November 1963 **PROGRESSIVE ARCHITECTURE**

Colors: V-810 Vesuvius, V-813 Venetian Beige, V-816 Verona White, V-818 Milano

Magnified view shows pattern distribution through full thickness of tile.
Gauges: 1/8", 3/32", 1/16". Standard size: 9 x 9". Modular size: 12 x 12" available in quantities of 9000 square feet per color — at no extra charge.

Vina-Lux® 800 *Series*

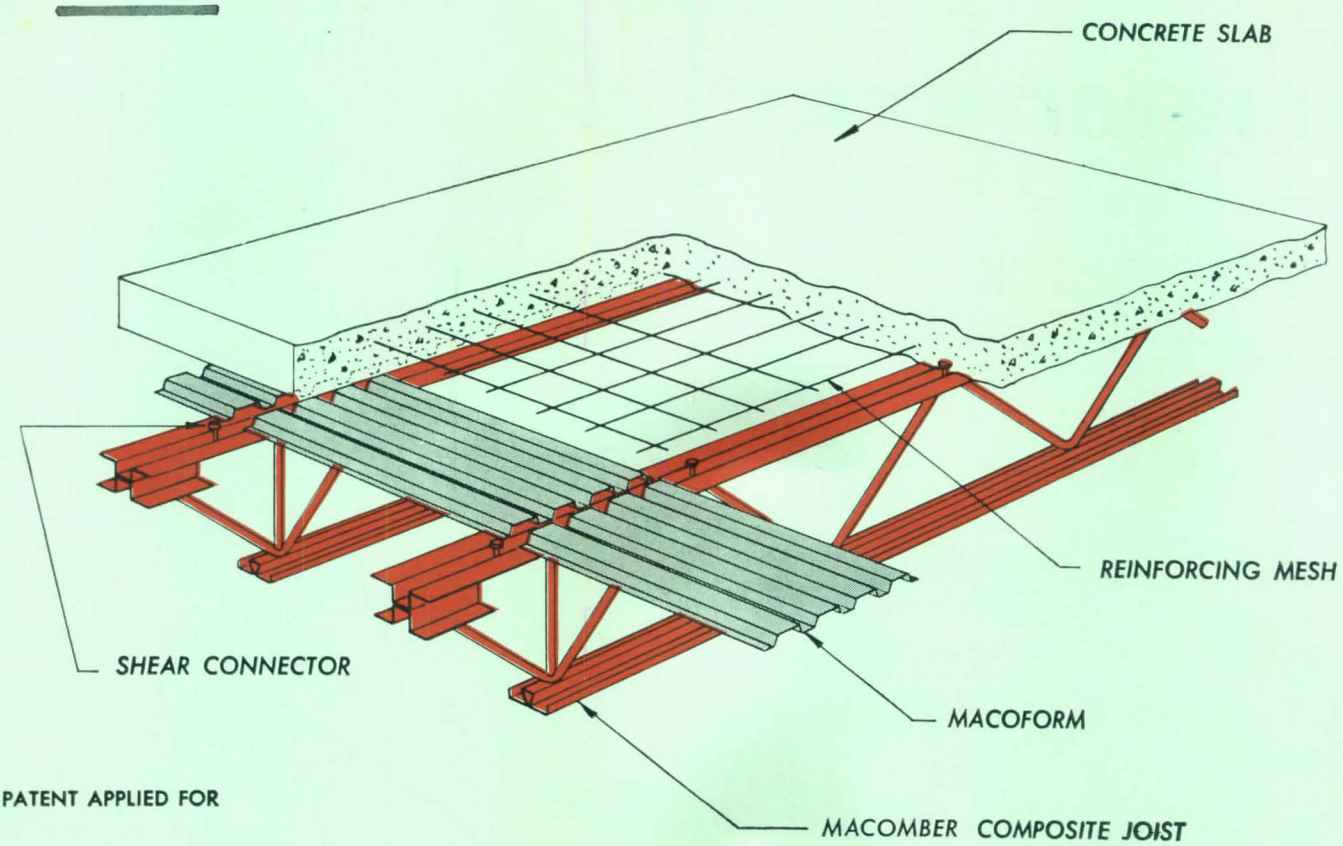
unique floor beauty that won't "walk off"...

...because the distinctive color-chip pattern is distributed through the full thickness of the tile. 800 Series in Vina-Lux vinyl asbestos tile retains its beauty and pattern under the heaviest concentrations of traffic... delivers so much more value and performance than surface patterns... yet costs no more. Specify Vina-Lux 800 Series, for installation over concrete — above, on or below grade, or over wood or plywood subfloors. Consult Sweet's Catalog — or let us send you samples, color charts and detailed architectural specifications. Azrock Floor Products Division, Uvalde Rock Asphalt Company, 526A Frost Building, San Antonio.

an exclusive styling by AZROCK®

For more information, turn to Reader Service card, circle No. 314

NEW



PATENT APPLIED FOR

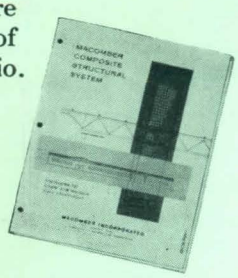
A way to improve multiple story construction

(and reduce its costs)

Build a tall building, or a single-story, with less wasted space, more economically. It can be done with an exciting new system developed, tested and proved by one of America's best known structural steel fabricators — Macomber Incorporated, a Subsidiary of Sharon Steel Corporation.

It's called the Macomber Composite System, because it combines steel and concrete into a structural member which functions integrally, utilizing the strength of open-web joists with the capacity of a concrete slab. The inter-action of the joists and slab provides a more rigid unit than steel and concrete acting independently. Developed around a special open-web joist, the system permits longer spans with shallower depths, reducing height per floor. More efficient use of materials with a reduction in total dead weight and labor costs, result in decreased building costs.

The Macomber Composite System is another new custom steel product from the expanding world of Sharon Steel. For technical brochure write Macomber Inc., Subsidiary of Sharon Steel Corp., Canton 1, Ohio.



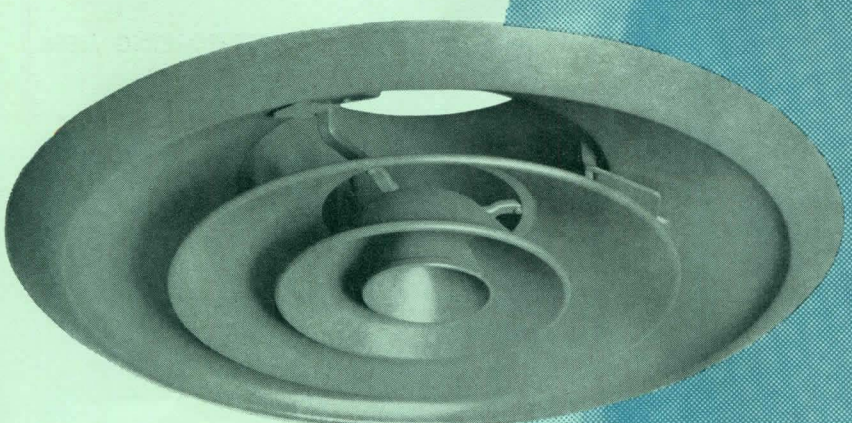
MACOMBER INCORPORATED

CANTON 1, OHIO

SUBSIDIARY OF SHARON STEEL CORPORATION

For more information, turn to Reader Service card, circle No. 349

NEW FROM THE ANEMOSTAT® AIR DISTRIBUTION LABORATORY



A LOW-COST TRUE FOUR-CONE ADJUSTABLE DIFFUSER FOR CONTROLLING AIR PATTERN

"C-7"

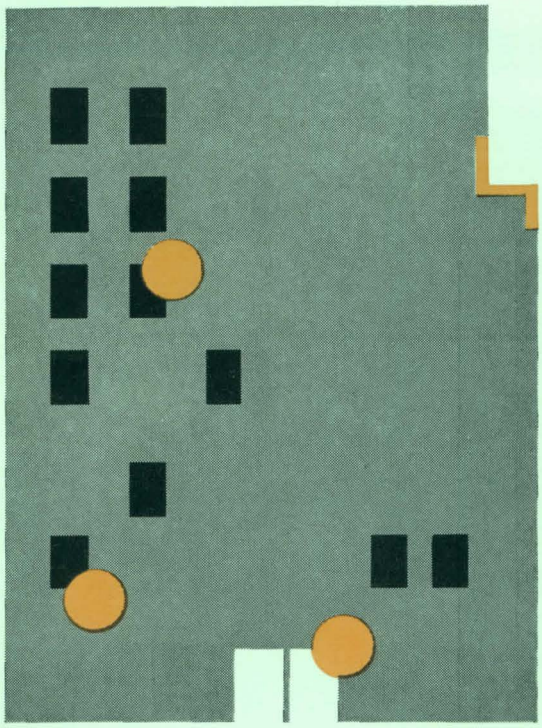
Anemostat Corporation's new true four-cone adjustable diffuser provides adjustable air patterns from draftless horizontal to downward projection. The "C-7" maintains the high Anemostat Corporation quality and performance characteristics. Adaptable to various architectural designs, the "C-7" is especially efficient in installations calling for an adjustable air diffuser at minimum equipment costs. Standard Anemostat® accessories... Combo Damper, Equalizing Deflector, Anti-Smudge Ring ...are available for the "C-7". For specific performance, installation, dimension data write for the new "C-7" Bulletin #C-963.

ANEMOSTAT CORPORATION OF AMERICA
Scranton, Pennsylvania

A Subsidiary of
DYNAMICS CORPORATION OF AMERICA

MEMBER OF AIR DIFFUSION COUNCIL

For more information, turn to Reader Service card, circle No. 312



Electrodeposition turns a little copper into a lot of quality protection. Anaconda uses it to make "Electro-Sheet" Copper, a long-lasting, low-cost barrier against water, moisture, vapor and wind when bonded to high-grade building papers, fabrics or asphaltic compounds. "Electro-Sheet" Copper-Bonded Products provide ideal protection for spandrel beams, door and window heads and sills, shower rooms, parapets, etc. Don't gamble with substitutes. Stake your reputation on time-tested, durable copper. See your building supply dealer or send coupon. 62-1391

Electrodeposition cuts costs of copper for moisture protection. Send coupon!

ANACONDA®
AMERICAN BRASS COMPANY

ANACONDA AMERICAN BRASS COMPANY
Ansonia Division, Ansonia, Conn.

Please send me illustrated brochure on "Electro-Sheet" Copper-Bonded Products.

Name.....

Address.....

.....

For more information, turn to Reader Service card, circle No. 311

THE BEST BLOCK WALLS
are reinforced with Dur-o-wal®

No doubt about it, versatile modern block makes for beautiful walls. And to make that beauty last, the best block walls are reinforced with truss-designed Dur-o-wal brand wall reinforcement. Increases horizontal flexural strength of 8-inch block walls by as much as 135 per cent. Does better than brick headers for the compressive strength of composite masonry walls. Works in all kinds of masonry walls—block or brick, or any combination—for repair-free wall life. And that's an economy worth talking about to the man who pays for the walls you create. Want better walls? Want the facts? Write for Dur-o-wal Data File.

DUR-O-WAL®

The Original Masonry Wall Reinforcement with the Truss Design

DUR-O-WAL MANUFACTURING PLANTS

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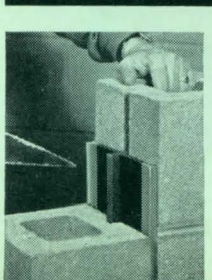

STRENGTH WITH FLEXIBILITY—this basic masonry wall requirement is met for sure (and economically!) when Dur-o-wal, above, is used with the ready-made, self-flexing Rapid Control Joint, left.

THIS MONTH IN P/A

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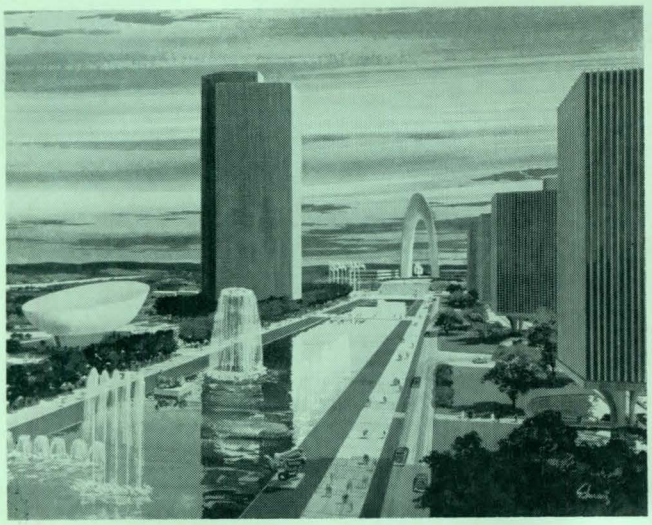
VOLUME XLIV, No. 11

Cover BAS-RELIEF ANGEL, ST. PATRICK'S CHURCH (page 136)
Photo: Julius Shulman

Frontispiece REREDOS, LANSING PRESBYTERIAN CHURCH (page 130)
Photo: Robert Nowell Ward

ABC ABP R REINHOLD

VIEWS



Beauty and the Beast

Dear Editor: Your story on the proposed New York State Capital (NEWS REPORT, SEPTEMBER 1963 P/A) was a disgrace.

Viewing the rendering, this reader feels that the only "cacophony" is that existing between the plainly beautiful proposal and your obviously cruel article.

It may be that your position requires that you criticize new proposals, but that offers no valid reason for your very sarcastic and quite brutal comments.

DOUGLAS N. TANNER
Los Angeles, Calif.

Dear Editor: Your courageous comments on the incipient disaster of the replanning of government quarters in Albany was very much appreciated. The maquette shown reminded me of Churchill's comment after Anthony Eden's maiden speech in the House of Commons: "He used every cliché in the English Language except 'God is love' and 'Will gentlemen adjust their pants.' "

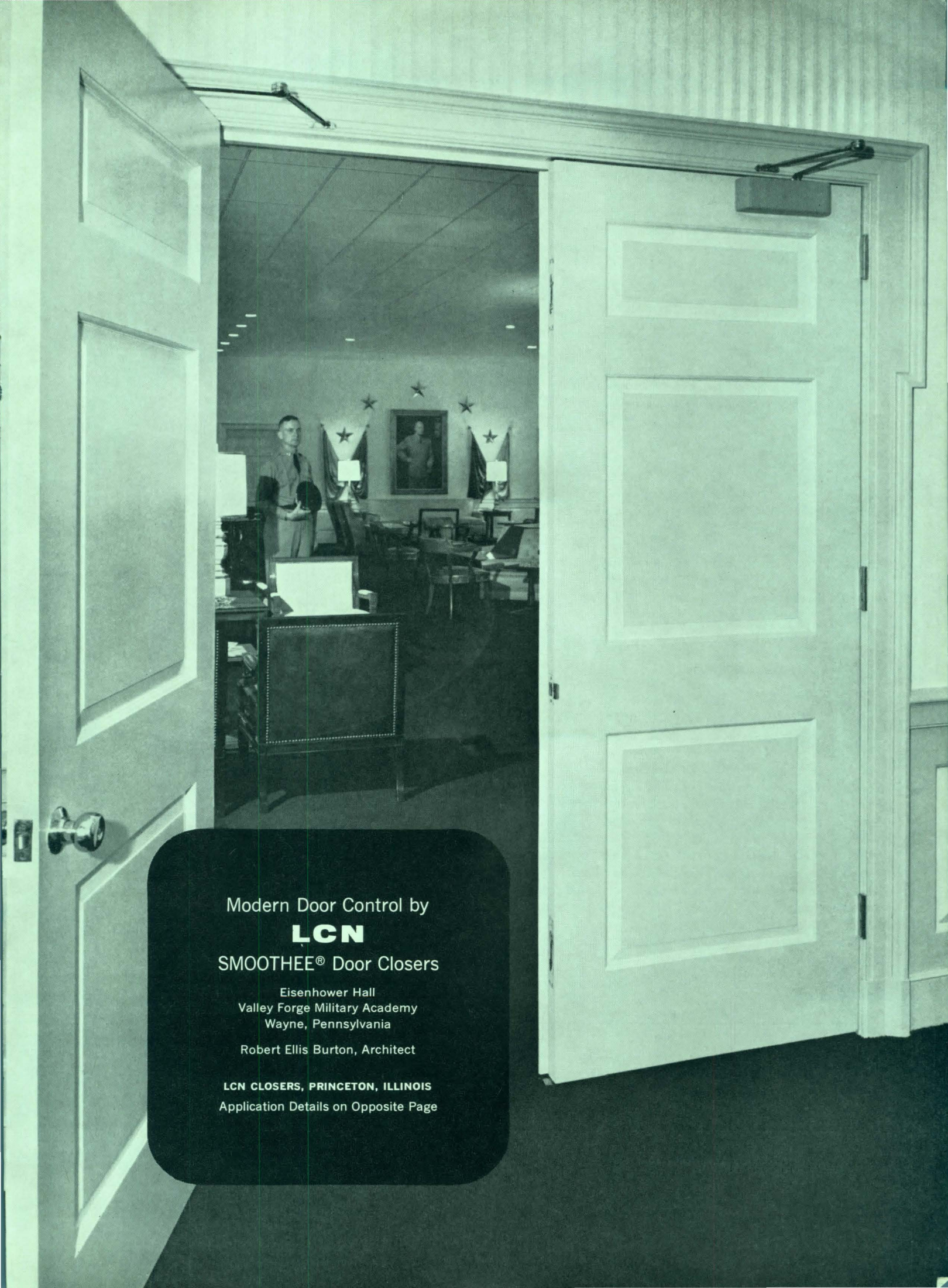
Unfortunately, it also brought back memories of earlier disasters due to the Rockefeller-Harrison association. There was the adulteration of the original United Nations project, which, under the "coordinating" hand of Wallace Harrison, was reduced to a brainless jumble of proportionless components. Lincoln Center, due to the same patronage-design coordination combine, promises to emerge as a distressing blotch of pompousness and visual boredom; and now we are faced with a paperback Niemeyer shell, a paperback Saarinen arch, a paperback Seagram, and poor unadulterated Harrison and Abramowitz Highrise.

The architectural shame of Berlin used to be blamed on the unholy alliance between Wilhelm II and his court architect Schwechten. Is it not somehow incongruous and "un-American" to accept the age-old combination of dynastic dilettantism and untalented vassalage as ordained for our most conspicuous public building projects?

SIBYL MOHOLY-NAGY
Professor of Architecture
Pratt Institute
Brooklyn, N. Y.

Dear Editor: Your recent critique of the South Mall Plan proposed for the state capital in Albany excited my interest. Since Messrs. Harrison, Dudley, Blatner and Williams, aided and abetted by Governor Rockefeller, have been so busily

Continued on page 8



Modern Door Control by

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SMOOTHEE® Door Closers

Eisenhower Hall
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Robert Ellis Burton, Architect

LCN CLOSERS, PRINCETON, ILLINOIS

Application Details on Opposite Page

Continued from page 6

engaged in fructiculture, perhaps it would be well to consider changing the name of South Mall to Luther Burbank Alley in honor of the late American plant and fruit originator.

Such a gross miscarriage of simple good taste, as evidenced in the renderings of the South Mall proposal, evokes reflection on major public projects of this sort, their impact on the aesthetic sensibilities of many generations to come, and the qualifications of those privileged to design areas that will become milestones in the assessment of our contemporary culture. This is heady stuff, and places a serious responsibility to the community at large upon the shoulders of the architects and planners.

The "Arch of Freedom" proposed for the South Mall looms as the giant eye of a needle. This conjures up the noble vision of Governor Rockefeller cantering through the needle's eye astride a loping dromedary. (It is easier for a camel to go through the eye of a needle, than for a rich man to enter the kingdom of God.—Matthew, XIX.)

ROSS G. HARRISON JR.
Darien, Conn.

Dear Editor: The South Mall Plan for Albany is another example (did we need one?) of the value of architectural competitions, both to the client and to the profession. Compare the results obtained in Albany with the Boston City Hall Competition.

As long as the rich and powerful insist on selecting their architects from among their friends and in-laws, and those to whom they are obliged politically, we are going to continue to get this sort of junk. And to make matters worse, we are also going to have to pay for it.

RICHARD M. TITUS
Boston, Mass.

Retractable Super-Roof

Dear Editor: Professor Zuk's article on suspended super roofs was extremely stimulating (SEPTEMBER 1963 P/A). His very interesting two-mile roof can, in my opinion, be made retractable.

I have a patent pending for a retractable roof system utilizing the same structure as that of Professor Zuk, except at a more modest scale. I believe, however, that it can be adapted to as large a roof as he proposes.

The World's Fair Amphitheatre roof, covering 100,000 sq ft, was designed as a retractable roof based upon another patented system of mine. This project has been approved by the Fair's consultants as a retracting roof, and I understand that construction will begin shortly, but the retraction will not be incorporated.

I believe that the possibilities of large retractable roofs will be realized in the near future.

DR. PAUL GUGLIOTTA
Juster & Gugliotta
Architects • Engineers • Planners
New York, N.Y.

CORRECTIONS

P/A is indebted to the Swiss magazine *Werk* (issues 2/1961, 6/1962, 2/1963) for most of the illustrations for the article "Search for Continuity in the Living Environment" (JULY 1963 P/A).

P/A inadvertently failed to credit Warren Reynolds of Infinity, Inc., as the photographer of the Modern Medicine Publications Building (pp. 136–139, SEPTEMBER 1963 P/A).

NO. 14 reinforced concrete columns

a.i.a. file: 4-a

Prepared as a service to architects by Portland Cement Association

Clip along dotted line

In the preliminary design of multistory concrete buildings it is helpful if column size can be quickly approximated for a specific column spacing.

This can be accomplished by use of the formula and the chart shown below. Both are based on the Working Stress Design method (ACI 318-63). In structures such as 575 Technology Square, where wind load is resisted by shear walls, only the axial load of columns need be considered.

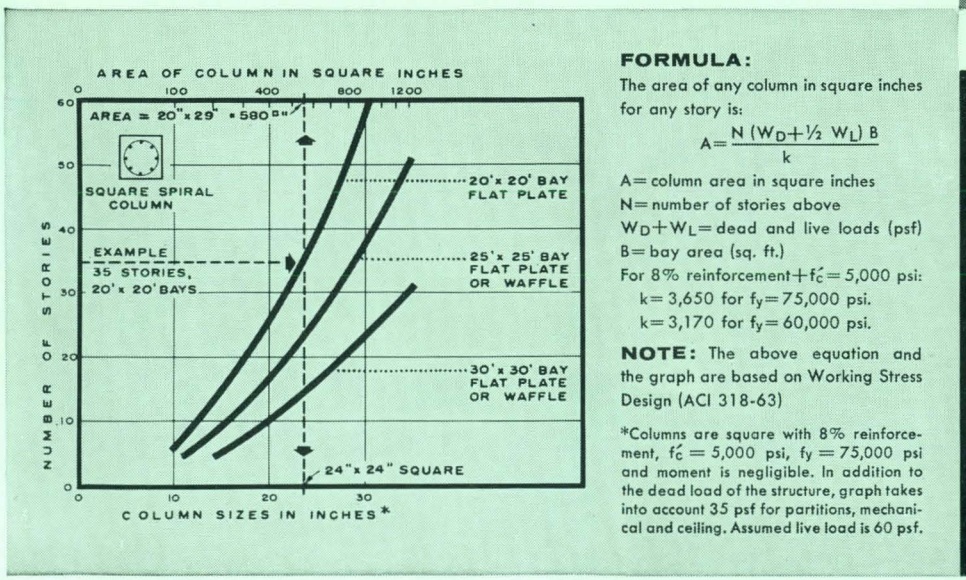
Now coming into wider use is another design method the architect may want to consider. Known as Ultimate Strength Design, it assures the most efficient column size. This approach is not only more consistent with structural behavior, but provides a more uniform factor of safety throughout the building.

For more details, write for free literature. (U.S. and Canada only.)

PORTLAND CEMENT ASSOCIATION

Dept. A11-25, 33 West Grand Ave., Chicago, Illinois 60610

An organization to improve and extend the uses of concrete



FORMULA:

The area of any column in square inches for any story is:

$$A = \frac{N\,(W_D + \frac{1}{2}\,W_L)\,B}{k}$$

A = column area in square inches

N = number of stories above

$W_D + W_L$ = dead and live loads (psf)

B = bay area (sq. ft.)

For 8% reinforcement + f'_c = 5,000 psi:

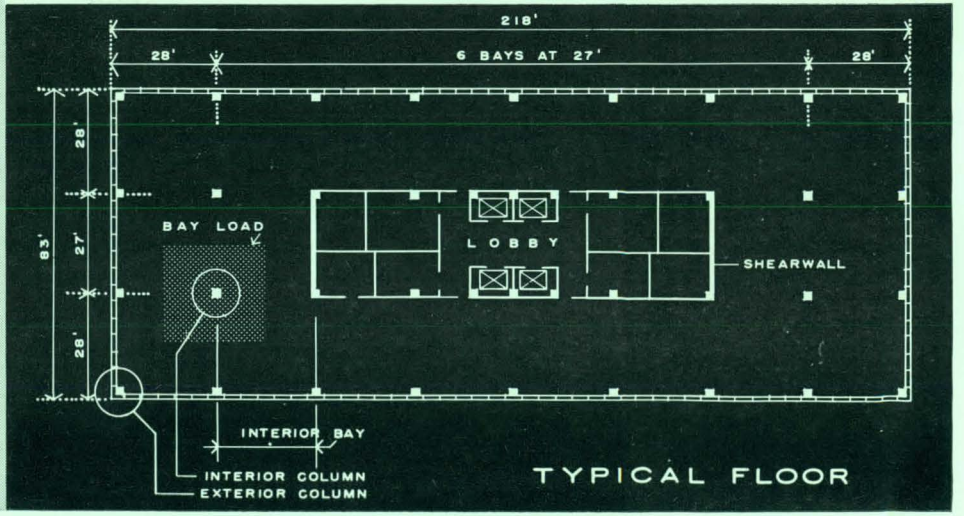
k = 3,650 for f_y = 75,000 psi.

k = 3,170 for f_y = 60,000 psi.

NOTE: The above equation and the graph are based on Working Stress Design (ACI 318-63)

*Columns are square with 8% reinforcement, f'_c = 5,000 psi, f_y = 75,000 psi and moment is negligible. In addition to the dead load of the structure, graph takes into account 35 psf for partitions, mechanical and ceiling. Assumed live load is 60 psf.

Office-Research Center, 575 Technology Square, Boston, Mass. Owners: Massachusetts Institute of Technology and Cabot, Cabot & Forbes Co., Boston, Mass.



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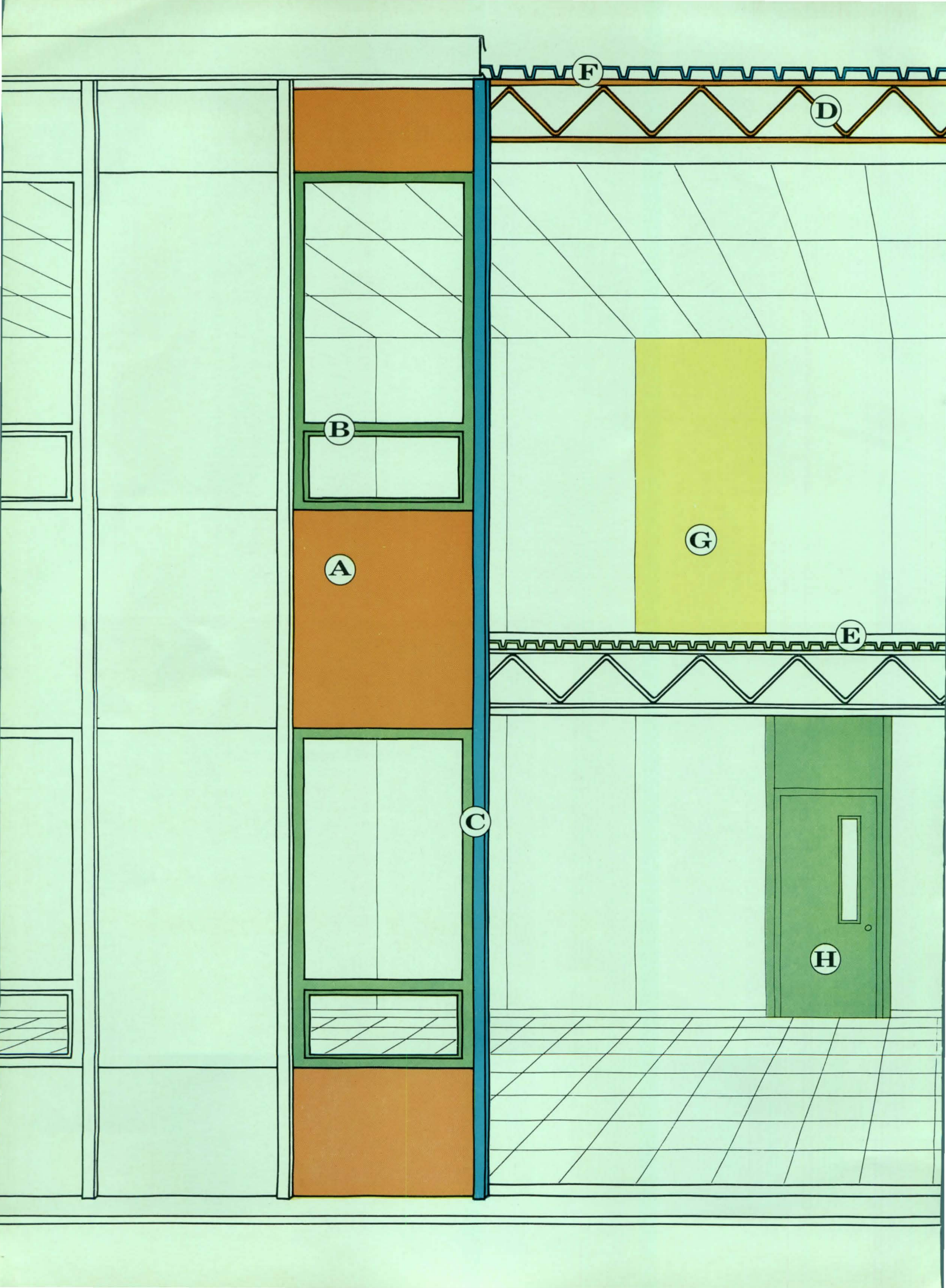
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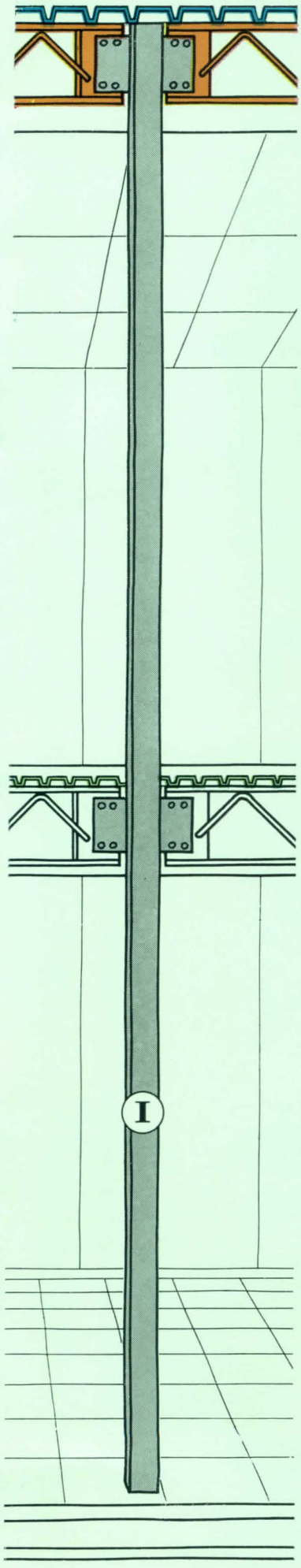


AmBridge Coordinated Building Components: beauty and the best

AmBridge Coordinated Building Components are precision-fabricated. The system is simple and fast to assemble—because every component fits perfectly. Biggest use so far for the AmBridge family of components is schools (where costs are often 13-18% less than average), but AmBridge Components have also been used successfully for power plant, bank, warehouse, laboratory, and office buildings. Architects find that AmBridge Components readily lend themselves to the most modern modular design practices.

