stories, and four central ones of two floors. The low units and the two linked taller ones, shown on this page, are by Richard Dorman & Associates and include 28 two bedroom apartments, 55 with one bedroom, and 74 single rooms. The architects note that "the two-story units were designed to give scale to the complex, and to meet the University's requirement of a specific number of two bedroom units (which) were not to be above the second floor. They will be rented only to families with children. These units are of reinforced concrete with a shallow vaulted roof. The taller units are also reinforced concrete, with an exposed-frame structural system. Precast spandrel panels act as a horizontal strut and also as a sunshade." Exterior walls are sliding glass panels and brick, except for the "sculptured" concrete stair towers at the ends of the units.

Married Student Housing, University of Southern California, Los Angeles, California. Architect: Richard Dorman & Associates; contractor: Kemp Brothers; structural engineer: Brandow & Johnson; mechanical engineer: Boris M. Lemos; electrical engineer: Kocher, Bradford & Nishimura



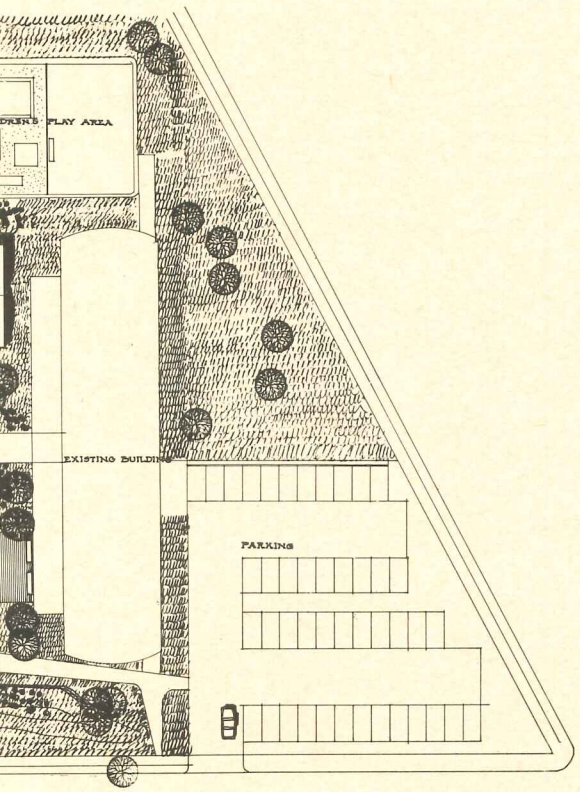
Married Students Housing

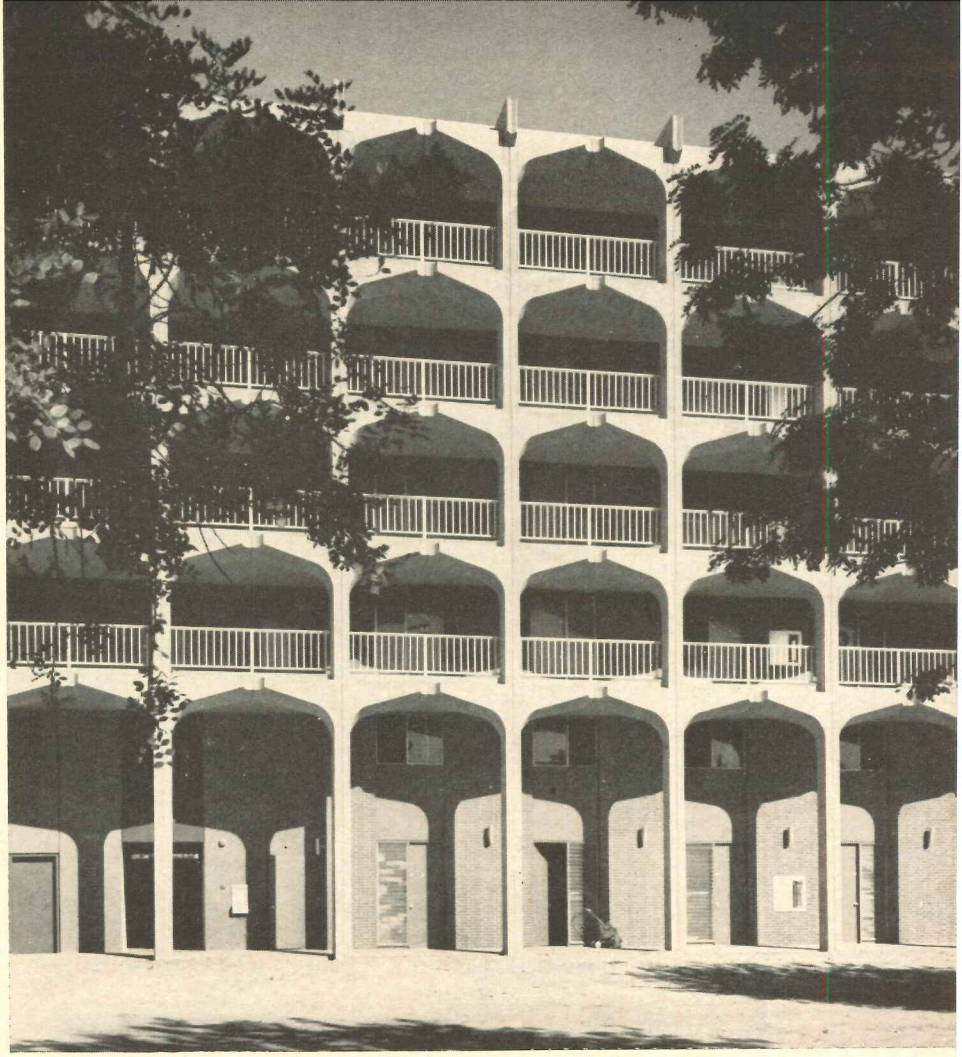
University of Southern California

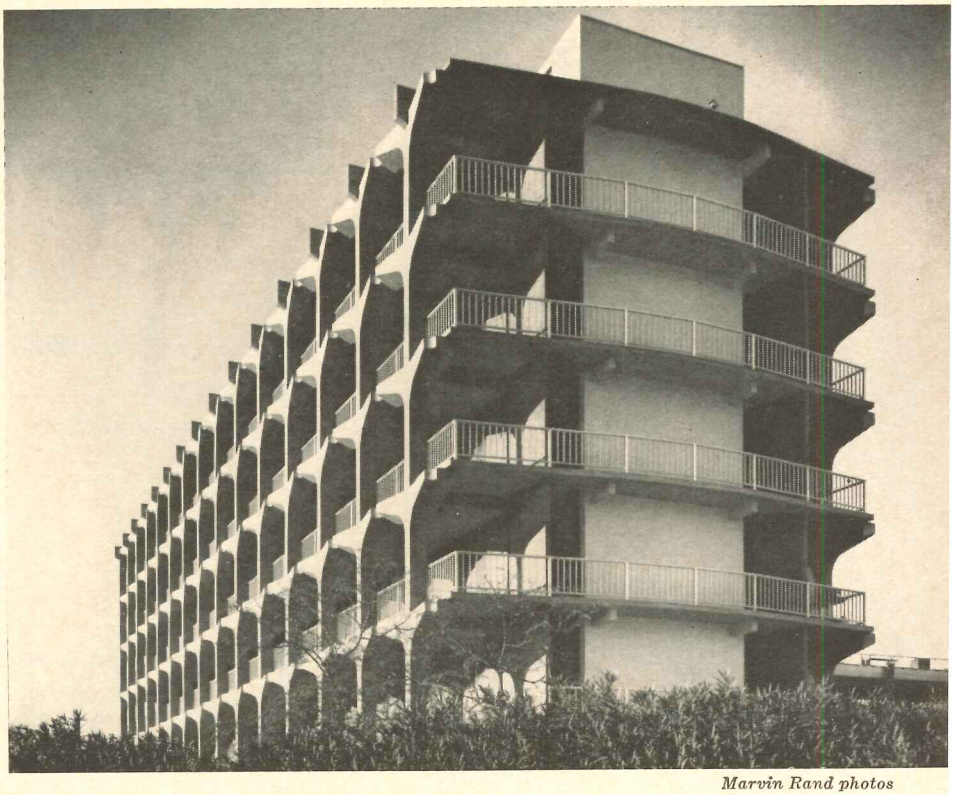
Robert Alexander's design was the first building of the complex to be constructed. As he says, "it is sited as a part of a complex forming an entrance into the campus, and is oriented toward the campus, with the building mass acting as a screen for the area, protecting it from the noise of the street. The structure is of steel and concrete construction with sculptured columns forming an arcade pattern on the two main facades. The column 'trees' were originally designed to be precast, but were changed to cast-in-place because of cost."

The first two floors of the building are divided into 12 two-story apartments for couples with children. The remaining four floors contain eight one bedroom units and 40 efficiency apartments. Living rooms face the campus, and have full-width sliding glass windows. The balconies on the street side of the building serve as circulation corridors and provide access to all the apartments. Exterior walls are brick and cement plaster; interiors have plaster walls and asphalt tile floors.

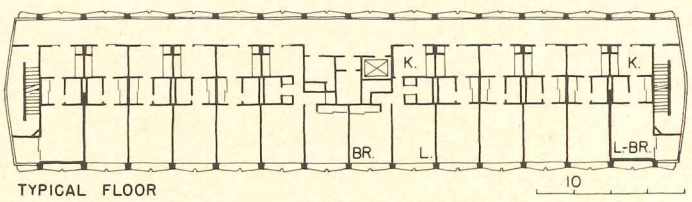
Married Student Housing, University of Southern California, Los Angeles, California. Architect: Robert E. Alexander & Associates; structural engineer: Parker, Zehnder & Associates; mechanical engineer; Boris Lemos; electrical engineers: Frumhoff & Cohen







Marvin Rand photos



TYPICAL FLOOR

Lee Schwartz

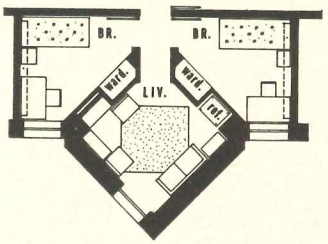
Men's Dormitory

Haverford College

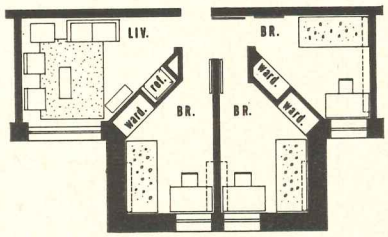
An unusually compact arrangement of two-, three- and four-man suites has been devised for this new dormitory, for 129 students. Wedge-shaped spaces are used to provide small, but adequate, private bedrooms for each student. "The request for private bedrooms" as the architects explain "springs from the college's philosophy that students, in order to pursue serious study, require privacy and quiet. In addition . . . the college also faced a requirement of economy. The building is being constructed with assistance from the Housing and Home Finance Agency, and plans had to conform with H.H.F.A. standards. The basic building arrangement is a sequence of three rectangular, three-story units which step down the sloping site. The center unit is set back nine feet, and is joined to the other two units at the common stairwells."

Exterior walls are load-bearing field stone supporting concrete floors. The roof is slate. Interiors have painted concrete block walls, terrazzo corridor floors and carpeted living areas.

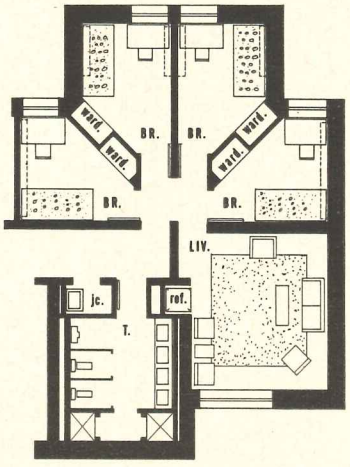
Dormitory, Haverford College, Haverford, Pennsylvania. Architect: Vincent G. Kling; contractor: Nason & Cullen; structural engineer: Allabach & Rennis; mechanical-electrical engineers: Louis T. Klauder Associates



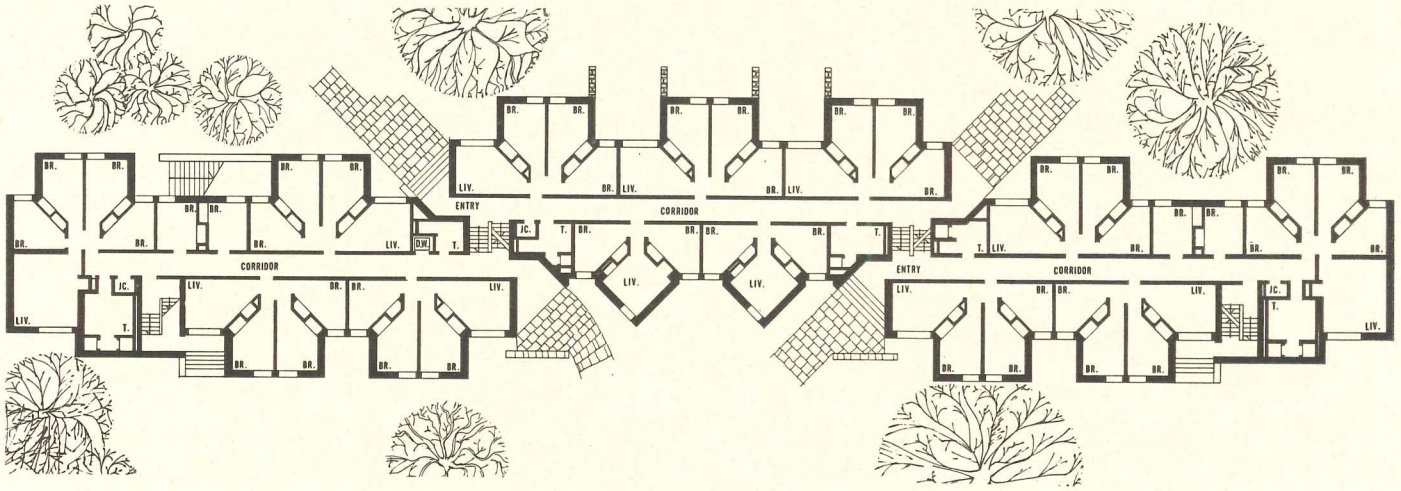
TWO MAN SUITE



THREE MAN SUITE



FOUR MAN SUITE



Dormitory Complex

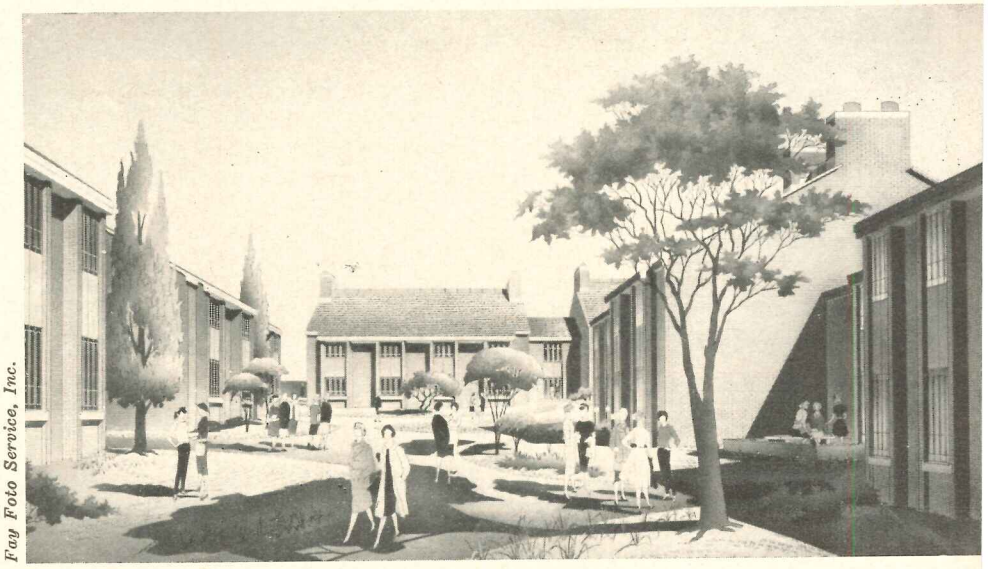
Pine Manor Junior College

The appealing, village-like atmosphere of these two dormitory quadrangles is highlighted by variety, small scale, and a soft-spoken contemporary design that seeks to be "a continuation of the old." The buildings are part of Pine Manor Junior College's new campus in Chestnut Hill, Massachusetts, which is scheduled for occupancy this fall.

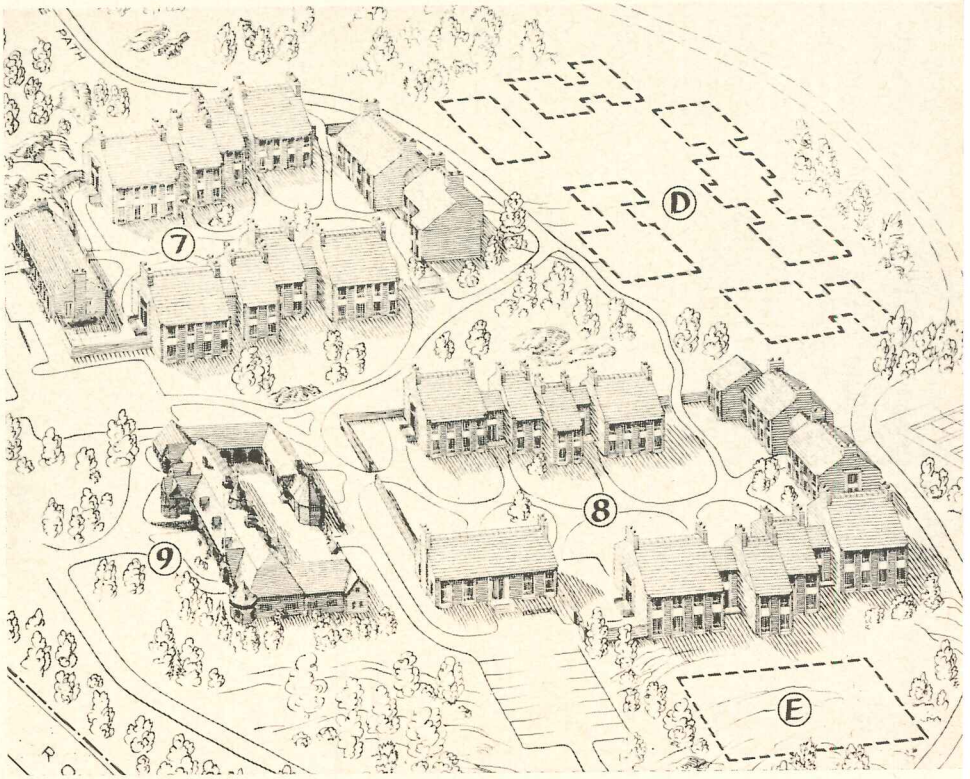
Each quadrangle will house 150 students, subdivided into groups of 30 in two-story houses. A typical house, as shown in the plan, *below,* will contain 10 single and 10 double rooms, as well as a common lounge with a mezzanine on the second level. Each quadrangle also has a detached house containing lounge and apartments for the administrative staff. Exteriors are brick with slate roofing.

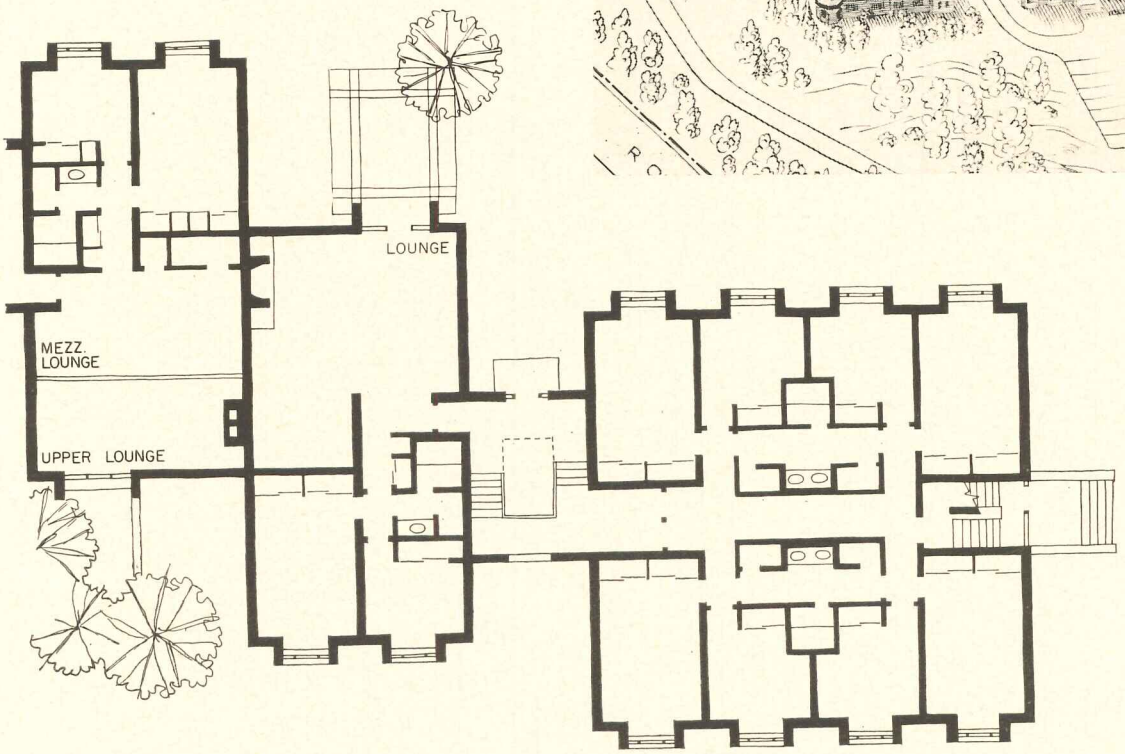
At a later date, a third quadrangle will be added for 150 additional students (D in the sketch, *right*). An existing barn (9 on the sketch) is to be converted for music and speech, "E" is the site of a future auditorium. A separate dining center is close by.

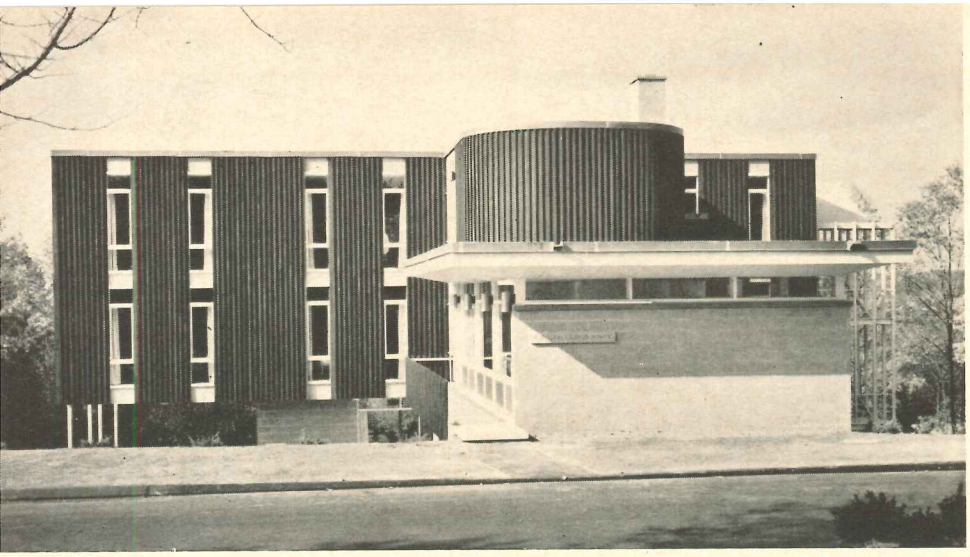
Dormitory, Pine Manor Junior College, Chestnut Hill, Massachusetts. Architects: Ernest J. Kump; associate architect: Edward F. Knowles; contractor: Aberthaw Construction Company; structural engineer: Henry Gorlin; mechanical and electrical engineers: Joseph R. Loring Associates



Fay Foto Service, Inc.







Joseph W. Molitor photos

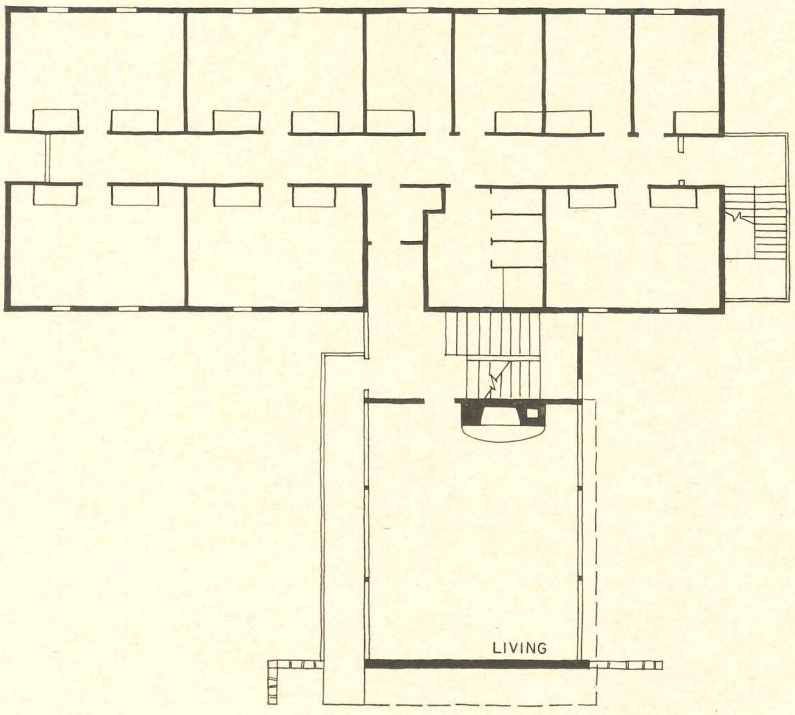
Cooperative Dormitory

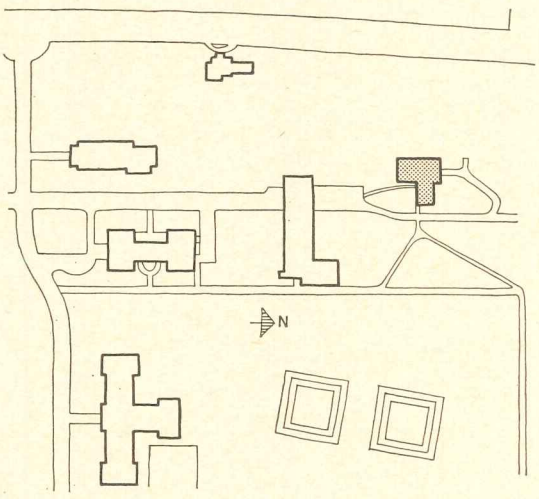
Connecticut College

A home-like, domestic scale was one of the major program requirements in this girls' cooperative dormitory. The 28 residents share equally in the cleaning and cooking. On the lower level are kitchen and dining facilities, and an apartment for the House Fellow. On the top level, a curved element above the living room contains three study cubicles. These are windowless "to facilitate concentration," but are top-lighted, by plastic bubbles, and fan-ventilated. The architects comment, "though the current campus theory seems to be focused toward single rooms, the budget would not cover all singles, and a mixture of singles and doubles was used. Narrow bedroom windows give maximum wall space to the girls. Because of the wooded site and the desired domestic feeling, natural wood and block was used."

A special feature was made of the fire stairs, required by local law, by providing decks for outdoor sitting areas. The structure is steel frame and concrete slab.

Cooperative Dormitory, Connecticut College for Women, New London, Connecticut. Architects: E. H. and M. K. Hunter; contractor: F. W. Brown Co.; structural engineers: Onderdonk and Lathrop; mechanical engineers: Quinlan and Giannoni





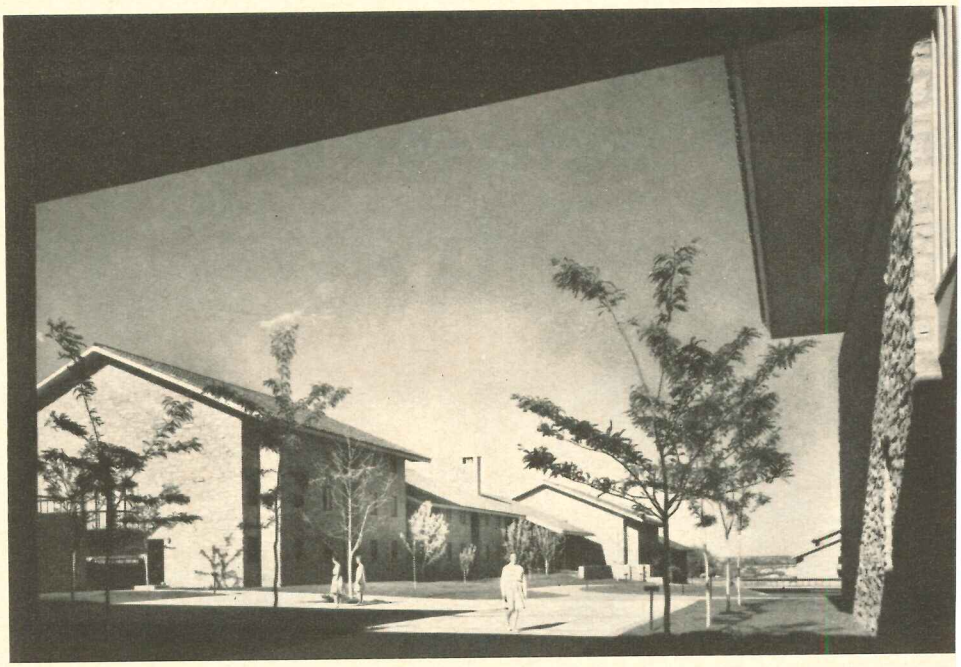
Residence Hall Complex

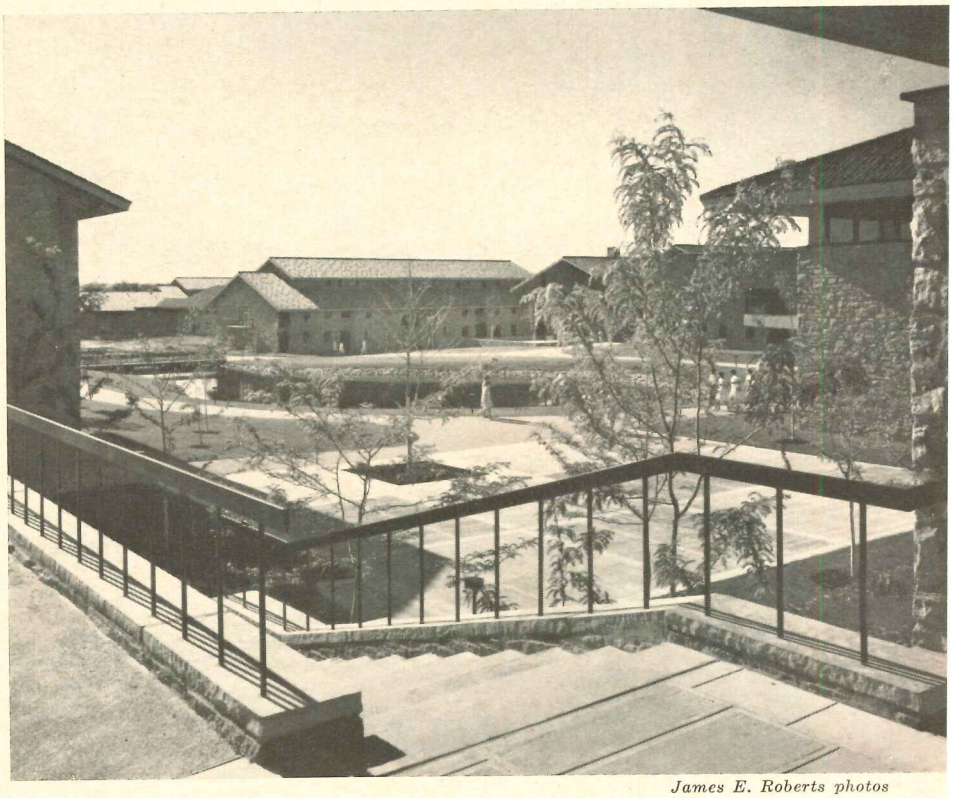
University of Colorado

An extremely pleasant residential environment has been achieved in this big complex for 1,000 students by grouping four dormitories and a commons building around a series of artificial lakes. Two of the dormitories are for men, two for women. Each residence hall is designed with three wings radiating from a central area containing study-library, lounge, resident advisor's apartment, laundries and the like. The buildings are two- and three-stories high, with considerable variety in student room size and arrangement. The typical double room has a study alcove, with desks somewhat apart from the sleeping area. Short, carpeted corridors surround central utility cores.

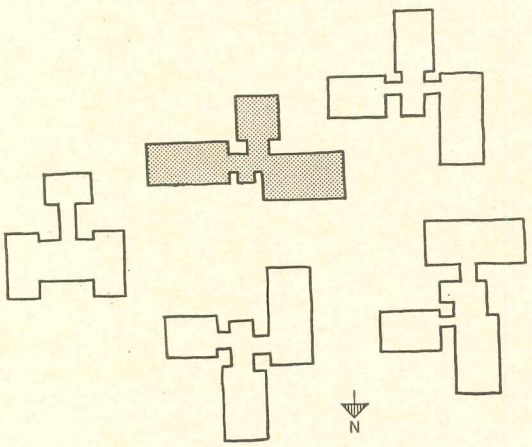
According to the architects, "the exterior expression included the need to harmonize with the strong unified architectural character of the campus, yet to have a fresh approach that could give the new residence halls a fair and meaningful identity. The traditional use of native sandstone and red tile roofs was continued."

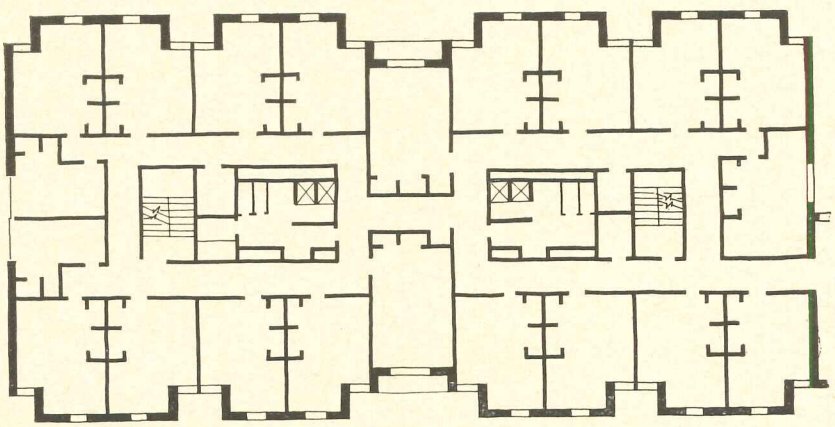
Kittredge Residence Halls, University of Colorado, Boulder, Colorado. Architects: Architectural Associates-Colorado (Fisher & Davis; W. C. Muchow & Associates; Hobart D. Wagener Associates; Ketchum & Konkel); consulting architect: Pietro Belluschi; site planners & landscape architects: Sasaki, Walker & Associates; mechanical engineer: James H. Konkel; electrical engineers: Swanson-Rink & Associates

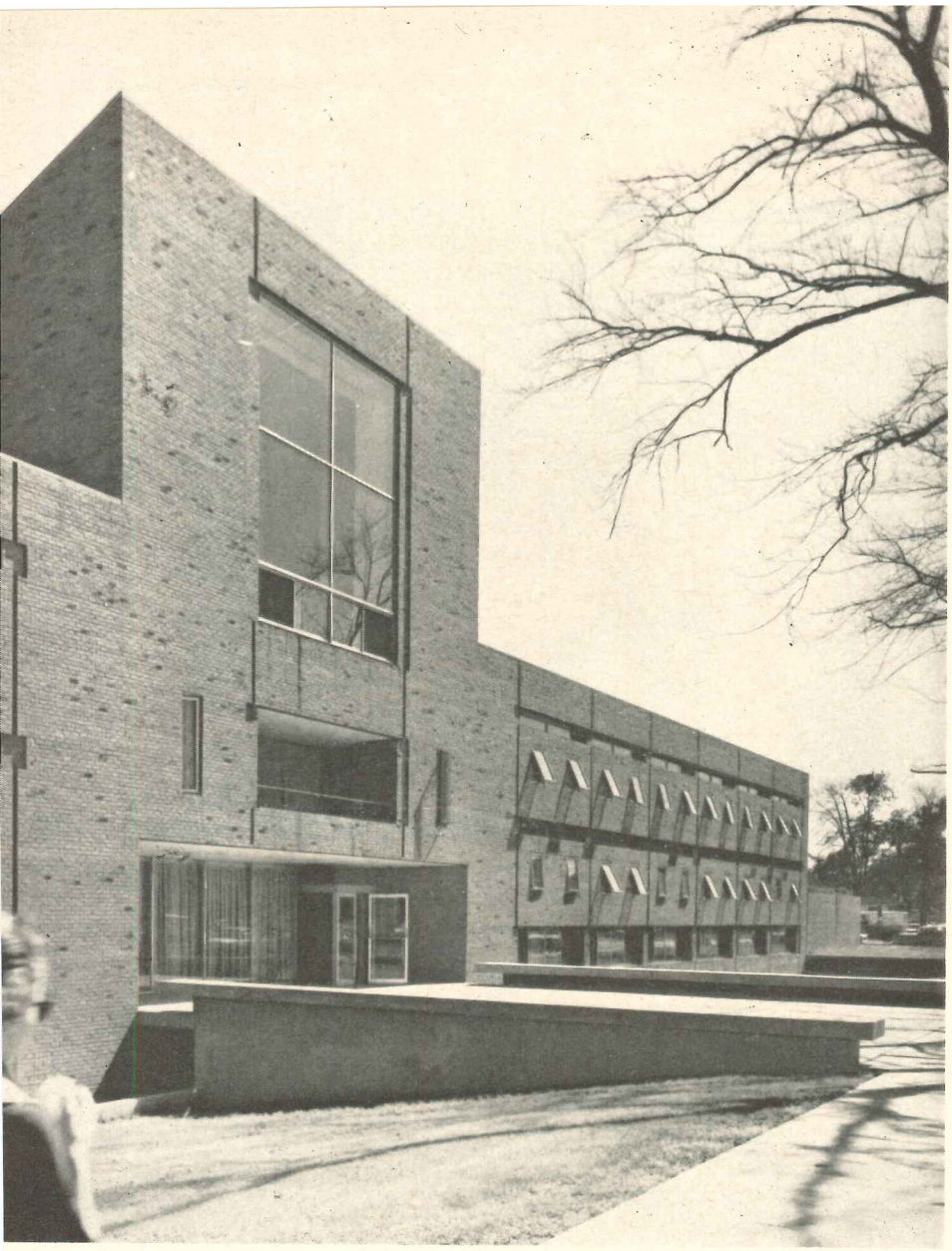




James E. Roberts photos







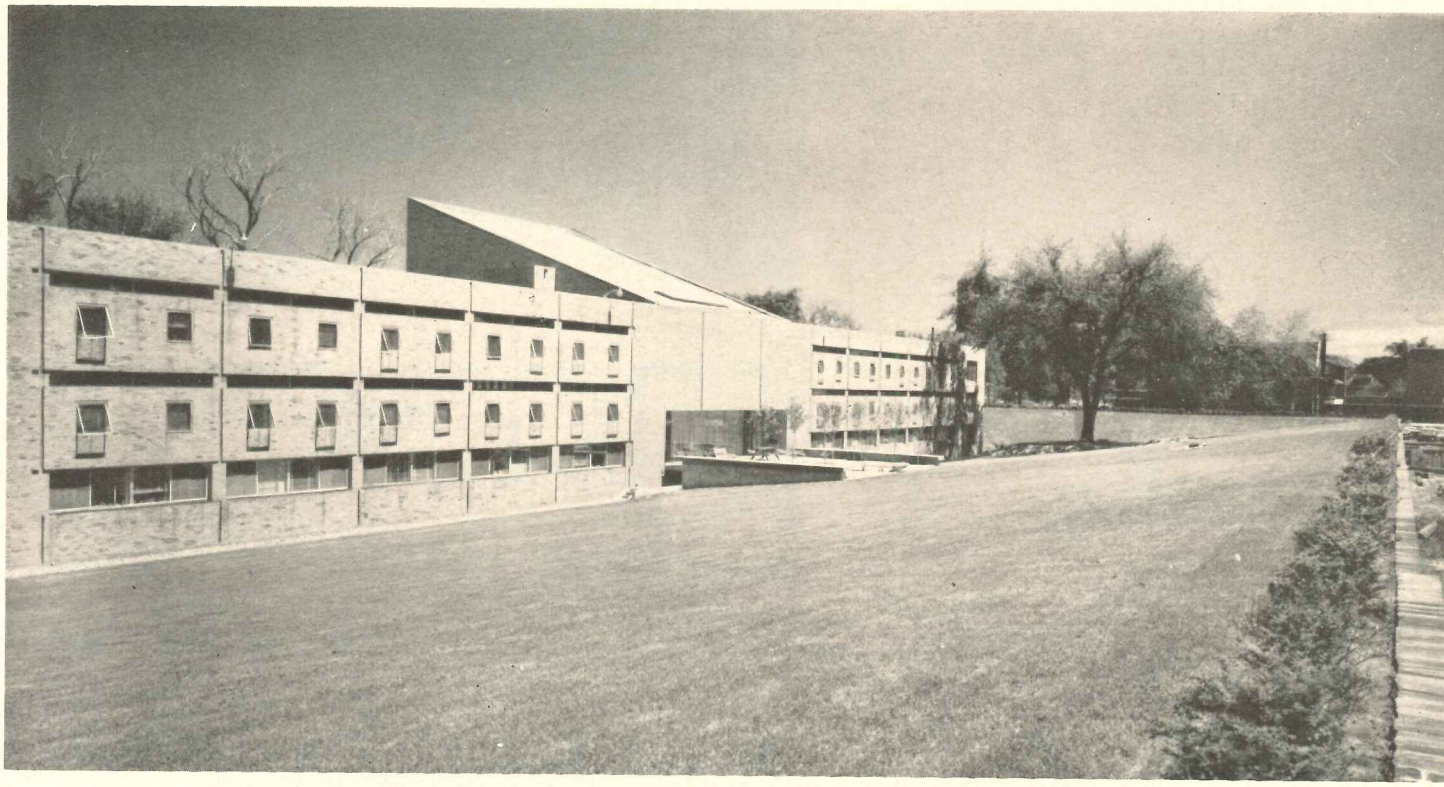
Women's Dormitory

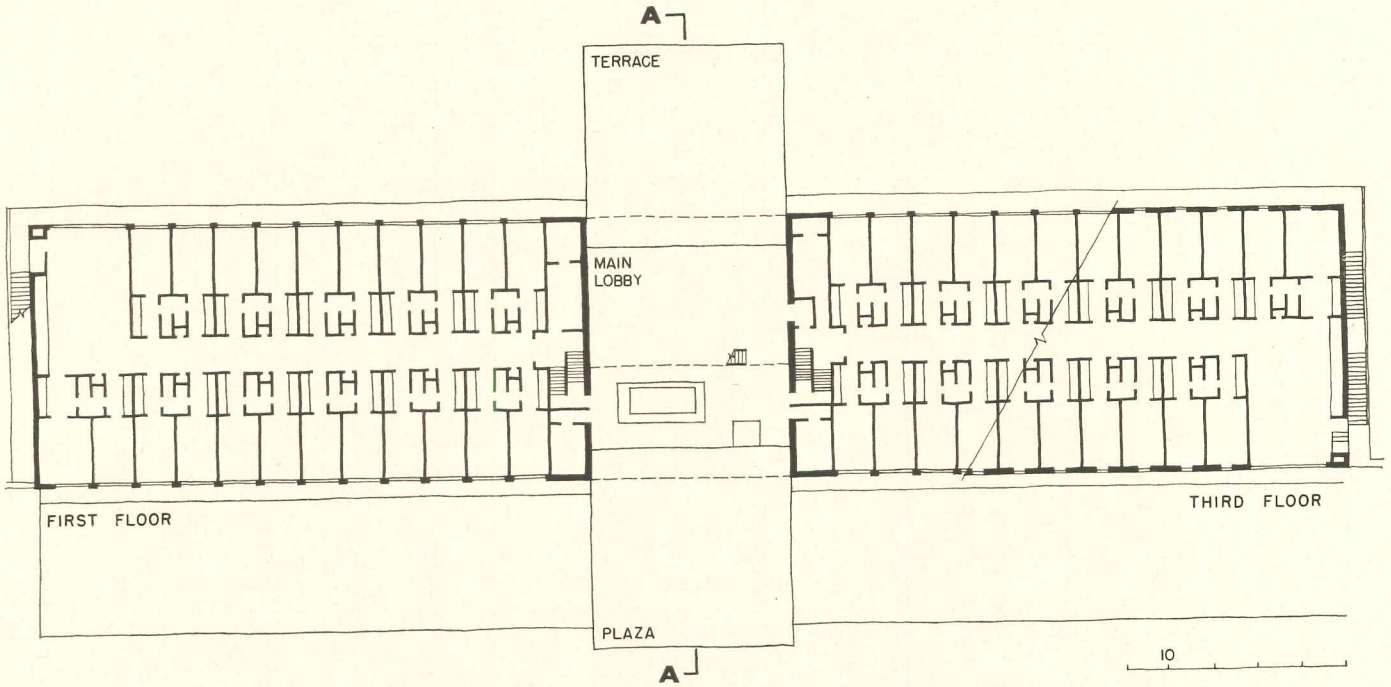
Wayne State University

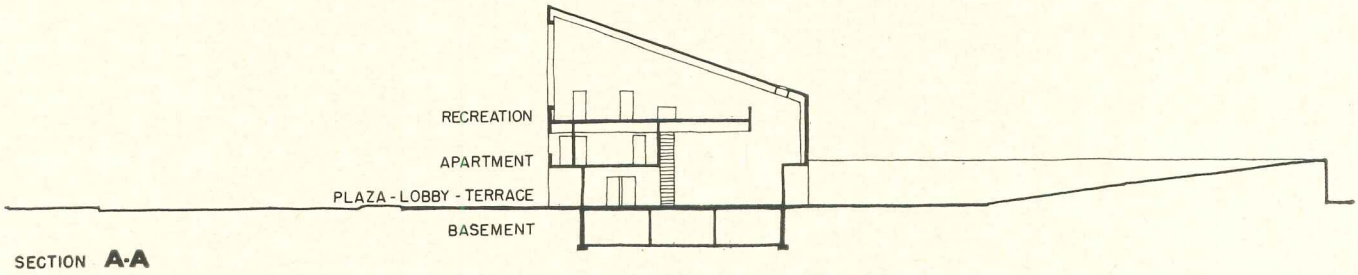
The most singular feature of Barnes' quietly understated design is its saucer-like setting of walled-in, tilted lawns. As can be noted in the air view, the site is rimmed with expressways and parking lots. From its early design stages (see ARCHITECTURAL RECORD, October 1961) one of the basic planning considerations was to provide adequate isolation for study and relaxation within the complexities of the surrounding traffic. To obviate the possible oppressiveness of the 10-foot wall needed to provide privacy, the scheme was developed with lawns ramping up from the building to the top of the wall. The optical illusion created by the tilted planes of grass seems quite successful.

Individual rooms are planned with the baths and closets ranged along the corridor side of the rooms, a bed on each long wall, and a desk along the outside wall. Tack boards flank a central window, with bookshelves and an additional strip window above. Lounges are at the ends of floors.

Helen Newberry Joy Residence for Women, Wayne State University, Detroit, Michigan. Architect: Edward Larrabee Barnes; associates: Richard Moger, Giovanni Pasanella, Hildegarde Bergeim; associate architects: Jickling and Lyman; structural engineers: Severud-Elstad-Kruger-Associates; mechanical engineers: Cosentini Associates

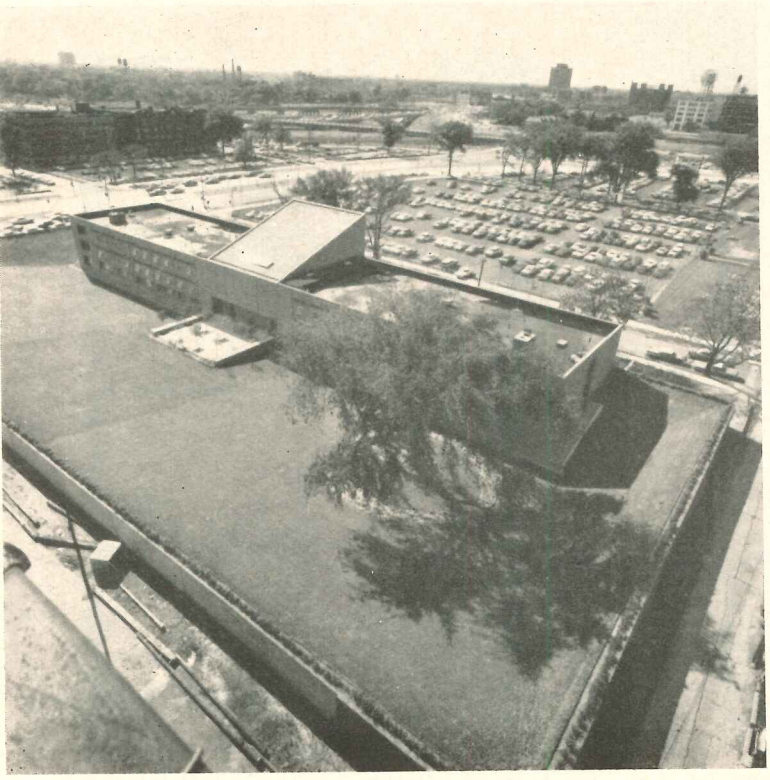


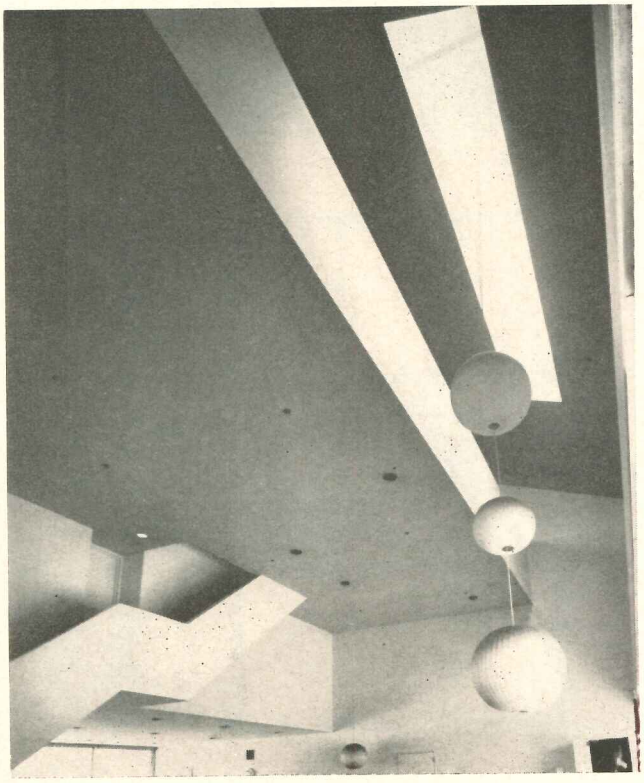


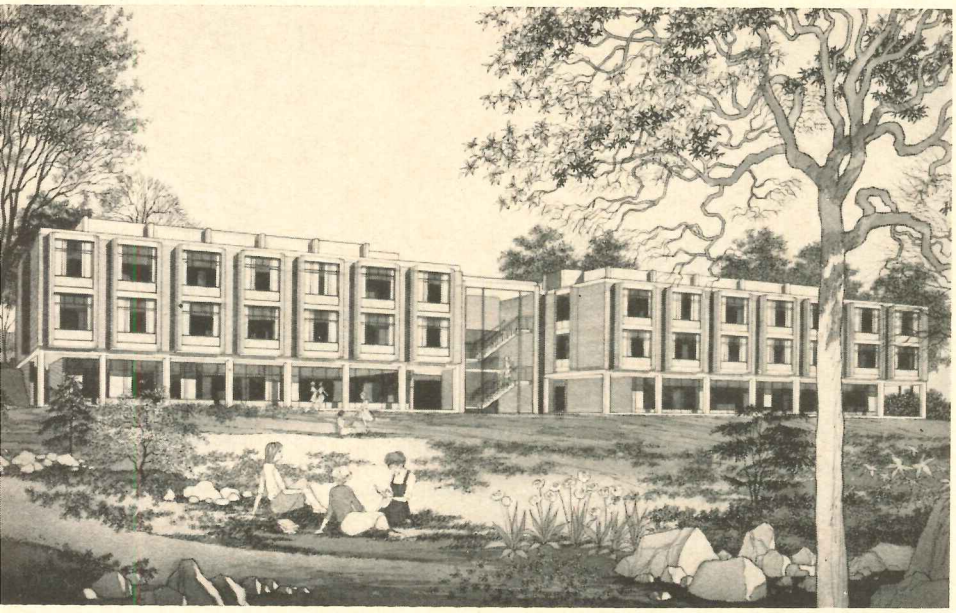


SECTION **A-A**

Balthazar photos







Women's Dormitory

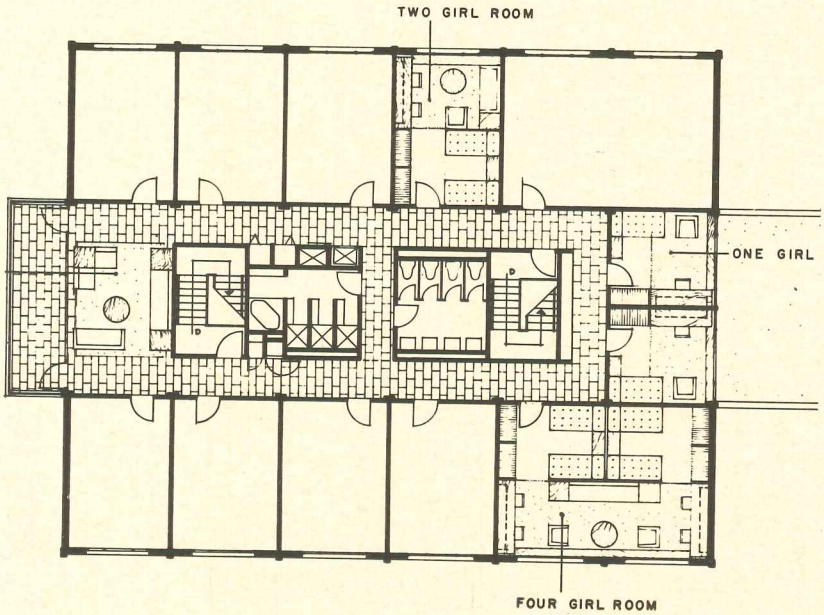
Briarcliff College

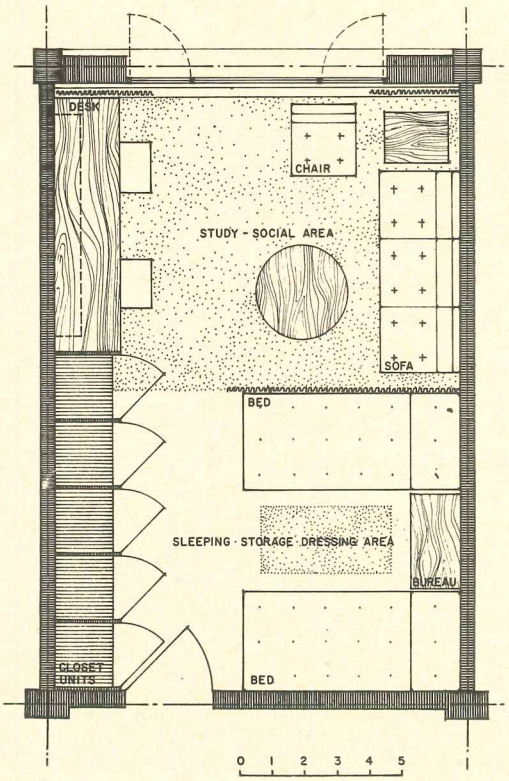
A double pavilion scheme is used to achieve smaller groupings of students per floor in each of these two new Briarcliff dormitories. Both the recently finished Valley House (*top, left*), and the earlier constructed Hillside House (*below*) use the same type of plan with double corridors and utilities in the center. Rooms for one, two or four girls range the periphery with study-sitting areas on the outside and sleeping areas on the interior. Quiet study areas are at the end, and have flanking balconies.

The ground floor of Hillside House has a central lobby, quarters for the house mother and the custodian at one end, and student lounges at the opposite side. In Valley House, the quarters for the house mother are on the link over the lobby, and additional study areas and typing rooms are on the lowest level.

The buildings are reinforced concrete construction, with exterior panels of brick. Interior wall finishes in student rooms are vinyl wallpaper on plasterboard; floors are asphalt tile. Halls and lounges are carpeted.

Valley House and Hillside House Dormitories, Briarcliff College, Briarcliff Manor, New York. Architects: Sherwood, Mills and Smith; mechanical engineer: Abrams & Moses; structural engineer: Wayman C. Wing; landscape architect: H. R. Butler Associates; contractor: Peter Camilli





NEW DIRECTIONS FOR URBAN RENEWAL

By Robert C. Weaver

Administrator of the U.S. Housing and Home Finance Agency

"In retrospect, it seems obvious that urban renewal could never have been simultaneously the economic savior of the central city, an instrument for clearing all the slums, the means of attracting hordes of upper middle-income families back into the central cities, and a tool for rehousing former slum dwellers in decent, safe, and sanitary housing, while generating a volume of privately financed construction involving private investments four to six times as great as the public expenditure. It could, and did, in its various aspects, do some of all of this. But the expectation that the total package would be realized through urban renewal was unrealistic from the start. . . .

"The recent redirections in the program and those suggested in the proposed Housing and Urban Development message of 1965 recognize the necessity for changing the emphases of urban renewal. Together they offer a basis for outlining a new set of functions for the program."

"Not only will urban renewal fail to clear all the slums, but I question if we shall ever rid our cities of them until we solve the economic, social and psychological ills which harass modern man. It is, therefore, unfortunate that a single program, oriented principally to a segment of the physical aspects of housing, has become associated with a goal which is impossible for it to achieve. The sooner we divest ourselves of this romantic illusion, the better we will assess our slum clearance activities."

Urban renewal was conceived in controversy and it has matured in controversy. In the process, two extreme schools of thought have grown up. On the one hand, there are those who can see no good in the program and would do away with it. The champions of urban renewal have often been equally dogmatic in its defense, denouncing all critics as biased and all criticisms as unfair.

In this war of words, and often invective, there is much lost effort in that the proponents and the opponents frequently fail to establish a common definition of the program's objectives. Urban renewal suggests different goals to different people.

As I indicated last night, one of the difficulties lies in the fact that the earlier champions of the program claimed too much for it. Thus, it was inevitable that the critics would disclose failures to produce what had been set forth as potential benefits.

Of course, there is, too, much controversy as to what actually happened. This involves the challenging of data, the selection and interpretation of data, and the evaluation of day-to-day administration of the program. Tonight I shall avoid the latter controversy, save for a passing reference to relocation. Rather, my concern will be to set forth the nature of urban renewal and attempt to formulate its current objectives. Once these issues are delineated, there is a sound basis upon which to evaluate both the program and the literature that relates to it.

The first controversy incident to urban renewal was over the form of the subsidy. Soon that gave way to differences of opinion relative to the degree to which urban redevelopment should be concerned with shelter. The issue involved the relative importance of housing, slum clearance, and redevelopment. Also, of course, this ultimately led to differences relative to the type of redevelopment—the mix between residential, commercial or industrial, and public construction. Within the universe of residential construction there were differences relative to the economic classes that should be housed.

As the program matured, these issues continued to harass it. They are still unsolved and, in my opinion, occasion much of the confusion which adheres to urban renewal. Today, discussion of them is complicated by other issues and objectives which are articulated by those who operate and evaluate the program. Until there is some consensus about the basic objectives and possible goals of urban renewal, it will continue to be surrounded by confusion. . . .

The true issue is not residential vs. non-residential or downtown vs. gray area renewal, but the proper combination of these elements in a local redevelopment program. Cities are composed, first, of people, and the proper housing of the residents is important. But cities also have to have an economic base. The elements of the latter have changed, involving a lesser amount of manufacturing, more light and clean industry, a growing amount of research, and a greater volume of commercial, cultural, and service activities. These require new types of offices, plants, stores, and public buildings. And they cannot be built on improved land in the central city as cheaply as they might be built on much less expensive vacant land on, or beyond, the fringe of the city. Thus, if the central city is to survive, it needs to provide space and facilities for those economic activities which it can attract and hold. In addition to the cost factor, as basic as it is, there are other elements which influence the location of business activities. As far as industry is concerned, the availability of adequate space for the construction of horizontal rather than vertical plants is important. Also, the need for adequate parking space or the existence of efficient mass transportation are elements which determine where industry locates.

Urban renewal provides two needed ingredients. First, because eminent domain is employed, the city is in a position to acquire a total area and deal with it as a unit. Secondly, and even more basic (because there could be eminent domain without a federal subsidy program), subsidies which make it possible to provide cleared sites at marketable prices in central locations accelerate and increase the demand for the use of such land. In addition urban renewal provides the major source of financing for redeveloping core areas with good traffic flow patterns, pedestrian malls, adequate lighting, and other

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This article consists of excerpts from the second Godkin Lecture given at Sanders Theater, Harvard University on the night of Tuesday, March 30, under the sponsorship of the Harvard Graduate School of Public Administration.

"The case for preserving and renewing our cities really rests on what I consider the keystone of our national housing policy. It is concern for maximizing choices for the American people. Some of us prefer to live in a central city; others prefer to reside in the suburbs. In order that these preferences may find realization, the central cities must be economically strong as well as attractive and functional. Urban renewal is a tool to achieve these objectives, and crucial elements in its approach are revitalization of the downtown areas and provision of some higher priced housing."

amenities which make downtown business, industrial and commercial redevelopment competitive with similar facilities in the suburbs.

There remains a problem. Nonresidential redevelopment usually pays off for the city. It produces more tax revenue; so why shouldn't the locality pay back the Federal contribution to it? At the outset it must be recognized that, once the redevelopment has been completed, such repayment is mathematically possible. But is it desirable?

The reason the Federal Government is in the field of urban renewal is because the cities do not have the financial resources to undertake it unassisted. Were cities to raise their own revenue for urban redevelopment, such action would involve higher local taxes, serving to accelerate the exodus of businesses and higher income families. To avoid this acceleration of a vicious cycle of financial deterioration, the cities must seek financial aid elsewhere to help bring about urban redevelopment.

We have slowly recognized that economic rehabilitation is a vital part of urban redevelopment. Thus, the downtown projects not only provide physical upgrading and employment and business expansion but also establish a long-term source of increasing taxes. If the latter is to have maximum impact, it should not be taken back by the Federal Government. . . .

The case for preserving and renewing our cities really rests on what I consider the keystone of our national housing policy. It is concern for maximizing choices for the American people. Some of us prefer to live in a central city; others prefer to reside in the suburbs. In order that these preferences may find realization, the central cities must be economically strong as well as attractive and functional. Urban renewal is a tool to achieve these objectives, and crucial elements in its approach are revitalization of the downtown areas and provision of *some* higher priced housing.

While urban renewal is a vital tool for preserving our cities, we must modify it in light of sound analyses and experience. Thus there has been, and there will continue to be, new direction in the program. Moderate-income housing and rehabilitation of existing housing will be stressed. The latter will be, for the most part, cost-conscious rehabilitation, designed to accommodate approximately the same income groups as resided in the structures prior to their being improved.

The Housing and Urban Development bill of 1965 contains significant new tools to accomplish this. The result will be a lessening of the relocation load, greater preservation of existing neighborhoods, and an attack upon the vast gray area of our cities. But the volume of private expenditures and the amount of tax assistance to local government will be less than was previously contemplated, suggesting the need for other forms of revenue assistance to our cities. This is recognized in the Housing and Urban Development bill of 1965, as well as in other current legislative proposals. To supplement indirect revenue assistance to cities via urban renewal, which makes the maximum contribution to local tax revenue, the Federal Government has proposed direct grants for vital public services and facilities. Included is the new program of matching grants for urban service facilities, such as neighborhood centers. These will help cities carry out plans developed in connection with their community action programs financed by the Economic Opportunity Act. In addition, Federal funds are proposed to provide significant support for education, job training, and associated services.

These approaches recognize that cities need financial assistance to meet their required outlays for public facilities and services. They take the direct route and are more effective in assisting the provision of such facilities and services because they provide immediate financial relief without reducing tax revenue over the short-run as urban renewal may well do. Direct grants, however, are complementary to, and not a substitute for, urban renewal. The latter not only improves the local tax situation but supports the economic base of localities, upgrades the quality of housing, serves to arrest blight and clear slums, at the same time that it encourages and facilitates orderly development of the localities. Direct grants can be, as they are, used primarily to assist the disadvantaged and the needy, providing services which are readily identified and politically accepted as those for which Federal funds should be spent.

If it is true that urban renewal will not and cannot solve all the economic and tax problems of our cities,

"While the glamorous redevelopments may inspire local pride and engender some general support, this is somewhat acquiescent and contrasts to the positive opposition of those elements adversely affected. Tearing down the houses occupied by the poor—and especially the poor who are non-white—and rebuilding for high-rent occupancy may accelerate the return of the middle-class to central cities but in time it generates widespread opposition to urban renewal."

is it similarly limited as the cure-all for their housing ills? The answer is in the affirmative. And this is hard for us to accept since there has been confusion on this score from the beginning of the effort. On the basis of earlier Congressional intent and the tradition of Federal participation in housing and related problems, urban renewal was, and still is, looked at as primarily a slum clearance program which will ultimately eradicate all slums in American cities. Two sophisticated and able students of, and practitioners in, the field published a pamphlet on urban renewal in Washington, D.C. under the title "No Slums in Ten Years." Of course the ten years have passed and Washington still has slums. It also has a highly successful and attractive urban redevelopment which has pioneered in racial integration and replaces *one* of the worst slums in the Nation's Capital.

Not only will urban renewal fail to clear all the slums, but I question if we shall ever rid our cities of them until we solve the economic, social and psychological ills which harass modern man. It is, therefore, unfortunate that a single program, oriented principally to a segment of the physical aspects of housing, has become associated with a goal which is impossible for it to achieve. The sooner we divest ourselves of this romantic illusion, the better we will be able to assess our slum clearance activities.

As long as it was believed that we would be able to clear all of our slums through urban renewal, it was inevitable that questions of the timing and the cost of the undertaking would be raised. Thus, there are estimates of what the total effort would involve in dollars, and there is advocacy of accelerating the program rapidly. Total slum clearance and total urban renewal became an alternative to which Federal spending could be directed when and if our defense budget were materially reduced. This, too, is unrealistic. Urban renewal, involving slum clearance and dislocation, has a disruptive impact upon a locality, and there are economic, social and political limitations upon the volume of it that can be digested at any period of time. We now are comprehending that urban renewal is not only a time consuming operation but one that has to be paced to reflect the ability of cities to accommodate to its impact.

It is misleading, for example, to talk about the number of urban renewal projects that have been completed. Some, like the vast Southwest redevelopment in Washington, D.C. have been in execution for many years. Yet by any reasonable standard, Southwest redevelopment is a success. One reason for its success is the fact that it was not prematurely completed. Because it involves transforming the nature of a large area, timing of improvements was crucial. By phasing the construction, the demand for the new fairly high-cost housing grew as the supply increased. It is today renting briskly and the cooperative apartments and town houses find ready purchasers before they are completed.

The other side of slum clearance is the provision of housing for low- and moderate-income families. What has urban renewal done for these groups? What will it do for them? Originally the champions of urban renewal seem to have assumed that the low- and moderate-income households would be able to upgrade their shelter through the filtering process. Thus, urban renewal sites would be developed primarily for higher-income families and the less affluent would go into the vacancies occasioned by a series of moves incident to new construction. In this process, it was assumed that all income groups could and would upgrade their housing. Of course, it did not work this way. The two major impediments were the tightness of the housing market which inhibited the assumed chain of vacancies, and the various frictions in the housing market occasioned principally by racial bias and a paucity of good moderate-cost housing accessible to the less affluent.

Recently the housing market has changed. In most cities of this nation, there are sufficient vacancies to ease the process of relocation. This economic fact, when combined with much more stringent Federal relocation requirements, has upgraded the rehousing of displaced households, albeit at rents which often have absorbed a somewhat higher proportion of income. In recognition of this, the 1964 legislation provided rent supplement for displaced families and cash payments for displaced small businesses.

Perhaps even more important has been the change in attitude toward relocation. At first it was considered no problem. Then it was ignored in some cities where poor families were pushed out of their homes with a

"Despite the fact that there has been over-optimism about the rapidity with which upper middle-income families will return to the central city in response to attractive housing in redeveloped neighborhoods, urban renewal has demonstrated that, when they have something to come back to, some do respond. There is every reason to believe that the trend—today a trickle—will continue and grow."

minimum of assistance. Today most of those engaged in urban renewal are acutely conscious of the importance and difficulties of relocation, occasioning greater appreciation for the problem of the ability of communities to adjust to the impact of the program. Current Federal legislation and Federal policy recognize that relocation can and does entail economic costs and psychological stress among those who are forced to move. This realization is in part responsible for the recent emphasis upon expansion of moderate- and low-income housing and the push for rehabilitation rather than demolition. It also accounts partially for the current policy of not expanding the ratio of downtown redevelopment in the program.

Although I resolved not to enter into an evaluation of the performance of urban renewal in relocation, no discussion of the program is meaningful if it ignores this aspect. Because of the earlier deficiencies in relocation, "conventional wisdom" has it that the situation, while somewhat better, is still deplorable. When HHFA released data indicating that over three-quarters of those relocated in the fiscal year ending in July 1963 moved into decent, safe, and sanitary housing, those who view the program from academia responded that the figures are unreliable. They noted that the local public agencies which operate the program report the data and these agencies grossly overestimate progress. To prove their point, they cited a horror case. For they *know* that relocation is a scandal.

I, too, have realized that there are questions relative to the accuracy of the locally reported data. Therefore, last winter I contracted with the U.S. Bureau of the Census to make a survey of families relocated by urban renewal during the period from June 1 to August 31, 1964. HHFA identified all local redevelopment agencies which had projects going into execution during 1962 and 1963. There were 132 cities involved. During the three summer months of 1964, 2,842 families were relocated in these localities by urban renewal; 2,300 of these were interviewed by the Bureau of the Census—the remainder had moved from the city, could not be located, or refused to respond. Of those interviewed, 94 per cent had been relocated in standard housing.

All of these changes in the direction of urban renewal have a sound economic basis, to which references have been made. At this point the political and social elements can be set forth in a comprehensive manner that will relate them to most of the new directions that have been formulated.

Downtown redevelopment may promote enthusiastic support from some of the large businesses and financial interests, but it alienates the small businessman who faces displacement and the residents who may be uprooted. While the glamorous redevelopments may inspire local pride and engender some general support, this is somewhat acquiescent and contrasts to the positive opposition of those elements adversely affected. Tearing down the houses occupied by the poor—and especially the poor who are non-white—and rebuilding for high-rent occupancy may accelerate the return of the middle-class to central cities but in time it generates widespread opposition to urban renewal.

Thus, the new directions of the program are realistic. They will not in and of themselves upgrade the housing conditions of all the poor. And, indeed, urban renewal was never structured to do that, despite the legislative intent at the time of its origin. Renewal will, however, improve the quality of shelter and urban living for an increasing number of the less affluent; and, when combined with the anti-poverty program, provide meaningful assistance to many of the poor.

No one Federal program can, by itself, solve the social problems of the nation. Urban renewal, in the past, has, however, too frequently complicated rather than eased these problems; in the process, however, it revealed many social issues which had been ignored. Now it is attempting to make a continuing contribution to the economic health of the central city, make the city more attractive and liveable, provide sites for the housing of a diversified economic segment of the population, and upgrade the shelter and physical environment of the poor and the discriminated against. But even in this latter area it will not do the whole job. The proposed grants for construction of certain social public facilities, primarily in the gray areas, utilization of the open space program for parks and playgrounds in the central cities, and improvement of mass transportation will have even greater impact upon people. And, of course, the new proposals for significant expansion of low- and

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moderate-income housing outside as well as inside urban renewal areas will bring new hope and housing opportunity to the poor, at the same time that they facilitate some slum clearance.

In retrospect, it seems obvious that urban renewal could never have been simultaneously the economic savior of the central city, an instrument for clearing all the slums, the means of attracting hordes of upper middle-income families back into the central cities, and a tool for rehousing former slum dwellers in decent, safe, and sanitary housing, while generating a volume of privately financed construction involving private investments four to six times as great as the public expenditure. It could, and did, in its various aspects, do some of all of this. But the expectation that the total package would be realized through urban renewal was unrealistic from the start. . . .

The recent redirections in the program and those suggested in the proposed Housing and Urban Development message of 1965 recognize the necessity for changing the emphases of urban renewal. Together they offer a basis for outlining a new set of functions for the program. They are as follows:

1. Continue to undertake downtown redevelopment. This will serve to strengthen the economic base of central cities. It will also make a contribution to increased tax revenue, but grants for social public facilities and for services will be a more direct and effective support to local government finance.

2. Provide sites for new residential construction serving a variety of income groups. A limited amount of this will be higher-cost and serve to hold in, and attract to, central cities middle-class families. Most will be moderate- and low-income housing.

3. Upgrade the quality of the existing supply of housing, especially in the gray areas, largely through new and expanded programs of rehabilitation and code enforcement.

4. Demolish *some* of the dilapidated and substandard housing in the blighted areas.

5. Afford sites for public institutions, particularly universities and hospitals.

6. Provide sites for industrial redevelopment projects.

7. Develop more attractive and better planned cities. . . .

Although I am convinced that economics, if not public policy, will diminish the volume and proportion of high-rent residential construction on urban renewal sites, it would be uneconomic to ban such construction. Also, if there is a large number of lower-rent residential construction in urban renewal areas and especially elsewhere in the city and a volume of effective rehabilitation, the social and political problems incident to some luxury redevelopment are greatly modified.

Despite the fact that there has been over-optimism about the rapidity with which upper middle-income families will return to the central city in response to attractive housing in redeveloped neighborhoods, urban renewal has demonstrated that, when they have something to come back to, some do respond. There is every reason to believe that the trend—today a trickle—will continue and grow. Also, housing in the central cities has a special appeal for the young, the newly-married and older persons of all income groups. Thus, while urban renewal can not presently retain in the central cities all middle-class white families tempted to move away or pull them back from the suburbs, it can, has, and increasingly will, make a contribution in this direction. But, at best, this will be a slow process.

What urban renewal can do is to assist in upgrading the gray areas, improving the housing for low- and moderate-income families, revitalizing the downtown core areas, and making the central cities more attractive, viable, and satisfying. A by-product of this will be to hold upper-income families and attract some middle-income households.

Over a period of 15 years urban renewal has changed a great deal. It is important that it remain flexible, and it is vital that we question constantly its assumptions and performances. It is not the magic some who are devoted to it would have us believe. It does not solve all the problems of the central cities in and of itself. Indeed, alone, it does not solve any one of these problems. But it does perform certain functions that are indispensable and it is beginning to perform others. Let us give more attention to defining its fundamental objectives. Let us realistically integrate it into the myriad of programs which affect the urban environment. And then let us evaluate, modify, and improve urban renewal.