USS AmBridge Curtainwall

(A) USS AmBridge Curtainwall systems are available with exterior faces in the 47 recommended PEI colors. Interior surfaces are fully finished with vinyl (at no extra cost to you) or baked enamel to match or harmonize with the partitions. The steel panels are normally designed to a 4-ft. module and run continuously outside the columns. Standard panels are available in 1-, 2-, and 3-story heights. Panel frame members are cold formed galvanized steel. Face sheets are mechanically attached to the structural frame. Heat transfer is controlled with thermal breaks which prevent a thru-metal condition. Because the glass fiber insulation is held away from the exterior face by stainless steel clips, the panel is free to breathe, thereby minimizing condensation. AmBridge walls are so thin compared to masonry construction that you gain about 5% usable floor space. Yet the walls provide a tested thermal "U" factor of .168 that assures comfortable temperatures at reasonable cost.

(B) Sash are high-quality 2" monumental projected or fixed-type, of stainless steel or aluminum. Vertical or horizontal sliding sash are optional.

(C) USS AmBridge Exterior Battens are extruded metal sections with provisions for mechanical attachment without drilling from interior. Battens are fitted with shop-applied neoprene gaskets that permit expansion or contraction while keeping joints weathertight. Custom-designed covers permit aesthetic variation in stainless steel, porcelain enamel finish, or special extruded shapes.

USS AmBridge Open Web Steel Joists

(D) USS AmBridge Open Web Steel Joists support floors and roof. Joist and framing details have been designed to adapt to any specific load requirements. Like all AmBridge Coordinated Structural Components, joists meet specifications of the SJI, AWS, AISC, and AISI latest adoptions.

(E) Leave-in-place light-gage steel floor forms provide support during cure for the poured concrete floor.

(F) Steel roof deck specifically engineered to the structural requirements permits all-weather installation, receives insulation for built-up roofing and supports roof loads.

USS AmBridge Partitions

(G) USS AmBridge Partitions, like our curtainwall interiors, are available in six pastel vinyl finishes that cost no more than our 28 baked enamel colors. Both finishes are applied under factory-controlled conditions. Mild detergents easily keep surfaces clean and new-looking. The panels incorporate a cold-rolled steel channel frame with face sheets attached to each side. Partitions are insulated with glass fiber, and although only 2¼" thick, they provide excellent acoustical values. Test results show an attenuation of 45 decibels or more from room to room. Partitions are easily movable (just unbolt) to permit alteration of room size with minimum disturbance and cost. Interior battens are flush with the partition and are removable for simplified wiring.

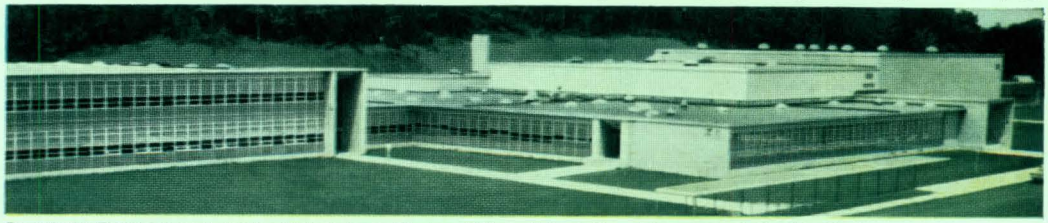
(H) USS AmBridge Steel doors with a corrosion-resistant polyurethane foam core are supplied as an integral part of exterior and interior panels. All doors are complete with pressed steel frames and hardware, baked enamel finish, and can be furnished with lights and/or louvers. Neoprene weatherstripping is furnished on all exterior doors to assure a storm-tight seal. Hardware of the finest quality approved by the architect—such as lock sets, closers, panic bars and kick plates in various finishes—can be installed under supervision of experienced AmBridge personnel.

(I) Square or rectangular tubular columns are offered for maximum economy of section.

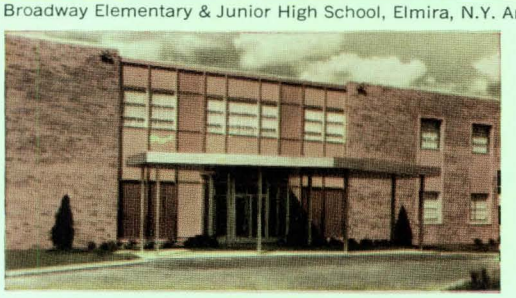
If you want, American Bridge will provide experienced erection crews. We'd like to give you more information. For our free full-color booklet, write to American Bridge Division, United States Steel, Room 1831P, 525 William Penn Place, Pittsburgh 30, Pa. USS and AmBridge are registered trademarks.

American Bridge Division of United States Steel

Beauty, too. Best of all, USS AmBridge Coordinated Building Components blend handsomely with traditional materials, letting you stamp your own signature on every AmBridge Building you design. Three good examples:



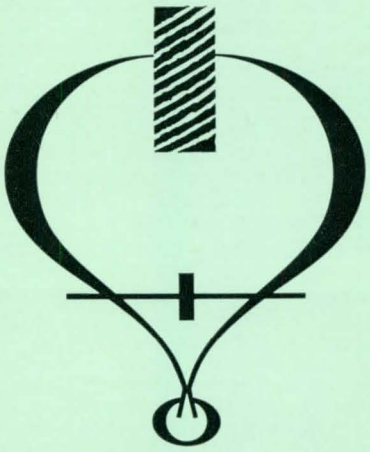
Broadway Elementary & Junior High School, Elmira, N.Y. Architect: Considine & Haskell, AIA, Elmira.



Mobay Chemical Company Office Building, Pittsburgh, Pa. Architect: J. Kenneth Myers, AIA, Pittsburgh.

Union Carbide Company Laboratory and Testing Building, Eastview, N.Y. Architect: Skidmore, Owings and Merrill, AIA, New York.

Architects in growing numbers are endorsing the proposed new ALS lumber standards which will cut costs and simplify designing in wood



NOW IS THE TIME TO MAKE YOUR VOICE HEARD!

Here is what you can do:

1. Write today to the National Bureau of Standards, Department of Commerce, Washington 25, D. C., expressing your support for Revised Simplified Practices Recommendation 16-53.

2. If you are on the Department of Commerce list of acceptors, vote favorably on the new standards.

The present system simply doesn't meet the building industry's need for precisely engineered lumber products. Reform is overdue. The new standards proposed by the American Lumber Standards Committee represent the greatest potential advance in lumber quality in many decades. These improvements in wood are heavily dependent upon this official adoption. Among other things, the new standards will:

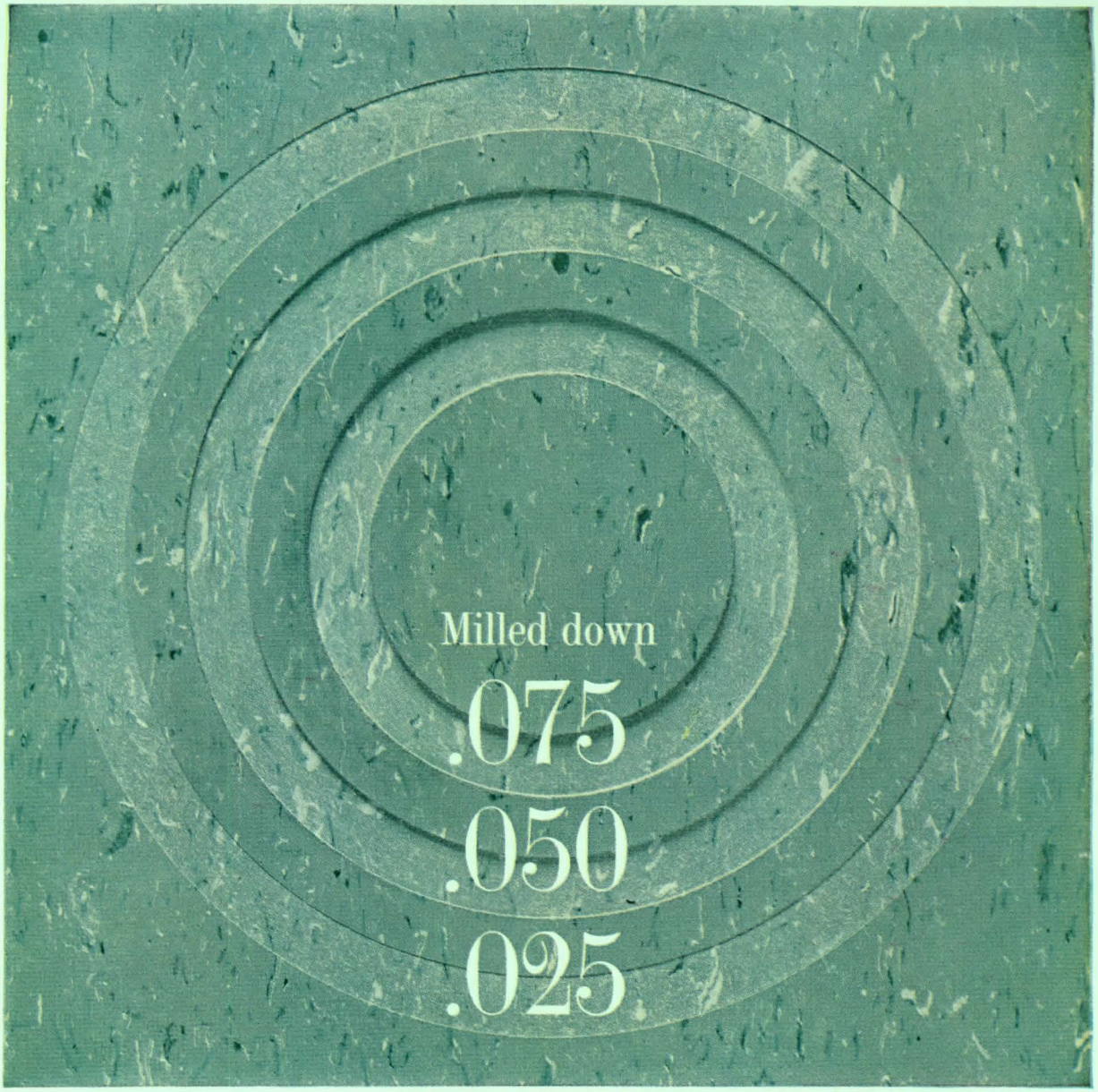
- Establish minimum thicknesses for both green and dry lumber based on the dimensions the material will assume in place on the job.
- Tighten up moisture content requirements in dry lumber to 15 per cent average, 19 per cent maximum.
- Reduce building costs by engineering dry lumber framing to meet realistic stress and grade demands.
- Simplify specifications by reducing the number of conditions that must be covered in span tables and making the size of framing members easier to compute.

Weyerhaeuser has supported the proposed new standards from the outset and today we are already making kiln-dried framing to meet the specifications of the new standards.

If you favor these reforms, won't you make your voice heard now?

Weyerhaeuser Company
Wood Products Division, Tacoma, Wash.

For more information, turn to Reader Service card, circle No. 402



Ruberoid's Thru Chip—the pattern that never wears off.

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3″ x 3″ samples of the entire Thru Chip line beautifully mounted in a permanent binder. Ask your Ruberoid representative or write the Architectural Dept., The RUBEROID Co., 733 Third Ave., New York 17, N. Y.


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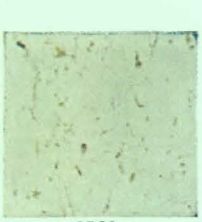
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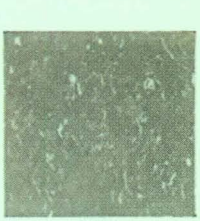
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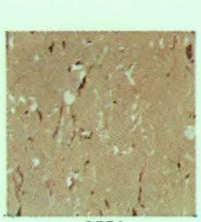
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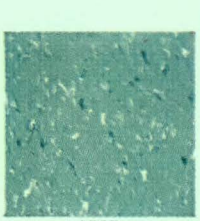
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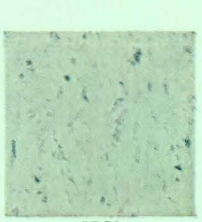
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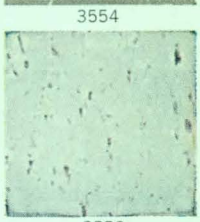
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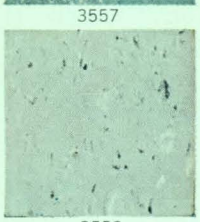
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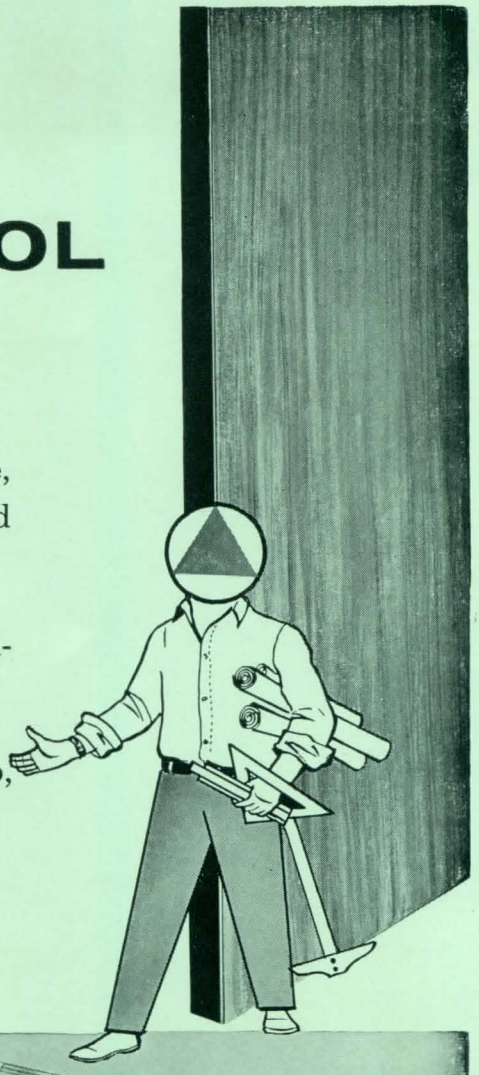
from your

GJ DOOR CONTROL SPECIALIST



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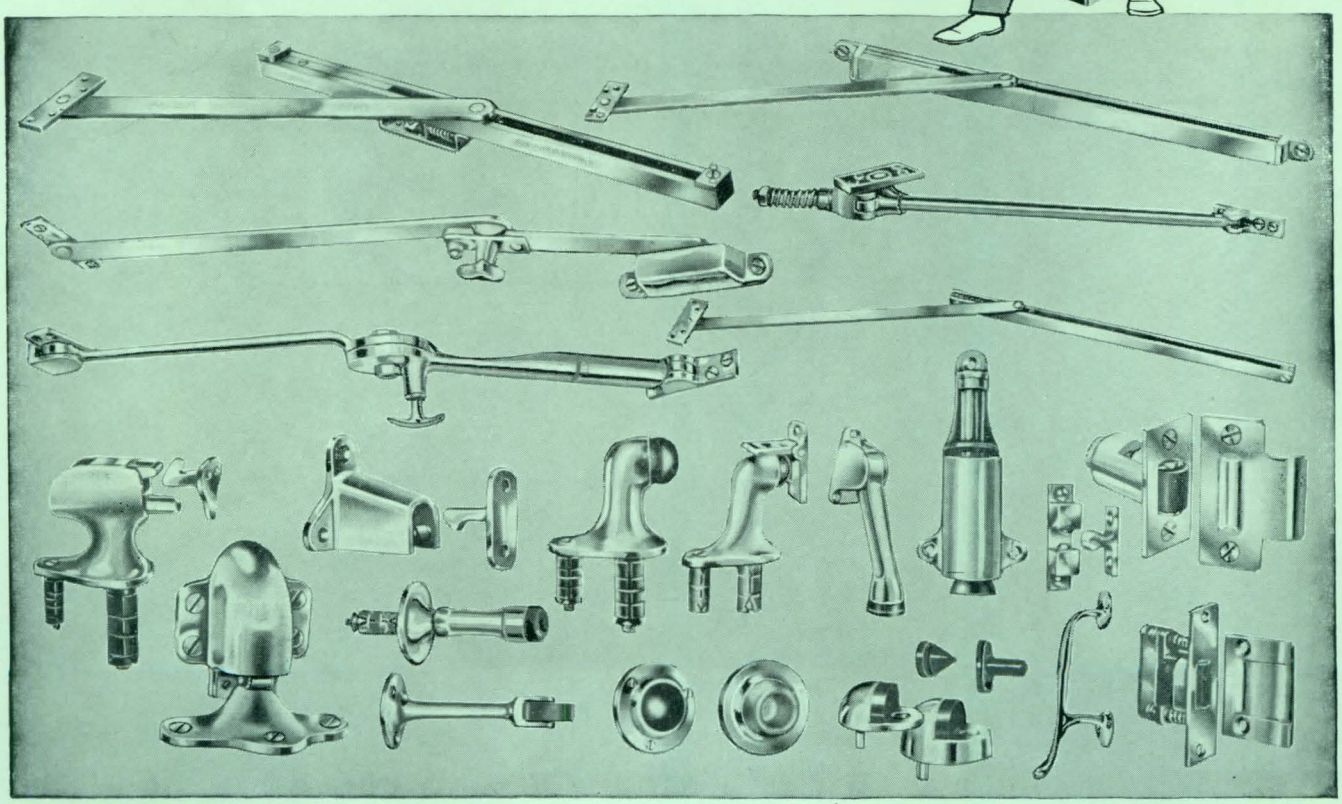

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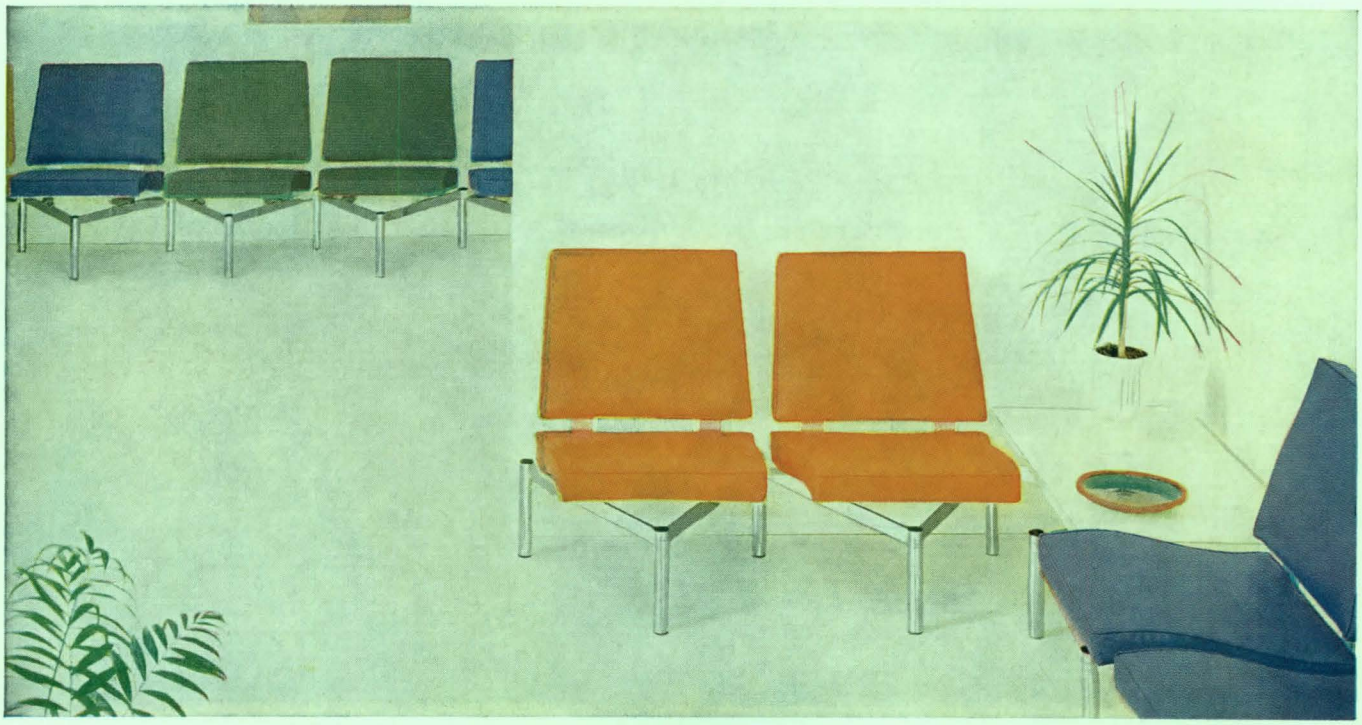

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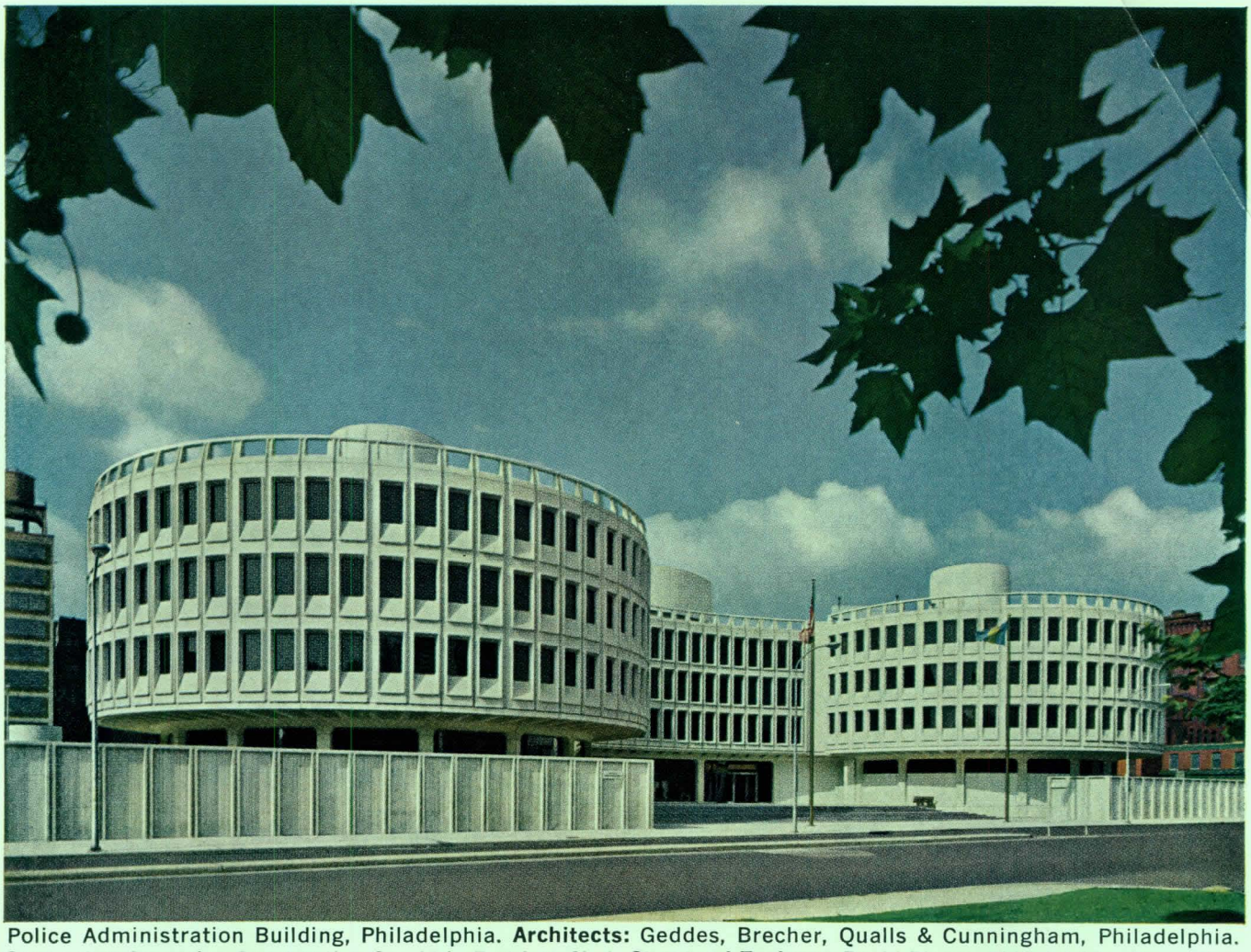
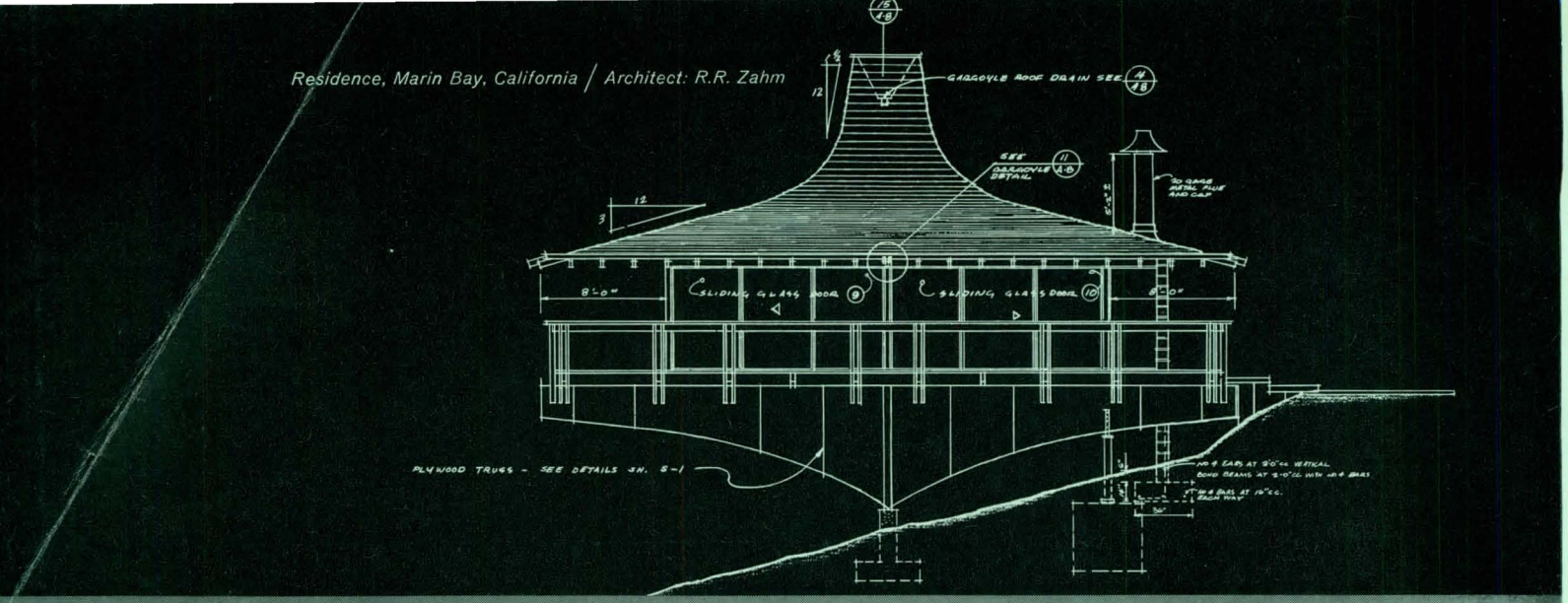


Police Administration Building, Philadelphia. **Architects:** Geddes, Brecher, Qualls & Cunningham, Philadelphia. **Contractor:** Sovereign Construction Co., Ltd., Fort Lee, N. J. **Structural Engineer:** David Bloom, Philadelphia. **Consulting Engineer:** A. E. Komendant, New York. **Precast Concrete:** "Shokbeton" by Eastern Schokcrete Corporation, New York.



Red Cedar Shingles: Classic material for contemporary design

No imitation material matches the strong, natural design accents of genuine Red Cedar Shingles. And, the beauty of this classic roofing is more than skin deep. Strong, *lightweight*, insulative, and remarkably durable, a cedar roof is maintenance-free and gains beauty over the years. For more information about specifications or applications write: Red Cedar Shingle Bureau, 5510 White Building, Seattle 1, Wash. (In Canada: 550 Burrard Street, Vancouver 1, B.C.) **RED CEDAR SHINGLES**

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Last-O-Roof permits one-step application. Cold. Absolutely no on-site preparation is necessary. And that goes for the whole works: roofing membrane, flashing membrane, adhesive and color coating.