Its task is to assist in preserving our cities. And they are worth preserving.

ARCHITECTURAL DETAILS

6. GYO OBATA

CHIEF DESIGNER, HELLMUTH, OBATA & KASSABAUM, INC.

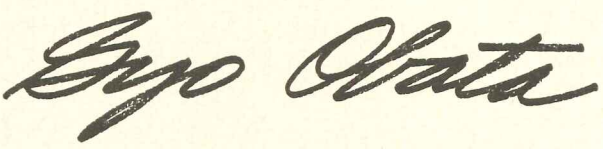
Sixth in a series of presentation details of significant architecture

Every building has its unique set of requirements, both physical and spiritual. The architect must penetrate to the essence of these requirements and then let the building grow to an architectural entity in which the smallest detail is related to, and part of, the over-all concept.

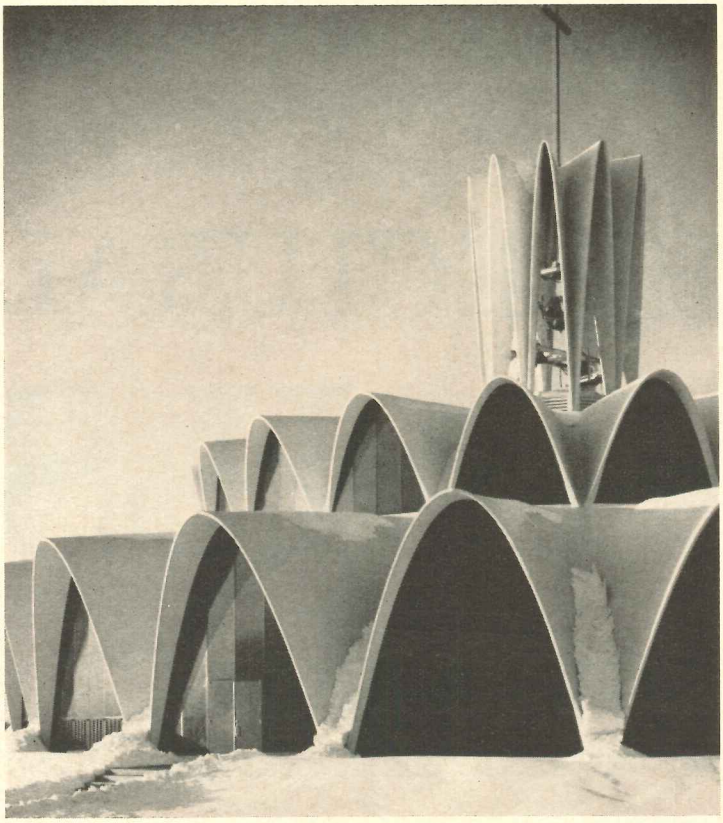
Each project must evolve by a natural organic process out of the program it sets out to fulfill. The inner requirements determine the design concept. There are no preconceived ideas. The nature of the problem determines the exterior form—the structure and the materials.

Details are an integral part of the total design. As the complete plan is an attempt to solve the total problem in the most functional and appropriate manner, the purpose of each detail is to solve its special part of the problem as simply and directly as possible.

The projects shown here are executed in thin-shell concrete, poured-in-place concrete, precast concrete, brick skin on concrete frame, masonry wall and wood roof framing, and wood framing with rough-hewn redwood. Each solution, in concept and detail, seeks to express functional and inner spiritual requirements. Each aims at a total esthetic impact.



GYO OBATA



THE PRIORY OF SAINT MARY AND SAINT LOUIS, SAINT LOUIS COUNTY, 1962

SECTION

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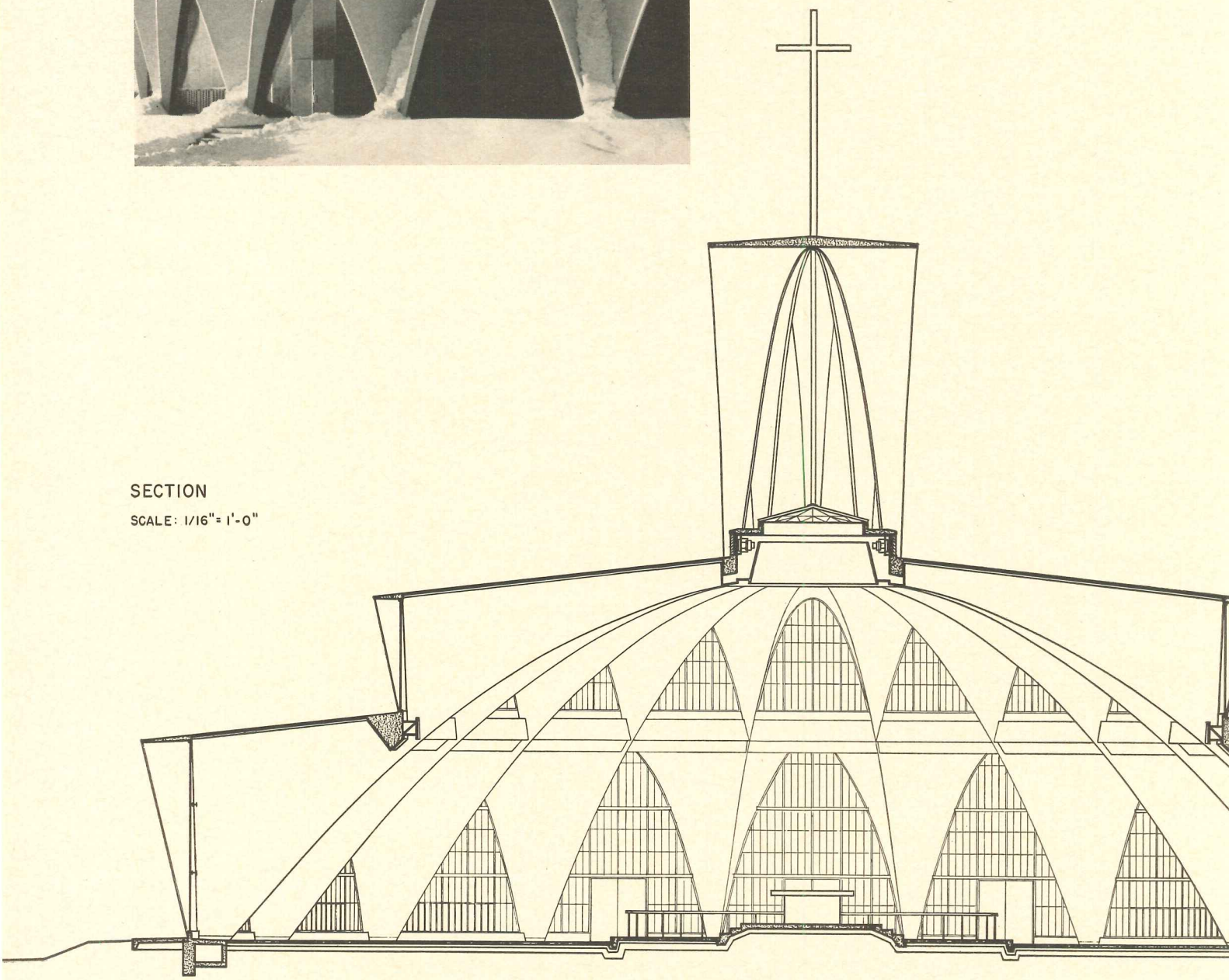
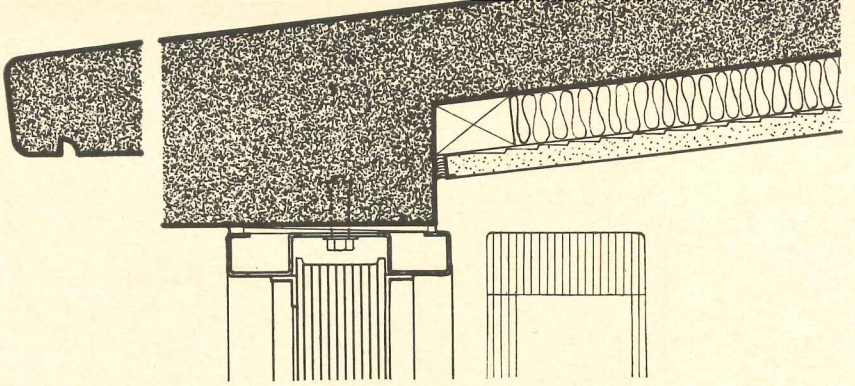
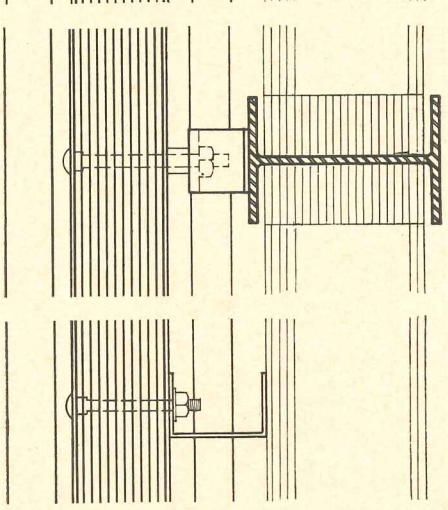
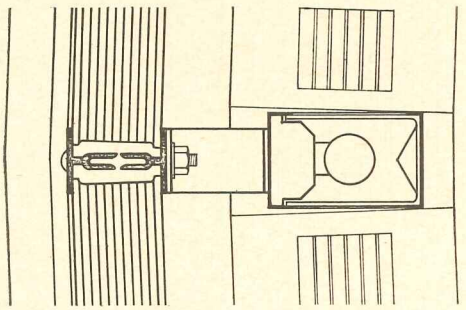


Obata: Three rings of thin-shell concrete parabolic arches enclose the side chapels, the main nave, and the bell tower over the central altar. The shell is three inches thick and has a surface of synthetic rubber roofing. Batt insulation and a vapor barrier are placed between the shell and the interior plaster. The arches are enclosed with a wall of two translucent plastic sheets: The outside sheet is a dark gray to contrast with the white of the shell's exterior; the inside sheet is white and glows under diffused natural daylight.

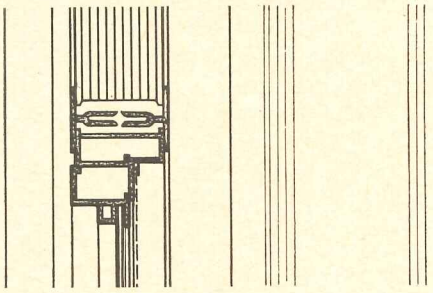
Architects: Hellmuth, Obata & Kassabaum, Inc.—Gyo Obata, designer; supervising structural engineer: John P. Nix; structural engineer: Paul Weidlinger; mechanical engineer: Harold P. Brehm







PLAN



SECTION

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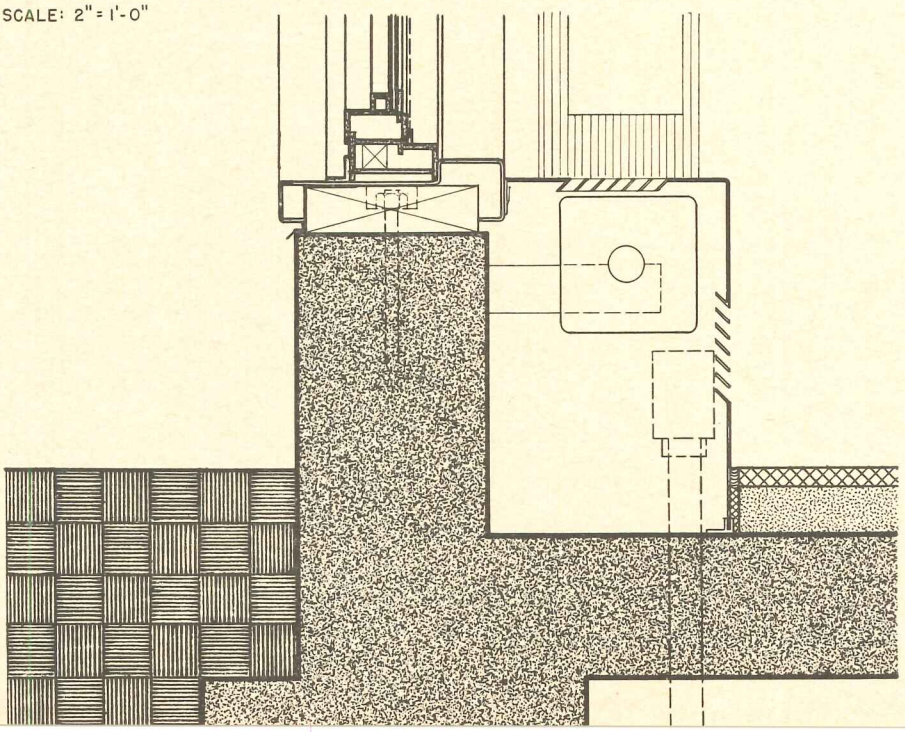
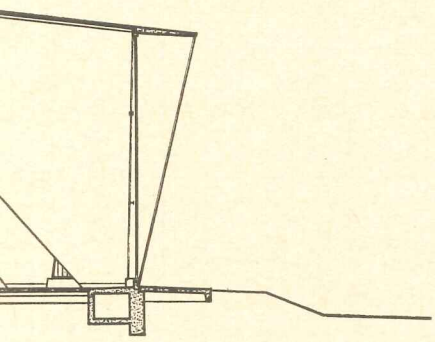
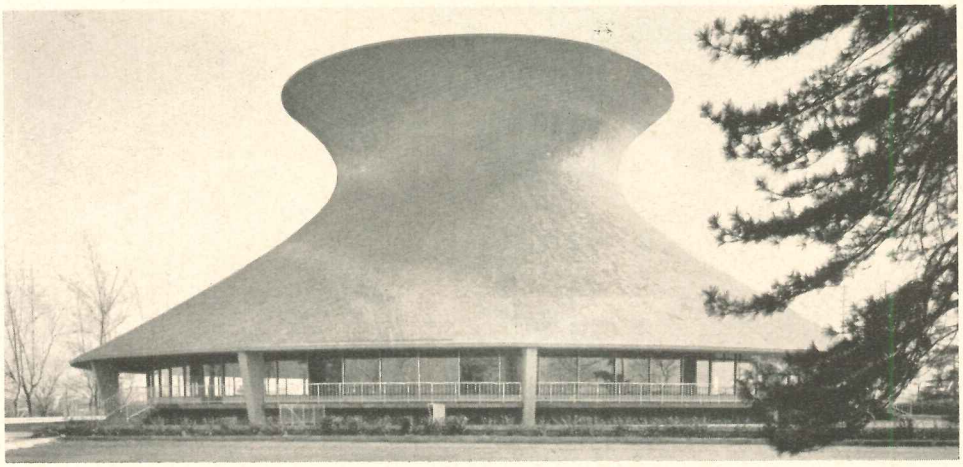




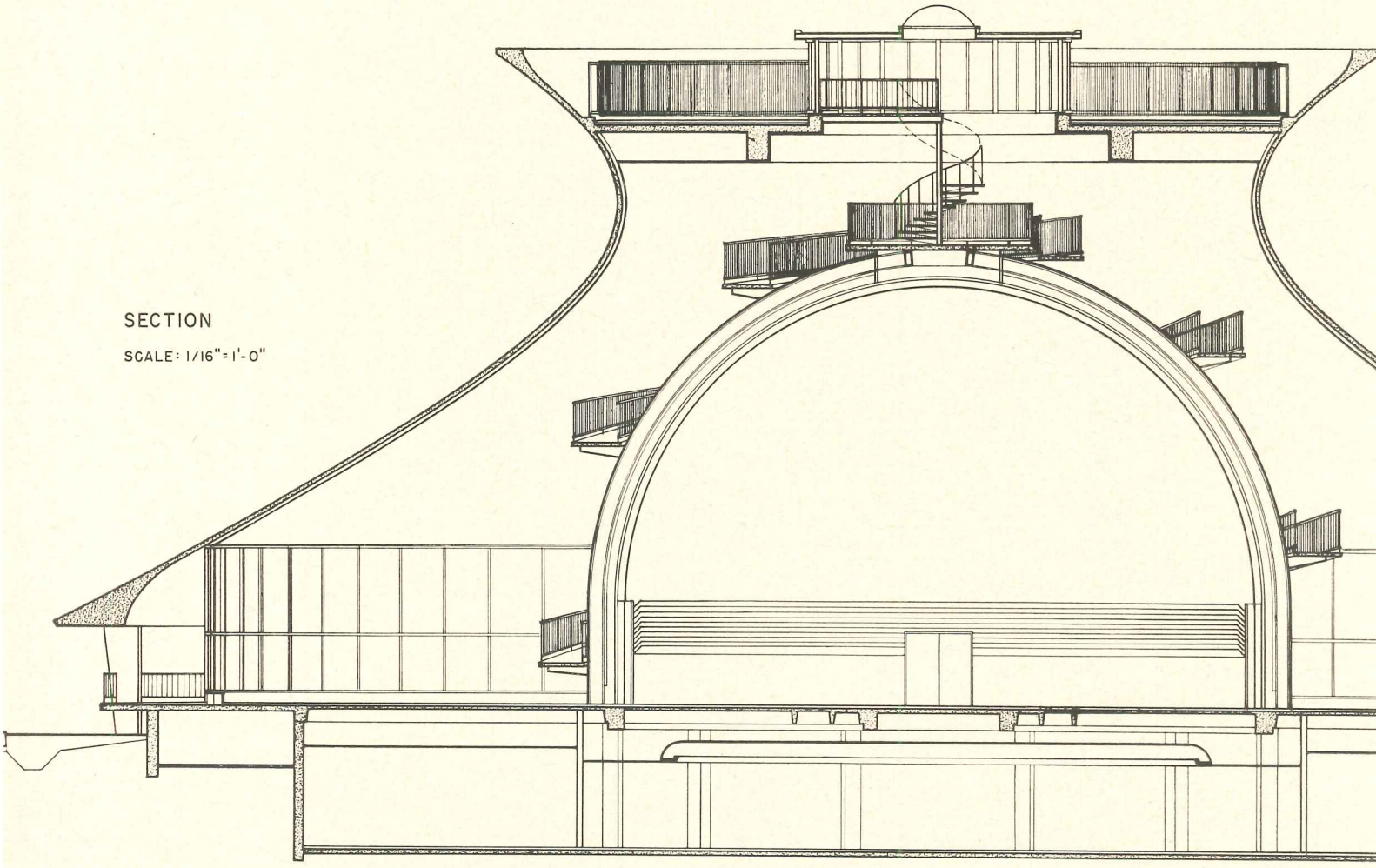


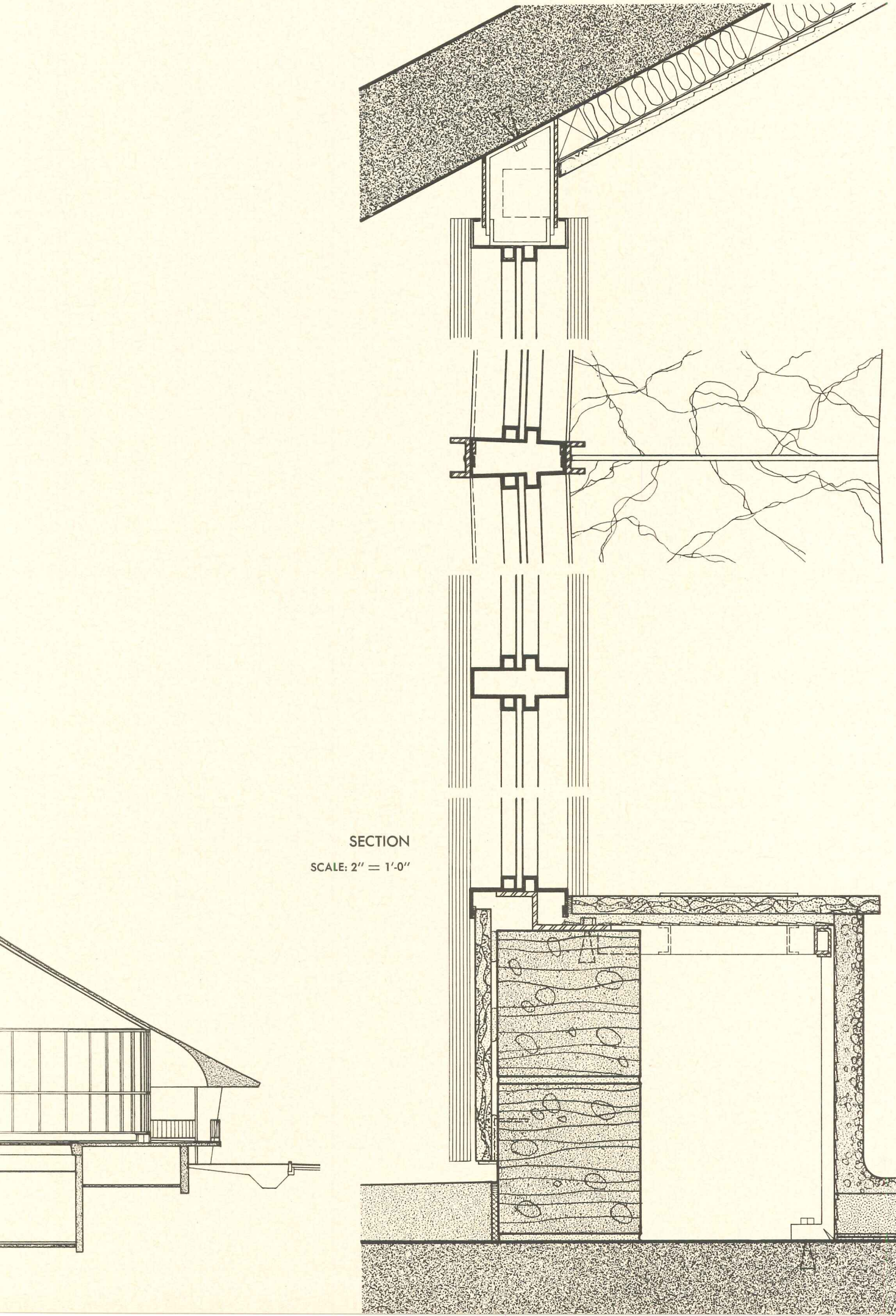
McDONNELL PLANETARIUM, ST. LOUIS, 1963

Obata: The shell of the building is in the form of a hyperbolic parabola of a single sheet. The design stemmed from the need to enclose the spherical auditorium for the project, make a large exhibit area around the periphery, and provide a roof platform for viewing the stars through telescopes on clear nights.

The thin-shell concrete is covered outside with synthetic-rubber roofing; and inside, batt insulation lies between the shell and the interior plaster. An expansion joint was placed at the junction of the hollow metal windows and the concrete shell. A separate steel structure supports the projection sphere and the ramp to the roof-top platform.

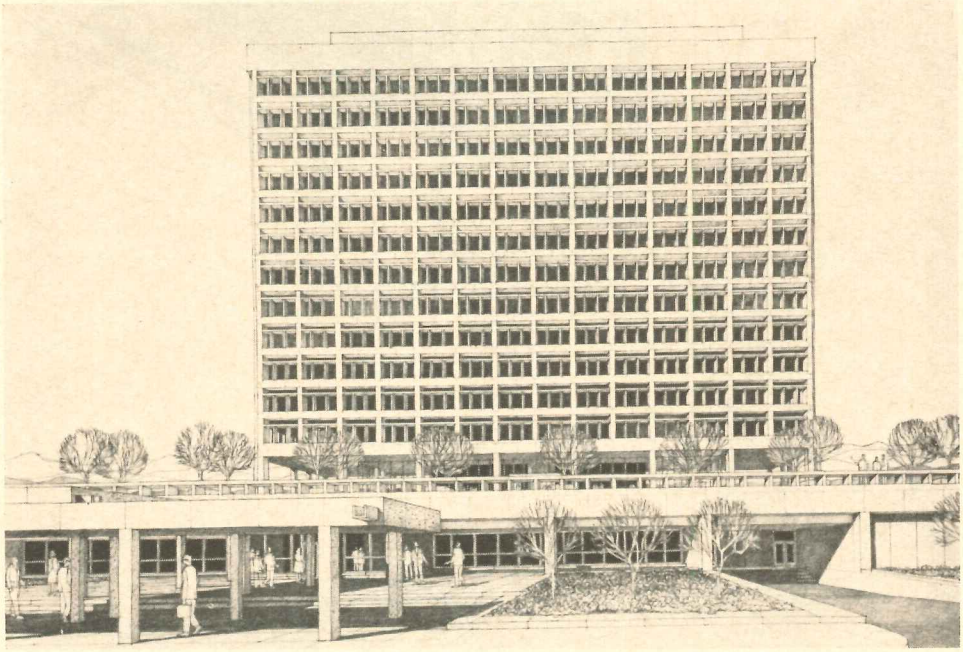
Architects: Hellmuth, Obata & Kassabaum, Inc.—Gyo Obata, designer, Chester E. Roemer, project manager; structural engineer: Albert Alper; consulting engineer: Milo Ketchum; mechanical engineer: Harold P. Brehm





SECTION

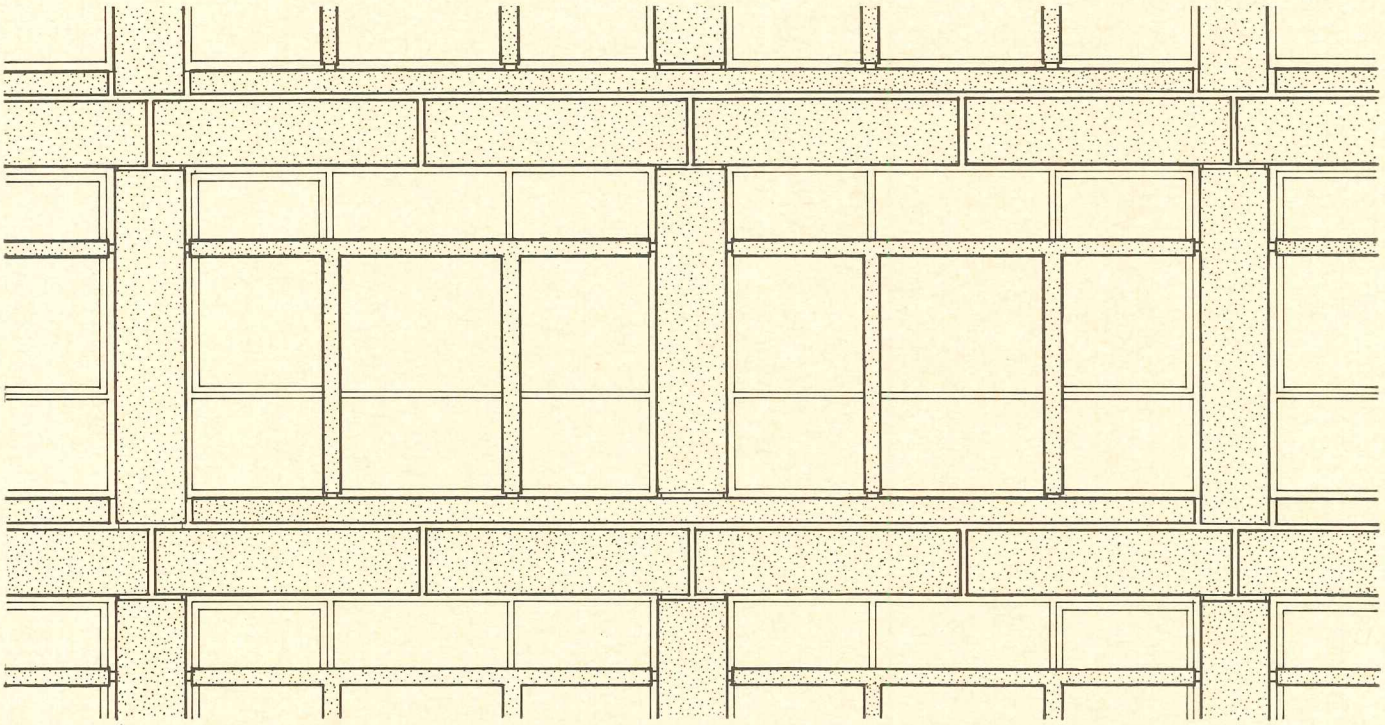
SCALE: 2″ = 1′-0″



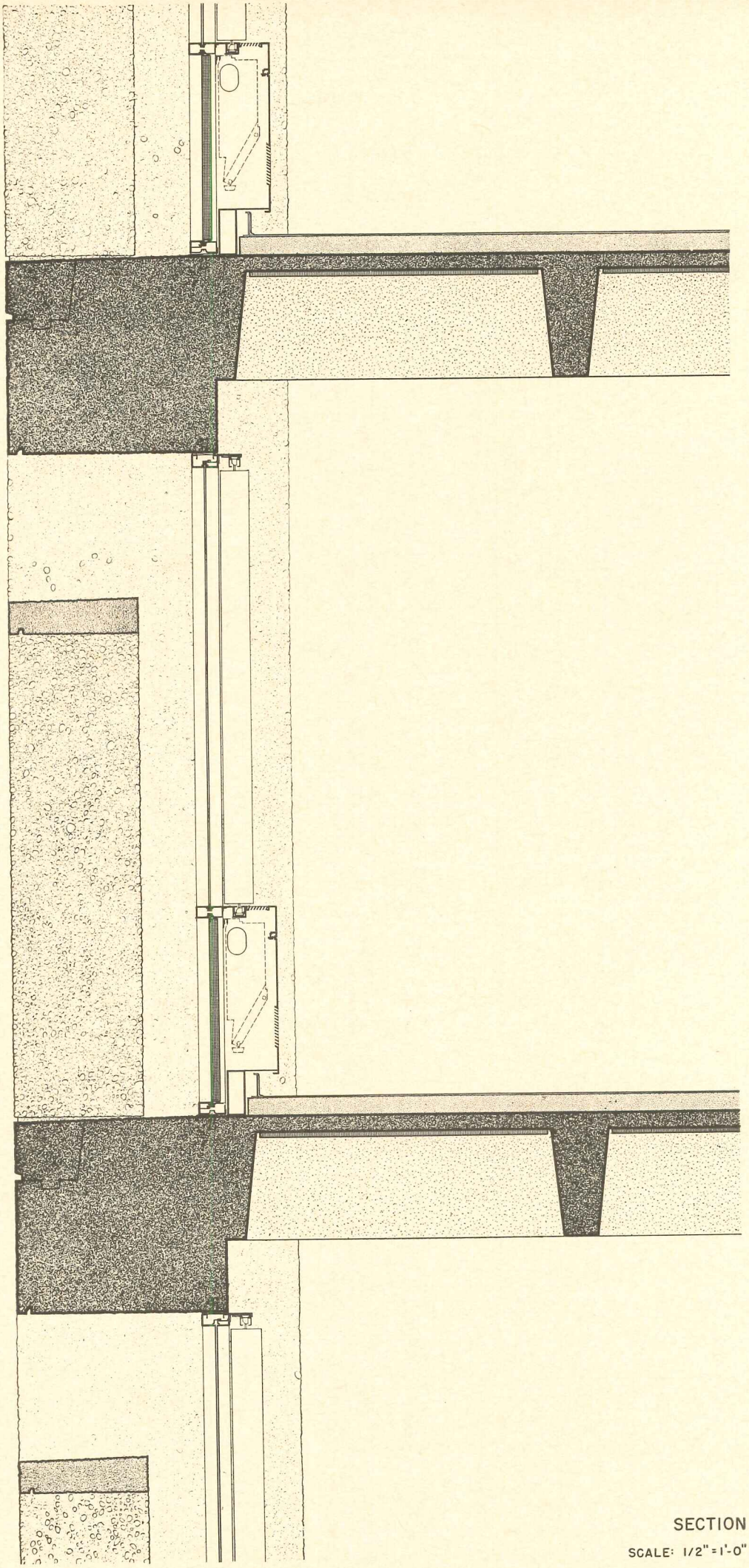
BUREAU OF RECLAMATION BUILDING, U. S. DEPARTMENT OF THE INTERIOR, DENVER, 1965

Obata: This 14-story building, which houses engineers' offices, has a structure and exterior of poured-in-place concrete. A five-foot-square modular concrete waffle is used throughout. The concrete aggregate is a lightweight expanded shale; exposed surfaces are sandblasted to create a stone-like finish with dark gray flecks. As protection against sun glare, windows are inset behind a double T-shaped precast sun shade of the same finish as the exterior concrete. Exposed ceiling waffles contain lights and acoustic panels. Interior partitions are movable, and can fall on any beam line of the waffle ceiling.

Architects: Hellmuth, Obata & Kassabaum, Inc.—Gyo Obata, designer, Rolf E. Muenter, project manager; structural engineers: Ketchum, Konkel, Ryan and Fleming; mechanical engineer: Harold P. Brehm

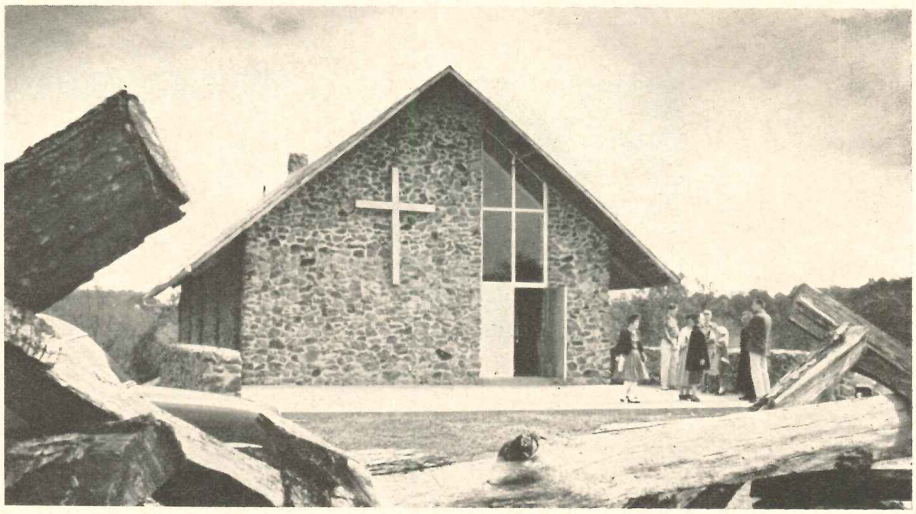


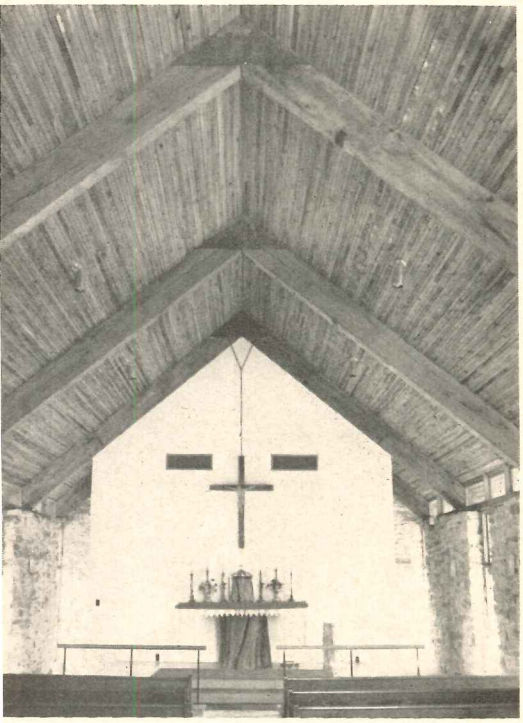
PARTIAL ELEVATION SCALE: 3/16" = 1'-0"



SECTION

SCALE: 1/2" = 1'-0"

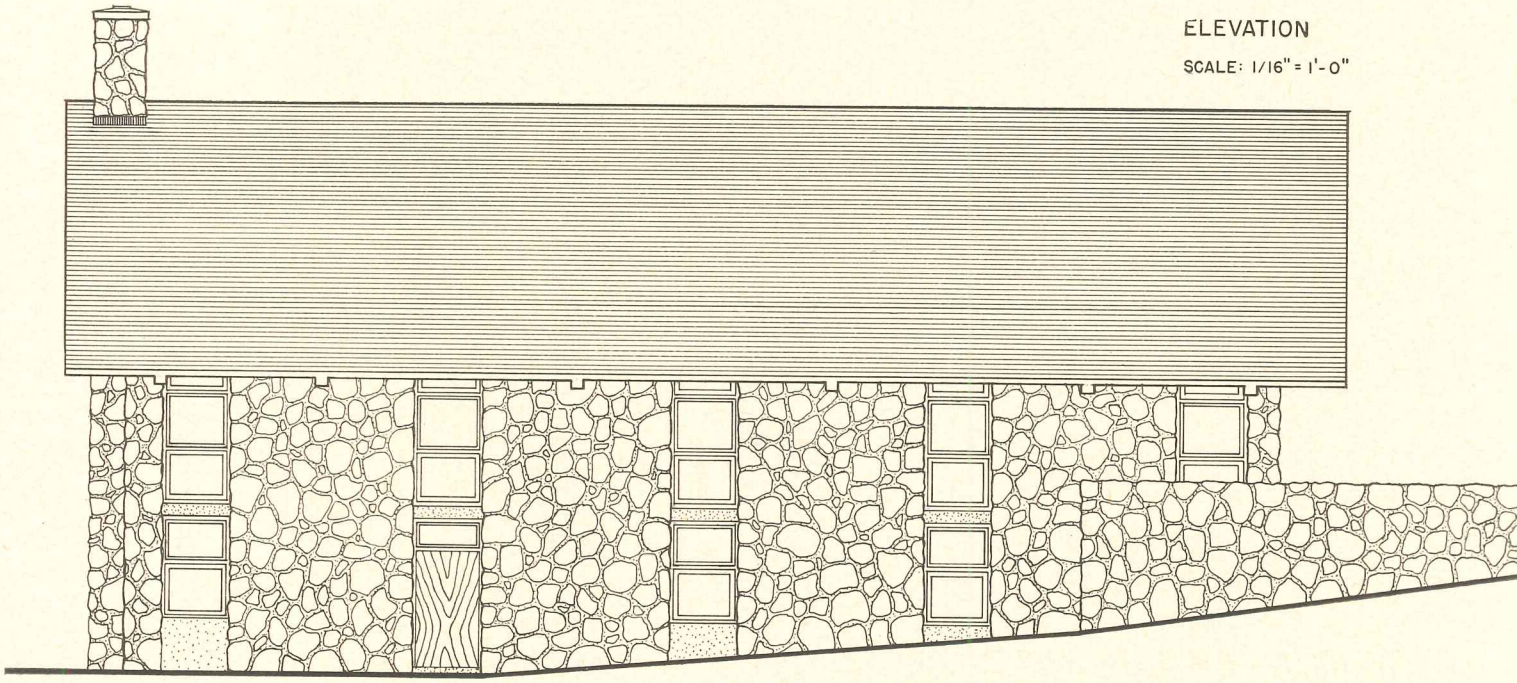


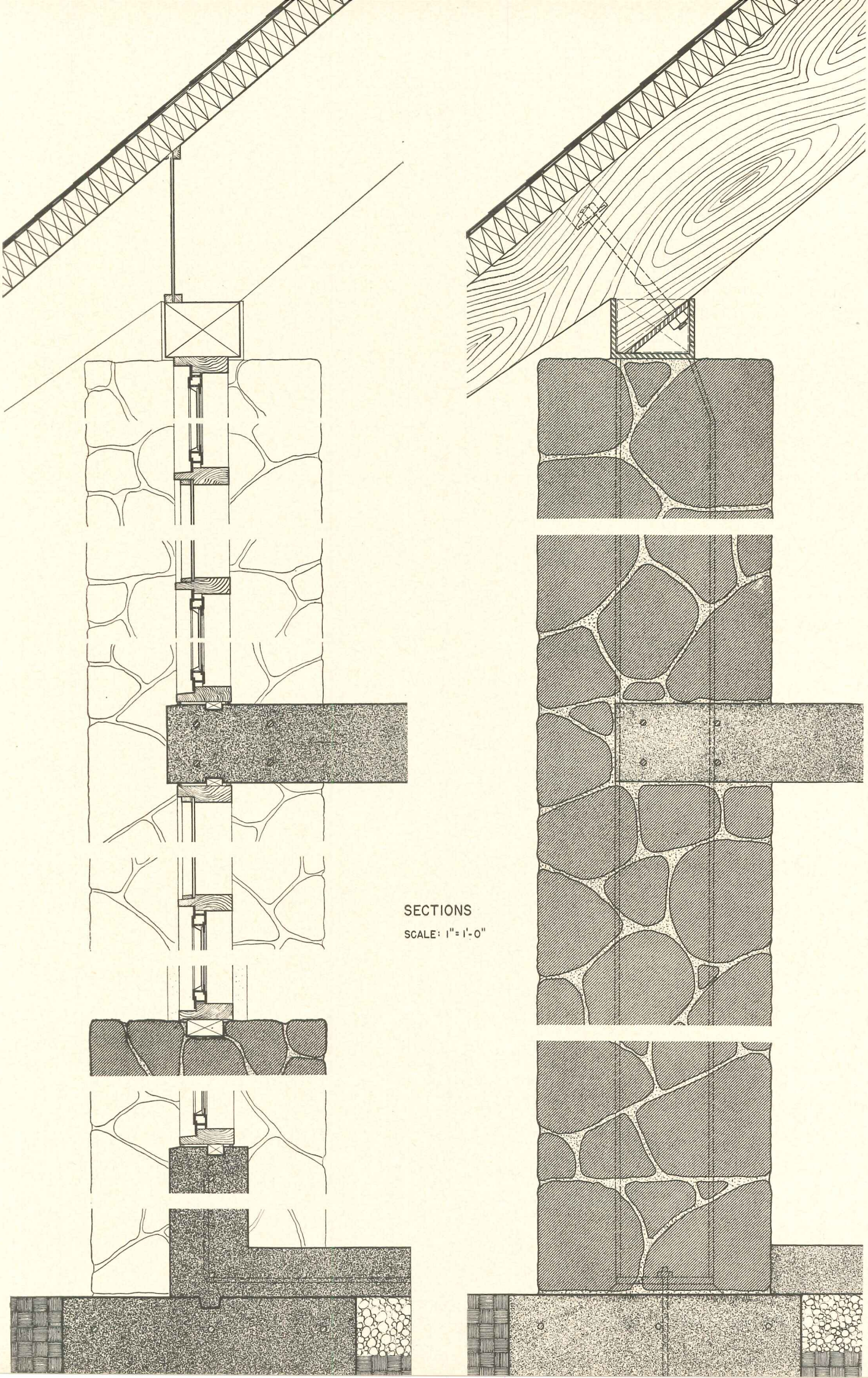


SAINT SYLVESTER CHURCH, EMINENCE, MISSOURI, 1950

Obata: This small church in the Ozarks was economically constructed of wood and fieldstone from the site. The roof is made of two-by-fours stacked vertically and spiked (but not glued) to create a laminated roof spanning 14 feet between the roof beams, which were hewed from tree trunks.

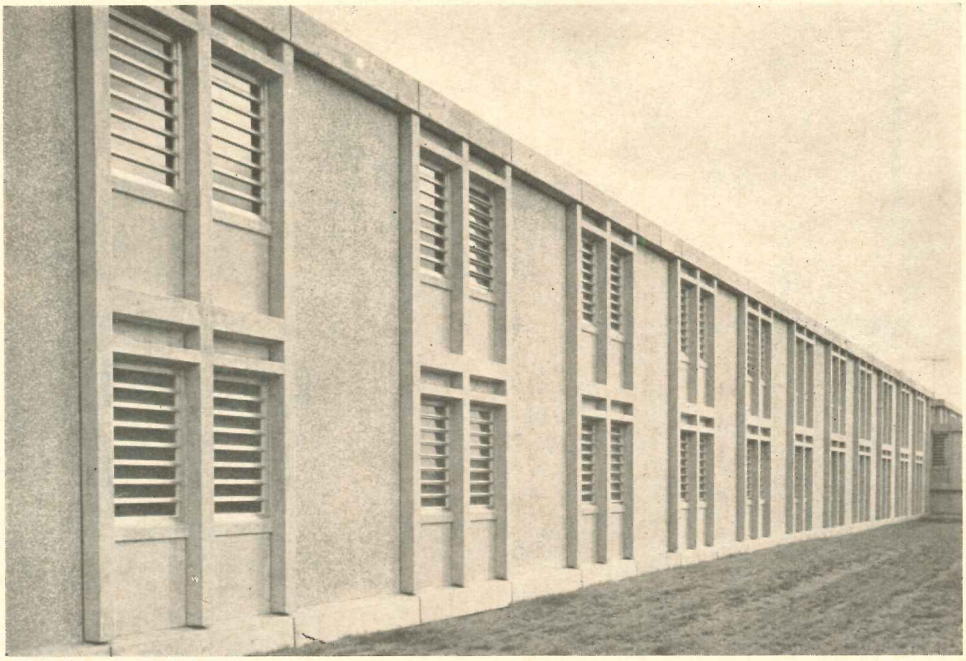
Architects: Hellmuth, Obata & Kassabaum, Inc.—Gyo Obata, designer; structural engineer: John P. Nix; mechanical engineer: John D. Falvey





SECTIONS

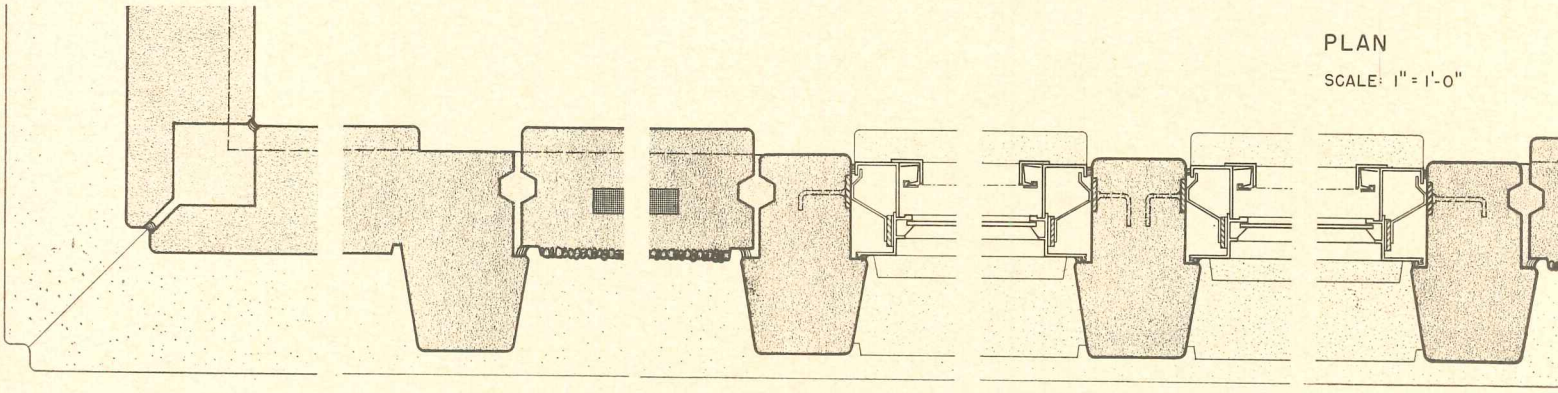
SCALE: 1"= 1'-0"

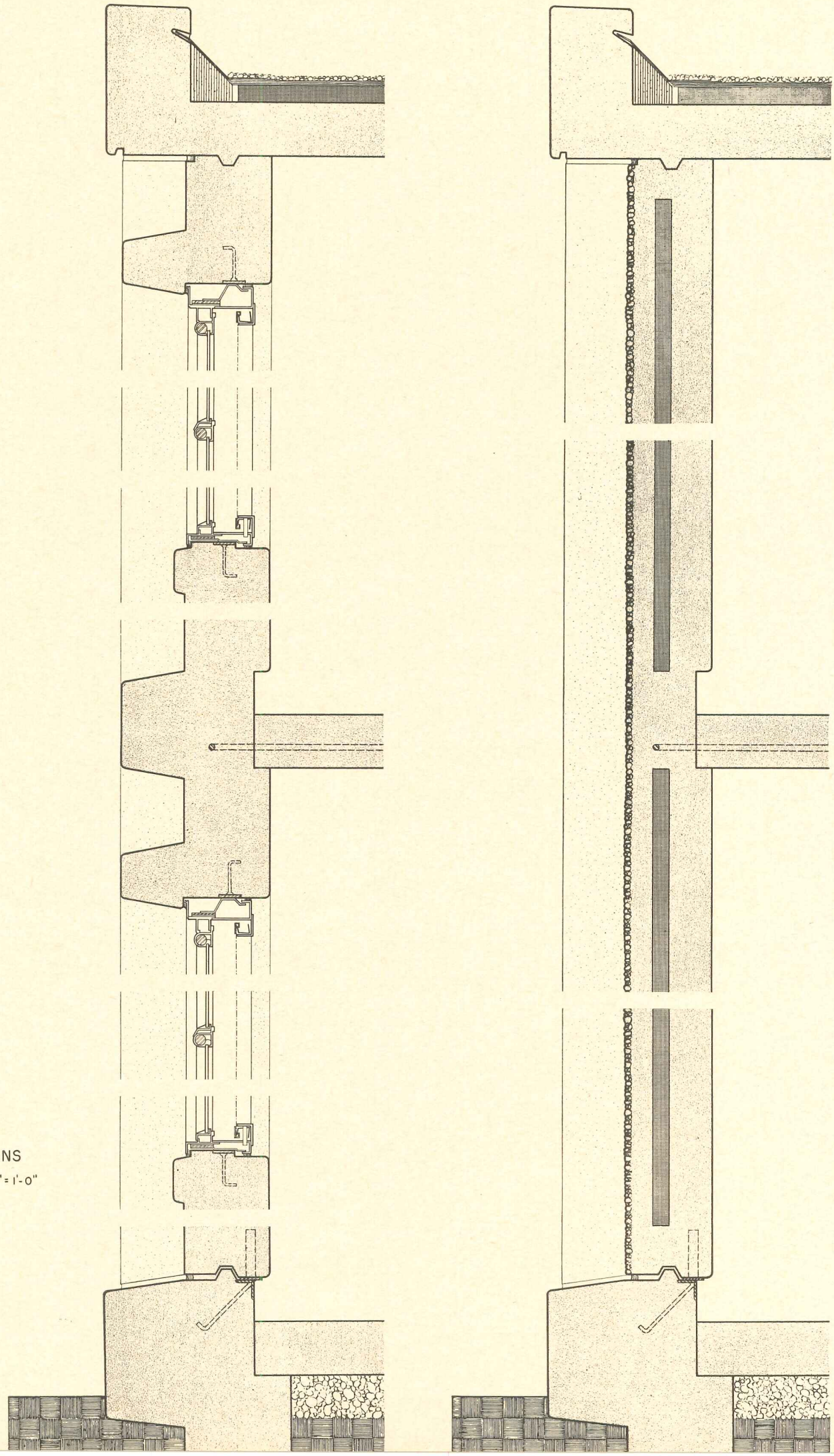


FEDERAL MAXIMUM SECURITY PENITENTIARY, MARION, ILLINOIS, 1963

Obata: All secured areas of this prison complex are made of precast, prestressed concrete panels seven feet wide. The panels, which have a core of rigid insulation, form exterior and interior walls and support the building. The precast units were pretensioned and poured in another location, shipped to the site by truck, and erected by cranes. Exterior finish is an exposed quartz aggregate.

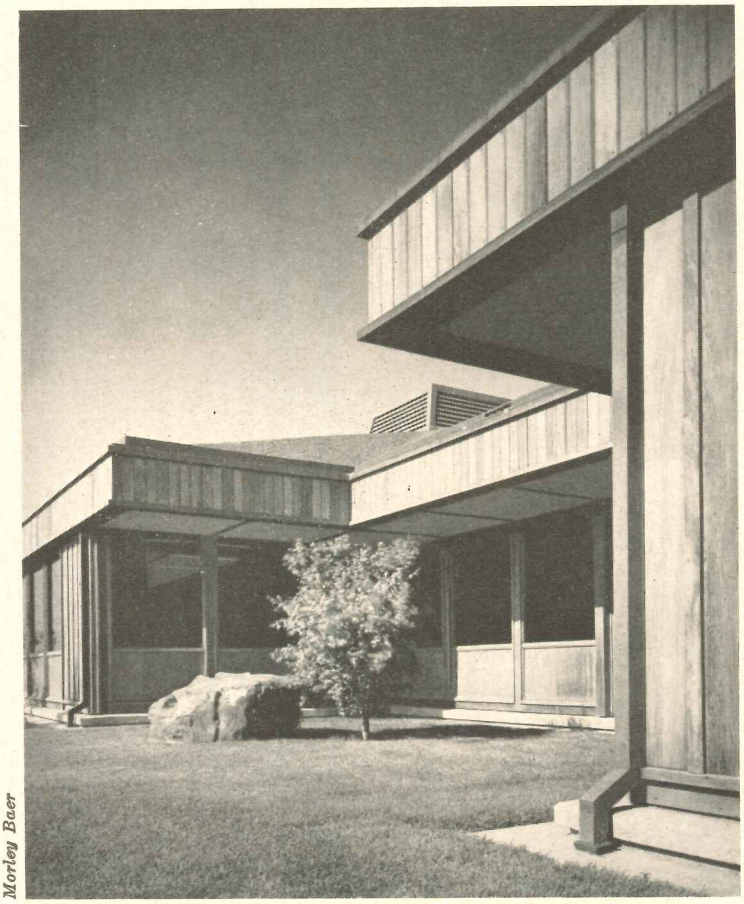
Architects: Hellmuth, Obata & Kassabaum, Inc.—Gyo Obata, designer, J. Tom Bear, project manager; structural engineer: Eugene A. Dubin; mechanical engineer: Harold P. Brehm





SECTIONS

SCALE: 1" = 1'-0"

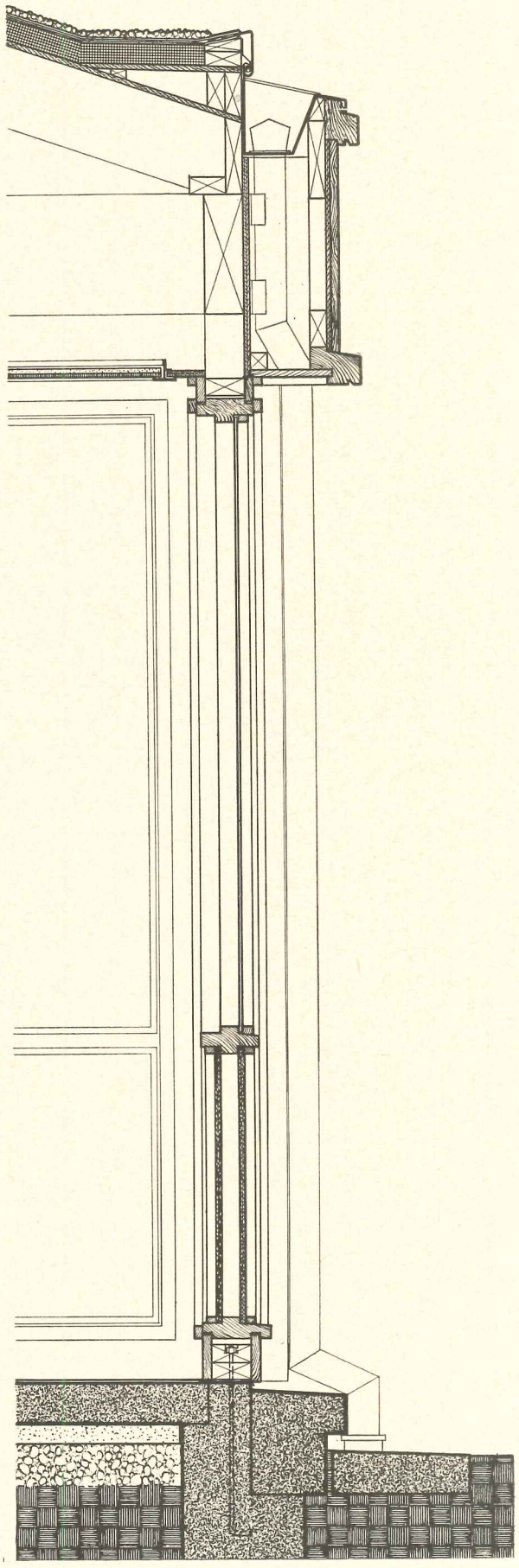


Morley Baer

IBM ADVANCED SYSTEMS DEVELOPMENT DIVISION OFFICES AND LABORATORY, LOS GATOS, CALIFORNIA, 1964

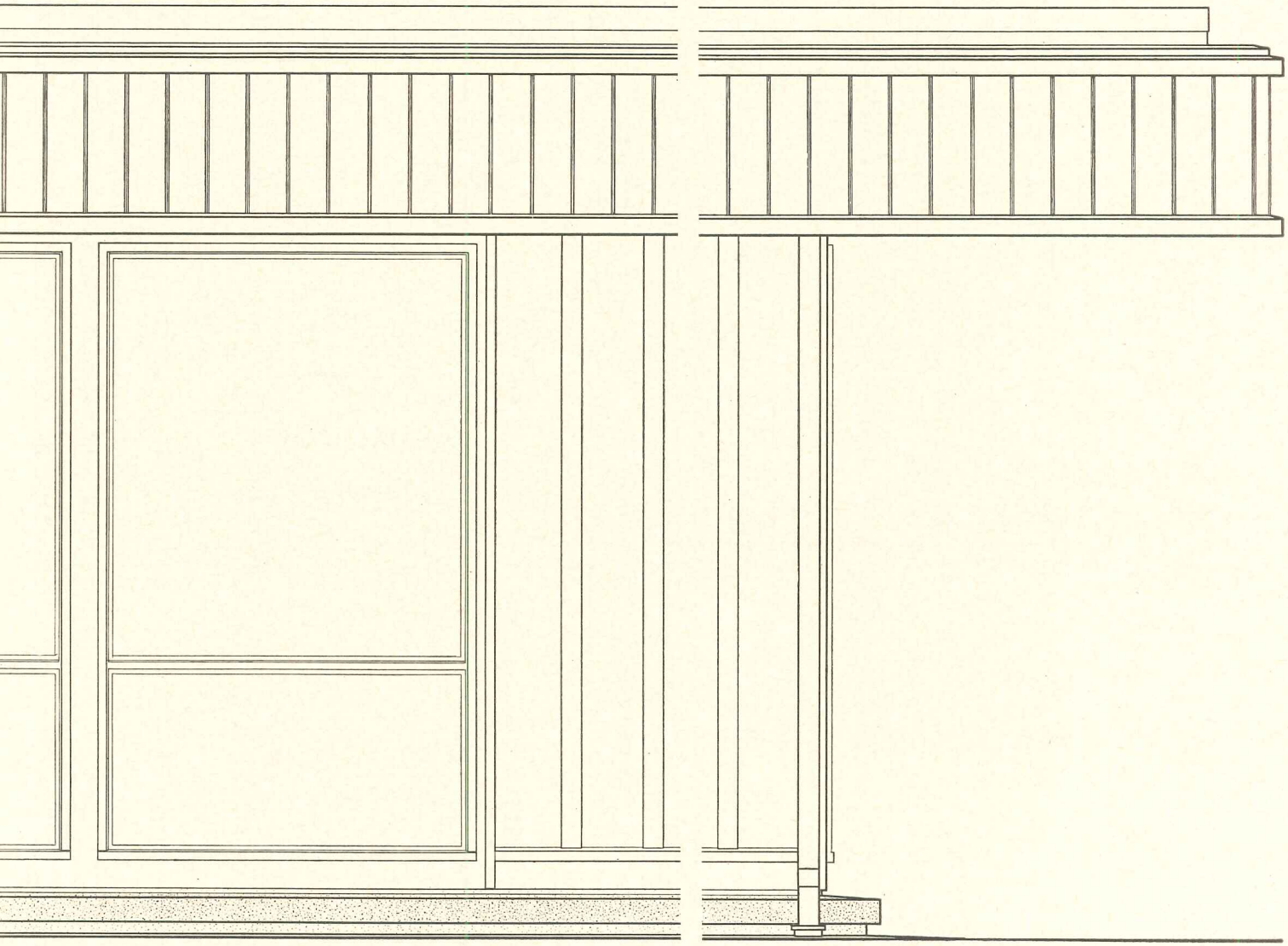
Obata: This research center on the Pacific Coast has a wood frame and exterior walls of rough-sawn redwood board and batten. The cross-shaped units house a series of flexible 10- by 10-foot and 10- by 15-foot offices for research scientists, while the related laboratories and shops are inside. The library, cafeteria, and administrative offices are located in the center of the complex. A preservative was used to finish the redwood while keeping its natural beauty intact. A five-foot-square module was used throughout.

Architects: Hellmuth, Obata & Kassabaum, Inc.—Gyo Obata, designer, William J. Harris, project manager; structural engineers: Gilbert, Forsberg, Diekman & Schmidt; mechanical engineer: Harold P. Brehm



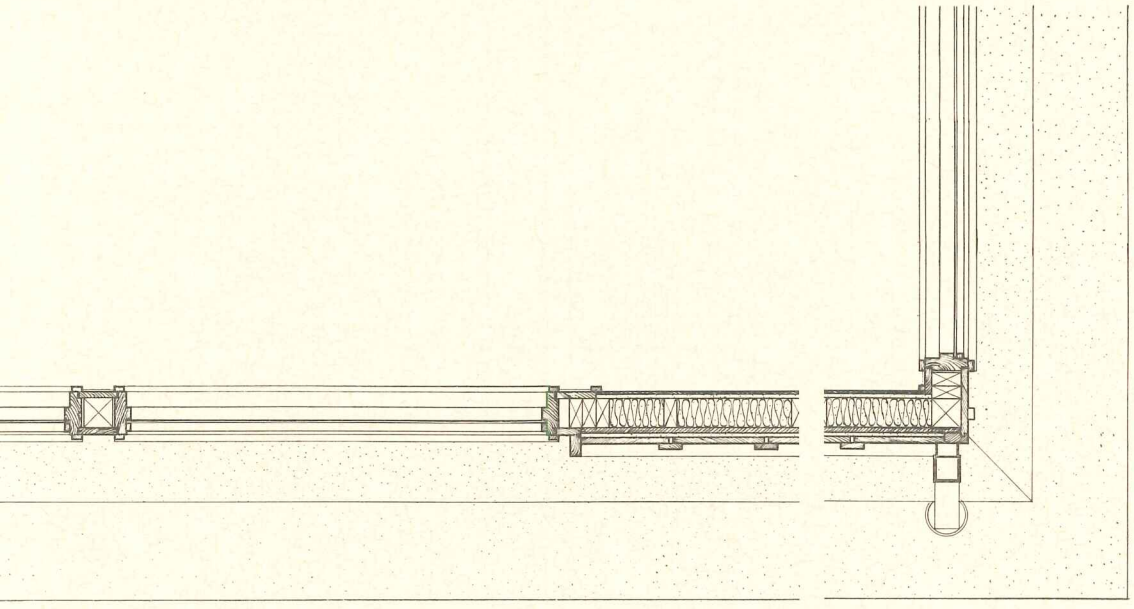
SECTION

SCALE: 3/8"=1'-0"



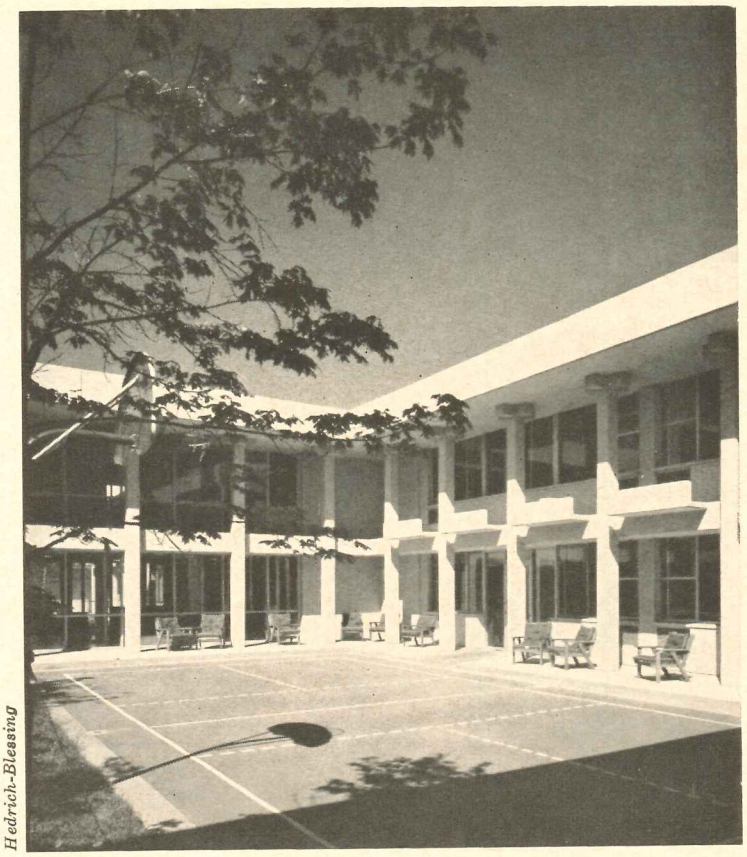
ELEVATION

SCALE: 1/4" = 1'-0"



PLAN

SCALE: 1/4" = 1'-0"

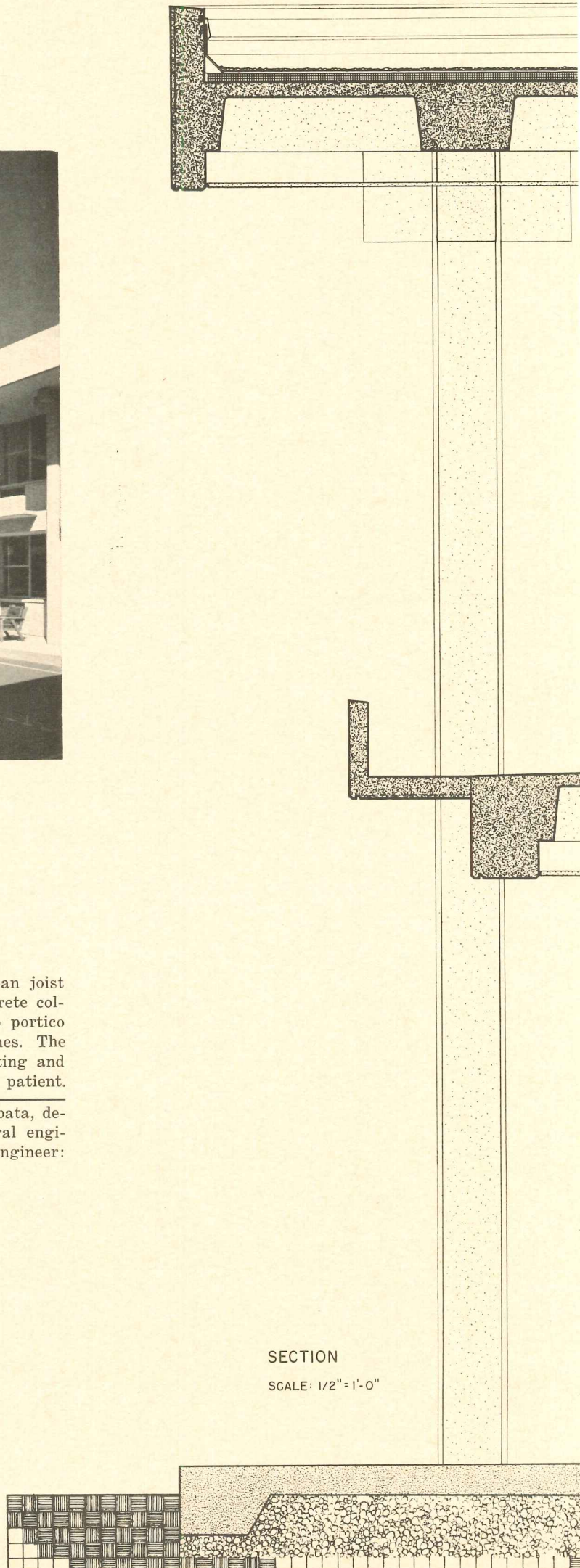


Hedrich-Blessing

DAVID P. WOHL MENTAL HEALTH INSTITUTE OF SAINT LOUIS UNIVERSITY, ST. LOUIS, 1960

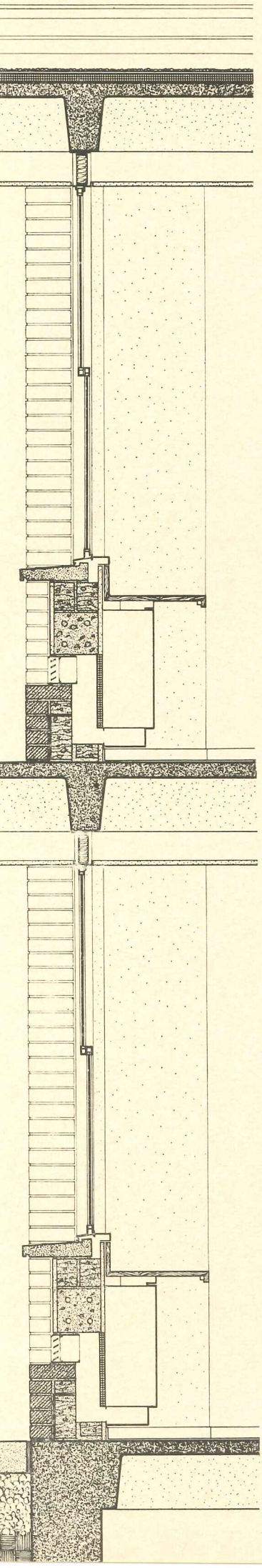
Obata: The structure of this two-story hospital is a pan joist floor and roof system of poured concrete. Exterior concrete columns stand free around the periphery, creating a deep portico to shade the windows and create strong shadow lines. The spandrel wall is of brick masonry with a fan coil heating and cooling unit inside, covered by a wooden desk for the patient.

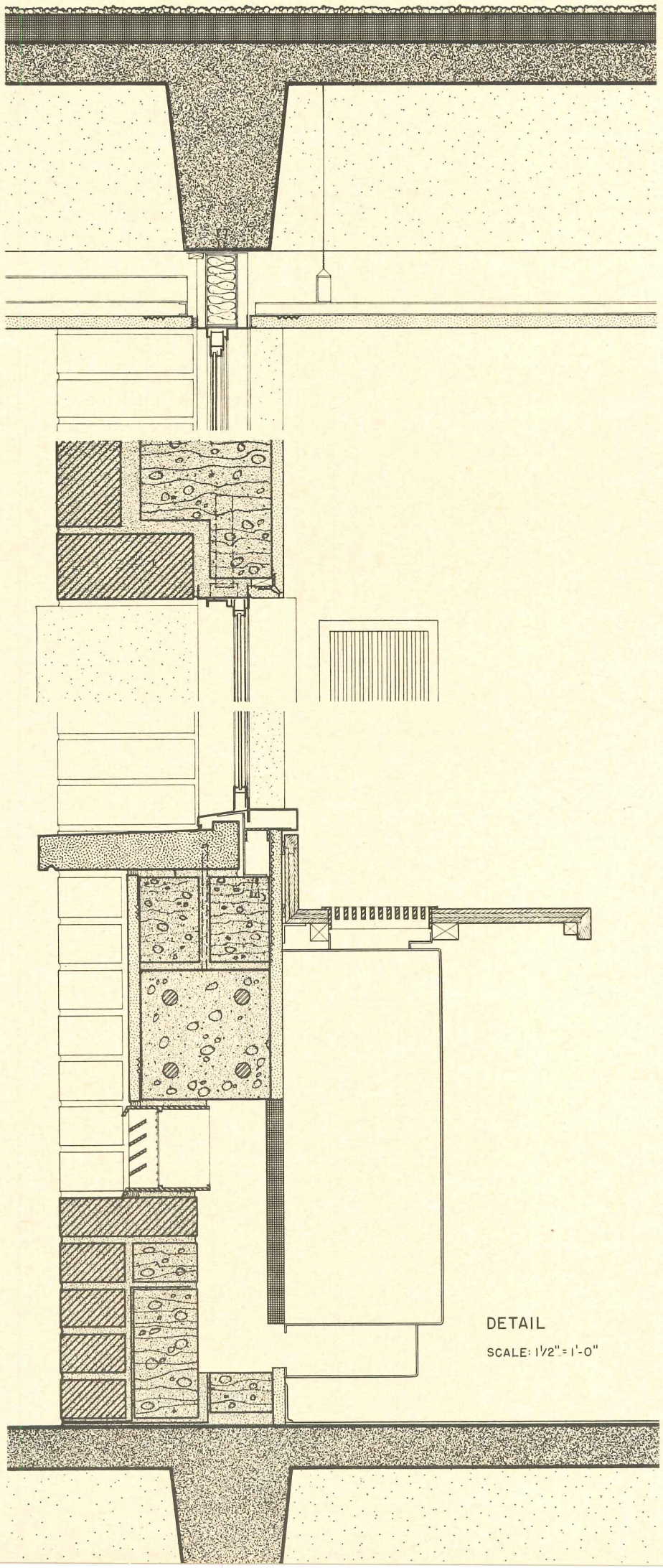
Architects: Hellmuth, Obata & Kassabaum, Inc.—Gyo Obata, designer, Herbert J. Koopman, project manager; structural engineers: Eason, Thompson & Associates; mechanical engineer: Harold P. Brehm



SECTION

SCALE: 1/2"=1'-0"

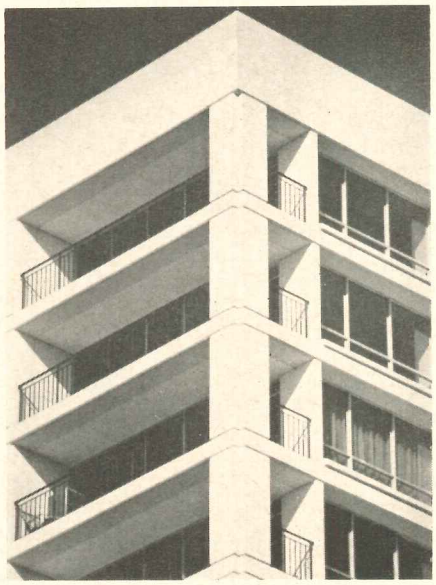




DETAIL

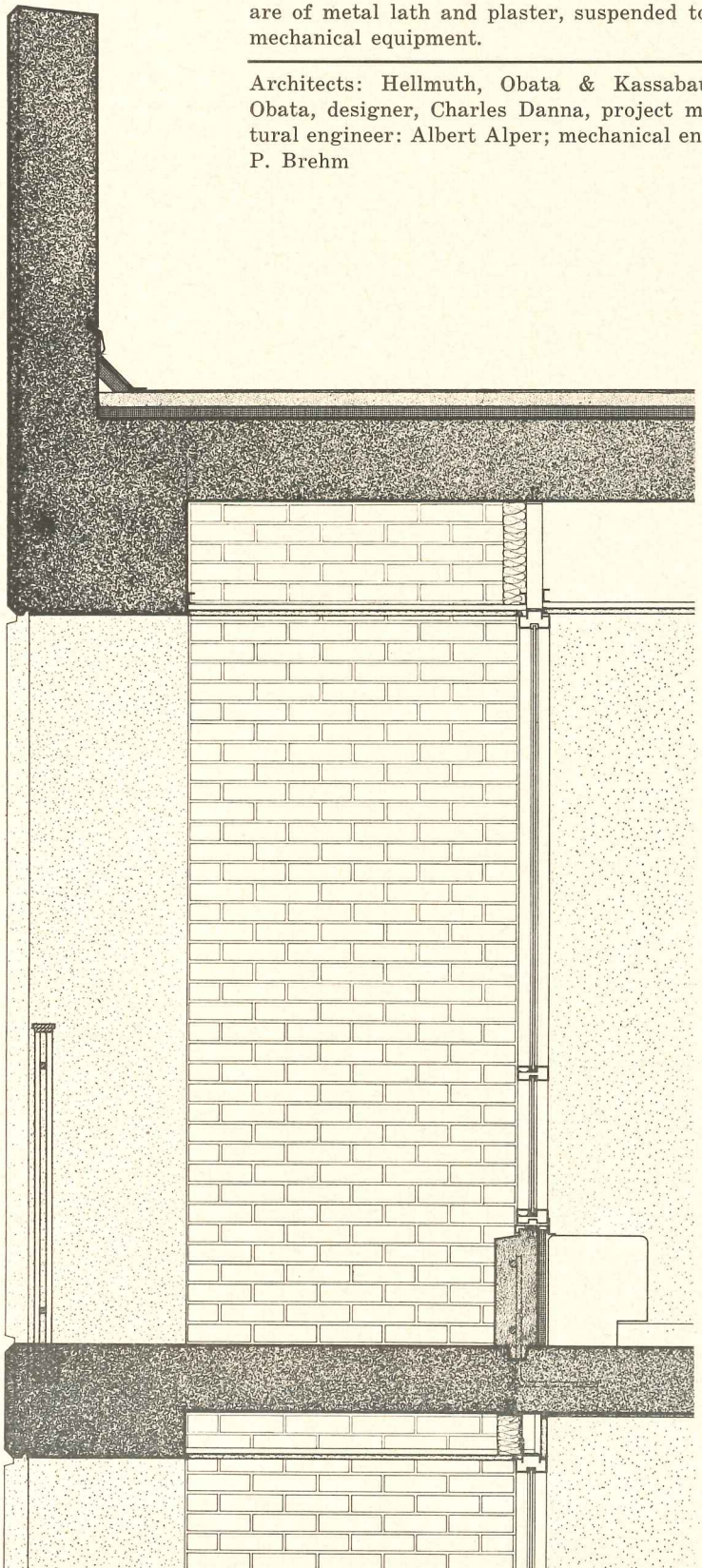
SCALE: 1½"= 1'-0"

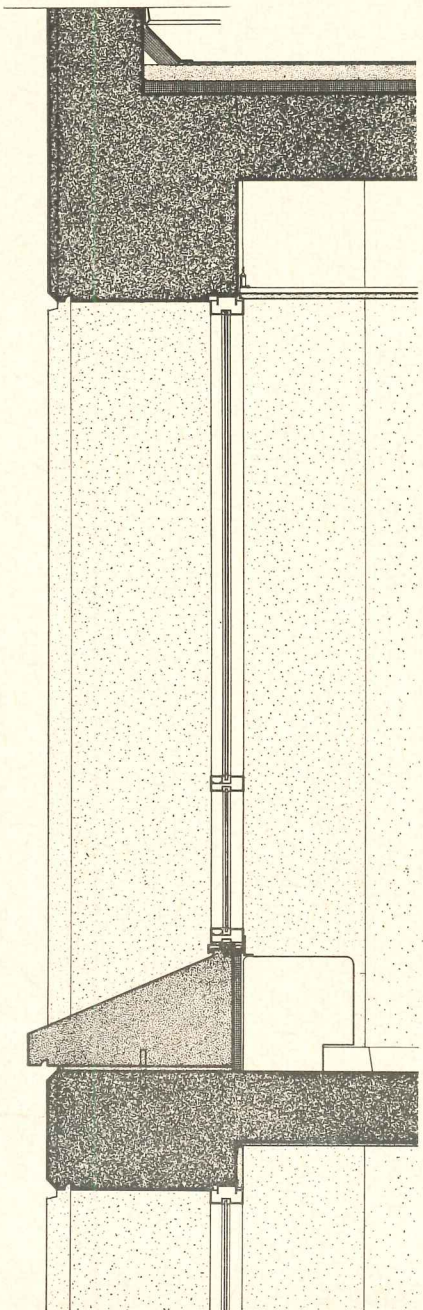
LINDELL TERRACE APARTMENTS, ST. LOUIS, 1964



Obata: This is a poured-in-place reinforced concrete structure with a flat slab floor system. All exterior concrete is exposed to express the structure. A cast stone window sill provides a weathering device and serves as a backstop for the low fan coil units for heating and air conditioning. Ceilings of living and dining areas around the periphery of the building are of skim coat plaster; ceilings under the roof and throughout the interior core are of metal lath and plaster, suspended to accommodate mechanical equipment.