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For further information, call your local J-M dealer. Or write: Johns-Manville, Dept. PA, 22 East 40th Street, New York 16, New York.

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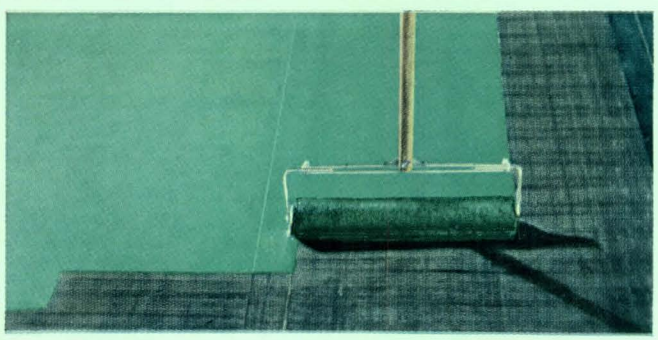
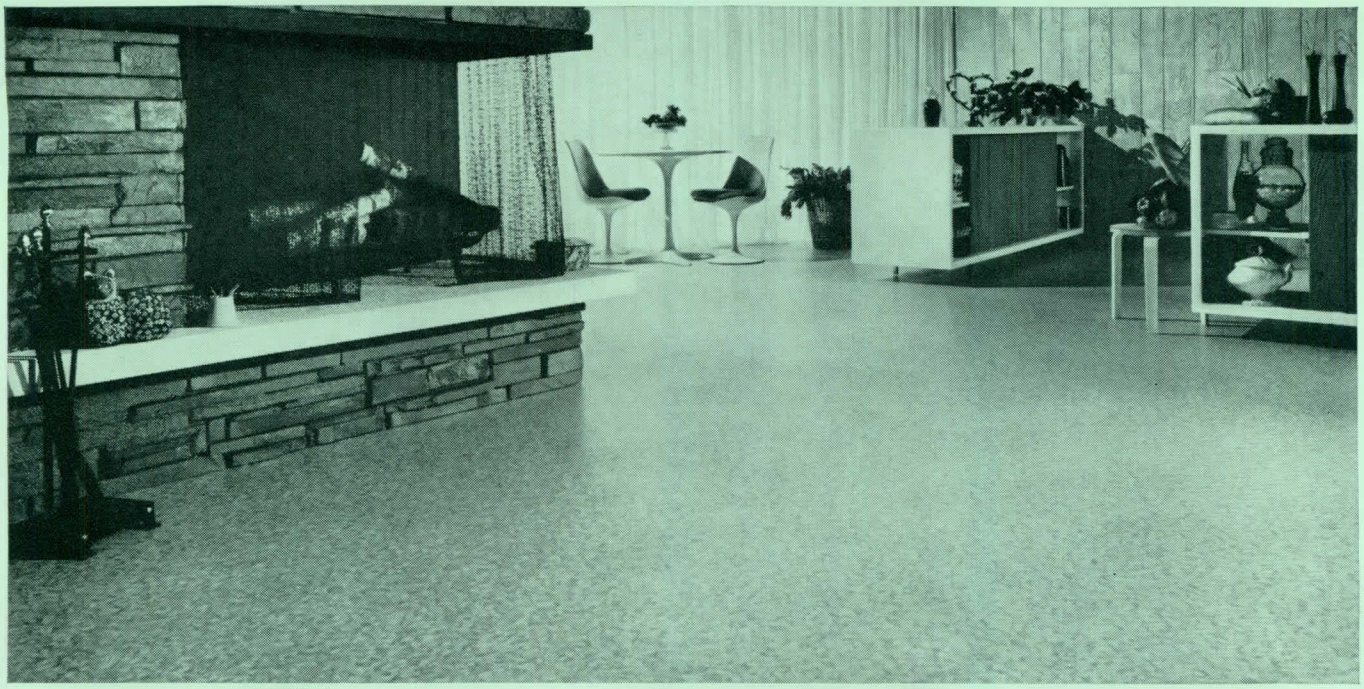


LAST-O-ROOF is as beautiful as it is functional. It can be green, white, or several other colors.

For more information, turn to Reader Service card, circle No. 394



Now a vinyl floor wall-to-wall with seams welded water-tight, dirt-tight, spill-tight!

Now, thanks to Sandura research, LURAN® Vinyl can be welded! That's right. Now you can have a clear, unbroken expanse of vinyl wall-to-wall, even room-to-room. That means no more water-collecting, dirt-collecting, open seams down the middle of your floor. There's no place for water to seep, no place for dirt to creep! And new Luran's luxurious colors and patterns are sealed deep under a new formula vinyl that's as stain-free, as scrub-free, as care-free as a floor can be—makes this the fastest-cleaning vinyl floor you can own! Another surprise! New Luran costs less than many other luxury vinyl floors!

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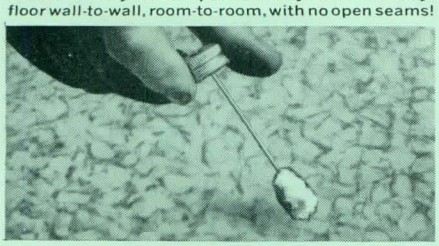
Seal it!

With the amazing new LURAN VINYLWELD PROCESS your Sandura retailer can smooth-weld 6-foot widths of any Luran permanently-installed vinyl floor wall-to-wall, room-to-room, with no open seams!

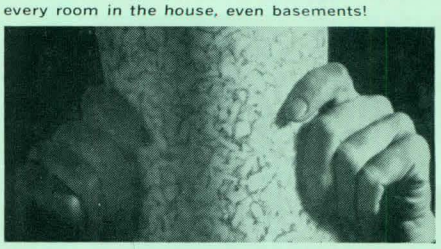


Heel it!

Go ahead! The beautiful new embossing of Luran Imperial and Luran Regency masks most accidental indentation—gives a new deep dimensional look to vinyl! Your foot never touches the patterns!

Feel it!

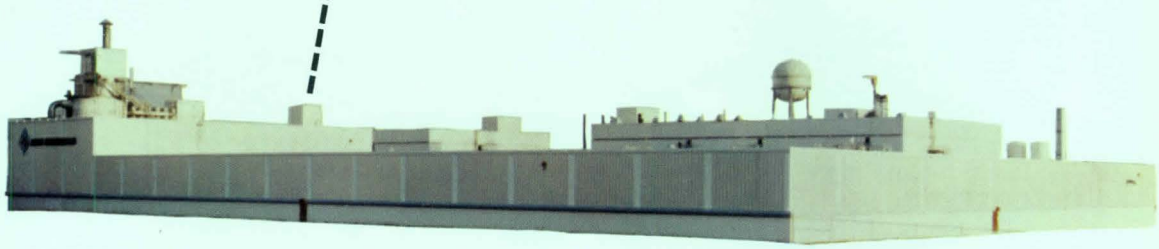
You won't believe a luxury vinyl could have a "hand" like this one. Luran Imperial and Regency feel like fine leather. And so warm underfoot! For every room in the house, even basements!



INDUSTRIAL COMPLEX UNIFORMITY...

Archer Daniels Midland Company Plant, Mapleton, Illinois
Designed and Constructed by Girdler Corporation, Louisville, Kentucky

with SMITH metal walls



The family resemblance isn't accidental. The gleaming Smith insulated metal walls, in Shadowall contour, blend the separate structures of this sprawling industrial complex into a single corporate identity. So whether you're planning a single building or a multiple-unit project, it will pay you to investigate the economies of Smith metal walls.

The advantages of dealing with Smith go beyond simple product superiority. Why? Because our responsibility embraces every phase of building wall construction. Smith walls are designed and adapted to your building plans by our engineers. We make them in our factory. Our own trailers deliver them, at the time they're needed, to your building site. Experienced Smith crews erect your walls by a specialized technique developed in over a generation of manufacturing and erecting building walls.

And when you deal with us, you get the construction know-how and facilities of the largest erector of insulated metal walls in the nation.

Best of all . . . economical Smith metal walls are architecturally aesthetic and structurally efficient. So for your next building assignment, whether industrial, commercial or institutional, contact your local Smith representative. For complete information, see Sweet's File 3a/Sm, or write:

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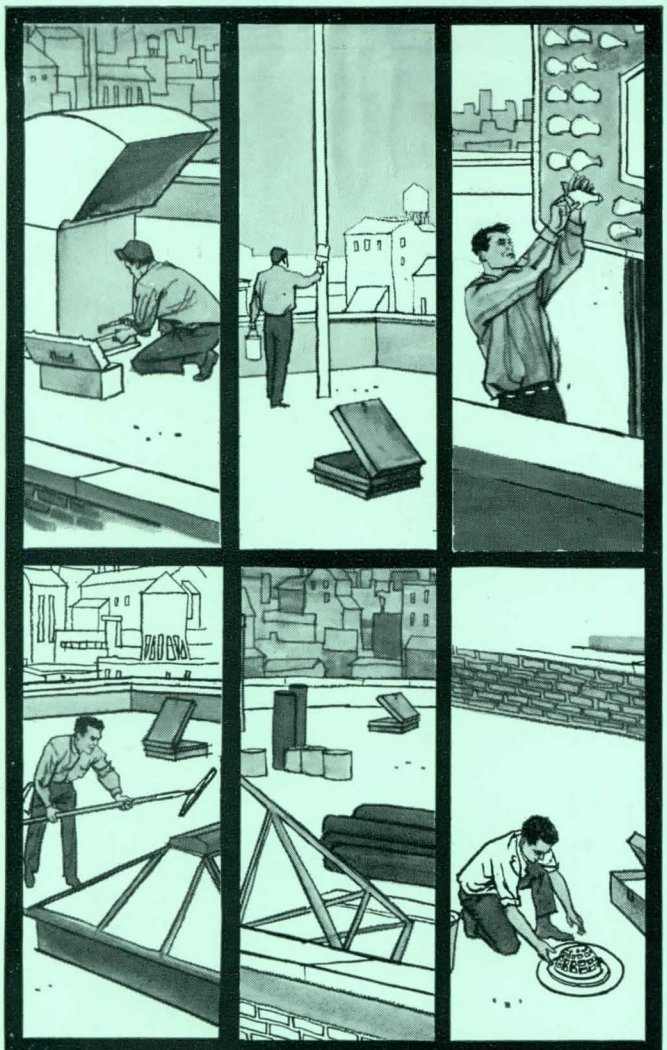
Four totally-automated Haughton Elevators serve the spacious, comfortable offices in the tower building that rises over the four floors occupied by Western Federal Savings.

One of the special Haughton totally-automated elevators which connects the four floors occupied by the home offices of Western Federal Savings.

Haughton's advanced program in systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Reg. in U. S. Patent Office.



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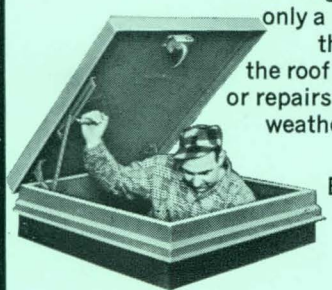

Bilco Scuttles are available in standard and special sizes, in a variety of materials to meet every requirement. **Write for your catalog or see Sweet's for complete details.**

Bilco® THE FINEST IN ROOF SCUTTLES

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to maintain
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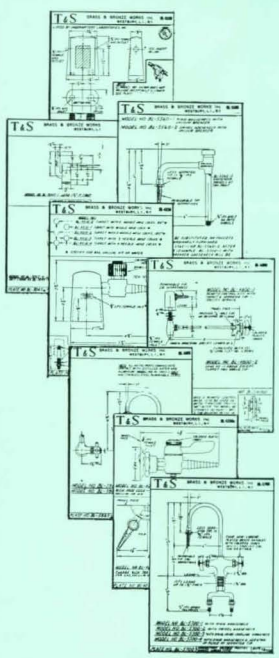
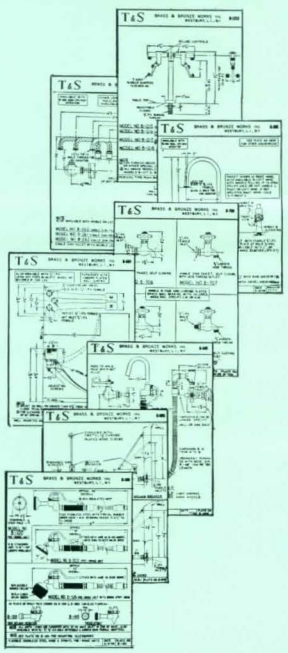


COMPLETE PLANNING GUIDE FOR LABORATORY SERVICE FIXTURES

Planning a laboratory's fluid, gas and electrical service outlets layout becomes an easier task with this comprehensive LAB-FLO manual. Contains dimensional drawings and full specification data for each fixture from A to Z, to equip every type of laboratory. Personal, registered copy available to the professional planner.



COMPLETE PLANNING GUIDE FOR "STREAM-MATED" SPECIALTY WATER FIXTURES

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T&S manufactures industrial and institutional plumbing specialties *exclusively*. They are the most specified — where quality of product and specified performance are reflected at the user site.

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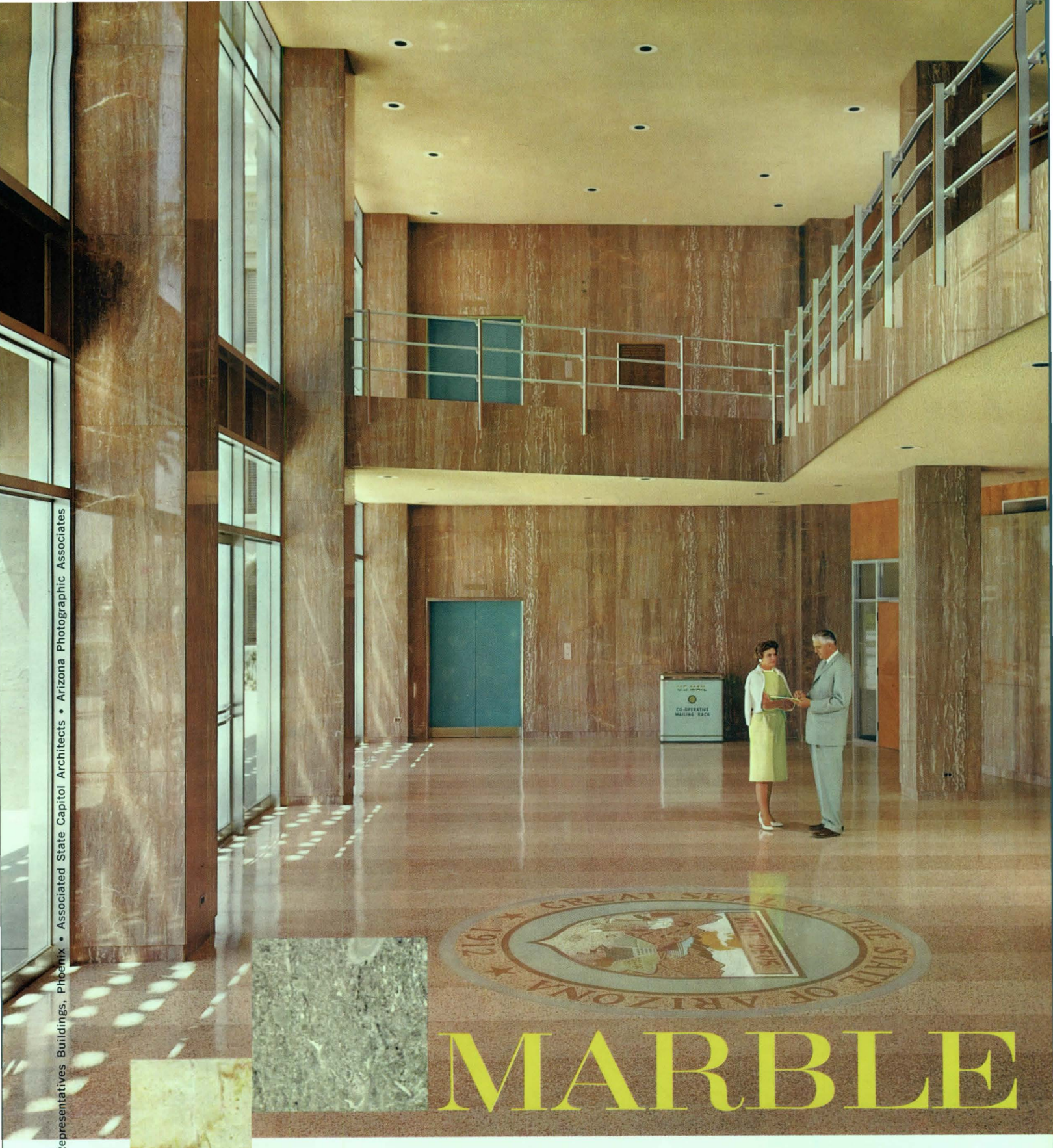
For more information, circle No. 350 ➤



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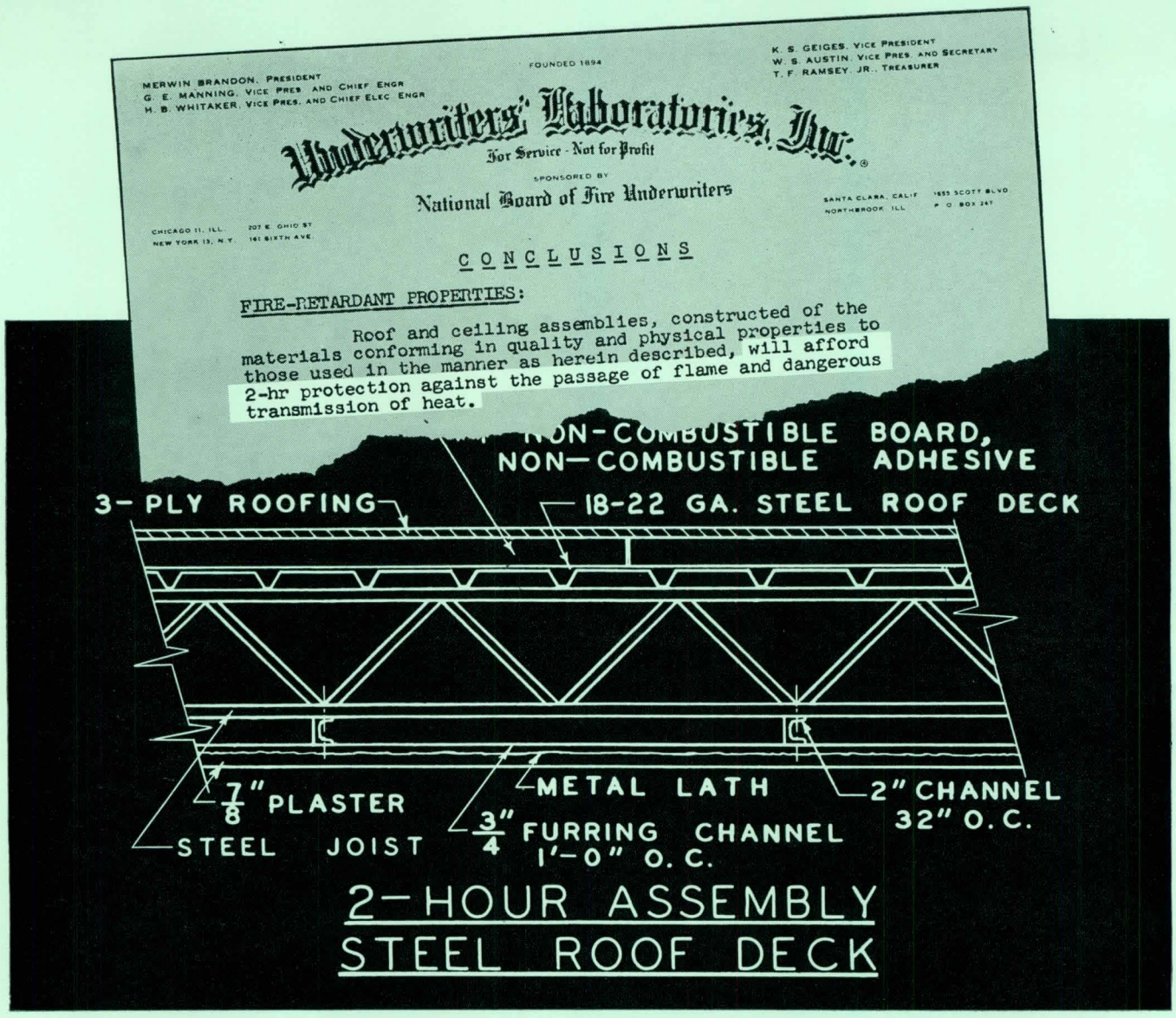

New UL two-hour fire rating for fast, economical steel roof deck construction

Now you can save as much as *ten to twenty per-cent* over conventional fire resistive roof construction, where two-hour fire ratings are required!

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Get full information, now! Contact your local MRDTI member office or write direct for complete information on modern steel roof deck construction and Underwriters' Laboratories detailed fire test Report No. B39963.

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Architect: Deeter & Ritchey, Pittsburgh, Pa.
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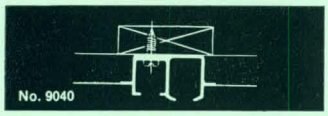
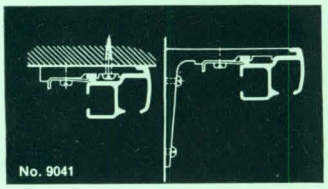
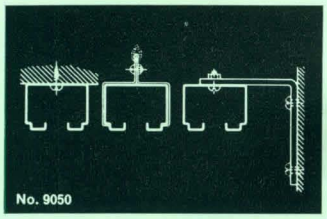
Standard-duty cord traverse Architrac features dual channels. Ball bearing drapery carriers ride in front channel so draperies can pack back closer at ends. Ball bearing master carriers and cords slide freely and smoothly in back, can't bind or drag. With our heavy-duty auditorium track, drapery carriers ride both channels for unlimited overlap.



Recessed Plaster or Acoustical Tile Installation: No. 9040 Series—A true recess track with its own plaster ground, No. 9040 needs no expensive, hard-to-install subchannel. It's pre-drilled for direct mounting with screws. The ¼" of track below bead minimizes light leak above draperies. All components can be assembled in track after plastering.



Ceiling or Wall Installation: No. 9041 Series—Designed to present a handsome face, No. 9041 Series Architrac doesn't need recessing. Track mounts directly to ceiling, wall or mullion, using our concealed brackets.



Ceiling, Overhead or Wall Installation: No. 9050 Series—For heavy draperies, tall or wide windows and medium-weight stage curtains, No. 9050 Series conceals all moving parts and cord inside track. It can be spliced to span 50-ft. openings; cord -or hand-drawn, even motorized.

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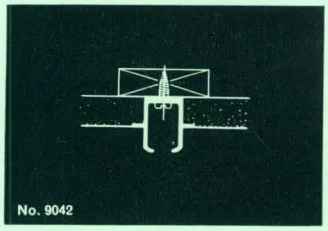
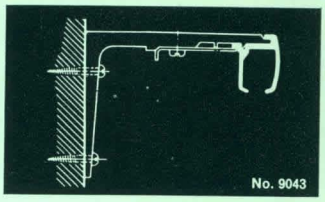
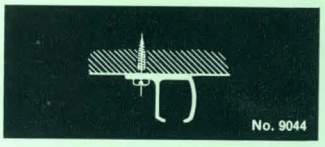
Offers low first cost, easy operation and minimum maintenance. Ball bearing carriers run smoothly, quietly. Drapery panels pack back closely, can be moved to any position along track.



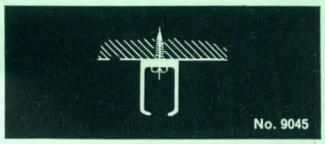
Recessed Plaster or Acoustical Tile Installation: No. 9042 Series—A recess track with its own plaster ground, No. 9042 needs no subchannel. Mounts directly through pre-drilled holes; can be curved.



Wall or Casing Installation: No. 9043 Series—Used with our extruded aluminum brackets, No. 9043 Architrac mounts on wall or mullion. It presents a good-looking fascia unbroken by supports; can be curved.

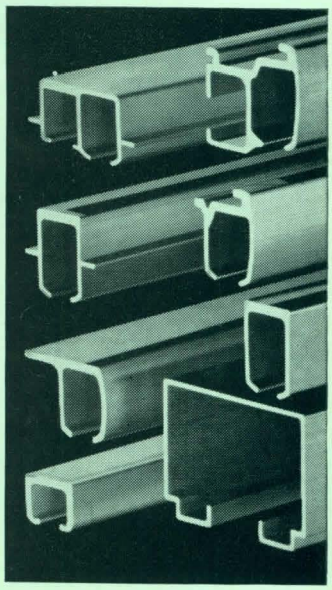


Ceiling Installation: No. 9044 Series—With its pre-drilled flange at back, No. 9044 track mounts to ceiling quickly, easily. It cannot be curved.



Ceiling or Doorway Installation: No. 9045 Series—Perforated 16" O.C. for direct mounting; can be curved to a minimum radius of 12".

Ceiling Installation: No. 9046 Series—Basically a hospital cubicle track, No. 9046 is pre-drilled for direct mounting, can be curved. This series is also used for window draperies in low budget institutional or commercial projects, with nylon slides instead of ball bearing carriers.



For details and specifications on all Architrac drapery hardware track and accessories, see Sweet's; or send for our free catalog. Ask, too, for price-estimation information and about our nationwide consultation service. Write: Kirsch Company, 324 Prospect Street, Sturgis, Michigan.

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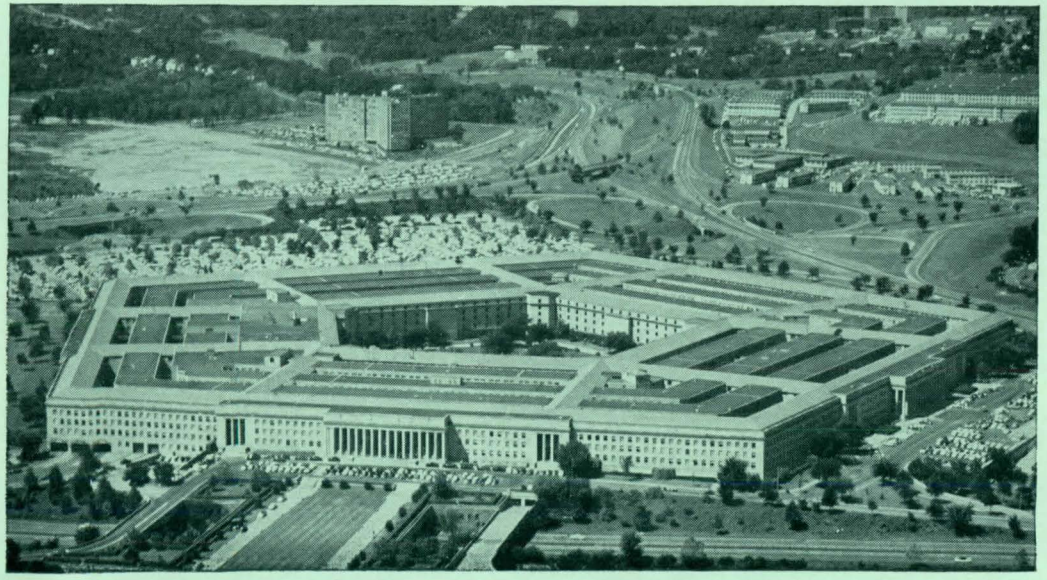

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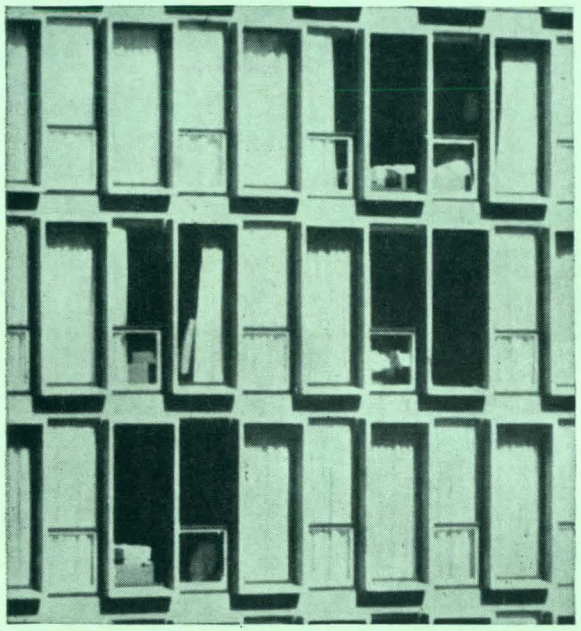
SINCE AS FAR BACK as McKinley's administration, A. C. Horn has been another way of saying quality and dependability in construction and maintenance products.

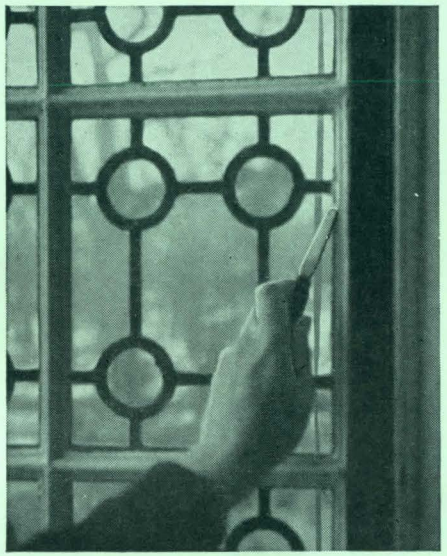
Horn product lines you hear most about include Caulks and Sealants, Floor and Surface Treatments, Waterproofing Products, Industrial Coatings, Admixtures, Adhesives and Bonding Agents.

There are more than 200 time-tested and performance-proved products available from Horn. Chances are you will find one specifically designed to meet your particular construction or maintenance requirements. The man from Horn is ready to work with you — contact him through the nearest regional office listed below.

When Standard Waterproofing Corp. of New York City was handed orders a few years back to button up the Pentagon against severe attack from the elements, Hornflex LP-32 Thiokol Sealant was picked to mount the guard. Work involved caulking expansion joints between concrete sections as well as joints between concrete and stone. Open flanks of giant, five-sided structure are exposed to both baking heat and biting cold. The exceptional squeeze-stretch range of Hornflex solved the problem readily. For this cold-applied, self-vulcanizing synthetic rubber compound provides an absolutely watertight seal all the way from conditions of 50% compression to 100% expansion.



Hornseal cuts sealing costs on pre-cast concrete panels. For conventional applications on both new construction and maintenance jobs, Hornseal Synthetic Rubber Sealant holds down costs without any sacrifice of function or durability. This easy-to-use, one-component caulking is especially adaptable to weatherproofing pre-cast concrete panel joints. It is easy to apply with ordinary caulking guns. It bonds tightly, lastingly retains its elasticity to resist vibration without cracking. (A Product of A. C. Horn—Canada)



Horn glazing compound makes putty obsolete. On maintenance or new-glass jobs, Horn plastic glazing compound means time and money saved. It's ready to use without kneading, easier to apply. It doesn't set hard or dry out, won't crack or crumble. It sticks tight to wood, steel, glass; self-adjusts to contraction or expansion. Horn glazing compound also helps reduce glass breakage by cushioning shock. Simplifies replacement, too, because it can be peeled off without chiseling or scraping.

Horn caulking works both sides of Chicago street

Vulcatex re-specified for 93-year-old Water Tower landmark. Historic survivor of 1871 Chicago fire, this famous landmark was caulked with Vulcatex when age began to show in 1933. On its 29-year performance record, Vulcatex was picked again for rehabilitation work begun in 1962. 800 gallons were used for tuckpointing limestone joints. Tough, rubbery Vulcatex made application easy. It will not stain or turn sticky. And its exclusive vulcanizing feature assures long service life.

Hornflex seals curtain walls of plush new Water Tower Inn. When ultra-modern Water Tower Inn went up across the street, another job-tailored Horn Sealant got the call. Hornflex Thiokol LP-32 Sealant was selected to weatherproof the handsome curtain wall construction (Architects: Hausner and Macsai; Contractors: Schmitz and Liss). This highly elastic polysulfide sealant absorbs exceptional stress without loss of bond. Provides a lasting weather seal even under climate extremes.

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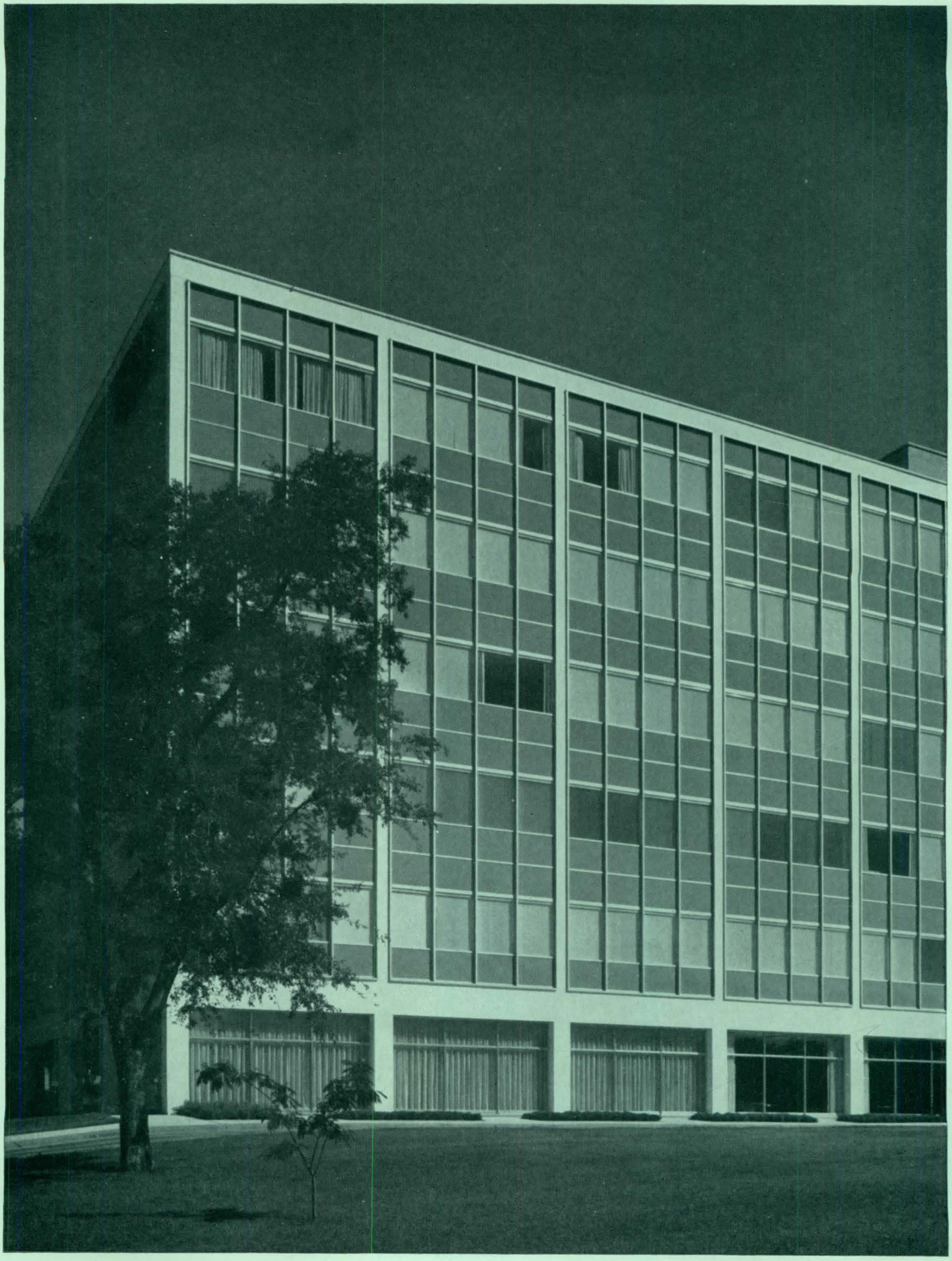
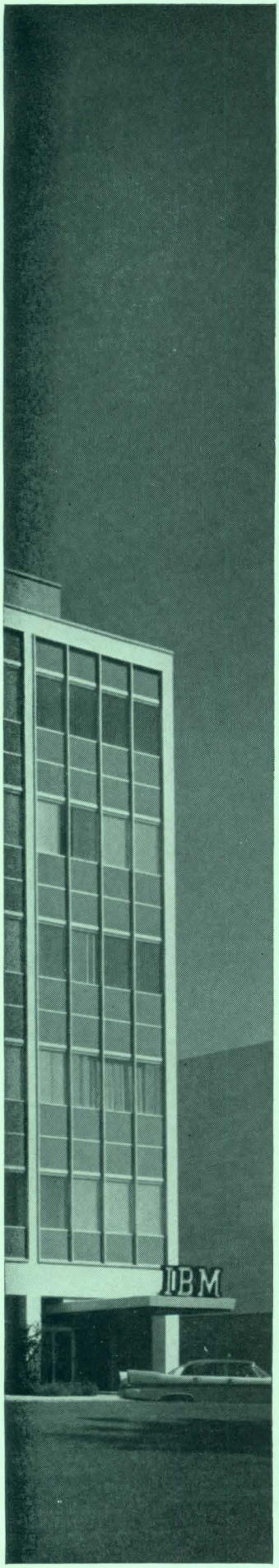




IBM building, Dallas, Texas: a 6-story structure enclosed in 241 LUPTON curtain wall units, with blue porcelain enamel panels divided into 6 bays surrounded by white marble. Architects: Harwood K. Smith & Partners, Dallas, Texas. Contractor: Cowdin Brothers, Dallas, Texas.

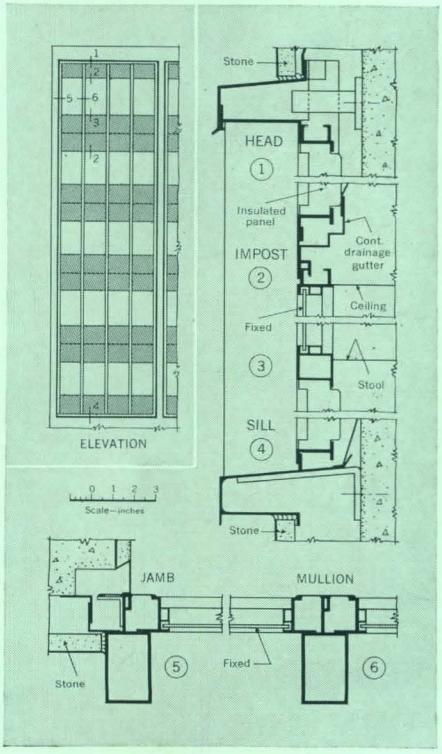
IBM gets the right answer ...in curtain walls by LUPTON

LUPTON supplies a lot of curtain wall answers these days. Here, for example, is the IBM building in Dallas, Texas, designed to facilitate the special work and services of this leading manufacturer. LUPTON *custom-designed* the curtain wall . . . bringing the architect's concepts of beauty and function to reality. This aluminum curtain wall, with blue porcelain enamel panels and glass, accentuates the handsome marble columns while meeting the job of providing abundant sunlight and bright areas.

To solve IBM's problem, LUPTON designers employed their own "Automatic" technique . . . conscientious attention to all architectural specifications, to assure final achievement of every subtle concept. This is part of the "total responsibility" that LUPTON assumes on every curtain wall project. Yes, LUPTON handles the whole job with meticulous craftsmanship—and with efficient fabrication and installation to meet your requirements, your budget and your schedule.

And, over all, there's LUPTON's reputation for reliability of twenty-five years' standing.

Aren't these "automatically" the best reasons to include LUPTON aluminum curtain wall in your next building plans? For further LUPTON advantages, see Sweet's Architectural File (sections 3 & 17) for Michael Flynn Aluminum Curtain Wall and Window catalogs. Have a talk with your local LUPTON man, too . . . or write us direct.



Wall section with LUPTON curtain wall

LUPTON
MICHAEL FLYNN MANUFACTURING CO.

MAIN OFFICE AND PLANT: 700 E. Godfrey Avenue, Philadelphia 24, Pa. West Coast Office and Plant: City of Industry (Los Angeles County), California. **SALES OFFICES:** San Leandro, California; Oak Brook (Chicago), Illinois; New York, New York; Cleveland, Ohio; Dallas, Texas; Representatives in other principal cities.

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A low slope roof and overhang, such as in the Corte Madera School in California, is just one of the many roof designs easily adapted to UNICOM's modular system.

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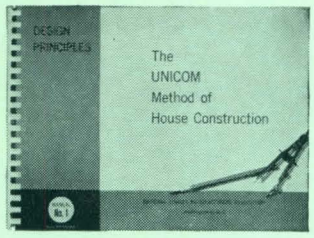
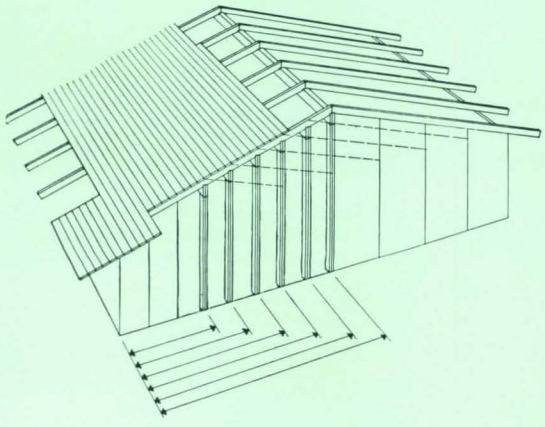
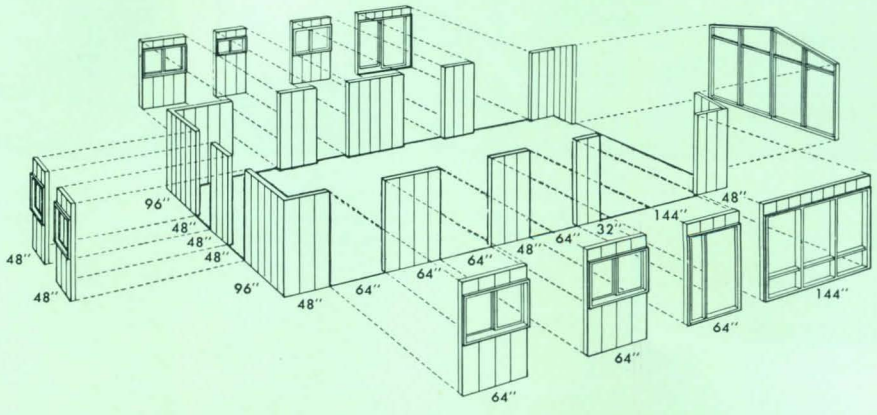
UNICOM MANUAL NO. 1: "The Unicom Method of House Construction" . . . 122 pages of design principles, drawings, and modular planning for basic homes of wood. Single copies of Manual No. 1 are available without cost to those associated with or supplying the home building industry. Your request should be made under professional letterhead and sent to UNICOM, National Lumber Manufacturers Association, 1619 Massachusetts Ave., N.W., Washington 6, D.C.





UNICOM's plank-and-beam roof is readily co-ordinated with modular dimensions. Load-bearing walls and columns, in some of these designs, can vary the wall components.

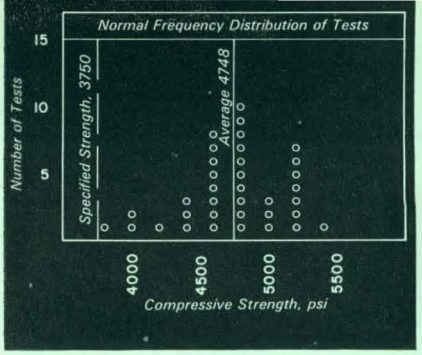


UNICOM's exterior walls, doors, and windows must be given full design and structural consideration with each component to achieve the complete modular structure. Flexibility is necessary for success.

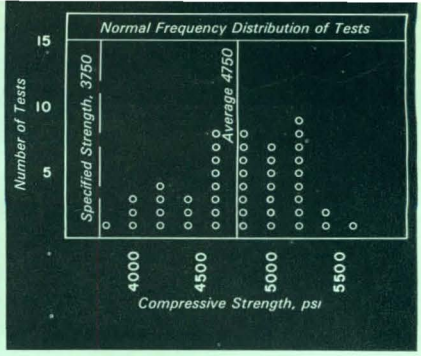
For more information, turn to Reader Service card, circle No. 353

The most uniform concrete

North Carolina State Legislative Building, Raleigh, N.C. Design: Edward Durell Stone. Architects: Holloway-Reeves & Associates. Structural Engineers: Watson Engineers. General Contractor: Rea Construction Co., Charlotte, N.C. Mix Design and Testing: Froehling & Robertson, Inc. Concrete for building: Carolina Ready Mixed Concrete Co., Raleigh, N.C.



STANDARD WEIGHT CONCRETE



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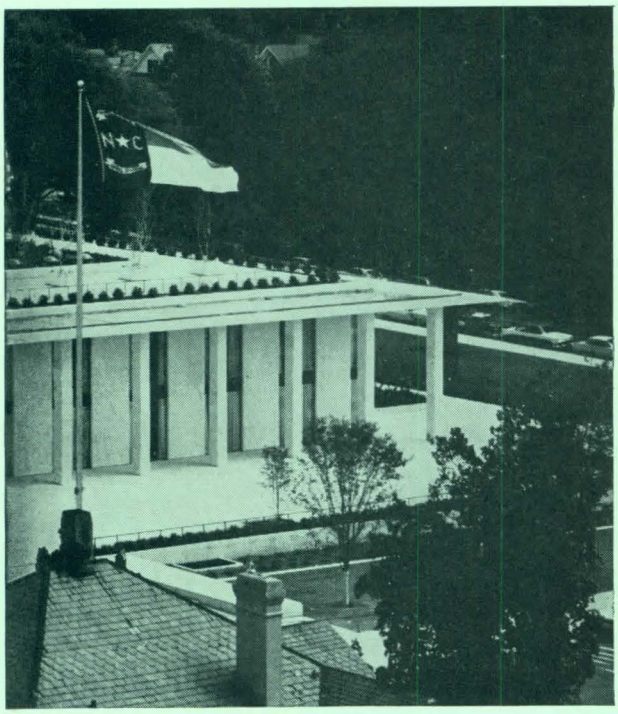

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*POZZOLITH *is the registered trademark of The Master Builders Co. ingredient for concrete which provides maximum water reduction, controls rate of hardening, and increases durability.*

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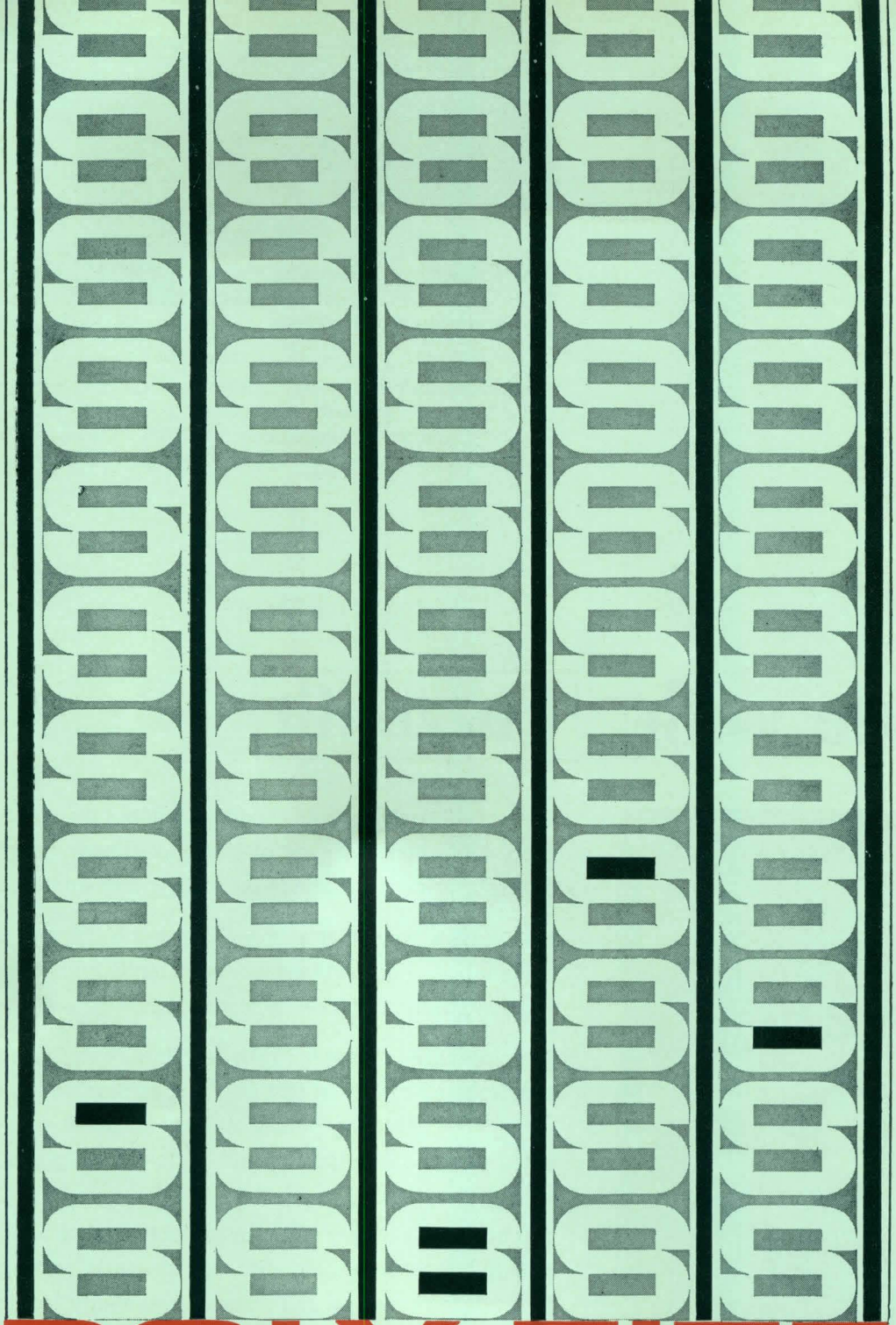

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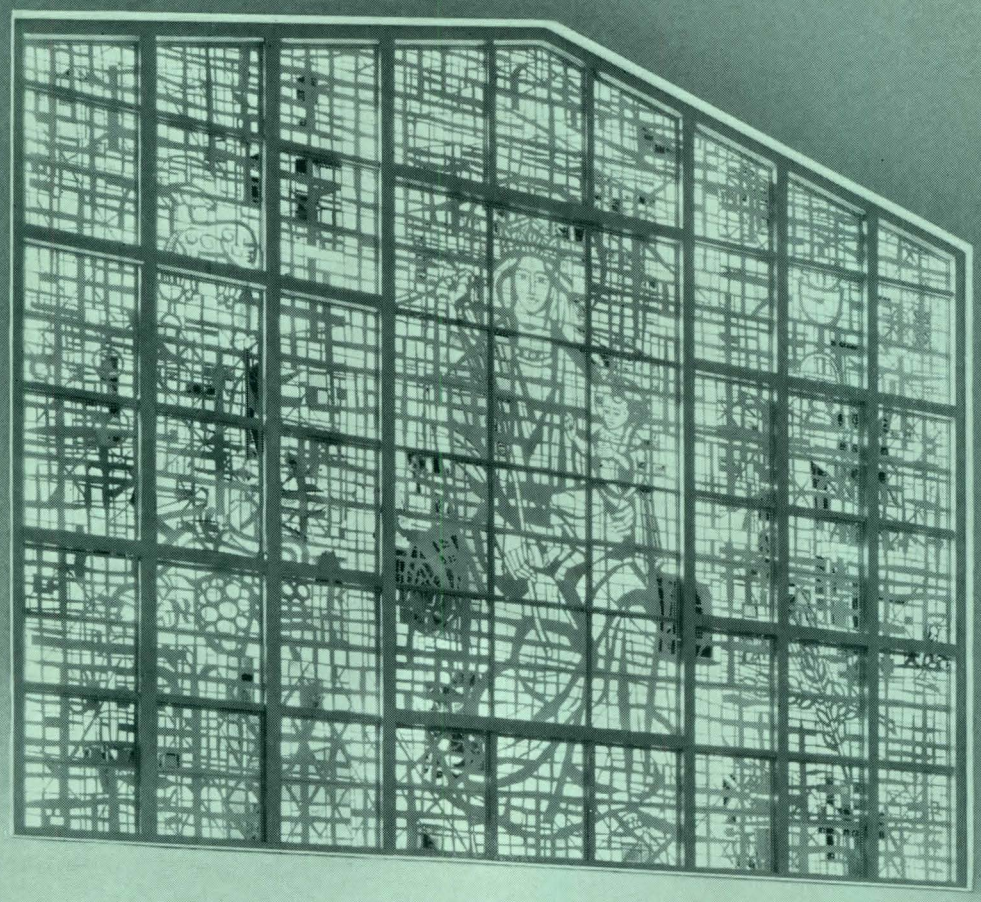

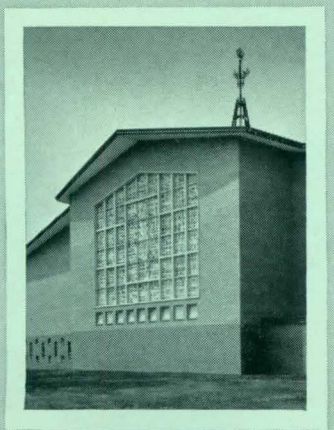

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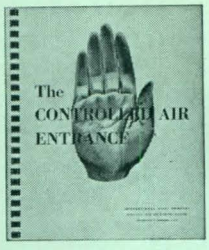

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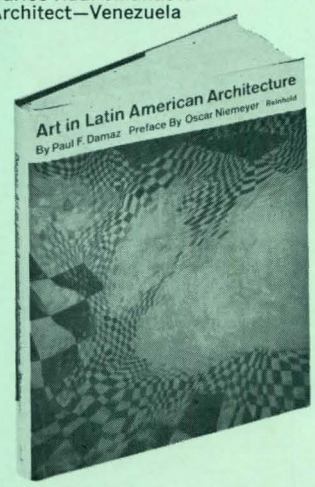
Damaz has recorded accurately and lavishly.—Interiors

. . . . The book establishes an introduction to how the important problems of a successful fusion of architecture with murals and sculpture can be solved.—Walter Gropius

It is a very important book which gives a thorough view of what has been done in Latin America.—Carlos Raul Villanueva
Architect—Venezuela



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by PAUL F. DAMAZ Preface by Oscar Niemeyer

A comprehensive, critical analysis of architectural art in Latin America, this new book is the **one** all-inclusive source on this subject. The author brings a penetrating insight to the special qualities of the Latin American temperament—a dynamic fusion of European-Indian culture, contemporary political and social forces, and sensuous response to color and form—which is responsible for the uninhibited collaboration between artist and architect. This handsome, visually exciting book considers this collaboration both in the text, and in the perceptive introduction by Oscar Niemeyer, and illustrates the extraordinarily imaginative results this union has produced.

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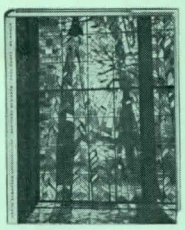
ART IN EUROPEAN ARCHITECTURE

by PAUL F. DAMAZ
Preface by Le Corbusier



This beautiful book describes the integration of the arts in modern architectural design with superb examples showing the use of color, mural painting, sculpture, stained glass, and mosaics in office buildings, factories, churches, gardens and steamships. The works of 130 architects and 150 artists are shown in this companion volume to ART IN LATIN AMERICAN ARCHITECTURE. 450 illustrations, 15 in color, 8⅜ x 10⅜. 242 pages. $10.95.

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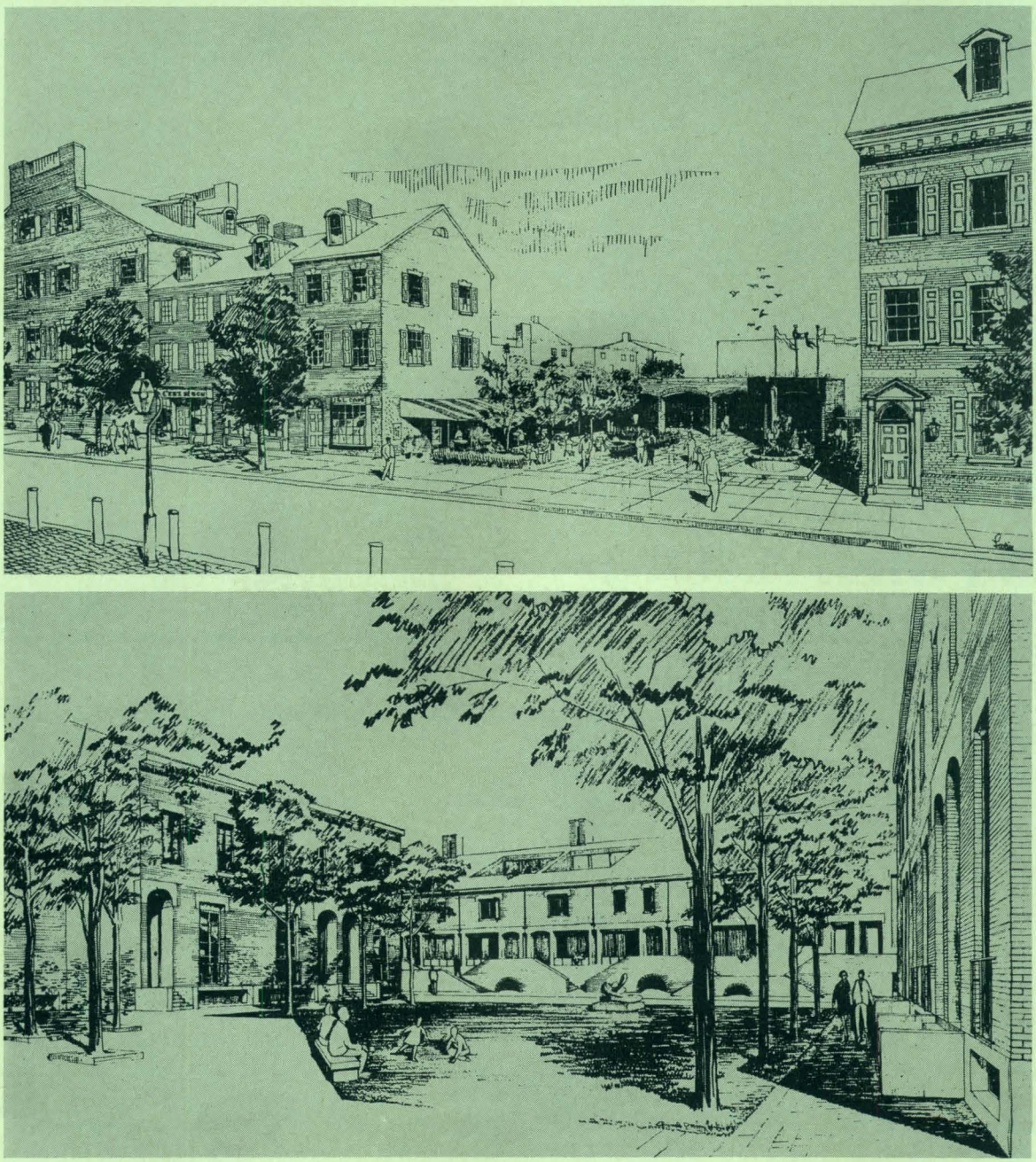
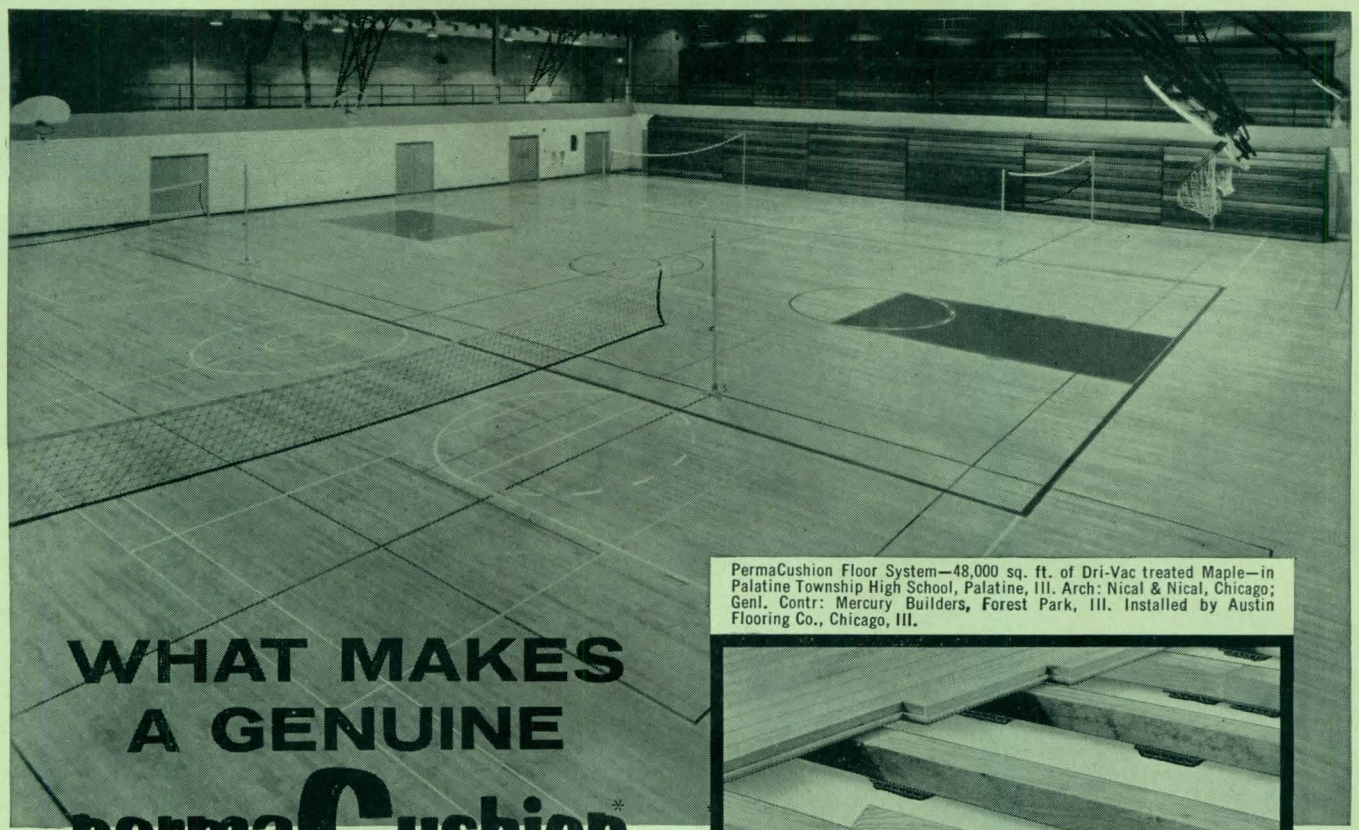
PROGRESSIVE ARCHITECTURE NOVEMBER 1963

NEWS REPORT

Architecture's Monthly News Digest of Buildings and Projects, Personalities, New Products



Head House Square, a Philadelphia redevelopment plan, combines old and new buildings with open space.