Architects: Hellmuth, Obata & Kassabaum, Inc.—Gyo Obata, designer, Charles Danna, project manager; structural engineer: Albert Alper; mechanical engineer: Harold P. Brehm





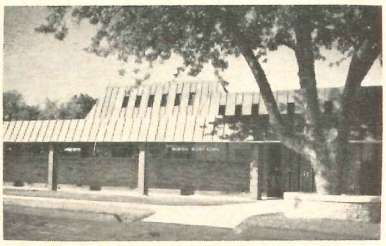
SECTIONS

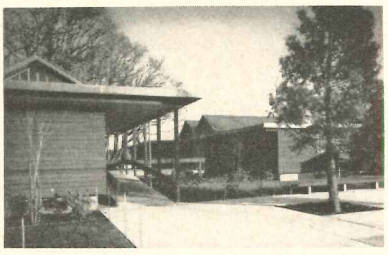
SCALE: 1/2" = 1'-0"

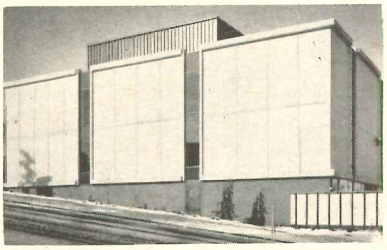
SMALL BUILDINGS FOR GROUP MEDICAL PRACTICE

There is growing need for facilities where paying patients can receive, from the physician of their choice, a diversity of services backed by the diagnostic and consultation aids associated with today's medical practice. This need is generating a kind of privately sponsored, self-financed group practice in which several doctors, usually with one hospital affiliation, join in a mutually supporting endeavor—which thrives best in a building designed for its own purposes.

Consultation and examining rooms are laid out in suites for the individual doctors, sometimes varied according to specialty, and supported by common X-ray, laboratory and minor surgery spaces. Such buildings are usually near a large hospital, for the convenience of both doctors and patients. The tax advantages, the simplification of staffing and the ability to more firmly schedule doctors' free time contribute to activity in this rather special kind of small building, of which examples are shown on following pages.







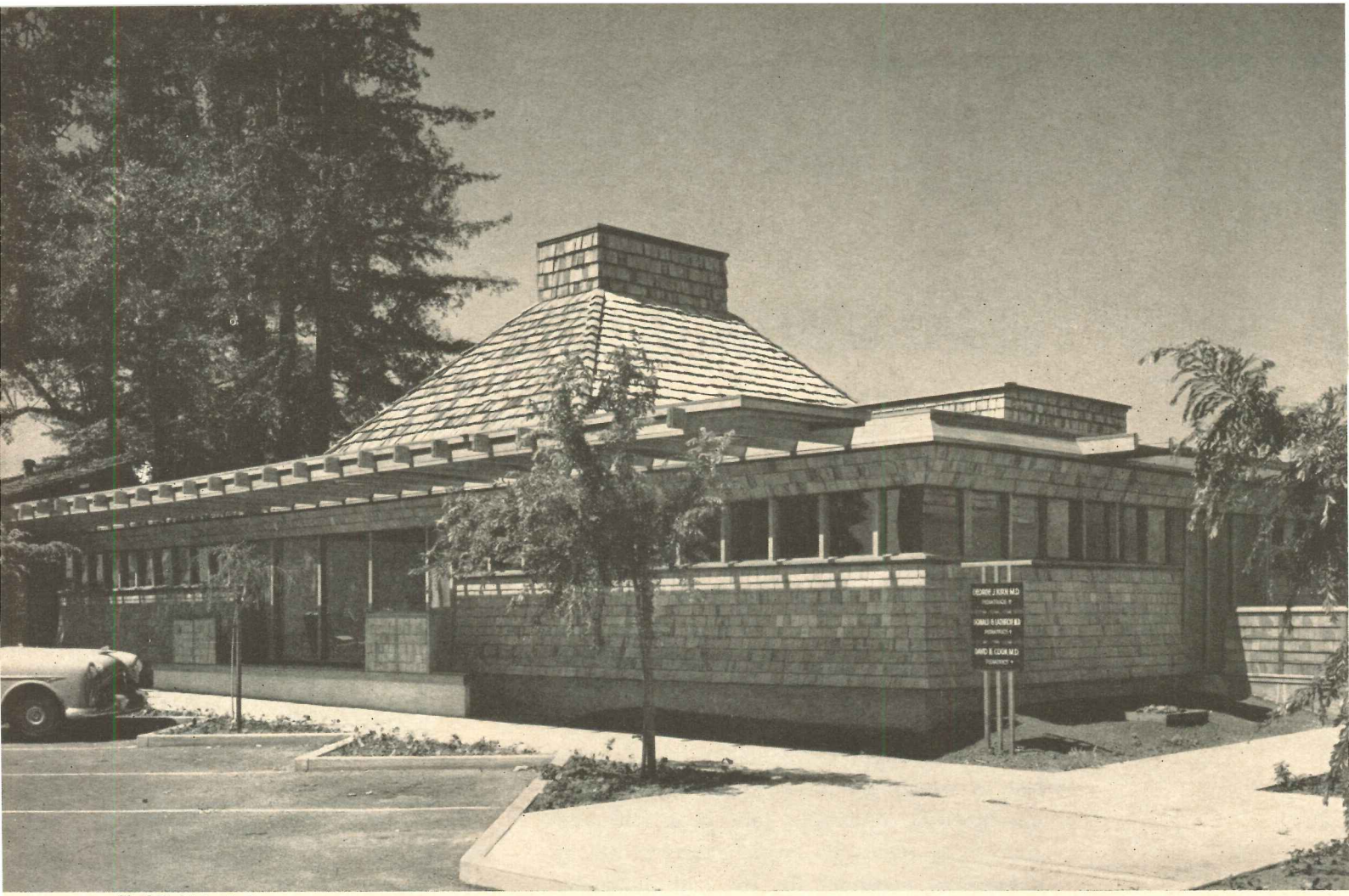
Photos, top to bottom:
Hospital Drive Medical Center
William Guy Garwood, architect

Medical Block Clinic
James E. Stageberg, architect

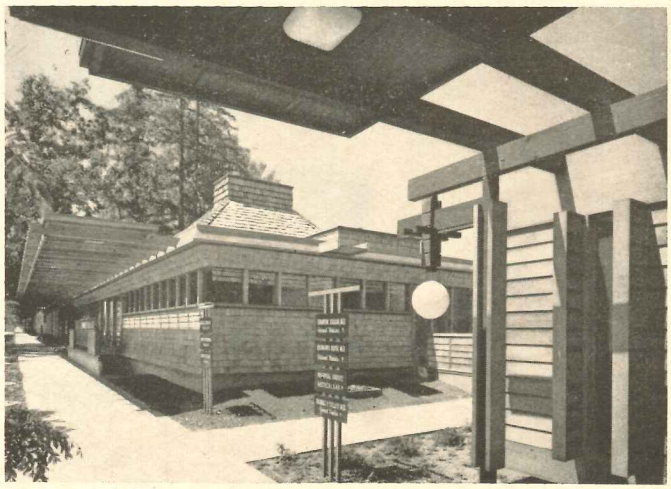
Westmoreland Medical-Dental Clinic
Wilmsen Endicott and Unthank, architects

Dr. Harry C. Good Dental Building
Hardwick and Lee, architects

Western Clinic
Harris & Reed, architects



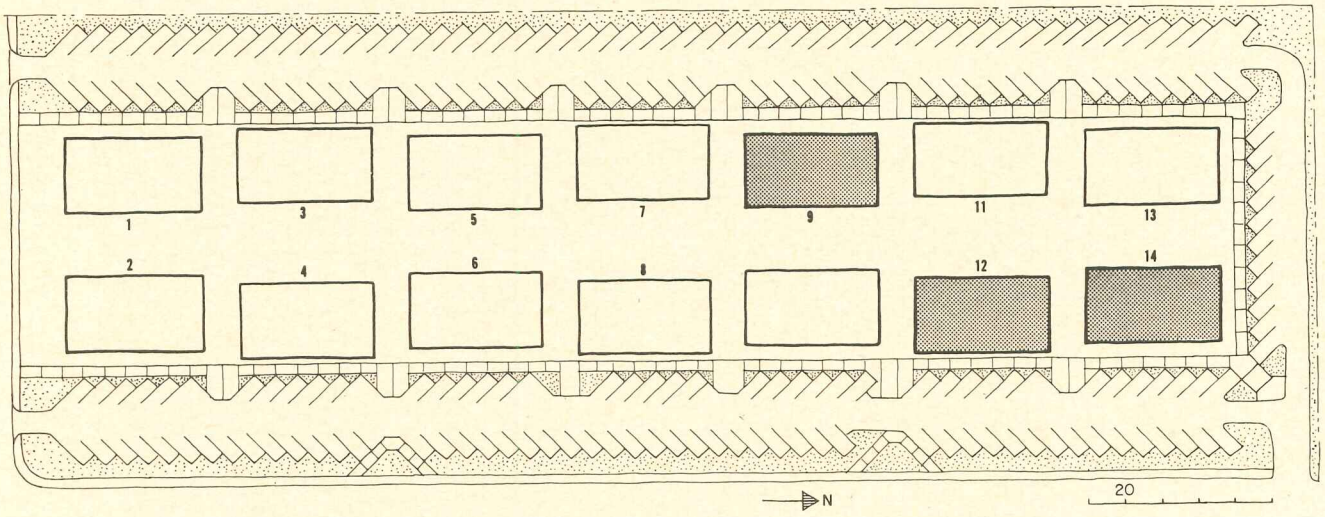
Karl H. Riek, photos

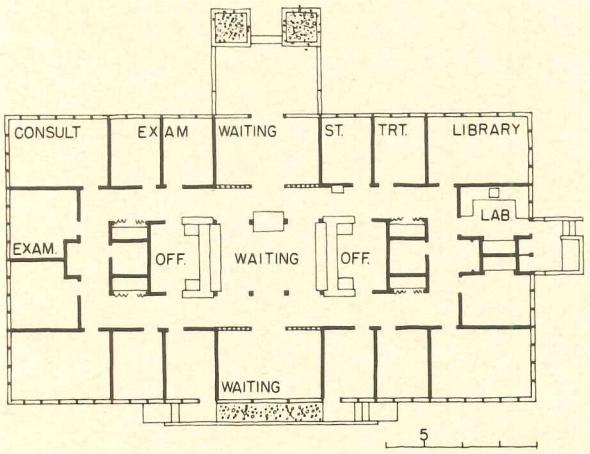


COTTAGE-PLAN CLINICS FOR SPECIALISTS

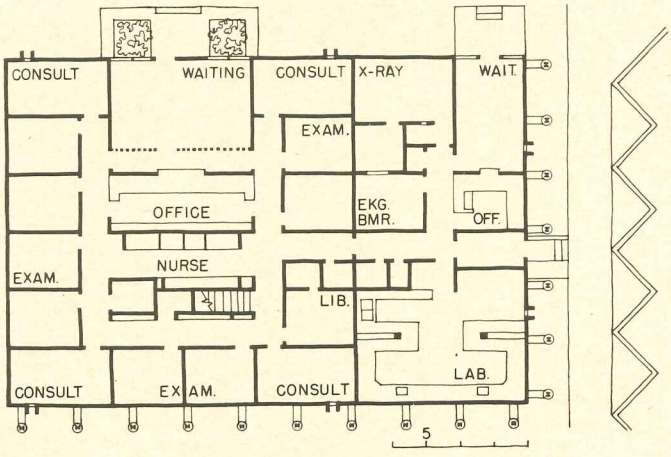
This medical office group of three completed buildings in a projected complex of 14 is near the El Camino Hospital in Mountain View, California. Architect William Guy Garwood has developed variety and refinement of detail within the unifying dictum of shake roofs, shingles and redwood. "My self-imposed problem," he says, "was to use these house-type materials and avoid the development of a house character." The scale, nevertheless, is human if not residential and the pedestrian is the important planning element, from the close-in peripheral parking through the planted mall between buildings. Construction is slab on grade with wood framing, dry wall interiors, shingle and redwood exteriors, heavy shake roofs. The buildings are air conditioned. The three buildings now in place house suites for specialties in urology (site 9), pediatrics (site 12) and internal medicine (site 14).

There are 14 owner-doctors in the sponsoring group for this entire complex, which has a five-year construction schedule. Each doctor is the owner of his own building and is free to commission the architect of his choice. Garwood is the architect for

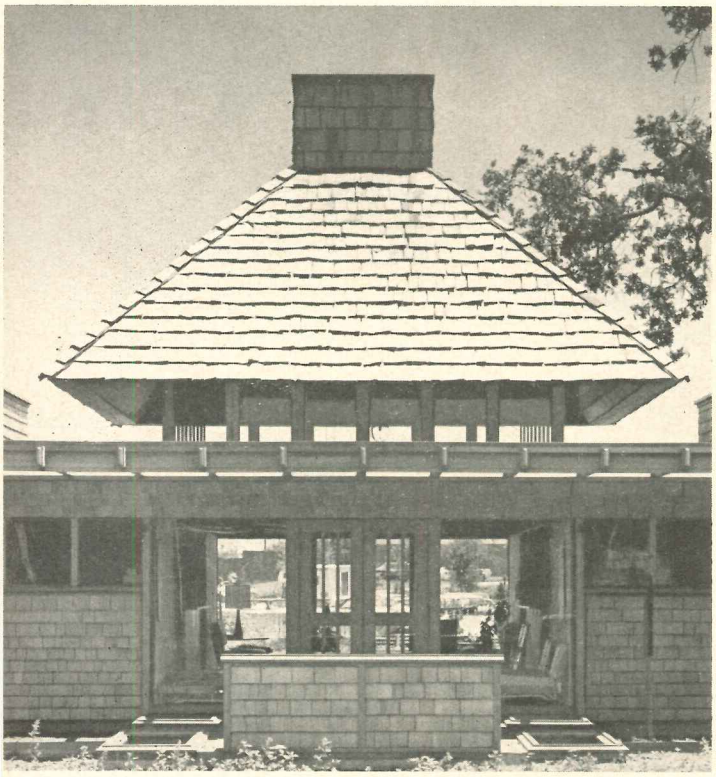




UNIT 12



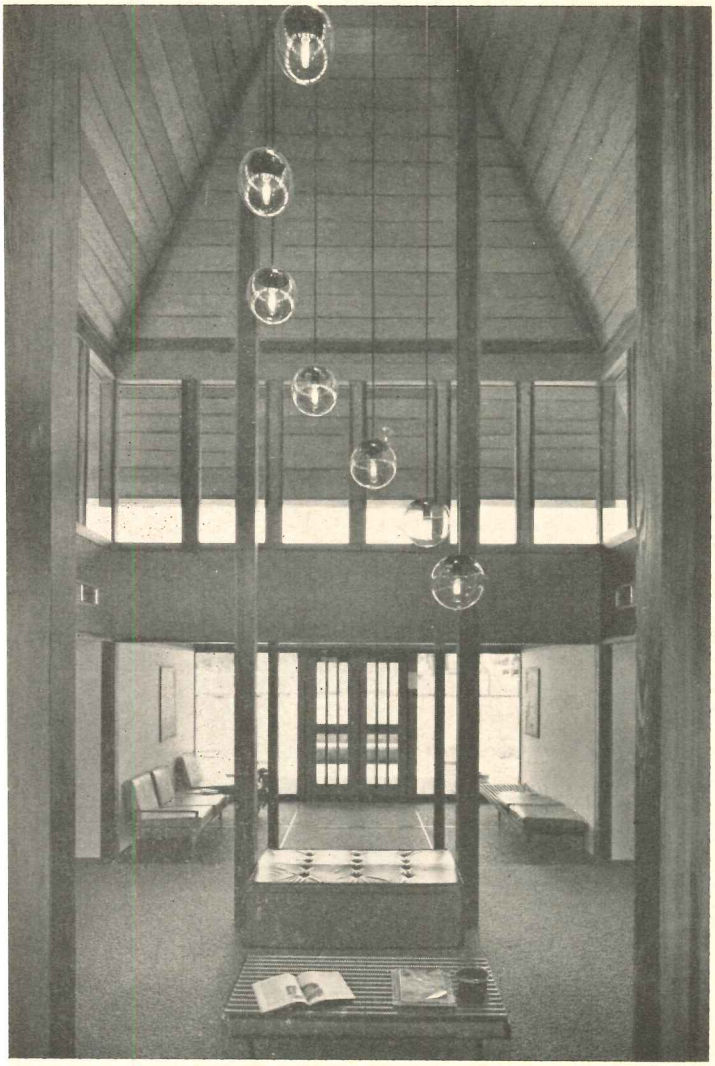
UNIT 14

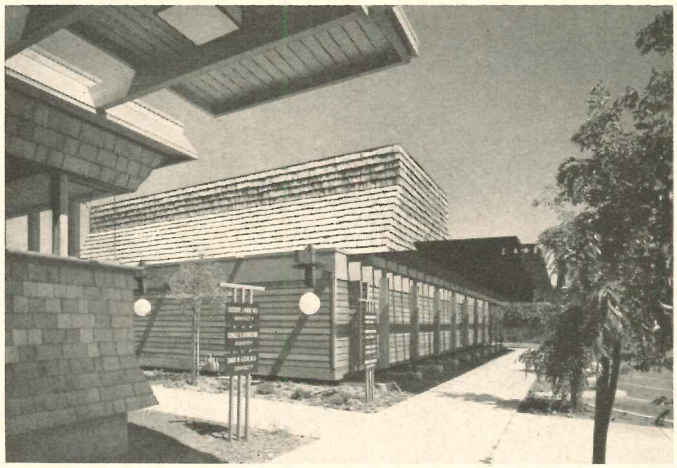


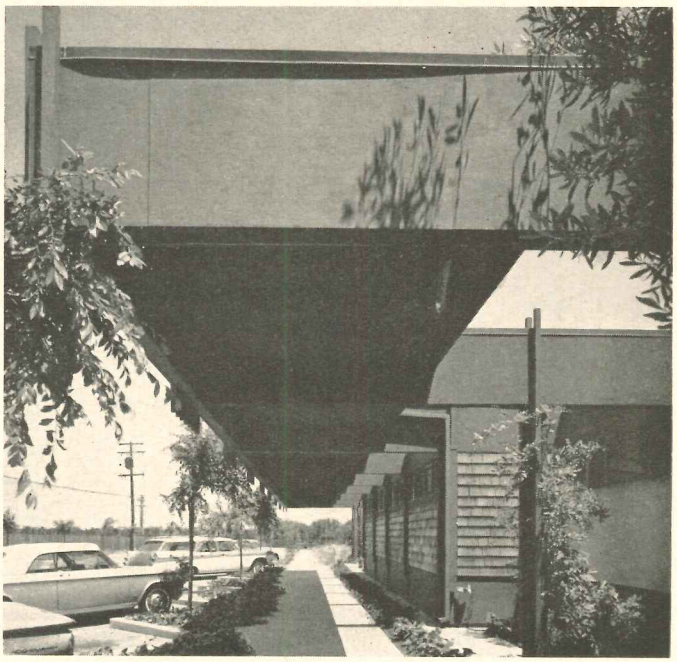
Hospital Drive Medical Center, *continued*

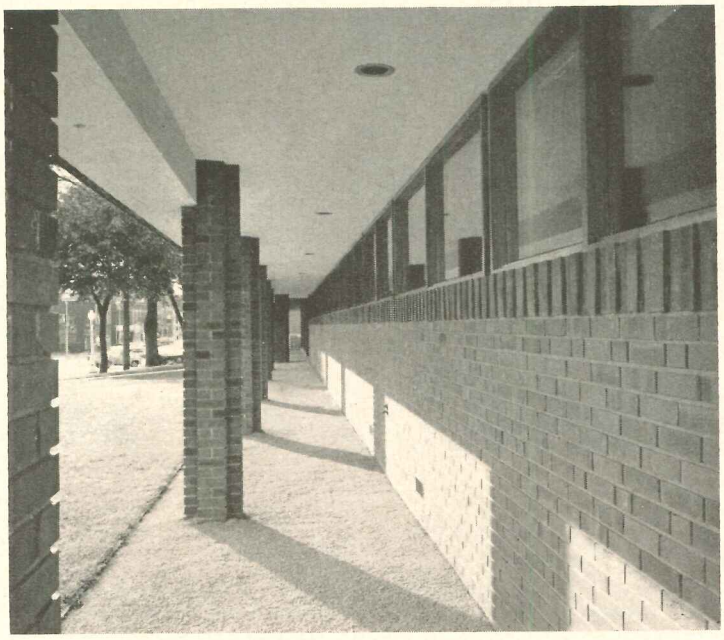
the three buildings shown and is also consulting architect for the whole project. He established the plot development concept, which was refined and executed by Peter Walker. As consultant, Garwood set standards of acceptable materials, roof lines and unifying elements, including a covered walk with flat top which will surround the site and allow for some variety of form behind it. Pergolas marking crosswalks also act as a unifying design constant.

Hospital Drive Medical Center, Mountain View, California. Architect: William Guy Garwood; site planners and landscape architects: Sasake, Walker, Lackey and Associates; structural engineers: Pregnoff and Matheu; contractors: site 9, Arthur Schirmer; site 12, Rudolph Slettin; site 14, Cal Contractors, Inc.



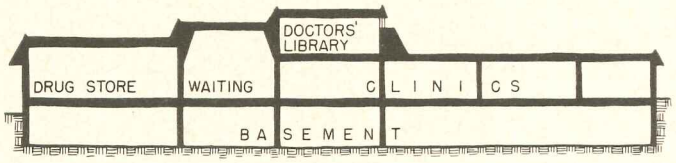




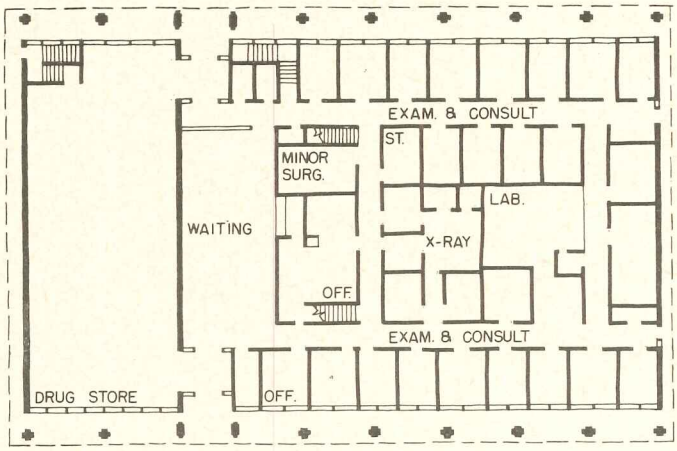


Phil Revoir Studio photos

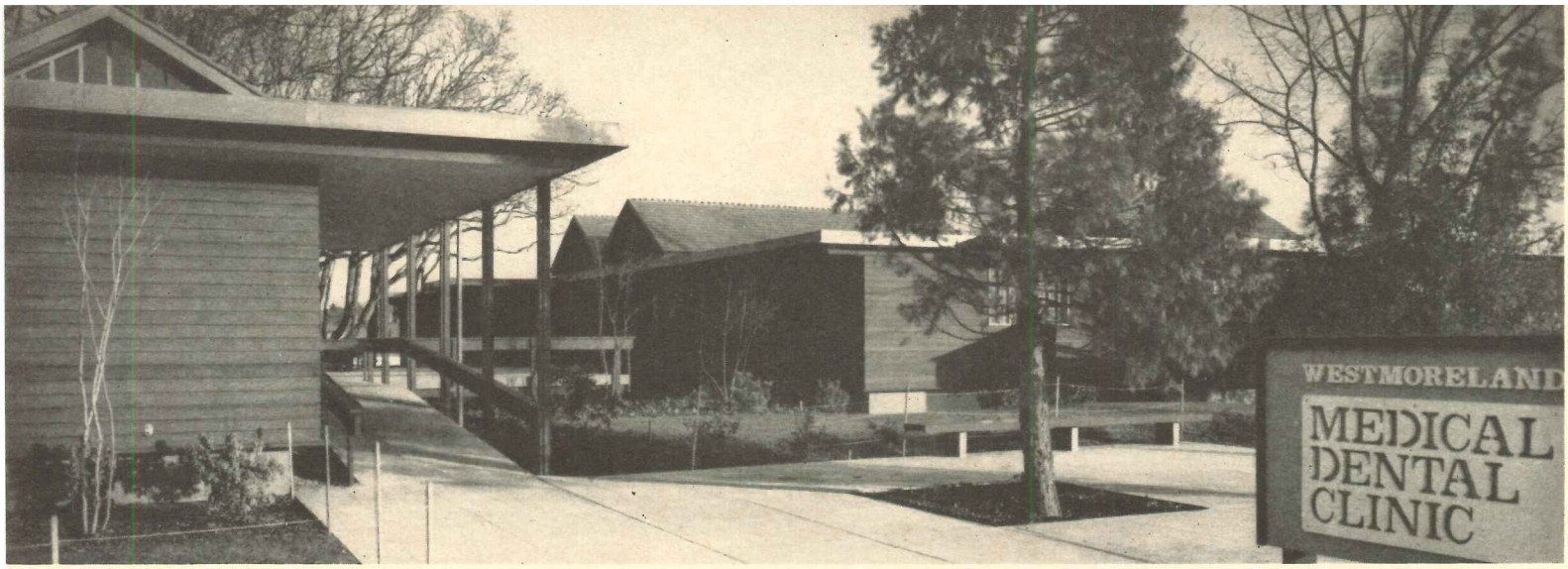
MEDICAL BLOCK WITH A DRUG STORE

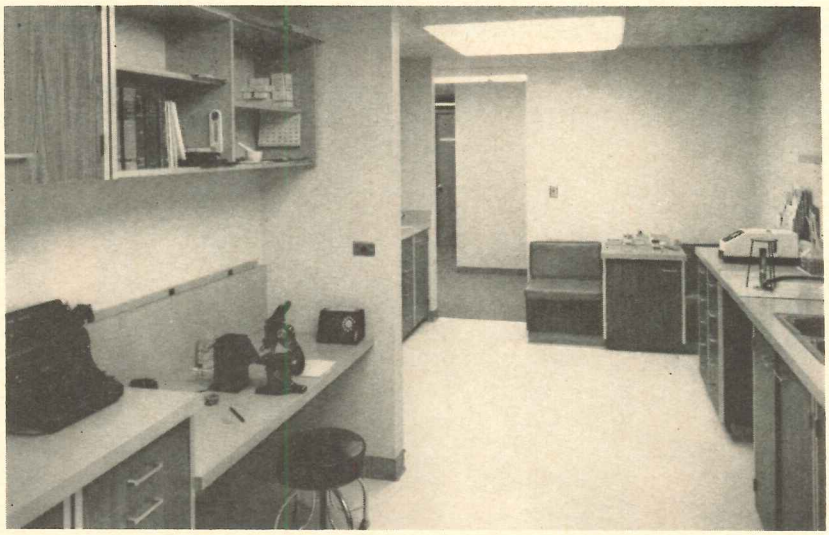


The Medical Block Clinic was designed by architect James Edgar Stageberg to fit well into the outer business district of a rather small community, Red Wing, Minnesota. The special problem here, says the architect, was integration of a drug store with a medical facility while retaining a primarily professional character. Group practice suites are provided for as many as eight physicians, with common areas for minor surgery, X-ray and laboratory. There is a medical library at the third floor level.



Medical Block Clinic, Red Wing, Minnesota. Architect: James Edgar Stageberg; structural engineers: Myer and Borgman; mechanical and electrical engineer: Lew Freedland; general contractor: Bean L. Witcher



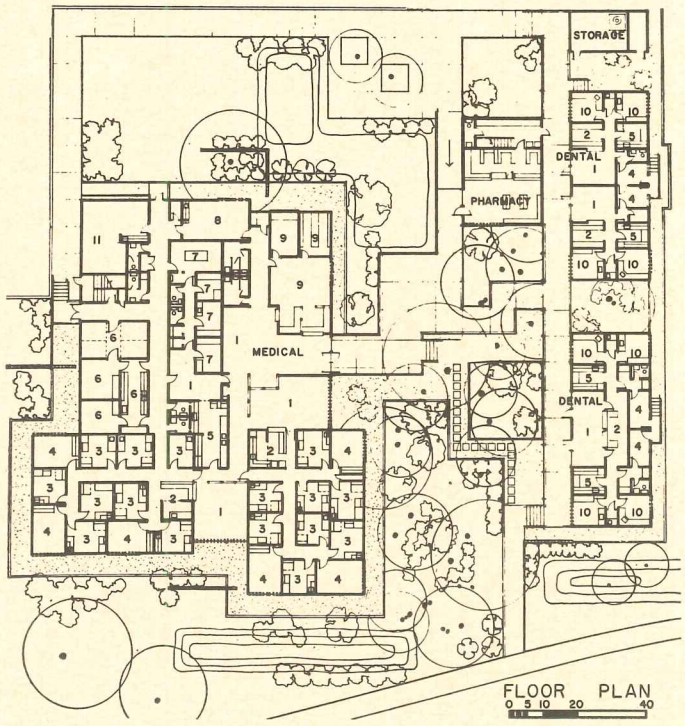


Tom Burns, Jr., photos

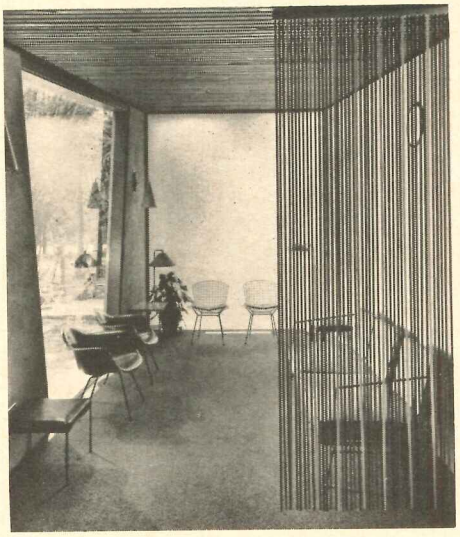
MEDICAL-DENTAL GROUP WITH WOODED COURT

In this group-practice establishment for dental and medical doctors, architects Wilmsen Endicott and Unthank provide 15,000 square feet of space in two buildings connected by elevated walks which wind through a wooded court. The corner plot is about two acres in a residential zone of Eugene, Oregon. Facilities include eight medical practice suites and four dental suites. There are central X-ray, laboratory and surgical facilities. The buildings are of wood frame construction with red cedar siding, cedar shingles and Douglas fir trim. Water-to-air heat pumps provide year-'round air conditioning. A continuous crawl space provides mechanical flexibility and acts as a return air plenum. Interiors and landscaping were designed by the architects.

Westmoreland Medical Dental Clinic, Eugene, Oregon. Architects: Wilmsen Endicott and Unthank; engineers: Marquess and Marquess-Marquess and Yates; general contractors: Gale M. Roberts Company

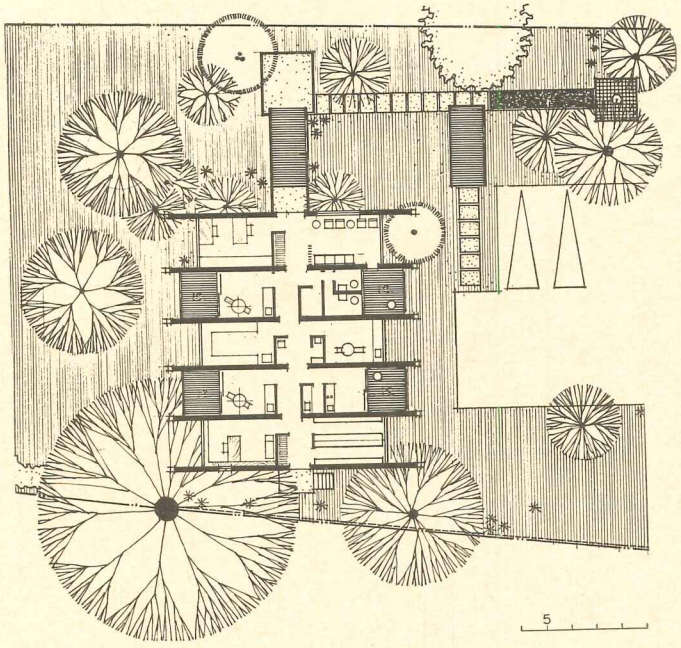


1. Waiting
2. Nurses station
3. Examination
4. Doctors office
5. Laboratory
6. Minor surgery
7. Radiology
8. Staff lounge
9. Business and reception
10. Operatory
11. Physical therapy



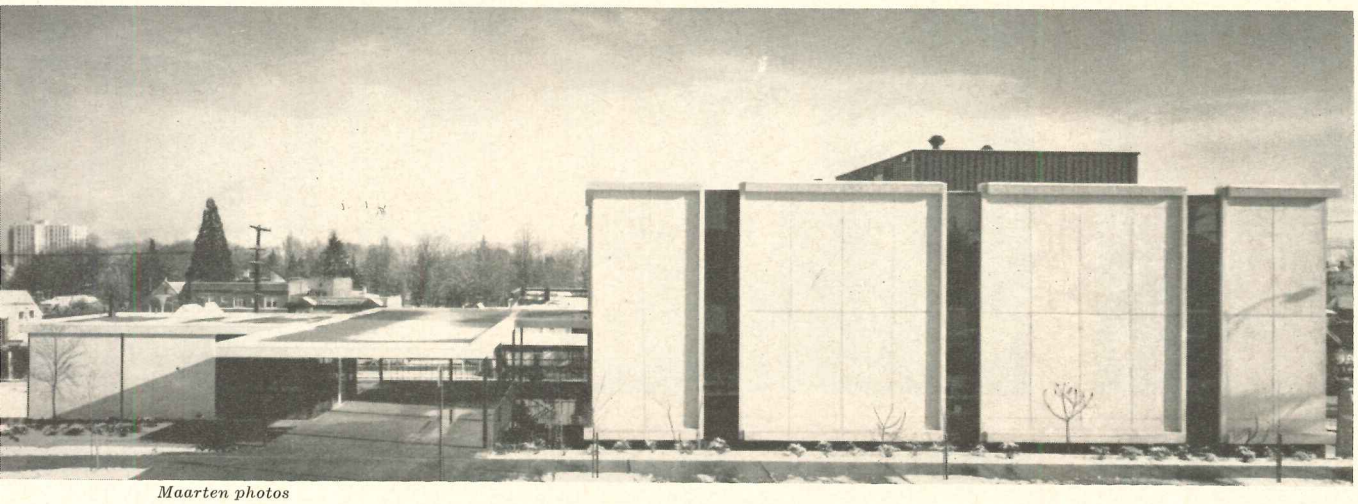
Alexandre Georges, photos

PLEASANT PRIVACY ON A NARROW PLOT

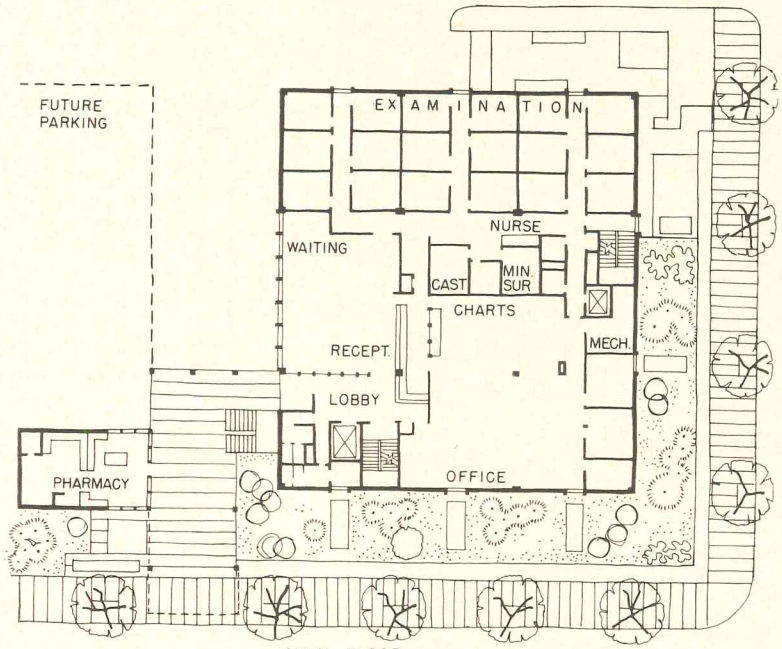


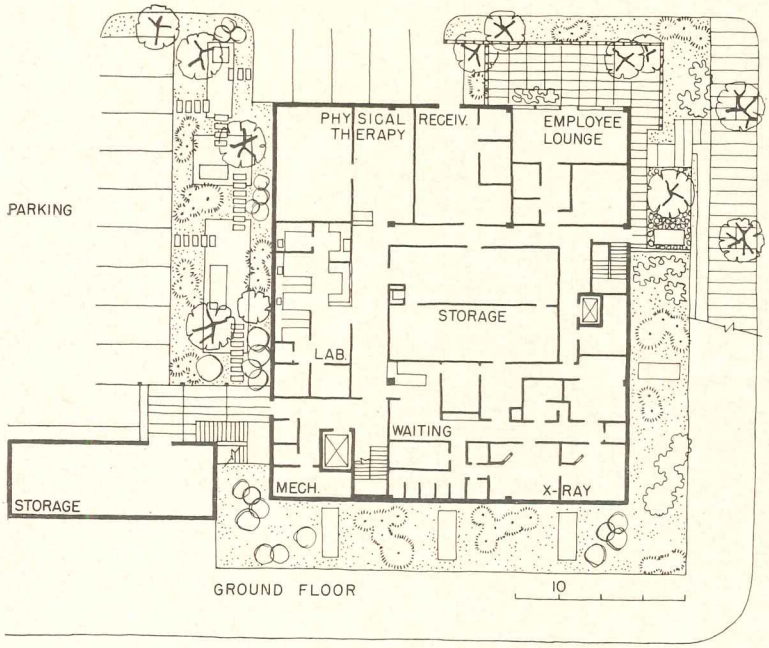
For a young orthodontist with a large teen-age practice, architects Hardwick and Lee designed this small (1,500 square feet) building to appear dignified and disciplined yet inviting in its narrow, wooded lot in suburban Jacksonville. The objective was to provide several small treatment rooms where young patients could have privacy and pleasant outlook during their regular visits for adjustment of dental braces. Ceilings slope up, out and away from dental chairs and project over recessed glass walls to increase apparent size and offer relaxing views of trees and sky. The building of stuccoed block is set back from a busy highway with front parking as an insulator from traffic. It received an honor award from the Florida Association of Architects.

Dr. Harry C. Good Dental Building, Jacksonville, Florida. Architects: Hardwick and Lee; contractor: Fred M. Cox, Inc.



Maarten photos





THREE-LEVELS ZONED FOR SERVICES

The Western Clinic was designed by architects Harris & Reed to maintain professional dignity in harmony with its residential Tacoma neighborhood. It is a three-level building on a sloping site which provides street-level access at both first and second levels. Main patient entrance and waiting rooms are at the second level, and the building is zoned for specialized areas of treatment, diagnosis and out-patient surgery. The clinic provides accommodations for a present staff of 13 doctors and 45 other employees in a group practice arrangement which includes pre-payment plan services. Structure is steel with concrete slabs. Facade is narrow two-story windows flanked by panels of marble chips embedded in white plaster. Expansion will be by addition of a fourth floor.

Western Clinic, Tacoma, Washington. Architects: Harris & Reed; landscape architects: Chaffee-Zumwalt and Associates; structural engineers: Horace J. Whitacre and Associates; mechanical engineers: Arnold N. Bogue and Associates; general contractors: Construction Engineers and Contractors

Mac Mizuki photos

BRICK COLUMNS AND A BROAD ROOF SHELTER A GLASS-WALLED HOUSE

The bold columns, which might at first glance seem fanciful, are in fact the logical result of a design process that began with the clients' wishes for a house related closely to the outdoors—to the sun and view.

House by James Stageberg

The owner of this house in Minnesota had asked architect James Stageberg to give as many rooms as possible good sunlight—and a view of a handsome stand of trees to the north. These contradictory requirements were met with a narrow, one-room-wide plan that opens all rooms to the view and lets south light into all but one bedroom.

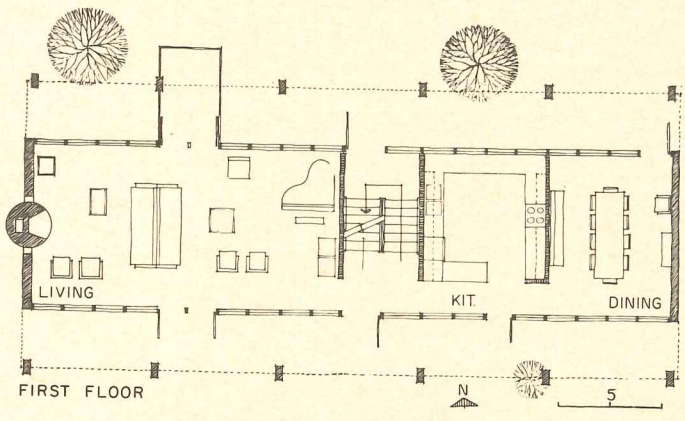
This scheme led to a multi-level house: The drawings below show the two main levels, and there is a lower level which has 608 square feet of finished area (guest room/study and recreation room) with windows at grade on the downhill side of the house.

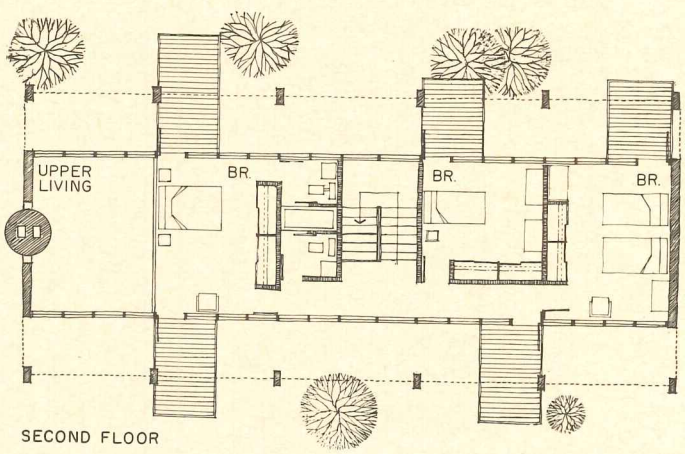
The enclosed living area then, is some 62 feet long and two stories high —but only 17 feet 6 inches wide; with all-glass walls on the two long sides. So, to create shade and a sense of shelter, and to give the house better proportion, the roof sweeps out six feet on both sides to rows of six 12- by 16-inch columns. The columns support the cantilevered balconies which open every above-grade room to the outdoors.

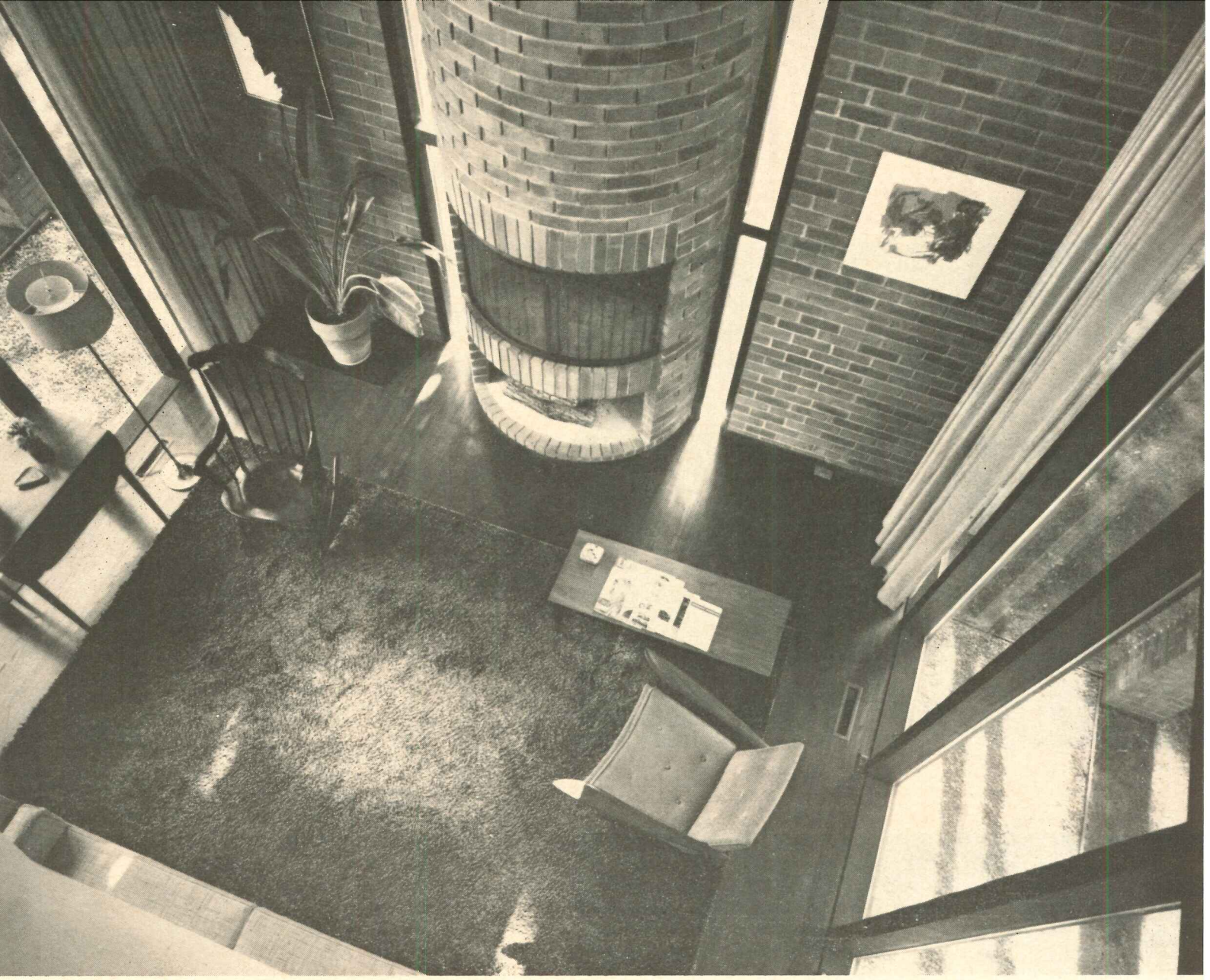
Inside, part of the 30-foot-long living room penetrates the full two-story height, and this height is dramatized by the big fireplace cylinder. The master bedroom overlooks this space, but can be closed off by a folding door.

The structure is frame with brick columns and end-walls. Window frames, balcony railings and balusters, and exterior trim are dark-stained redwood.

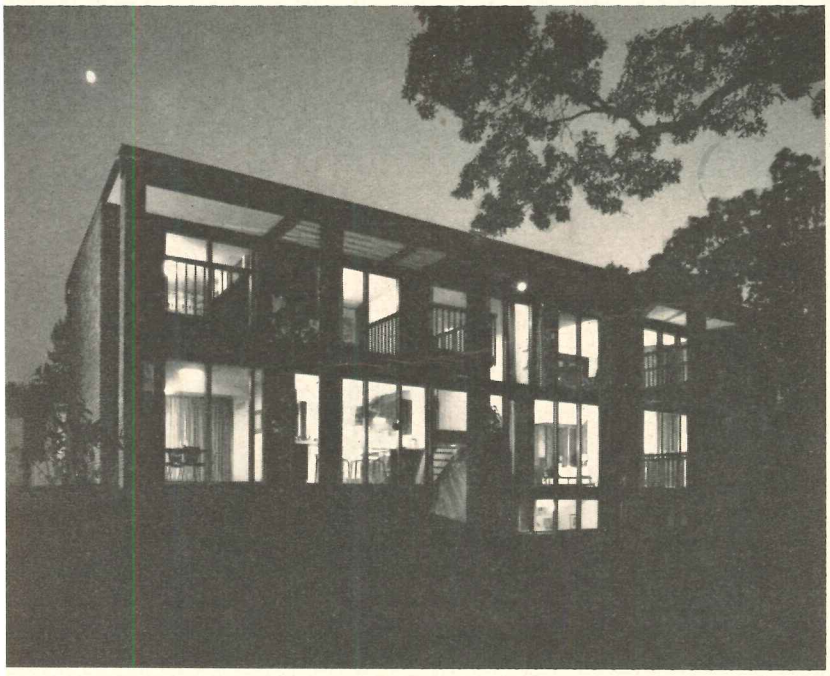
The finished floor area is 2,568 square feet and the approximate building cost was $50,000.







The almost-all-glass walls of the house create the close relationship with the outdoors that was the owners' first requirement. The night-time view shows the downhill (north) side of the house. The four-foot-high windows on the lowest level let these rooms share the view. The kitchen snack bar faces the view.



Residence for

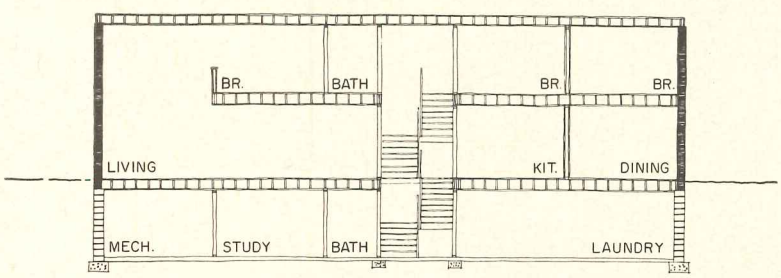
Dr. and Mrs. Harry Hoffman

Rochester, Minnesota

ARCHITECT: *James Edgar Stageberg*

STRUCTURAL ENGINEERS: *Meyer & Borgman*

CONTRACTOR: *Weis Construction Co.*



Architectural Engineering

Controversy re: Overhead Power Lines

To provide power for a $114 million, 180 megawatt linear accelerator at Stanford University, the Atomic Energy Commission wants to build a 5.4 mile overhead power line cutting through Woodside, California, which has a local ordinance requiring underground power distribution. Woodside secured a court ruling on May 20 which said that the AEC, under its 1954 act, had to respect local ordinances regulating the transmission of electric power. Shortly thereafter the Joint Congressional Committee on Atomic Energy, to amend this act, drafted bills which would give the AEC the sovereign immunity from local restrictions which other Federal agencies have.

The A.I.A., through John Dawson, the institute's director of governmental affairs, has pointed out that the intent of this legislation would run head-on into President Johnson's statements on natural beauty.

A recent statement from the Joint Committee puts the additional cost of the underground transmission facilities at around $4 million. The Pacific Gas and Electric Company would be willing to underwrite $1,012,000 of this, and the AEC has offered to pay $350,000. Presumably the rest would have to come from the community of Woodside and from San Mateo County.

National Science Foundation Aids Laboratory Building

In the course of providing grants of approximately $60 million toward college and university laboratory buildings in a year's time, the National Science Foundation reviews the plans of several hundred buildings. Most of these buildings are for postgraduate work, and include a number of exotic buildings, such as the circular accelerator at Cornell, which is the largest in the world.

While the intended purpose of the examination of building plans is for recommendations to be considered internally, the architectural services staff, headed by Harold Horowitz, is prepared to give advice to architects doing college laboratories if they ask for it, even if the buildings have not been funded by NSF. The architectural services staff has compiled a bibliography of information on science facilities covering general planning, space utilization and cost studies; science building types studies, design criteria and construction details for science facilities.

Design for the Handicapped

Among the seven technical supplements in the new addition of Canada's National Building Code is a document on "Building Standards for the Handicapped." This is a guide suggesting minor modifications in building design which help to make buildings convenient for handicapped citizens. It is reported that one in every seven Canadians has a permanent physical disability or an infirmity associated with aging.

GSA Holds Symposium on Environmental Design

In a five-day symposium for Federal executives, held by the General Services Administration Institute June 7-11, the term "environmental design" embraced a broad group of topics ranging from anthropological factors and spatial interrelationships to building technology. Comprising the building technology section were presentations on climate control in buildings by William J. McGuinness; integration of illumination in building design by William M. C. Lam; the acoustic environment by Robert B. Newman; materials by Albert G. H. Dietz.

When asked how GSA might develop a set of rational criteria for the types of lighting employed in GSA-owned buildings, William Lam suggested a two-fold approach: first that GSA obtain advice from acknowledged authorities in lighting research and design, and, second, that they build mock-ups of spaces with lighting which represent minimum standards. Architects of client agencies could then compare systems under consideration with a given mock-up to find out whether these systems exceed or fall below the minimum.

References on Architectural Acoustics

A 500-page annotated bibliography, Acoustics in Architectural Design, has been prepared by Leslie L. Doelle, an architect at McGill University. The aim of the book is to direct the architect and his consultant to a collection of books and papers that will provide both guidance and illustrative examples. Although some strictly acoustical references are included, the main emphasis is on the architectural literature. Thus the architect can discover how problems have been solved in architectural realizations.

The book has been divided into sections according to architectural function.

Acoustics in Architectural Design, (an annotated bibliography on architectural acoustics). Leslie L. Doelle, Eng., M. Arch. Bibliography No. 29, Division of Building Research, National Research Council, Ottawa, Canada. January 1965. 543 pp. mimeographed. Price $4.00. Order No. NRC 8358.

Traffic Noise

A University of Michigan public health engineer, Jerome K. Brasch, is attempting to find a better yardstick to measure the "annoyance level" of traffic noise.

During the past 24 months, Brasch has sought new techniques for evaluating the noise of traffic and relating it to the irritation it causes those who live near it and drive through it.

Last October Brasch set up a tape recorder and calibrating devices near an expressway on the outskirts of Detroit. He recorded the road racket from dawn to dusk, and subsequently

made a detailed analysis of it in his laboratory.

His results to date are highly technical findings which may help engineers cope with translating decibels into effects on humans.

In a report to the Acoustical Society of America, Brasch said that the conventional method may not give an adequate measurement of traffic noise because it shuts out the lower frequencies which contribute greatly to loudness.

He urged the acoustical specialists to give greater consideration, too, to the duration of noise. He said the human sense of annoyance derives from the amount of noise, plus the length of time it persists.

Although mainly seeking ways to analyze and express this traffic noise, Brasch said he detected, incidentally, a strange fact: The evening commuting hours with heaviest traffic volume were not the noisiest time of day. Instead, he reported, the uproar hit its peak in mid-morning. This coincided with the heaviest truck volume on the highway, and he concluded that an accurate measure of traffic noise will be closely related to the amount of truck traffic.

Computer Check on Hospital Plans

Whether or not hospitals seeking Hill-Burton aid meet specified architectural requirements may be checked out by computer one of these days. The computer program currently being developed by staff of the Institute for Applied Technology at the National Bureau of Standards will be evaluated mainly for economic feasibility, rather than technical.

Plastics in Architecture

Highlights of a one week course on Plastics in Architecture at M.I.T. in June included lectures assessing the weathering and aging of plastics, and the burgeoning field of plastic foams. Current testing methods as related to prediction of long range behavior were discussed. Researchers in the area of plastic foams described experimental structures of these materials for use by the Army and for potential application in low cost housing for underdeveloped countries.

The course was jointly supervised by Dr. Albert G. H. Dietz, Professor of Civil Engineering and of Architecture, and Marvin E. Goody, Associate Professor of Architecture.

Drawings Akin to Road Maps

Bidders on future Corps of Engineers projects may find engineering and construction drawings in two colors and on "half-size" sheets. While standard 28 by 40 in. drawings are prepared as usual, they are reduced to 14 by 20 in. to make them easier to handle. Color will be used to distinguish between highly complex mechanical and electrical systems and to show new work in relation to existing construction.

The Savannah District of the Corps started printing "half-size" drawings in the late '40's. In order to overcome psychological objections to the smaller drawings—which gave the impression of being too crowded—Savannah began experimenting with over-printing in color.

According to the Corps an invitation-to-bid package, containing 75 two-color, "half-size" drawings, costs about $3.75 in comparison to $2.63 for one color. Advances in offset printing, as used in printing oil company road maps, are responsible for the low cost, according to the Corps.

Environmental Abstracts

While the effect of the environment on human behavior has become one of the most significant and potentially fruitful fields of study in recent years, little has been done to gather together relevant material, or to evaluate the scope of the work that has so far been done in this field. "Environmental Abstracts"—a recently published 765-page, $15 volume—is an attempt to rectify this situation by providing sources of basic information.

This new publication is the first in a series of book-length reports describing work accomplished by the School Environmental Research Project, an activity of the Architectural Research Laboratory at the University of Michigan in Ann Arbor. Two other volumes are expected shortly. The S.E.R. project was established in 1959 by a grant from the Educational Facilities Laboratories with the object of determining "the effects of environment upon the learning process."

The abstracts consist of condensations of some 600 documents which the project team considered "as offering particularly significant descriptions of the various relationships that link environment with human behavior."

A "first-look" study of the volume gives the impression of a very competent job. The material is organized intelligently and the purposes and scope of individual documents are clearly defined. The abstracts are not written in the traditional style, which though often informative, can be exceedingly dull and hard to digest. The reports in this volume are presented in a lively and highly readable form and include as well as the author's own conclusions, useful comments by the abstractor.

A closer look at one of the sections, that on illumination, confirms the impression that the summaries and comments have been extremely well done, but indicates that the actual selection of material may be more controversial. In the lighting section, while such well-known names as Luckiesh, Spenser, Tinker, Hopkinson, Weston are well represented, the name of Blackwell is conspicuous by its absence. His omission may be defended on the grounds that his research dealt only with the matter of illuminating requirements for a specific group of tasks and not with the total illuminated environment as such. One may wonder, however, if this is sufficient justification in view of the definite influence of Blackwell's work on illumination design.

This Month's AE Section

The Appearance of Board-Formed Concrete, By J. Gilchrist Wilson, page 173.

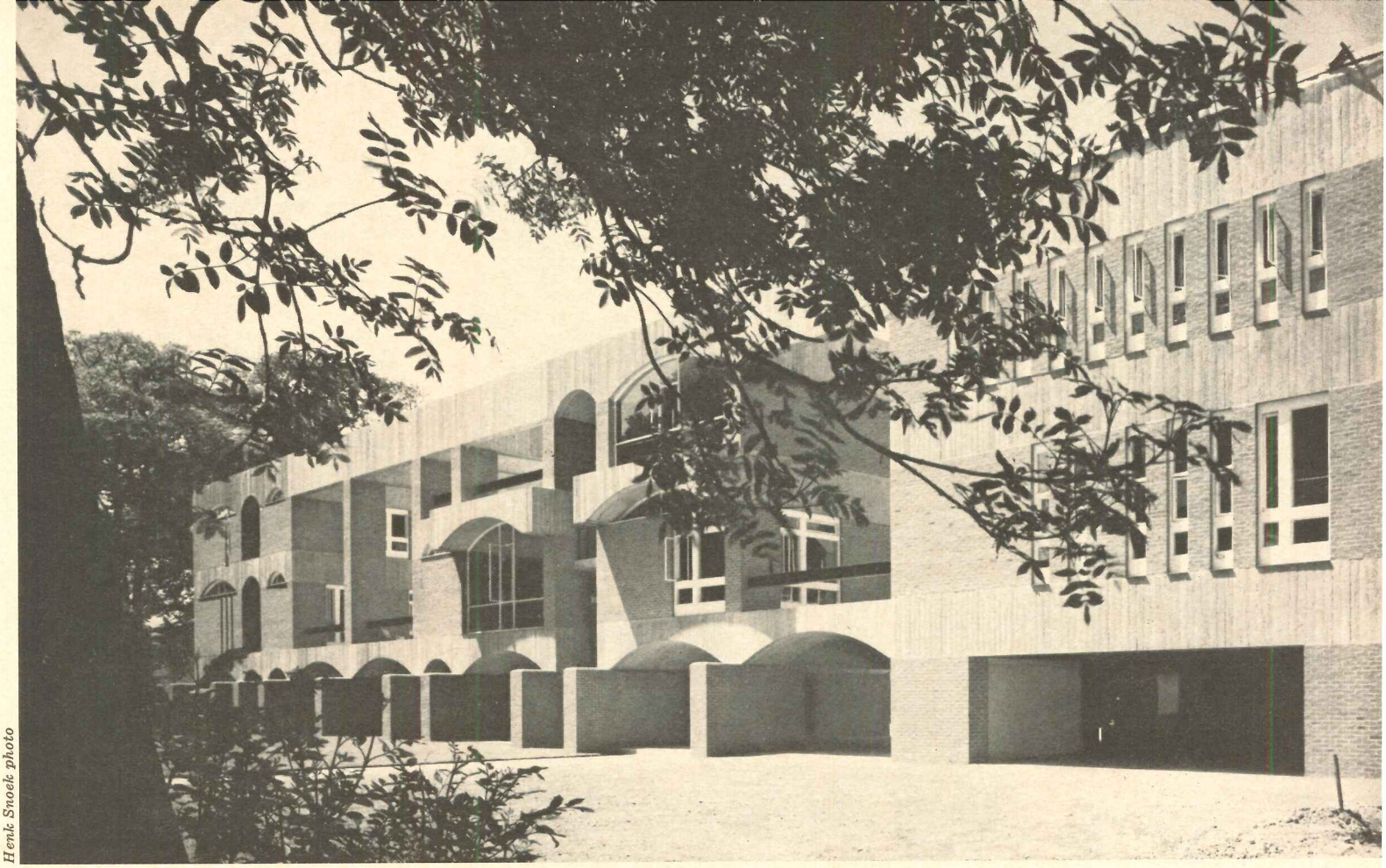
Ingenuity in Building an Elliptical Roof, page 177.

Curved Roof Elements Make Use of Metal Lath, page 179.

Building Components: How to Select Acoustical Materials, page 185.

Product Reports, page 187.

Office Literature, page 188.



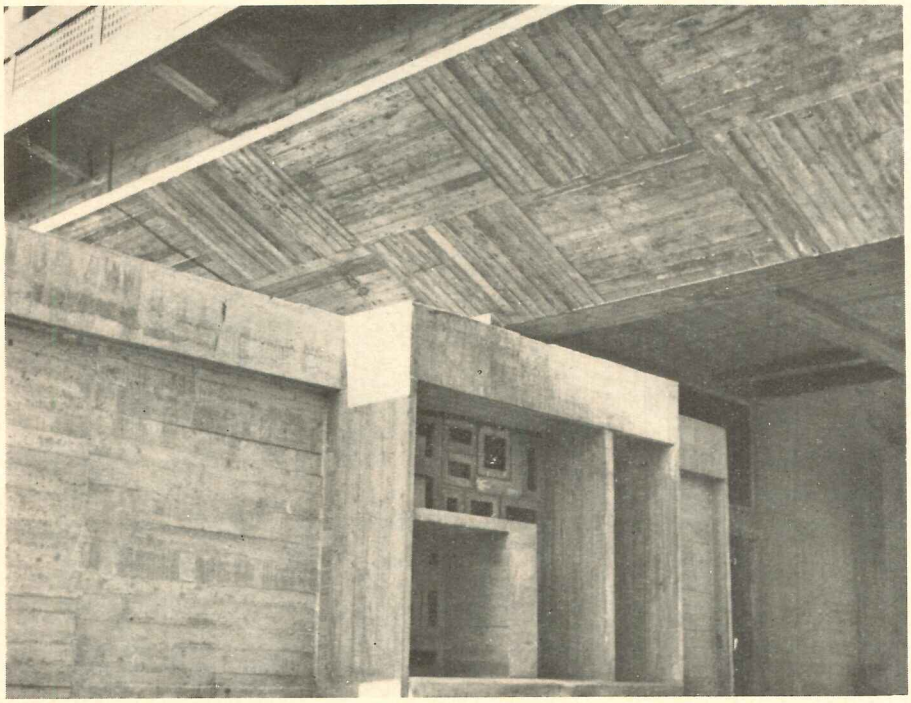
Henk Snoek photo

The precast elements in the new University of Sussex building have the board marked finish typical of *in situ* concrete construction in the United Kingdom. Architect: Sir Basil Spence, R.A.; engineers: Ove Arup and Partners.

THE APPEARANCE OF BOARD-FORMED CONCRETE

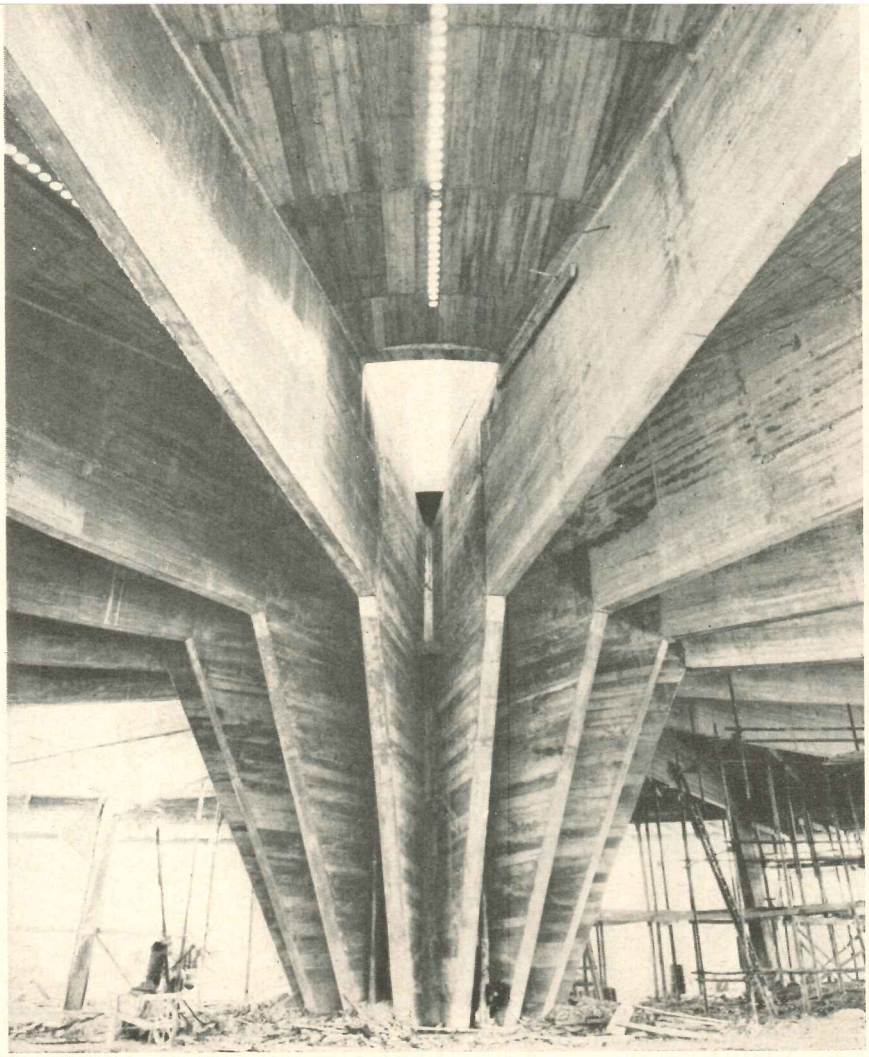
*By J. Gilchrist Wilson, F.R.I.B.A**

While there has been a steady improvement in the perceptive use of concrete, the improvement in the quality of concrete exposed finishes is less pronounced. In the United Kingdom the general trend in the use of exposed concrete has been towards the use of rough-board finishes, due in part to the influence of Le Corbusier. This influence can be seen in practically every country of the world, but possibly nowhere more so than in Great Britain, where it would be true to say that rough-board finishes have become the cliché of the Sixties, so much so that they are accepted as appropriate finishes for a wide variety of precast concrete elements and have resulted in the issuing of specifications bearing such

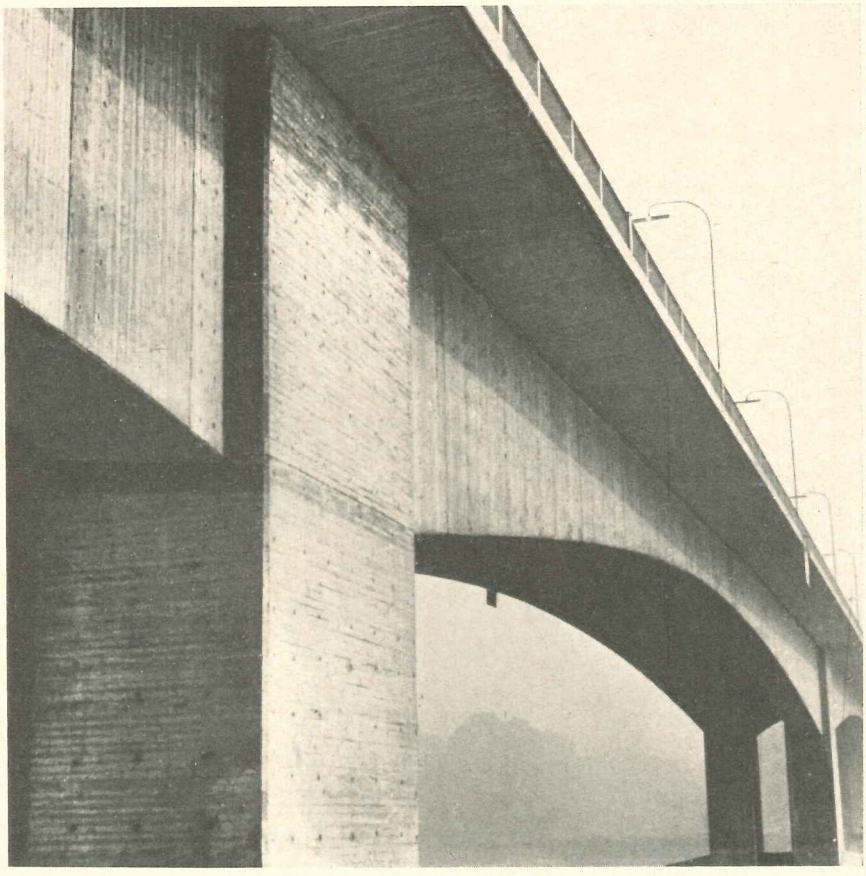


Technological imperfections and blemishes can be clearly seen in the entrance hall and board marked soffit of the first floor of the Unite d'Habitation, Marseilles. For Corbusier, however, these are an accepted part of his personal concrete esthetic.

* Senior Advisory Architect, Cement and Concrete Association, London, U.K., and author of "Exposed Concrete Finishes" John Wiley & Sons, Inc., New York, 1962. This article is based on the papers mentioned in references (1), (2) and (3) which have been listed on page 176



Variations in the color tone of the concrete fins at the base of the water tower, Caen La-Gueriniere, France, result from casting against formwork made up of boards with different degrees of absorbency, and from bleeding at joints.



In order to preserve uniformity of color, new and used boards should not be part of the same formwork. The dark concrete area at the top-left-hand corner of this photograph is probably due to the use of a panel of new formwork.

titles as "Design Notes and Specifications for Concrete from Rough-Board Formwork."

These specifications, while accepting the pattern and texture of Le Corbusier's well known works, are intended to eliminate the technological imperfections and blemishes with which his work is stamped and endeavor to replace them by a more disciplined board-marked pattern and texture, having the quality of finish typical of much of Nervi's work.