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DESIGNED with floating sleepers to permit expansion of the flooring without setting up stresses which cause loose nails and flooring separation. Free-floating construction eliminates cupping and buckling with changes in humidity.

RESILIENT PADS attached to the underside of sleepers Designed and compounded of water-proof, non-oxidizing, synthetic rubber, unaffected by heat or cold to provide the correct amount of resiliency. Each pad acts as a bellows, inducing continuous air circulation when floor is in use.

SLEEPERS of select Douglas Fir, cut to uniform four-foot lengths to prevent twisting and end joint separation. DRI-VAC treated with Woodlife to resist moisture, rot, termites, insect and fungi attack.

FLOORING milled from top-quality Northern Hard Maple, world's finest flooring material. Extra thick — $^{33}/_{32}$" — to provide strength and more wearing surface above the tongue, plus an additional area to resist compression.

POWERNAILING at an exact 45° angle, for *maximum* holding power, prevents splitting of flooring and hammer marks.

INSTALLATION authorized *only* by competent, experienced and reputable flooring contractors.

GUARANTEED materials, installation and performance by the contractor and the manufacturer. Double assurance for a trouble-free floor that lasts the life of the building.

When you specify PermaCushion your client is assured of all *seven* vital floor features. For literature and the name of your nearest franchised installer write Robbins Flooring Company, White Lake, Wisconsin. Dept. PA 1163.

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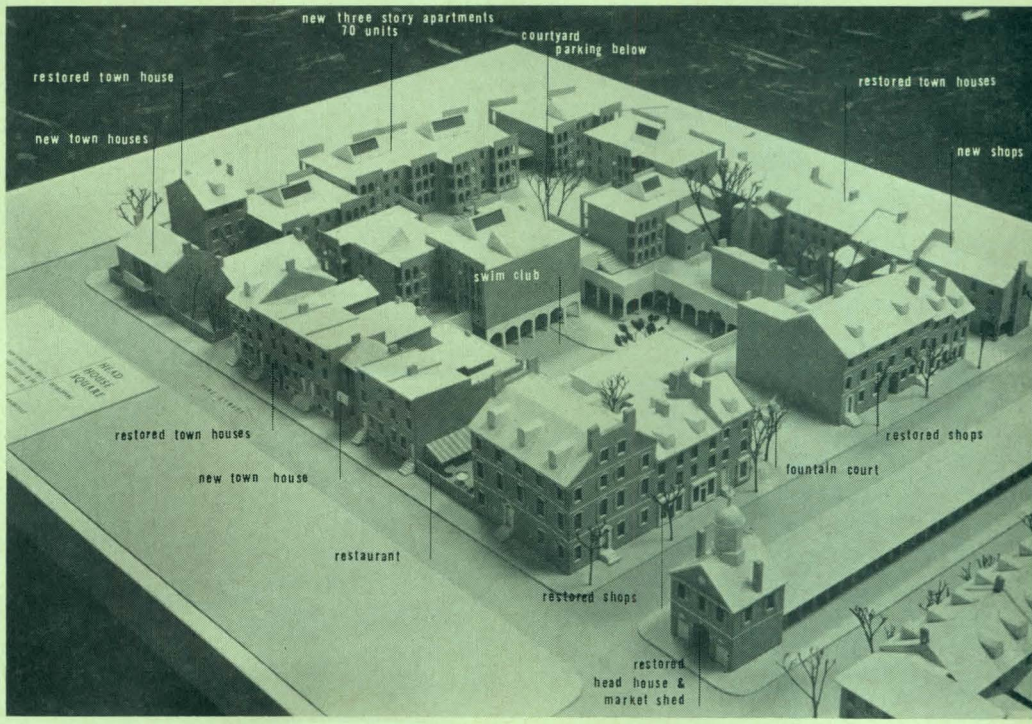
MORE INTEGRATION OF PAST AND PRESENT IN PHILADELPHIA

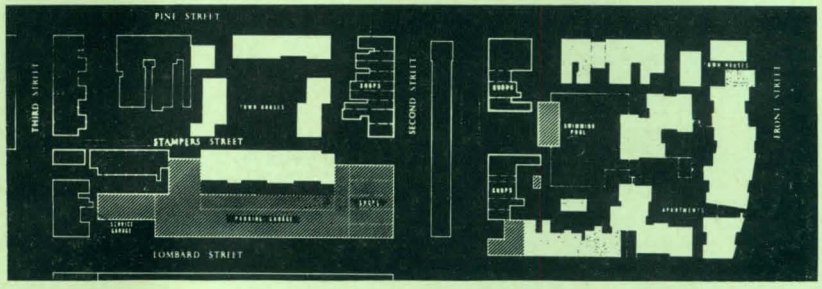
PHILADELPHIA, PA. Pretty soon, the old joke about competition prizes (first prize: one week in Philadelphia; second prize: two weeks in Philadelphia) will be invalid, at least architecturally. Philadelphia, in its famed urban redevelopment program, seems to have done it again. As a result of a competition conducted by the city's Redevelopment Authority, Architect Frank Weise has proposed a residential-commercial development around Head House (an old market building dating from Colonial times), not far from I.M. Pei's Society Hill project.

The Weise design consists of two blocks of new buildings combined with renovated old buildings flanking Head House east and west. Head House Square East (*top right*) will include 15 restored houses, 5 new townhouses, and 70 apartment units in a series of 3-story structures, all to accommodate 91 families. There will be underground parking for 97 automobiles. Restored buildings for 14 shops with offices on the upper floors will contribute to the commercial aspect of Head House Square East, and there will be an all-weather swim club for 500 members at the center of the site. A fountain court at midblock facing Head House will connect the development with that historic structure.

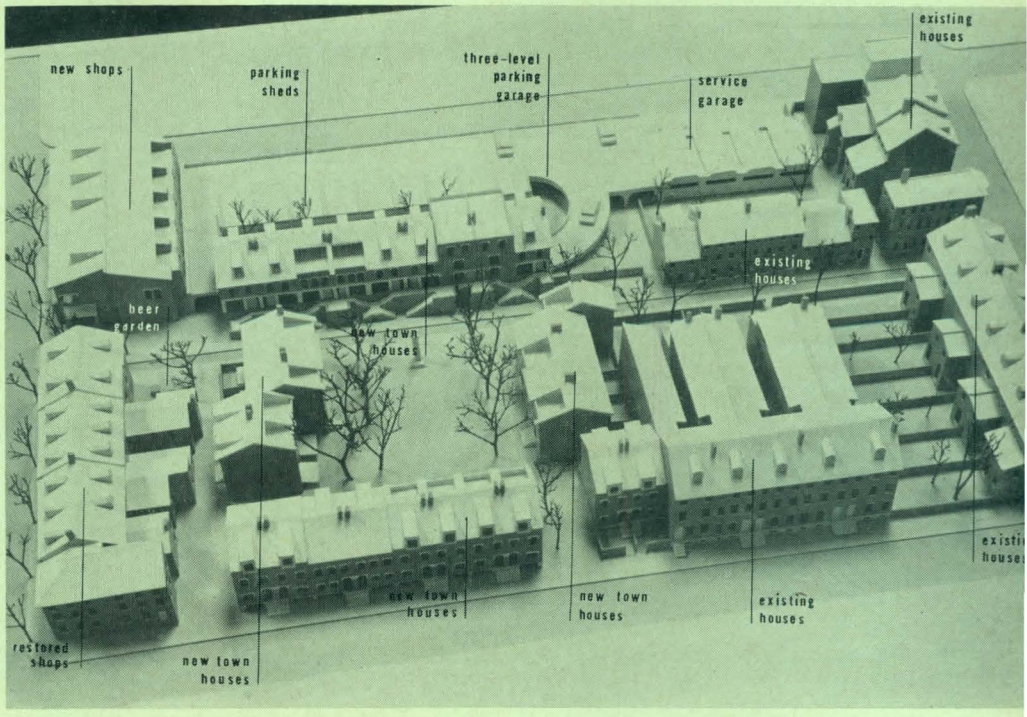
Head House Square West (*bottom right*) will have a higher incidence of new townhouses—30 of them. Facing Head House will be a line of new and restored shops, emphasizing the old shopping character of the area. A 3-level parking garage will have spaces for 263 cars. Unlike the eastern section, this element is bisected by a block-long street, giving the architect an opportunity to provide more courts and private yards at the center of the development, plus a beer garden and pedestrian walkway behind the commercial buildings.

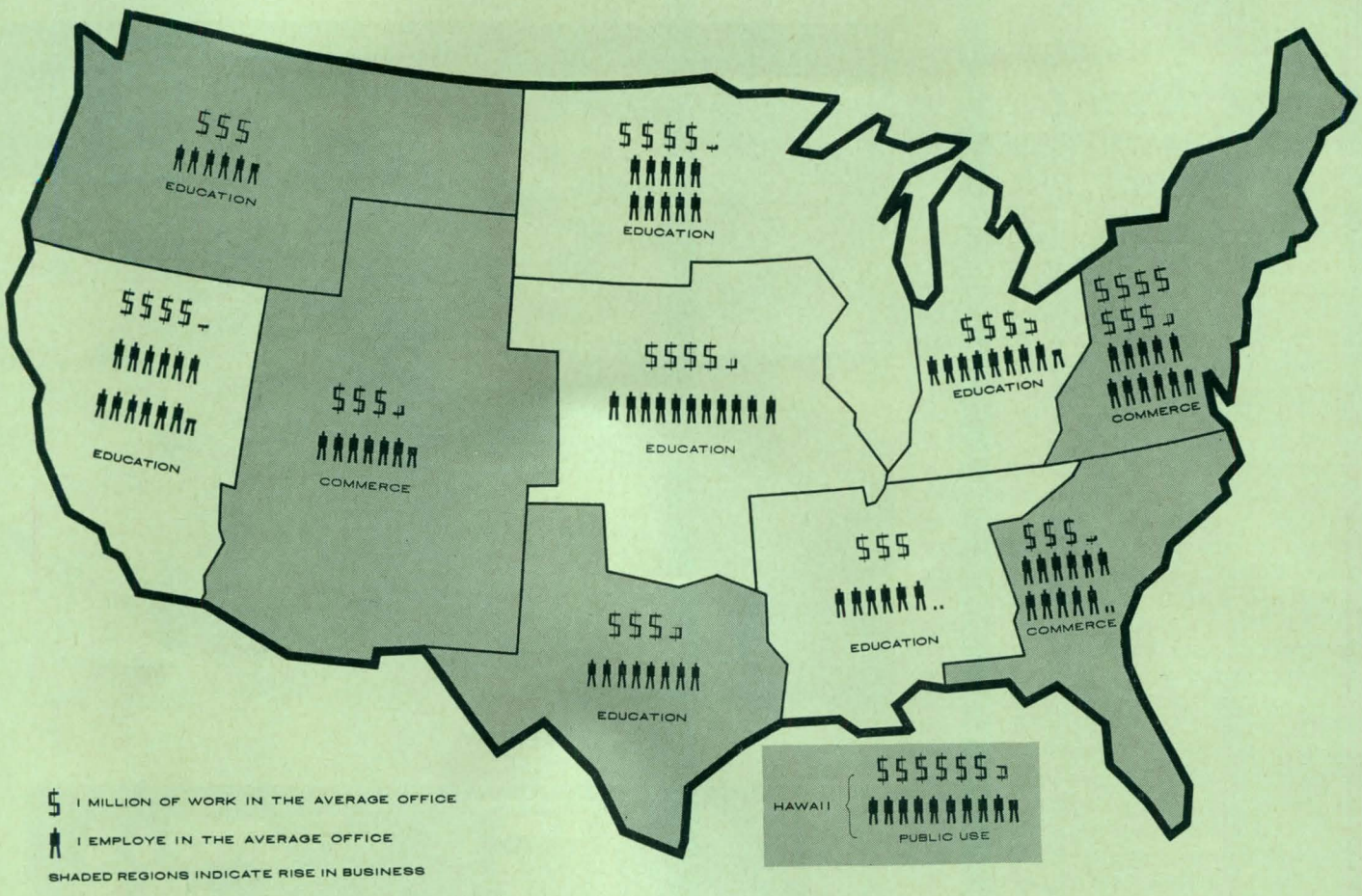
Prime aims of Weise's design were creation of smoothly integrated residential and commercial aspects of the plan, providing an urban scheme that will become a dining, shopping, and entertainment mecca for Philadelphians, and careful architectural combining of old and new structures. Concerning the last item, the architect says, "New buildings reflect the presence of their Colonial predecessors, but are resolved in terms of their own modern requirements and the reaches of our contemporary enquiry."





Site Plan.





For 1964: a Rise in Architects' Business

In reporting a total of more than $5.6 billion in work on the boards, 1211 architectural firms throughout the United States have indicated in PROGRESSIVE ARCHITECTURE's annual business survey that there will be a rise in the dollar volume of business done in the average American architect's office in 1964. According to the P/A forecast—the only one of its kind in the architecturally-designed construction field—the average dollar volume per office in this country next year will be $4,685,587, a rise of 1.1% over the 1963 figure. The continued good health of this important bellwether for the American economy should give satisfaction and encouragement not only to architects but also to their consultants, suppliers, and fabricators.

The distribution of work in the average office by type of building remains largely the same it was in the last report (pp. 62–63, NOVEMBER 1962 P/A). The leading category in terms of money earned is still education, which will account for 24.4% of the dollar volume in the average firm (*pie chart below*). Others high on the list are, in order: commerce, with 18.3%; multiple residential, with 14.9%; and health, with 13.2%. Public use will account for 8%, and defense and industry, which have switched positions since the last report, will amount to 6% and 4.8% respectively. Religion and urban design will contribute 3.7% and 2.3% of business each. Private residential and recreation, in the only other switch since the last survey, will account for 1.9% in houses and 1.8% in structures for recreation. Dollar volume gains are reported for education, commerce, health, defense, urban design, and private residential.

Five of the ten geographical regions reporting in the forecast, plus Hawaii, will have rises in business in 1964. In addition to Hawaii, the Northwest, the Northeast, the Southeast, Texas,

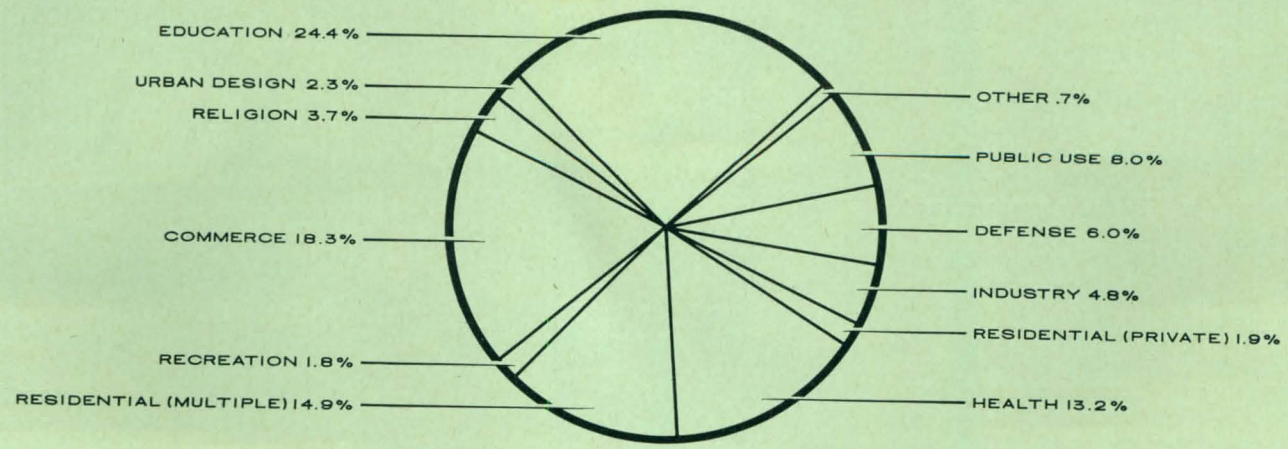


TABLE 1

Number of firms reporting and regional distribution

Region	No. of Firms	% of Firms
Northwest	61	5.0
North Central	123	10.2
Great Lakes	126	10.5
Northeast	314	25.9
Southeast	132	10.9
Gulf States	71	5.9
Central States	74	6.1
Texas	67	5.5
Western Mountain	55	4.5
California–Nevada	183	15.1
Hawaii	5	.4
Total	1211	100.0

Regional pattern of firms reporting has remained relatively consistent over the years; however, there were no returns from Alaska or Puerto Rico this year.

TABLE 2

Average dollar volume by regions

Region	Average $ Volume
Northwest	$2,894,212
North Central	4,235,036
Great Lakes	3,635,857
Northeast	7,445,966
Southeast	3,282,307
Gulf States	2,914,772
Central States	4,466,176
Texas	3,529,813
Western Mountain	3,441,382
California, Nevada	4,107,234
Hawaii	6,506,000
National Average	$4,685,587

Increases over 1963 are reported in the Northwest, Northeast, Southeast, Texas, Western Mountain, and Hawaii regions.

TABLE 3

Dollar-volume averages and % distribution of work by types of buildings in all regions

Type	% of Average Firm's Work	$ Volume in Average Office
Education	24.4	$1,144,113
Commerce	18.3	857,680
Residential (Multiple)	14.9	699,902
Health	13.2	617,988
Public Use	8.0	374,083
Defense	6.0	280,431
Industry	4.8	226,597
Religion	3.7	171,872
Urban Design	2.3	105,771
Residential (Private)	1.9	87,501
Recreation	1.8	85,647
Other	.7	34,002
Total (average office, all regions)	100.0	$4,685,587

Gains are reported in categories of Education, Commerce, Health, Defense, Urban Design, and Private Residential.

TABLE 4

Activity of architectural firms in types of buildings

Types of Buildings	% of Firms Reporting Current Work
Commerce	48.4
Education	47.2
Residential (Private)	39.8
Religion	38.4
Residential (Multiple)	35.0
Health	28.0
Public Use	24.6
Industry	22.2
Recreation	15.2
Defense	6.6
Urban Design	6.4
Other	3.7

Since majority of firms are always busy in more than one category, percentages add up to more than 100%.

TABLE 5

Specialization of architectural firms

Types of Buildings	% of Firms Doing Only This Type
Education	2.9
Residential (Private)	2.2
Commerce	1.7
Religion	1.2
Residential (Multiple)	1.1
Health	.8
Recreation	.5
Industry	.4
Public Use	.2
Defense	.2
Total	11.2

None of the firms reporting specialize in urban design. Specialization has decreased.

TABLE 6

Sizes of architectural firms

Size of Firm by Number	% of National Total
Up to 4 employees	49.3
5–9 employees	28.8
10–19 employees	13.0
20–39 employees	5.6
40–100 employees	2.5
Over 100 employees	.8
	100.0
(Total response: 1141)	

Size of Firm by $ Volume of Work on Boards	% of National Total
Under $1 million	36.0
$1–10 million	52.4
$10–50 million	10.5
$50 million or over	1.1
	100.0

Small and medium-sized firms up to $10 million still lead, with a slight increase in larger firms.

and the Western Mountain states will enjoy business in excess of that in 1963. With the exception of Hawaii, either education or commerce will be the leading type in every region. The newest state, perhaps as a result of its proposed new capitol, will be strongest in the public use category. Dollar signs on the map (*facing page*) indicate the average dollar volume per office in each region. Figures of men stand for number of employees in the average office, and the building designation represents the most important category in each region for 1964. The shaded areas indicate regions expecting a rise in business.

Work scheduled for completion next year is reported as 59.6% for private clients and 40.4% for public agencies. Percentage of public work continues to rise, undoubtedly reflecting rises in such categories as health, defense, and urban design. Work in working-drawing stages accounts for 49.7% of the total, that in preliminary design stages, for 50.3%. This means that construction work on half these projects will be begun in the first part of 1964, and on the other half, later in the year.

Firms specializing in only one kind of building have decreased since the last forecast, and urban design has disappeared from the list of specialization. The general nature of the great majority of practices is indicated in Table 4, which shows types by projects on the boards in percentage form (as opposed to those types responsible for largest dollar volumes, Table 3).

Following the pattern set nine years ago when this forecast was first reported in its present form, the typical architectural office (78.1% of them) will employ up to nine employees. By dollar volume of work on the boards, the great majority of firms (88.4%) will be in the up-to-$10 million league (*see Table 6*). There is a slight increase in the percentage of larger firms reporting, but nothing to indicate that the basic picture of the average-sized office doing up to $10 million is anywhere near to changing.

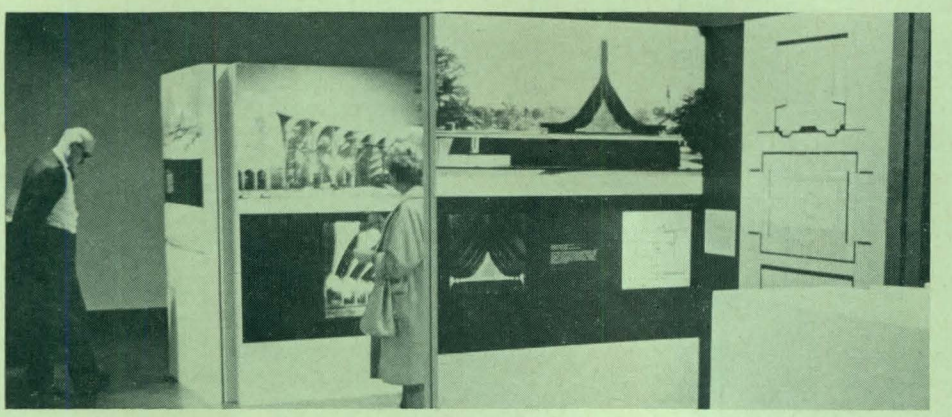
Preoccupations with the nation's economic picture, costs and availability of materials and labor, and the world situation are seen by architects as affecting the construction industry next year. As far as design trends are concerned, there is still a sincere search for appropriate and evocative form on the part of many. The role of the architect as master builder of the total environment is hopefully regarded—but with no explanation of how he is to achieve this role. And, as usual, new materials and techniques are expected to create opportunities for new design concepts.

THE ARCHITECTURE OF SYNAGOGUES

NEW YORK, N.Y. The interesting problem of synagogue design received a well-mounted exhibition at New York's Jewish Museum last month, where it will continue through December 8. From the orthodox view of synagogue design that ". . . its every aspect must be that of *Kedushah,* sanctification," to the conservative opinion that "there are some prescriptions of architectural details—though these were never consistently followed," to the reform viewpoint that ". . . there never has been an accepted form of architecture identified with the synagogue," the viewer can see in this show how many prominent designers from Wright and Mendelsohn on have dealt with the problem. These approaches themselves do not necessarily agree. Describing his Kneses Tifereth Israel Synagogue, Philip Johnson writes in the exhibit catalog that the synagogue is "a space where awe and reverence are the prime considerations." Yamasaki, on the other hand, commenting on his North Shore Congregation Israel, feels that "Judaism appears to offer a beautiful combination of tradition, thought, and equality. The old Gothic cathedrals put men in awe of the Lord. . . . Judaism seems to put them side by side."

Star of show, mounted by Architect Richard Meier, was Kahn's project for Philadelphia's Mikveh Israel.

Photos: Jonathan Holstein

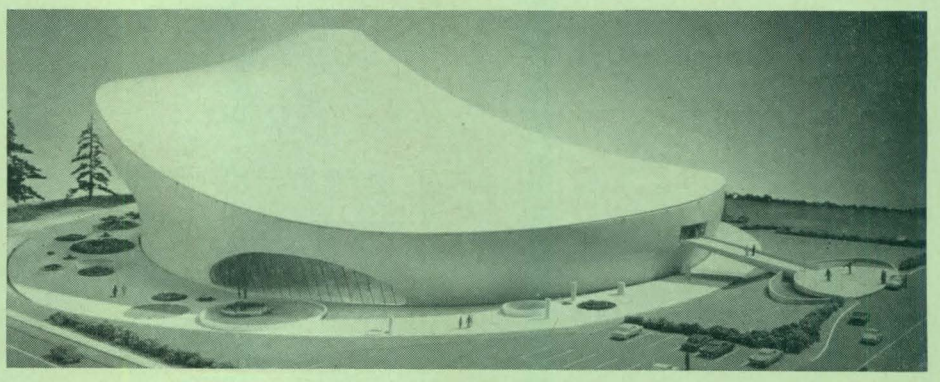


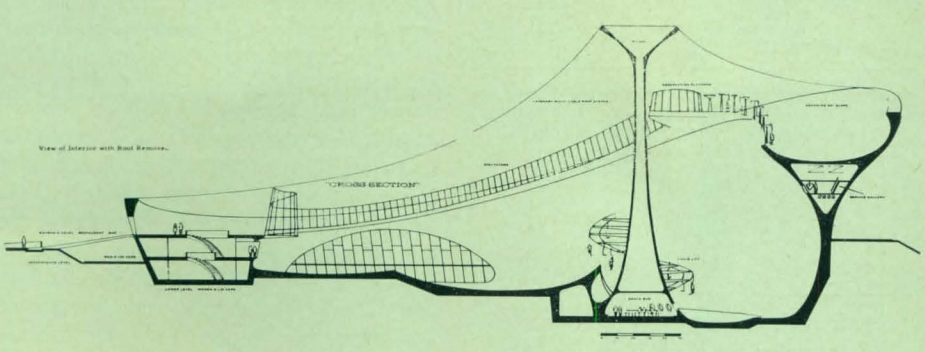
Skiing in Southern California

Southern California ski buffs who have envied northern colleagues their proximity to the runs in Squaw Valley and Yosemite will have cause for some cold comfort if plans for an all-enclosed ski "mountain" materialize in the land of starlets and Dodgers.

Called "Ski-Land, The Hollow Mountain" by its promoters, the structure will be an elliptical 480′ by 360′ arena with curvilinear ski slopes spiralling down 130′ around a reinforced-concrete supporting pylon to provide 100,000 sq ft of skiing surface. "Snow" will be pulverized ice sprayed on the slopes with pressurized hoses. Constant interior temperature of the run will be 26F. A chair-lift around the central pylon will take skiers to the top of the run, and there will be a rope tow for the "bunny" run near the bottom of the big run. Slopes will vary from 8 to 22 degrees in a straight run and almost 900 ft of slalom run. Capacity of the building will be 500 skiers, 220 spectators on an observation platform, and 450 people in the restaurant and lounge.

Architect is Daniel, Mann, Johnson & Mendenhall.





It's Building-Opening Season at Yale

NEW HAVEN, CONN. The atmosphere at Yale University has been like opening night on Broadway recently, with buildings by some of the country's leading architects opening every month. In September, Philip Johnson's Kline Geology Laboratory (*below*), first unit of his Kline Science Center, was dedicated. Last month, the Beinecke Rare Book and Manuscript Library (*right*), by Skidmore, Owings & Merrill's Gordon Bunshaft, became a working repository of valuable tomes. And about the time you read this, Paul Rudolph's Art and Architecture Building—already much discussed in Eastern architectural circles—will have opened officially (although students and instructors have been in for a couple of months). Each of these—Kline Science Center, Beinecke Library, and the Rudolph school—will be presented in proper detail in coming issues of P/A.