This trend in the architectural use of *in situ* concrete, and the desire on the part of some designers to obtain finishes that will be uniform in color and free from surface blemishes, has led research institutes in several countries to study the problem from a wide variety of aspects.

Work done by the Cement and Concrete Association (1), (2), (3)* in the U.K. and a number of research institutes in other countries has established not only the cause of most of the common blemishes which affect the appearance of concrete but also the means to prevent them.

The purpose of this article is to draw attention to some of the more important factors which can have a marked affect on the appearance of *in situ* concrete finishes. It must, however, be appreciated that the steps necessary to produce concrete of uniform color free from surface blemishes will mean additional cost over what would be classed as normal concrete work. This can be quite appreciable, as much as $11.20 per square yard on several structures in the U.K. The designer must therefore ask himself how much additional cost can be justified by the results. Does the weathering of the superior quality finish justify the means? Could not the same end be achieved at less cost by some finishing technique, as is already common practice in the United States and other countries?

Definitions

For the purpose of this article the following definitions apply:

Hydration discoloration: variation in shade of the surface matrix with gradual transition from light area to dark area but occasionally with definite boundary.

Retardation: dark surface matrix lacking in durability.

Blow-holes: small, regular or irregular individual cavities normally not

*Refers to listings at the end of this article

bigger than about 15 mm in diameter.

Scaling: local removal of the cement matrix.

Neat Oils: neat oils without the addition of natural or synthetic surface-activating agents.

Mold Cream Emulsions: water-in-oil emulsions where the external or continuous phase is oil.

Water-soluble Emulsions: oil-in-water emulsions where the continuous phase is water.

Barrier Paints: any coat applied to the form as surface impregnation.

Color Variations

The production of concrete of uniform color is one of the most difficult properties to achieve in practice, and its lack of attainment is the main criticism levelled against concrete by the lay public. On the other hand, many architects do not object to variations in color tone, accepting them as unavoidable and part of the general concrete esthetic.

Research has shown that, quite apart from the effect of the cement and color of the fine aggregate used in the mix, the formwork face against which the concrete is cast has an appreciable influence on the resultant color of the concrete.

As a general rule, the more absorbent the material against which the concrete is cast, the darker the tone of the concrete. The reason for this is that absorbent materials permit water to bleed from the concrete, resulting in a reduced water content at the surface. Differences in color tone brought about by a reduced water content are referred to in the U. K. as hydration discoloration.

In the same way that absorbency of the formwork face affects the resulting color tone of the concrete, similar variations result from loss of moisture from the concrete at board or panel joints.

Work done in several research institutes, and by the United States Bureau of Reclamation (4), (5)* show also that, with all other factors constant, there is a significant reduction in the number and size of blow-holes with increasing absorbency.

Hydration discoloration can also be caused by the formwork detaching itself from the face of the concrete due either to slight shrinkage of the formwork, or of the concrete, permitting the surface of the concrete to "breathe" relative to adjacent portions still adhering to the formwork.

From the above it is obvious that any form face made up of individual boards will vary widely in absorbency, from relatively impermeable heartwood to semi-permeable sapwood. Variations will also occur across the annular growth rings. The absorbency of the face of any timber depends not only on the part of the trunk from which it is cut, but also upon the angle at which the cut is made through the sap channels.

With each re-use, timber form faces will produce concrete of a lighter color and with greater tendency for blow-holes to occur as the pores become blocked by oil and particles of cement.

The color tone of concrete cast against plywood will vary from sheet to sheet depending upon the amount of heartwood or sapwood present in the face veneers. Where constant color is important, plywood having a factory impregnated external veneer should be used.

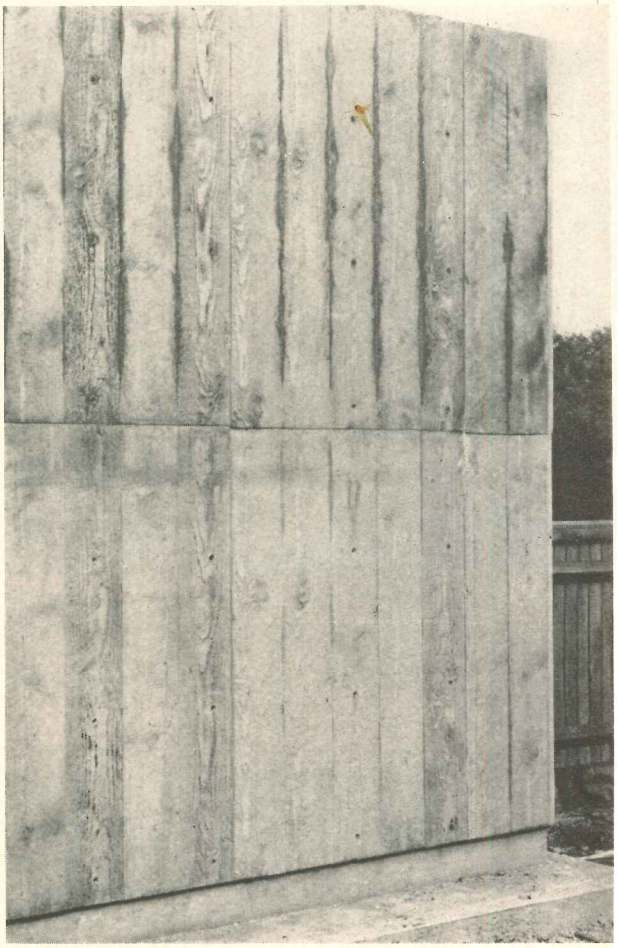
Oil-tempered hardboards are relatively impermeable and can therefore be expected to produce concrete of uniform color. Where high quality finishes are desired they should not be re-used more than three times.

Influence of Formwork Design on Hydration Discoloration

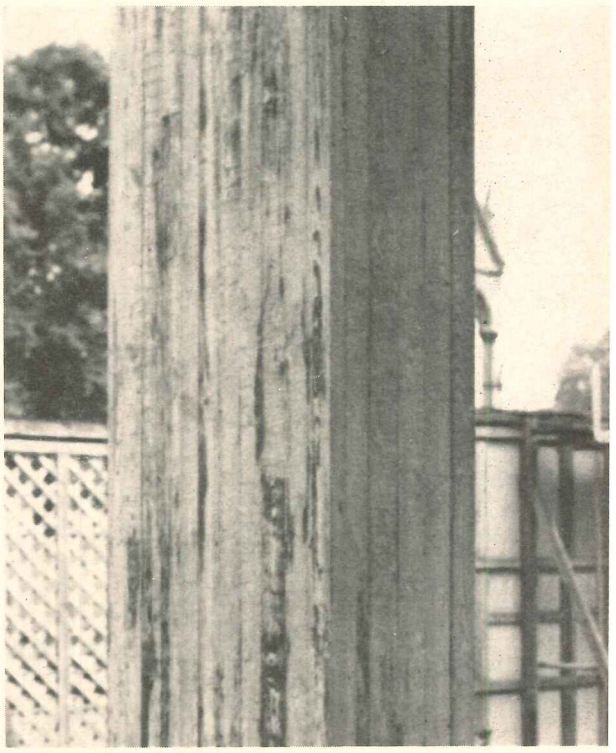
As hydration discoloration occurs wherever moisture is permitted to bleed or escape from the concrete mix, it is essential to design the formwork so as to prevent excessive deflections. The following permissible deflections are suggested:

Between adjacent framing members	+1/16 in.
Between adjacent ties on a framing member	+1/32 in.
Over the full depth of a vertical face	±1/8 in.
Over a 10-foot length, horizontally	±1/8 in.

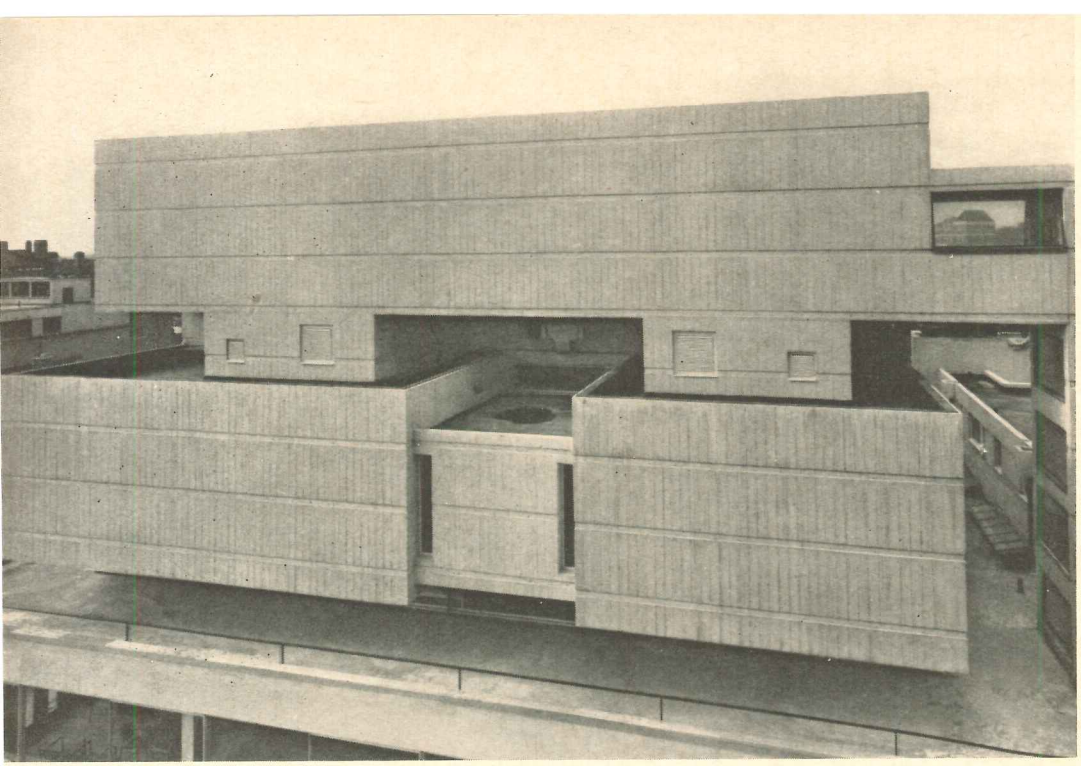
The pressure exerted by freshly placed concrete is the full equivalent hydrostatic value. In the casting of a 10-ft-high lift this can amount to a pressure of 10 lb/sq in. and it is imperative that all joints between individual boards and between panels



Hydration discoloration here is caused by loss of moisture at the board joints.



Formwork made up of low grade timber cut from various parts of the trunk or at different angles through the sap channels varies widely in absorbency and results in substantial color variation in the concrete finish.



John A. Rose photo

The exterior of the Wolfson Institute, London, demonstrates a high degree of uniformity in the board marked concrete finish. In this case, color difficulties were solved by the use of white cement with a light colored fine aggregate, instead of ordinary grey cement. Architects: Lyons, Israel and Ellis.

should remain watertight under these pressures. Normal butt joints, depending for their tightness on the moisture in the timber, cannot under normal site conditions be relied upon to remain watertight, and for this reason it is advisable that foamed plastic sealing strips be used in all board or panel joints that may open to pressure of the concrete or shrinkage of the timbers.

Structural backing to formwork should always be arranged to coincide with joints between panels so as to limit movement at joints under vibration, and to reduce the risk of leakage and segregation.

Release Agents

The purpose of a release agent (mold oil) as the name implies is to facilitate the striking of the formwork and to reduce the likelihood of scaling or scabbing of the concrete surface when the formwork is removed. Kinnear (1)* in his work on mold oils found that neat oils always induce the formation of small blow-holes and water soluble emulsions always produce a dark porous skin on the concrete with a tendency to dusting. Mold cream emulsions and neat oils to which a small proportion of surfactant has been added are capable of producing concrete of uniform color and, in fact, reduce the tendency for blow-holes to form. In practice the addition of up to 2 per cent of synthetic surfactant is sufficient to provide uniform dispersion in the oil or stability in an emulsion. Water soluble emulsions can mix with water in the concrete causing retardation of the surface and a dark surface matrix lacking in durability, and should not, therefore, be used.

For most average conditions only neat oils with up to 2 per cent synthetic surfactant added or a mold cream emulsion sold ready for use should be used if freedom from blow-holes and uniform color are important. Wherever possible application of the oil or mold cream should be by spray gun at the rate of spread of about 300-400 sq ft per gallon.

Concrete Mixes

Cements of the same type vary appreciably in their color depending upon the raw materials used in their manufacture. Care must therefore be taken to make sure that the cement comes from one factory and if possible from one day's production at the factory. Likewise, sand has a marked influence on the color of the resulting concrete and, like the cement, should be obtained from the one source; should the color vary from day to day according to the working of the pit or quarry, arrangements should be made to stock pile a sufficient quantity of sand from a selected part of the pit or quarry. Extreme care must be taken with the mix proportions and particularly the quantity of water in each batch if color variations are to be avoided. Work done by Murphy (2)* shows that, for uniform color, a mix should be rich in cement and have a high content of fine sand and the coarse aggregate should be of the largest permissible size and continuously graded. The use of an air entraining agent is also beneficial in reducing moisture movements within the concrete.

The compaction of the concrete should be by means of poker vibrators and great care must be taken to ensure by every possible means that the last 12 in. of any lift is adequately compacted to reduce the number and size of blow-holes present in the surface. To ensure even curing the formwork should be struck after three days and this period of striking maintained throughout the job. Day work joints are a feature which can spoil an otherwise good job and they should be hidden by means of a "recess" in the concrete formed by a splayed fillet attached to the face of the formwork. The use of foamed plastic sealing strips will prevent grout runs between lifts of concrete and are essential where rough-board finishes are used.

The normal control-testing arrangements should be similar to those adopted for the production of high-strength concrete because, for high-strength, variation in the mix proportions between batches must be kept at a minimum and this is also the requirement for concrete of uniform color.

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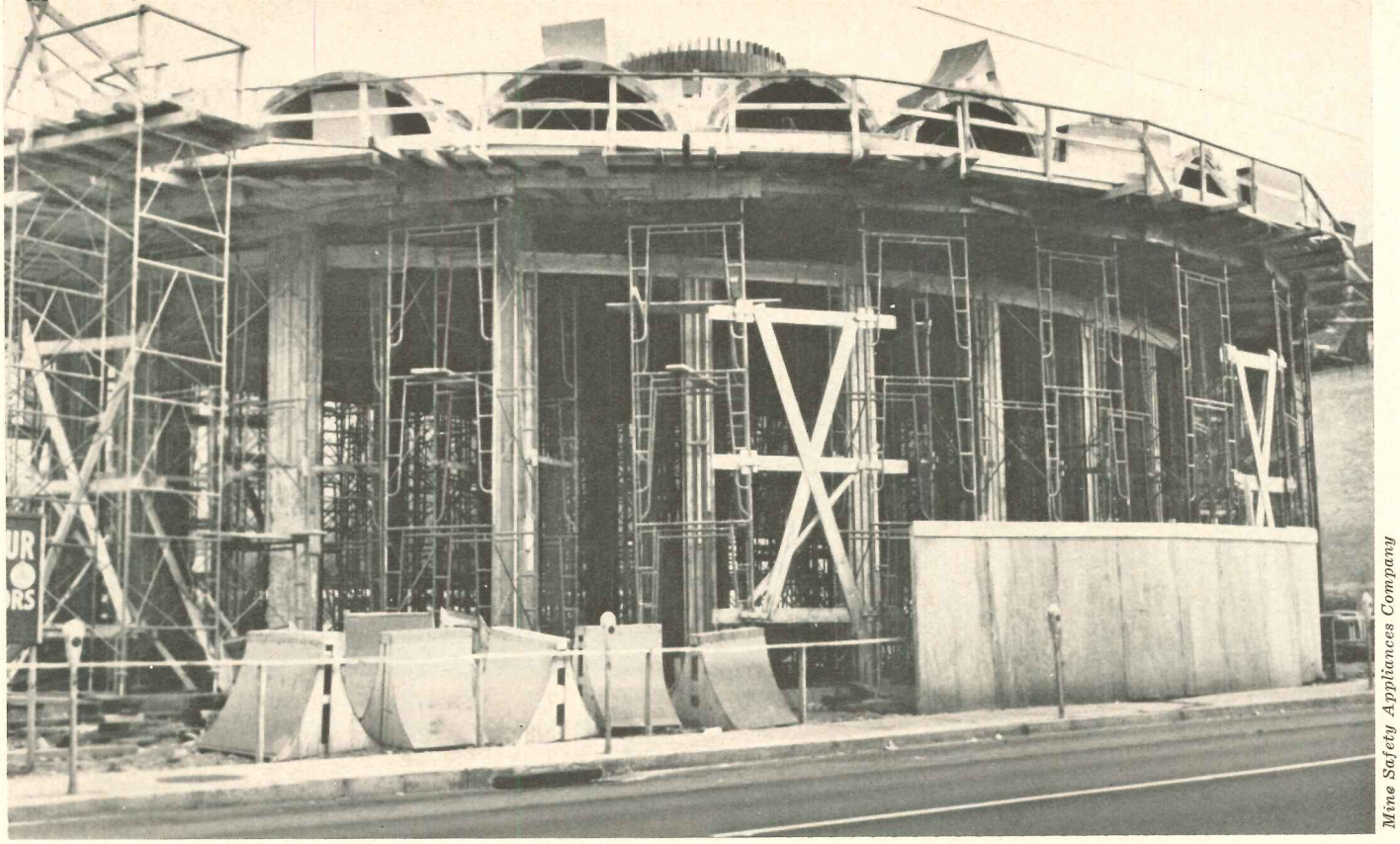
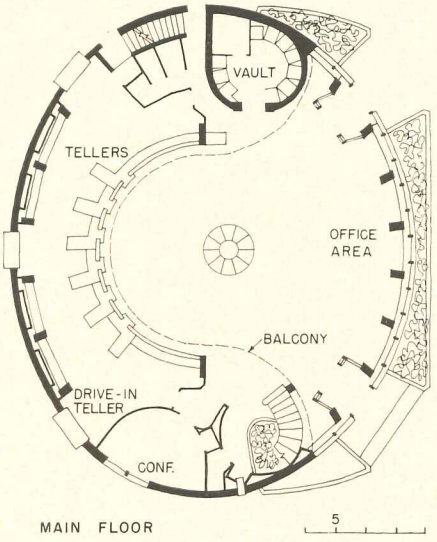
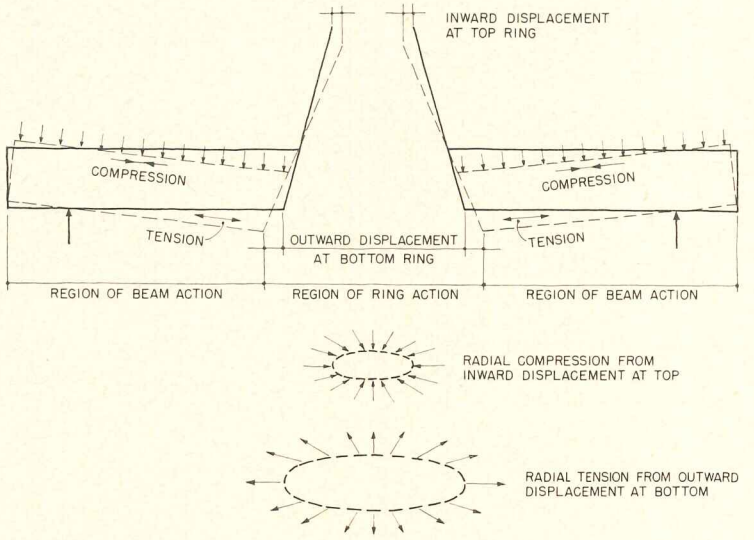
2. Murphy, W. E. Concrete Surface Blemishes. An investigation into the influence of concrete mix characteristics and methods of placing upon the surface appearance of concrete. London, Cement and Concrete Association, 1964. Technical Report TRA/384. pp. 46
3. Blake, L. S. Kinnear, R. G. and Murphy, W. E. Recent Research into Factors Affecting the appearance of *in situ* concrete. London, Cement and Concrete Association, September, 1964. pp. 27
4. Johnson, W. R. The Use of Absorptive Wall-Boards for Concrete Forms. Journal of American Concrete Institute, Vol. 12, No. 6., June, 1941
5. Bidel, E. N. and Blanks, R. F. Absorptive form lining, Journal of American Concrete Institute, Vol. 38, No. 3., January, 1942



Mine Safety Appliances Company

Roof structure of a branch bank for the Mellon National Bank & Trust Company in Pittsburgh employs 22 tapered vaults, supported by a ring of columns on the outside and an off-center compression-tension ring at the inside. Because of the steepness of the vaults top forms had to be used (can be seen next to sidewalk). Structural behavior is shown in sketch.





INGENUITY IN BUILDING AN ELLIPTICAL ROOF

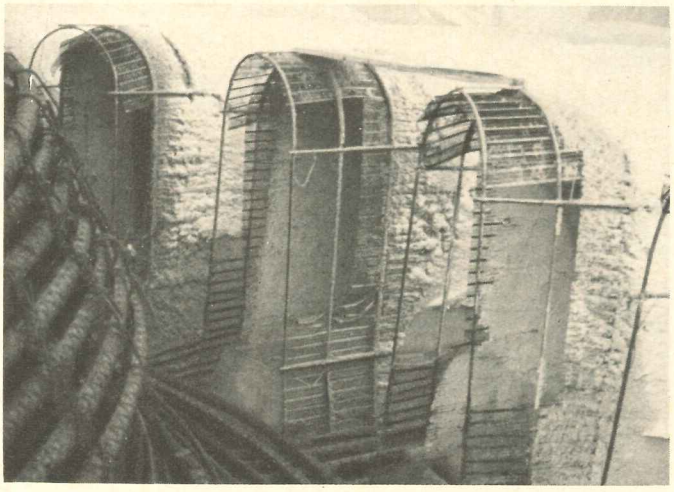
Foamed plastic is both form and insulation for shells. Structure copes with unusual loading.

The tapering of vaulted shells both lengthwise and crosswise for the roof of a Pittsburgh branch bank, designed by architect Harry Lefkowitz, posed an unusual forming problem. The solution involved foamed insulation applied to metal lath, shaped around a cage of pencil-rod reinforcement. The engineer for the roof structure, Richard M. Gensert, had to reckon with unbalanced radial forces on the center tension-compression ring.

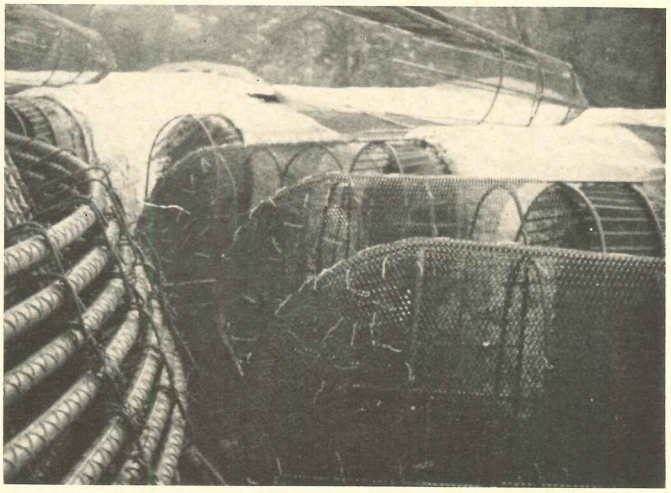
The roof is elliptical-shaped, made up of a series of 22 arched, overhanging vaults integrally joined with a central compression and tension ring and supported by 22 outside columns so that the underside (the ceiling) is the same shape as the exposed roof. A glass-domed, 12-ft diameter skylight tops the ring.

Polyurethane foam was selected for two reasons: first, it has a high insulating value; second, it could serve as a form for pouring concrete. The special foam insulation will reduce heating and cooling requirements, and prevent condensation from forming.

Richard M. Gensert photos

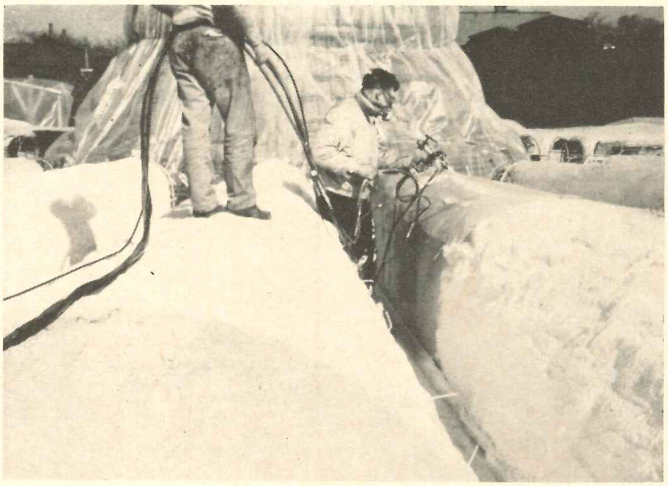


Arched ribs of reinforcing rods supported metal lath which was given a brown coat of plaster followed by insulation.

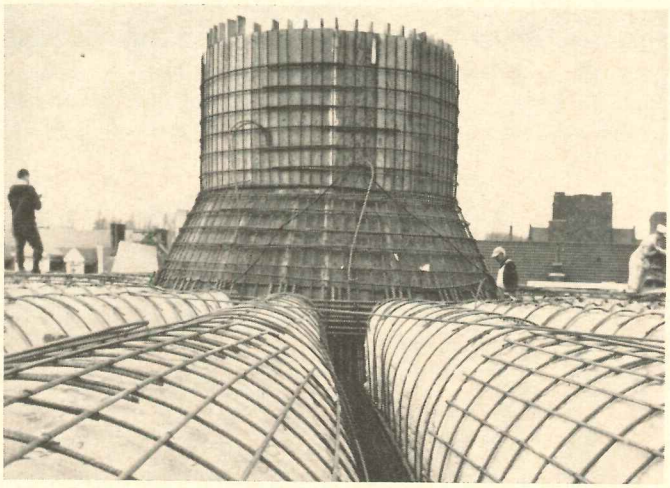


Where vaults abutted the compression-tension ring, the lath was given a double-curvature shape similar to a fencer's mask.

Mine Safety Appliances Company photos



Polyurethane insulation was sprayed onto the plaster surface. It grew in thickness from approximately ⅛ in. to 1¼ in.



An integral tough skin on the top surface of the insulation allowed the placement of slab bolsters and reinforcement.

One reason for the elliptical design of the building, according to the architect, is drive-in banking convenience. The oval shape is highly practical for this service. There are three drive-in tellers. Assuming all, or even two, are busy at one time, the depositor in the second or third driveway teller positions will be able to leave the bank area without awkward shifting to move into the outer driveway position.

The basic bank structure is 22 ft high. Roof vaults add 7 ft to this, and the skylight rises another 8 ft. The elliptical-shaped structure measures 80 ft on the major axis and 70 ft on the minor axis.

The vault varies in length because of the elliptical design of the roof and the off-center location of the skylight. The shells are as long as 35 ft, including a 4 ft overhang around the periphery of the building. There, each vault is 11 ft wide and 7 ft high. This decreases gradually as the vault reaches the compression ring, where it is 1½ ft wide and 2 ft high.

The Structure

Since the plan of the roof is an unsymmetrical ellipse, the radial forces acting on the tension and compression rings were not equal. This unbalance had to be taken by the entire roof deck in bending within its horizontal plane.

Vertical bending between supporting columns and the center rings was taken by the beam action of the tapered cylindrical shells. The roof deflected 1 in. when decentered; it was cambered 3 in.

Many of the columns supporting the roof were only 9-in. wide with an L/d of 30. Bending moments occuring in the 9-in. direction (weak axis) due to the deflection of the roof structure did not visibly deflect the columns or introduce deflection cracks. The contractor concreted the columns by pumping from the bottom up—eliminating pin holes from entrapped air.

In order to test the construction method, a pilot roof vault was fabricated of metal rods and lath and cement plaster which acted as the form for concrete construction. Polyurethane was sprayed over it and expanded to 30 times its volume to provide a 1¼-in.-thick cover in 30 seconds. Conventional insulation would have required 2½ to 3 in. of space. While insulation could have been placed at ceiling level, this would have destroyed the architectural concept of the roof vaulting from an interior point of view.

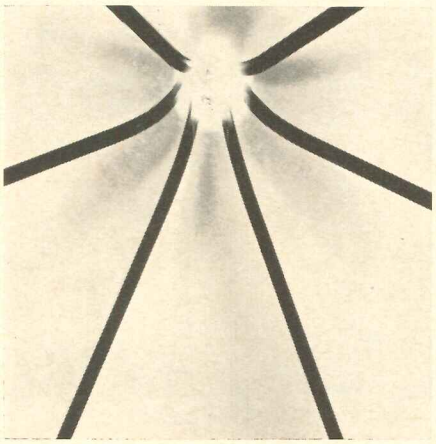
The special foam insulation was cured to full strength in 24 hours.

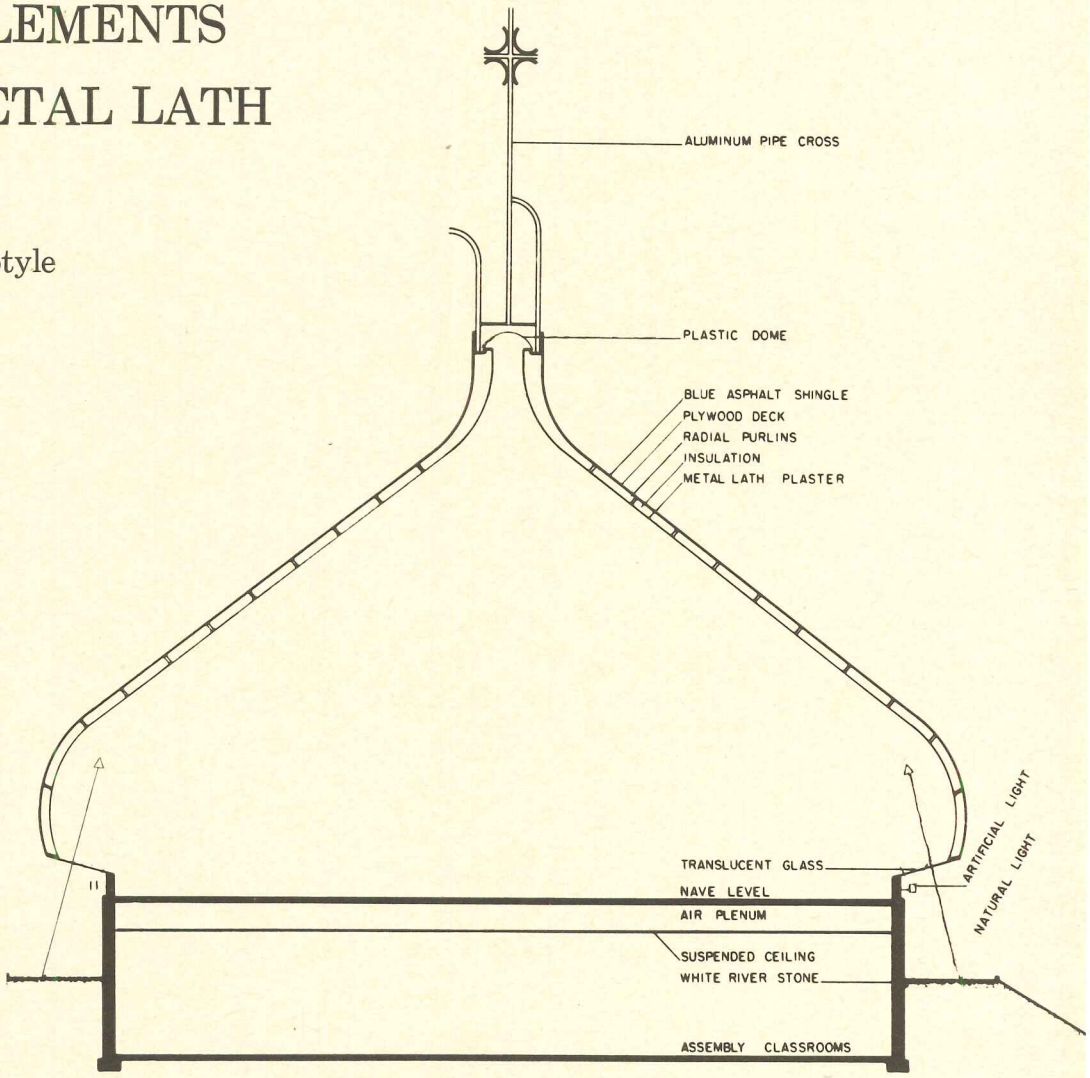
CURVED ROOF ELEMENTS MAKE USE OF METAL LATH

1. Church Roof in Byzantine Style

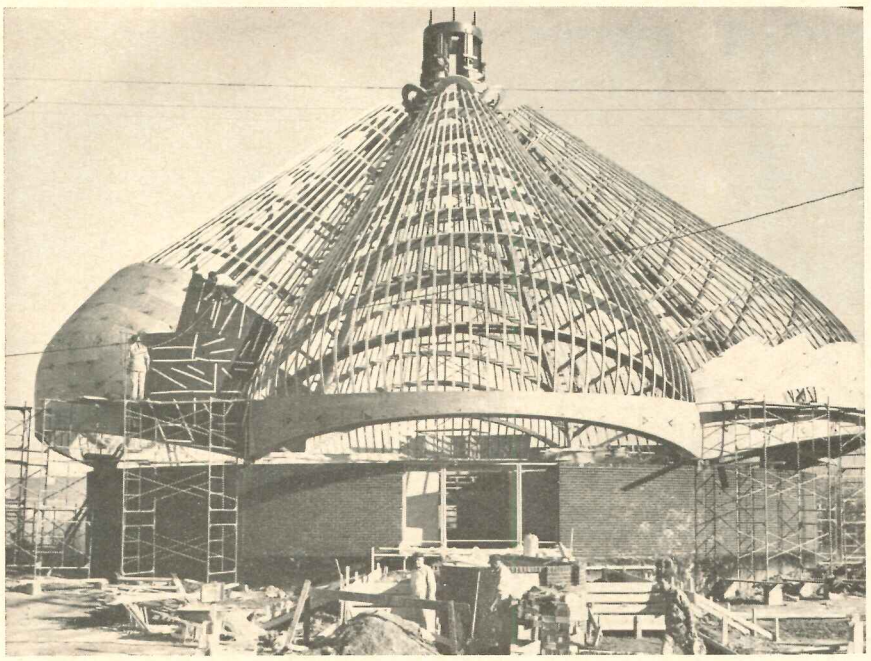
The six convoluted segments that make up the roof shape of the St. George Syrian Orthodox Church in Allentown, Pennsylvania, were constructed of laminated wood arches and purlins. To maintain the same configuration on the inside, the ceiling was formed of metal lath and gypsum-sand plaster.

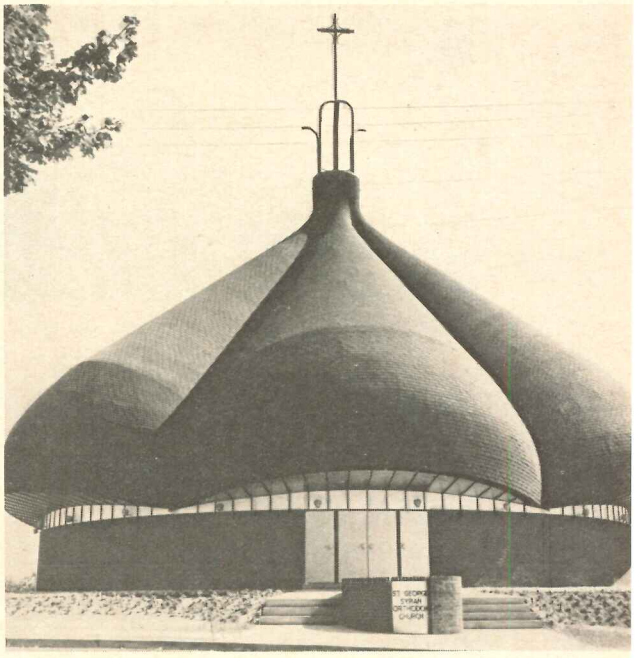
In addition, the six curved, plastered segments are an important part of the lighting system of the main body of the church. At the base of each roof segment are wired glass





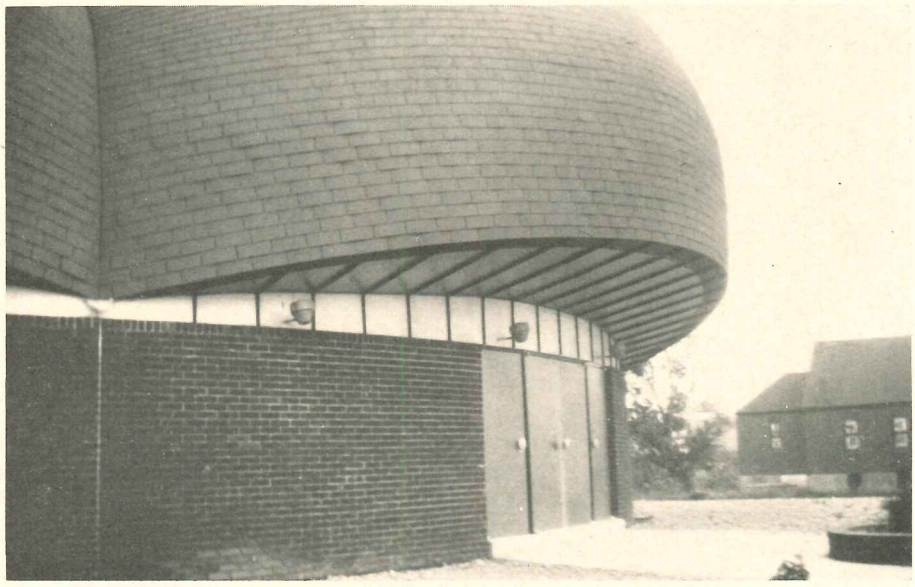
Laminated wood arch ribs and radial purlins form the main structure of St. George Syrian Orthodox church designed by architect John Michael, A.I.A. A metal lath and plaster ceiling was formed to follow the curve of the roof between the exposed arches. Roofing is shingles over plywood deck.





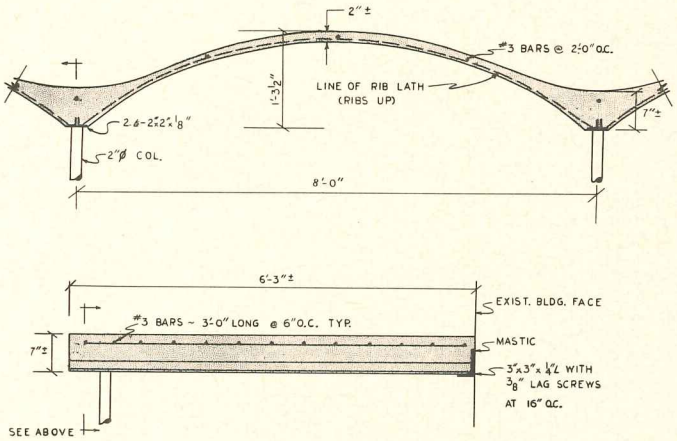
panels. The top of the 7 ft 8 in. wall, directly below the glass panels, consists of sand-float finish, white stucco, based on metal lath in order to follow the circular form of the foundation of the church. The ground at the foot of this wall is covered with a bed of white river stone. The vertical white panels and the bed of white river stone reflect natural light upward, through the glass panels to the curved ceiling of the church.

Mounted directly beneath each glass panel, and aimed upward and slightly toward the center of the building, are four 500 watt lamps. When natural light is insufficient, or entirely absent, these floodlights shine their rays against the curved segments of the ceiling.

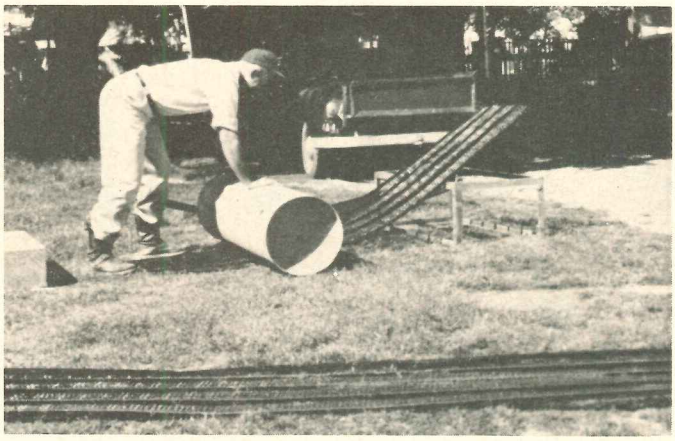


Most of the light, natural and electric, enters through wired glass panels.

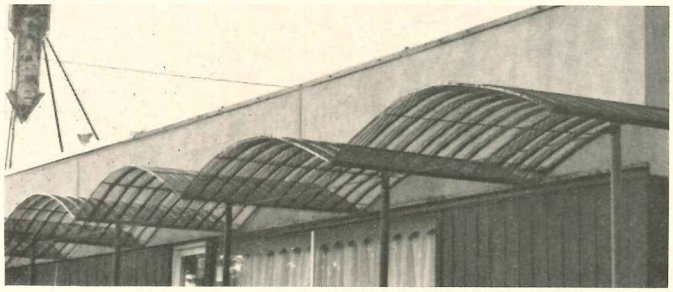
2. Scalloped Concrete Canopy



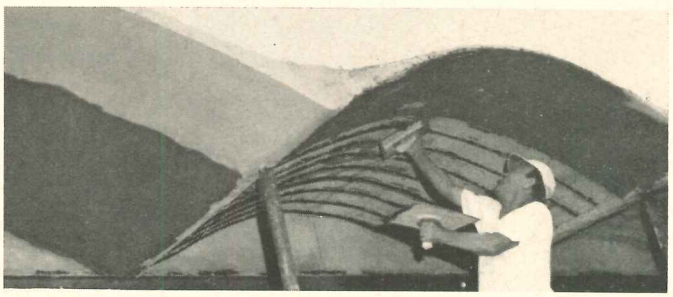
Reinforcement for the 8-ft span was more than adequate.



The lath, ribs down, was rolled into the desired arch shape.



Two back-to-back angles maintain the arch of the metal lath.



Applying brown coat of plaster to underside of the canopy.

A scalloped concrete canopy with elements 8 ft in span was designed and built by Professor James Marsh of Texas A & M with the use of rib metal lath and portland cement plaster. To arch the lath to the 8 ft span and the 1 ft 2 in. rise, Professor Marsh laid a 10 ft sheet of rib lath on the ground, propped up at one end and rolled an old water tank back and forth on it until the desired arch was obtained. The arched lath was then tied (ribs up) between pairs of back-to-back angles which were supported by 2 in. pipe columns. The lath was scratch coated from the bottom, and the top was poured and floated with a darby to the design shape. After curing, it was brown coated and finished on top with a sand finish and on the bottom with a sponged white stucco coat. (See photo, *above*.)

The total cost came to less than $1.50 per square foot, and the designer-builder thinks that a contractor with a spray gun could lower this cost to less than $1.30.

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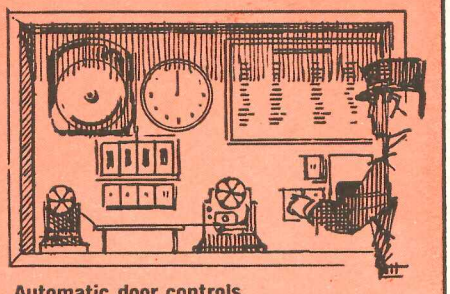

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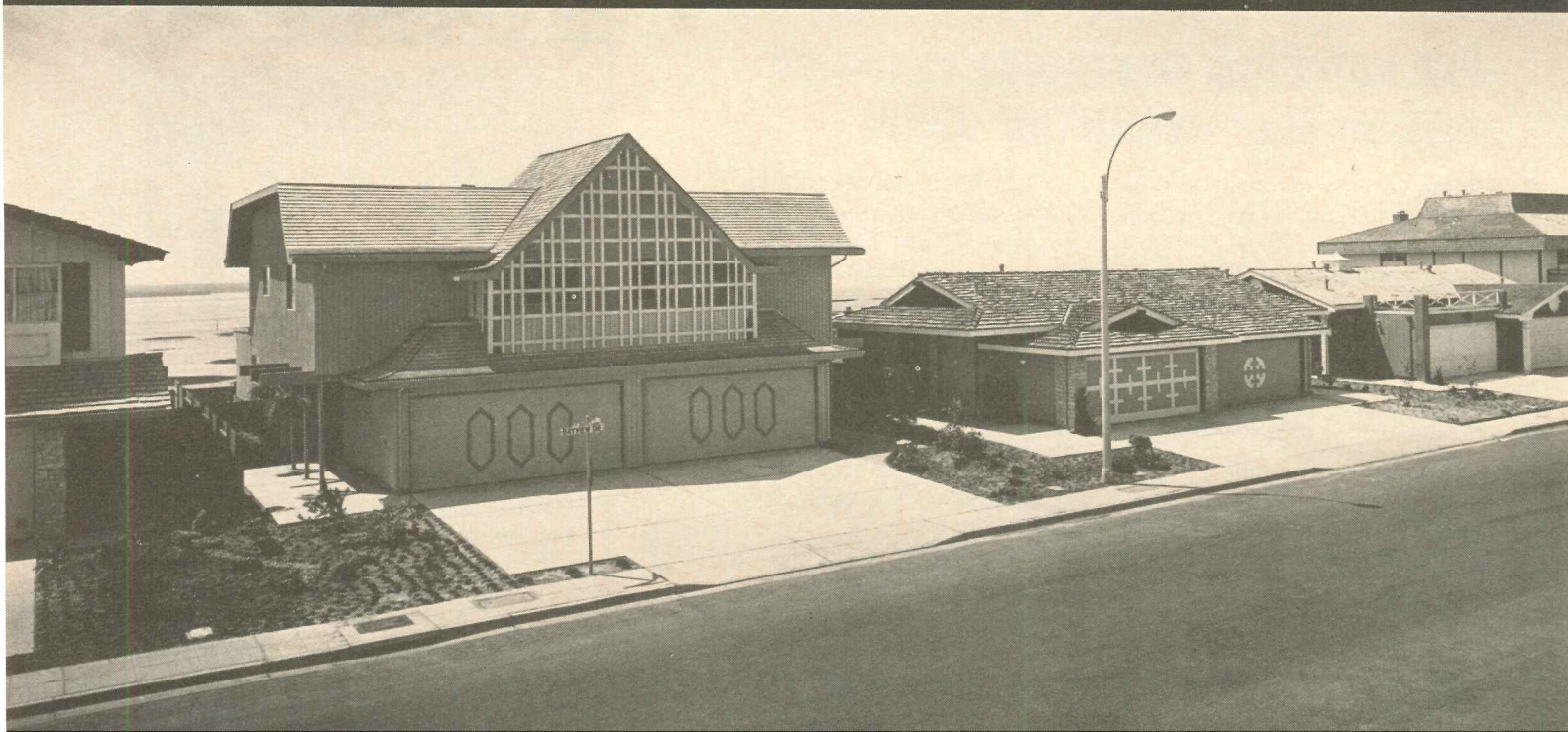
See Sweet's File 16-J for full details.

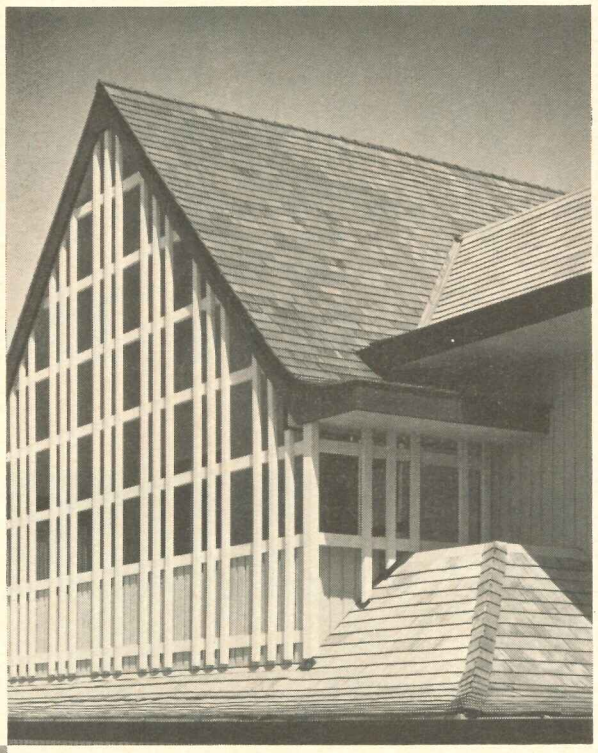
For more data, circle 31 on Inquiry Card

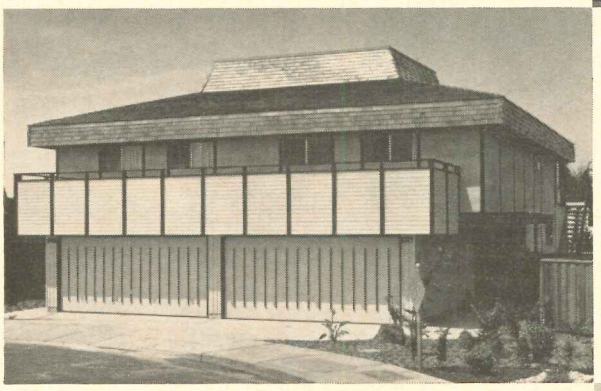
English? French? Colonial? Polynesian? Yes:

Red Cedar Shingles and Handsplit Shakes



Red cedar shingles and handsplit shakes speak with elegance, warmth and authority in many accents. That's one of the reasons architect David Torvestad Johnson selected them when he designed 17 different front elevations for an all-duplex, 170-family subdivision on San Francisco Bay. Beyond their beauty and versatility — and adaptability to all architectural styles — red cedar shingles and handsplit shakes possess a high order of durability, strength and practicality. They shrug off extremes of weather, and insulate against the loss of heat in winter and its intrusion in summer. If you have any questions, please write the Red Cedar Shingle & Handsplit Shake Bureau, 5510 White Bldg., Seattle, Wash. 98101. (In Canada: 1477 W. Pender St., Vancouver 5, B.C.)



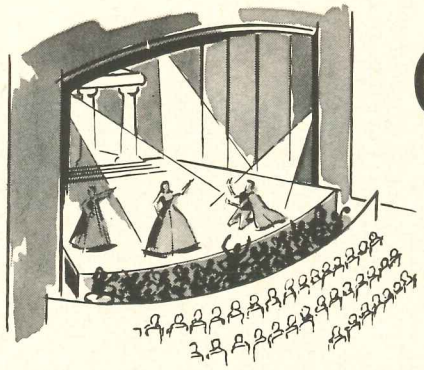


Any of these labels on a bundle or carton of red cedar shingles or handsplit shakes is your guarantee the product measures up to strict standards for grain, thickness, width and other characteristics vital to the appearance and performance of roofs and sidewalls. Some 250 mills meet these standards, established and enforced by the Red Cedar Shingle & Handsplit Shake Bureau.

Included in the Bayview Estates exterior elevations are the popular shingled mansard French contemporary interpretation (upper left), a shingle roof Polynesian model (upper right), the Pacifica model with shingle roof (above), and the Brittany model with shake roof (lower right). Each unit of a duplex offers 3 to 4 bedrooms, 2 to 3 baths. Street scene (lower left) shows how individualism was retained in close quarters. All shingles are Certigrade No. 1, 16" long, set 5" to the weather on the roof and 5" to the weather on sidewalls. Certi-Split shakes are handsplit/resawn (24" x ¾" x 1¼") set 10" to the weather.

For more data, circle 92 on Inquiry Card

Stage Lifts



Orchestra Pit Lifts

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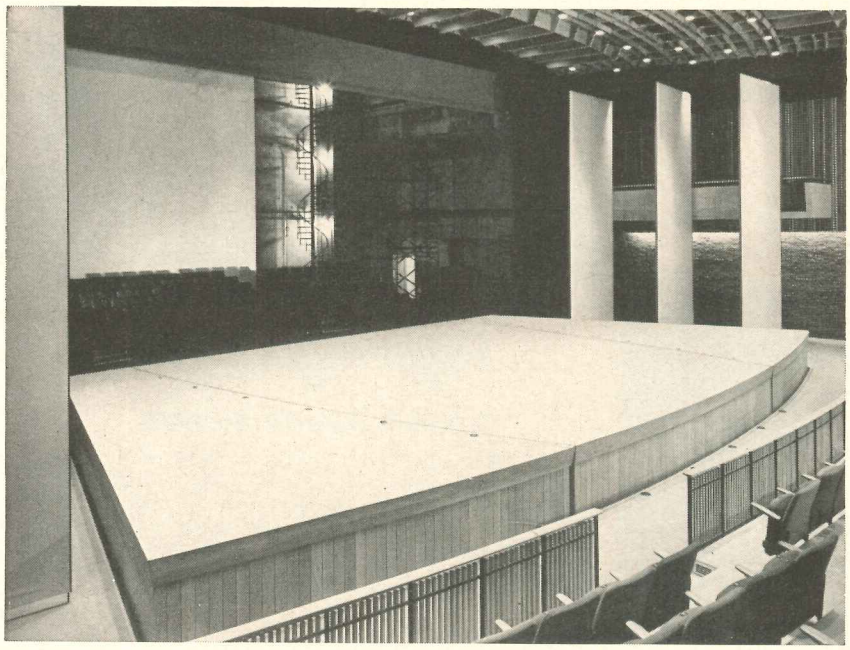

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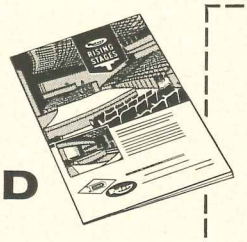

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HOW TO SELECT ACOUSTICAL MATERIALS

Part 2 of an article prepared by the Acoustical Materials Association

This concludes a discussion of 14 characteristics of acoustical materials which should be considered in the design and specification of acoustical ceilings.

3. Flame Resistance

The A.M.A. Bulletin currently lists flame resistance on all products with two types of specification ranges, as follows:

1. Flame resistance is listed in accordance with the Federal specification SSA-118B, the traditional type of classification for acoustical materials in the past. There are four categories:

A. Meaning incombustible
B. Meaning fire retardant
C. Meaning slow burning
D. Meaning combustible

2. The second listing classifies acoustical materials by flame spread and breaks them down into four classes, namely:

Class I—0 to 25 flame spread index
Class II—26 to 75 flame spread index
Class III—76 to 200 flame spread index
Class IV—Over 200 flame spread index

Both systems are satisfactory if used properly. The alphabetical categories are more general in that the flame spread figures are more specific. Normally, the architect would specify in accordance with local code requirements which would give these values on the basis of either one of the two specifications.

A new and important type of classification is called "time rated construction." It may also be called "fire resistance" and denotes the ability of a material to contribute to the over-all resistance of an entire structure (typically a floor-ceiling structure) to the penetration of heat or fire from the side on which the acoustical material is installed to the other side. Tests for this property are made on the entire structure, including the acoustical material, and the results are stated as a time rating. In order to provide effective fire resistance, a material must necessarily be of noncombustible composition so that it remains in place, and must be attached to the main structure in such a way that cracks are not opened to allow the penetration of flame or hot gas to the supporting structure.

Time rated tests are made generally by the Underwriters' Laboratories and give structural integrity performance ratings in hours of endurance. Local codes may require 1-, 1½-, 2-, 3-, or even 4-hour rated construction installations. The A.M.A. Bulletin, under the individual product listings for its members in various footnotes, indicates the time ratings of various materials.

In addition to building code requirements, which preclude the use of materials not within flame resistance specifications, consideration must be given to personal safety and to fire insurance rates. Often it is advisable to specify a time-rated product even if the codes do not require it because of personal safety and insurance considerations.

4. Appearance of Acoustical Materials

After occupancy, the largest interior area visible to the occupants beyond the interior furnishings is the ceiling surface. It is, therefore, essential that the acoustical ceiling be in harmony with the space to be occupied, the design of the building, and the individual taste of the occupant. The Bulletin of the A.M.A. lists about 200 possible varieties of surface designs on acoustical materials. The categories can be reduced to: (1) perforated; (2) needle-point perforated; (3) textured; (4) fissured; (5) specially sculptured finishes; and (6) film facings.

A summary table in the introductory portion of the Bulletin lists various categories of acoustical materials which are available according to their surface appearances.

5. Permanence and Maintenance

These are most important considerations in the specification of acoustical materials. Most acoustical ceilings can be painted, washed, and cleaned. But some pose maintenance problems of major magnitude in practice where frequent re-painting is indicated. It is better to select an acoustical product, when such painting is necessary, with large, perforated holes than to give preference to a textured, fine fissured, or small-hole perforated material. It is also more desirable to use a paint which will afford protection with a thin coat than one which will obliterate holes and damage the acoustical properties of the ceiling tile. There are also available film-faced products which do not require painting.

6. Method of Installation

In its Bulletin, the A.M.A. lists the standard methods of installation, referred to as Mounting Numbers 1 through 8, and by means of drawings shows typical installation methods used in practice. In the appropriate places where the sound absorption coefficients are given, the mounting numbers are listed. There is significance from a specification point of view in this listing since sound absorption values of most materials vary with the method of mounting.

Most acoustical materials, when suspended below the roof slab, will provide higher sound absorption than if cemented to a solid surface. The reason is that the plenum space itself is absorbent and advantage is also taken of the absorptive back surface of the acoustical material.

The two most commonly used mounting methods are:

Mounting No. 1—Where the acoustical material is attached with adhesive to a solid surface.

Mounting No. 7—Where the acoustical material is mechanically mounted on special metal supports 16 in. or more below the roof slab.

The selection of the proper mounting method will depend on the specific job conditions. There is an obvious trend towards mechanically suspended ceilings in order to accommodate the increasing space requirements of other mechanical services such as air conditioning, lighting, and heating.

7. Resistance to Moisture

In areas which are constantly subjected to high humidity, the specifications for acoustical tile should outline carefully the materials which are permissible. The individual manufacturer's literature usually gives an indication as to whether or not the material in question is resistant to moisture.

However, even products which are normally moisture resistant should be installed only after the area is glazed and the concrete, terrazzo, and plaster are dry. Installation should not take place when a building is excessively cold and damp or hot and dry.

Poured or precast concrete and gypsum or similar roof decks should be thoroughly dry and the space between such decks and suspended acoustical ceilings adequately vented to the outside. Where substantial temperature differences between the outside and inside of the building occur at any season, acoustical materials should not be secured by cementing directly to the underside of a concrete, gypsum or similar roof and deck unless adequate thermal insulation is provided on the top side of the deck.

If the building in which an installation takes place is so located that high moisture conditions exist, acoustical materials specially designed for such conditions should be chosen.

8. Compatibility with other Components

The architect is always faced with the problem of the compatibility of materials in a common environment. The sizes, joints, thicknesses and configurations of acoustical tile can be integrated readily with other objects on the ceiling such as diffusers, lights, sprinklers, loudspeakers, and related fixtures.

9. Economy

The cost range of all the acoustical materials listed in the Bulletin varies so widely that the cheapest item versus the highest priced product has a multiplication factor of at least five.

10. Light Reflectance

There is one condition which has to be watched carefully in connection with the interaction between light and acoustical materials. When light from the fixture strikes the surface at a small angle, even slight unevenness of joints between the acoustical materials may result in unsatisfactory appearance. Under these conditions, beveled materials should be used in preference to square edge materials and installed with considerable care. The same critical condition can occur when the windows are at ceiling height and project their light across the room.

There is no acoustical material made today with tolerances which can fully eliminate this danger. Sometimes shielded, diffused and recessed lights can minimize such a hazard.

The Bulletin of the A.M.A. lists light reflectance values based on tests conducted at the association's official laboratory. Average samples are selected by laboratory personnel from factory-painted material submitted for sound absorption tests. The light reflectance value which is given is for a finish designated as "white."

Summary tables listed in the Bulletin indicate light reflectance values of newly manufactured material in these ranges:

a. .75 or more
b. .70 to .74 inclusive
c. .65 to .69 inclusive
d. .60 to .64 inclusive

11. Weight of Ceiling Structure

The Bulletin lists the weight of acoustical materials for sound absorption coefficients within its tables. Although there are wide variations, the average acoustical material is approximately one pound per square foot in weight. For metal pan products and asbestos board panels, only the weight of the sound absorbing element—the pad or blanket—is given.

The major purpose of such a listing is to define further the exact material tested. Density of certain types of material has a direct influence on its absorption and sound attenuation characteristics.

12. Accessibility

Access of acoustical tile ceilings has become an important specification factor with the increased emphasis of mechanical services in buildings and a current trend toward mechanically suspended ceilings which hide mechanical installations.

13. Size of Acoustical Material

Acoustical material size specified should be based on the available standard sizes offered by the manufacturers. Whenever a special size has to be made to satisfy a special module, the cost will probably go up.

14. Thickness

Each type of acoustical material has its optimum efficiency from the point of view of sound absorption and sound attentuation at the standard thicknesses offered by the manufacturers. Most standard ceiling tile and ceiling board products are in ½ in., ⅝ in., and ¾ in. thicknesses. There are other standard and specialized products up to 3 in. or more.

The A.M.A. Bulletin lists the thickness of the material for which the characteristics have been tested. To specify a thickness which is not standard with a manufacturer would be both costly and in many cases impossible to obtain.

Reference to the tables of absorption coefficients of acoustical products shows that there is an average increase of about 0.10 in Noise Reduction Coefficient as the thickness of materials directly mounted to a solid backing (No. 1 Mounting) is increased from ½ in. to ¾ in., with a similar increase as the thickness is raised to 1 in. This represents the practical range of thicknesses for most acoustical materials.

In considering these 14 performance specification factors, it can be seen that the proper selection of an acoustical material entails a great number of technical matters, some of which are essential for the proper acoustical and architectural environment desired and some of which may be compromised to a certain degree to satisfy more important objectives.

The Bulletin of the Acoustical Materials Association, which is revised and issued annually, is available without charge to any architect from the association's offices at 335 East 45th Street, New York, N.Y. 10017

For more information circle selected item numbers on Reader Service Inquiry Card, pages 247-248

NEW DEVELOPMENTS IN THE ELECTRICAL FIELD

1. A new line of sealed-beam PAR and reflector-type R bulbs, which utilize *Quartzline* lamps as sources, have been introduced by General Electric for floodlighting, spotlighting and general lighting requirements. The new lamps, which range in size from 250 to 1500 watts, are said to compare very favorably with existing conventional lines, giving longer life, greater maintenance of light output through life, higher efficiency and lower over-all cost. *General Electric Company, Large Lamp Department, Nela Park, Cleveland, Ohio*

CIRCLE 300 ON INQUIRY CARD

2. The *Inductrol* voltage regulator has been developed to solve the problems of voltage drop in low-voltage feeder circuits. The company claims that the new method of compensating for voltage drop in commercial and industrial building complexes can result in substantial savings in installation cost. Much of the cost saving can be attributed to the fact that use of the *Inductrol* eliminates the need to "over cable" the long feeders in order to limit voltage drop to acceptable levels. With the *Inductrol*, cable can be sized specifically for the load current it has to carry. Another advantage of the new unit is a completely static automatic control. *General Electric Company, News Bureau, Schenectady, N.Y.*

CIRCLE 301 ON INQUIRY CARD

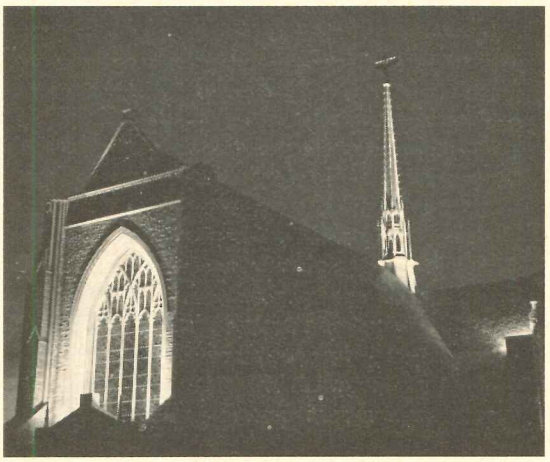
3. *Calrod* thin-fin tubular heaters—in ratings from 50 to 100 watts—are said to offer higher thermal performance and greater radiating surface per lineal inch than other types of tubular electric heating units. Straight length units up to 104 ins. are standard, but circular and u-shaped units can also be supplied. *General Electric Company, News Bureau, La Grange, Ill.*

CIRCLE 302 ON INQUIRY CARD

4. An electrically powered, air-source heat-pump, known as the *Weathertron,* ranges in capacity from 2 to 10 tons and features an improved compressor motor with special windings able to withstand the extreme stresses of heat pump operation. Rigorous laboratory tests in severe pressure, atmospheric and corrosive conditions show a very high degree of reliability. *General Electric Air Conditioning Department, Louisville, Ky.*

CIRCLE 303 ON INQUIRY CARD

more products on page 192



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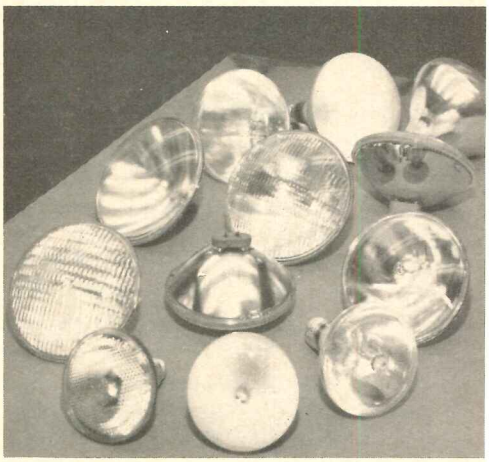

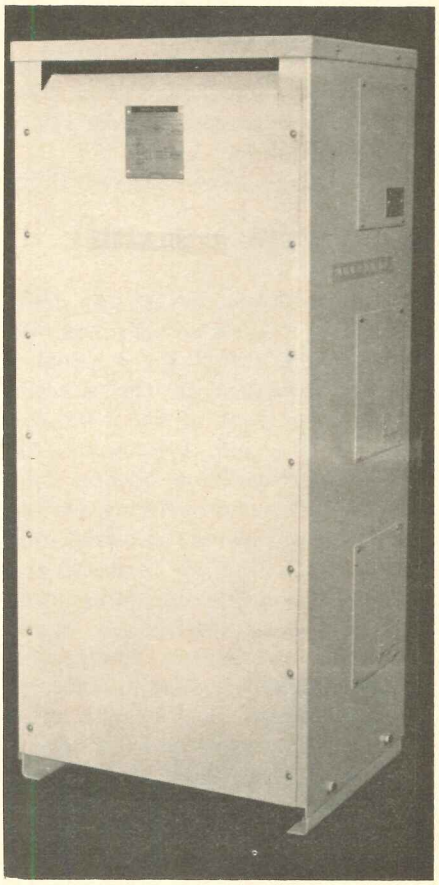

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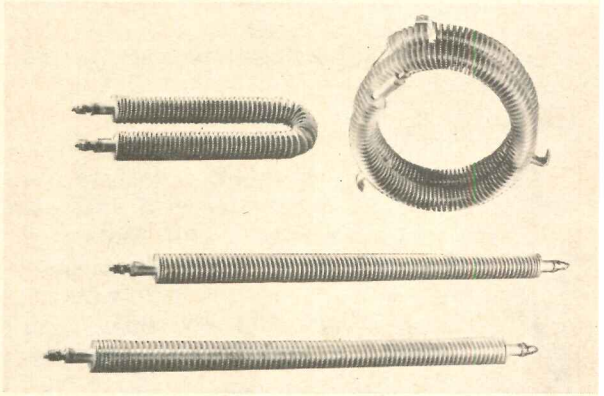

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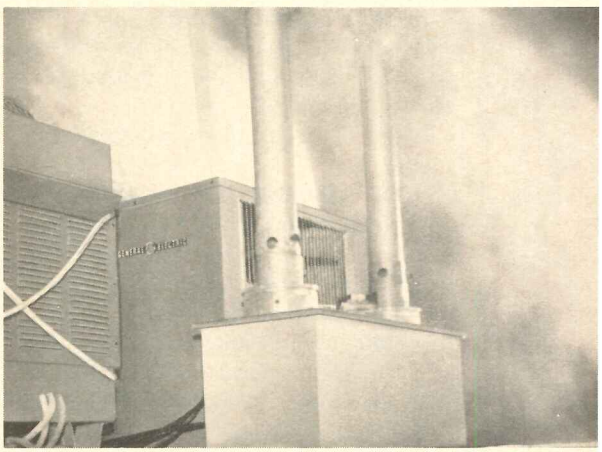


4

Office Literature

For more information circle selected item numbers on Reader Service Inquiry Card, pages 247–248

SCHOOL AIR CONDITIONING

Herman Nelson's unit ventilators as used in a number of different schools are illustrated in this extremely well-produced and informative brochure. Plans and drawings of the schools show variations in design and placing of the units to achieve maximum efficiency in different situations. *Herman Nelson School Products Department, American Air Filter Company, Inc., Louisville, Ky.*

CIRCLE 400 ON INQUIRY CARD

COMMERCIAL WATER HEATERS

A 44-page technical manual contains information for architects and engineers on sizing and installing commercial water heaters. The booklet reviews the classifications and characteristics of commercial water heaters and covers the consumption factors, temperature requirements and occupancy percentages which should be considered. Sizing tables and installation drawings are shown for installations in many building types. *General Water Heater Corporation, Los Angeles, Calif.*

CIRCLE 401 ON INQUIRY CARD

GLASS MASONRY

The visual and functional qualities of the company's glass masonry are demonstrated in a series of illustrated brochures. One booklet deals with the use of glass masonry for replacement of windows in factory buildings, commercial buildings and schools and a separate brochure details residential uses. A colored fold-out pamphlet illustrates the different types of masonry available and sets out, in a series of photos, a wide variety of suggested applications. *Owens-Illinois, Toledo, Ohio**

CIRCLE 402 ON INQUIRY CARD

ROOM AIR CONDITIONING

American Standard's *Series 64 Inductor* room air-induction units for use in modern, high-velocity air-conditioning systems in office buildings, hospitals, etc., is now available. Construction and operating features are fully explained. *American Standard, Industrial Division, Detroit, Mich.*

CIRCLE 403 ON INQUIRY CARD

SLIDE RULE CALCULATOR FOR STEEL BEAMS

A new slide rule calculator has been developed to simplify the selection of steel beams for the construction of homes and light commercial buildings. The instrument can be used to select proper size and also to check the deflection of laterally supported beams under uniform loads. The calculator covers span conditions up to 23 ft, and uniform loads up to 10,000 pounds per linear foot. The calculator can be used to calculate steel beam requirements for three span conditions: simple, two and three equal continuous spans. *US Steel Corporation, Pittsburgh, Pa.*

CIRCLE 404 ON INQUIRY CARD

ARCHITECTURAL USES FOR BRASS, BRONZE AND COPPER

A new full-color, 26-page brochure presents copper, brass and bronze in several architectural applications: roll-formed components, entrances and curtain walls. Chemical, applied and mechanical finishes are described, and color samples are shown. Recommended methods of joining, cleaning, maintenance are given. *The Copper Development Association, Inc., 405 Lexington Ave., N.Y.*

CIRCLE 405 ON INQUIRY CARD

ARCHITECTURAL SEALANT CATALOG

A 12-page catalog covers the company's line of architectural sealants. Sealants best suited for particular jobs are arranged in the selector chart at the front of the book for quick identification. Applications include glazing, caulking, sealing, concrete surfacing and repairing and insulating. Descriptions, uses and limitations of 24 different products are given in the booklet including plastic tapes, elastic compound tapes, polysulfide joint sealers, epoxy compounds, pumpable sealers and special rubber products. Photographs show applications methods on some recent projects, and architectural details illustrate placement of products. *Presstite Division, Interchemical Corporation, St. Louis, Mo.**

CIRCLE 406 ON INQUIRY CARD

CELLULAR GLASS INSULATION

Complete specifications for the use of *Foamglas* cellular glass insulation in low temperature space construction are given in a 24-page brochure. Detail drawings, charts and photographs cover all phases of cold storage construction from walls, floors and ceilings to door bucks and finishes. A special section describes the company's "black box" method of cold storage construction and gives details of total envelope construction. *Pittsburgh Corning Corporation, Pittsburgh, Pa.**

CIRCLE 407 ON INQUIRY CARD

INDUSTRIAL FLOOR SURFACES

Five specific types of wear and corrosion resistant industrial floor surfaces are described in a new 40-page brochure. New construction work and floor renovation in existing buildings are discussed, and illustrations show application methods and some of the finished effects. *Kalman Floor Company, New York 17, N.Y.*

CIRCLE 408 ON INQUIRY CARD

OFFICE FURNITURE

The Columbia *1000* series of office furniture in steel is on display in a new illustrated catalog. Photos, dimensions and descriptions are given of a comprehensive collection of executive desks, clerical desks, typing and machine desks, modular units and components, conference tables and bookcases. *Columbia-Hallowell Division, Standard Pressed Steel Company, Jenkintown, Pa.*

CIRCLE 409 ON INQUIRY CARD

LAMINATED PANELS

"Facade" is the name of a new semi-annual magazine, published by the company to give up to date information on the architectural use of laminated panels. The first issue gives illustrations and descriptions of a number of schemes in which such panels have been effectively used. *Armstrong Cork Company, Lancaster, Pa.*

CIRCLE 410 ON INQUIRY CARD

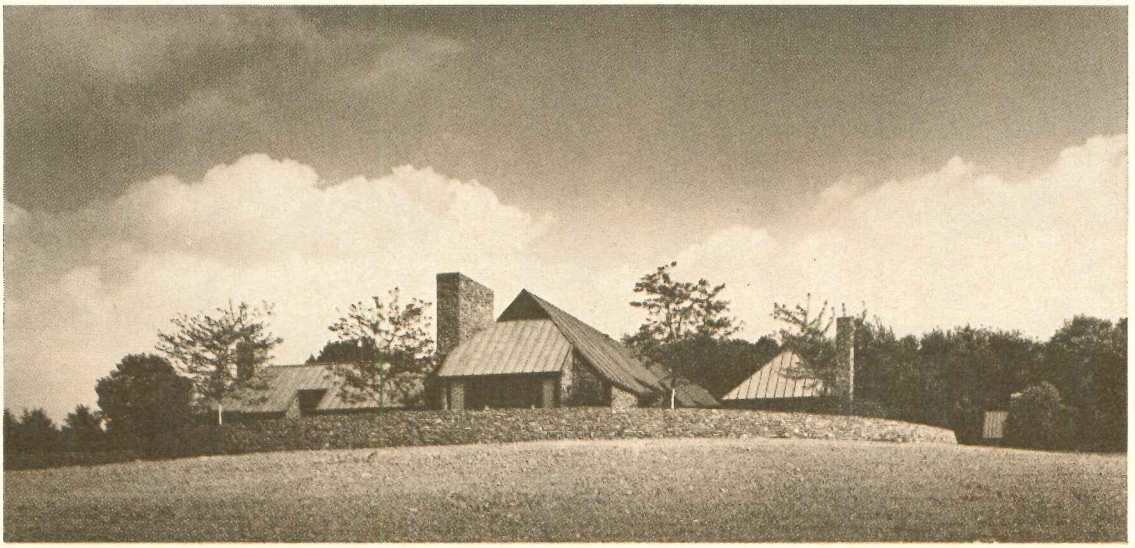
**Additional product information in Sweet's Architectural File*

more literature on page 228

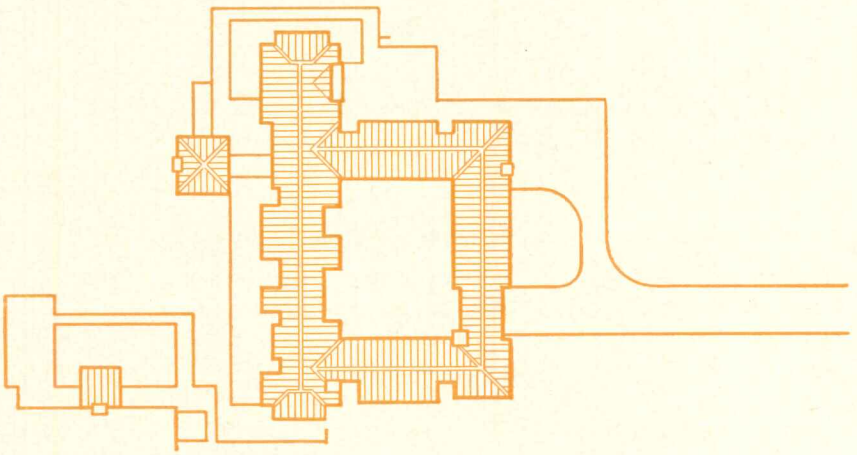
WHATEVER HAPPENED TO THAT "MACHINE FOR LIVING"?