Johnson's geology laboratory, a working building with no inside "frills" except for a roof-high main lobby and stairwell space, is adjacent to the neo-Gothic Peabody Museum of Natural History—is, indeed, connected to it underground and by a second-floor bridge. Through the architect's use of muted, plum-colored brick and sandstone on the laboratory's exterior, these buildings make friendly neighbors.

Bunshaft's steel-framed, granite-clad library, with its infilling marble panels, makes a dazzling appearance among the more subdued structures around it. Its interior, on the other hand, has a very warm feeling imparted by rich materials, old book bindings, amber light filtered through marble panels. More on this later.

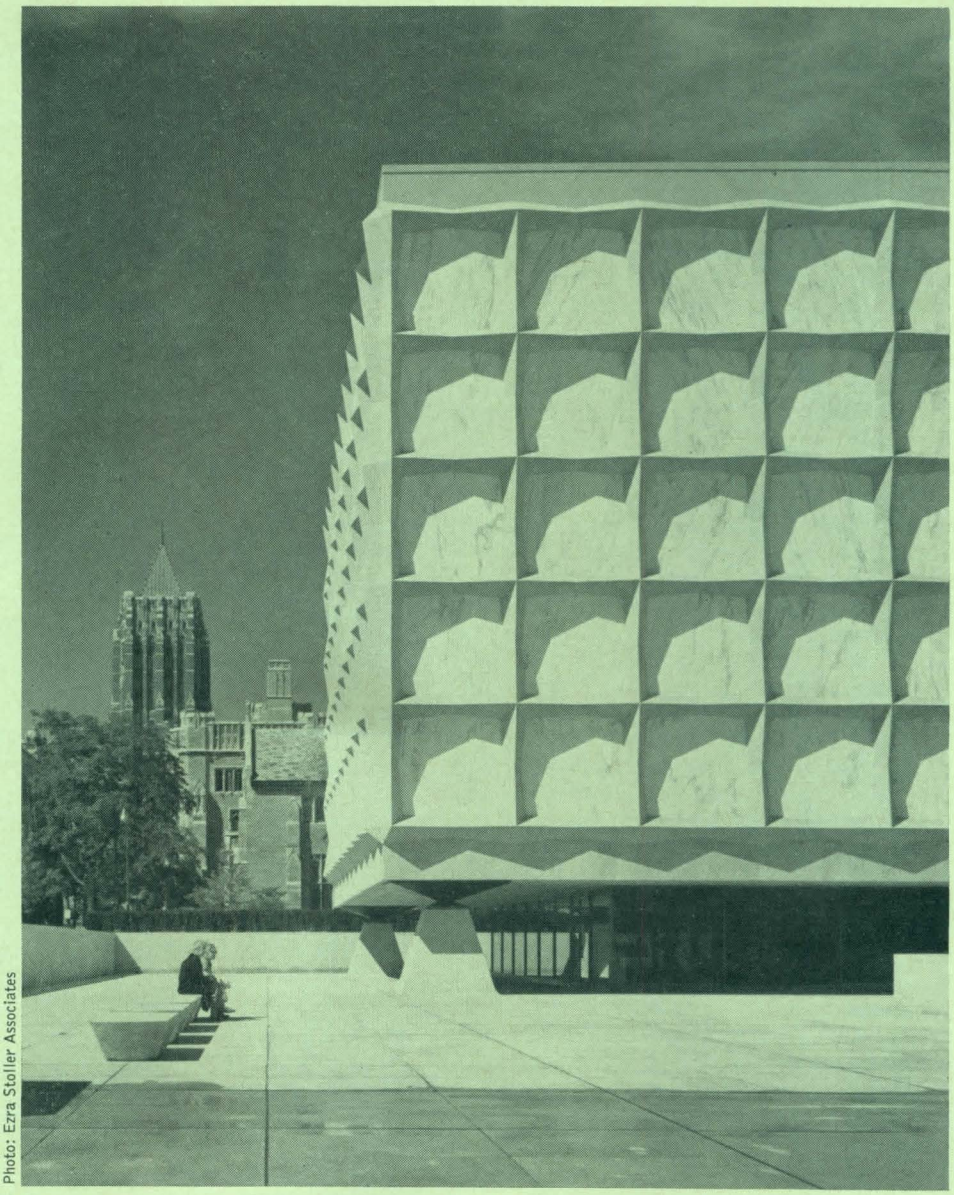


Photo: Ezra Stoller Associates

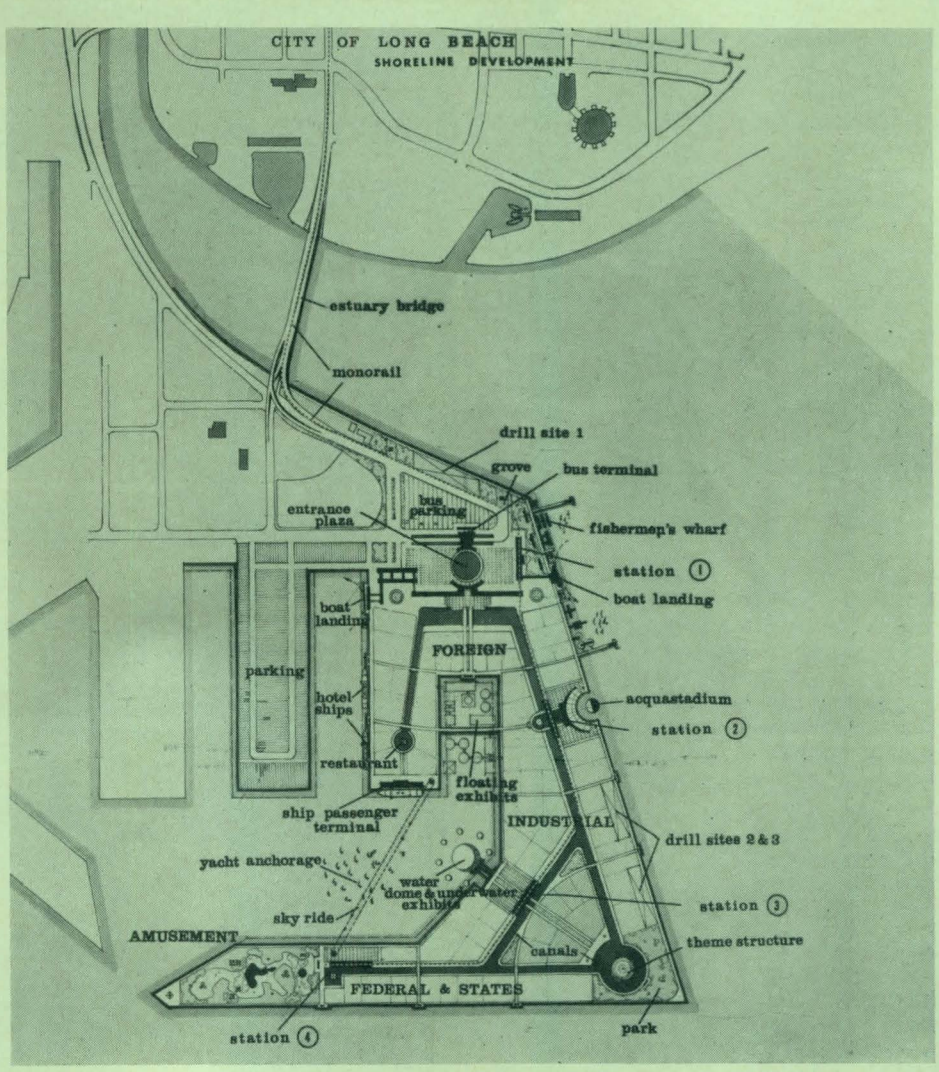
Photo: Ilse M. Reese

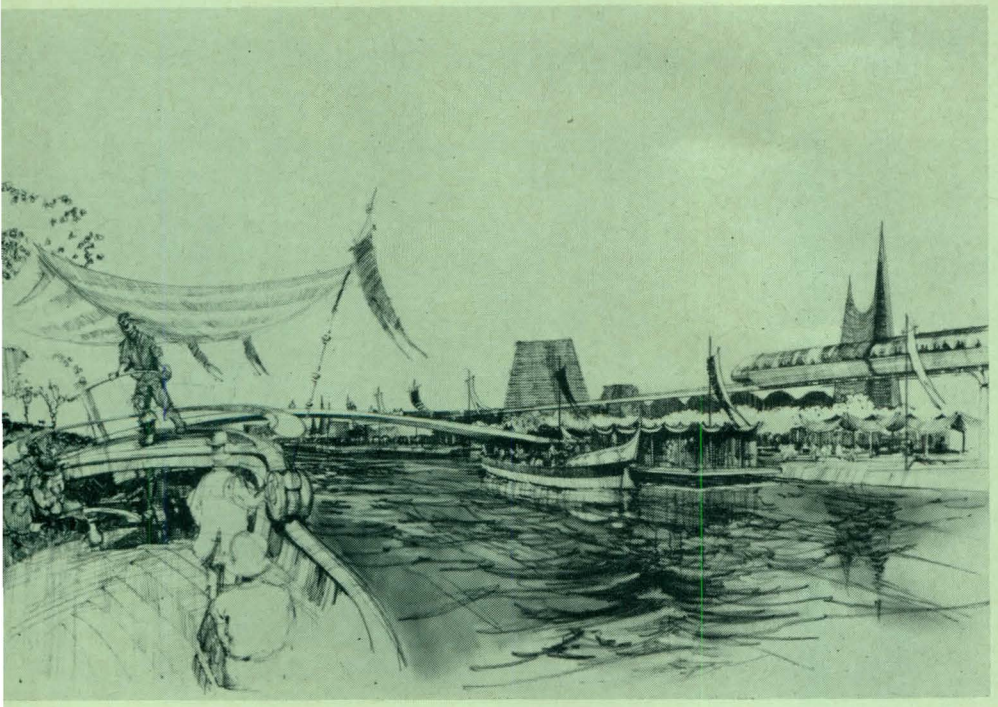
YET ANOTHER WORLD'S FAIR

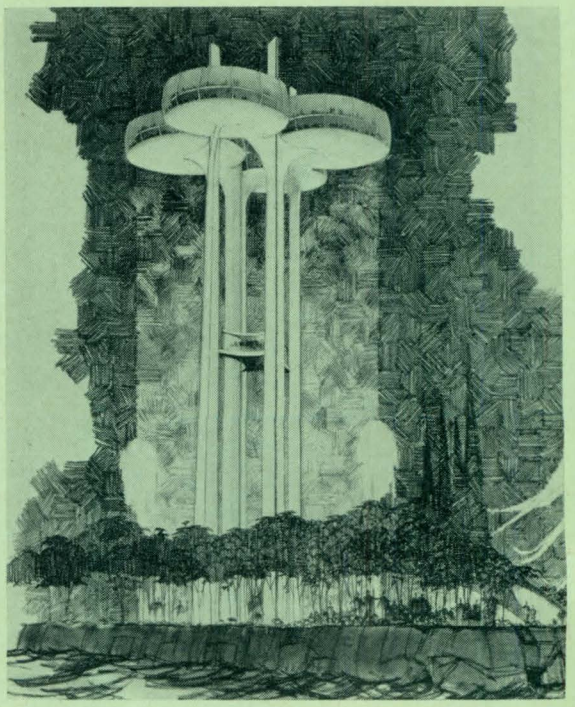
LONG BEACH, CALIF. While controversies are still raging as to the kind of World's Fair New York will put on next year, and Robert Moses is still being unkind to children (he so far has refused a request by the city that school kids be admitted at lower rates), here comes California with a World's Fair for 1967–68! This is in addition to the one Montreal has announced for 1967. Throw in Seattle's recent Century 21, and it appears that North America is indeed the fairest continent of all.

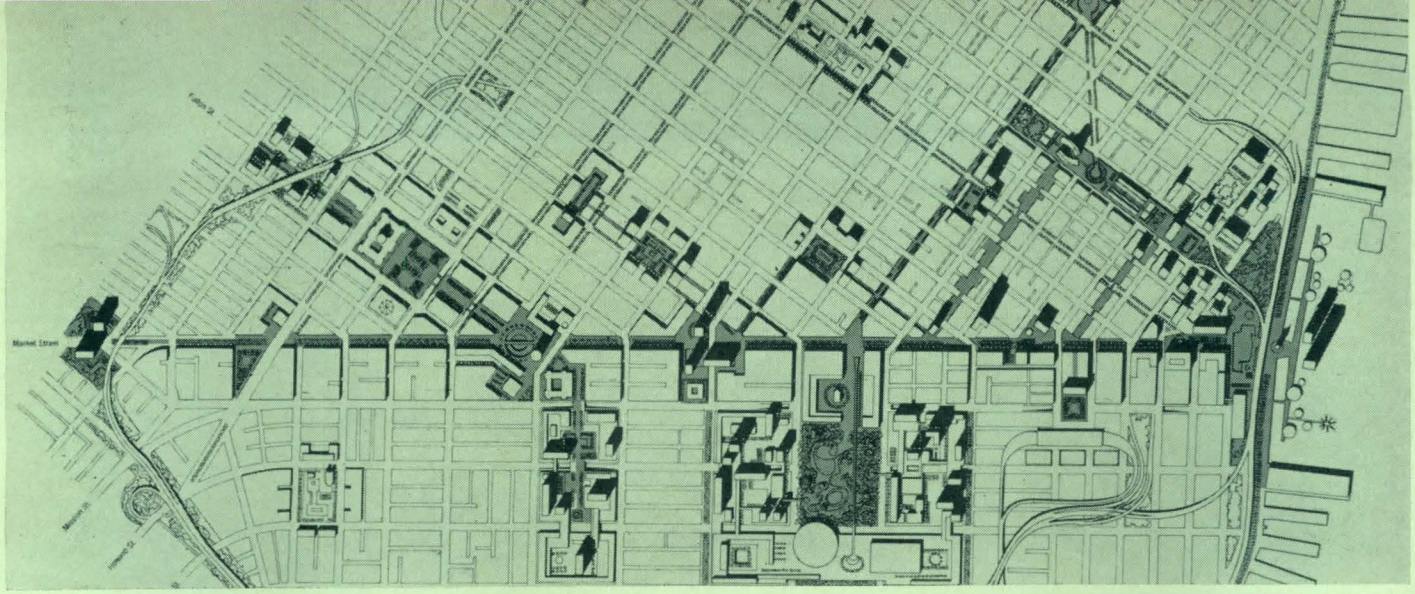
Departing from the New York concept of "Look, Ma—no controls," the California fair, which will be on 320 acres of land fill in Long Beach harbor, will have as master planner and coordinating architect Charles Luckman Associates, designer of the Federal Pavilion at the New York World's Fair. Also unlike Moses' Cloud Cuckoo Land, the California World's Fair plans to leave behind at least—and probably more than — $10,000,000 worth of permanent buildings and improvements after the ball is over.

Luckman's master plan divides the fair grounds into areas for Federal and state governments, foreign governments, domestic and foreign industrial groups, and an amusement zone. Transportation will be via monorail and a system of canals traversing the site. Other proposals include a huge fountain rising from the sea in front of the fair, floating exhibits in the canal and an underwater city.







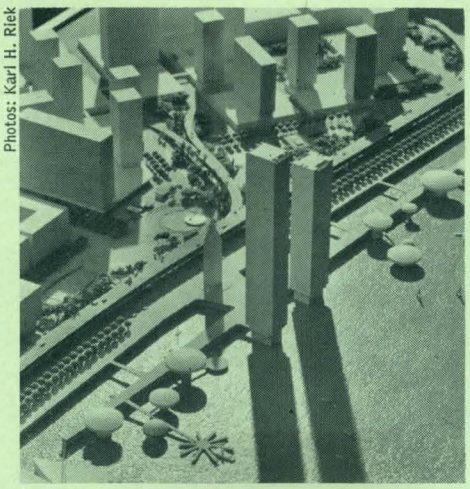


SAN FRANCISCO DOWNTOWN PLAN

SAN FRANCISCO, CALIF. The City Planning Commission and the Department of City Planning of San Francisco have released an ambitious plan for the redevelopment of downtown, prepared by architect Mario J. Ciampi with associate Paul W. Reiter. Plan (*above*) is basically a linear one, using a newly created Market Street Mall as "spine" from which would run "satellite" developments. Portsmouth Corridor (3), for instance, would consist of two dramatic office towers atop a parking platform. Area south of Market is envisioned as a park and convention center (4). Market Street Mall itself would run from renovated Ferry Park (1), past Van Ness Avenue, with two "breaks" at Powell Plaza and Fulton Circle (2).

The plan has encountered a mixed reaction, and the San Francisco Planning and Urban Renewal Association has formed a committee to examine it closely. Thomas H. Creighton, who heads the committee, says that two main questions will be considered by his group: (1) can the plan be coordinated with existing plans; and (2) is the Market Street Mall desirable or feasible? Gerald McLindon, Executive Director of the Market Street Development Program, considers the two-mile mall not realizable. He says that Market Street breaks up into three elements: the financial district near the Ferry Building; the retail section halfway up the street; and the general commercial area further on. A mall plan, he believes, would be appropriate only for the retail district. The traffic problem is not solved in the plan, he says, and streets parallel to Market would be overloaded by the mall. Creighton and McLindon think that if the purpose of the report is primarily to stimulate thinking that explores imaginative solutions to the city's renewal problems, it will serve a good purpose.

Photos: Karl H. Riek



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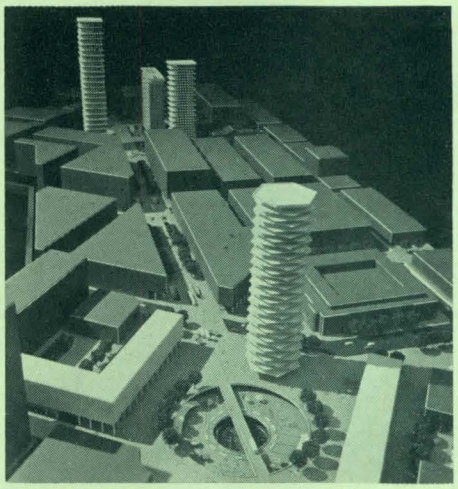

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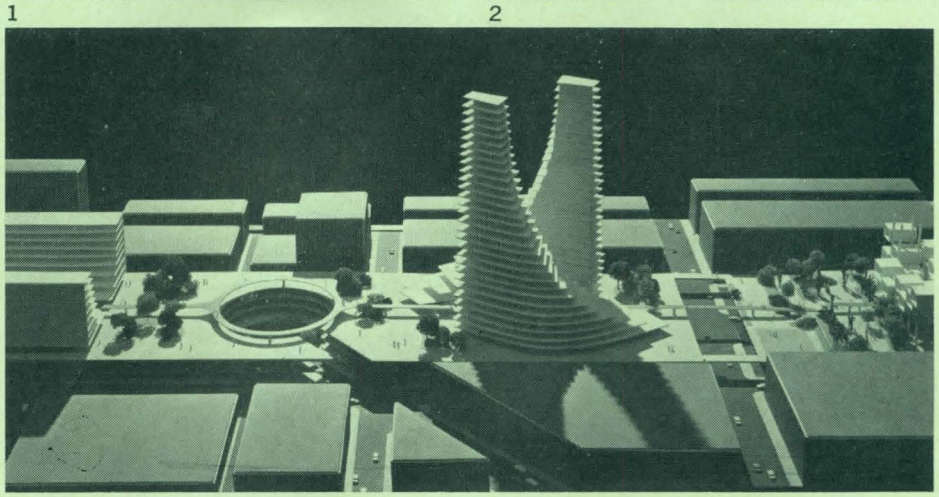

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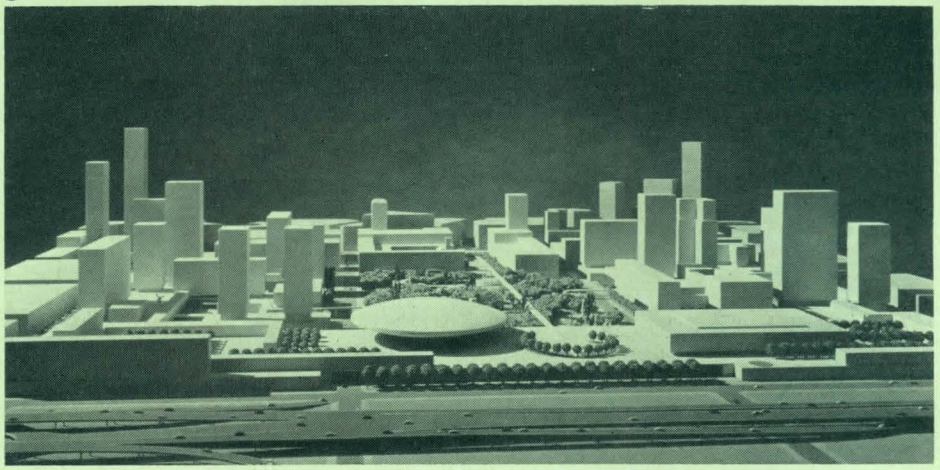

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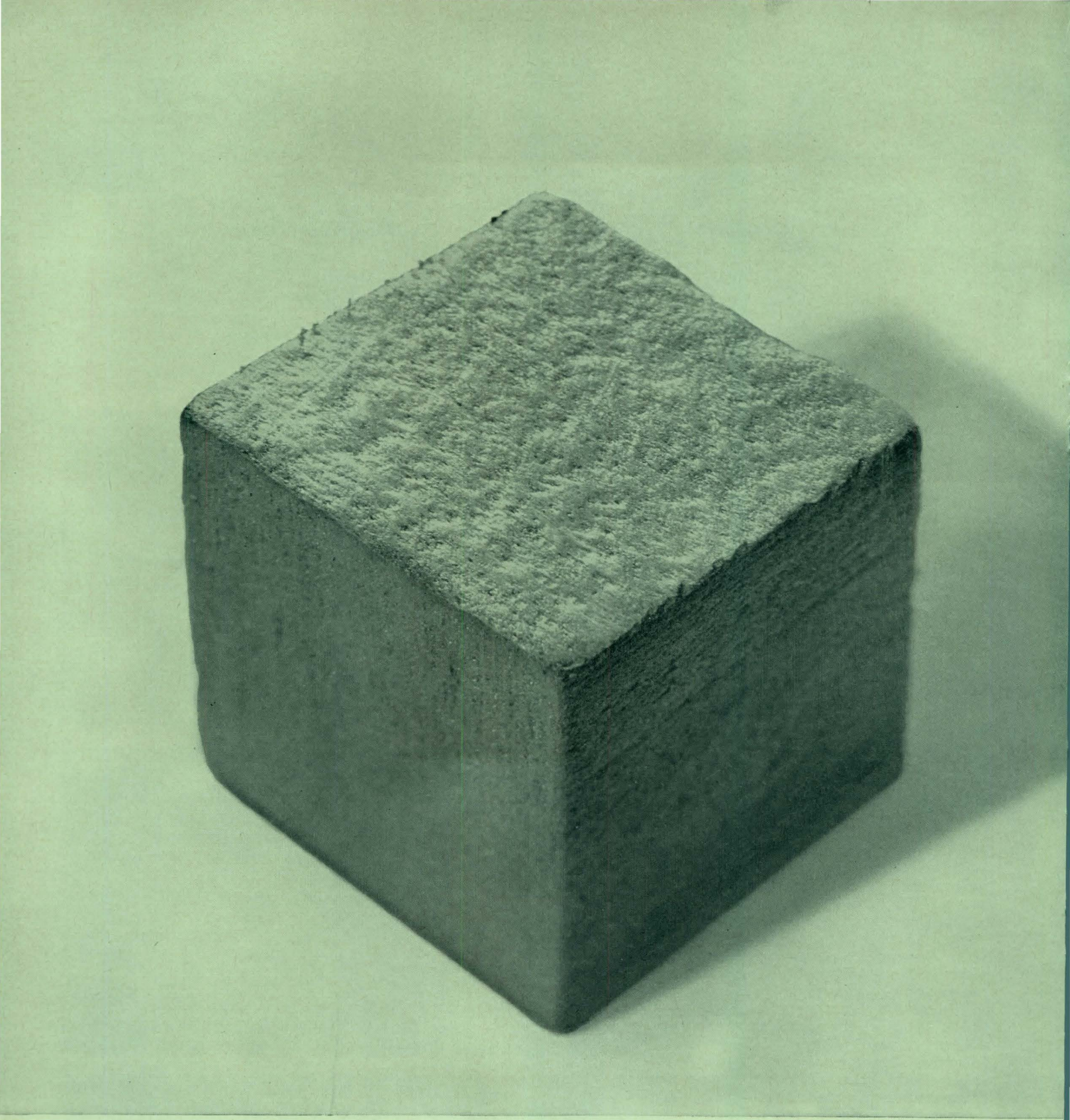

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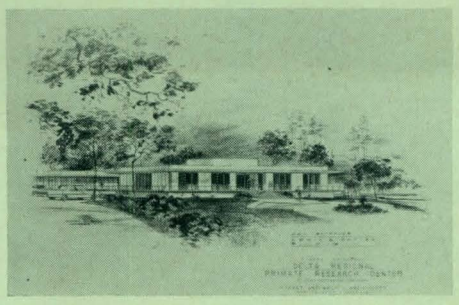
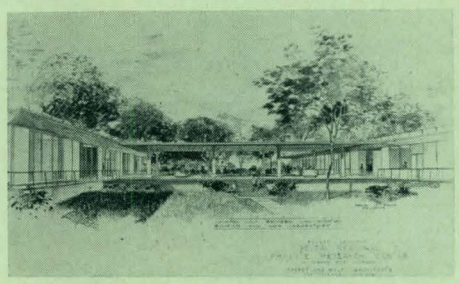
Plate Glass Price Cut

Libbey-Owens-Ford Glass Co. has reduced prices of heavy duty plate glass at the manufacturer's level by an average of one-third. Price reduction applied to company's complete line of heavy duty plate glass in thicknesses greater than a quarter inch, including grey and bronze glare and heat reducing glasses. L-O-F also announced an increase in maximum sizes available in heavy duty plate in thicknesses of more than ½", and added ⅞" thick plate glass to its line. New sizes reach a maximum length of 25'.

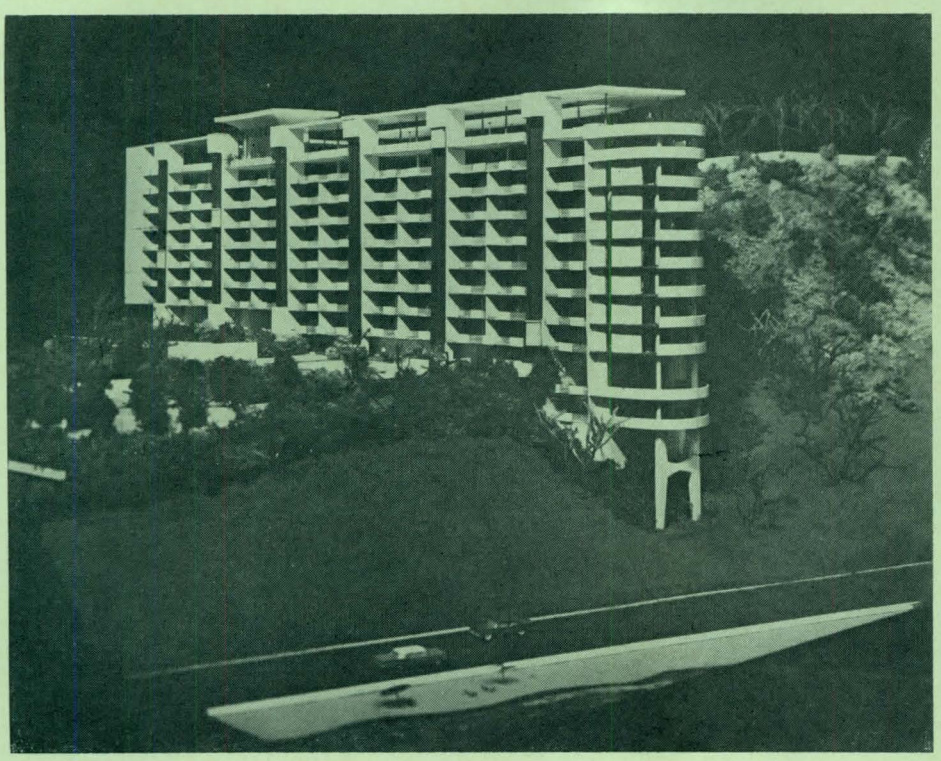
Primate Center on the Bayous

A 500-acre pine-wooded area at the confluence of the Bogue Falaya, Tchefuncte, and Abita rivers near Covington, Louisiana, will be the site of the Delta Regional Primate Research Center. Designed by Freret & Wolf of New Orleans, the center will use





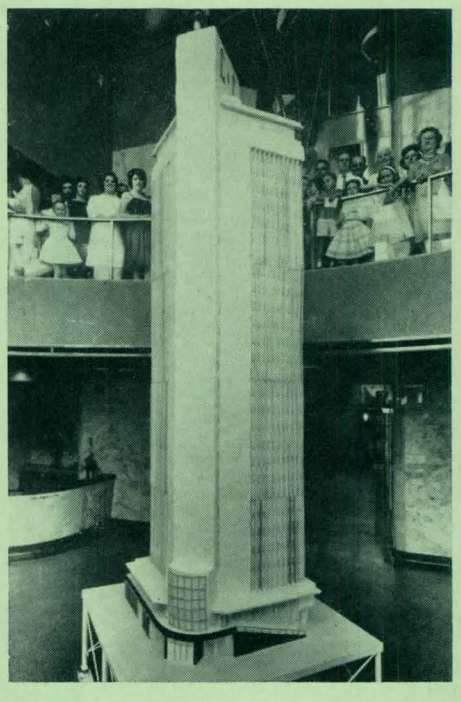
monkeys, chimpanzees, baboons, and other primates in medical and biological studies intended to advance man's solution of many health and psychological problems. The center's operation and administration will be conducted by Tulane University. Other universities that will co-operate with Tulane in research programs are Louisiana State University, Loyola University, University of Alabama, University of Mississippi, University of Texas, and University of Arkansas. First phase of construction will see nine buildings built: administration; main laboratory; detached laboratory; large primate facility; isolation laboratory; service and shops building; central power plant; field observation house and compound; and radiation blockhouse and laboratory. Covered walkway will connect all these one-story buildings, except for the isolation and radiation structures. Shown are the administration building and the connection between it and the main laboratory.



Tiptop Entrance for Hillside Apartments

Pleasing solution for a hillside-beach site is the design for the Penthouse apartments in Santa Monica by Kenneth Lind Associates. Entrance from a *hilltop street* will be made to the uppermost floors (11 and 10) via steel girder and concrete bridges. Entrants may park cars on these floors and visit in the top-side lounge before descending to their apartments. Each of six exterior-view elevators will serve two apartments per floor, thereby eliminating hall space.

The structure, which is to be completed this fall, is of reinforced lightweight concrete, with floors of lift-slab post-tensioned concrete. Luxury features include terraces with aluminum sliding doors, *two* baths in *all* 79 apartments, and a swimming pool.



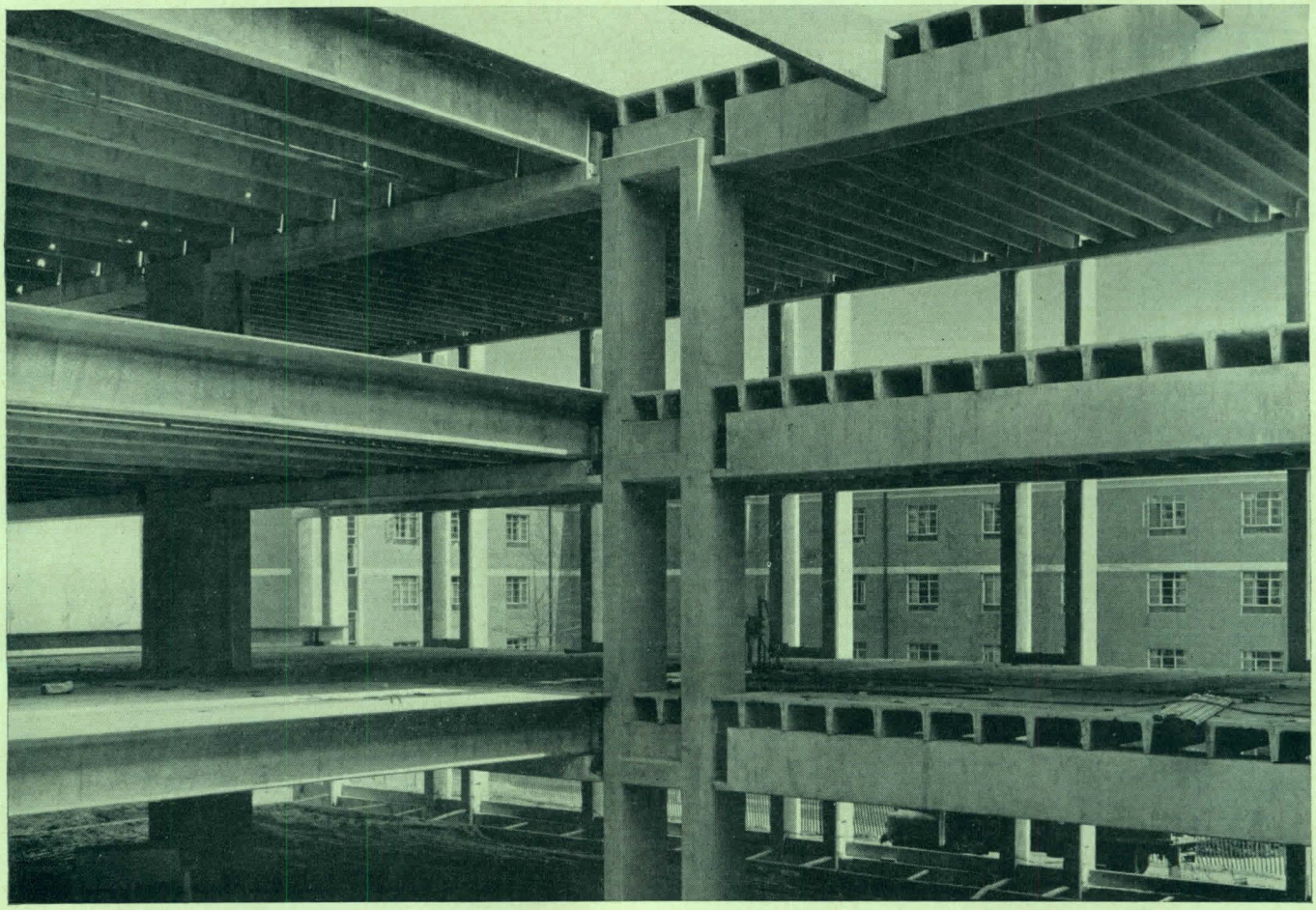
Piece of Cake

To celebrate its 60th anniversary recently, Nashville's Life and Casualty Insurance Company dreamed up a three-ton cake reproducing in scale the 31-story headquarters building of the company. Cake plans were made from original plans under the supervision of the building's architect, Edwin Keeble & Associates. Now you can have your architecture and eat it, too.

State Fair Design

Design for State Fair Arena of Oklahoma is by Jack L. Scott & Associates. To be located in Oklahoma City, the arena will serve as rodeo arena for state fairs and as a convention facility

Continued on page 82



ARCHITECT: Samuelson and Sandquist, Chicago, Illinois
GENERAL CONTRACTOR: Tonyan Construction Company, McHenry, Illinois
PRESTRESSED PRODUCER: Midwest Prestressed Concrete Company
OWNER: Northern Illinois University, DeKalb, Illinois

This school building skeleton features versatile prestressed concrete

You are looking at the concrete structural system for the new Practical Arts Building of Northern Illinois University at DeKalb, Illinois. Single and double T-sections for floors and roof, as well as all main structural girders are of prestressed concrete construction. There are good reasons for acceptance of prestressed concrete construction on more and more projects like this. Savings in time are often achieved through the ease of fabrication and placement. Owners gain earliest occupancy. Builders reduce cost.

Prestressed designs also permit reduction in weight and bulk, without a corresponding sacrifice in strength. This allows the use of lighter sections, saves space and money.

Prestressed concrete for this job was made by Midwest Prestressed Concrete Co., Rochelle, Illinois. Prestressing strand was Union's TUFWIRE. Write us for free copy of helpful folder on Union TUFWIRE Products for prestressed concrete. TUFWIRE Strand and other Union Wire Rope products are made by **Sheffield Division, Armco Steel Corporation, Dept. S-1083, 7100 Roberts Street, Kansas City 25, Missouri.**

ARMCO Sheffield Division

For more information, turn to Reader Service card, circle No. 389

"Laying up walls
goes faster with
masonry cement mortar.
It spreads easier.
We get fewer cracks."

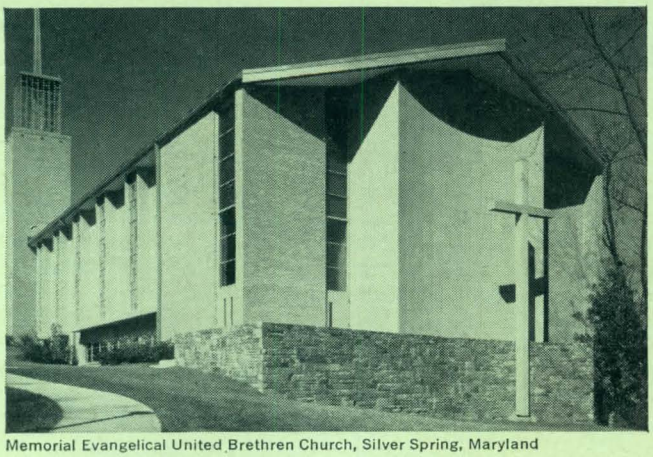
A Myron Cowell

A. Myron Cowell has been a mason contractor for 35 years and is well known for expert work throughout the Washington area. He is president of the Masonry Institute, Inc. and of Associated Builders and Contractors. He is an active member of the Washington Building Congress and the Home Builders Association.

"Masonry cement mortar
gives greater uniformity.
Fewer complaints--
better job all around."

Anthony Izzo

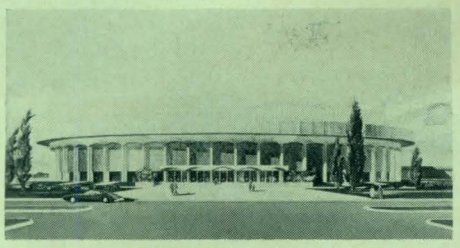
33 years a mason contractor, Anthony Izzo is past president of the Masonry Contractors Association and of the Masonry Institute, Inc., and a member of the Washington Building Congress. Recent examples of his work are the Washington Hospital Center and the high-rise apartment building, the Towers.



Memorial Evangelical United Brethren Church, Silver Spring, Maryland

Greenbriar apartment building, Massachusetts Ave., Washington, D.C.

Continued from page 78



for the city. Arena will have seating for 8060, plus an additional 2000 temporary seats. Coston, Frankfurt & Short, Inc., are Mechanical and Electrical Engineers.

Cry for Quality Sounded in Manhattan

A recent public hearing before the New York City Planning Commission has highlighted serious snarls in the proposed move of the New York Stock Exchange to the Battery Park renewal area. Hotly debated was the question of the legality of allocating such land—acquired by the City through condemnation—to a private commercial group. The Exchange has offered to pay the City the full cost of acquiring the site. Proponents of the City-Stock Exchange deal—an unprecedented one for New York City, although hardly unheard of in other cities—argue that keeping the Exchange within City limits adds to the public economic good. (A substitute proposal by John P. McGrath of a 40-story structure *his* backers would build, rallied a few unexpected, though half-hearted supporters to the Exchange's cause.)

Not brought out at the hearing, but even more disturbing to the commission, is the reluctance of Exchange officials to accept suggestions that the proposed Stock Exchange design by O'Connor & Kilham (*see* p. 71, MAY 1963 P/A) be aesthetically upgraded to one that would more appropriately reflect the stature and significance of the organization, as well as its siting as a major building in the urban renewal plan. A suggestion by City officials that the Exchange should acquire as consultant an architect of international reputation has not been well received. The present design has been criticized in *The New York Times* as "aspiring to little more than the removal of the present pediment and board room to a conventionally modern structure."

Also under debate is the preservation of four historic buildings that stand partly in the path of the Water Street widening. Plans call for relocation of these buildings, probably to nearby Jeannette Park, but funds for restoration are nonexistent.

An additional bone of contention is the plan for a garage adjacent to historic Fraunces Tavern. Although the garage—a hand-me-down from the luxury housing plan that first brought the site under urban renewal—does not seem to have anyone's support, it can now be eliminated only after extensive red-tape proceedings. One solution, suggested by Giorgio Cavaglieri of the Municipal Art Society, is that the Exchange receive the garage site as part of a package, that it scrap the plans for a garage, and that the historic buildings from Water Street be relocated to this site, with the Exchange restoring them for use as executive clubhouses. In this way, the Exchange might at least partially answer the plea of Cavaglieri and many other civic-minded citizens to protect the "aesthetic rights of the people of New York."

D.J.G.

Observation at Niagara

Observation building, cantilevered over a gorge from the south abutment of the Robert Moses Niagara Power Plant, was designed by Architects Daniel Chait and John B. Peterkin. The two-story building near Niagara Falls has steel structural members with stainless-steel window wall. Stainless steel was chosen to resist corrosive chemicals released by nearby industry. On the upper level, a balcony, protected by 7-ft high railings, extends beyond the walls and over the gorge. Tapered oblong shapes—a shape used in the sluices of the power plant below—are repeated throughout the design in railings, skylights, and the T-columns that support the roof.

Building houses a model of the power plant, a historical painting, and a diorama on the upper level, and a theater and a restaurant opening onto an outdoor dining plaza and promenade on the first level.

Schools

Restudy of Texas A & M's School of Architecture is being made under new Dean Edward J. Romieniec, who assumed duties in August. He is considering adoption of a trimester program to begin next year, the inclusion of an urban planning program, and teaching in related fields of design. A study is being made that will propose two years of basic design, then three years of advanced design in optional subjects (architecture, landscape architecture, engineering, history, urban design, probably product design) selected by the student.

College of Architecture and Design has been established at Kansas State University. Encompassing architecture, architectural engineering, allied arts, landscape architecture, and graduate program in urban and regional planning, the college is headed by Dean Emil C. Fischer.

Dean Olindo Grossi of Pratt Institute announces a new graduate program leading to the degree of Master of Science–Tropical Architecture.

Illinois Institute of Technology has established the IIT Metropolitan Stud-

The Gold Bond difference: A Tectum roof deck eliminates three steps, replaces three materials, reduces three costs

Tectum invests more of your money in the materials . . . less in labor. Naval Academy Field House, Annapolis, Architects: Harbeson, Hough, Livingston and Larson, Philadelphia; von Storch and Burkavage, Media, Pa.

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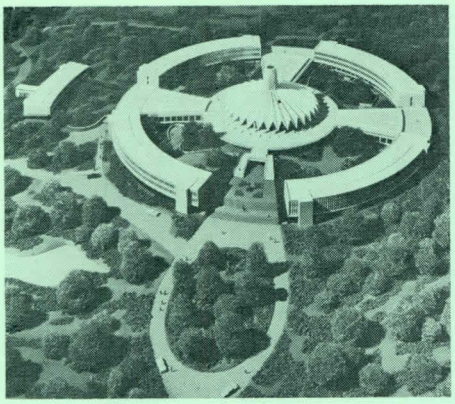
ies Center to examine the problems of urban living using the resources of the architecture, engineering, and social sciences departments. Dr. Edward M. Levine, political science professor, is acting director.

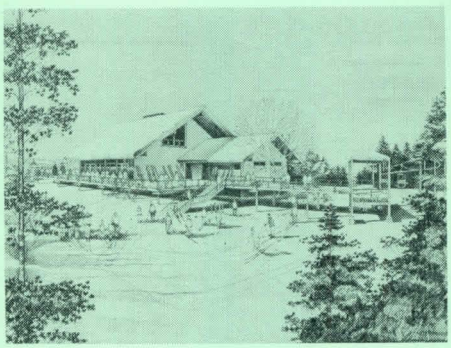
Wheel-Shaped Seminary

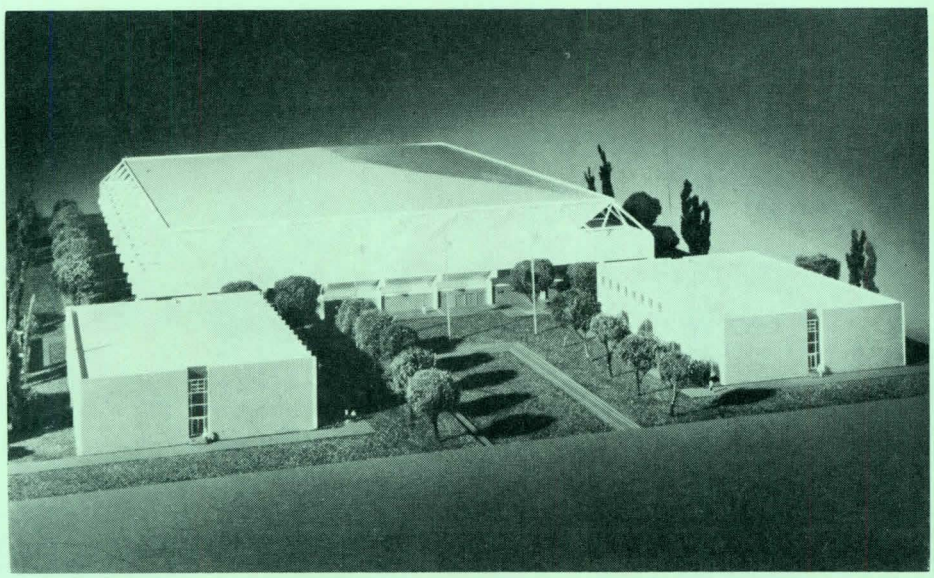
A wheel shape for St. Patrick's College Seminary in Hartsdale, N. Y., will enforce a cloistral mood within 134 wooded acres. The central chapel — raised on a podium above administrative facilities — will have folded plate roof (an organ will follow these contours), a tall spire, and outer walls of stained-glass panels. Three spokes from the central chapel will contain dining hall, auditorium, and library; a fourth spoke is suggested by the terrace-entrance to the chapel. The outer ring, housing dormitories and classrooms, and the spokes will enclose four courts. The ruggedness of terrain and planting, to be retained in courts and surrounding grounds, will be viewed through glass expanses of the cast stone buildings. Outside of this 470-ft diameter complex will be a convent and athletic facilities. Architect is Charles Luckman Associates.



Where the Winds Blow

Summit sanctuary for skiers and perennial vista-seekers has been designed for New Hampshire's Mt. Sunapee by Carter & Woodruff. Intended to cope with problematic winds up to 100–130 mph will be staunch wood stud walls with views toward Vermont. A southeast portion of the deck, sheltered as the building forms an inside corner, will contain a main entrance and a sun deck. Vistas will also be open from the indoor cafeteria and from a second floor balcony. A short bridge provides access between building site and a ski lift that will hoist equipment and material during construction.





Space-Frame Roof for Campus Arena

Steel space-frame roof will be exposed on the interior and exterior of a multipurpose arena for UCLA campus. Balcony, which is separated from lower seating level by a concourse, will be supported by concrete bents. The slightly curved, deck-covered roof of pyramid-patterned steel beams will be supported on columns from these bents. Length and width of beams will vary for even distribution of weight. Precast panels on the exterior will cover structural columns, leaving space-frame roof and risers exposed. This 400′ x 300′ arena will be erected on a plaza with one, and eventually two, two-story activities buildings. Architect: Welton Becket & Associates.

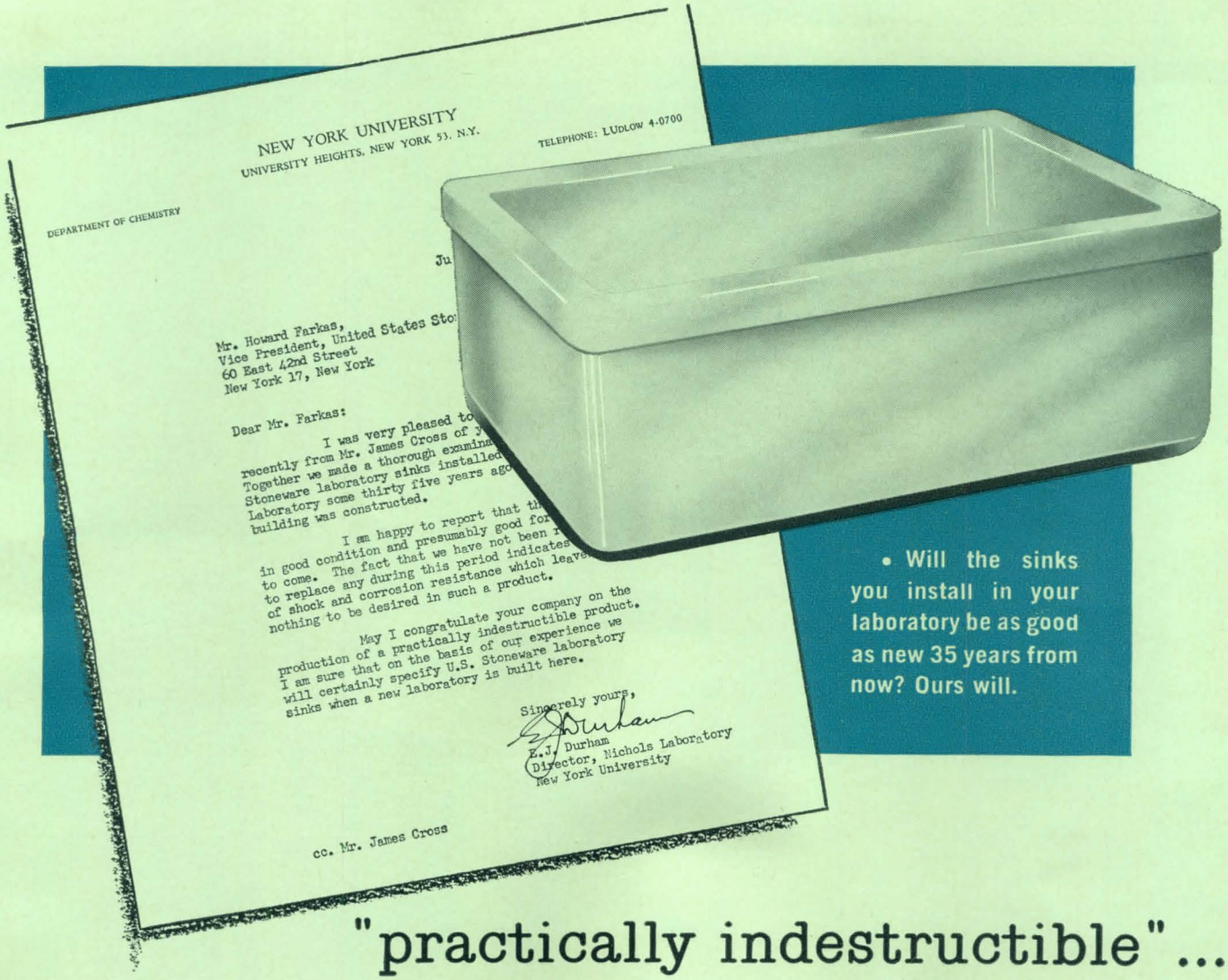
Two-Use Project to Face U. N.

Two-towered apartment-office building is scheduled to rise across from the United Nations complex next year. Slab-sided towers will contain 168 co-op apartments ranging from 3½ to 6 rooms on the first 15 floors to duplexes on the upper 8 floors. Alcoa being a 70 per cent partner in the development, it is not surprising to learn that the buildings will be faced with glass and bronze-colored aluminum, using Alcoa's Duranodic process. Harrison & Abramovitz is the architect, of course.

Can Mall Solve All?

A Civic Center Mall proposed in hopes of tying together various old and new Los Angeles buildings has been designed by architect Adrian Wilson

Continued on page 92



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Mechanically strong and rugged, "U. S." Chemical Porcelain sinks will stand up under all the heat-shock and physical abuse they'll ever meet in ordinary lab usage. Non-staining and scratch-resistant, they're as easy to clean as a china dish. And . . . they're available in three attractive colors to match any decor.

480-H

Your Laboratory Furniture Manufacturer can give you complete information. See him, or write for your free copy of Bulletin L-10.

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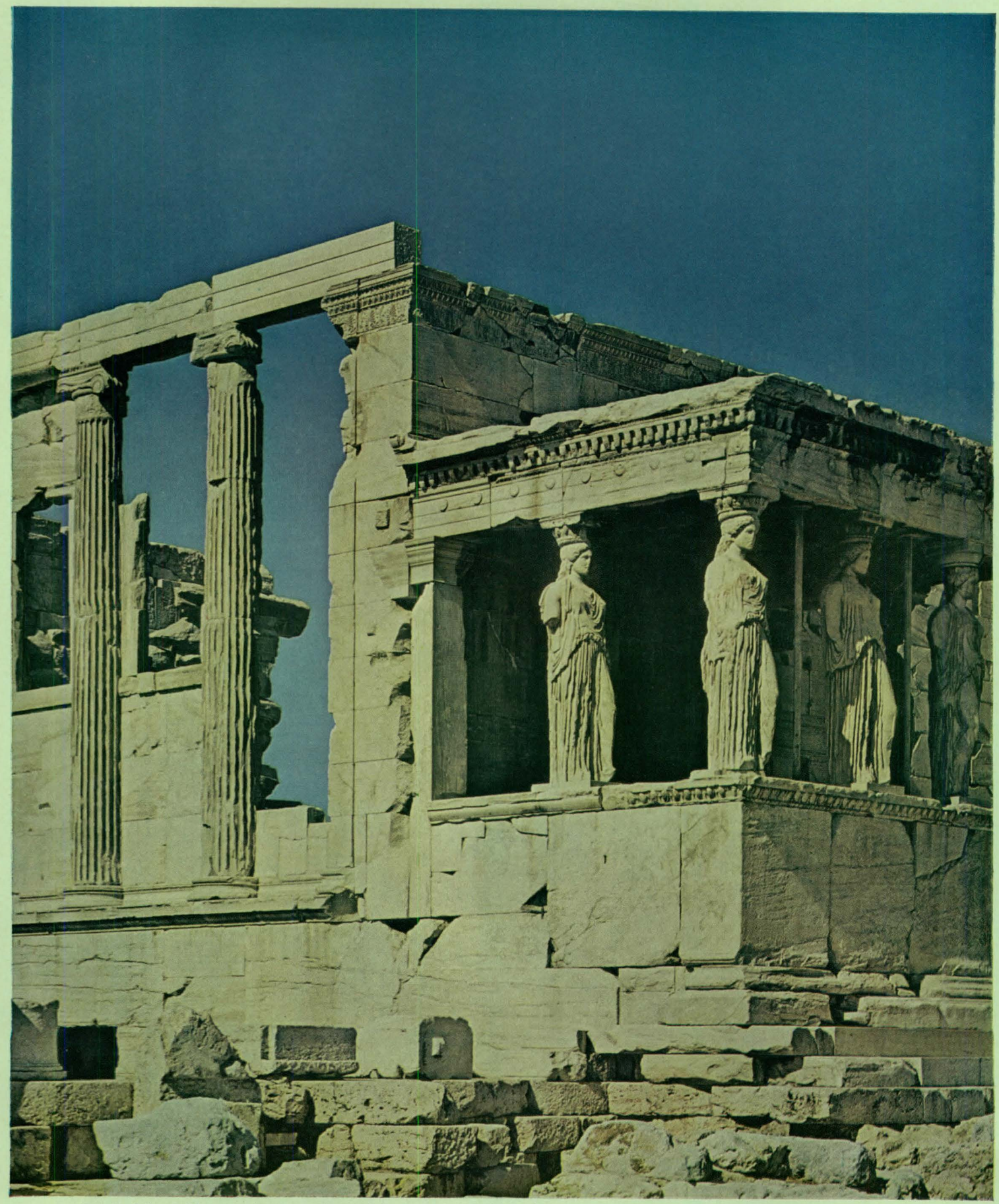

Porch of the Maidens, or the Caryatids, Erechtheum — facing the Parthenon and the central area of the Acropolis. Height 18 feet.

BEAUTY THAT ENDURES

Announcing dramatic new FISSURA tile and board for ceilings with a new depth of beauty

New Fissura acoustical ceiling tile and board captures the classic elegance and beauty of fissured travertine marble. This totally new Lo-Tone product from Wood Conversion Company has deeper fissures that give this striking pattern a new depth of beauty. Its white surface provides excellent light reflection.

New Fissura tile is available in 3/4" thickness with tongue and groove kerf, as well as in butt joint, kerf and rabbeted. This assures a completely level ceiling and eliminates the need for splines between the edges of the tiles. This new ceiling tile can be installed by all regular application methods — including adhesives, Salco staples and concealed "Z" systems.

The new Fissura tile is available in "rights" and "lefts." This permits patterns to be installed at right angles, or in line, as desired. The architect has complete freedom and flexibility of the ceiling design.

New Fissura is available in the following types of products: F/R tile and ceiling board, ventilating tile and board, vinyl coated ceiling board, attenuation factor (AF) tile, and standard mineral tile and board.

Find your local Lo-Tone Acoustical Contractor in the Yellow Pages, or write direct to: Wood Conversion Co., St. Paul 1, Minnesota.

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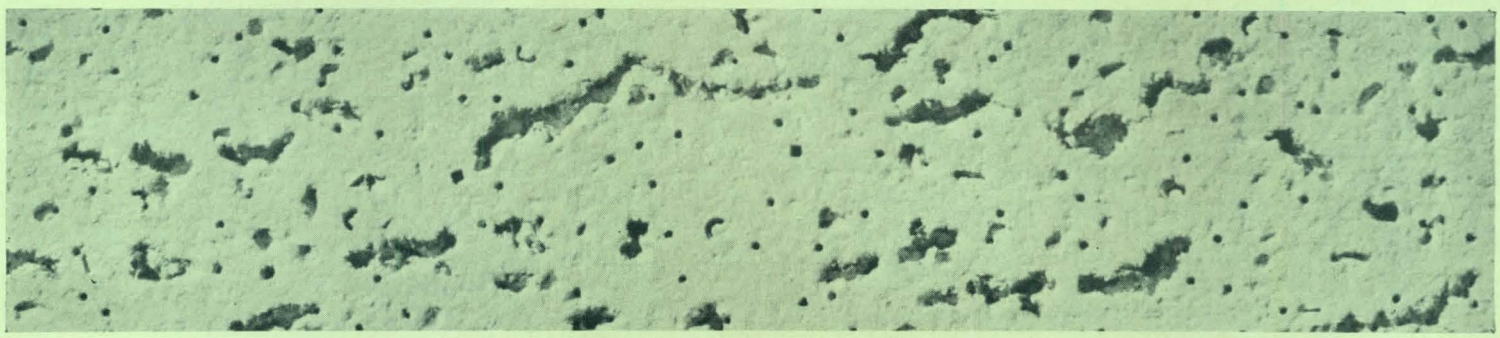

Section of new FISSURA tile shown ACTUAL SIZE.

For more information, turn to Reader Service card, circle No. 378

NSF Gains Architectural Guidance

by E. E. Halmos, Jr.

The National Science Foundation has taken an unusual step in setting up a full-fledged architectural staff, under a full-time Supervisory Architect.

Reason is one not generally known to the public: NSF annually doles out millions of dollars to institutions of higher learning, as grants for construction of laboratory and other scientific facilities. In 1962, NSF's budget for this purpose was $29 million; new budget requests for the current year (still under consideration by Congress) seek $90 million for this purpose.

But requests for such help from the schools run into large figures—they will total perhaps $300 million in 1963 alone.

So NSF has long felt it needs its own architectural staff to advise in the close decisions it must make as to which plan should be favored over others.