However rhetorical the question, it at least reflects our personal gratification that the work of so many outstanding residential architects is increasingly oriented toward elegance, imagination and environmental harmony. And we are even more gratified—albeit not unselfishly—by the high percentage of these architects who have recently specified Follansbee Terne on major projects. For Terne, its functional integrity validated by two centuries of use, is unique among roofing materials in that it provides both form and color at relatively modest cost.

Joseph W. Molitor photo



"STORNOWAY", Ligonier, Penna.—featured in 1965 RECORD HOUSES.
Architect: Winston Elting, AIA, Chicago, Illinois
Roofing Contractor: Miller-Gyekis Inc., Pittsburgh, Pa



FOLLANSBEE STEEL CORPORATION
Follansbee, West Virginia

Follansbee is the world's pioneer producer of seamless Terne roofing

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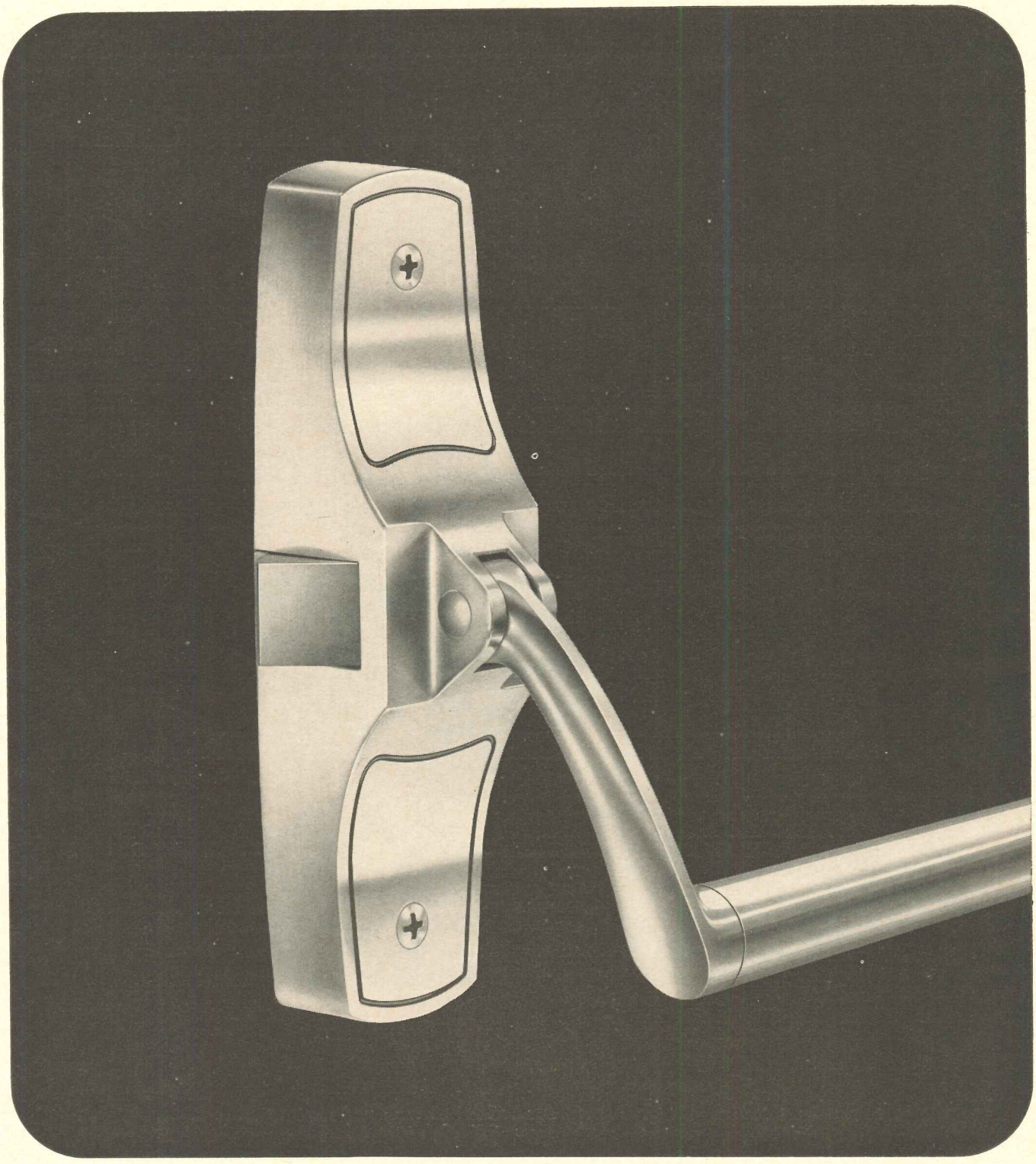

Designed for schools . . .

without maintenance men

Von Duprin 77 series exit devices. Built to take a beating . . . not maintenance time and money. Drop-forged bronze. Rim, mortise lock or vertical rod type. See your Von Duprin representative or write for our fully detailed Catalog Bulletin 631. Specify the Von Duprin 77 drop-forged device . . . then forget it. Maintenance men do.

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Product Reports

continued from page 187

LIQUID COATING SYSTEM FOR INTERIOR SURFACES

The new *Pitt-Glaze* system, a chemical combination of epoxy and polyester resins, which was originally developed as a treatment for concrete block interior walls, has now been formulated for use on any interior surface, including smooth walls. The use of this coating is said to give an impregnable tile-like finish that resists industrial fumes and chemicals, dirt, grime and scuff marks. The glaze can be applied by brush, roller or spray and is easily washable. The complete system consists of undercoats of different kinds to suit different types of interior surface, and the top wall surface glaze application, available in high-gloss, semi-gloss, semi-flat finishes. *Pittsburgh Plate Glass Company, Pittsburgh, Pa.*

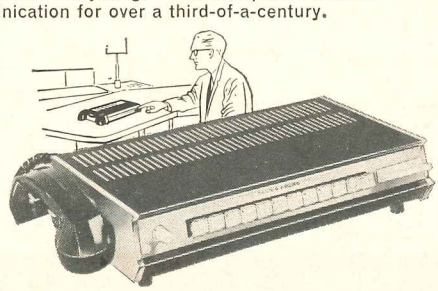
CIRCLE 304 ON INQUIRY CARD

Provides instant and direct 2-way conversation between any Apartment and Vestibule... Greater Performance with Exclusive Talk-A-Phone Features: • Ample Volume—Whispers, shouts and normal voice are heard clearly without "boom" • Automatic Privacy—On all Apartment Units • Volume Selector—Each Apartment selects own volume. Concealed yet easily acessible • Built-in Buzzer—Pleasant sound, in each Apartment Unit • With one or two independent talking circuits and one or two independent door opener buttons.

Distinctively styled. Quality Engineered. Built to withstand continuous use.

TALK-A-PHONE . . ."Has Everything. Does Everything." The accepted standard of quality and dependability in Intercommunication for over a third-of-a-century.

Intercom For The Home. Enjoy comfort, convenience and peace of mind. From any room you can . Listen-in on baby, children or sick room . Answer outside doors . Talk to anyone—upstairs or downstairs, inside and out . Enjoy radio. Distinctively styled. Beautifully finished. Easily installed.



Intercom For Office and Industry. Saves thousands of man-hours, simplifies office routine. Distinctively styled, ruggedly built to withstand continuous day and night use. From 2-station systems to elaborate installations, you can do it better and more economically with Talk-A-Phone. Pays for itself many times over.

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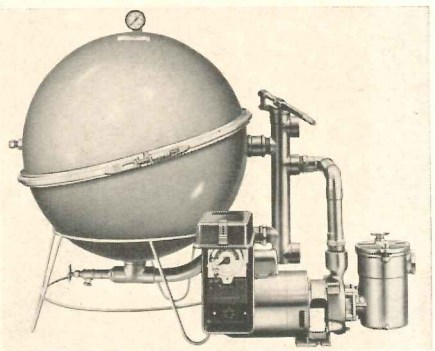
For more data, circle 96 on Inquiry Card

SWIMMING POOL FILTER SYSTEM

The *Hydro-Cleer* swimming pool filter system is a complete system designed to function simply and efficiently at economical cost. The system includes filter, pump, motor and timer; piping is pre-assembled for quick and easy installation. The



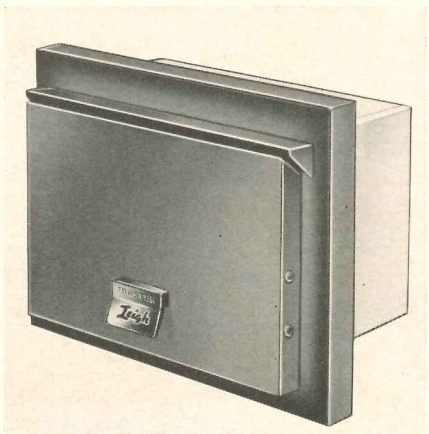
filter is a diatomaceous earth filter which is only 25 ins. in diameter and thus occupies considerably less space than the several sand filters which would be needed to produce a comparable flow rate. A self-cleaning process enables the filter to operate for long periods before backwashing and cleaning is required. The backwashing and cleaning operation is initiated by simply moving a lever. *Culligan, Inc., Northbrook, Ill.*

CIRCLE 305 ON INQUIRY CARD

BUILT IN TOASTER

The company's newest built-in automatic toaster incorporates three improvements on the previous model: a shaded copper-tone finish, a UL seal of approval, and a steel torsion-bar carriage suspension to assure smooth operation. *Leigh Products, Inc., Coopersville, Mich.*

CIRCLE 306 ON INQUIRY CARD



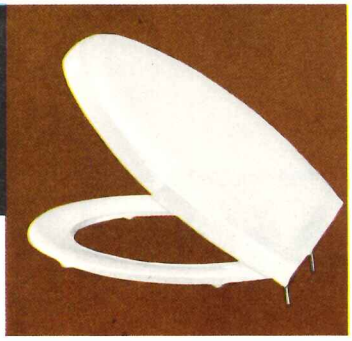
more products on page 212

For more data, circle 97 on Inquiry Card

Not because we're second, but because we are first in the toilet seat business and intend to stay there. You have to earn first place—no one gives it to you! Beneke took the lead with better design, innovation, and by producing greater seat values for the dollar. And, because we're never satisfied we will continue to lead the way with products and service for you.

BENEKE CORPORATION

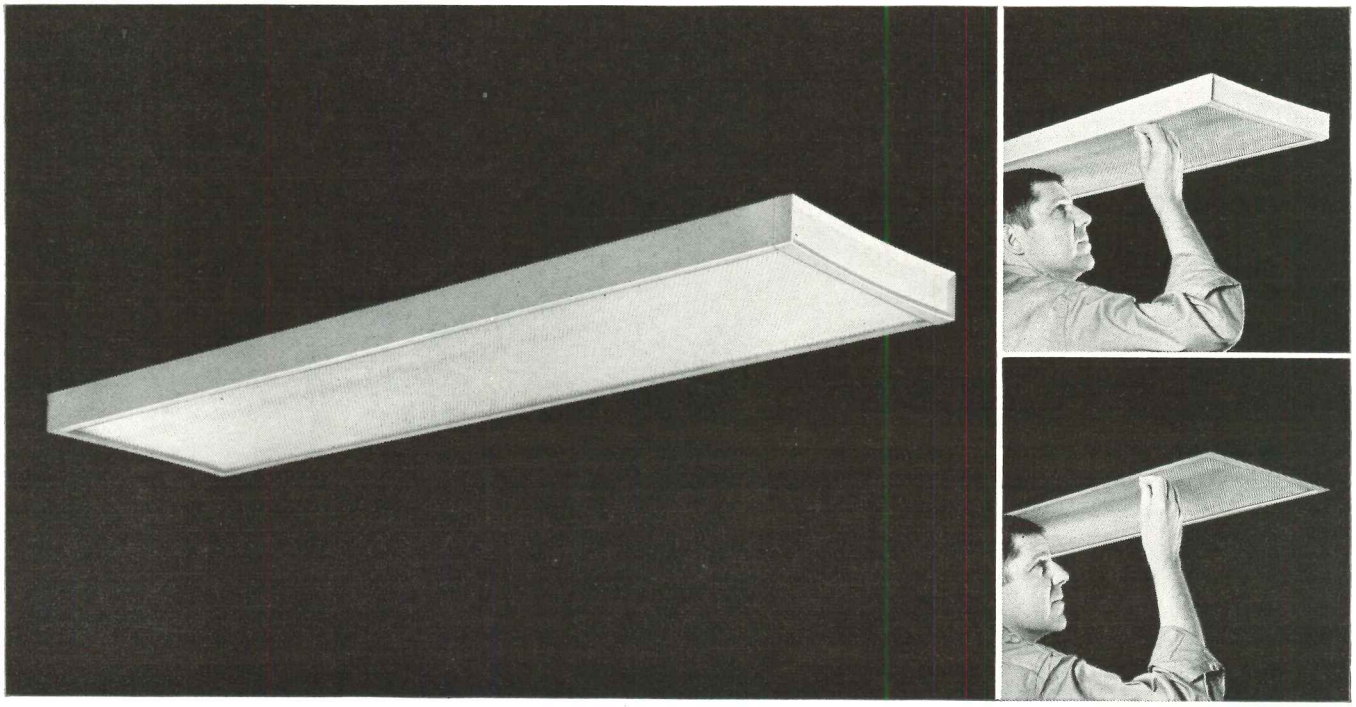
THE FIRST NAME IN SEATS—THE LAST WORD IN QUALITY



CHICAGO	NEW YORK	SAN FRANCISCO	NEW ORLEANS	PARIS	TORONTO
Oak Park	Woodside	Milpitas	Louisiana	France	Canada
AU 7-9500	OL 1-9200	262-4410	JA 5-3776	Passy 19-53	CH 9-7170

LPI'S NEW FRAMELESS LENSES WERE DESIGNED TO PROVIDE BETTER PHOTOMETRICS AND RETAIN THE MECHANICAL ADVANTAGES OF OUR FRAMED LENSES

— *AND SO ATTRACTIVELY, TOO!*



This new series of prismatic lenses provides full-face luminosity for standard LPI surface-mounted and recessed fixtures; there are no opaque mullions between units in continuous rows. They are ideal for clean, unbroken lines of light.

You can get these new LPI frameless lenses in virgin acrylic or polystyrene, crystal-clear or translucent white.

The even distribution of light with excellent brightness control and high efficiency meets the standards of all LPI lenses.

Mechanically, the frameless lenses are interchangeable with the framed lenses. Their unique "T" hinges permit easy removal of the entire lens, allow full opening for easy access to the fixture interior, and provide secure hanging, whether open or closed. All LPI lenses seat precisely with no juggling and close positively with easily operated, but barely discernable, slide-action latches.

To get full details about this latest series of smartly styled lenses to complement new LPI fixtures, call your LPI representative or write us.

LPI-5-216

LPI® FLUORESCENT LIGHTING

Lighting Products Inc., Highland Park, Illinois 60036

For more data, circle 98 on Inquiry Card

For more data, circle 99 on Inquiry Card →

In an apartment complex . . .

the soft charm of Split Block made with—

MEDUSA WHITE

Over 250,000 (4 x 4 x 16" - 4 x 8 x 16") white split block made with Medusa — the original White Portland Cement — add classic charm to this modern apartment complex in Atlanta.

Split block made with Medusa White has a clean, soft-textured eye appeal that increases with age regardless of weather. Medusa White enhances the charm of split block because of its true whiteness for striking white or color fidelity. And Medusa White meets all A.S.T.M., and Federal specifications for strength. Write direct or ask your products manufacturer about Medusa White and increasingly popular split block.

LENOX FOREST APARTMENTS, Atlanta, Georgia. Architect: Albert O. Ordway, Atlanta, Georgia. Gen. Contractor: O'Donnell Construction Co., Atlanta, Georgia. Landscape Architect & Site Planner: William D. Hudson ASLA. Split Block by: Southern Concrete Products Co. (Holiday Hill Stone), Atlanta, Georgia.

MEDUSA PORTLAND CEMENT COMPANY
P. O. Box 5668
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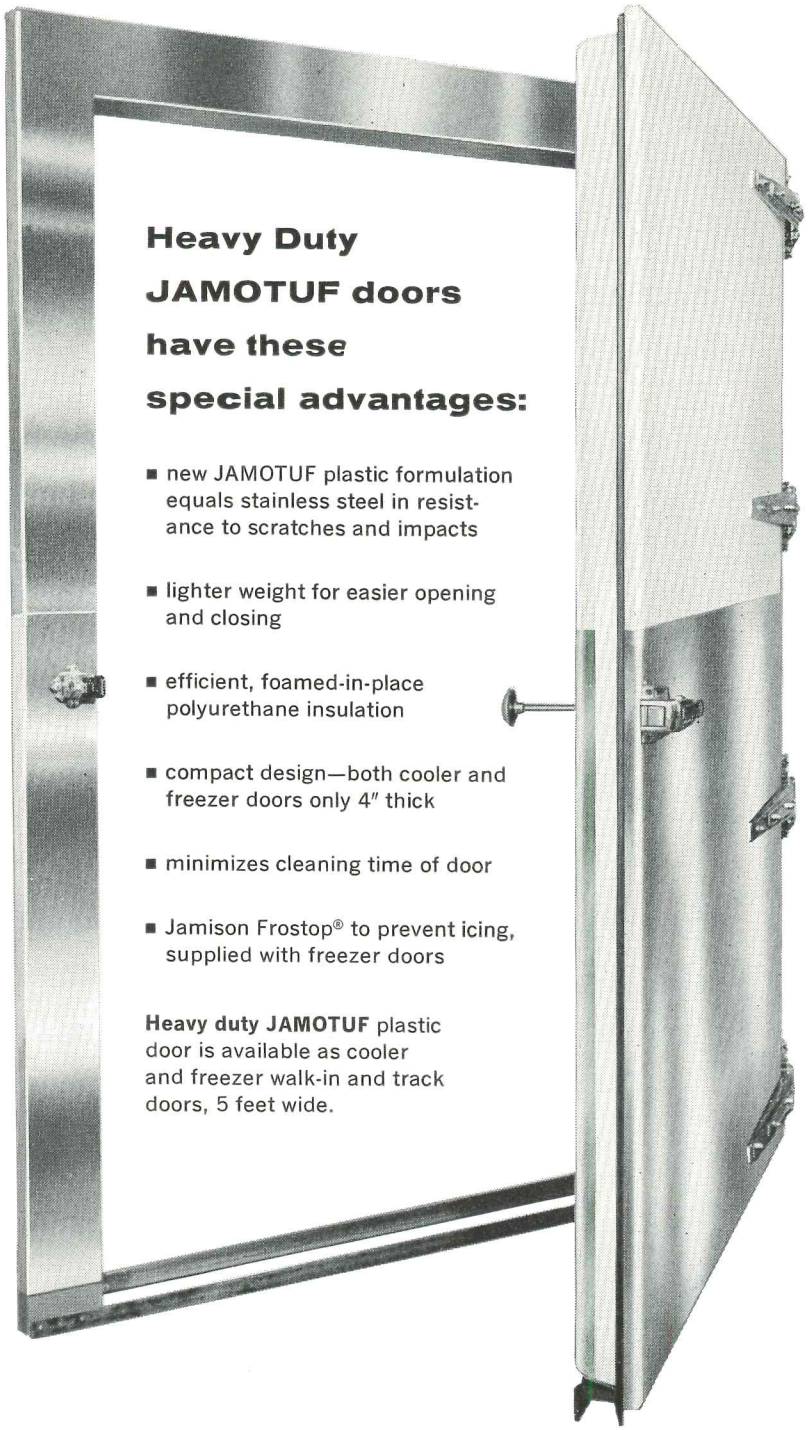
New Jamison **JAMOTUF*** Plastic Door For Food Industry is Lightweight and Rugged

JAMISON'S NEWEST DOOR is this heavy duty cooler and freezer door which combines excellent sanitation, light weight and resistance to abuse and hard usage. All exposed surfaces are plastic or stainless steel for easy cleaning and sanitation.

HEAVY DUTY JAMOTUF is of plastic construction with a #16 gauge stainless steel kick plate 4 feet high applied to door, front, back and edges. Door frame is wood, clad with #16 gauge stainless 4 feet high, and #26 gauge stainless above 4 feet.



Heavy Duty JAMOTUF doors have these special advantages:

- new JAMOTUF plastic formulation equals stainless steel in resistance to scratches and impacts
- lighter weight for easier opening and closing
- efficient, foamed-in-place polyurethane insulation
- compact design—both cooler and freezer doors only 4″ thick
- minimizes cleaning time of door
- Jamison Frostop® to prevent icing, supplied with freezer doors

Heavy duty JAMOTUF plastic door is available as cooler and freezer walk-in and track doors, 5 feet wide.

For complete details on this economical new door, write today to Jamison Cold Storage Door Co., Hagerstown, Md.

JAMISON
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SOLVENT TYPE ACRYLIC COATING

■ **Cost of less than 1¢ per sq. ft. per year!!**

New Jersey Bell Telephone Co., Carteret Dial Central Office Building, Carteret, N. J.

Architect: Frank Grad & Sons, Newark, N. J.

General Contractor: E. G. Robbins Const. Co., Inc., Sea Girt, N. J.

Paint Contractor: J. I. Hass, Jersey City, N. J.

Brick. Precast concrete cornice. Painted with one coat of MODAC. Gold color on soffits. Off-white on walls. Building located in industrial fume area. Effect on MODAC—nil.

■ **One-coat protection that really adheres to concrete**

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Standard Brands, Inc., Pennsauken Industrial Park, Pennsauken, N. J.
Architect: George Ewing & Associates
General Contractor: Wark and Company, Philadelphia, Pa.
Paint Contractor: Cumberland Decorating Co., Buena, N. J.
Concrete block. White MODAC applied over entire wall surface. Effect of humidity, city fumes and exhaust smoke—nil.

Why don't you specify MODAC?

MODAC will give you the trouble-free job you have been looking for on concrete block, brick, cinder block and—believe it or not—*poured concrete.*

MODAC provides outstanding adhesion on slick or chalking concrete surfaces because its unique solvent system bites *deep* into the surface. It fills and seals concrete and cinder block as a heavy duty waterproofer. Yet, it provides a breathing film to transmit vapor from within. And MODAC provides color retention far superior to conventional coatings.

MODAC gives you all this in a one-coat film with proven performance in excess of 10 years. And, it lets you provide your client with the appearance so necessary in establishing a desirable corporate image in his buildings.

Drexel Institute of Technology, Drexel Field House, Philadelphia, Pa.
Architect: Young & Schultze (formerly Baeder, Young & Schultze)
General Contractor: M. V. L. Construction Co., Lansdowne, Pa.
Paint Contractor: Murphy Company, Philadelphia, Pa.
Brick with concrete accessories. MODAC applied over concrete soffits, lintels and sills to provide a pleasing, uniform finish to structure. Effect of heavy city atmosphere and varying weather conditions—nil.

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A REPORT ON PARKING STRUCTURES

Steel-framed parking structures, usually with decks and ramps of compositely designed concrete, offer the best solution to parking problems. Here are five examples where designers chose steel framing to provide permanent, functional, and attractive structures for their clients.

FROM BETHLEHEM STEEL

Showcase for steel construction. This split-level, 5-story design in San Francisco presents a striking architectural effect with its use of exposed structural steel columns, beams, angles, and plates as open exterior walls. Solar screen blocks and plantings provide attractive corner wall decor at the ground floor entrances. From the central core of this earthquake-resistant structure, steel beams span the 62-ft wide, 2-deep parking area on one side and the 45-ft wide, single-row parking area on the other. Capacity is 294 cars.

Framed in steel for a light, floating appearance. This four-level parking structure for a Sears Roebuck store in Washington, D.C. can accommodate 1,000 cars. Located in a residential neighborhood, its long, low silhouette blends nicely with its environs. The lightweight colored panels, which hide the cars from passersby, give the building a "finished" look seldom found in parking structures.

Traditional for Mount Vernon, N.Y. The cast-stone trim, wrought iron railings, and brick facade of this parking structure conform to the colonial character of surrounding municipal buildings. The two enclosed levels and exposed upper deck provide a 320-car capacity. Bethlehem V45 steel was used for the framework. This high-strength grade was a major factor in achieving an extremely low per-stall cost.

BETHLEHEM STEEL

Skillful execution of exposed structural steel framing is the key element in the design of the M.I.T. Parking Facility—No. 1, East. Basic structure is a rectangle, 228 ft x 121 ft, within which 425 standard-size cars can be parked on each side of 60-ft-wide inclined ramps. Main parking areas are column-free to make maximum use of space. Mesh enclosure panels between the exterior columns serve as snow fencing and enhance the structure's appearance.

CONSIDER STEEL...*for beauty and economy*

Things have changed. New steels—and new ways of using steel—make possible outstanding designs and the ultimate in economy.

For useful literature and technical assistance, get in touch with any steel fabricator, or call the Bethlehem sales office nearest you.

New deck over existing parking field. It's the Municipal Parking Field in Flushing, N.Y.C. Capacity: 1,130 cars. All structural components are at 8 ft, 6 in. centers; columns are spaced at 62 ft on centers. Main outrigger supports for plastic shelter canopies are 12-in. WF with web horizontal to harmonize with the stepped railings. The New York City Department of Traffic is so pleased with its appearance—and its low cost—that they are planning another structure of similar design.

Bethlehem Steel Corporation, Bethlehem, Pa.

BETHLEHEM STEEL

CREDITS:

(Page 1)

Operator: Metropolitan Parking Corp.

Architect: A. F. Roller

Structural Engineer: H. J. Brunnier Associates

General Contractor: Louis C. Dunn, Inc.

Steelwork: Bethlehem Steel

(Page 2)

Owner: Sears, Roebuck and Co.

Architect-Engineer: The Ballinger Company

General Contractor: Irons and Reynolds, Inc.

Steelwork: Southern Iron Works, Inc.

Owner: City of Mount Vernon

Consulting Engineers: Zamory and Senor

General Contractor: J. B. Primiano & Son, Inc.

Steelwork: United Iron, Inc.

(Page 3)

Owner: Massachusetts Institute of Technology

Designer: Parking Development Company; Architect: Carleton N. Goff

Structural Engineer: Maurice A. Reidy

General Contractor: John F. Griffin Company

Steelwork: Tower Iron Works

(Page 4)

Owner: New York City Department of Traffic; Design and Construction supervised by the New York City Department of Public Works

Architects-Engineers: Rouse, Dubin and Ventura

General Contractor: Euclid Contracting Corporation

Steelwork: Bethlehem Fabricators, Inc.

Steel

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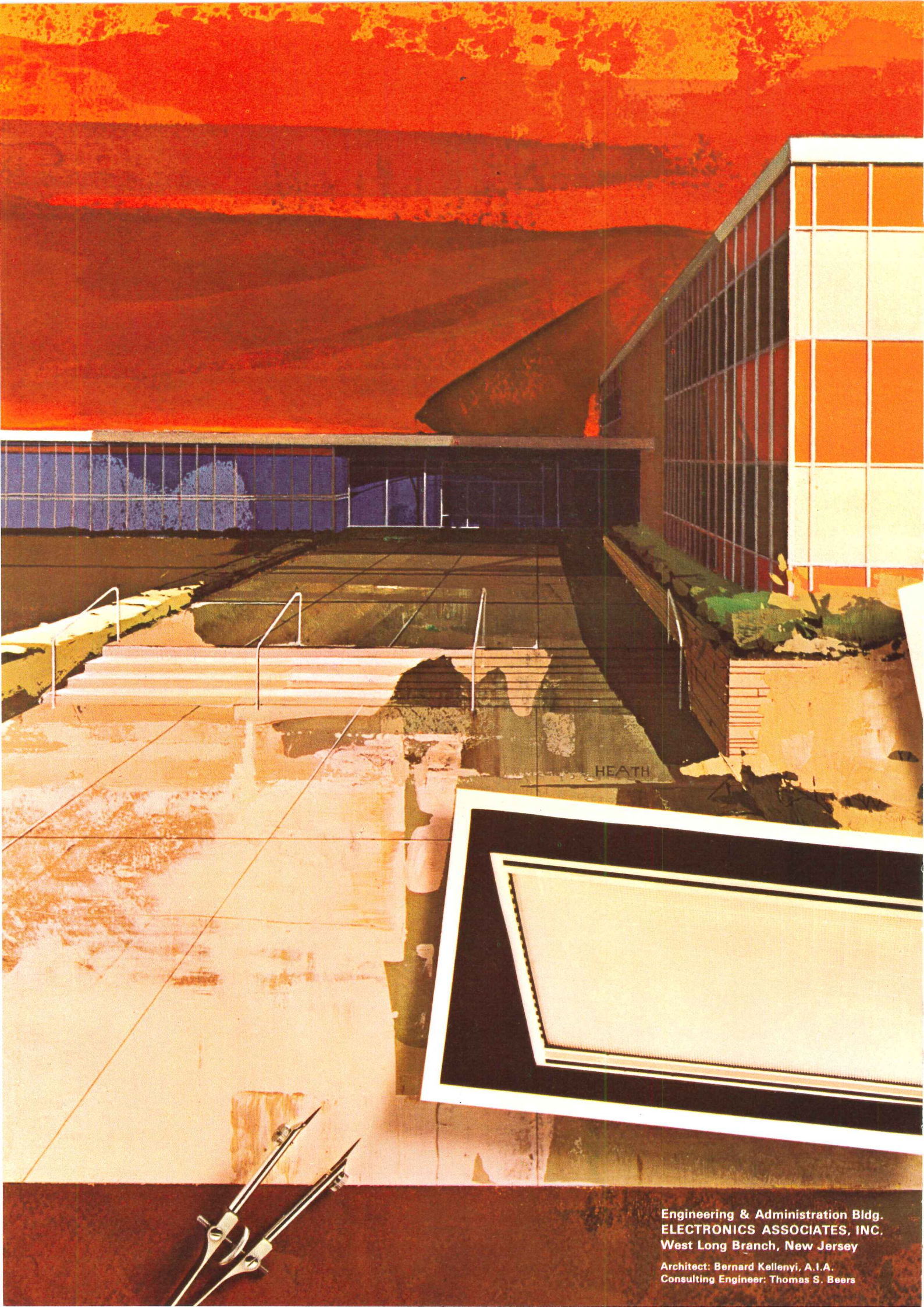
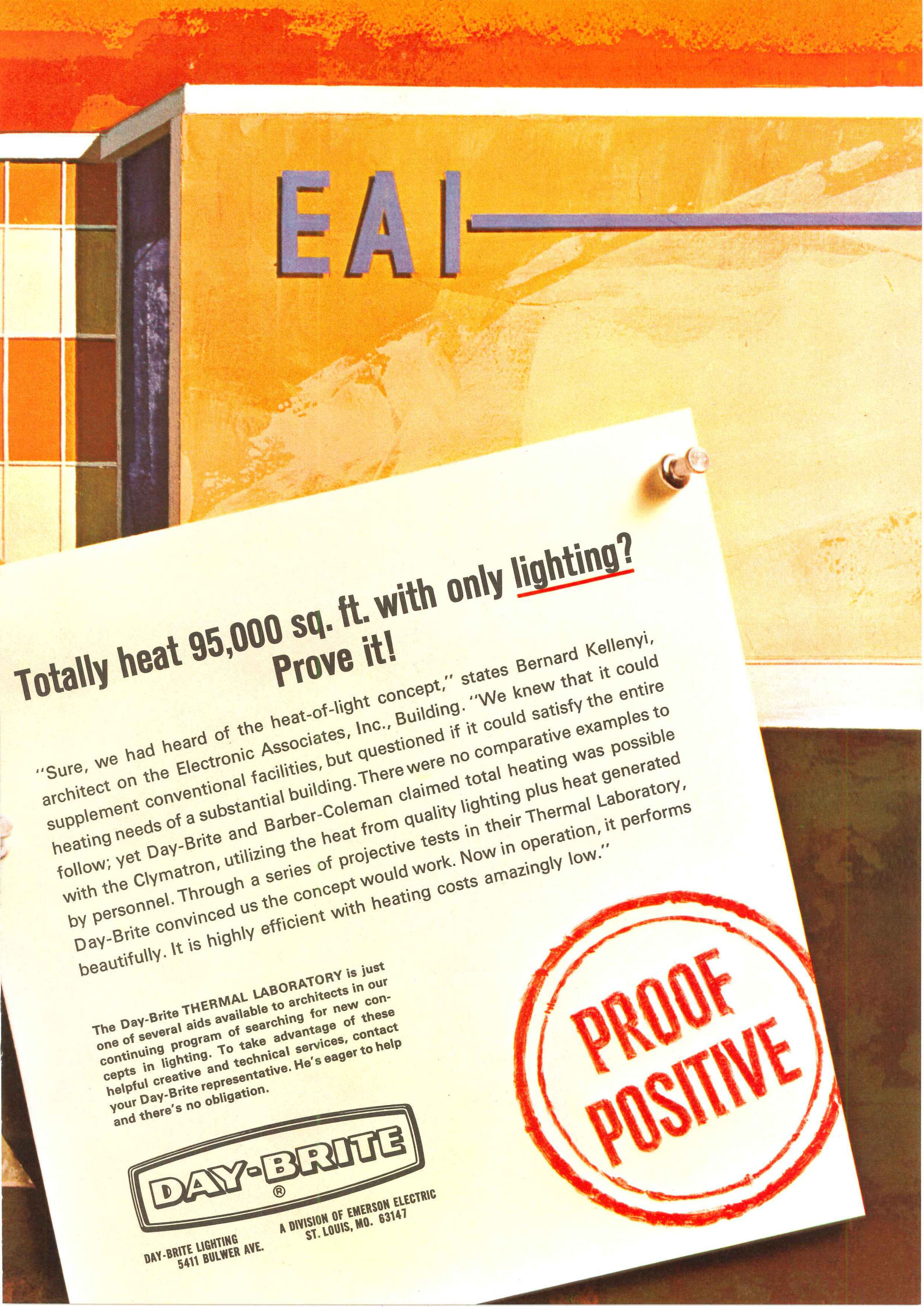


Engineering & Administration Bldg.
ELECTRONICS ASSOCIATES, INC.
West Long Branch, New Jersey

Architect: Bernard Kellenyi, A.I.A.
Consulting Engineer: Thomas S. Beers



Totally heat 95,000 sq. ft. with only lighting? Prove it!

"Sure, we had heard of the heat-of-light concept," states Bernard Kellenyi, architect on the Electronic Associates, Inc., Building. "We knew that it could supplement conventional facilities, but questioned if it could satisfy the entire heating needs of a substantial building. There were no comparative examples to follow; yet Day-Brite and Barber-Coleman claimed total heating was possible with the Clymatron, utilizing the heat from quality lighting plus heat generated by personnel. Through a series of projective tests in their Thermal Laboratory, Day-Brite convinced us the concept would work. Now in operation, it performs beautifully. It is highly efficient with heating costs amazingly low."

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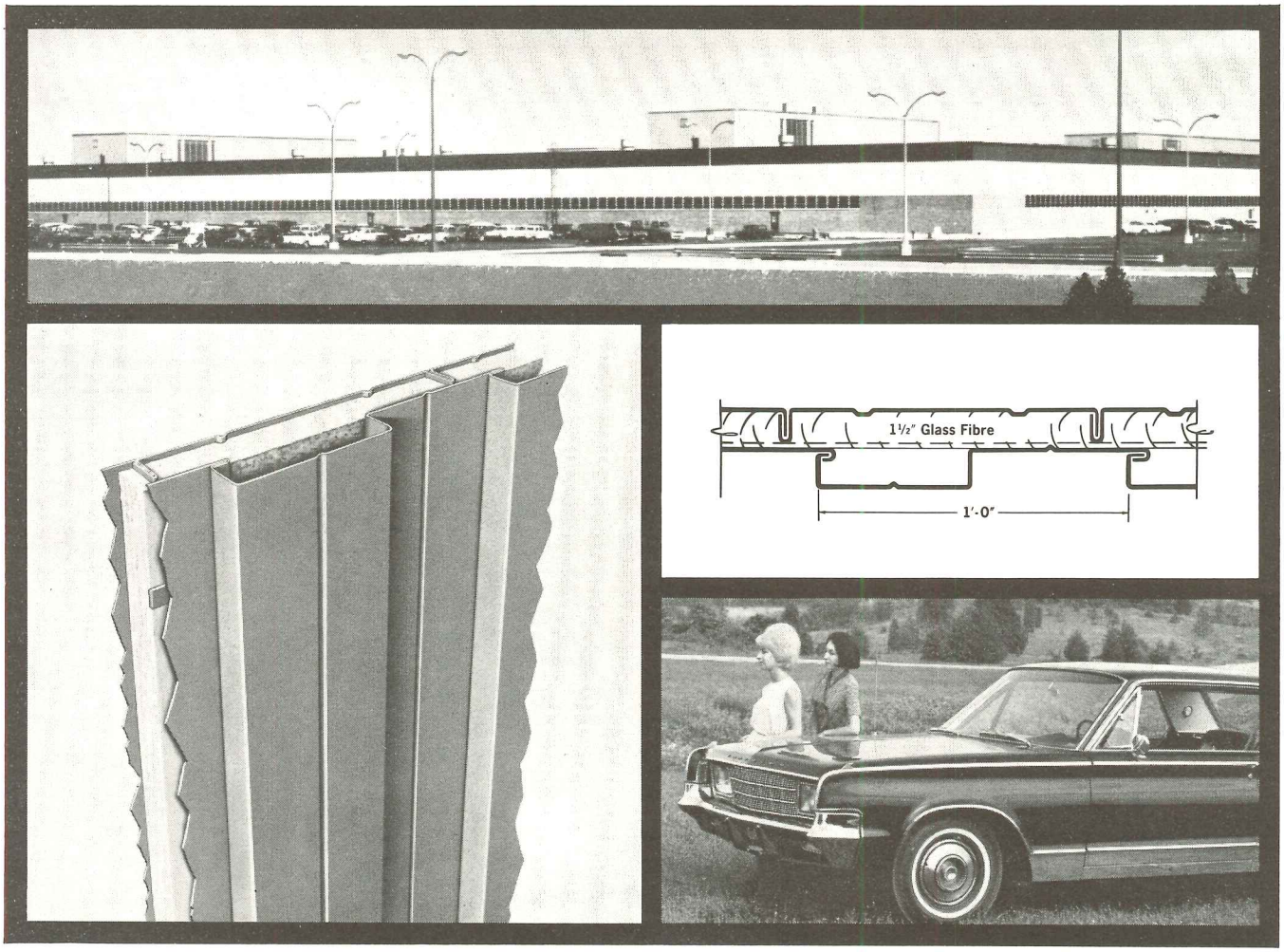
IN BUILDING PRODUCTS



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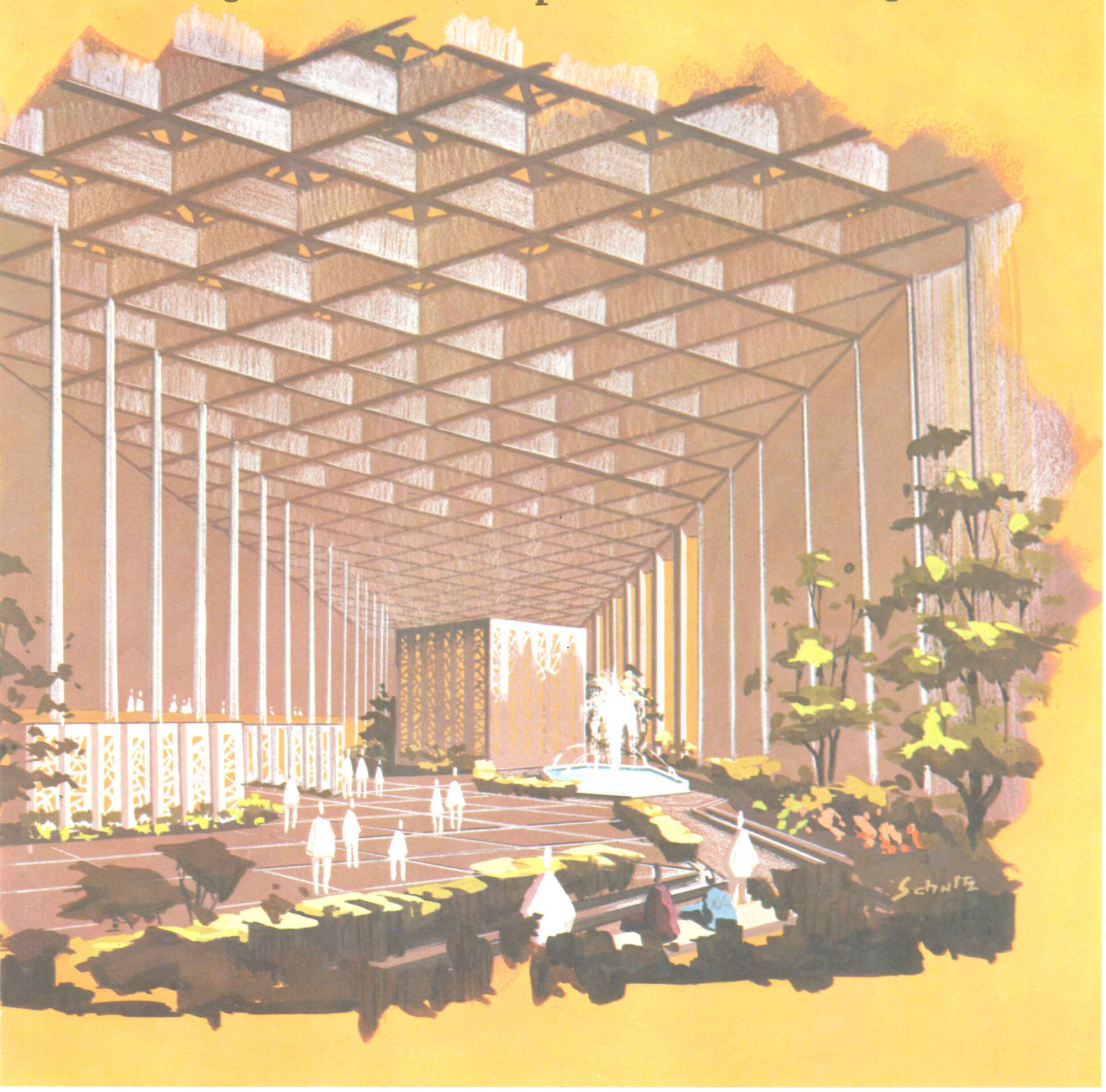
For more data, circle 105 on Inquiry Card →

New design freedom in the **Open World** of L·O·F glass



Ward and Schneider design a unique Religious Center for downtowners

The growing ecumenical movement is creating a need for interdenominational headquarters in large cities to serve several needs: 1. A building where church federations can have central administrative offices and meeting rooms; 2. A quiet retreat where downtowners can meditate, or just sit and relieve tensions by listening to beautiful music; 3. A sanctuary where urban apartment dwellers and transients can worship on Sundays. Libbey · Owens · Ford asked the architectural firm of Ward and Schneider, Cleveland, Ohio, to design such a building.

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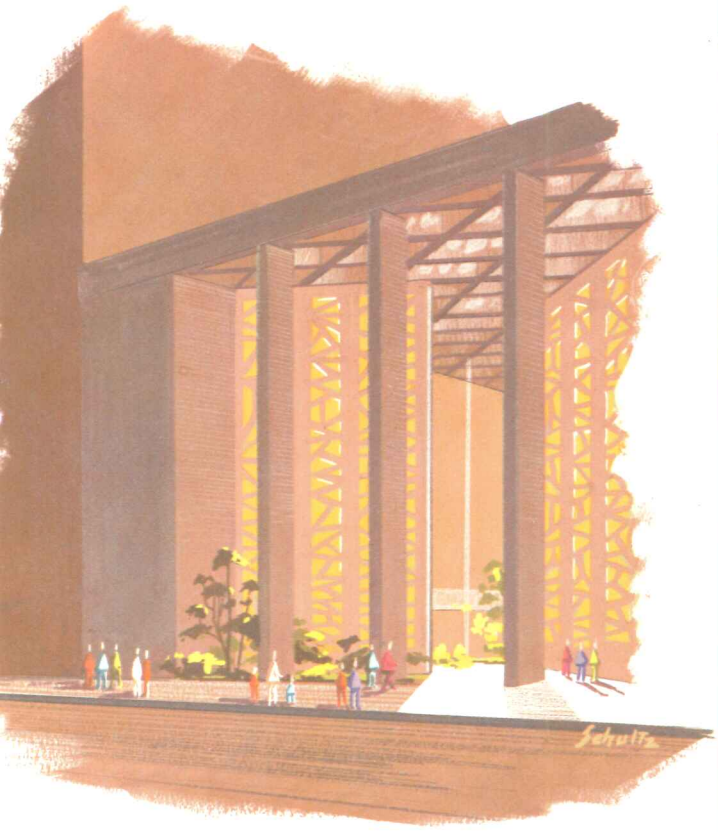
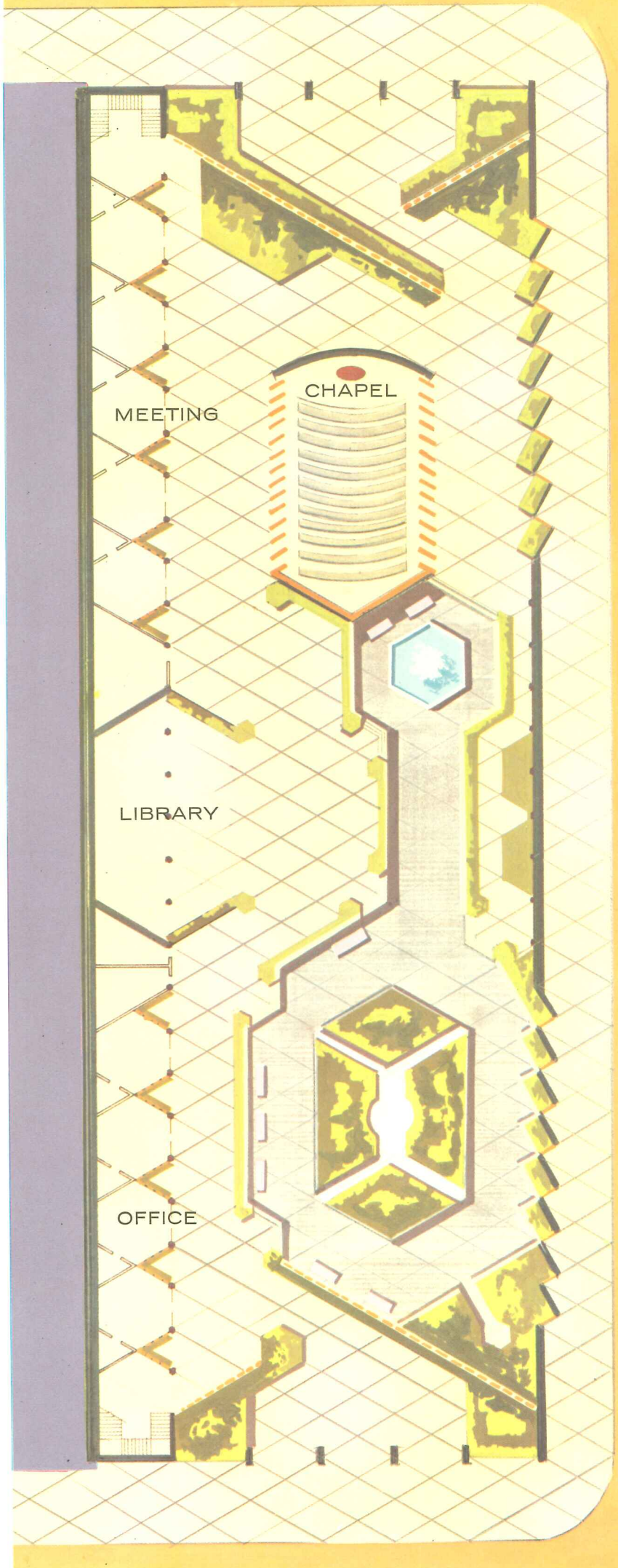




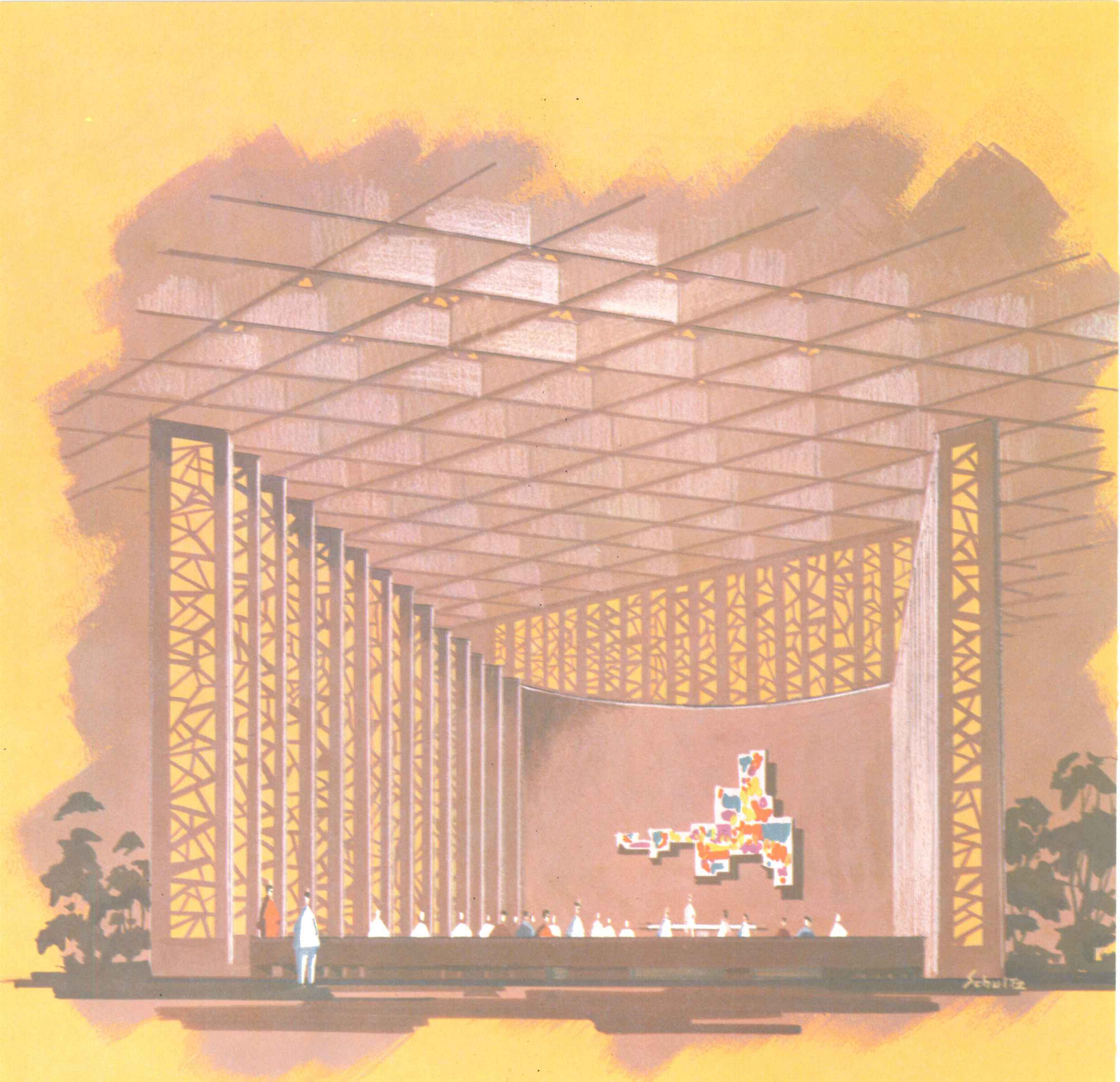
The site envisioned is in an area of multi-story buildings. Facing the street is a facade of pre-cast concrete frames inset with bronze-tinted, rough plate glass—a shimmering and translucent glass to screen out the confusion of the city scene.

Inside is a large landscaped courtyard with winding paths and meditation areas leading to a sanctuary which dominates the court. The entire area is ethereally lighted by daylight filtering through pre-cast roof grids inset with heat absorbing, bronze and grey-tinted, tempered plate glass 65 feet above the floor of the building. One supporting wall is of sawtooth design with floor-to-roof panels of heavy-duty, rough plate glass in the narrow openings. If the site is between two tall buildings, the end walls and ceiling would be sufficient to daylight the interior.

The sanctuary, too, has a pre-cast facade dappled with bronze-tinted, rough plate glass. Enclosing the sides are offset panels of Grass-weave patterned glass arranged so that people can enter and leave without disturbing the others. Inside is Continental seating for about 300. A mural of glass behind the chancel table could be *Vitrolux*®.

Church federation offices and related facilities line one side of the courtyard and are one-story high. They have clear plate glass walls and doorways through which the garden courts can be viewed. Overhead is a broad balcony with a tempered plate glass balustrade.

LOF GLASS



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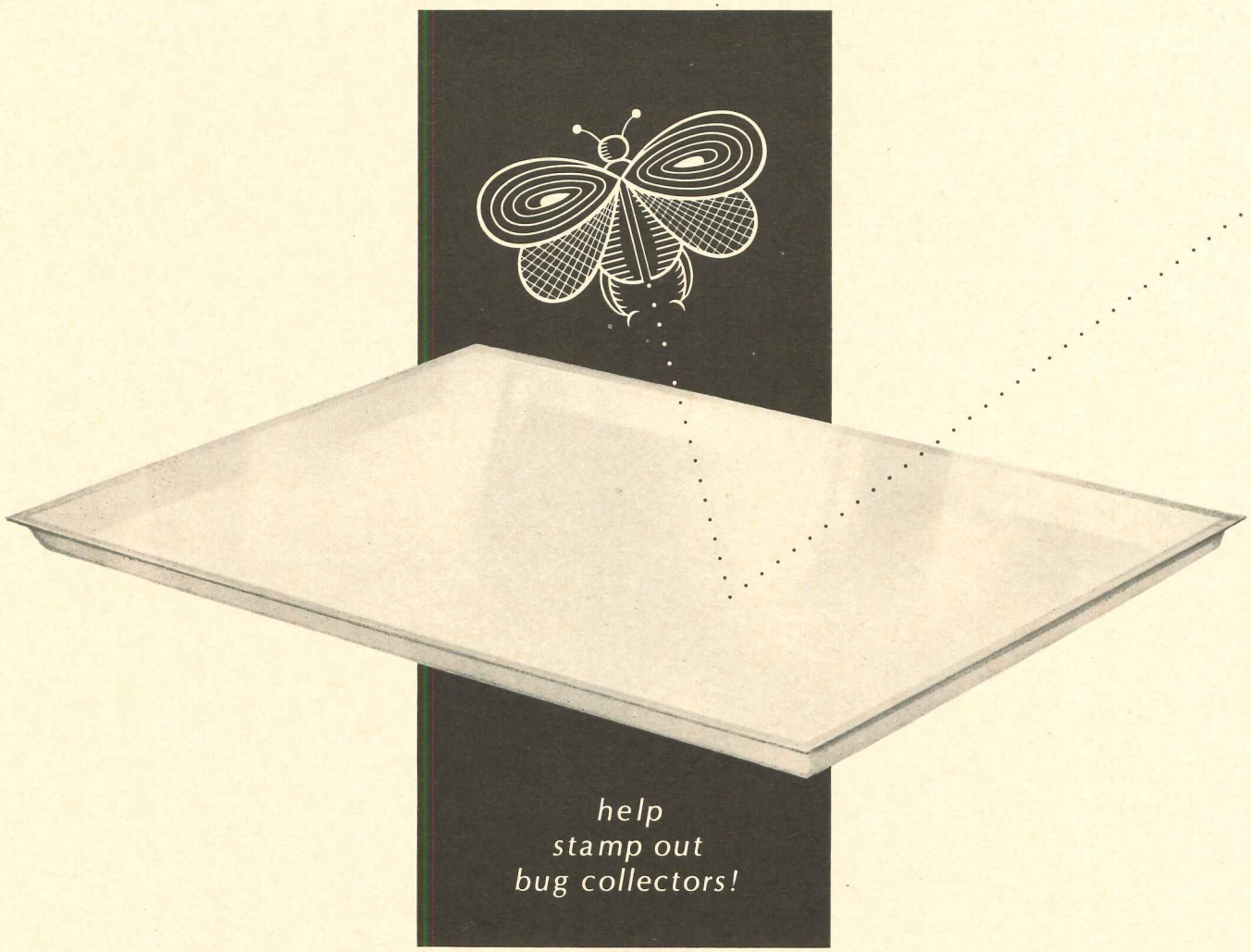

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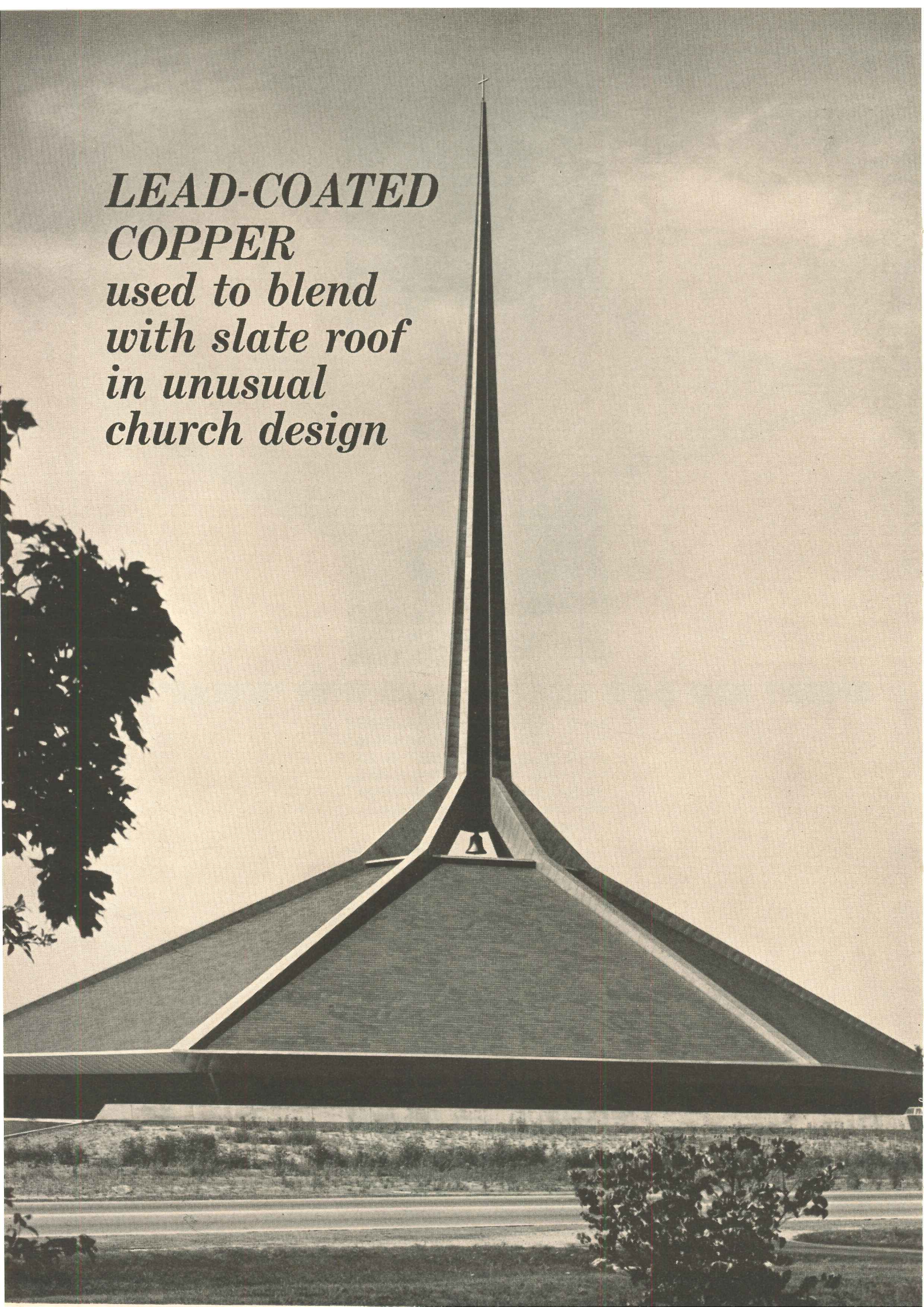
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with slate roof
in unusual
church design

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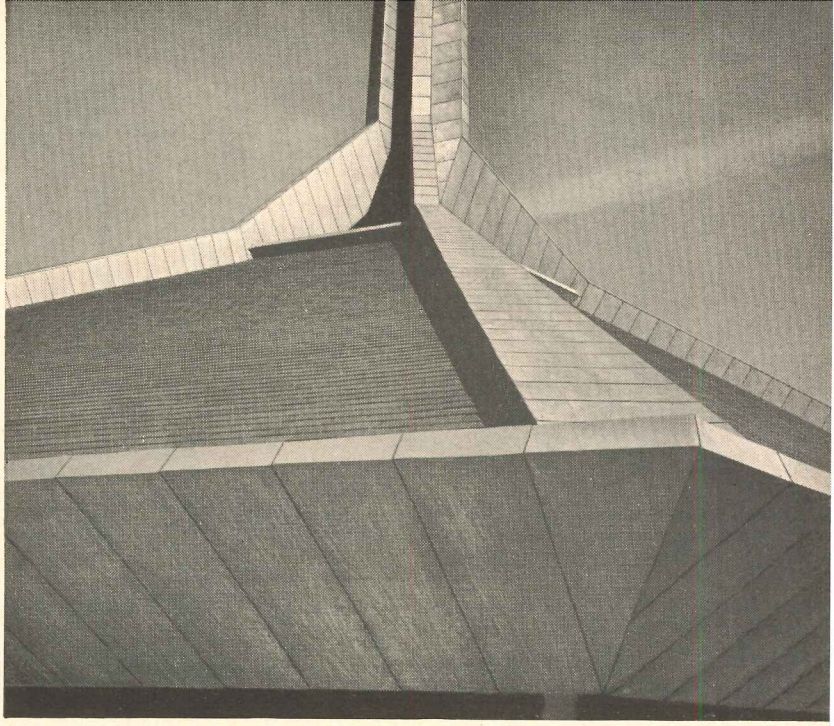

CLOSE-UP showing unusual fascia design.

ENTIRE 192′ SPIRE, ARCH COVERS, TRIM AND FASCIA OF REVERE LEADTEX* 15

Its 192′ spire topped by a cross of gold, the North Christian Church (Disciples of Christ), Columbus, Indiana, is designed in the form of a hexagon representing the star of David. The slate roof is divided by fingers of lead-coated copper, which also covers the spire, arches and fascia. Some 23,000 lbs. of Revere Leadtex 15 was used.

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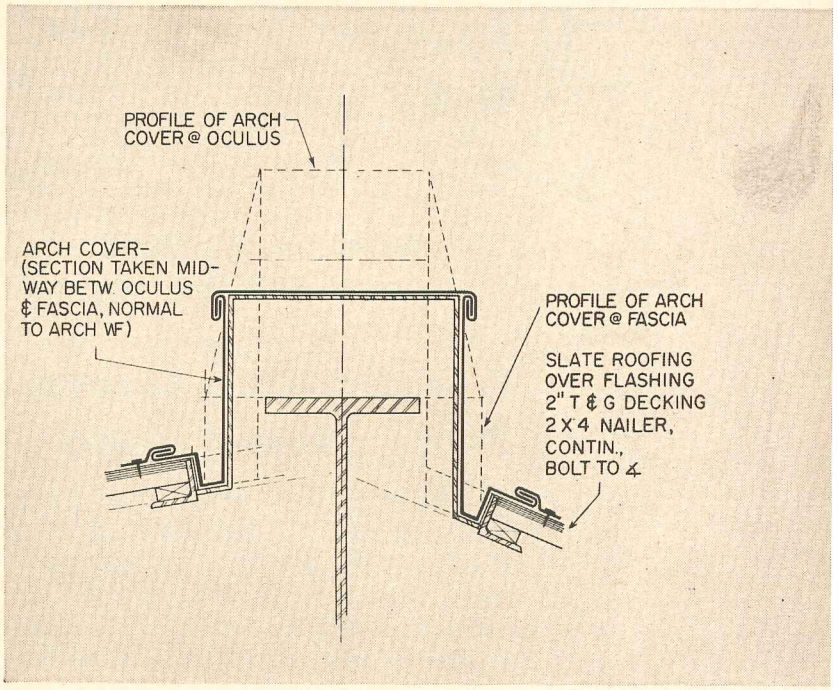

DETAILS showing how Leadtex was applied to arches and spire.

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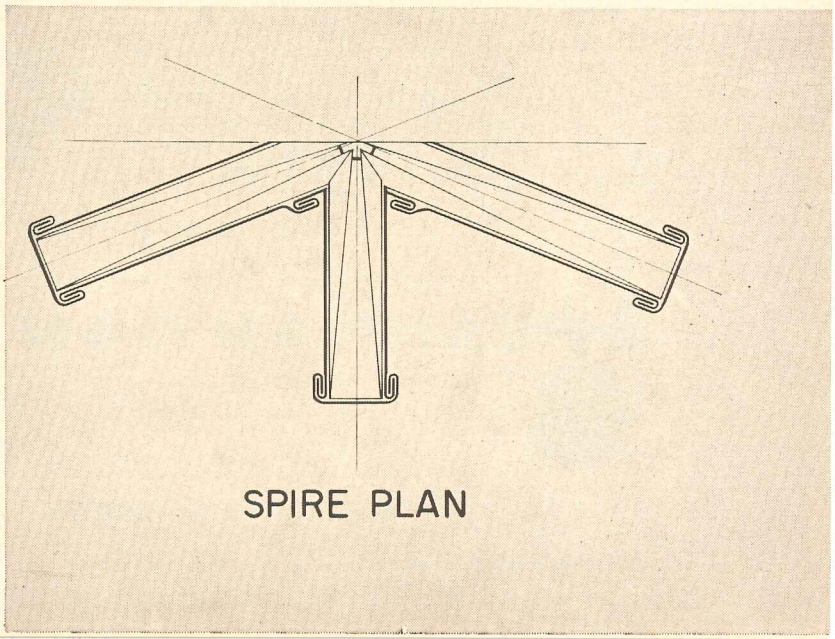

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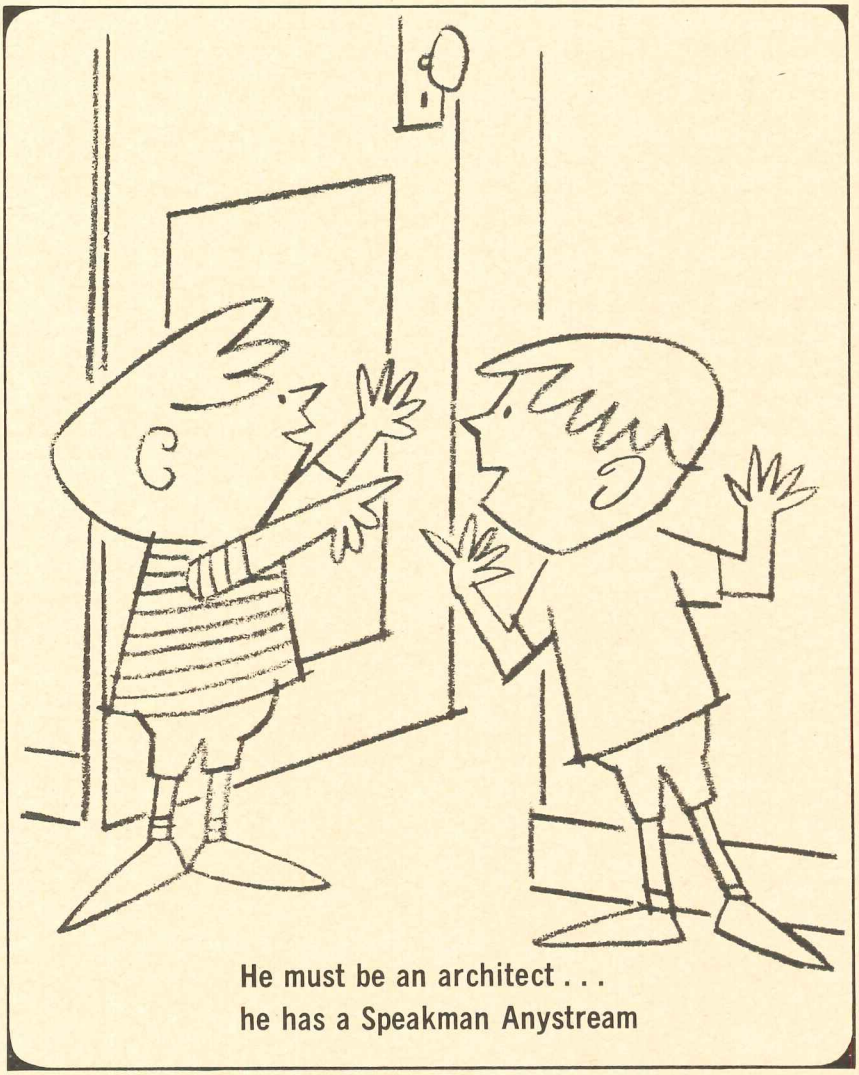

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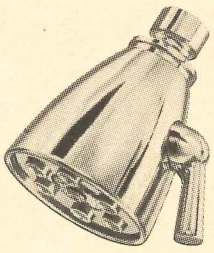

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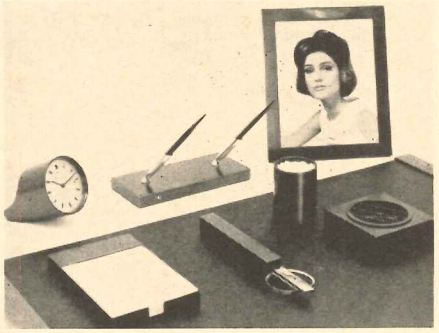
Product Reports

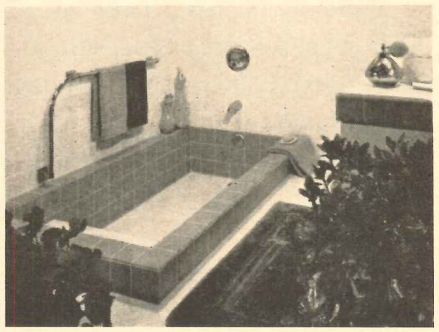
continued from page 192



DESK ACCESSORIES IN BRONZE
This attractive collection of desk accessories in bronze was designed to co-ordinate with contemporary office interiors and furnishings. *Smith Metal Arts Company, Inc., Buffalo, N.Y.*

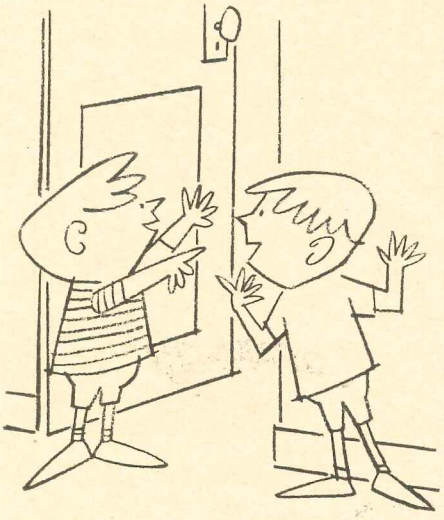
CIRCLE 307 ON INQUIRY CARD

SUNKEN BATH FOR SENSE OF LUXURY
The *Cambridge Roman* sunken bath is a one-piece, reinforced, cast concrete bathtub, which is light in weight and completely watertight. Certified tests show that the tub can withstand pressures up to 4,000 psi. Tubs are delivered to the site ready for installation, plumbing connections and tiling. Installation is simple, requiring only minor changes in the rough framing. Special design of the tub permits second floor installation without a drop ceiling. When tiled with ceramic tile, and color coordinated with decorative wall tiles, conventional bathrooms acquire a sense of luxury. Tiles on the wall in the photo are one of Max Spivak's recent designs for the company. *Cambridge Tile Manufacturing Company, Cincinnti, Ohio*

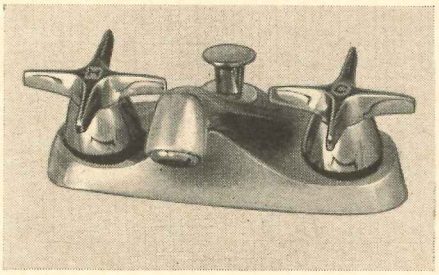


CIRCLE 308 ON INQUIRY CARD

more products on page 213



He's so sensitive . . .
he insists on Diamond 75



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Product Reports

continued from page 212

URINAL WITH FLUSHING RIM

A new urinal with an improved flushing action is easy to clean and is suitable for new and modernized schools, office buildings and other commercial installations. The *Jetbrook* urinal is 15⅛ ins. high and 14 ins. wide. A new hanger designed specially for this model accommodates top and back spuds and has through going bolts. *American Standard, New York, N.Y.*

CIRCLE 309 ON INQUIRY CARD

LOUVERS WITH VERTICAL BLADES

A new line of extruded aluminum louvers with the louver blades set vertically rather than horizontally, have been designed to enable architects to use these to emphasize the vertical accent of a building. The new *C/S Vertical Line* louvers, supplied in 1⅜ in., 2 in. and 4 in. deep sizes, are said to insure efficiency in weather-proofing and air flow. *Construction Specialties, Inc., Cranford, N.J.*

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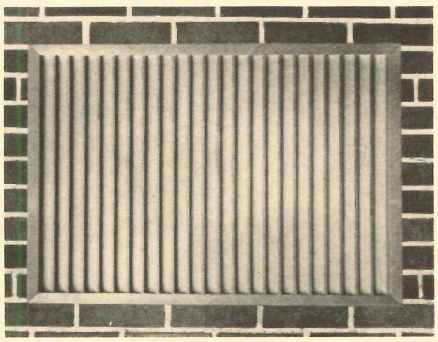

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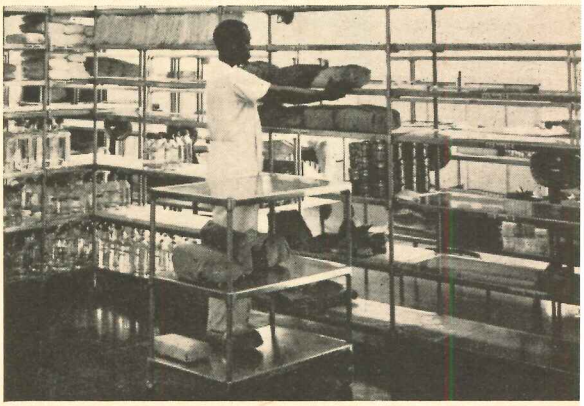

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SHELVING

Modular Marketier Shelving and Modular Storage Systems are designed and built especially for institutional storage needs. RUGGED — Patented corner construction and double reinforced edges withstand years of use and abuse. ADJUSTABLE — Shelves may be instantly set at any desired spacing. Nine modular scientifically determined shelf sizes. Easy to install or relocate. SANITARY — Maximum ease of cleaning with solid crevice-free construction. Spills wipe up easily. Stainless steel or aluminized steel with wide variety of casters and accessories for mobile use and other applications.

Send for new brochure showing dozens of actual in-use photos.

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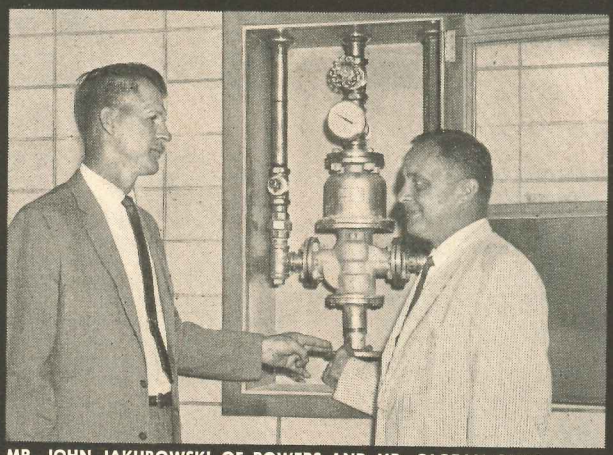
SINCE 1897

For more data, circle 110 on Inquiry Card

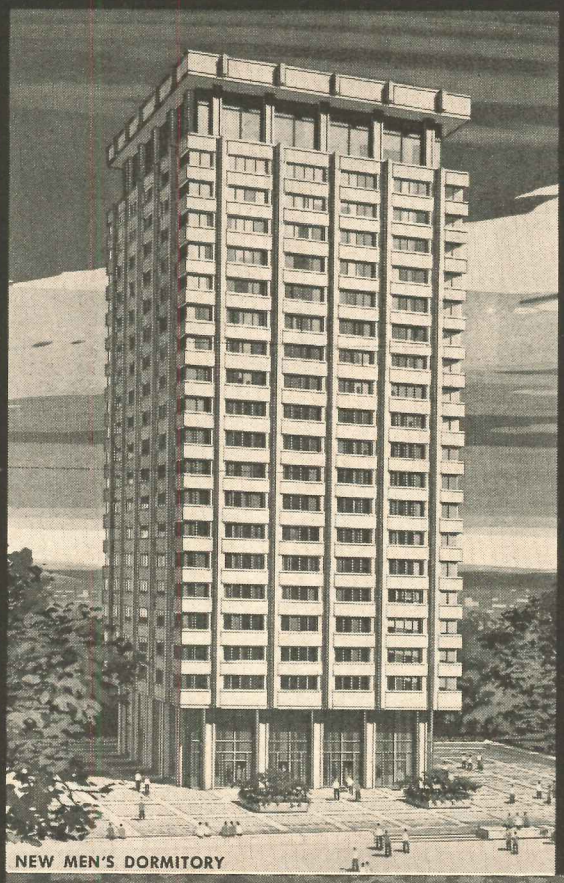
WOMEN'S BUILDING

ARCHIBOLD GYMNASIUM

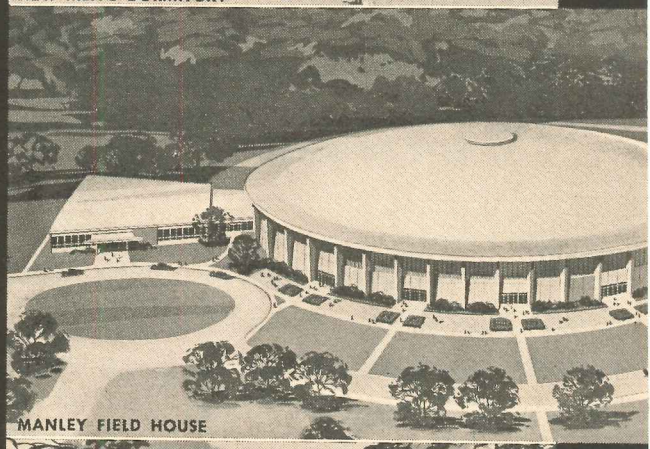
MR. OLGEAN OHAB, SUPERINTENDANT OF BUILDINGS AND GROUNDS



MR. JOHN JAKUBOWSKI OF POWERS AND MR. OLGEAN OHAB



NEW MEN'S DORMITORY



MANLEY FIELD HOUSE

HAVEN HALL, WOMEN'S DORMITORY

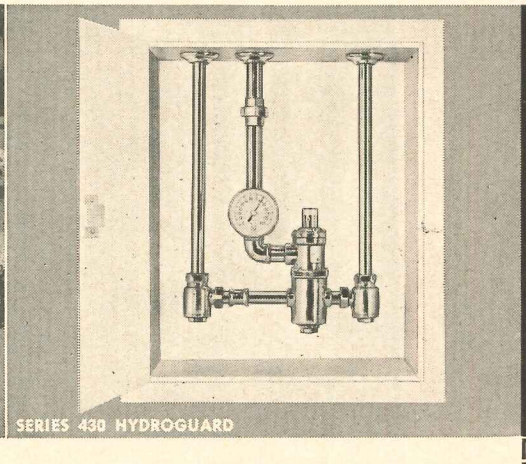
How Syracuse University and Powers Hydroguards® are Keeping Pace with Tomorrow's Needs . . .

There's a new look to the campus of Syracuse University. It's not just an increase in the number of buildings. The architectural styling is as modern as tomorrow. As you might expect, the equipment going into these new buildings has a far different "look" to it as well. Typical of the change is illustrated by the Powers equipment furnished years ago compared with the units being delivered today.

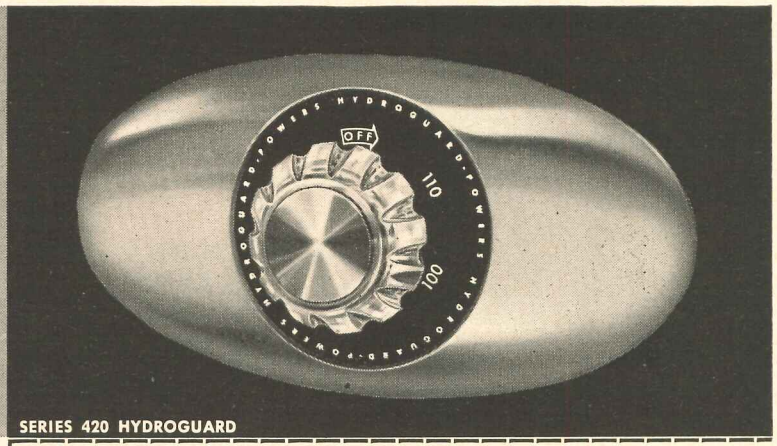
One thing hasn't changed with the years and that's the reliance Syracuse University has placed on Powers water mixing equipment. According to Mr. Olgean Ohab, Superintendent of the Building and Grounds Department, the operation of the Powers shower valves has been practically maintenance-free since their installation in the 1940's.

This excellent performance record is the principal reason why Powers continues to be the *base specification* for water mixers in new construction at Syracuse University.

Not just outside appearance has changed. Our customers have a right to expect Powers to constantly refine and improve its products. When you specify Powers you can be sure that you're getting the latest in technological improvements that engineering laboratories can develop, *plus* the benefit of three quarters of a century of experience in manufacturing quality control equipment.



SERIES 430 HYDROGUARD



SERIES 420 HYDROGUARD

Architect:
King and King.
Consulting Engineer:
Robson and Woese

Send for your free copy of Powers' Engineer's Manual. "Shower Systems"

65-148

Please furnish copy of Powers' Shower System Manual.

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Offices in Principal Cities in U.S.A. and Canada
CONTROL SYSTEMS SINCE 1891

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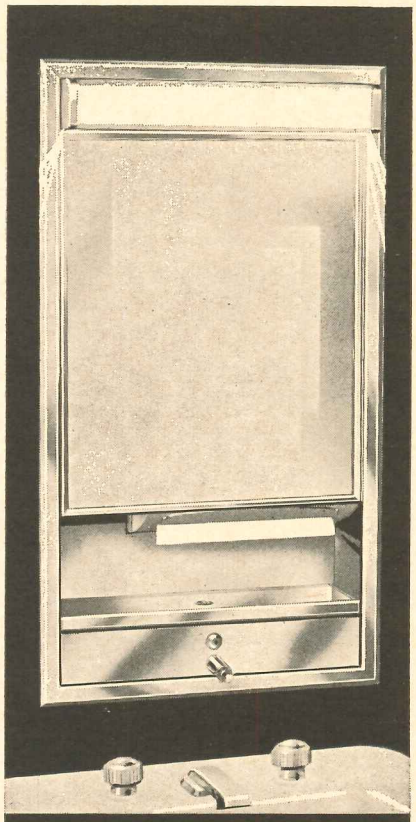


5 IN 1

FOR OFFICE BUILDING WASHROOMS

Recessed Stainless Steel Cabinet neatly organizes 5 accessories. Combines light, mirror, towel dispenser, shelf, soap dispenser. Recesses into 4″ wall. Conserves space . . . retains its new look . . . requires less servicing. For a wide variety of Multi-Purpose Units write for Washroom Accessory Catalog.

THE BOBRICK CORPORATION
503 Rogers Ave., Brooklyn, New York
1839 Blake Ave., Los Angeles, Calif.

Bobrick

Since 1906 Designers and Manufacturers of Washroom Equipment

For more data, circle 112 on Inquiry Card

Product Reports

continued from page 213

STREET PLANTERS AT REASONABLE COST

Architectural Fiberglass has introduced a new group of street planters, designed to meet the needs of civic programs for improved urban environment at a cost which even small communities can afford. The planters have been designed for mass production, and this has had the effect of

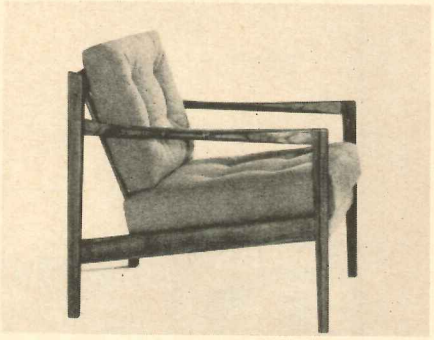
reducing the cost. Planters will be supplied in a wide range of colors—matte, muted and bright, and in standard smooth and textured aggregate finishes. Four sizes are available from 18 ins. to 36 ins. high, with diameters from 35 ins. to 38 ins. *Architectural Fiberglass, Los Angeles, Calif.*

CIRCLE 311 ON INQUIRY CARD

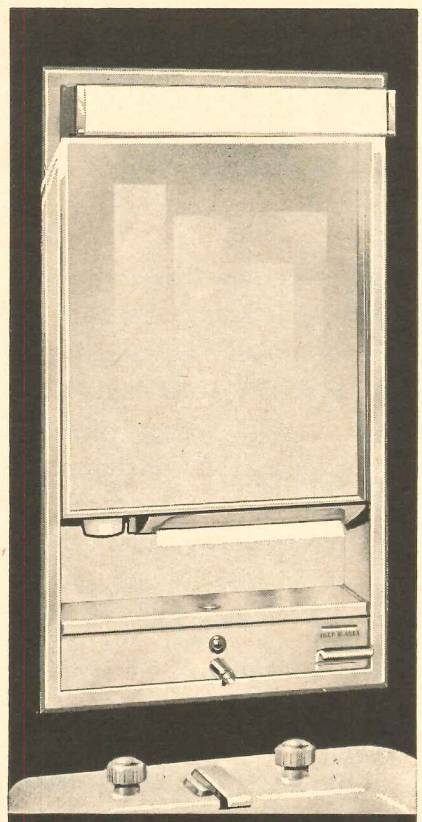
LOUNGE CHAIR HAS WALNUT FRAME

Ray Zimmerman designed this lounge chair as a development from his already well-known *No. 7222* arm chair. The new chair, *No. 6133,* features a walnut frame with slat back and slender arms. The buttoned seat and back cushions are of poly-dacron, with zippered covers. *Dux Inc., San Francisco, Calif.*

CIRCLE 312 ON INQUIRY CARD



more products on page 220



9 IN 1

DESIGNED FOR DORMS AND HOTELS

Recessed Stainless Steel Cabinet combines 9 essential accessories. Includes dispensers for soap, paper towels and cups, mirror, shelf, light, convenience outlet, razor blade disposal, bottle opener. Recesses into 4″ wall. For other Hotel-Motel Multi-Purpose Units write for Washroom Accessory Catalog.

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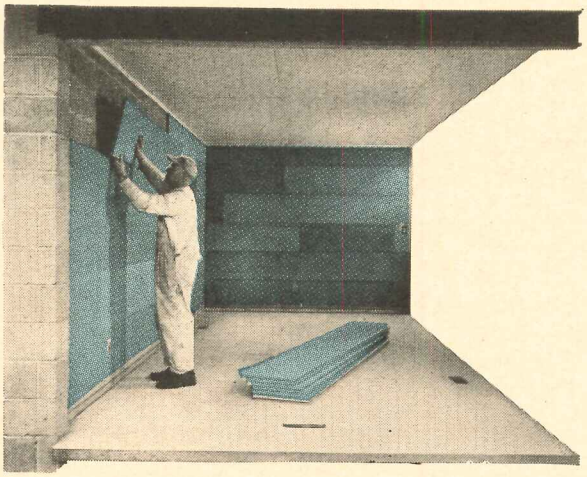
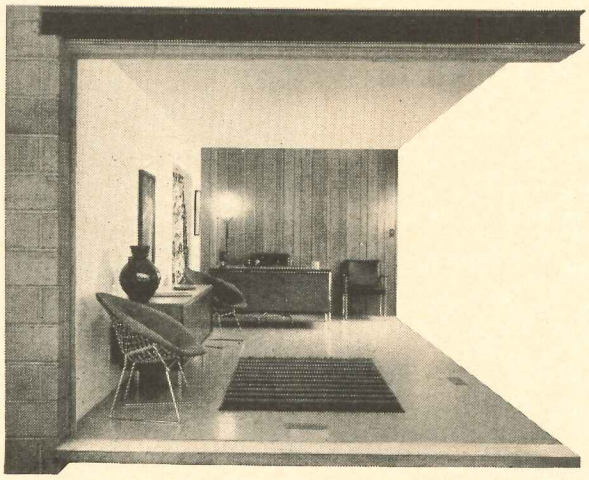


Remember Styrofoam.

(You've probably specified it as a cold storage insulation. And liked it.
So why not specify it for roofs and walls. It's every bit as good.)

Moisture resistance. Permanent effectiveness. Lightness. Remember? These are some of the things that make Styrofoam® FR brand insulation so popular in the cold storage field today. And they're good reasons, too, for specifying Styrofoam FR for walls as well as Styrofoam RM for built-up roof insulation. Whatever the application, you can rely on Styrofoam. Water can't penetrate its closed cell construction. No vapor barrier is needed. Its light weight means easier handling and installation. There's no chance of rot or mold. Or of deterioration, either. Remember its versatility when you remember Styrofoam. And to fortify your memory there's Sweet's Architectural File 10a/Do and 8a/Dow. Or write and we'll send more data and specifications. The Dow Chemical Company, Plastics Sales Department 1313N8, Midland, Michigan.

Styrofoam is Dow's registered trademark for expanded polystyrene produced by an exclusive manufacturing process. Accept no substitutes . . . look for this trademark on all Styrofoam brand insulation board.



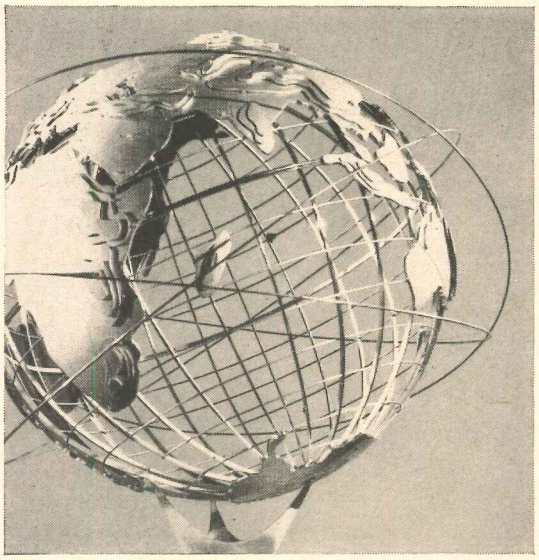
O.K. Now forget it.

(Until your next roofing or wall insulation job.)

DOW

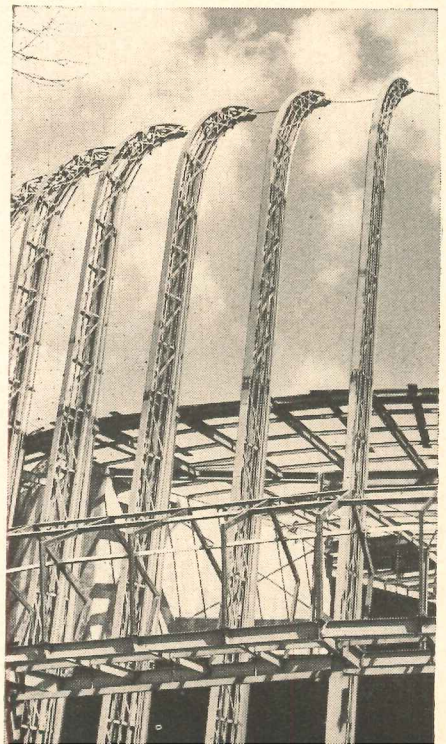
For more data, circle 114 on Inquiry Card

World's Fair:



UNISPHERE: Symbol of the Fair, this "biggest world on earth" required wind tunnel studies and computer aid for efficient design. Wind loads were sizably increased by the concave inner surfaces of the large stainless steel land masses. Despite its lacy look, Unisphere is sufficiently stable to withstand a hurricane. Unisphere® presented by USS United States Steel © 1961 New York World's Fair 1964-1965 Corporation.

FORD PAVILION: Ford Motor Company's showplace is the largest of the Fair's 200 structures. The 235-ft. diameter glass-enclosed circular pavilion is surrounded by 64 curved steel pylons that soar over 100 ft. high. Designed and Engineered by: Welton Becket and Associates. Structural Engineer: Richard Bradshaw.



extravaganza of new engineering concepts

"Civilian" visitors to the New York World's Fair are finding plenty to pop their eyes, but studying the buildings themselves is a field day for engineers. Among the most spectacular structural feats is the stainless steel Unisphere, with its axis tilted 23½° from the vertical. To achieve the open sculpture look, its design was so complicated that a large electronic computer was required for the solution of matrices with more than 600 unknowns to determine the structural strength needed. Among other points of design interest are cantilevered buildings, a structure made of steel-framed prisms, and one of the world's largest cable-suspended roofs.

Unsurprisingly, most of the spectacular World's Fair buildings—three-fourths of them—are framed with steel, some 250,000 tons of it. Most architects chose steel because of its esthetic versatility, and because it can be erected quickly. Since all the new structures except the Unisphere and the Heliport will be removed after the Fair, inexpensive dismantling was also an important consideration. Steel members can be re-used, or sold for scrap at good prices. Steel structures can even be torn down and reassembled elsewhere as some of these may be.

American Bridge is expert at steel construction. (Examples of our work include Unisphere, the Ford Pavilion and the Heliport.) Our contracting representatives can show you how the Family of USS Structural Steels can save you money in new construction or old. Write: American Bridge Division, United States Steel, Room 605, Five Gateway Center, Pittsburgh, Pa. 15222.

Steel — This mark tells you a product is made of steel.

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American Bridge Division of United States Steel

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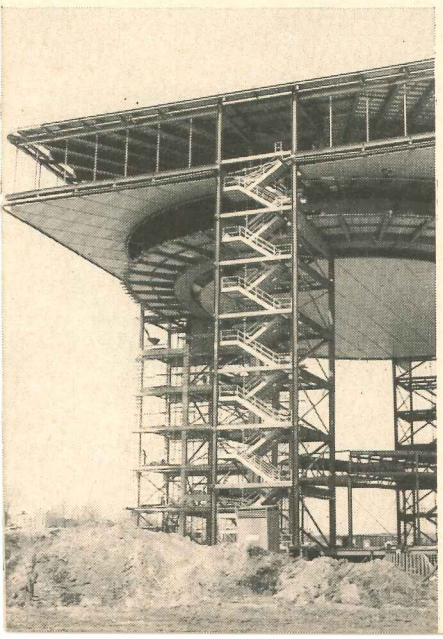
HELIPORT: One of the Fair's permanent structures, the 160 x 210-ft. platform, is 120 ft. above ground supported by four legs placed at midpoints of the sides of the rectangle, instead of at corners like table legs. A huge elliptical steel box girder connects the tops of the towers and supports the restaurant and "table top" heliport. To insure proper fit, the ring girder was preassembled at the Ambridge, Pa., plant of American Bridge, then dismantled and shipped in large units. Designed and Engineered by: Port of New York Authority.



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ROLLING GRILLES

More attractive — and the strongest of any of them! That's the immediate reaction of Designers and Builders to the HexArt design of Kinnear Rolling Grilles. And especially with those acquainted with the use of grilles . . . for barricading all sizes and varieties of openings, corridors or passageways without sacrificing the admittance of air, light or vision.

The compact, overhead coiling design of the Kinnear Rolling Grille also makes it possible to completely conceal its operating mechanism in the walls and ceiling; whether it be arranged for manual, mechanical or motor operation. An essential feature for most modern building locations!

A PANIC HARDWARE LOCK of unique design provides emergency exit in school or public building corridor applications.

Write today for grille bulletin, gives details and specs. Also ask for copy of Kinnear's complete line Catalog.

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For more data, circle 116 on Inquiry Card

Product Reports

continued from page 216

FURNITURE FABRICS

The new *Baedecker* fabric collection recently introduced by Jack Larsen includes *Waterlilies*, a cotton velvet fabric in which this chair is upholstered. The design is a free interpretation of Monet, printed on the fabric

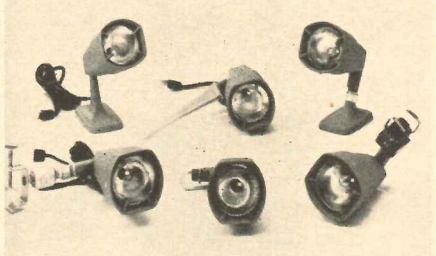
by a new printing method. Shades of green, gold and red are available. *Jack Lenor Larsen, Inc., New York, N.Y.*

CIRCLE 313 ON INQUIRY CARD

VERSATILE FLOOD LIGHTING

A complete line of compact, iodine-quartz flood lights for indoor and outdoor applications, featuring six different mounting styles and a series of decorative color filters, has recently been introduced. Called the *Sun Flood Caribbean* line, the new fixtures are designed for a wide variety of applications ranging from home use to specialized commercial and industrial installations. The six models in the line all have a common basic fixture head equipped with a 120-volt, 250 watt, single-ended iodine quartz lamp. *Sylvania Lighting Equipment Operation, Wheeling, W. Va.*

CIRCLE 314 ON INQUIRY CARD



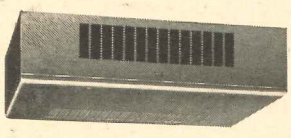
more products on page 224

LOOK TO THE LEADER...

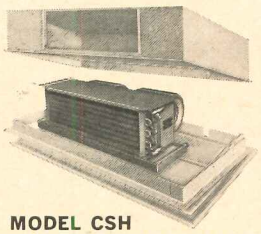
McQuay

FOR A NEW Seasonmaker® HIDEAWAY FAN-COIL UNIT THAT CUTS INSTALLATION COSTS AND IS FULLY ACCESSIBLE FOR MAINTENANCE

Extremely compact with a modern thinline design, McQuay's new Model CSH Hideaway Seasonmakers offer benefits never before attainable in horizontal fan-coil units. They are available in eight sizes, 200 through 1,200 cfm with nominal cooling capacities of ½ through 2¾ tons—Standard Ratings ARI Certified. The CSH Model is a fully encased horizontal unit for recessed applications with an adjustable ceiling frame and access panel permitting installation in stages compatible with construction progress. Important time savings result. The ceiling frame is telescopically fitted into the cabinet enabling a perfect alignment regardless of the ceiling type. Maintenance is highly simplified as the controls, filter, fan deck and entire base unit are readily reached, or removed, through the hinged ceiling panel. Maximum thermal efficiency is achieved with McQuay's exclusive Rippled-Fin and staggered tube coil design.

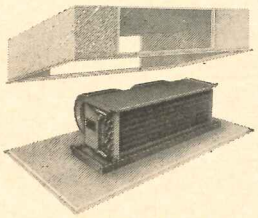


MODEL SC CEILING TYPE SEASONMAKER

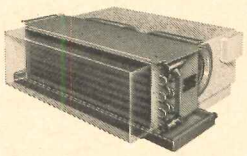


MODEL CSH HIDEAWAY SEASONMAKER

ROOM FAN-COIL AIR CONDITIONING



MODEL BSH HIDEAWAY SEASONMAKER



MODEL SH HIDEAWAY SEASONMAKER

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TECHNICAL & ENGINEERING DATA
for all 4 Thinline Seasonmaker models (8 sizes each, 200 thru 1,200 cfm with nominal cooling capacities of ½ thru 2¾ tons) from your McQuay representative in Bulletin #714—or write McQuay direct.

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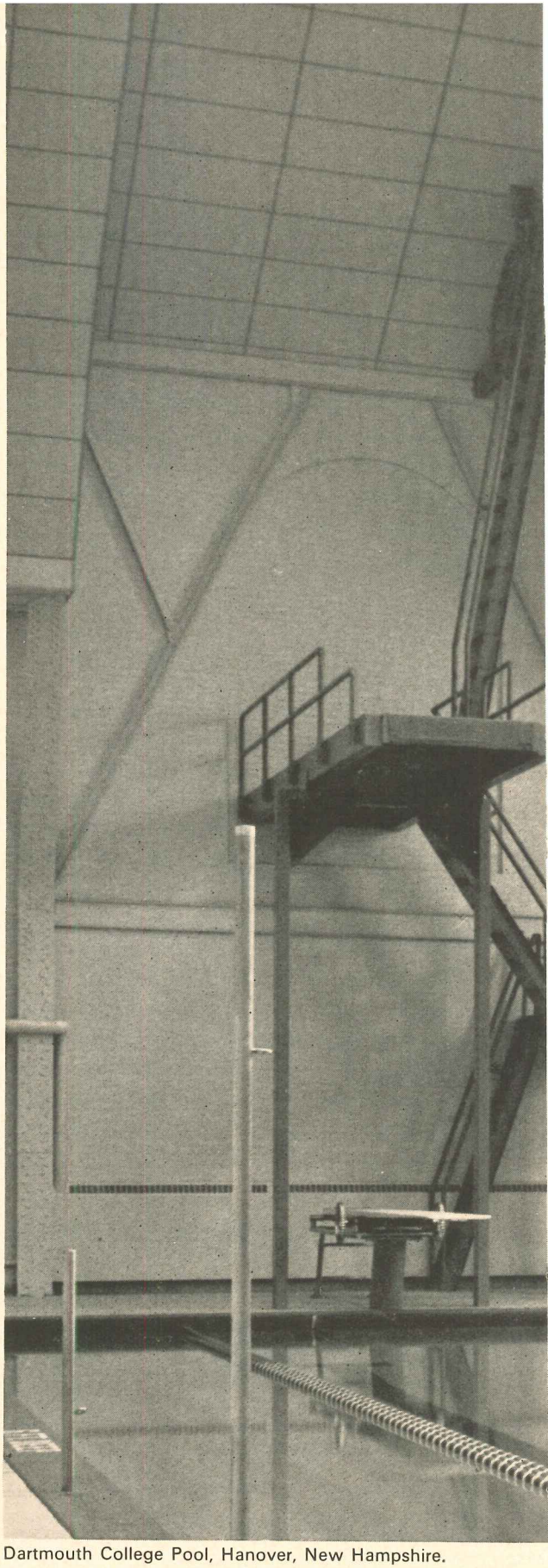
NO WARP

NO SAG

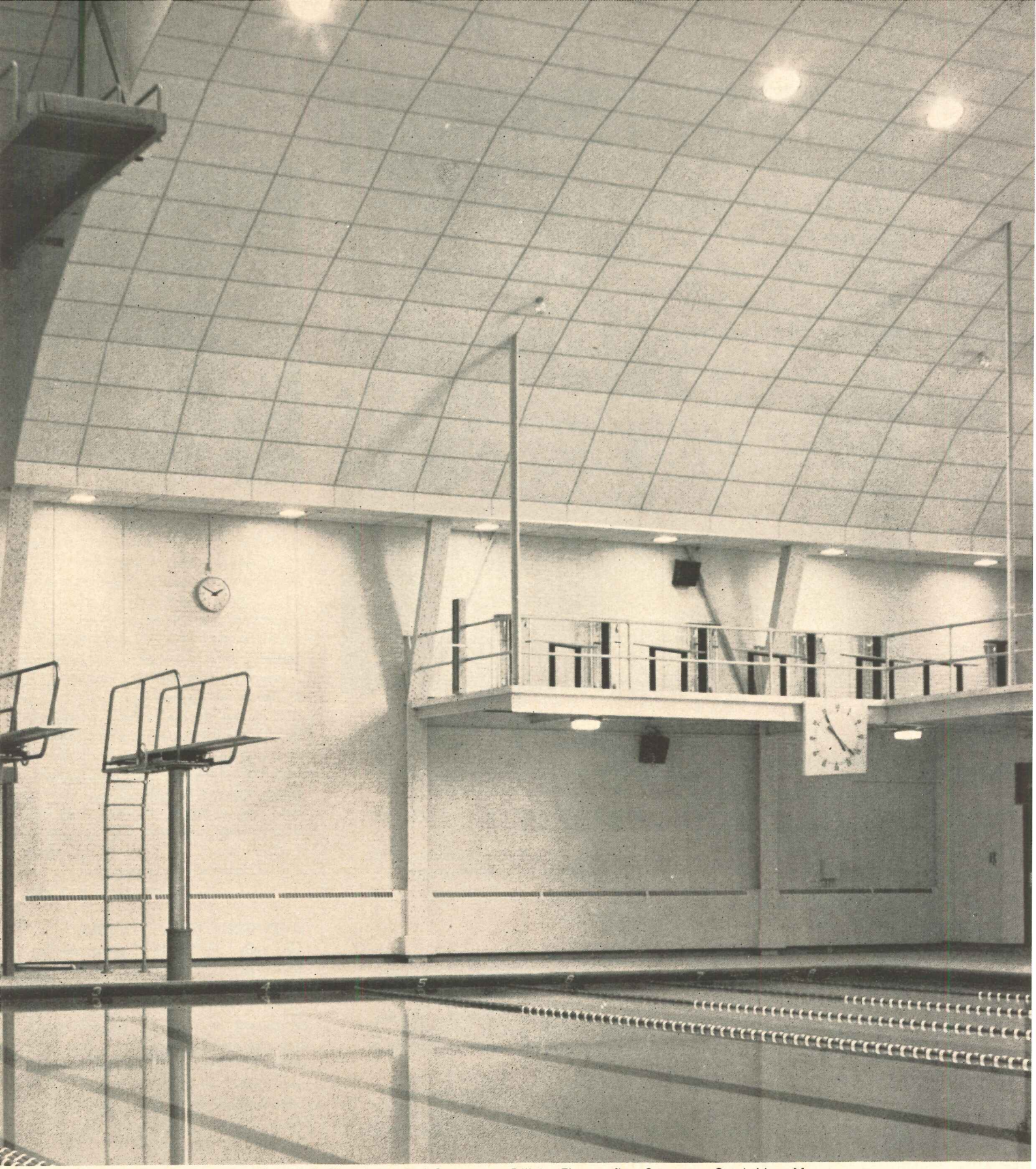
NO SHRINK



Dartmouth College Pool, Hanover, New Hampshire.

These perforated asbestos panels are permanized by autoclaving.

Will not warp or sag under high-humidity conditions. Shrinkage is held to less than 1/10 of 1%. A sound-absorptive membrane backing puts them in the .70-.80 NRC range. Sizes: 2'x 2' and 2'x 4' for grid application. Finished with a high-reflective (74%) washable white paint and the



Architects: Eggers and Higgins, New York City. Acoustical Contractor: Dillaby Fireproofing Company, Cambridge, Mass.

panels have a distinctive ripple texture. Thinking about a moisture problem? Think new with Gold Bond. Your Gold Bond® Representative has samples and information. Or write to Department AR-85, National Gypsum Company, Buffalo, New York 14225.

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HOLD EVERYTHING!

NEW **Hi-Lo**
X-panda®
*WARDROBE SHELF
& ROD
that locks in place!

FOR
DORMITORIES,
HOUSING PROJECTS,
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INSTITUTIONS

- **all steel bonderized finish in white or woodgrain alkyd baked-on enamel.**
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- **installs in minutes . . . two models fits closets from 36" to 60".**
- **theft-proof snap-in locking device . . . shelves can't be lifted out.**
- **no sawing . . . no fitting. . . no painting!**

New X-Panda Wardrobe Shelf & Rod adds to dorm closet capacity . . . convenience . . . order and appearance. Heavy-gauge steel construction means the Hi-Lo X-Panda Shelf can't warp or burn . . . retains its factory-finish beauty year after year of use and abuse . . . will support a minimum of 30 lbs. per lineal foot and is stronger than a custom-built wooden unit. No maintenance required . . . easy installation is an important economy factor. Guaranteed by Good Housekeeping.

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☐ VENT-A-SYSTEM attic ventilation
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Product Reports

continued from page 220

INSULATING LATH BOARD

Designed for the interior finishing of masonry and wood-frame constructed walls and ceilings with plaster, *Thermo-Lath* is a sandwich board of polystyrene foam and a paper board facing, which is said to offer a number of advantages over conventional lath boards. The combination of lightness and elimination of furring strips makes it easy to install. *Thermo-Lath* can be applied directly to walls or ceilings using either an adhesive-clip system or nailing technique. Plaster is then applied by conventional methods. Four-by-eight ft. sheets are available in standard thicknesses of ½ in. to 2 ins. *Monsanto Company, St. Louis, Mo.*

CIRCLE 315 ON INQUIRY CARD

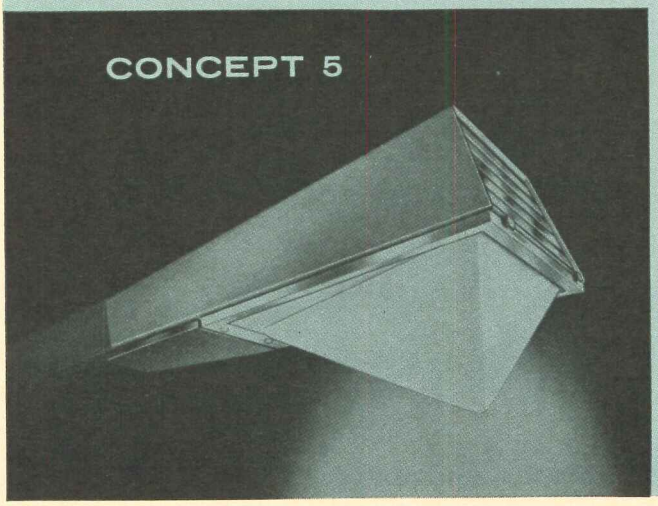
HYDRONIC GAS BOILERS

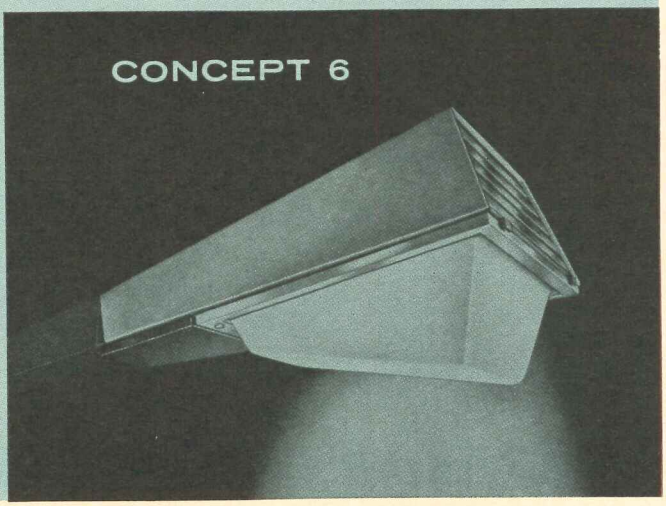
The new *Model 234* gas-fired hydronic boiler for all types of residential hot water heating systems is available in three different types for baseboard radiation, radiant panel and convection radiation. The new series consists of *Model 234-GW* for conversion of a gravity circulation system from coal- or oil-fired equipment; *Model 234-PW* for the most modern forced circulation hydronic heating system; and *Model 234-CW* which has a built-in, tankless water heater coil to provide ample capacity for normal residential uses. All models in the line have new, controlled flame steel burners for natural, mixed, manufactured or propane gas. *Bryant Manufacturing Company, Indianapolis, Ind.*

CIRCLE 316 ON INQUIRY CARD

Who said all outdoor lighting fixtures had to be drab and uninteresting?

These aren't.





If it's just another outdoor lighting fixture you're looking for, Concept Series is not for you. It takes a strong feeling for the dramatic and the aesthetically satisfying to attract you to these forward thinking fixtures.

Take the acrylic diffuser, for instance. In Concept 5, it has an unusual pointed shape. In the brand new Concept 6, it is trapezoid shaped. Or the aluminum housing available in eight decorator baked enamel colors, some of them, like Risque Red, pretty wild. Or the fact that the poles and accessories match the luminaire. And so on and so on.

But if you are open-minded on the entire subject of outdoor lighting . . . if you have a taste for the new and the different . . . if you must be shown to be convinced . . . then we'd like the opportunity to send you photometrics, photographs of installations, and a few more solid reasons why you should specify the Concept matched outdoor lighting system on that next job. Representatives in principal cities. Write for new Concept Series Bulletin.

REVERE

REVERE ELECTRIC MANUFACTURING CO.

7420 NORTH LEHIGH AVENUE • CHICAGO, ILLINOIS 60648

FORWARD THINKING IN OUTDOOR LIGHTING

For more data, circle 120 on Inquiry Card

Drenched, deluged and wind-whipped

...at hurricane force and still weather-tight!

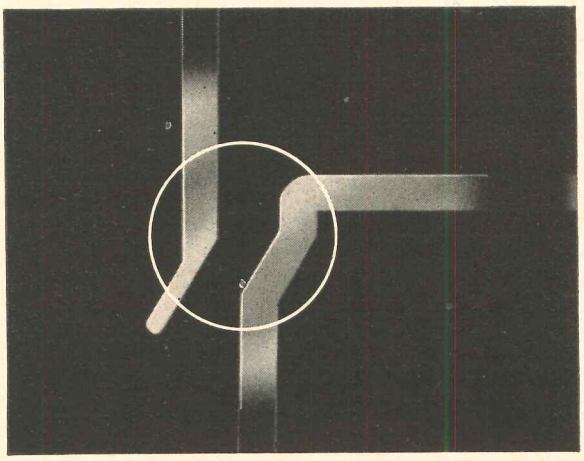
Independent Laboratory Tests Prove Kawneer Sealair Windows* Solve Weathering Problems!

The new Sealair window is weather-tight even when subjected to winds and rains of 70 to 80 miles per hour according to recent tests by an independent laboratory.

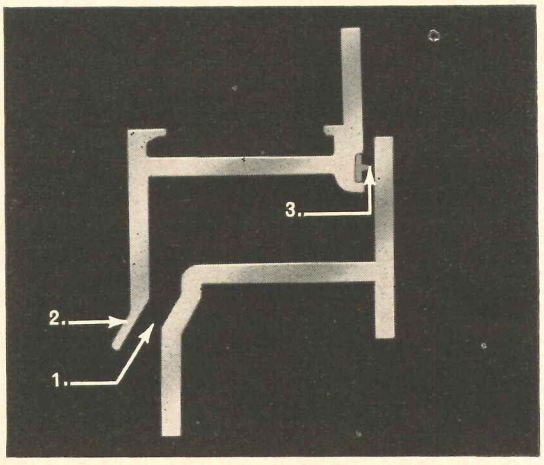
In these tests, the Sealair was installed in a weather test chamber. The window was water drenched as inside pressure was lowered to represent severe weather conditions. Sealair did not leak even when the static load reached 25 p.s.f. Many conventional windows leaked at 3 to 7 p.s.f. The superior weathering performance is the result of a Triple Weather Guard including an exclusive Pressure Equalization Slot. This Kawneer innovation is the most important metal window design change in recent years.

In air infiltration tests, the new Sealair was again far superior, at less than .2 c.f.m., well above industry standards. Here is a window so vastly superior that building interiors remain dust and draft free . . . reducing loads on heating and air conditioning systems. *Get all the facts about this remarkable window.* Write for your copy of the Sealair Window File.

Commercial and Monumental—Projected, casement and top hinged Sealair windows are available in commercial or monumental (2″) series. Finish: Alumilite is standard—or, non-fading, abrasive-resistant, Anodic hard colors (light bronze, medium bronze and black) are optional.



Pressure Equalization Slot—Keeps water out. Pressure within the window sections is equal to pressure outside the building. No pressure difference . . . no partial vacuum . . . no leakage.



Triple Weather Guard—1) Pressure equalization slot, 2) integral drip, and 3) neoprene weatherstrip. The Sealair window offers triple weather protection. Weathering where needed, scientifically designed.

Kawneer

Kawneer Company, Inc., a Subsidiary of American Metal Climax, Inc.

Niles, Michigan • Richmond, California • Atlanta, Georgia • Kawneer Company Canada, Ltd., Toronto, Ontario • Kawneer de Mexico, S.A. de C. V., Mexico City, Mexico • Kawneer Company (U. K.) Ltd., London • Kawneer GmbH, Rheydt, Germany • Showa Kawneer, Tokyo, Japan

*Patent Applied For

©1963 Kawneer Company

For more data, circle 121 on Inquiry Card

THE TROY® LAUNDRY PLANNING SERVICE

saves your time... your client's money

Hospitals, Motels, Nursing Homes and other institutions many times save 3c or more per pound per day with a TROY on-premise laundry.

You specify the space available and the number of beds involved. TROY will analyze the requirements...plan...and prepare floor plans and equipment specifications that will utilize space for maximum efficiency at minimum cost.

Remember too, with TROY, your clients are guaranteed installation supervision, system follow up and nationwide mechanical service for the life of the equipment. To use the TROY planning facilities, just write or see your local TROY representative today.

AMETEK®

TROY LAUNDRY MACHINERY

A DIVISION OF AMETEK, INC.
EAST MOLINE, ILLINOIS
IN CANADA: AMETEK (CANADA) LTD., MONTREAL 9, P. Q.

For more data, circle 122 on Inquiry Card

Office Literature

continued from page 188

METAL MESH AND GRATING

Stainless or carbon steel and aluminum gratings designed for residential, industrial and architectural applications are fully described in a new 26-page catalog. Four patterns of mesh are illustrated, and specifications for mesh and grating are included. *Alabama Metal Industries Corporation, Birmingham, Ala.*

CIRCLE 411 ON INQUIRY CARD

DESIGN KIT FOR EPOXY FLOORING

A seamless epoxy floor compound, said to be especially resistant to spike heel damage, is now available to the designer in kit form. The kit contains a dozen samples of colored polyester chips, ten base colors and transparent topping epoxies, and the necessary hardeners. The floor itself will duplicate the proportions of the sample selected by architect or designer. The Flex-Coat "design-a-floor" kits may be used without charge through any company representative. *Flex-Coat Corporation, Paramount, Cal.*

CIRCLE 412 ON INQUIRY CARD

EXPANSION AND SEISMIC JOINT COVERS

Two catalogs (AIA 4-E-9 and 11) are now available for this range of aluminum and bronze fittings. Included in the two-color brochures are drawings and dimensions of joint covers, expansion assemblies, floor angles, and frames for grates, trench, and manhole covers. Specifications and installation details are given. *Architectural Art Manufacturing, Inc., Wichita, Kan.*

CIRCLE 413 ON INQUIRY CARD

STEEL SHELVES FOR WALK-IN COOLING UNITS

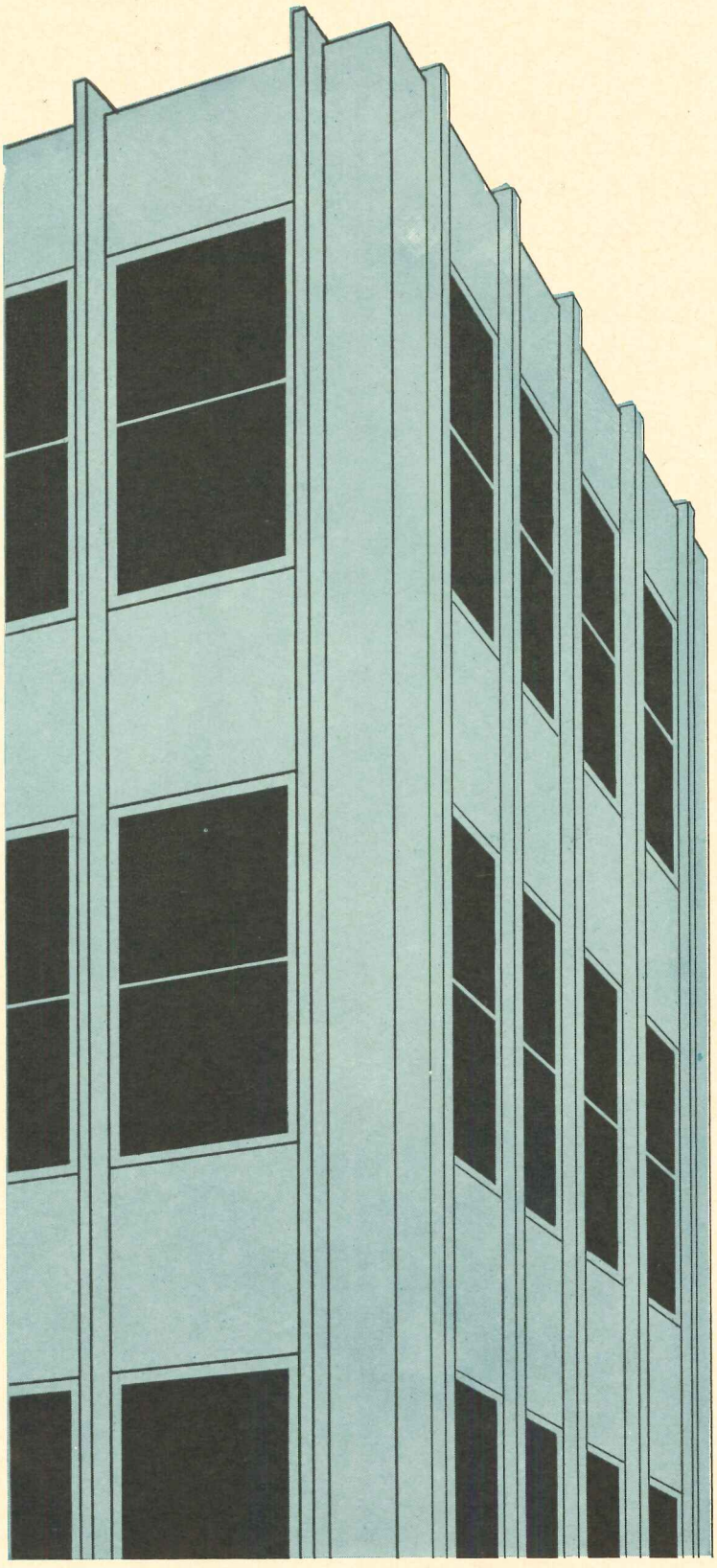
A four-page fact sheet, describes adjustable modular shelving for use in walk-in refrigerators. The folder suggests various shelf layouts for walk-in freezers and coolers. Specifications and dimensions for all units are given, and a price list for shelves and accessories is included. *Bally Case and Cooler, Inc. Bally, Penn.**

CIRCLE 414 ON INQUIRY CARD

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

more literature on page 232

Four sound reasons for specifying finishes of KYNAR* 500



1. Perfect color match: That's because finishes of Kynar 500 are liquid . . . can be roller coated on to flat metal stock and post formed . . . the same color finish can be sprayed on to metal parts. You can now color-match mullions, trim and curtain wall.

2. Long life: Tests by Pennsalt and leading paint manufacturers project 30 or more years of useful, maintenance-free life for finishes of Kynar 500 on architectural metals. This performance is comparable to that of porcelain enamel and high-performance anodized protection.

3. Complete range of colors: Paint manufacturers offering finishes of Kynar 500 have white and standard colors. Custom colors to fit your requirements can be formulated depending on the size of the job.

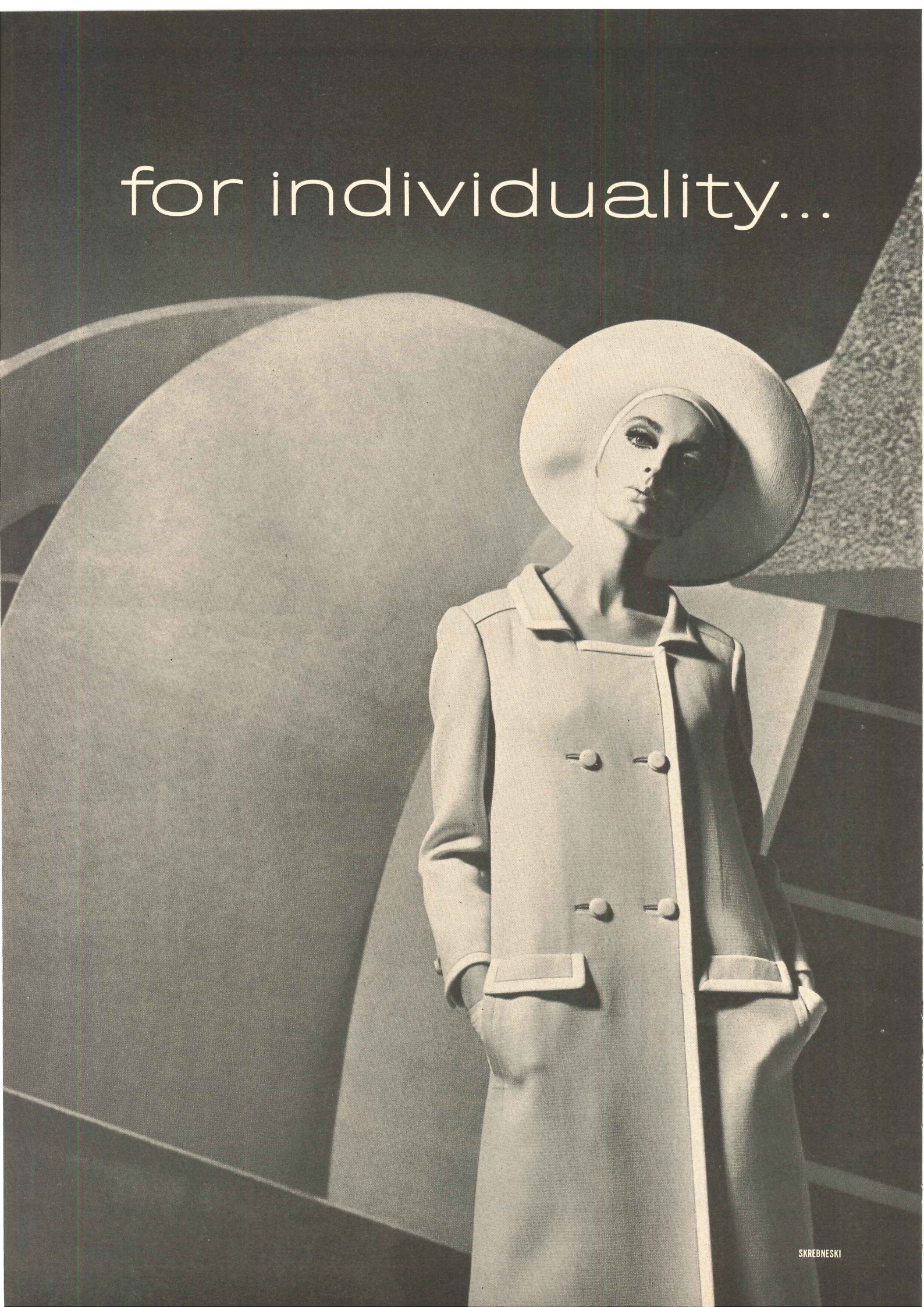
4. Lower cost: Finishes of Kynar 500 cost less per square foot than any other type of metal protection in the 30-year range. What's more, your clients save on cost of maintenance, refinishing.

Take full advantage of the long life and new flexibility in design provided by finishes of Kynar 500. Write today for details plus names of fabricators supplying building components protected by finishes of Kynar 500. Plastics Department, Pennsalt Chemicals Corporation, 3 Penn Center, Philadelphia, Pa. 19102.

*Kynar is a registered trademark of Pennsalt Chemicals Corporation. Kynar 500 is the fluorocarbon resin used by leading paint manufacturers in new long-life finishes.

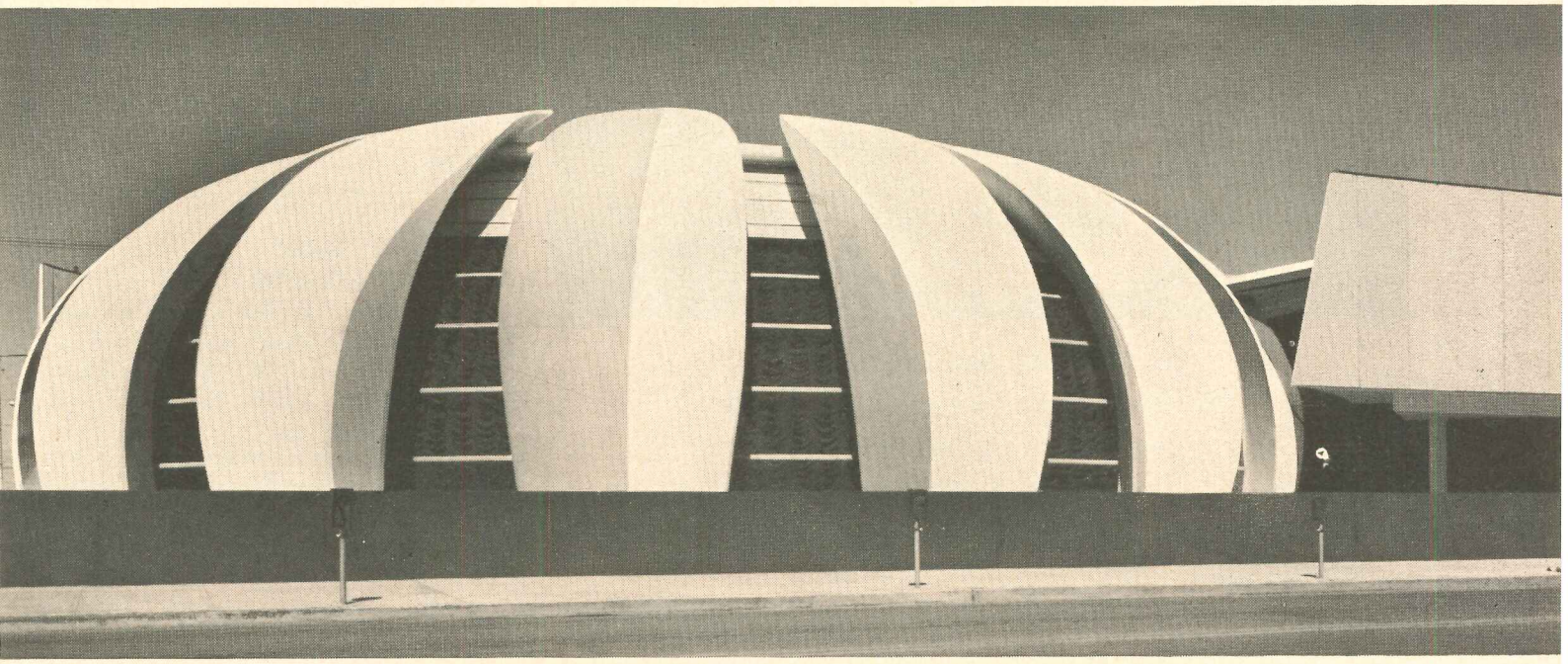
PENNSALT
CHEMICALS EQUIPMENT

For more data, circle 123 on Inquiry Card


for individuality...
SKREBNESKI

reinforced concrete is the architects' design material

■ The coming of age in architecture in America lets architects exercise with complete freedom their artistic talents for highly creative building design. ■ In this architectural evolution, reinforced concrete is the preferred construction material. It can be molded freely into any contour and shape, and eliminates the many design restrictions imposed by all other construction methods for the achievement of architectural individuality, elegance, and sculptured form. ■ In this unique structure, the architect utilized a monolithic reinforced concrete frame with the large sculptured concrete leaves cast as separate monolithic units on mounds of earth by the contractor. ■ Decide now to utilize the greater design opportunities of reinforced concrete in your next building.



Wyoming National Bank, Casper, Wyoming
Architect: Charles Deaton
Structural Engineers: Ketchum, Konkle, Ryan & Fleming
General Contractor: The B. H. Baker Company

CRSI
FOUNDED 1924

Our 40th Anniversary Year

4-65

CONCRETE REINFORCING STEEL INSTITUTE
228 North La Salle Street • Chicago, Illinois 60601

nobody but nobody designs disposers with as many woman-pleasing features —as In-Sink-Erator

In-Sink-Erator is engineered for satisfying maintenance-free service —with the quality features every woman wants!

Ask any woman with one in her kitchen what's so unique about In-Sink-Erator Model 77. Better yet, check its practicality, performance and extra-value features yourself.

This disposer grinds in both directions, doubles shredder life, thanks to patented Automatic Reversing Switch. The exclusive Self-Service Wrench clears accidental jams fast. Result: Fewer customer complaints and costly call-backs. Corrosion damage? Exclusive Detergent Shield protects against harmful caustic agents.

Also a full 5-year warranty—best in the industry—guarantees user satisfaction. And there are quality In-Sink-Erator models for homes and apartments in every price range. Write for full information and special "personal-use" disposer plan.

ISE® In•Sink•Erator®
Originator and perfecter of the garbage disposer

IN-SINK-ERATOR MANUFACTURING CO. • RACINE, WIS.

For more data, circle 124 on Inquiry Card

Office Literature

continued from page 228

HARDWARE FOR FOLDING OR SLIDING DOORS

This manufacturer of builders' hardware has available a new addition to its #95 catalog, a 20-page booklet (AIA 27B) describeing sets designed for folding and bypassing doors. Illustrated in two colors, the brochure gives specifications and installation details for 15 different sets. A price list will be included with the catalog. *McKinney Sales Company, Scranton, Pa.*

CIRCLE 415 ON INQUIRY CARD

HEAVY-DUTY FANS FOR INDUSTRY

In a new brochure from the Industrial Division, American-Standard describes its American Blower line of industrial fans. The 34-page book discusses facilities for the custom-design of special units, and pictures actual installations of gas recirculating, forced-draft, and supply and exhaust fans. Basic specifications of each type are included, and the brochure contains a list of sales offices. Bulletin 116-1-24, *American-Standard Industrial Division, Detroit, Mich.**

CIRCLE 416 ON INQUIRY CARD

ALL WEATHER GARDEN LIGHTS

Four series of copper-bronze lighting fixtures for outdoor use are shown in this four-color, eight-page booklet. Pictured are pathway, spread and up-lights, and a unit designed to be hung from a tree. Dimensions, finish characteristics and installation information are included for the "Emerald" fixtures. *Shalda Lighting Products Co., Burbank, Cal.*

CIRCLE 417 ON INQUIRY CARD

LAVATORY FITTINGS FOR INSTITUTIONS

Heavy-duty lavatory fittings and sink faucets, designed for use in hospitals, schools and other institutions, are illustrated in a two-color folder. Eleven models are shown, and complete specifications are included for the company's fixtures in this range. *T & S Brass and Bronze Works, Inc., Westbury, L.I., N.Y.*

CIRCLE 418 ON INQUIRY CARD

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

if...

you specify any metal products such as building panels, windows and doors, siding, gutters and downspouts, office and toilet partitions, lighting fixtures, laboratory furniture, air conditioning, commercial refrigerators,

be sure they're finished with PPG DURACRON®

Duracron, the first and foremost thermo-setting acrylic enamel, has set new high performance standards for product finishes because it combines in a single coating the most outstanding properties of all known organic films. Phone or write for information today.

When you start with metal . . . finish with Duracron!

PPG® PITTSBURGH® INDUSTRIAL FINISHES

1 Gateway Center, Pittsburgh, Pa. • Phone: 412-281-5100

Pittsburgh Plate Glass Company • In Canada: Canadian Pittsburgh Industries Limited

For more data, circle 125 on Inquiry Card

Here's the proof in waterproof FOAMGLAS®

The only roof insulation whose claim really holds water

We actually carved this birdbath out of FOAMGLAS Insulation, and we did it to prove a point. FOAMGLAS is absolutely waterproof. It will never absorb one ounce of water. The permeability (moisture absorption) is zero. No other roof insulation can make this claim.

We guarantee FOAMGLAS for 20 years. Once it's down on your client's roof, he is protected against insulation failure. FOAMGLAS stays dry and always keeps its original insulating efficiency.

All the others will absorb moisture if the roof leaks or if vapor migrates from within the building. That can mean expensive repairs or replacements.

New bevel-edged FOAMGLAS-BOARD prevents pressure build-up from moisture trapped between the insulation and the deck.

Investigate the only waterproof roof insulation . . . available in 2′ x 4′ bevel edge FOAMGLAS-BOARD in thicknesses of 1½″, 1¾″ and 2″.

FOAMGLAS® cellular glass insulation is manufactured and sold in Western Europe by Pittsburgh Corning de Belgique, S.A., Brussels.

PITTSBURGH® CORNING

For more data, circle 126 on Inquiry Card

PITTSBURGH CORNING CORPORATION, DEPT. AR-85
ONE GATEWAY CENTER, PITTSBURGH, PENNA. 15222

Gentlemen: I'm interested in the FOAMGLAS waterproof story. Please ☐ send free sample of FOAMGLAS BOARD; ☐ send copy of sample guarantee; ☐ send literature; ☐ have your representative call.

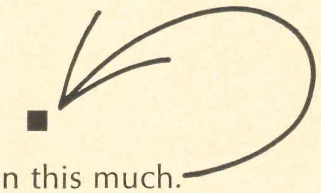
NAME _____ TITLE _____

FIRM _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

How much space should a laundry take up in your hospital?



Not a jot. Not a whit. Not a speck. Not a smithereen. Not even the shadow of a shade. Not any. None. Zero.

Laundry? Who *needs* it? What hospitals need is bed space, operating rooms, prep rooms, office space, storage space. What they don't need is a space-consuming laundry facility with its huge investment, equipment, personnel problems and operation and maintenance expenses. Brrrrr; even a smidgeon of a laundry in your plans is far too much.

Your local linen supplier has a laundry. A huge, modern, efficient laundry. *He* needs one. He'll supply clean linens, towels and uniforms galore, when they're needed. For one low monthly charge, based on actual linens used (less than it would cost from your own laundry).

Give him a call. He's in the yellow pages under "Linen Supply" or "Towel Supply." He's an expert on the subject.

FREE DESIGN GUIDES!
They give case histories and suggestions for providing more efficient linen supply service in hospitals, motels, hotels, schools and restaurants, as well as for commercial firms, professional offices and various institutions. Write today.

LINEN SUPPLY ASSOCIATION OF AMERICA
975 Arthur Godfrey Road, Miami Beach, Florida 33140

For more data, circle 127 on Inquiry Card

Office Notes

Offices Opened

Giffels & Rossetti, Inc., of Detroit, has formed an Australian affiliate through an association with **Buchan, Laird & Buchan**, a counterpart firm with offices in Melbourne and Sydney.

Albert Goldberg and Associates, Inc., structural engineers in Boston, have opened a branch office at 531 Front St., Manchester, N.H.

The Syosset, N.Y., consulting engineering firm of **Lockwood, Kessler & Bartlett, Inc.** announce the opening of an office on Kendall Square in Boston.

William Wilde, Tucson, Ariz., has opened a branch office for the practice of architecture, space planning and industrial design, Arizona Title Building, First Ave. & Monroe, Phoenix, Ariz. 85003.

New Firms, Firm Changes

Gridley Barrows has become a senior associate in the firm of **Alonzo J. Harriman Associates, Inc.**, architects and engineers, Auburn, Me.

Istvan Botond, A.I.A., has opened an office for the practice of architecture and urban design at 2152 Wyoming Ave., N.W., Washington, D.C. 2008.

S. W. Brown & Associates, consulting engineers in New York City, have succeeded to the practice of **Brown & Pomerantz.**

Robert J. Drayton, architect, has opened an architectural office at 101 N. Main St., Crystal Lake, Ill.

Morris Ketchum, Jr. and Associates, New York City, has named **John D. Evans**, A.I.A., an associate of the firm.

The firm of **Ranger Farrell and Associates**, acoustical consultants, has been formed with offices at 150 Riverview Ave., Tarrytown, N.Y.

Albert H. Fiedler, A.I.A., has joined the staff of **Giffels & Rossetti, Inc.**, architects and engineers of Detroit, as architectural consultant—medical facilities.

The **Office of Max O. Urbahn**, architects in New York City, has announced that **Joseph Fuller**, A.I.A., has entered the firm as an associate.

The new firm of **Win Hoffman, Architect and Associate** has opened offices at 80 Fifth Ave., New York City 10011.

Karl Kaufman, A.I.A., has been

continued on page 240

For more data, circle 128 on Inquiry Card

5200

HOMES DEPEND ON TURNBULL

At Concourse Village in the Bronx, Turnbull elevators will provide "street-level" convenience for the 5200 apartments in the six 25-story units of the village. 18 high-speed gearless passenger elevators give individual, no-waiting passenger service to all floors.

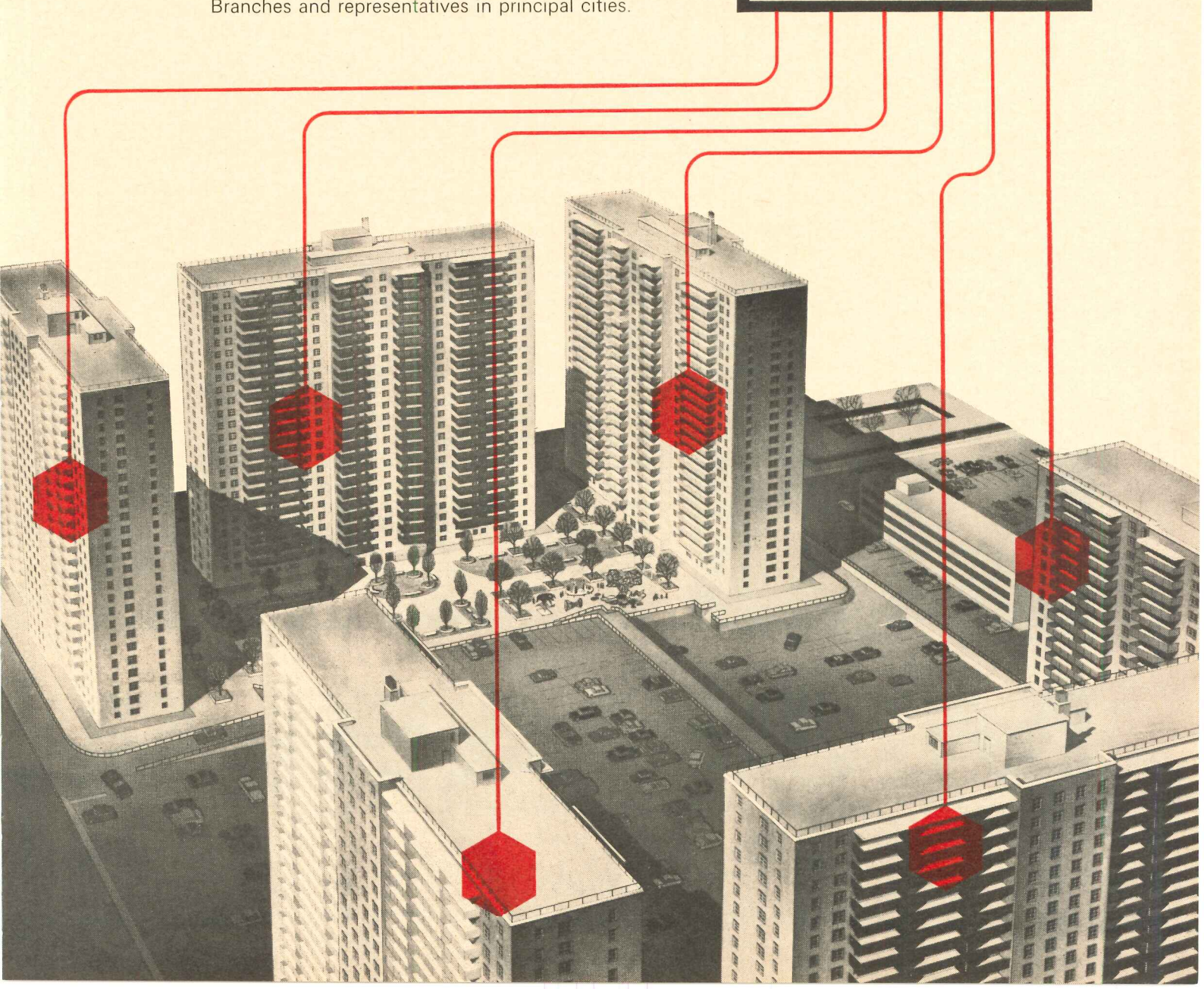
For high rise apartment comfort, or efficient skyscraper office service, Turnbull engineering meets any passenger traffic requirement.

Concourse Village—Architect: Harry Prince, General Contractor: Cauldwell-Wingate.

TURNBULL ELEVATOR

United States: Head Office: New York City
Canada: Head Office: Toronto
Branches and representatives in principal cities.

In New York's newest apartment community



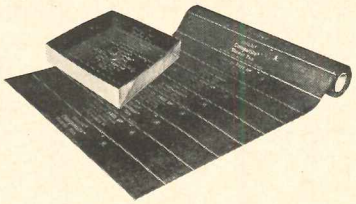
IMPORTANT NEW TREND

The "Tree House," Waikiki area Honolulu features showers with Compotite

The exclusive use of showers is a feature of the "Tree House," (named after its exposed tree columns and joists), providing ceramic tile shower baths throughout, for all sleeping areas...note the absence of conventional tubs.

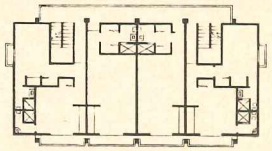
Underneath all of these showers, is Compotite, providing the essential, dependable underlying waterproofing with the advantages of lower cost and ease of installation.

Follow the new trend — all full tiled showers with Compotite pans.



A waterproof, corrosion proof, asphaltic membrane

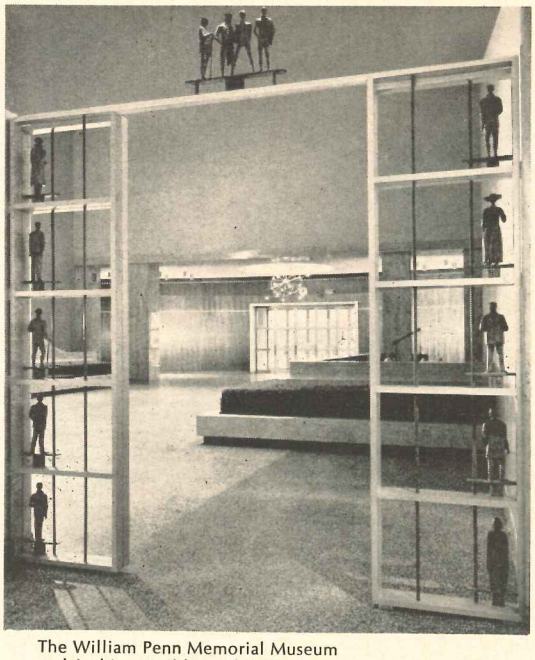
Architects: Morse & Tatom



Compotite
Shower Pan

P.O. Box 26188, Los Angeles, Calif. 90026
Phone: 483-4444
Warehouse Mail Address:
P.O. Box 26, Rouse Sta., Covington, Ky. 41011

For more data, circle 129 on Inquiry Card



The William Penn Memorial Museum and Archives Building, Philadelphia, Pa.
Architect: Laurie and Green, Harrisburg, Pa.

ORNAMENTAL GATES

Four sets of unusual gates like these frame the entrances to the Shrine Room of the William Penn Memorial Museum in Harrisburg—another new building featuring custom-matched architectural metalwork by Michaels throughout. The gates are constructed of extruded aluminum, satin anodized. The figurines, fastened to the gates, are cast bronze. They were designed and sculptured by Charles Rudy, depicting historical Pennsylvania personages. The Michaels custom aluminum and bronze fabrications include extensive curved curtain walls, lines of heavy-duty doors in aluminum-framed glass walls and partitions, fascias, grilles, convectors, numerous ornamental castings, and even the bronze Shrine Room exhibit cases. Michaels' broad experience and skills in custom bronze, aluminum, and stainless steel work assure you of impeccable results on any one special feature or a single-responsibility source for your entire building. Write for details and a discussion of your needs.

M
A B C

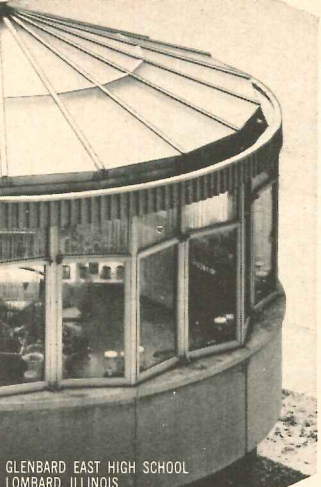
THE MICHAELS ART BRONZE CO.

MICHAELS

Mailing Address: P. O. Box 668, Covington, Ky. • Plant & Office: Kenton Lands Road, Erlanger, Ky.

For more data, circle 130 on Inquiry Card

For more data, circle 131 on Inquiry Card ➔



GLENBARD EAST HIGH SCHOOL
LOMBARD, ILLINOIS
ARCHITECT: NICOL & NICOL

HOUSE OF GOOD TASTE
NEW YORK WORLD'S FAIR
ARCHITECT: EDWARD DURRELL STONE

AMERICAN FEDERAL SAVINGS & LOAN
ORLANDO, FLORIDA
ARCHITECT: ROBERT B. MURPHY

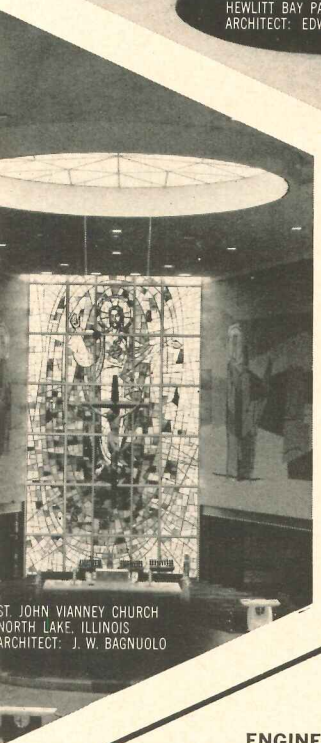
GORDON RESIDENCE
HEWLITT BAY PARK, NEW YORK
ARCHITECT: EDWARD DURRELL STONE

DAHLRYMPLE RESIDENCE
MINNEAPOLIS, MINNESOTA
ARCHITECT: BLISS & CAMPBELL

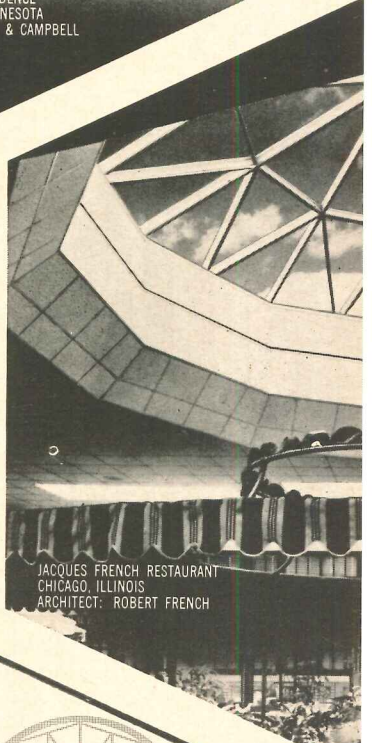
New Dimensions in Natural Illumination

Standard Domes by SUPER SKY

Let Super Sky help you create an imaginative architectural mood that weds natural illumination with spacial beauty. These extruded-aluminum-and-glass *standard* domes provide all the qualities of *custom designed* units. Super Sky has developed standard domes in two basic patterns. These self-supporting skylights are available in 12 to 30-ft. diameters, with a variety of glazing materials. Through standardization of fabrication and erection of these unique domes, Super Sky helps you achieve a fresh dimension in visual environment — at a practical cost. We will gladly provide you with detailed drawings, engineering data, estimates and design assistance.



ST. JOHN VIANNEY CHURCH
NORTH LAKE, ILLINOIS
ARCHITECT: J. W. BAGNUOLO



JACQUES FRENCH RESTAURANT
CHICAGO, ILLINOIS
ARCHITECT: ROBERT FRENCH

ENGINEERING DATA

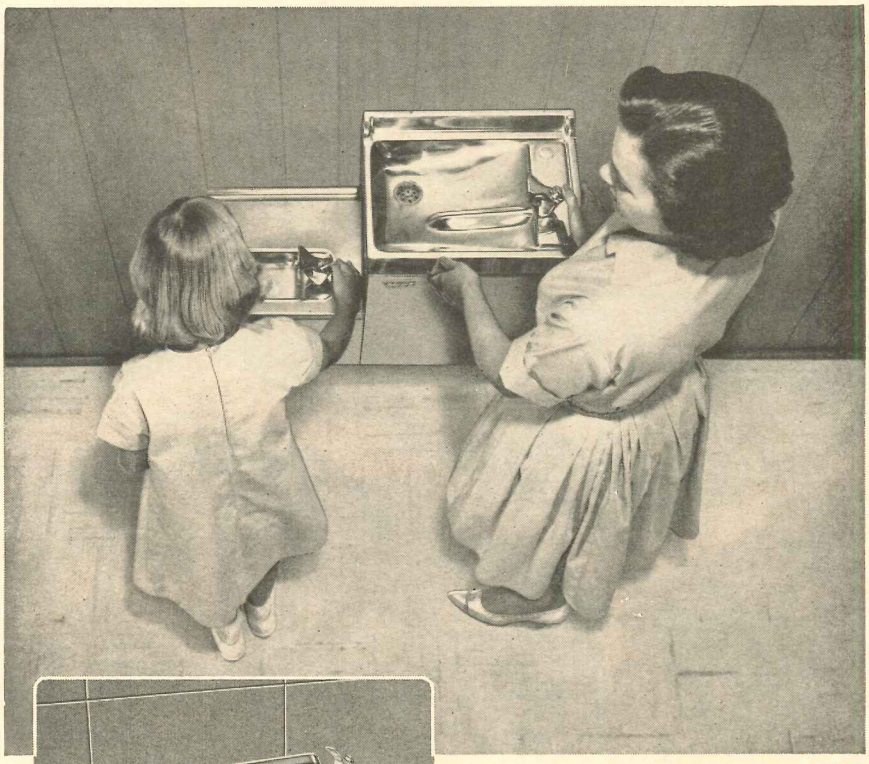
- Installations shown: standard dome models.
- Rafters, curbs and cross bars of extruded aluminum.
- Continuous neoprene glazing strips for weather proofing.
- Subceilings available as optional.
- Stainless steel hardware.

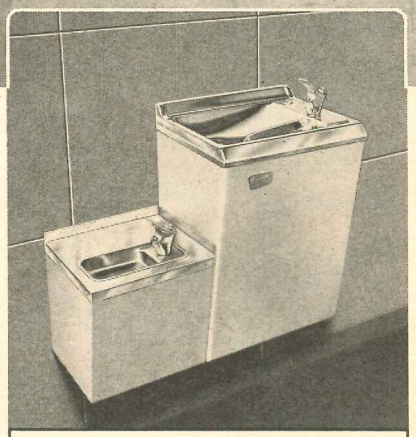
l Super Skylights guaranteed against defects in design, materials, con-ruction — and leakage! FREE illustrated bulletin — "A New Concept In mensions Unlimited" at your request. Write:

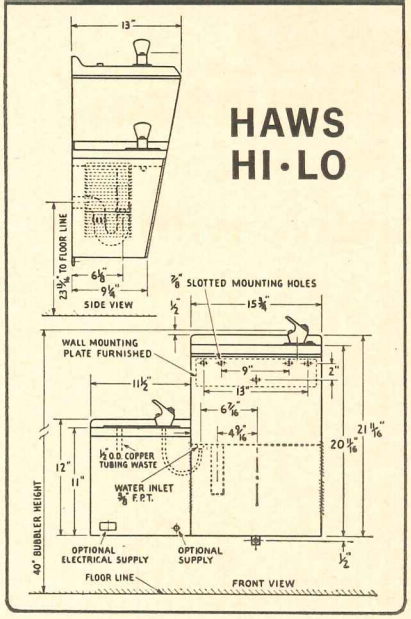
SUPER SKY PRODUCTS, INC.
Box 47-K, Thiensville, Wisconsin 53092
Phone: 242-2000
Milwaukee Phone: 354-6700

SUPER Sky PRODUCTS INC.

Since 1930







Utmost satisfaction to little thirsts and big thirsts...

Maybe you wouldn't mind being picked up around your middle because you decided you wanted a drink of water. Maybe, even if you were struggling with a lot of packages, you wouldn't mind picking up someone around his or her middle because he or she decided he or she wanted a drink. But maybe you would.

Haws Hi·Lo series off-the-floor water coolers feature the unique convenience of an additional low-level bubbler at the proper height for children . . . and are ideal for stores, supermarkets, schools and public buildings of all types. Write for detailed specifications.

Since 1909 HAWS

HAWS DRINKING FAUCET COMPANY
Fourth and Page Sts., Berkeley, California 94710

manufacturers of wall and pedestal drinking fountains • electric water coolers
emergency eye-wash and shower units • laboratory fixtures • Haws flush valves

For more data, circle 132 on Inquiry Card

Office Notes

continued from page 236

admitted as a partner in the New York City and Washington, D.C. firm of **Leo Kornblath Associates,** architecture, planning, interiors.

McKee-Berger-Mansueto, Inc., New York City-based construction consultants, announces that **Norman Kruchkow** has joined the staff as manager of the construction materials and specifications section.

Bruce McCarty, A.I.A., and **Robert Holsaple,** A.I.A., have formed a firm to be known as **Bruce McCarty & Associates, Architects,** 4711 Old Kingston Pike, Knoxville, Tenn.

Eggers and Higgins, Architects, New York City, has appointed four new associates: **Frank W. Munzer, Robert H. Welz, Joseph A. Capano** and **Peter G. Moore.**

Sam Reisbord and **Jerrold M. Caris** announce a partnership for the practice of architecture with offices at 1551 S. Robertson Blvd., Los Angeles.

Paul Rogers & Associates, consulting structural engineers with headquarters in Chicago, announce the election of new officers and associates: **Paul Rogers,** P.E., president; **Eli W. Cohen,** P.E., vice president and chief engineer; **Renato G. Barreto,** P.E., vice president and assistant chief engineer; **A. Marchertas,** associate and project engineer, **E. Gornikiewicz,** associate and project engineer; **Robert Steiner,** associate and project engineer.

Augie W. Saxe has been made a general partner in the firm to be known as **Jenkins, Hoff, Oberg, Saxe, Architects,** Houston.

Smith, Hinchman and Grylls Associates, Inc., Detroit architectural, engineering and planning firm, has named **John V. Sheoris,** A.I.A., design director for medical facilities.

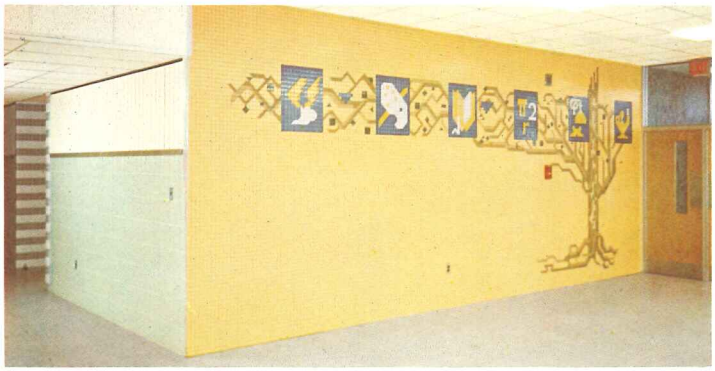
Marshall & Merrett have extended partnership to **Nicholas E. Stahl,** M.R.A.I.C., **Neil J. Elliott,** M.R.A.I.C., and **Thomas F. Mill,** M.R.A.I.C. The Montreal firm will be known as **Marshall & Merrett; Stahl, Elliott & Mill.**

New Addresses

Victor A. Lundy, architect, 22 E. 67th St., New York City 10021.

Ritchie Associates, Inc. and **Donald Ritchie,** architect, 1300 Boylston St., Chestnut Hill, Mass.

For more data, circle 133 on Inquiry Card →



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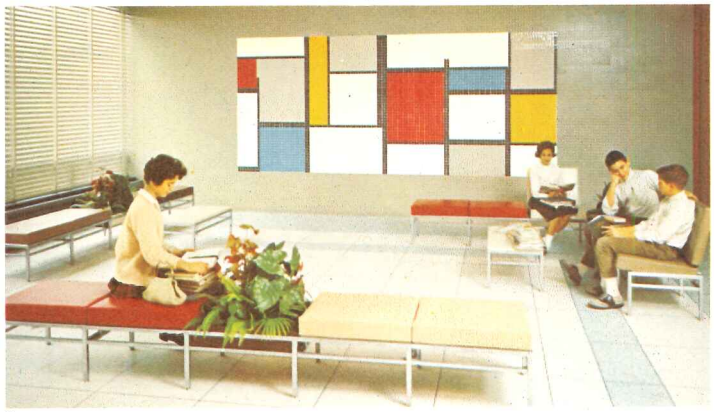
CERAMIC TILE
American Olean

5



6

Entrance Areas...made distinctive with tile

1. Entrance Area, upper left, Pennfield Jr. High School, Hatfield, Pa. Feature wall: 1⅜" Tile Gems® with mural in assorted glazed colors. Architect: Howell Lewis Shay & Assoc. Tile Contr.: E. Roman & Son. Plate 537.

2. Apartment lobby, left center, of Troy Towers, Bloomfield, N.J. This distinguished mural is 1" x 1" ceramic mosaics. Architect: Gerber & Pancani. Tile Contr.: Bloomfield Tile & Terrazzo Co. Plate 518.

3. Freedoms Foundation, lower left, at Valley Forge, Pa. Floor is subtly shaded Murray Ember Flash quarry tile. Architect: Howell Lewis Shay & Assoc. Tile Contr.: Italian Marble Mosaic Co. Plate 516.

4. Entrance lobby, upper right, of Dulaney High School, Towson, Md., has colorful abstract ceramic mosaic design. Architect: Henry Powell Hopkins & Assoc. Tile Contr.: Atlas Tile & Terrazzo, Inc. Plate 539.

5. Entrance, in E. B. Erwin High School, Birmingham, Ala. Color and design interest is given to walls by using contrasting stripes of tile against a background of scored tile SD-5 in 370 Cr. Mocha. Architect: Davis, Speake & Thrasher. Tile Contr.: Wilson & Daniels Tile Co., Inc. Plate 536.

6. Lobby, lower right, James M. Bennett Jr. High School, Salisbury, Md. Mondrian-type mural is 1⅜" Tile Gems. Architect: Booth & Somers. Tile Contr.: The Ba-Mor Co. Inc. Plate 512.

Write for new color booklet 1100, "Ceramic Tile in Architectural Design."

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A Subsidiary of National Gypsum Company

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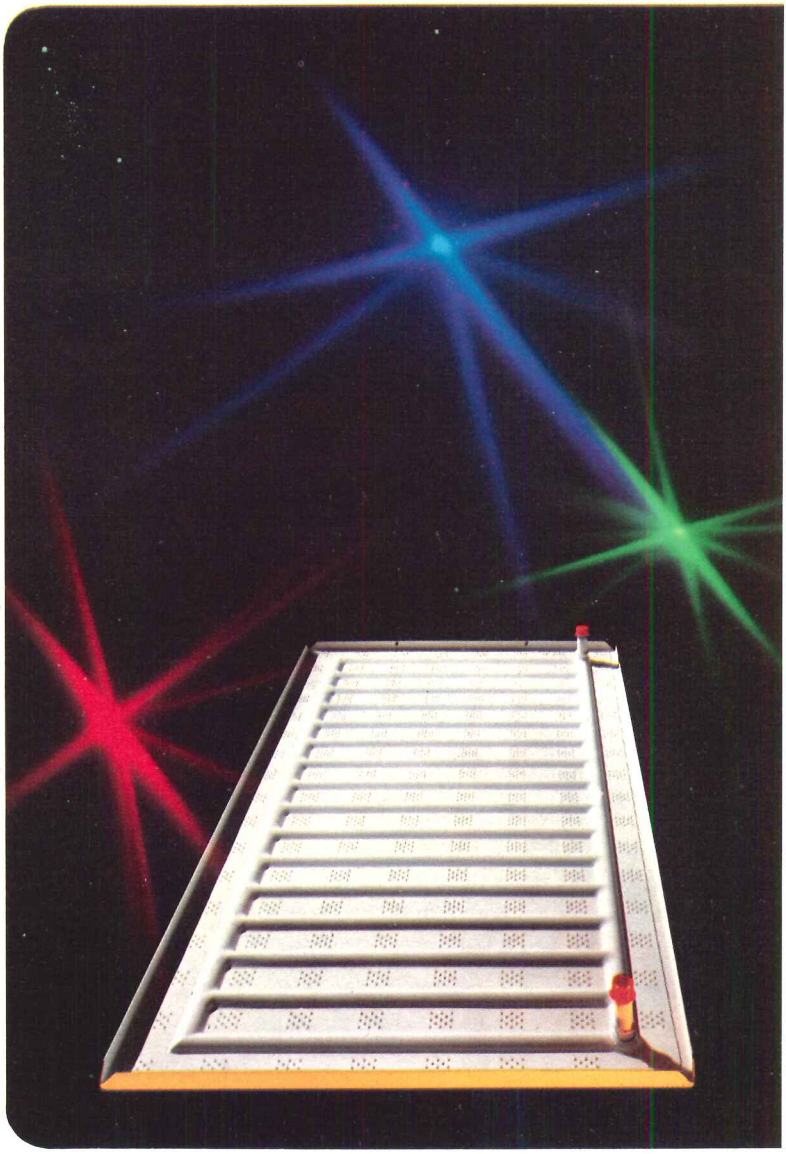
Inland Hi-Performance Radiant Ceilings



Heating and cooling now built in!

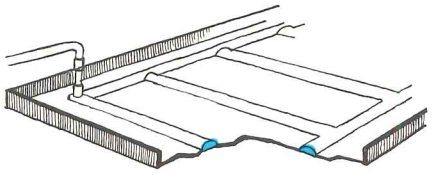
Here, without question, is the most efficient radiant heating and cooling ceiling panel ever designed. The new Inland IRC/HP Hi-Performance Panel cuts conductivity losses to a fraction by eliminating separate pipes, panels and connecting methods. The one-piece IRC/HP contains its own integral water channels.

Because the water which heats or cools the panel is in *direct contact* with the exposed radiant surface, the IRC/HP approaches the theoretically perfect panel in performance. Only a *single* thickness of metal is involved.

This high performance means better comfort control, even in problem areas with large expanses of exterior glass. Intricate zoning of air is virtually eliminated. Savings on mechanical equipment and in erection time are significant.

The exposed surface of an IRC/HP panel presents a sculptured profile which minimizes the pattern of acoustical perforations. Panels are finished in low-gloss white baked enamel.

IRC/HP is one of three types of Inland radiant-ceiling panels. All are described in Catalog 251. Write today for your copy to Inland Steel Products Company, 4400 W. Burnham Street, Milwaukee, Wisconsin 53201.



Cross-section of Inland IRC/HP panel shows two layers of heavy-gauge steel brazed together to form water channels across the top surface. 2′ x 4′ modules fit standard lay-in ceiling grids, simplifying integration with lighting panels and partition systems. Self-contained water channels free designer to create imaginative ceiling effects without expensive plumbing installations.

Inland Steel Products

INLAND

EP-47

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These famous buildings are as modern as they come. Designed with an eye on tomorrow, they all have one thing in common. Drain-waste-vent-sewer systems of Cast Iron Soil Pipe—the century-old favorite.

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Los Angeles Music Center—Los Angeles—
Architect: Welton Becket & Associates
Mechanical Contractor: State Heating & Plumbing Co
Pan Am Building—New York—
Architects: Lloyd & Morgan
Wilson, Morris, Crain & Anderson
Mechanical Contractor: Sam P. Wallace Co., Inc.
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The excitement of brilliant or subdued stained glass effects are now economically attainable with Flair patterned PLEXIGLAS® acrylic plastic. Used in the room dividers and sliding cabinet doors shown below, Flair sheets are beautifully textured and available in 17 rich colors and colorless.

Because Flair is PLEXIGLAS, it is impact resistant, light in weight and easy to cut and install. A slow burning plastic, its use is generally subject to the same regulations as untreated wood. Write for names and addresses of local suppliers, color samples and a descriptive brochure.

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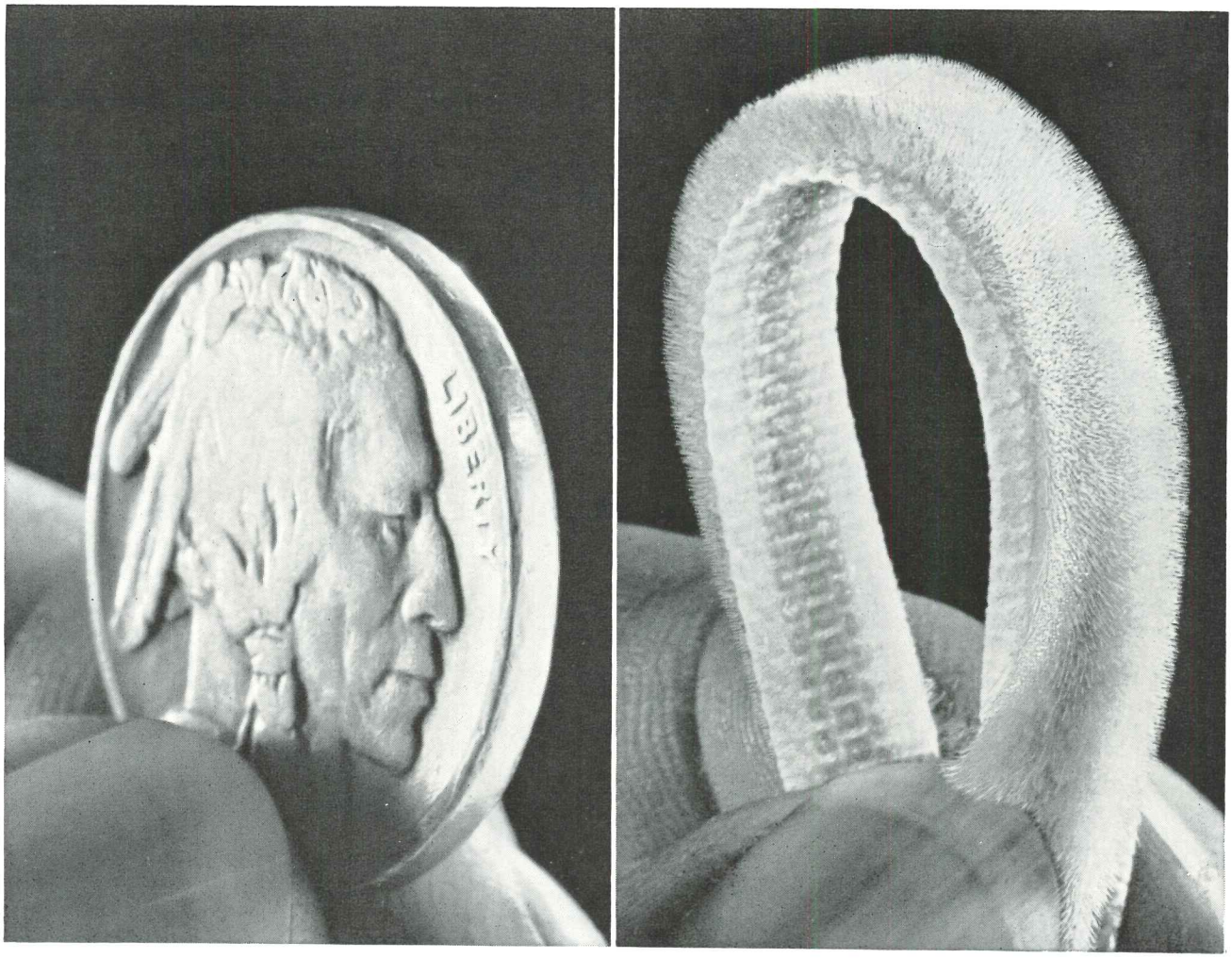
In weatherstripping a nickel still buys a lot



For about a nickel more per door or window, you can give your customers Poly-Pile.* And look what this means to them (and you) . . . *No sticking in hot weather.* Poly-Pile has a low coefficient of friction. No plasticizers to migrate. *No deformation in cold weather.* Poly-Pile doesn't take a set when cold. Stays soft and flexible. *No deterioration from use.* Tests show it outwears conventional weatherstrips 5 to 1. *No gaps, no cracks, no rattles, no leakage.* Poly-Pile has a thick pile that conforms to every surface, follows every irregularity, presents millions of polypropylene fibers as a thick barrier to infiltration of cold, dirt, water. Substantial heat savings are assured, about 9.5%. *No water absorption, no mildewing, no rotting.* Poly-Pile is silicone treated so moisture can't affect it. These are the things your customers expect when you tell them doors and windows have been weatherstripped. Why not avoid complaints? Invest a nickel more and give them the added values of Poly-Pile, by Schlegel.

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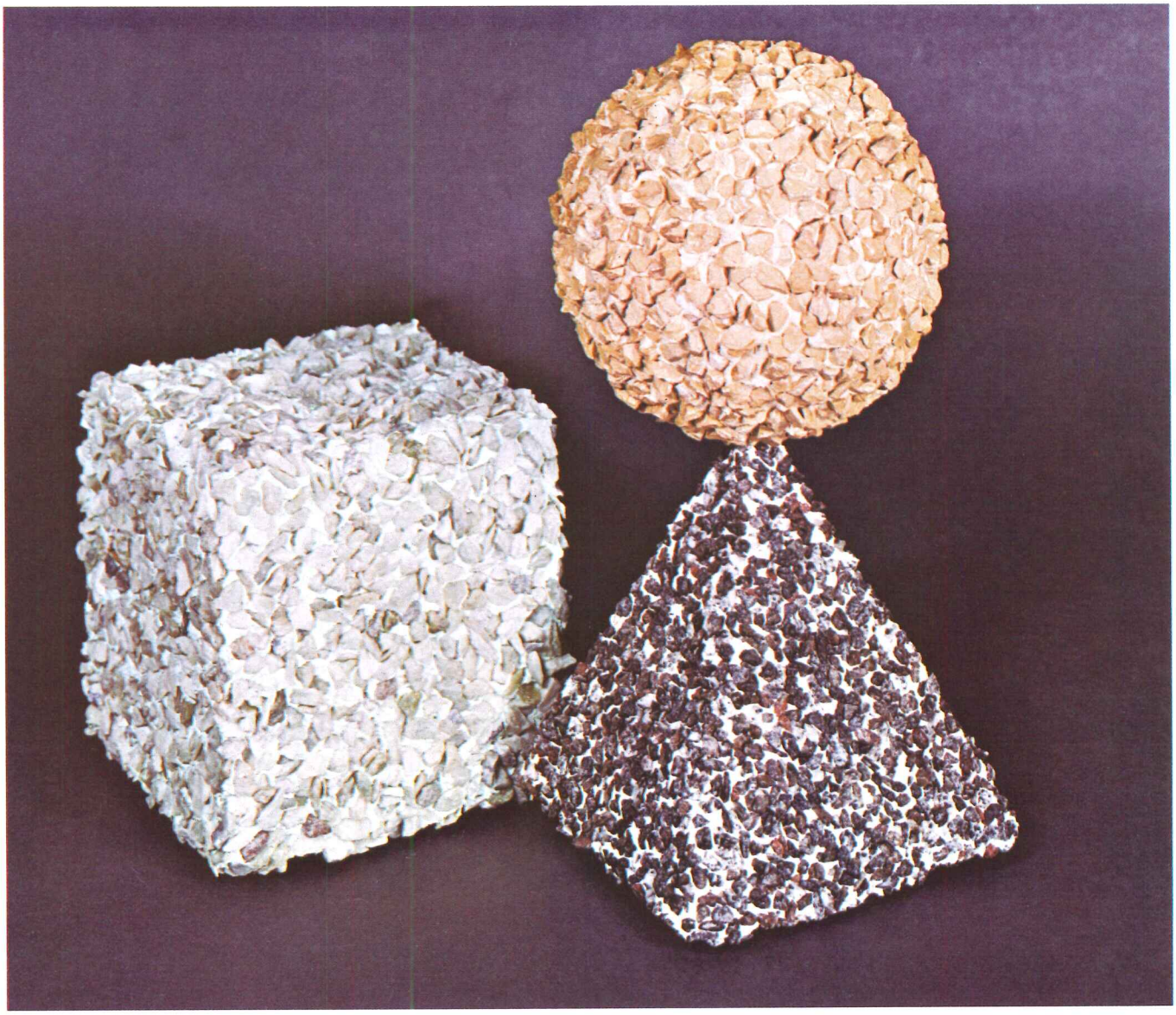

FOR A NEW DIMENSION IN ARCHITECTURAL DESIGN

Tuff-Lite Wall Matrix for exposed aggregate wall construction

Tuff-Lite epoxy-based Mosaic Wall Matrix from Fuller is the key to a totally new construction technique. A ⅜″ layer replaces heavy concrete as a base for exposed aggregate. Use on interiors, exteriors, over concrete block, around corners, columns, in new construction or remodeling.

A totally new concept in the construction of lightweight, exposed aggregate walls, Tuff-Lite can be troweled on at the job site. Adheres securely to concrete, brick, wood or any dry, clean substrate.

Or it can be applied off-the-job to plywood, foam or other material for pre-formed, lightweight, easily handled panels. Tuff-Lite is 8 times lighter than concrete . . . 5 times stronger. Building designs need no special load-bearing properties.

Tuff-Lite is available in any color. Permits you to blend or contrast with the aggregate used or with other construction materials . . . or to create multiple color designs. It retains its color. Is self-cleaning. Will not pit, spall or peel. Will not shrink, chip, crack or craze.

Once troweled on, Tuff-Lite can be seeded with aggregate immediately. Because of its superior bonding power, it gives greater exposure to aggregate – chips or stone. Cures in less than 24 hours after seeding of aggregate.

Tuff-Lite Wall Matrix conforms to columns, curves and other irregular shapes. As in the case of this building, it is applied at the job site . . . on almost any interior wall . . . permits maximum creativity in developing new decorative applications for full walls or for special areas.

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More specifically, magnesium oxychloride cement made with FMC OXYMAG. It's the only oxy cement that consistently meets ASA specifications. Results in a dimensionally stable, rapid-setting floor. A floor with more than 50 years of proven success.

Use magnesium oxychloride cement for terrazzo flooring. General purpose. Underlayment. Heavy duty. Non-slip. Industrial granolithic. But don't use it in swimming pools. (And that's about the only limitation.)

Read about oxy cement in Sweet's Architectural Catalog File...or in the complete information we mail you when you write Department 1158N.

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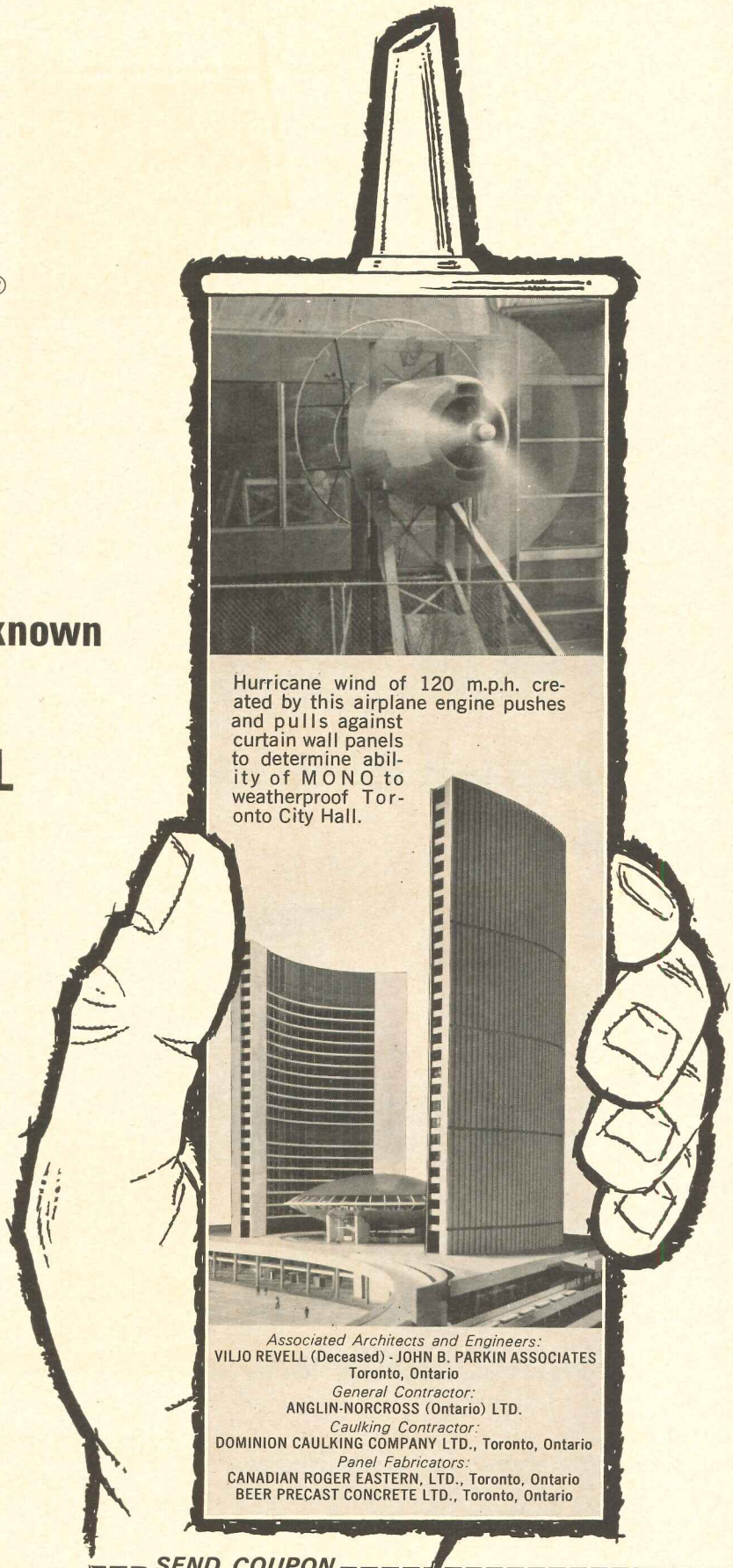
most powerfully-adhesive construction joint sealant known for weatherproofing TORONTO CITY HALL



Hurricane wind of 120 m.p.h. created by this airplane engine pushes and pulls against curtain wall panels to determine ability of MONO to weatherproof Toronto City Hall.

Associated Architects and Engineers:
VILJO REVELL (Deceased) - JOHN B. PARKIN ASSOCIATES
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"92% of sealant failures result from loss of adhesion"

TMC SURVEY

To prevent sealant failure, Mono was subjected to a torture test. Sealed curtain wall panels faced hurricane winds created by a 2000 h.p. airplane engine. Result of this "rugged shakedown": MONO was selected to seal construction joints in the precast panels, stainless steel curtain-wall head and sill joints, also all exterior joints in the metal and concrete towers. Here's why:

- *Security of performance; 20 year minimum life expectancy.*
- *Economical and safe; 1-part factory-mix eliminates hazards and high cost of job site mixing.*
- *Inherently adhesive; does not require primer or surface conditioner to secure adhesion.*
- *Ability to color-match structural material without excessive pigment loading which often results in sealant failure.*
- *Meets government specifications: Canadian 19-GP-5; U. S. TT-S-00230.*

On your next structure, don't take chances with a sealant that lacks inherent adhesion. Specify or apply MONO for **optimum security at minimum cost.**

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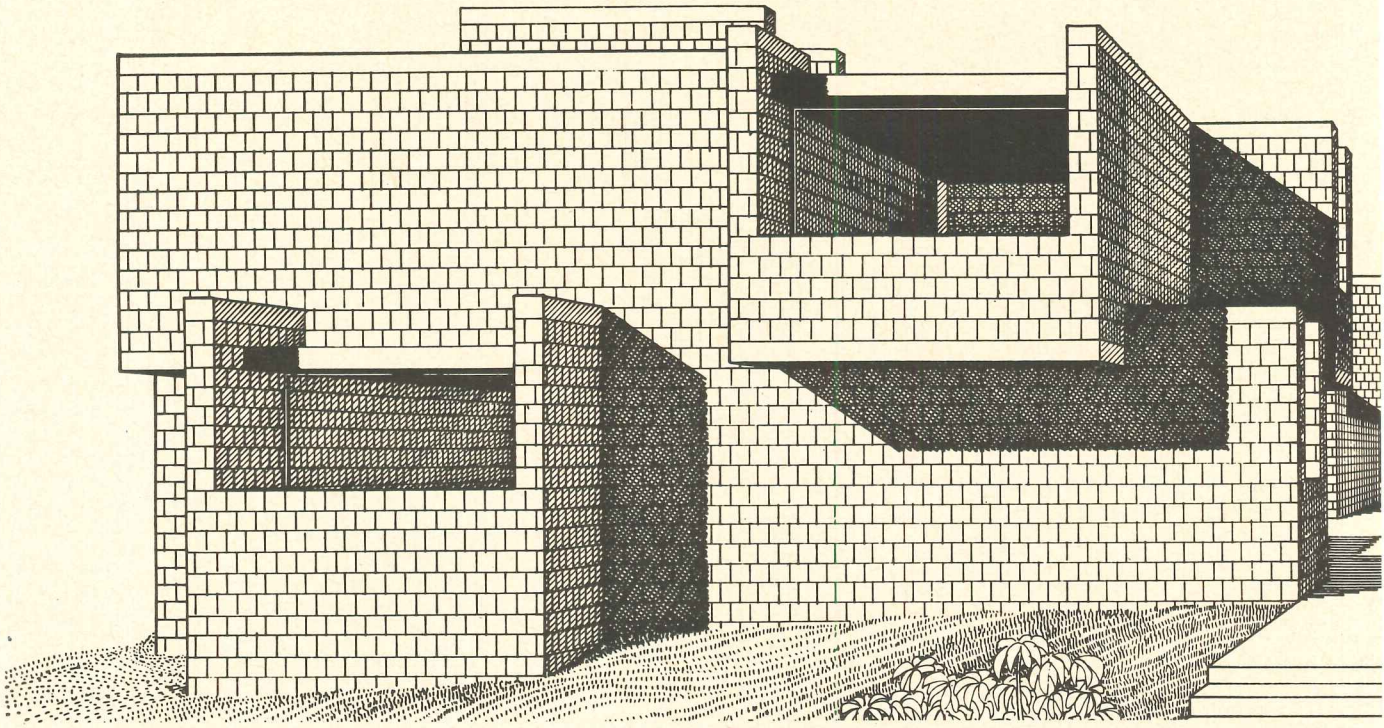
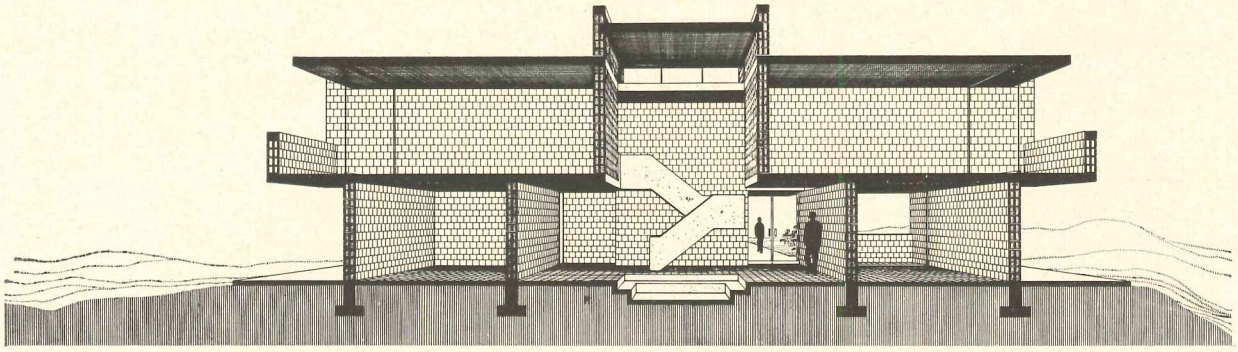


Architect Marvin Hatami designs a college dormitory



At –10°, indoor wall surface temperature is increased from 50° to 62° by insulating the block walls with Zonolite Masonry Fill Insulation.

The project consists of the first section of a dormitory complex, located on a hilly meadow site, accommodating fifty-two single rooms.

It was designed by Marvin Hatami and engineered by Cator, Ruma & Associates, both of Denver, Colorado.

The rooms are composed around a two story central lounge and every three rooms share common bathroom facilities. Developed modularly, the second floor is superimposed over the ground floor in a way to express each individual room in an interwoven and interlocking manner.

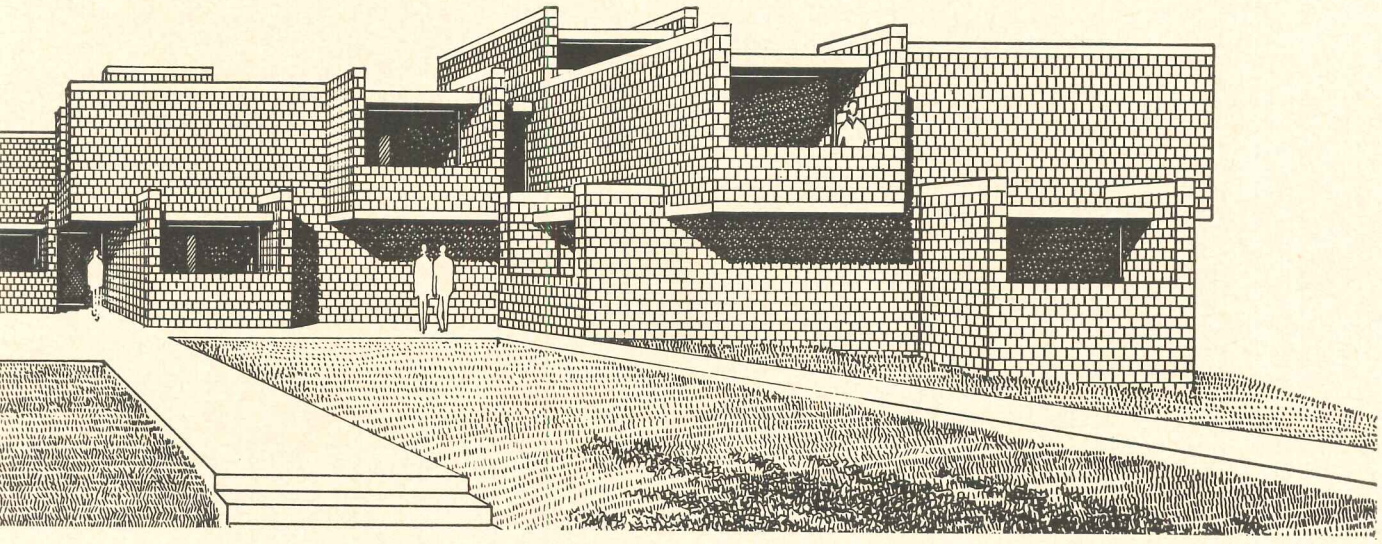
The structure is composed of 12″ x 8″ x 8″ reinforced lightweight concrete block bearing walls, insulated against thermal and sound transmission with Zonolite Masonry Fill Insulation.

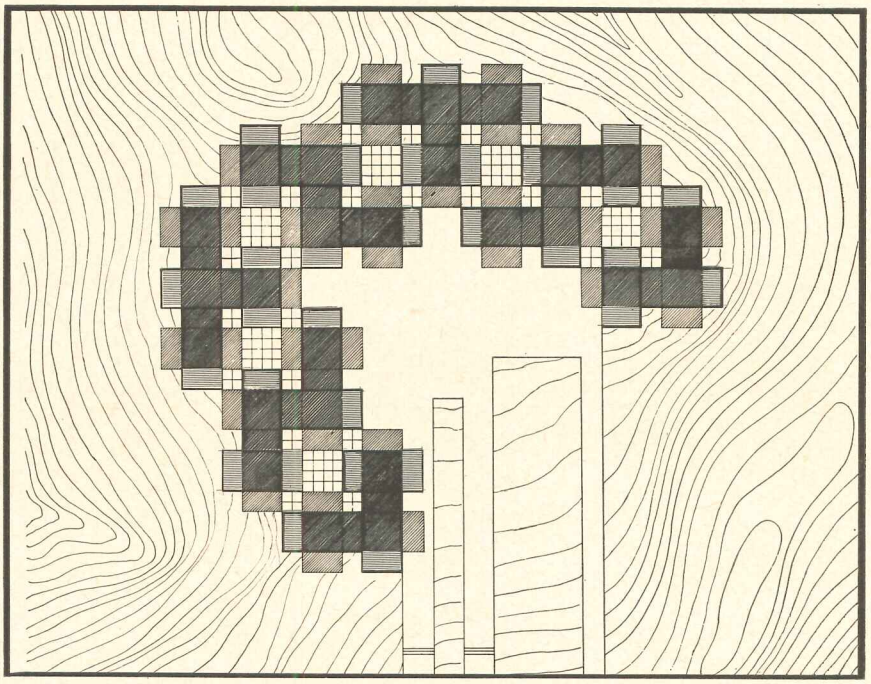
It cuts thermal transmission through the walls by 50% (see chart), raises the interior wall surface temperature from a miserable 50° to a comfortable 62°, thus reducing heat transfer and convection currents in the rooms.

This cut the operating costs 9.2%, or about $90 a year.

The savings more than pay for the cost of the thermal insulation over the 20 year mortgage period.

Zonolite® prototype building #10: a college dormitory





BLOCK PLAN SHOWING THE SUPERIMPOSITION OF SECOND FLOOR ON GROUND FLOOR

For complete information about Zonolite Masonry Fill Insulation, write for our Bulletins MF-79 and MF-80, Dept. 000-00, 135 South LaSalle Street, Chicago, Illinois 60603.

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DESIGN CONDITIONS			Winter Heat Loss in BTU/HR. Assuming 70° F Indoor —10° F Outdoor	
	Without Masonry Fill	**With Masonry Fill**	Without Masonry Fill	**With Masonry Fill**
Walls	12″ x 8″ x 8″ Lightweight Concrete Block	12″ x 8″ x 8″ Lightweight Concrete Block (Cells Filled)	142,000	**71,000**
Roof	Roofing, 8″ Concrete 2″ Insulation		98,000	**98,000**
Floor	4″ Concrete on Grade		26,000	**26,000**
Glass	1″ Insulated Glass		242,000	**242,000**
Ventilation	3600 CFM		260,000	**260,000**
Totals			768,000	**697,000**
% Savings with Masonry Fill			$\frac{768,000-697,000}{768,000} \times 100 = 9.2\%$	

1. Increased wall attenuation characteristics reduces sound transmission considerably.
2. Raised indoor wall surface temperature from 50° F to 62° F provides added comfort.
3. 14,100 sq. ft. of walls (includes 8200 sq. ft. of interior walls) @ 18¢ sq. ft. = $2,538 installed.
4. Additionally the operating costs are reduced by over $90 per year based on 5673 degree days $.053 per therm gas boiler.

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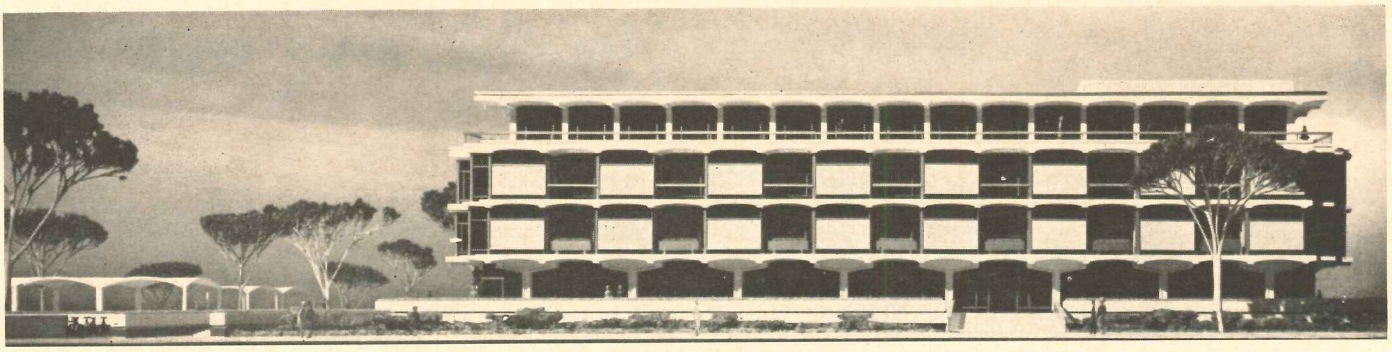
Library Study Center Rises at Radcliffe College



Louis Checkman, Inc., photos

Construction has started on the $4.5 million Library Study Center at Radcliffe College, Cambridge, Massachusetts. Architect for the project is the firm of Harrison and Abromovitz, New York. General contractor is Vappi and Company, Inc.

The rectangular building is faced with limestone, glass and concrete. Control of sunlight and vistas is achieved through recessed windows alternating with opaque panels.

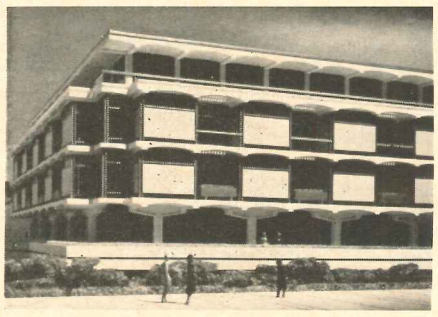
There will be space for 150,000 volumes and comfortable seating for 500.

The four floors of the building form receding tiers surrounding a central garden court. The main desk, reserve, reference and periodical rooms are on the first floor. Above, facing the inner court, are faculty offices.

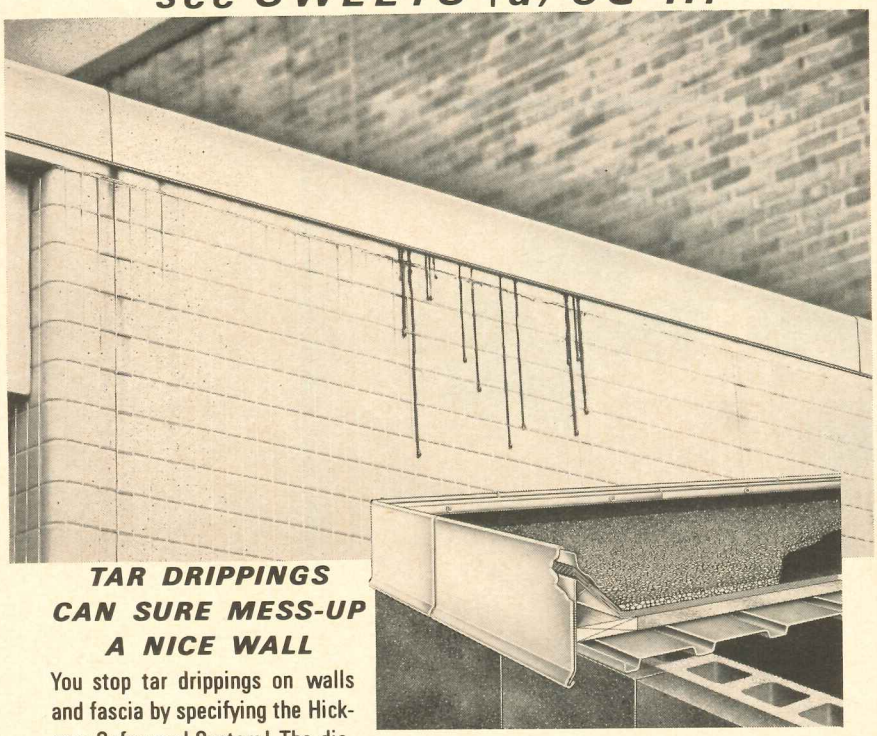
Study alcoves will line the perimeter of the building on the second and third floors. These 80 bays will be partitioned by bookshelves, eliminating the need for conventional library stacks or individual carrels. The building will also contain seven seminar rooms, a soundproof typing room on each floor and a modern cinema.

On the top floor will be a poetry room and music library, equipped with recording machines. There will also be a lecture room with a seating capacity of 225.

The plaza surrounding the library center will serve as the main entrance to the dormitory quadrangle.



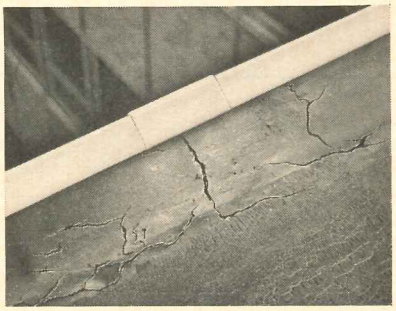
HICKMAN (pat.) *Safeguard*
fascia and water dam system
CONTROLS ROOF WATER AT EAVES
PREVENTS TAR DRIPPINGS
see SWEETS (a) 8G-Hi



TAR DRIPPINGS CAN SURE MESS-UP A NICE WALL

You stop tar drippings on walls and fascia by specifying the Hickman Safeguard System! The diagrams in Sweet's show how these drippings are prevented; but they are minor irritations compared to the damage and unnecessary expense caused by water leaks at the eaves. Hickman prevents these leaks.

Hickman System prevents water leaks at eaves—stops tar drippings. Note attractive aluminum fascia available in 4 finishes.



NO CLIENT OF YOURS

need ever undergo the calamity brought on by cracked roofing felts like those at the right. Cut-a-way view above shows how Hickman gives absolute control of roof water at eaves. Sweet's pages give you proof.

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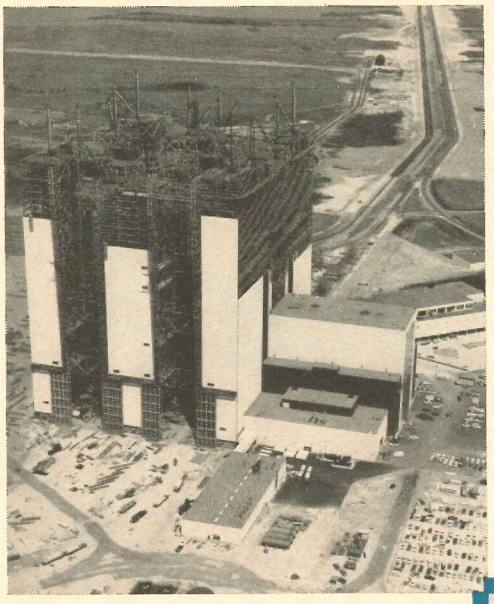
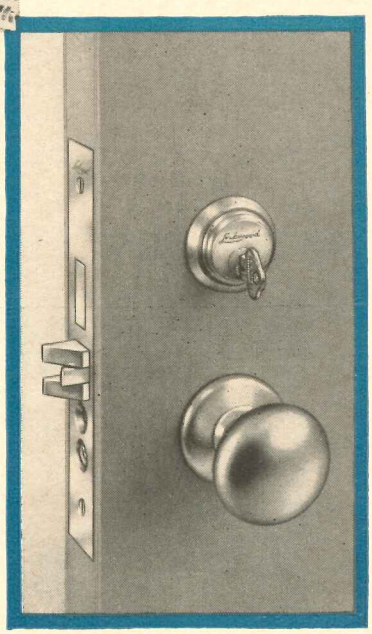
LOCKWOOD TO LOCK UP "MOON PORT"

First step to the stars





Rising out of the dunes of Florida's Merritt Island is the skeleton of what will soon be the largest building in the world—N.A.S.A.'s Vertical Assembly Building.

Over 57,000 tons of structural steel alone were used to form the framework and when complete the building will reach 507 feet into the air and measure 709 feet in length and 513 feet in width.

It will be here that a new era in history will be written as giant Saturn V launch vehicles will be assembled prior to manned voyages to the moon.

As with all N.A.S.A. projects the door hardware had to satisfy two rigid standards—SECURITY and DEPENDABILITY. Lockwood's Heavy Duty Mortise locksets and Ball Bearing Door Closers came up with the right answers for both.

When you're looking for security and dependability in hardware, look to Lockwood. We've found our place in the stars.

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LOCKWOOD

LOCKWOOD HARDWARE DIVISION

INDEPENDENT LOCK COMPANY ILCO

Fitchburg, Massachusetts

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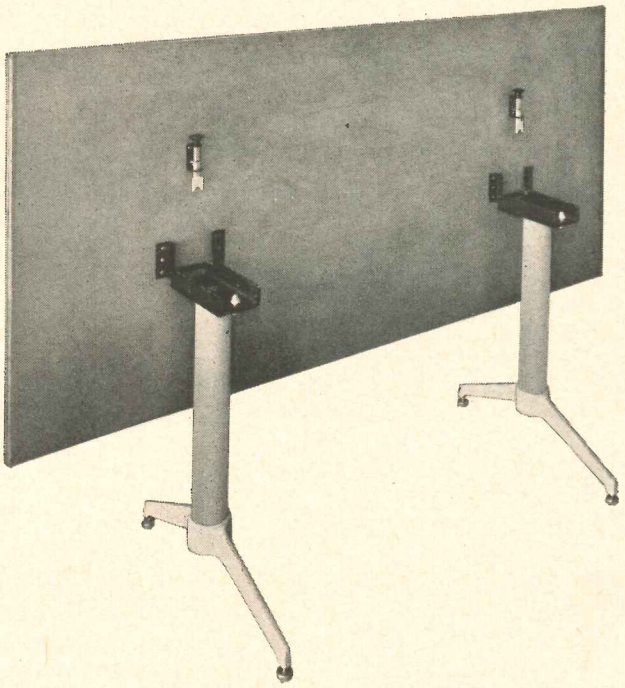

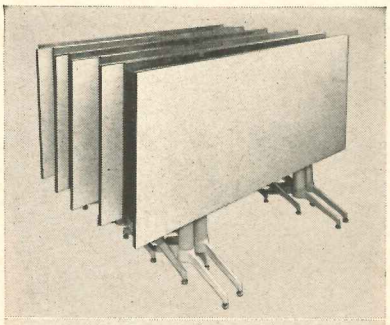

This table flipped its top!

Vertical stacking makes it easy to nestle. Round, square, oblong tables—just flip the top down, maximum efficiency in multi-function space. Durable. And beautiful.

Flip-Tops at Kent University, Ohio

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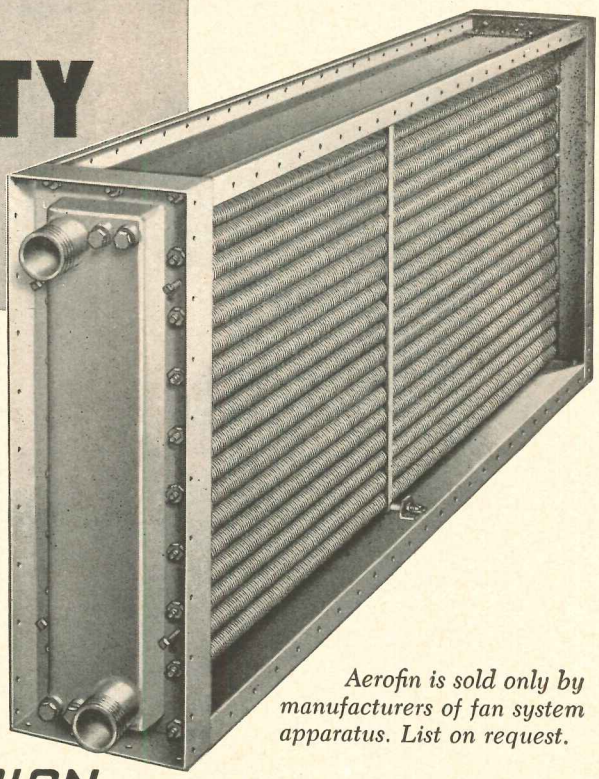

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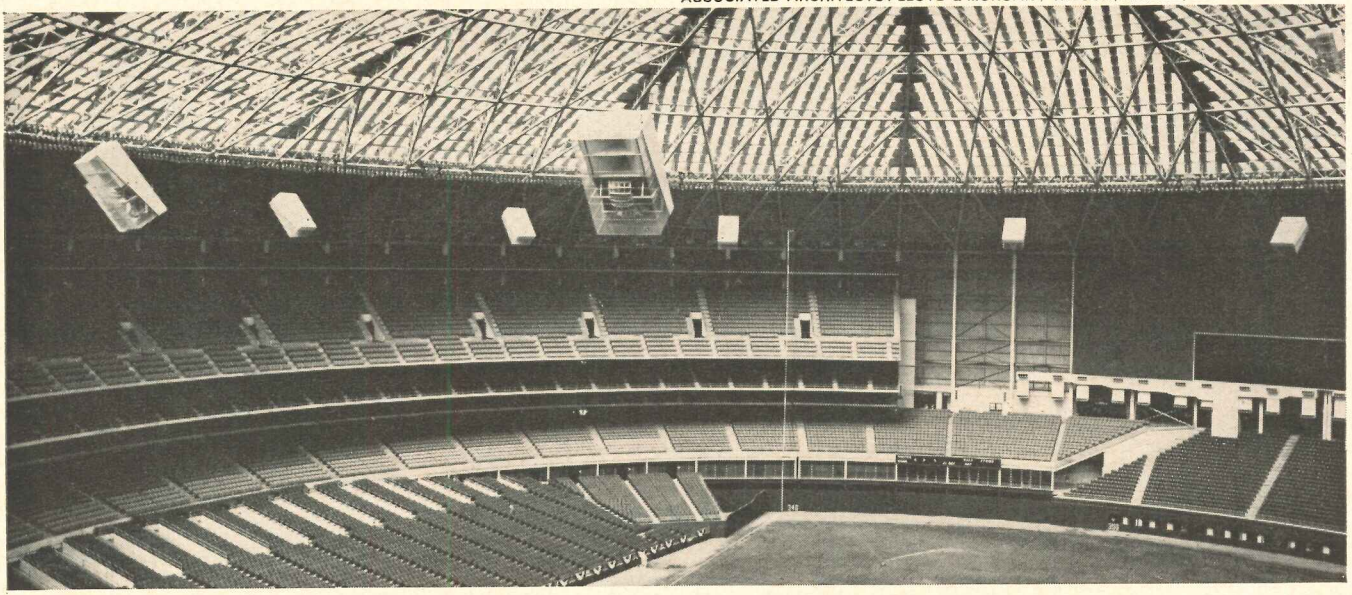


THE ALTEC SOUND SYSTEM AT THE ASTRODROME† IS MORE THAN JUST THE WORLD'S BIGGEST IT'S ALSO RATED* THE WORLD'S BEST

IN THE PAST, SHAPES LIKE THIS HAVE CAUSED ACOUSTICAL NIGHTMARES.

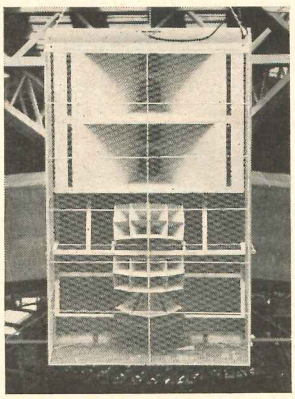
WHY DID THIS ONE TURN OUT TO BE A DREAM?

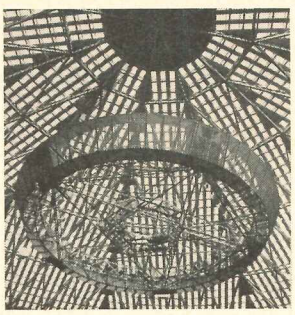
Take a circle, cap it with a dome, and you may have the makings of an acoustical horror. Uncontrollable reverberation or "bounce" produces echoes which in turn cause ear-splitting feedback throughout the sound system. Add to this up to 66,000 cheering Texans who want to hear as well as be heard and you have a sound problem seeking a solution.

That a solution was found—and that the sound system which resulted exceeds even a Texan-size superlative—is now history. As manufacturers of the Astrodome's sound system, we are proud to salute Bolt, Beranek & Newman who prepared the system's specifications and selected Altec sound equipment. We are equally grateful for the contribution made by Dr. C. P. Boner who applied the Boner process of equalization in "tuning" and regulating the completed system to the Astrodome's acoustics... and to perfection. Our thanks, too, to Taft Broadcasting Company, the authorized Altec Sound Contractors on the project.

*"*It's unbelievable, the best in the world." Herb Eyster, vice president, H. A. Lott, Inc., Houston, Texas, project manager for construction on the Astrodome, in reference to the sound system. From the* DALLAS TIMES HERALD, *Friday, April 9, 1965.*

†The name "Astrodome" belongs exclusively to Houston Sports Association, Inc.





WHAT IT TOOK TO COVER THE ASTRODOME WITH SOUND: A dozen garage-size speaker systems like this one (modified Altec "Voice of the Theatre"®) are suspended from the dome of the structure at regularly spaced intervals. These speakers provide clear, uniform sound coverage throughout the stadium. Five similar speaker systems are mounted in the elevator-operated gondola which is lowered over the field to provide sound coverage during events such as boxing.

Hundreds of smaller cone speakers are used as part of a low-level, distributed system under the balconies and in other areas of the Astrodome. Clean, reliable audio power, more than 6,000 watts, is supplied by a variety of Altec amplifiers ranging from jumbo 260-watters to diminutive units of 10 watts each. Hundreds of other Altec audio devices provide the specialized sound services required within the Dome.

THE EIGHTH WONDER OF THE WORLD?

The Houston Astrodome has been called the "Eighth Wonder of the World." Perhaps in centuries to come there will be no doubt. One thing is certain now: the Astrodome *idea* is here to stay. Perhaps *your* next project will be bigger than the Astrodome. If so, we'd enjoy the challenge. If it's smaller? We welcome the opportunity! To us, each sound project is the most important. Never can tell—the next may be the Ninth Wonder of the World. Please write for information, Dept. AR8.

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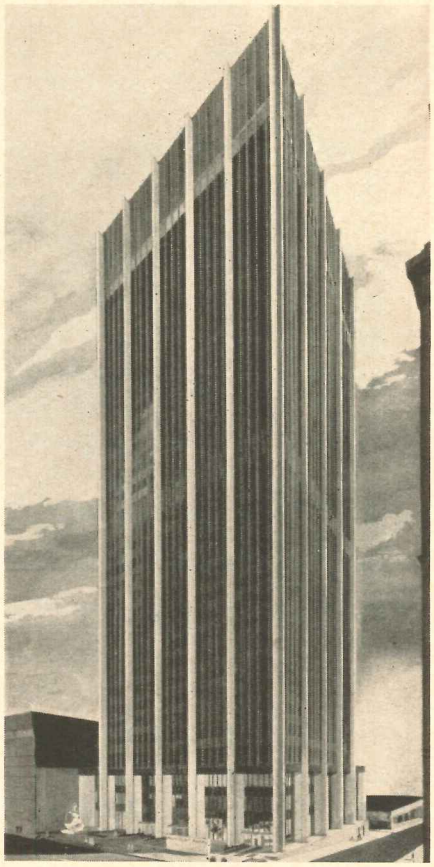
Provident Tower Gives Cincinnati Major Addition To Downtown Core

The 35-story Provident Tower in Cincinnati, scheduled for completion in June 1967, will provide 840,000 square-feet of rentable area, the city's largest "core" development in 35 years. Architects for the project are L. P. Cotter and Associates, and Francis X. Gina & Associates are associated architects.

Structural engineers are Severud-Perrone - Fischer - Sturm - Conlin - Bandel. The mechanical and electrical engineers are Syska & Hennes-



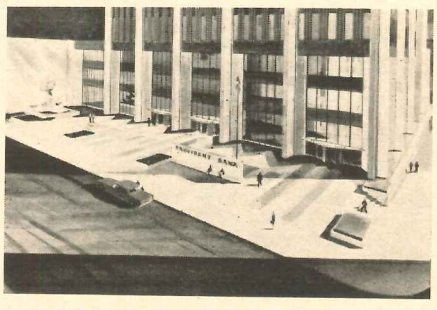
sey. The general contractor is the Turner Construction Company. The structure is a privately financed development of One East Fourth, Inc., a Cincinnati firm.

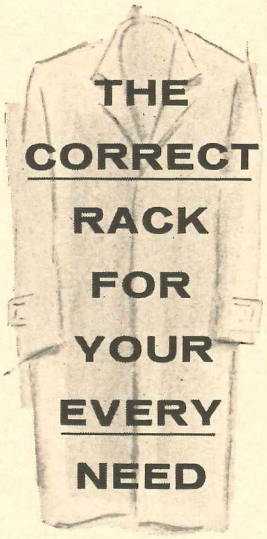
The exterior of the building will be sheathed in stainless steel, bronze tinted aluminum and glass. There will be five basement levels.

The interior dimensions of a typical office floor will be 120 feet by 150 feet. The core for the elevators and utilities will be in the center, and will comprise less than 20 per cent of the area.

The structure will occupy a site of 43,330 square feet, with 7,000 square-feet devoted to a plaza in front of the building (below). It will be landscaped with trees, shrubs and flowers, and there will be a fountain, a pool and contemporary sculpture.

The Provident Tower will be an all-electric building, including the heating and cooling systems.





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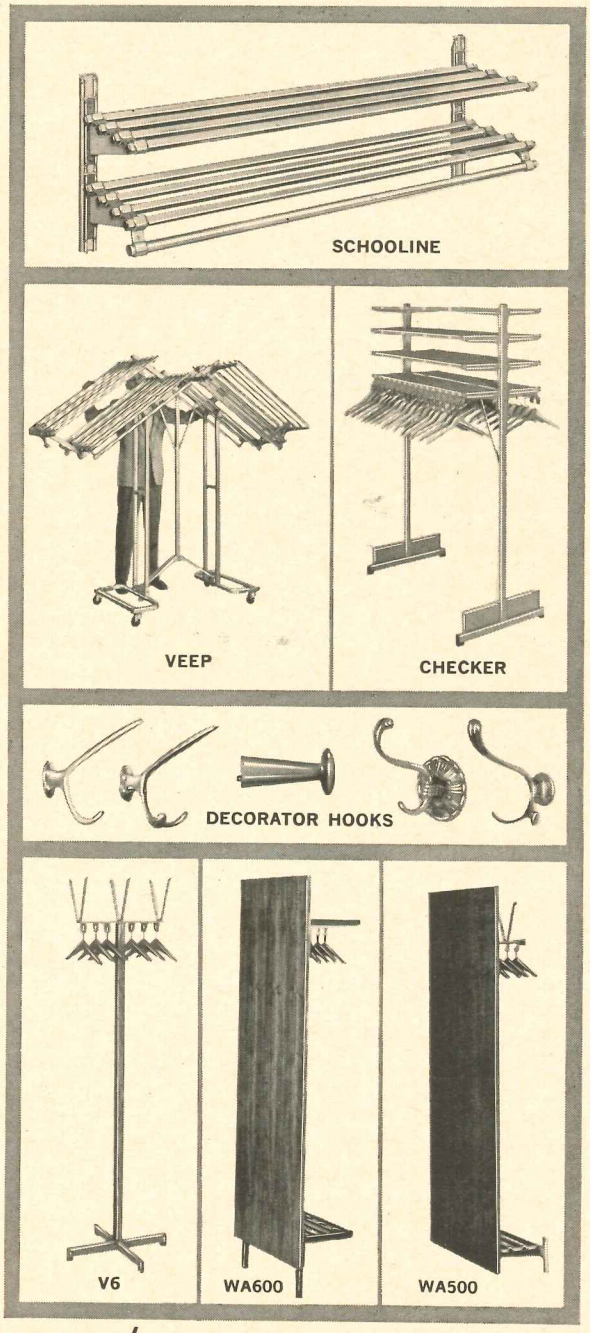

Write for Architects Catalog FL-52 with (styles, finishes and specifications). Requirements studies, layouts, load factors, etc. furnished to architects.

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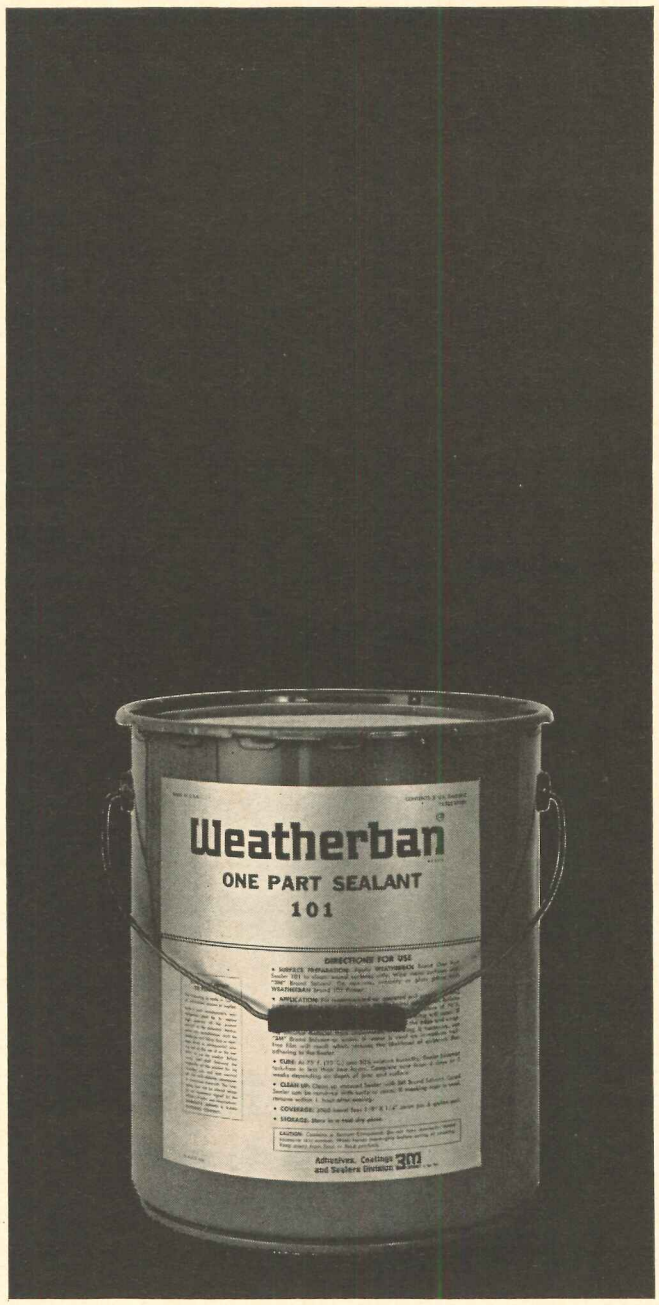
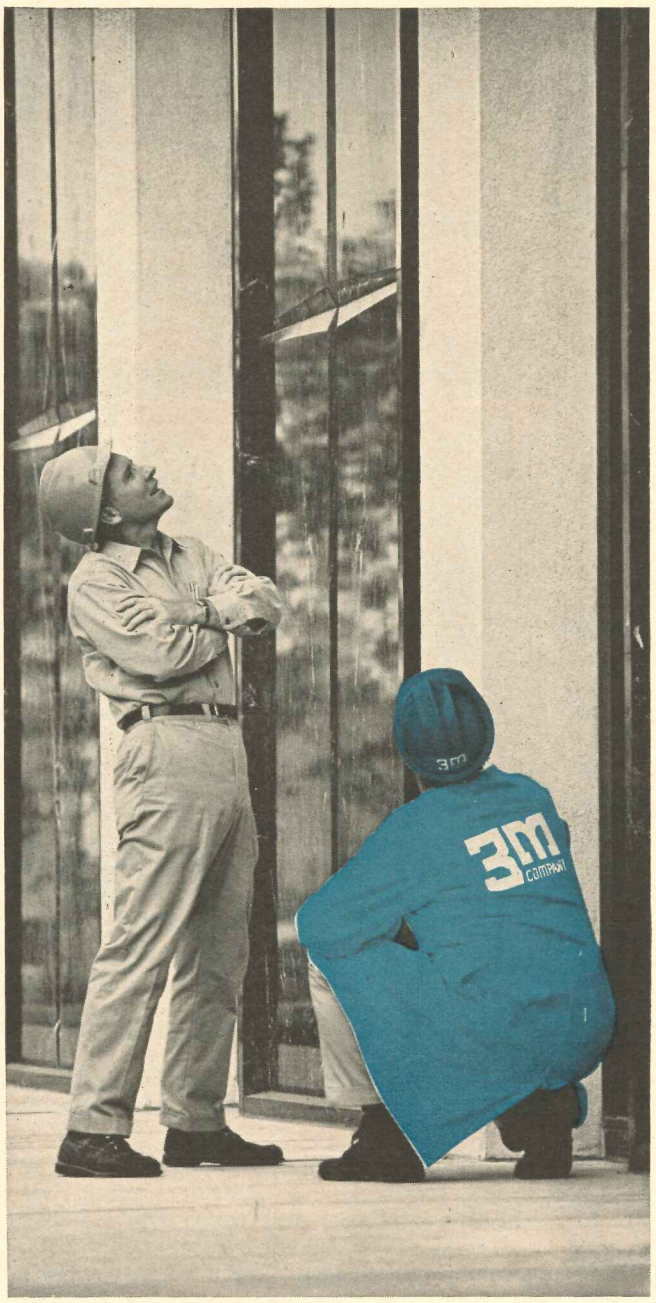


Sealing problems solved by can



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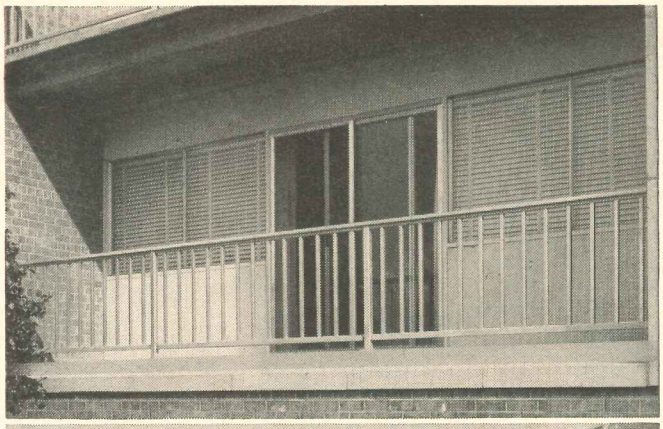

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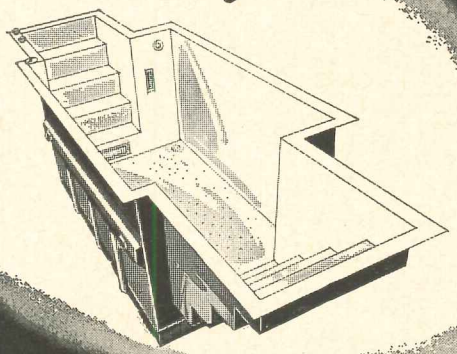

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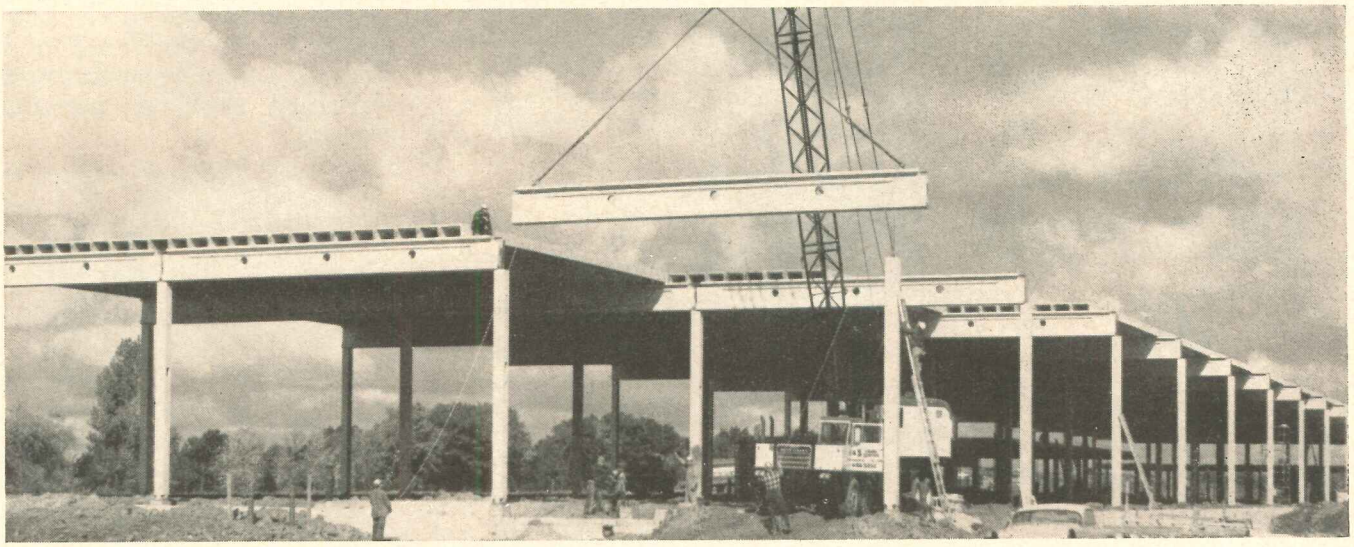
50-foot roof sections of prestressed concrete help speed warehouse-factory construction

40′ prestressed concrete roof beam is placed for factory-warehouse building of St. Paul Terminal Warehouse Co.



ARCHITECT: J. Robert Carlton and Associates, Richmond, Virginia
CONSULTING ENGINEER: Ross H. Bryan, Nashville, Tennessee
GENERAL CONTRACTOR: Lovering Construction Co., St. Paul, Minn.
OWNER: St. Paul Terminal Warehouse Co., St. Paul, Minnesota
PRESTRESSED CONCRETE FABRICATOR: Prestressed Concrete, Inc., St. Paul, Minnesota.

A modular roof system of prestressed concrete sections simplified the construction of this giant 220,000 square-foot factory-warehouse facility of St. Paul Terminal Warehouse Co.

Each 40′ x 50′ bay consists of 40′ prestressed concrete beams set on concrete columns at 50′ intervals. Prestressed roof sections, 5′ wide and 14″ deep, provide the 50′ span. Production of these members was under factory conditions, where close quality control for strength and dimension were practiced. The use of this system allowed work to continue during inclement Minnesota winter weather.

The finished structure of prestressed concrete provides additional benefits of favorable fire ratings and minimized maintenance.

For prestressing concrete on projects like this a growing number of producers are relying on the service proved capability of Armco and Union TUFWIRE® Strand. For complete data on Union TUFWIRE Strand for prestressed concrete, write for free book. Armco Steel Corporation, Steel Division, Department W-1915, 7000 Roberts Street, Kansas City, Missouri 64125.

ARMCO STEEL

ARMCO

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Dual Use Proposed For "Metro City"

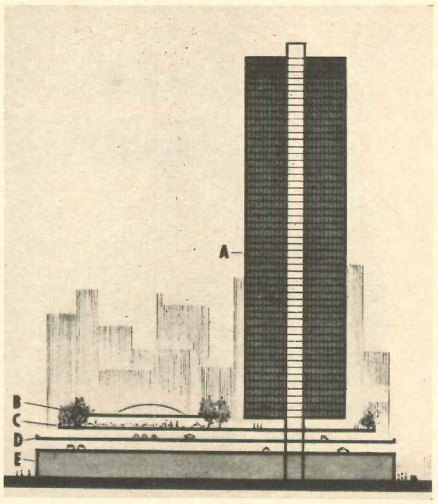
"Metro City," a dual-use redevelopment project, has been proposed for a 24-block waterfront section in the lower west side of New York City. Architect for the project is Max O. Urbahn. General contractors would be the Gotham Construction Corporation and George A. Fuller Company. Sponsoring the project is the International Longshoremen's Association, AFL-CIO.

Mr. Urbahn's plan calls for six 54-story apartment buildings containing 3,000 units to be built *over* two-story industrial buildings already proposed for the site by the Housing and Redevelopment Board of New York City. The roofs of the industrial complex would be the parking decks and utility areas for the housing units. A second deck, for recreational and community use, would be built over the part of the parking area directly adjacent to the housing units.

The total project would be divided into four superblocks, with two apartment structures each on two of the superblocks, and one each on the other blocks. The superblocks would be connected by overpasses to create an interrelated project.

The architect feels that the multi-use development of this site would revitalize the area on a 24-hour-a-day basis, giving a neighborhood character to this section of New York.

The total cost of the project would be $60 million. The housing would be financed under the New York State Housing Act, while the industrial development would be privately financed.



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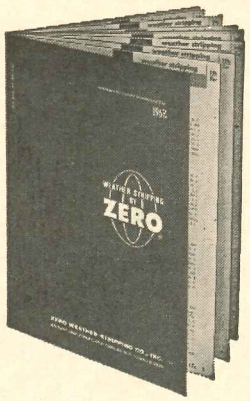

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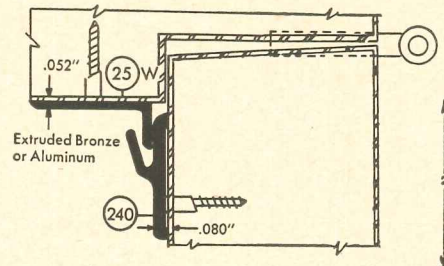

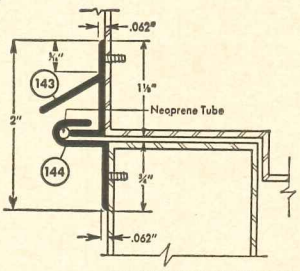

INTERLOCKING WATER SHED

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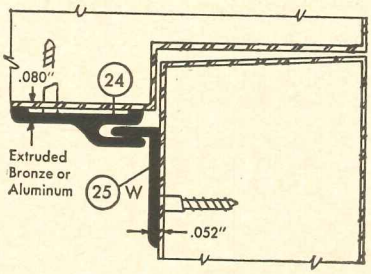

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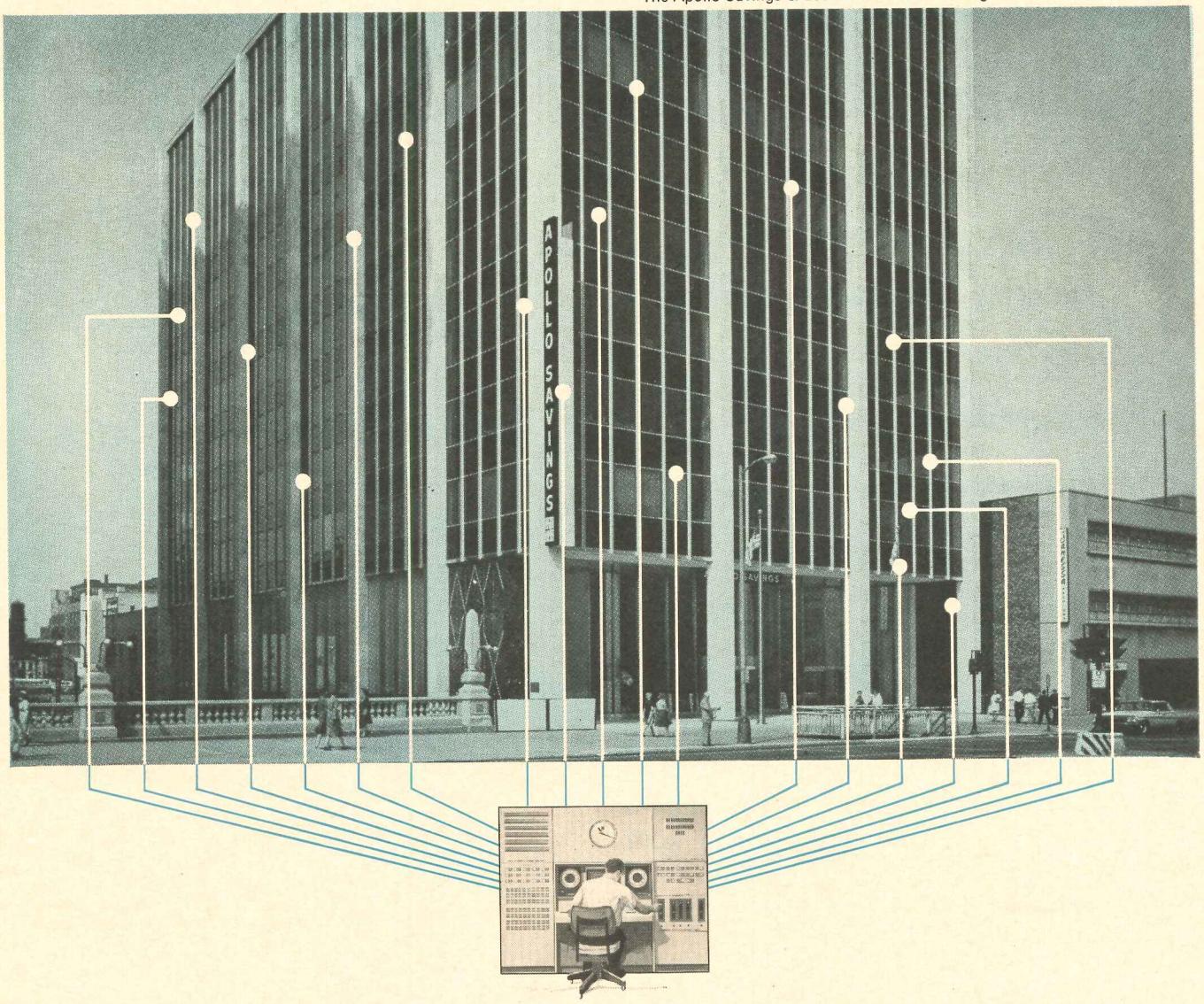

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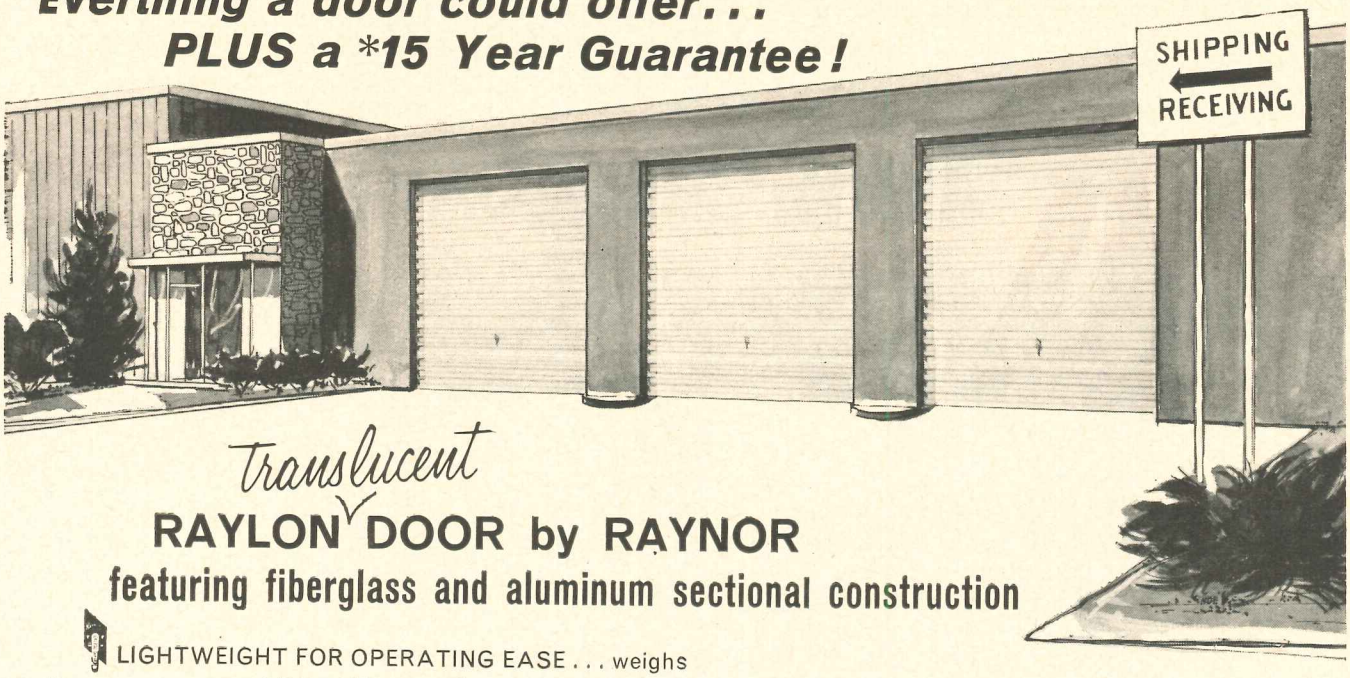

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HOW TO ELIMINATE FAILURE IN CONCRETE JOINTS

by H. S. Plotkin, Industry Manager, Sonneborn Building Products, Inc.

What causes sealant failures in concrete joints? Any number of things. It may be the wrong sealant. Or improperly designed joints. Or poor execution of properly designed joints. Or excessive joint movement. Or improper surface preparation.

Whatever the cause, the results are the same: Namely, damage to the structure through moisture penetration.

Design and Construction Determine Sealant Selection

As shown by the drawings below, it is necessary to investigate each job thoroughly *before* selecting a sealant. Each joint must have a sealant fitted to it... as a "shoe is fitted to a foot."

Proper design

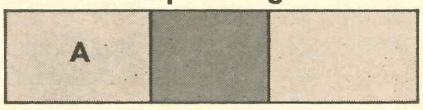

Figure A may be the proper design for a walkway joint.

Design deviation

Figure B, however, shows how a joint can deviate from design during construction.

Ordinary sealants fail

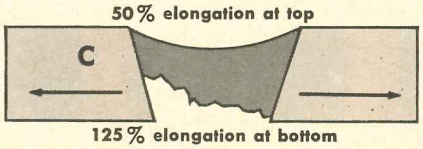

Figure C indicates what happens when "V"-shaped joints widen—and clearly calls for a superior sealant such as Sonneborn's Sonolastic to withstand this punishment.

Sonneborn Sealants For All Applications

No single sealant can satisfy all needs. Sonneborn recognizes this fact and offers a wide selection of caulking compounds and sealants. To eliminate sealant problems in concrete joints... consult Sonneborn at the start of a job, or send for Sonneborn's Sealant and Caulking Guide.

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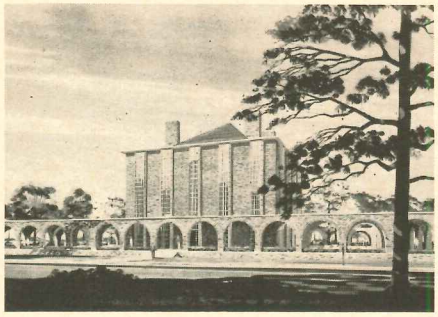

Campus Center Nears Completion

The William MacLaren Bristol Campus Center at Hamilton College, Clinton, New York, is comparable to what is known as a "student union" on other campuses. The $1.4 million structure, which was designed by architect Edward Durell Stone, is expected to be completed this fall.

Facilities included in the four-story center will include bowling alleys, a 250-seat snack area, lounges and meeting rooms, offices for student organizations, a small private dining room and game and card rooms.

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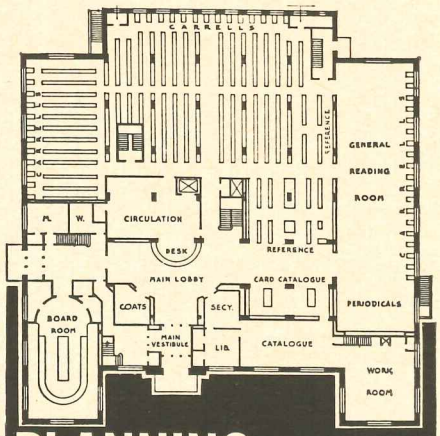

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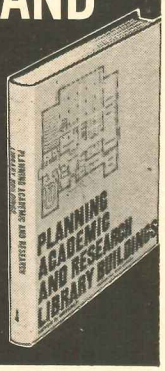

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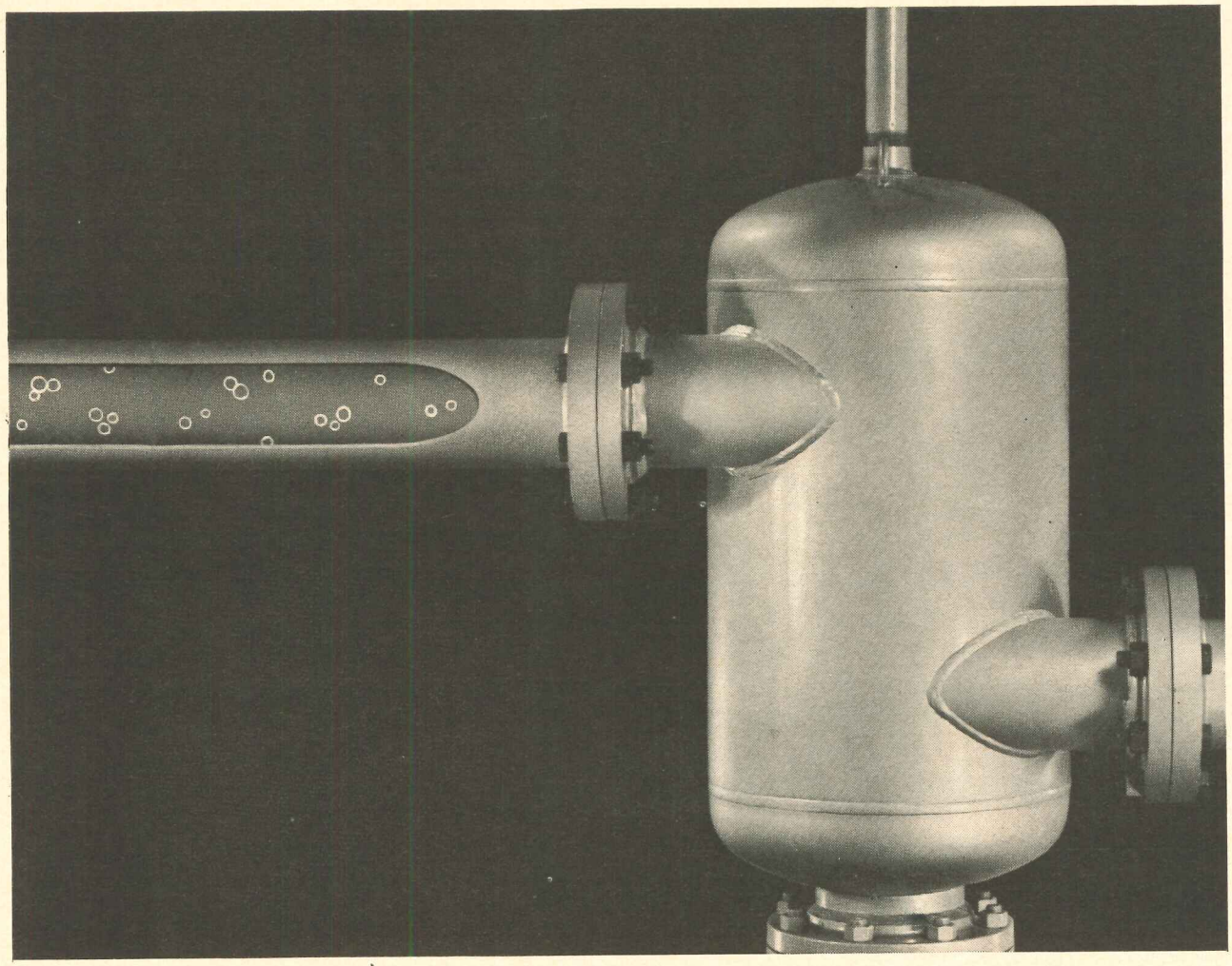

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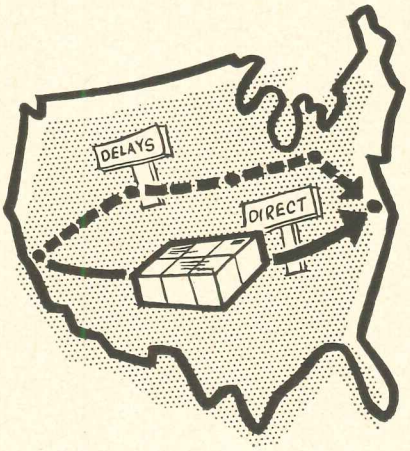

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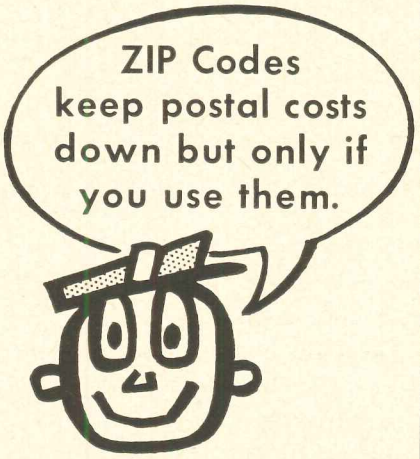

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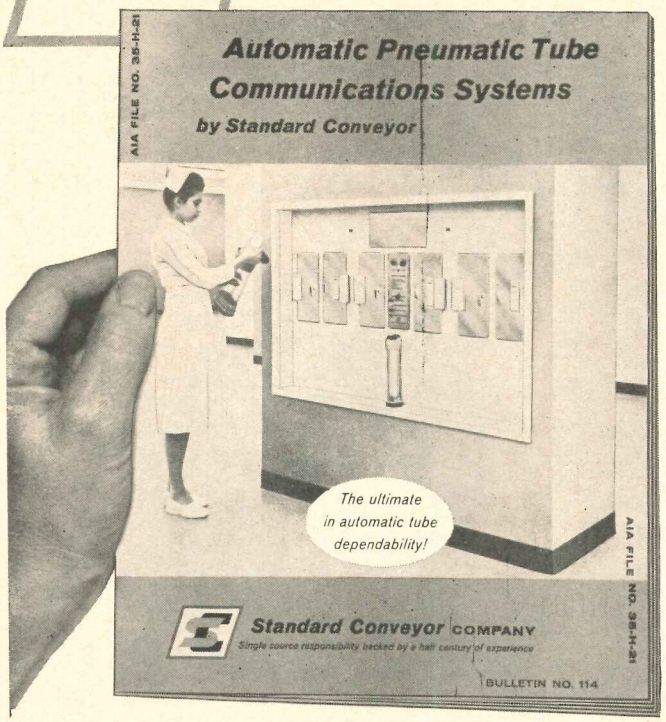

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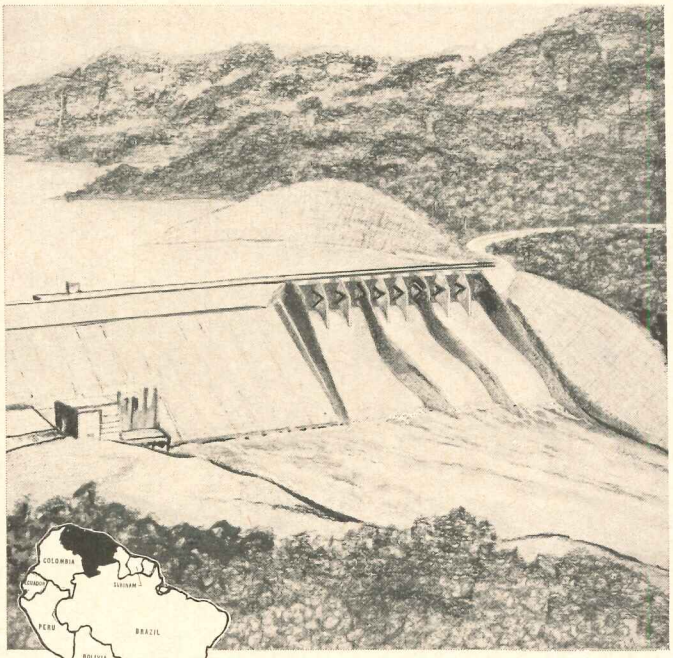

General Contractor — Consorcio de Guri: Kaiser Engineers and Constructors, Inc.; Macco International; Tecon International; Merritt, Chapman and Scott, Inc.; and Christiani and Nielsen Corp.

Construction has started on the great Guri Project on the Caroni River in Venezuela — a hydroelectric program which anticipates that nation's progress and power needs to the end of this century. The first part of Stage One, in which MARACON MC Concrete Admixture is being used, is scheduled for completion in 1968 and provides for a concrete gravity dam 348′ high and 1040′ long, a spillway capacity of 1,250,000 cu. ft. per second and a powerhouse capable of producing 527,250 kilowatts.

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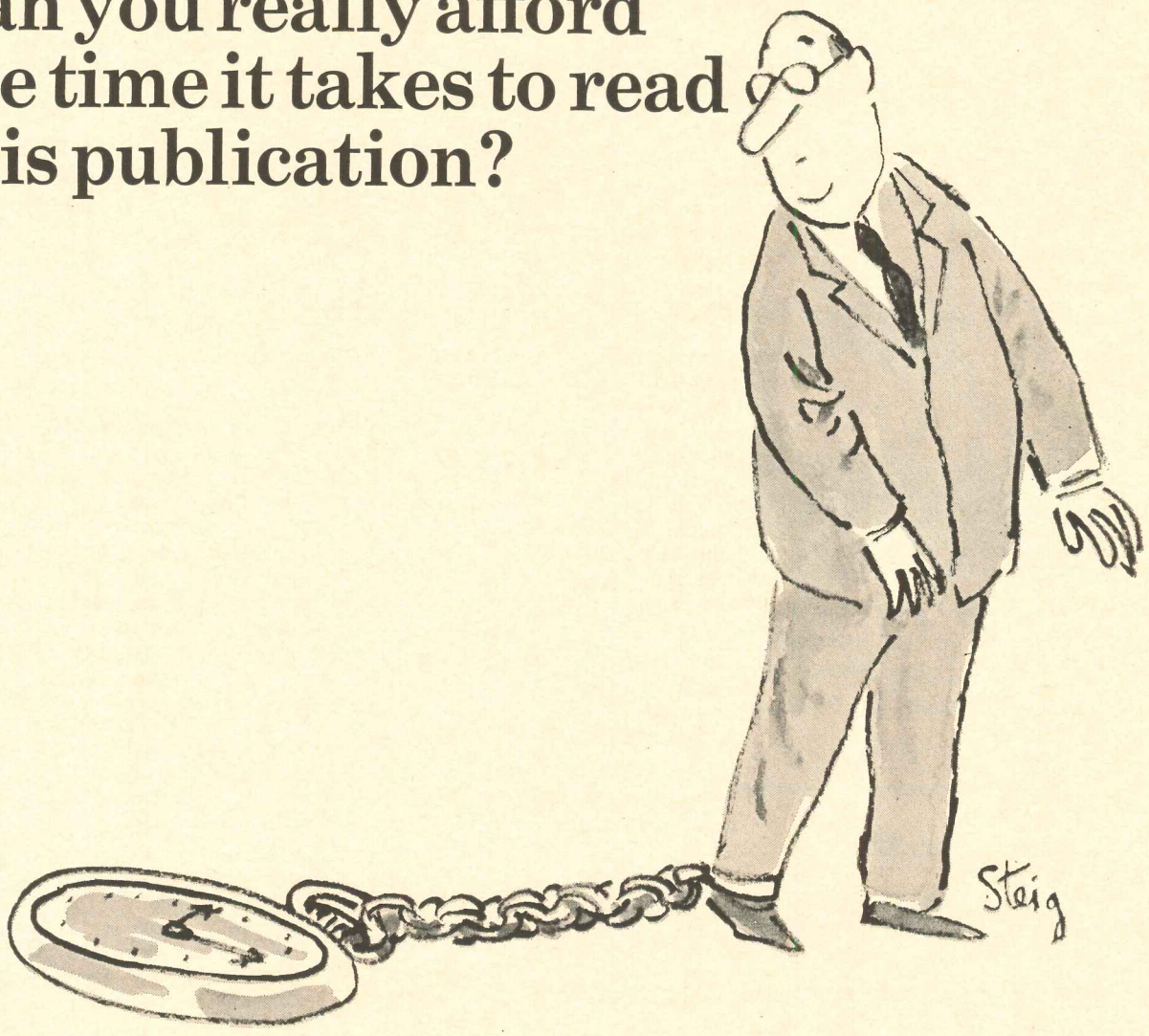

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"All right, just what *is* prestressed concrete?"

How do *you* answer your client—in layman's language—when he asks that question?

As an Institute, we face this task daily. So perhaps you'll be interested in how we handle it.

First thing we do is establish the fact that prestressed concrete is an *architectural and structural material*—a *material* with its own unique characteristics.

Then we go on to describe what this material is and how it is manufactured. We say:

Prestressing places engineered stresses in architectural and structural concrete units—stresses which more than offset the stresses that occur when the unit is subjected to loads. This is accomplished by combining two quality materials: *high strength concrete* and *high tensile steel.*

There are two methods of prestressing. They are *pretensioning* and *post-tensioning.* The commonest, pretensioning, is generally more economical due to its adaptability to mass production in a plant.

PRETENSIONING. High tensile steel strands are stretched between abutments. Concrete is then placed into forms which encase the strands. As the concrete sets, it bonds to the tensioned steel. When the concrete reaches a specified strength the tensioned strands are released. This *prestresses* the concrete, putting it under compression and creating a built-in resistance to loads which produce tensile stresses. Pretensioned prestressed concrete is manufactured in the plant, resulting in completely finished, prefabricated members ready for delivery to the job site.

POST-TENSIONING. High tensile steel strand, wires or bars are encased in tubing or wrapped, positioned in the forms, and then concrete is placed. After the concrete sets and reaches a specified strength, the high tensile steel is then stretched and anchored at the ends of the unit. Effect? Same as pretensioning.

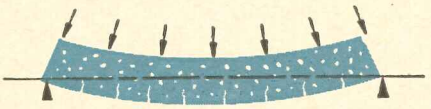
While post-tensioning is sometimes done in a plant, it is most often done at the job site for units too large to be transported or for other unusual applications.

Basically, *pretensioned* prestressed concrete means that the high tensile steel is tensioned *before* the concrete is placed in the forms; *post-tensioned* prestressed concrete means that the steel is tensioned *after* the concrete is placed and has gained a specified strength.

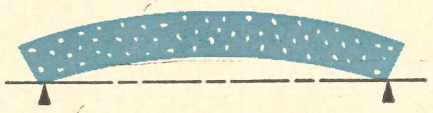
Now, if your client has followed this pretty well, take a pencil and make a few simple sketches dramatizing the chief difference in behavior of an *ordinary* concrete beam and a *prestressed* concrete beam.

ORDINARY CONCRETE BEAM. Even without a load, the ordinary concrete beam must carry its own considerable weight—which leaves only a portion of its strength available for added loads.

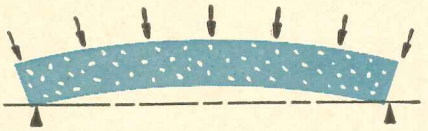
Under load, the bottom of the beam will develop hairline cracks.



PRESTRESSED CONCRETE BEAM. Prestressed before it leaves the plant, a slight arch, or camber, is noticeable. Energy is stored in the unit by the action of the highly tensioned steel which places a high compression in the lower portion of the member. An upward force is thereby created which in effect *relieves the beam of having to carry its own weight!*



The upward force along the length of the beam counteracts the load applied to the unit.



Your client will now feel like an expert on the subject! So it's only proper to let him know what *else* prestressed concrete is—namely, the answer to a lot of problems an owner faces.

Prestressed concrete lets him occupy his new building sooner. Prestressed concrete structural units, mass produced in the plant while excavation and foundation work proceeds at the site, are delivered on schedule. In almost every instance, units are erected directly from truck to structure. They fit readily into place shortening total construction time and saving labor costs.

What's more, with prestressed concrete he can increase the value of his building many times—and avoid obsolescence at surprisingly small difference in total building cost. Long spans typical of prestressed concrete eliminate columns, provide more *useable* floor space, more *flexibility* in the use of the building.

Among other economies: No painting or maintenance is required. Durability and fire resistance mean low insurance premiums. Two, three and four hour Underwriters Laboratories service is available on commonly used prestressed concrete members.

We then suggest he consider using prestressed concrete, a truly 20th century material, if he wants a permanent, quality structure erected in a hurry at a competitive price.

And we invite you to see your local PCI member for standard shapes available in your area.

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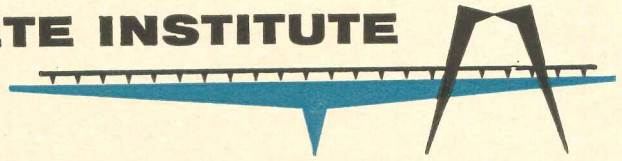

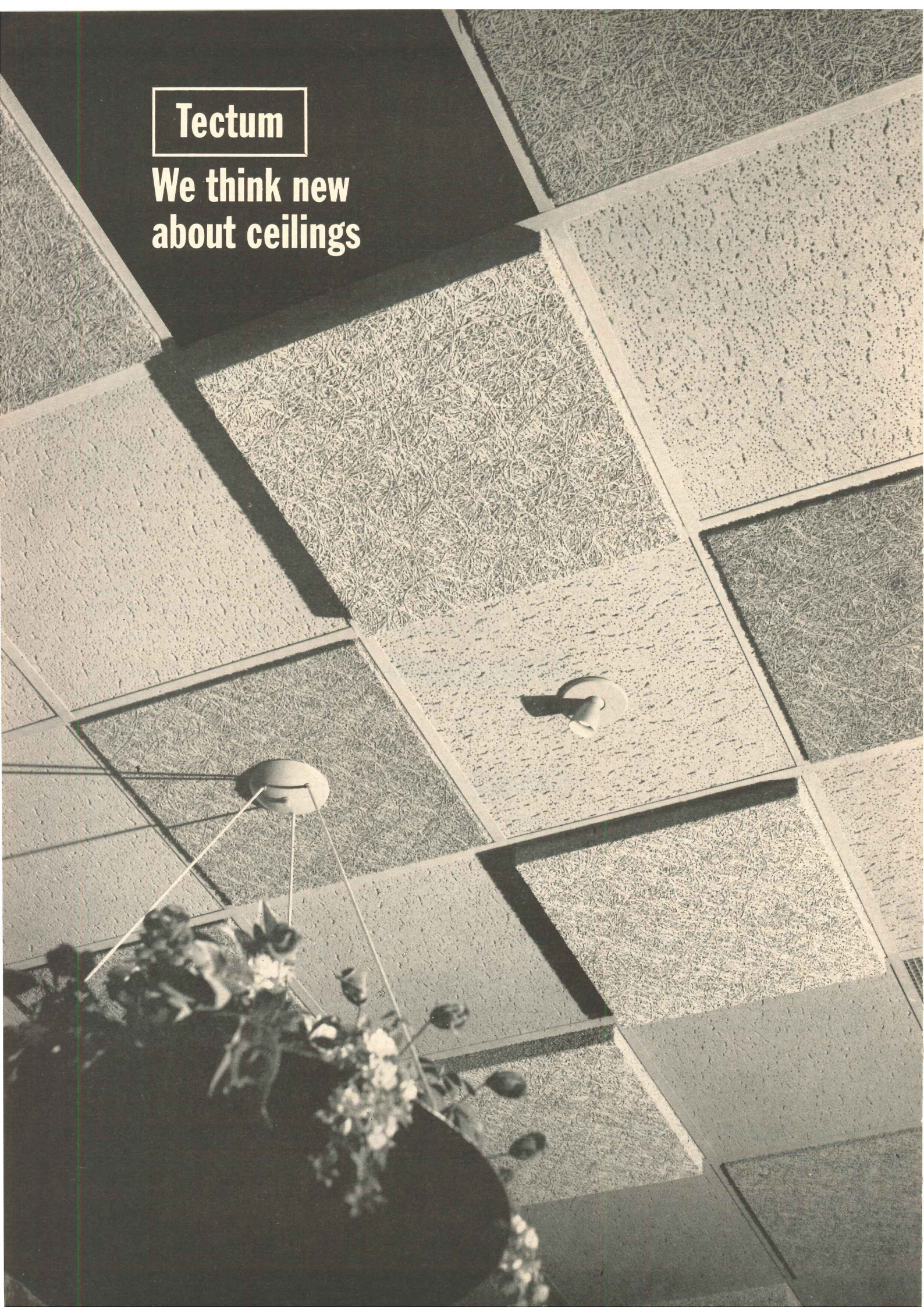
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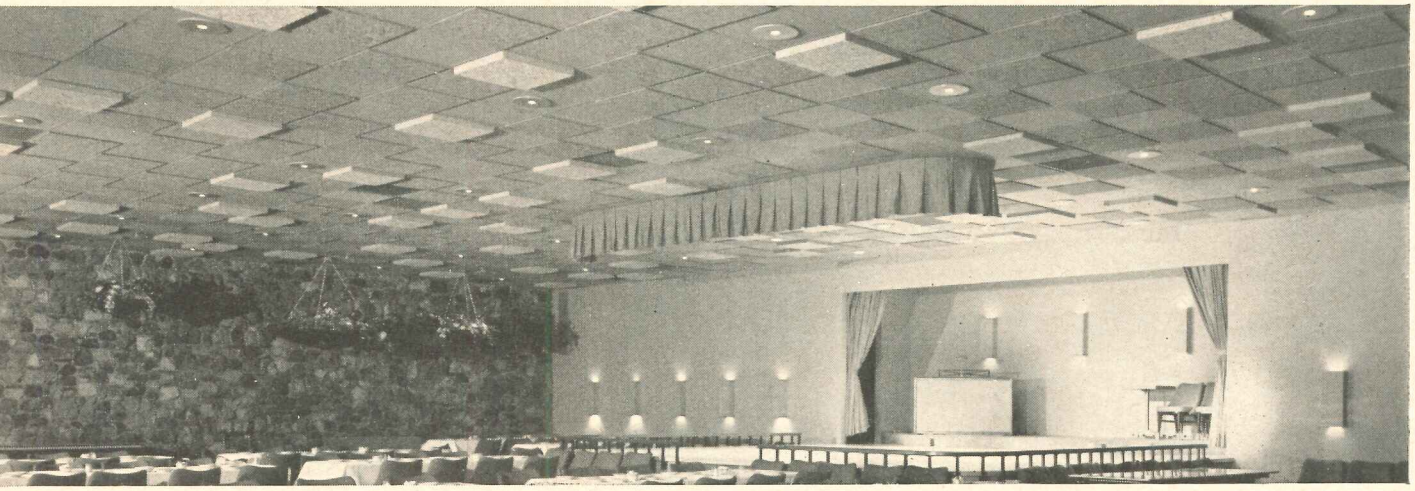

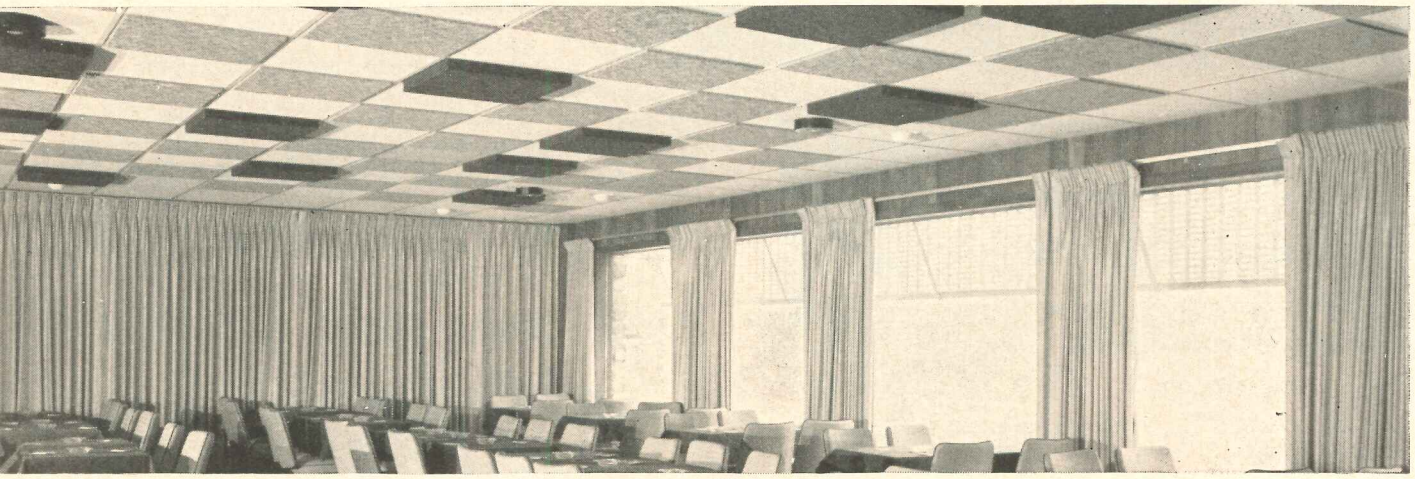

LeMoyne Manor, Syracuse, N.Y. Architect: J. Anthony Cappuccilli, Syracuse.

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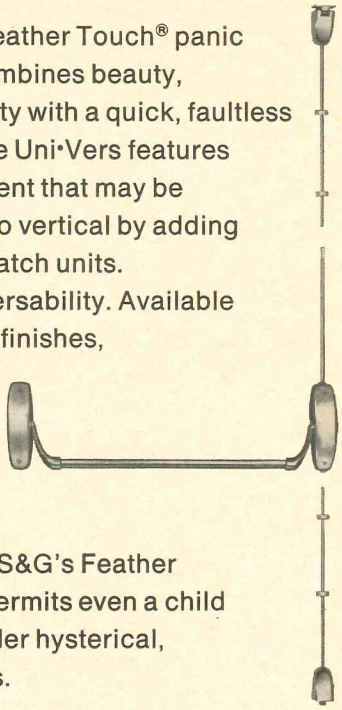

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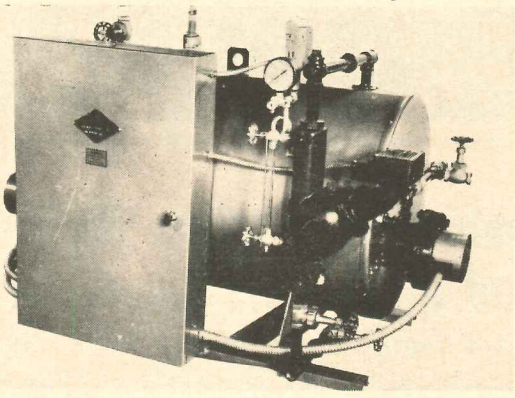

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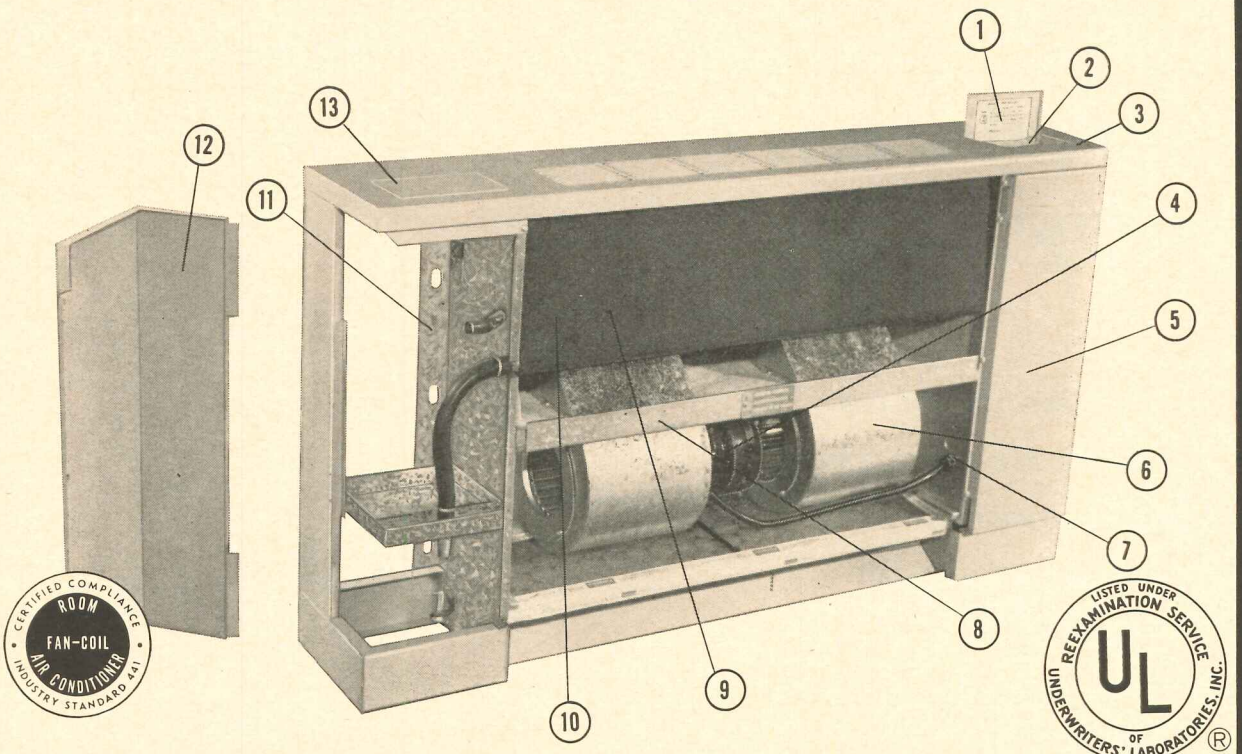

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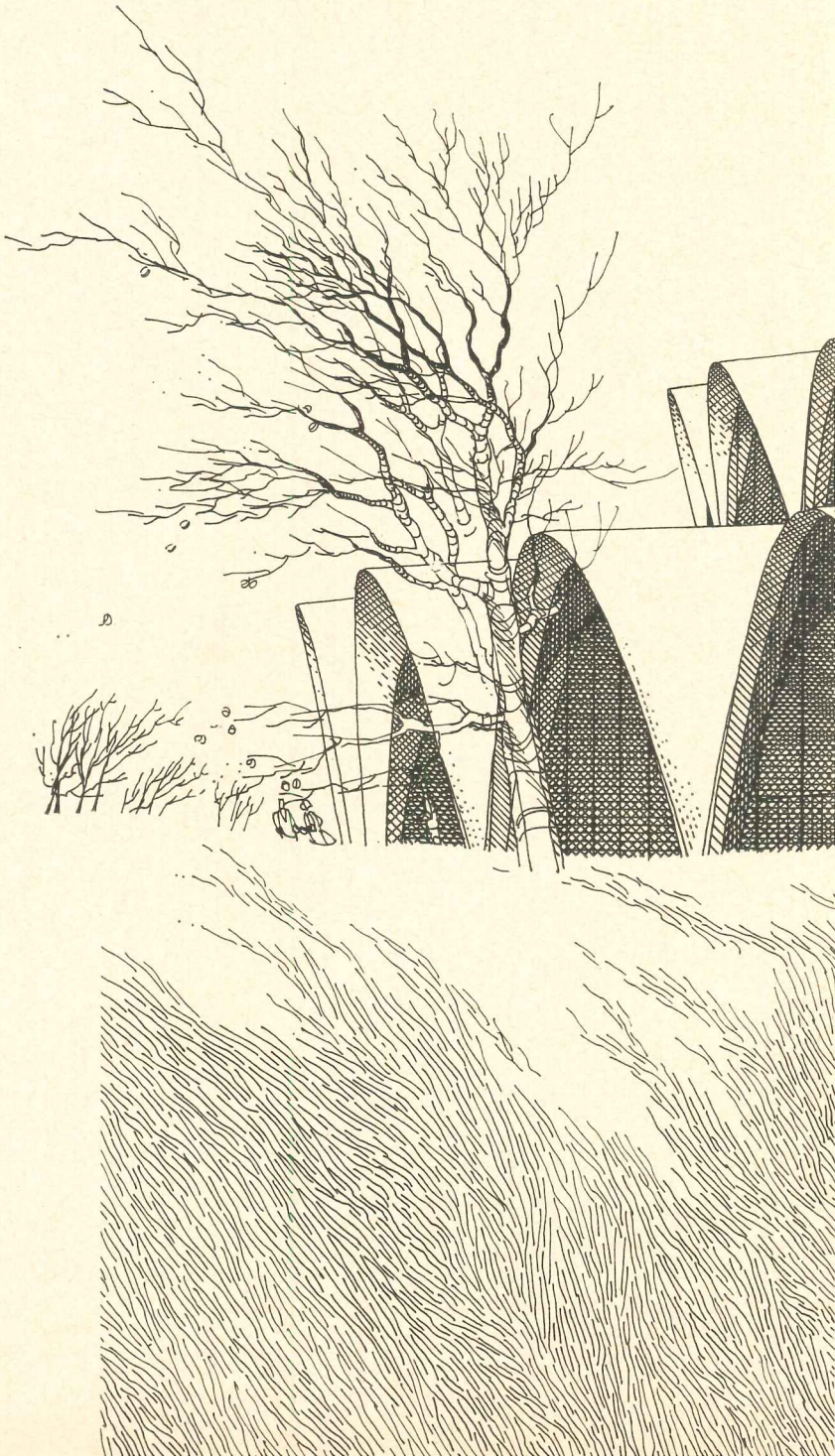
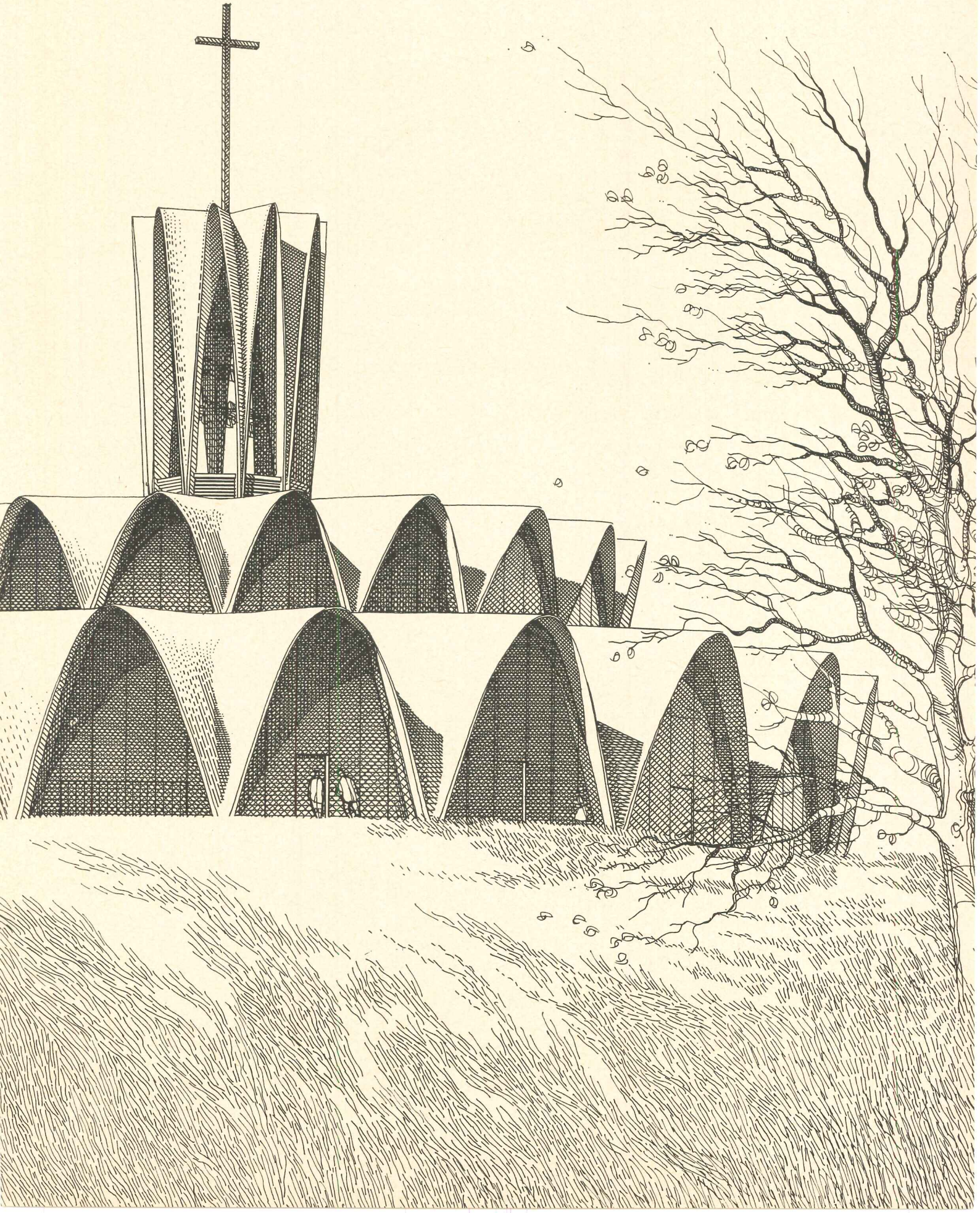


St. Louis Priory Church, Creve Coeur, Missouri
Architects: Hellmuth, Obata and Kassabaum
Gyo Obata—Designer
Drawing by Davis Bite



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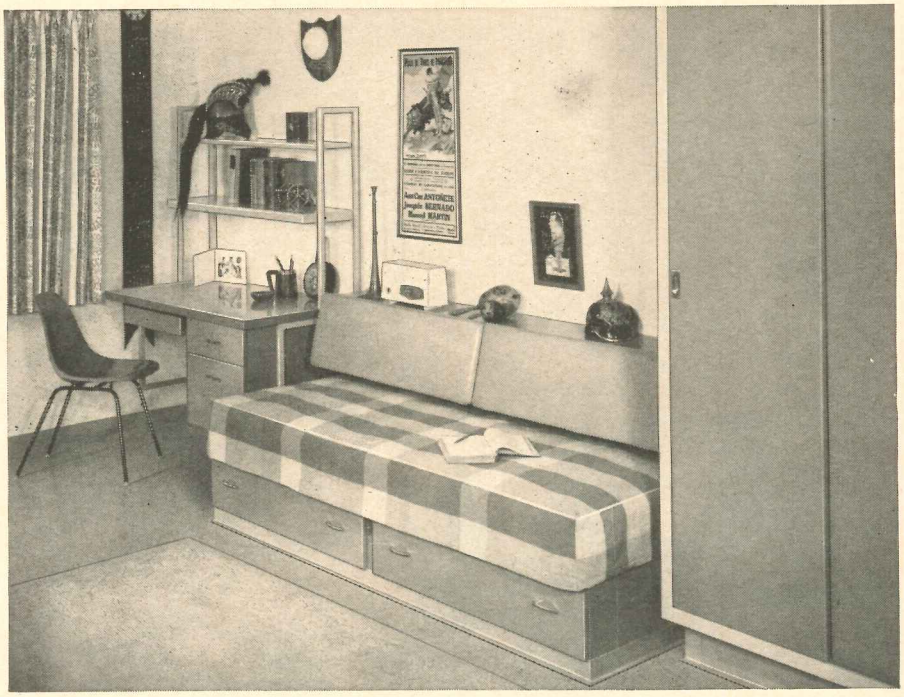

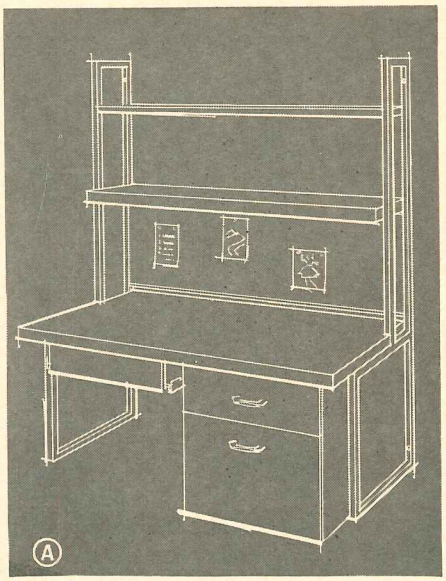

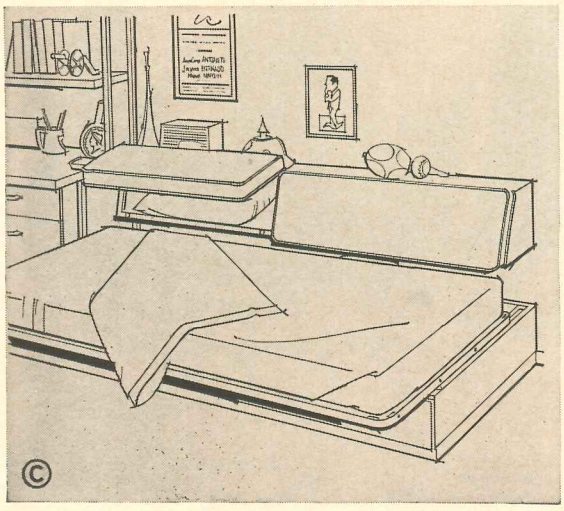

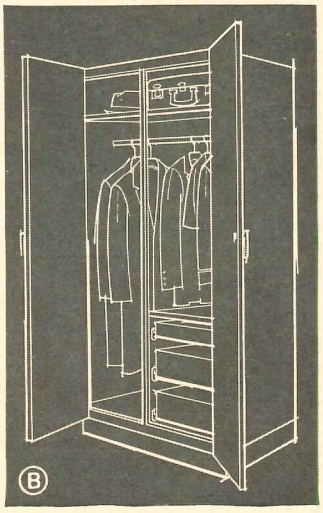

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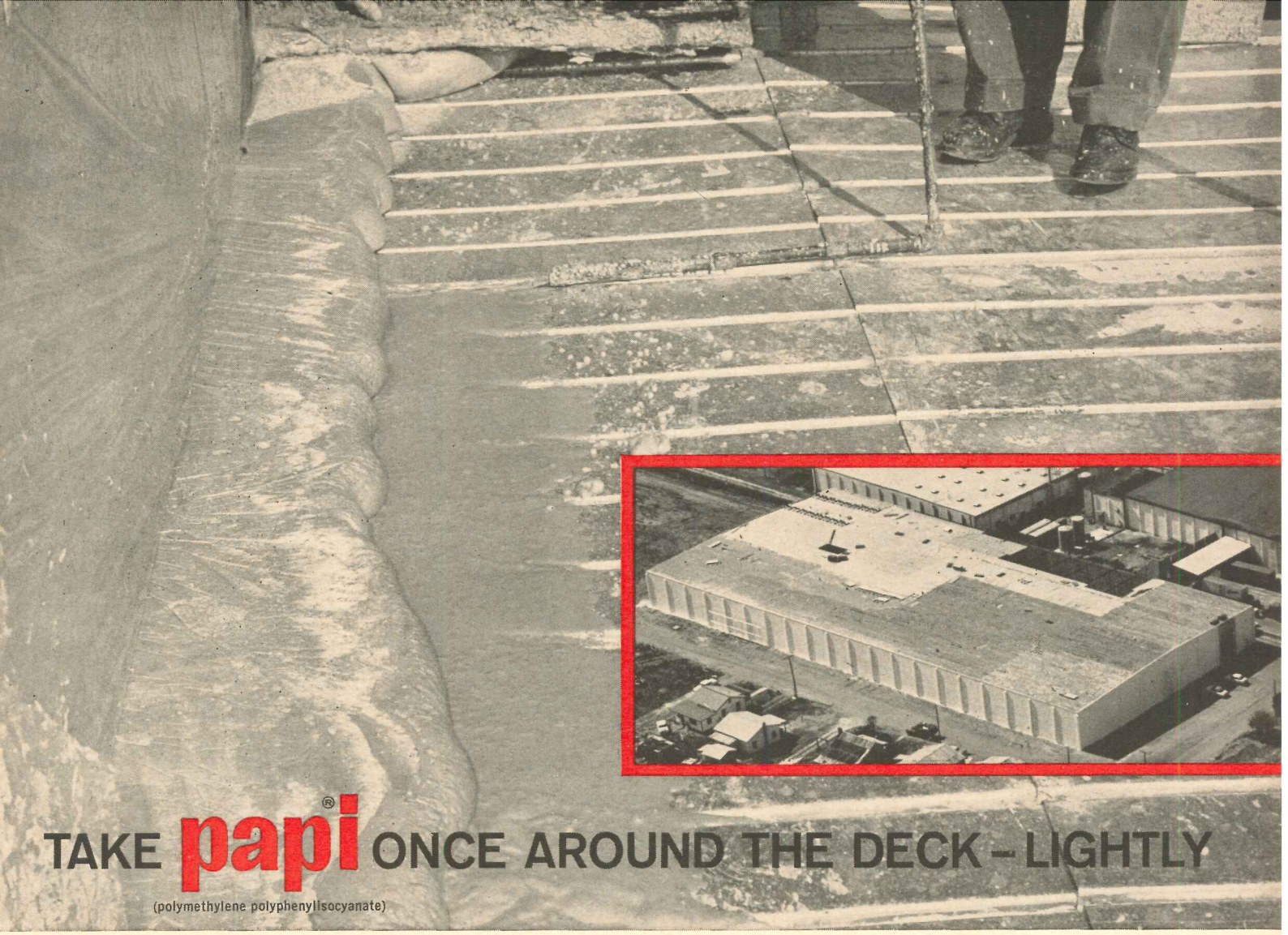

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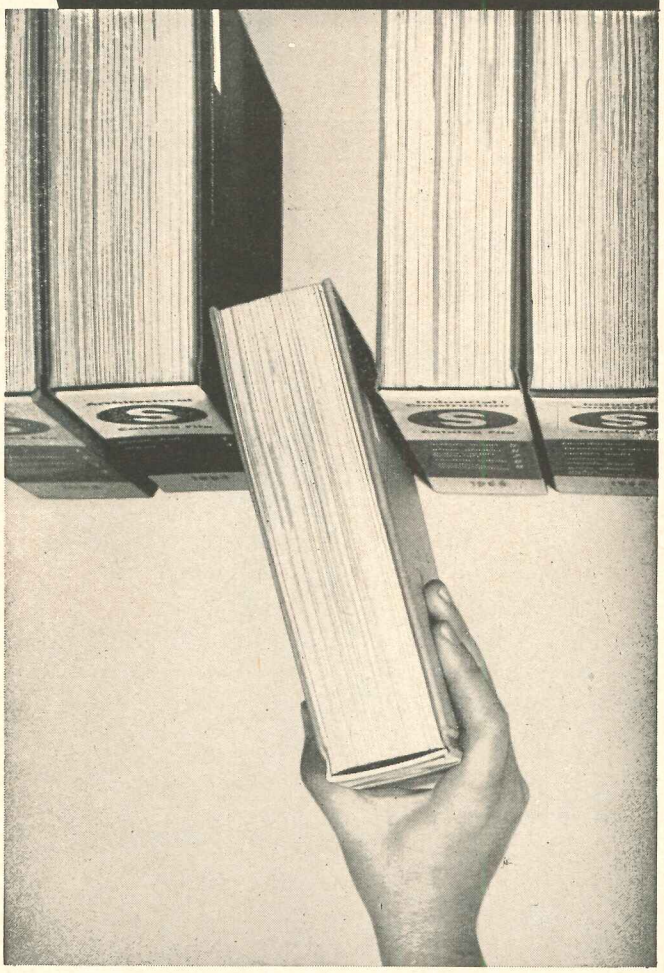

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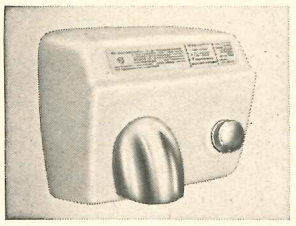

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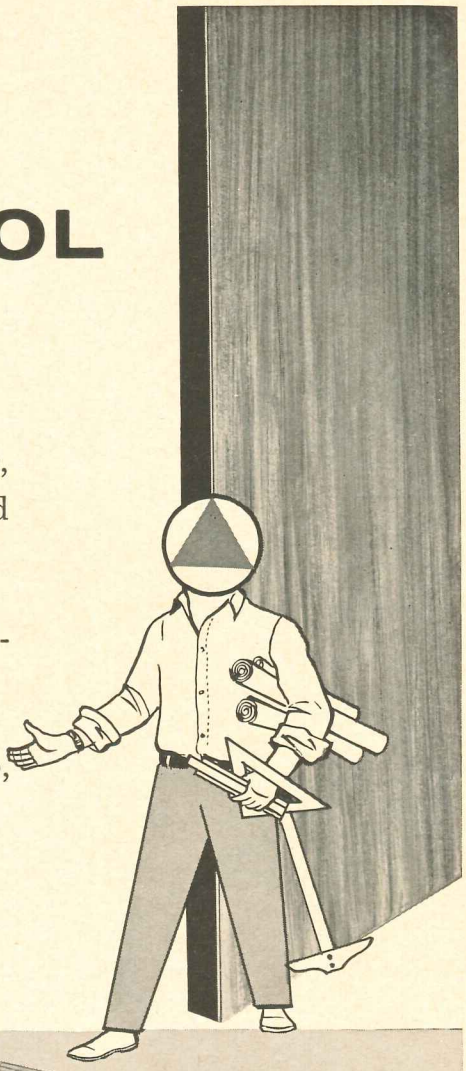

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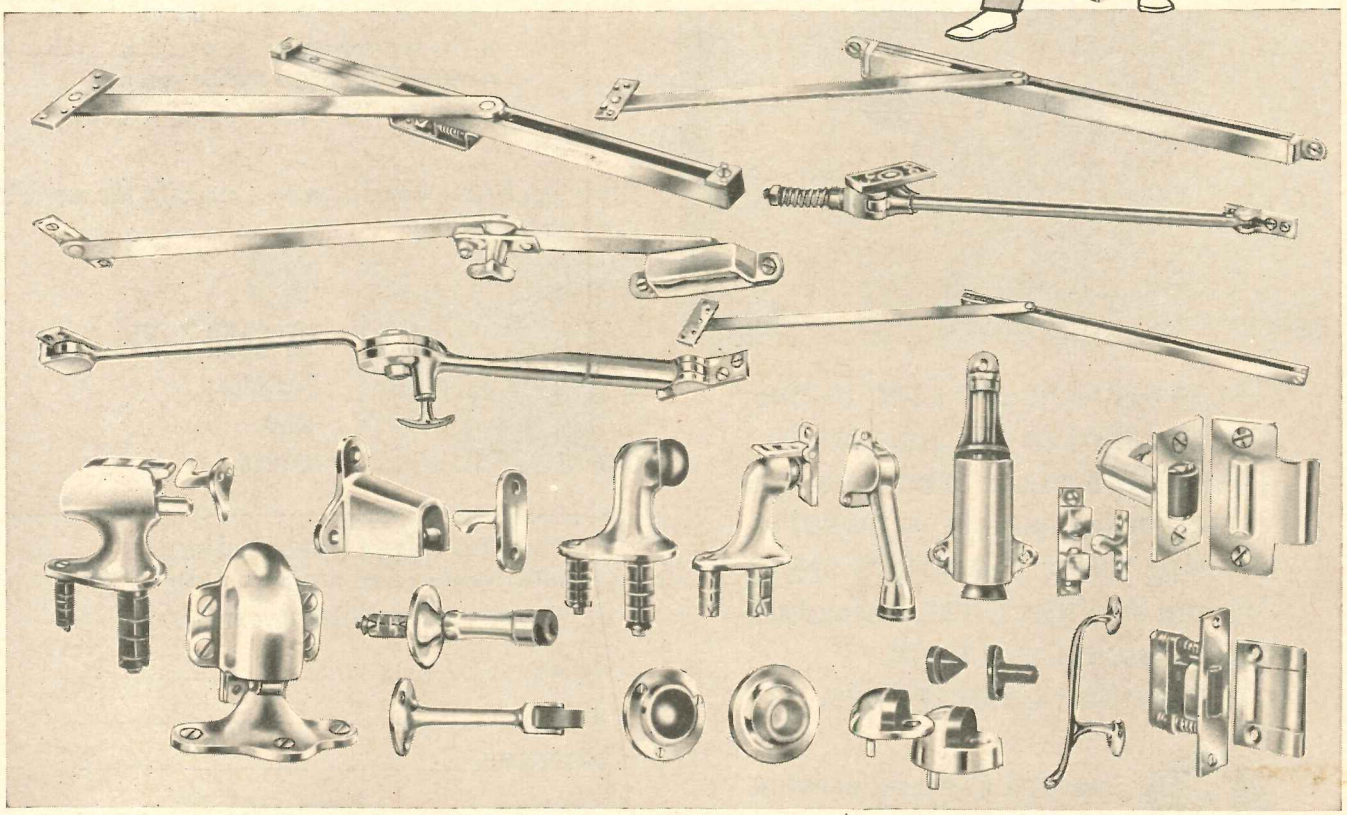

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Installation: Trans World Airlines Executive Offices, 605 Third Avenue, New York City

Designers: Leonard, Colangelo and Peters, New York City

Building Architects: Emory Roth & Sons, New York City

Floor shown: VP-624 Smoky Onyx

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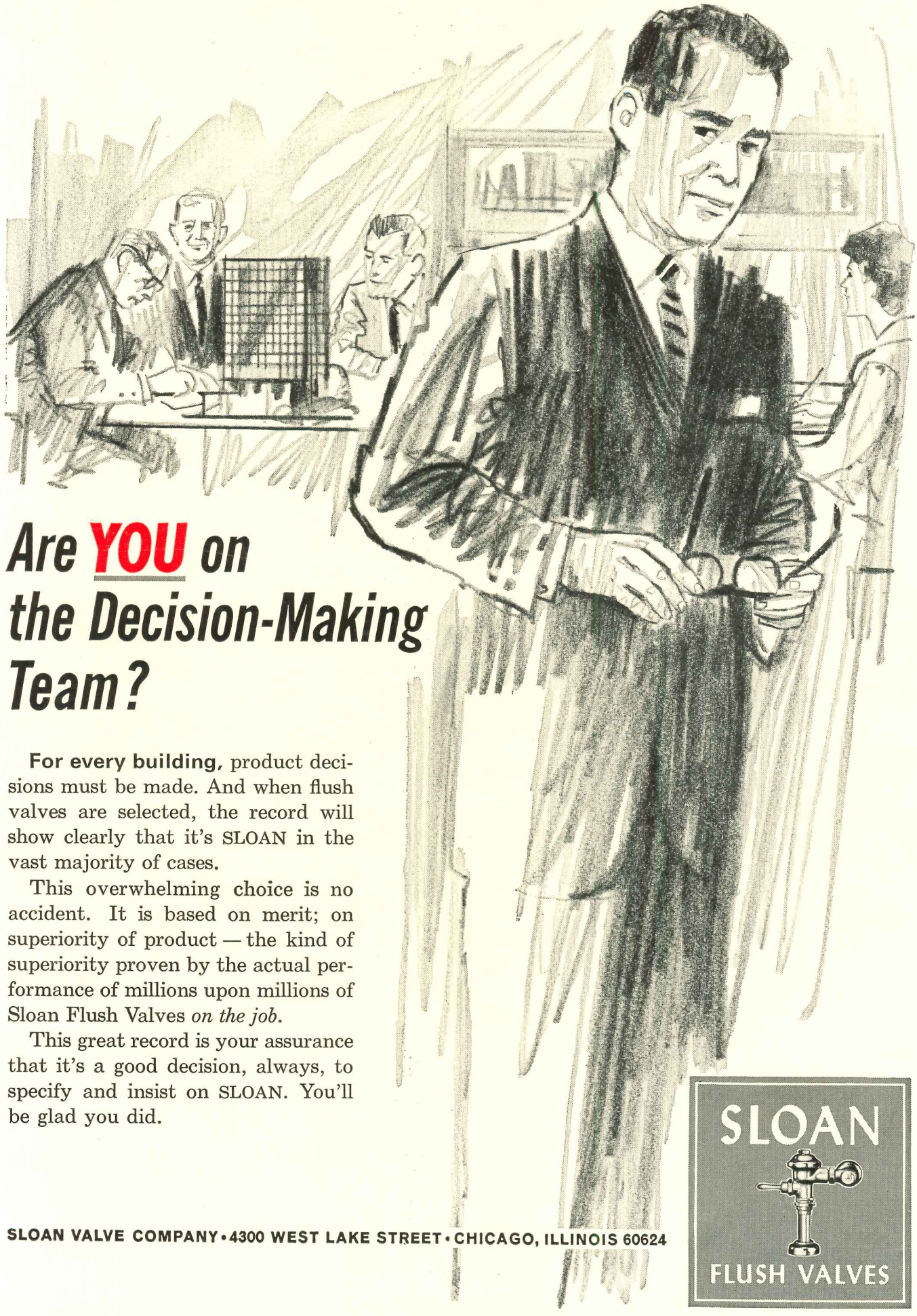

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