In addition, according to NSF officials, an increasing number of the schools have been asking for "guidance" from the foundation in the design of facilities.

Thus the new staff will also "provide" such advice, on request.

Supervisory Architect is Harold Horowitz, lately technical director of the now-independent Building Research Institute; an architectural graduate of both Illinois Tech and MIT, with experience both in private and public practice.

Some Congressional Acts

As mid-October approached, Congress still hadn't accumulated much of a record. As of October 1, for example, the lawmakers had been in session 134 days; had piled up more than 25,000 pages of reports in the closely printed "Congressional Record"; had introduced more than 13,000 bills of all kinds; and had enacted a total of 277 new laws, all of them (with a very few exceptions) of almost no general consequence.

But there were some stirrings and signs that at least essential legislation was actually beginning to move. Some of it had direct significance for architects.

For example, both Houses finally approved and sent to the President a whopping $5.47 billion appropriation for the Departments of Health-Education-Welfare, Labor, and various related agencies. The bill was nearly $300 million under budget requests, but it contained large sums for construction work: $226.2 million for hospital construction; $50 million for grants for construction of health research facilities, and others. And both Houses had okayed the $52 billion defense budget—including considerable military construction.

Individually, the two houses of Congress had also passed some important matters: In the House, the "Housing for the Elderly" bill, providing an additional $50 million for such purposes; and the long-sought $175 million (for one year) program to foster construction of fall-out shelters in certain areas. The Senate, among other things, also pushed through a bill that removes the 1975 "design standard" date for highway designs, substituting a 20-year limit instead. (Thus roads designed in 1964 would be designed for traffic requirements estimated for 1984.)

Much still remains to be done—particularly with respect to almost every appropriation bill for every department that does major construction work.

Associated Professionals

With a year of activity behind it, and with increased strength, the new Federal Professional Association holds its first annual meeting this month in Washington (Nov. 22).

Principal business will be confirming physicist Gregory K. Hartmann as new president—and planning for a strengthened membership drive. Started, with about 300 members, as a counter to unionization of the Federal services (professionals fear loss of identity to nonprofessional union groups), the FPA has grown to over 600.

Tax Reduction

The heavy calendar of unfinished work (including the civil rights, foreign aid, and numerous requests for special legislation) made it doubtful—at mid-October—that Congress will get around to final action on the Administration's pet tax reduction bill.

House members had passed the $11 billion measure, but the Senate showed no signs of any haste on it.

Construction industry observers have been a little dubious as to whether such a tax cut would help the industry to any noticeable extent anyway: Their thinking is that most of the money "saved" would go into consumer goods like clothes and automobiles, not housing; and that the requirement in the bill that industries accelerate their tax payments during the first year and a half of the new program will just about cancel any extra cash in business pockets for that period.

On "Interprof"

There's been little discussion in the general press of a new organization that might have broad influence on design—the Interprofessional Commission of Environmental Design, which held its first meeting in Washington early in September.

(At that session, the group unanimously named Henry L. Wright, FAIA and former President of AIA, as its first chairman, and William H. Scheick as executive director.)

The new group (already nicknamed "Interprof") includes AIA, ASCE (American Society of Civil Engineers), ASLA (American Society of Landscape Architects), and AIP (American Institute of Planners). Its members are presidents of the constituent societies, its executive staff the executive officer of the society whose president is serving a one-year term as chairman.

"Interprof" has no dues, no authority to take any action on its own. Function is to serve as liaison and communication between the professional groups on environmental planning.

FINANCIAL

As fall began, there was little evidence of any change in the slow, even uptrend in construction business.

During the month of August, for example, total new construction put in place was estimated at $6.1 billion—up about 1 per cent over July, about 4 per cent over a year ago, and thus just about in line with the predicted 3 per cent rise in total business for the year.

There were some small disturbing factors within the figure, however: housing showed a drop (of about 3 per cent) under July, though it maintained a slight edge over a year ago; general private construction (at $4.2 billion) was unchanged from August.

The inside story of a French Quarter secret

Exterior of Solari Building typifies traditional
local law and custom. On first floor is famed So
levels. Owner: A. M. & J. SOLARI, LTD. Architect
General Contractor: GRANITE CONSTRUCTION
crete Sub-Contractor: BELDEN CONCRETE PROD
gineer: R. P. LINFIELD. Consulting Engineer on Pre
Lone Star Ready Mixed Concrete: JAHNCKE SE
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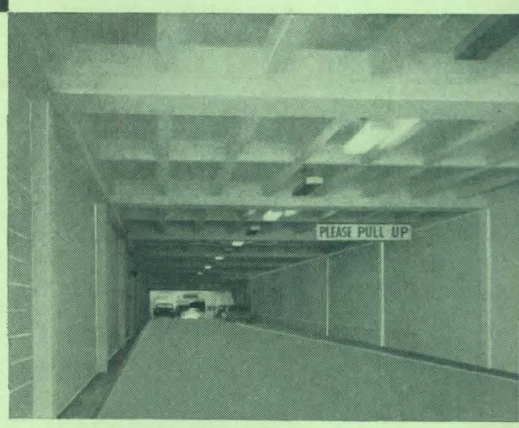


Interior view shows double tee and concrete masonry construction.

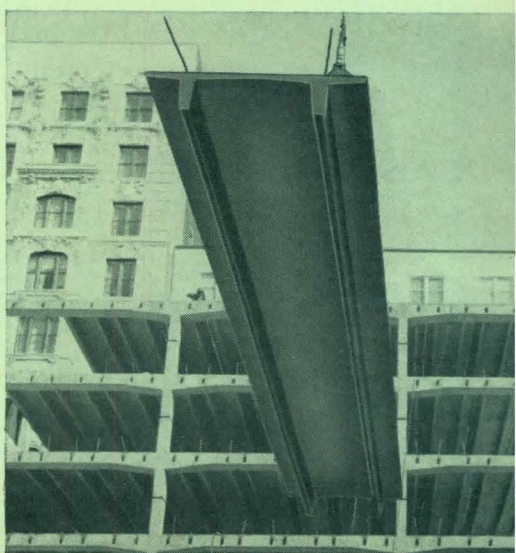
To the passerby, New Orleans' new Sola in the city's French Quarter seems simply another exa neighborhood's traditional Vieux Carré architecture

The interior, however, presents quite ano a functional prestressed concrete parking garage, i strength design—the first multi-story prestressed build ea.

An intriguing contrast, certainly, and with on history that bristled with problems. No working space at the site. A tight schedule. And weather ha defied prediction.

"Incor" 24-hour portland cement was used for com-ponents. Incor's high early strength permitted da f the forms, for maximum production efficiency and e

Key structural members are 72-ft. continuous bents extending full width of building. Each is comprised of 3 beams plus upper and lower halves of 2 interior columns. Prestressed 34-ft. double tees fit into slots cast in bents. "Incor" high early strength cement was used for all precast members.



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Drenched, deluged and wind-whipped

...at hurricane force and still weather-tight!

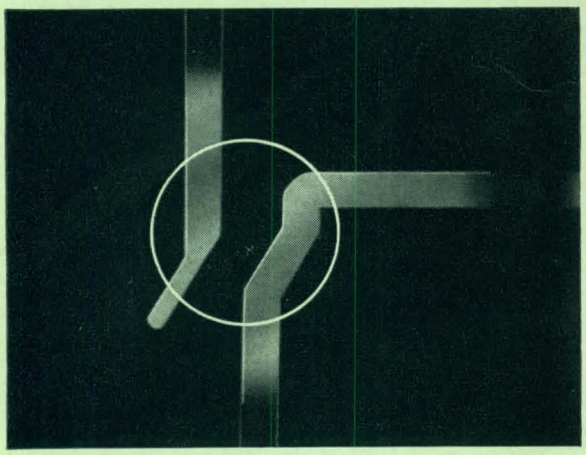
Independent Laboratory Tests Prove Kawneer Sealair Windows* Solve Weathering Problems!

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.

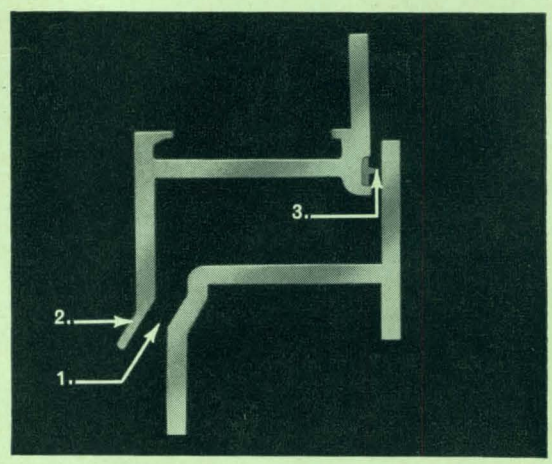
In these tests, the Sealair was installed in a weather test chamber. The window was water drenched as inside pressure was lowered to represent severe weather conditions. Sealair did not leak even when the static load reached 25 p.s.f. Many conventional windows leaked at 3 to 7 p.s.f. The superior weathering 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, A Division of American Metal Climax, Inc.

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*Patent Applied For

Continued from page 84

Associates. Landscaped with local shrubbery, a long vista from the new Music Center is expected to enhance the existing City Hall and provide a setting for city and county ceremonies. With removal of the Law Building and the old Hall of Records, the Mall will ultimately spread east-west between Grand and Spring Streets and north-south between Temple and First Streets. Multilevel garage below the mall will include a fall-out shelter. Associate Architects: Stanton & Stockwell and Albert C. Martin.

Personalities

Born after September press time: THOMAS CORWIN FROST, making possible a fourth generation for the architectural Frosts (SEPTEMBER 1963 P/A, p. 76). Father A. CORWIN FROST and baby were reported doing well . . . PHILIP JOHNSON ASSOCIATES has been selected to design an addition to the 1895 McKim, Mead & White Central Library in Boston . . . Recently elected chairman of 29-member Citizens Committee to advise New York's Nassau County Planning Commission in setting goals is OLINDO GROSSI . . . Design by HAROLD MONROE DEAN (U. of New Mexico) of a business motel won first prize in IES's student Architectural and Lighting Contest. Second- and third-prize winners were designs for an art gallery by JAMES P. LOWRY, U. of Cincinnati, and a restaurant by NORMAN FALDMO, U. of Utah . . . Newly appointed administrators at Cornell University are DALE R. CORSON, provost, WILLIAM R. KEAST, vice-president academic affairs, FRANKLIN A. LONG, vice-president, research and advanced studies, and THOMAS W. MACKESEY, associate provost for planning . . . J. DIXON MITCHELL of Westinghouse Lamp Division is new president of Illuminating Engineering Society. First woman to receive the Society's Gold Medal is GERTRUDE RAND FERREE, New York . . . Joining the MIT staff are STANFORD O. ANDERSON, assistant professor of architecture, and JAMES M. BESHERS, associate professor of city and regional planning . . . A.M. YOUNG of Libbey-Owens-Ford has been renominated for President of the Producer's Council; Young filled the unexpired term of Don A. Proudfoot . . . FRED S. DUBIN, Consulting Engineer, will be adjunct associate professor for the Columbia University Architectural School Program . . . HUGH DALZIEL DUNCAN, lecturer on architecture in society, has joined the staff of I.I.T.

Calendar

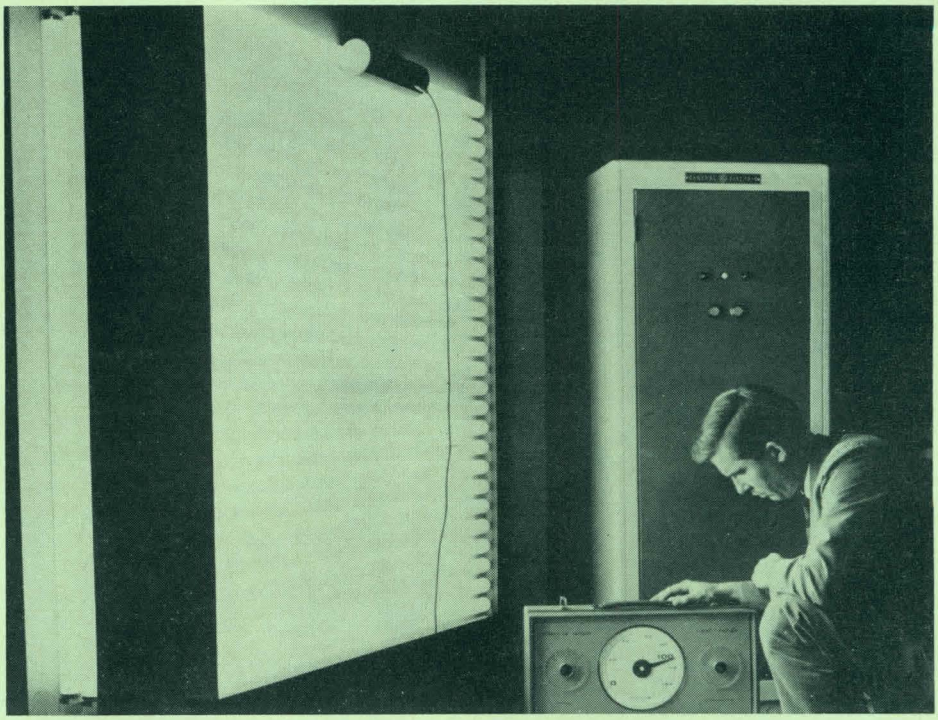
1964 Semiannual Meeting of American Society of Heating, Refrigerating and Air Conditioning Engineers meets in New Orleans January 27-29 . . . Series of 11 seminar-workshop clinics sponsored by National Association of Architectural Metal Manufacturers began last month, will extend through March, hitting Boston, New York, Washington, Chicago, and Detroit. Subjects are sealants, joining techniques, stainless-steel fabricating techniques, and metal finishes. Information can be obtained from Wm. N. Wilson, Executive Secretary, NAAMM, 228 N. La Salle St., Chicago 1, Ill.

Obituary

Aladar Olgyay, designer of solar-heated buildings and contributor to PROGRESSIVE ARCHITECTURE, died September 10. Surviving are his wife, Elizabeth Maria; a daughter, Joy C.; a son, Roy C.; and twin brother and collaborator, Victor.

For more information, turn to Reader Service card, circle No. 315

High Efficiency Converter

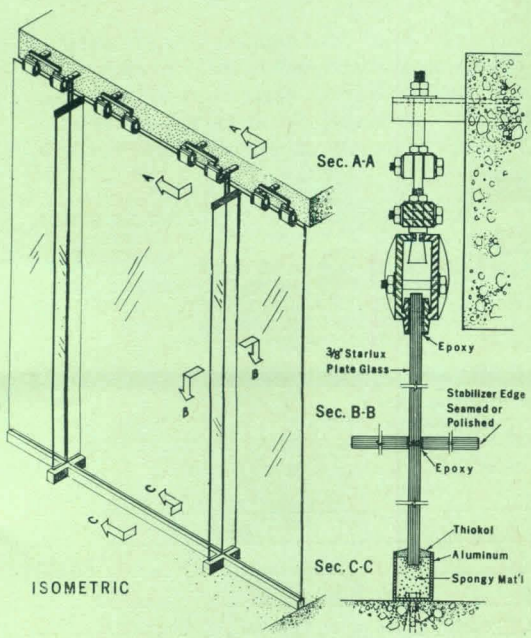


Reduced cost of both light and total energy systems in commercial buildings have long been sought in the electric field (pp. 118–121, MARCH 1953 P/A). In order to reduce these costs, a combination high efficiency converter and ballast has recently been developed to convert 60-cycle fluorescent lighting systems to 3000 cycles. Converter utilizes electric power at efficiency rate of 91 per cent as compared to that of 85 per cent for 60-cycle systems.

At each floor, 60 cycles are converted to 3000 cycles for fluorescent lighting systems. However, 60 cycles are still employed in low-power electrical circuits such as those used for typewriters. This situation also keeps branch circuit wiring at reasonable distances in order to avoid expensive wiring or busway costs while still maintaining acceptable voltage drops at this frequency level. Static converters are installed in the lighting or wiring closet of each floor, or in the core of the building. Branch circuits are protected by fused disconnect switches. Furthermore, air-conditioning loads are reduced by placing static converters in the wiring closet of each floor. High-frequency converter permits gain in lamp output and ballast efficiencies of about 5 to 6 per cent. Required ballast fluorescent operation is reduced in size (½), in weight (⅓), and in watts loss (⅕) at 3000 cycles as compared to conventional 60 cycles. With this converter, one ballast can be employed with four 40-w lamps.

Solid-state 3000-cycle frequency converter is available in ratings from 20 kw through 100 kw, with input voltage ratings of 208 and 277/480 v, three phase wye connected, and with output voltage of 300/600 v, single phase. Installed cost is about same as 60-cycle systems, although this factor will vary with specific building parameters such as power costs and geographical location. Operating costs are 10 per cent less than conventional 60-cycle systems. Low Voltage Switchgear Dept., General Electric Co., 6901 Elmwood Ave., Philadelphia, Pa.

On Free Data Card, Circle **100**



Suspending Glass

System for installing huge expanses of glass has recently been developed and will be utilized in New York World's Fair Festival of Gas Pavilion designed by Walter Dorwin Teague Associates. "Starlux" plate glass, 8½′x10′, will hang from metal clamps concealed along edge of pavilion roof. Epoxy cement will seal adjoining lights. Pair of vertical glass stabilizers, also suspended, will hold wall rigid against wind load at each joint. Calking will keep out moisture along floor lines. This system of suspended glazing, therefore, holds and hangs glass distortion-free on a perfect plane. No frames, clips, mullions, or any other visible support will be seen. American-Saint Gobain Corp., P.O. Box 925, Kingsport, Tenn.

On Free Data Card, Circle **101**

No other single method of application has ever caught on so fast as the Flintkote MONOFORM Roofing System. Using the versatile Flintkote SEALZIT® roofing gun, special Monoform compounds are applied simultaneously with chopped glass fiber reinforcement. It replaces conventional roofing, re-roofing and maintenance methods of building up a roof layer by layer with felt and "hot mopped" asphalt. Millions of square feet of Monoform roofing have now been used successfully on small as well as vast applications, from flat to the most advanced design. There is a job-engineered specification available for practically every conceivable roof surface.

ROOF MAINTENANCE IS NOW AS SIMPLE AS M·O·N·O·F·O·R·M!

UL APPROVED FOR NEW CONSTRUCTION
Class B for 20 Year Bondable Application.

The SEALZIT® roofing gun is manufactured under one or more of the following U.S. patents: 2,787,314; 2,933,125; 2,813,751; 3,033,472; 3,039,702 and D-187,504. Other U.S. patents pending. Patented in Canada. World wide patents pending.

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*U.S. PATENT APPLIED FOR

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Please send bulletin MS-23 on Monoform Roofing System.

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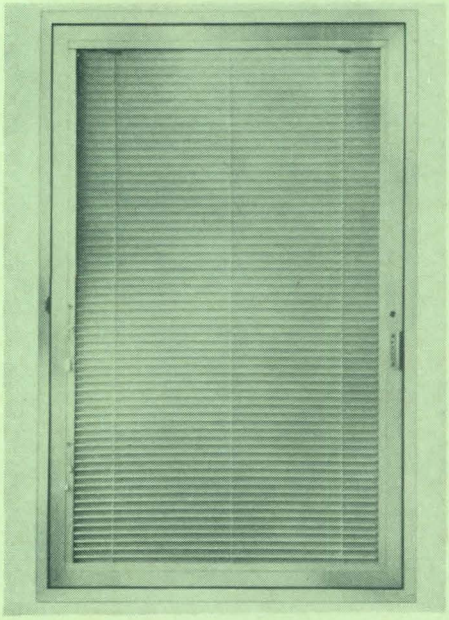
I am an ☐ Architect, ☐ Roofer, ☐ Contractor, ☐ Builder, ☐ Other _____

For more information, turn to Reader Service card, circle No. 325



Aluminum Pivoted Window

Aluminum pivoted window with integral venetian blinds has recently been introduced. Blind is made integral part of sash by incorporating blind track so as to serve as glass stop. Track is flush with interior face of sash. Blind, which can be easily removed without use of tools for cleaning, is made of 1″ wide aluminum alloy slats. It is available in many enameled colors. Hupp Corp., Flour City Architectural Metals Div., Minneapolis 6, Minn.

On Free Data Card, Circle **102**

Duplicating Stained-Glass Windows

Recently developed process can simulate any existing stained-glass window, or create window from any original art or colored photograph through use of acrylic plastic. Art, mosaic, or scenic work can be constructed up to 10′ x 12′ in individual sections without employing intervening steel reinforcing or supporting bars. Grant Smith and Associates, 147 E. 50 St., New York 22, N.Y.

On Free Data Card, Circle **103**

Cobblestone Flooring

"Cobblestone" mosaic flooring has high wear-resistance. It can also be used in interior walls or various exterior applications because of its weather-resistance. Flooring is available in six standard colors and in special-order combinations. Latco Products, 3371 Glendale Blvd., Los Angeles 39, Cal.

On Free Data Card, Circle **104**

Ceiling Diffuser

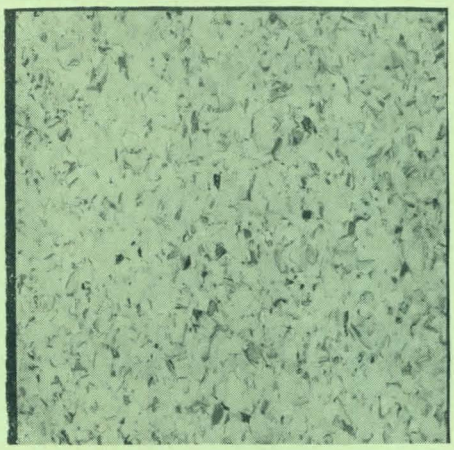
Recently introduced diffusers are designed to mount in ceiling next to inside walls. Duct length is, therefore, shortened and installation costs are cut. Diffusers eliminate drafts by diffusing air close to ceiling above occupied zones. All models are finished in rust and corrosion-resistant medium beige epoxy. Lima Register Co., Lima, Ohio.

On Free Data Card, Circle **105**

Prestressed Concrete Wall Panels

Prestressed concrete wall panels form wall of a building when placed on top of one another between vertical columns. This Unitized Foundation Method permits erection of concrete wall during coldest weather. Standard panels are available in any length up to 25′-6″. They are tongue-and-grooved along their horizontal edges, thereby forming locking seal when placed in position. Variety of surface finishes may be employed. Existing wall panels are simply lifted out and when additional steel framing has been installed, they are dropped into place again to form a "new" wall. Expansion joint, at each column between ends of panels, prevents cracking. Steeline Engineering Co., York, Pa.

On Free Data Card, Circle **106**



Asbestos Tile

Random chip pattern is used in asbestos tile called "Pebbled Onyx." Large chips of translucent vinyl encase fine chips of actual marble. Background is tinted white with color accents in onyx, brown, and sharp white. Tile is greaseproof, stain- and alkali-resistant. It is available in 9″ x 9″ or 12″ x 12″ sizes and ⅛″ gage. Azrock Floor Products, P.O. Box 531, San Antonio 6, Tex.

On Free Data Card, Circle **107**

Photo: Courtesy U.S. Plywood Corp.

Synthetic Film for Wood Panels

Synthetic film called "Videne" brings out natural wood grains. It is roll-laminated onto plywood, composition

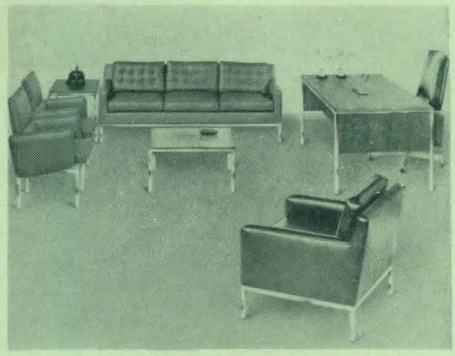
board, plastic panels, hardboard, or almost any other base material. Dirt and smudges wipe away with damp cloth or sponge. Manufacturer states that film has four times the abrasion resistance of conventional finishes. It is stain- and heat-resistant. By eliminating lacquers, paints, papers, and varnishes, it reduces or eliminates redecorating costs. This thermoplastic polyester laminating film is produced in 54″ widths. It is available in 34 color combinations, including clear and opaque colors, wood grain, and abstract prints. Finishes range from high gloss to muted satin. The Goodyear Tire & Rubber Co., Akron 16, Ohio.

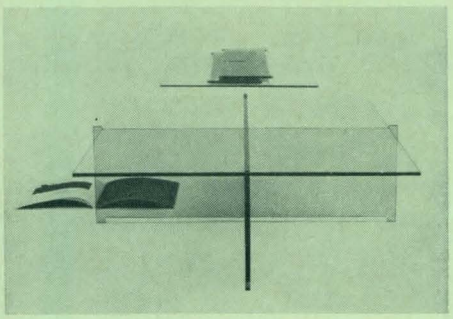
On Free Data Card, Circle **108**

Stainless-Steel Tubing in Furniture

Stainless-steel square and rectangular tubing is utilized in furniture because of its high strength-to-weight ratio, low cost, and slim appearance. Metal's strength permits greater lengths for sofa frames and other furniture. Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa.

On Free Data Card, Circle **109**





De Stijl Table

A transparent coffee table, designed by Bodil Kjaer, is assembled by hand from three flat pieces. The top (32″ x 32″) is polished plate glass, and the base (11″ high) is clear, blue, or smoke-colored plexiglass. International Contract Furnishings Inc., 145 E. 57 St., New York 22, N.Y.

On Free Data Card, Circle **110**

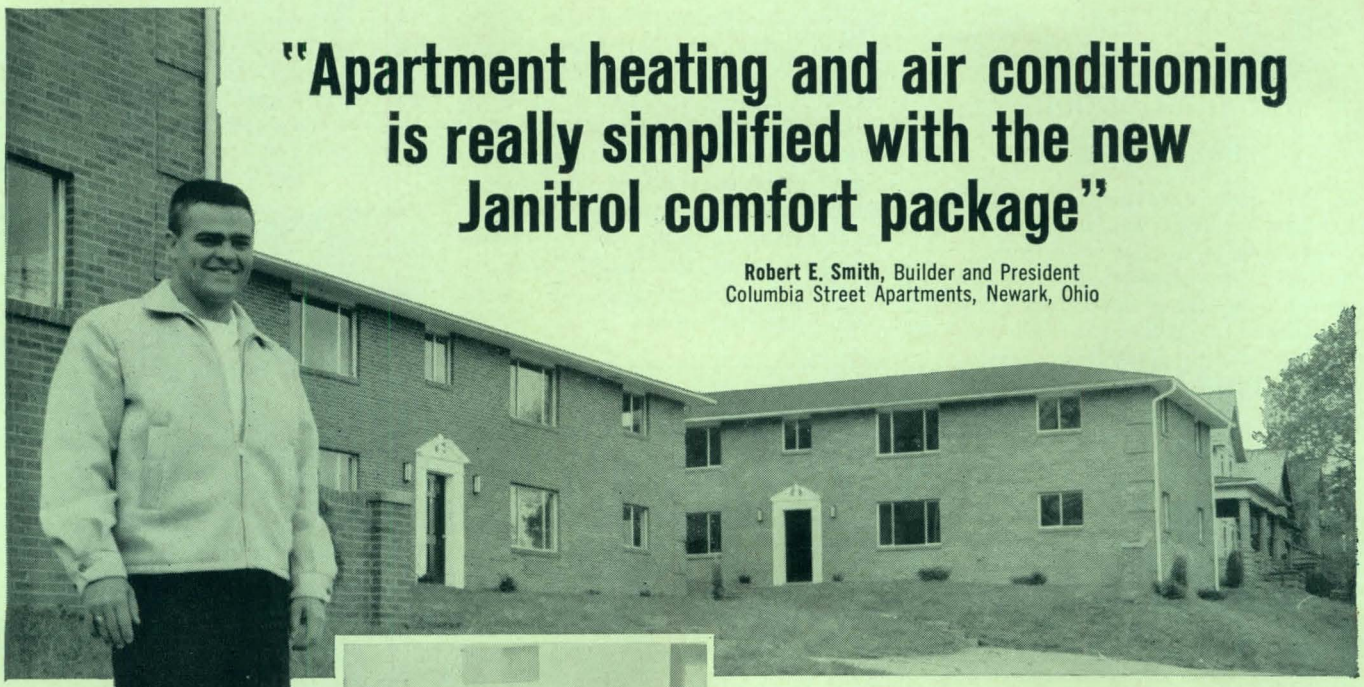
Electronic System for New Hilton

Three-purpose electronic system, called the "Host," has been developed for the New York Hilton Hotel. Each room contains a monitor (approximately the size of an average table radio) that will be either contained in a table or built in the wall. The unit will (1) indicate that there is mail or a message at the front desk; (2) awaken the guest in the morning at a predetermined time; (3) be utilized by the housekeeper to show the room status so that the front-desk clerk will know when the room is available for a new occupancy. In case of malfunction, the system immediately indicates what is wrong and where. Westinghouse Electric Corp., 3 Gateway Center, Pittsburgh 30, Pa.

On Free Data Card, Circle **111**

"Apartment heating and air conditioning is really simplified with the new Janitrol comfort package"

Robert E. Smith, Builder and President
Columbia Street Apartments, Newark, Ohio



Right: The 12-inch wide, 570 Series conditioner is installed in a central utility closet directly over the return air plenum.

Below: The through-wall condensing unit is flush with the inside wall, yet has only a slight exterior projection.

"Each apartment in this 12-unit project is individually year 'round conditioned by the new Janitrol 570 Series package, that has proved to be the most practical system we've found. Since we've built this plan before, we can appreciate the extra design features built into this equipment. We were most impressed with the ease of installation, flexibility of location and service accessibility of the 570 Series".

This all-new heating-cooling package is built and priced especially for apartments and small homes. Most models are only 12 inches wide to conserve floor space . . . cooling evaporator can install through-wall, on slab or on the roof . . . cooling is optional for either original installation or economical later addition. All units are completely factory-assembled, tested and feature a precharged cooling system with quick-connect couplings to speed installation.

Packages are available with nominal 1½, 2 and 3 tons of cooling and in heating capacities from 50,000 to 125,000 Btu./hr. for natural, mixed or LP gases, in either upflow or downflow models.

Free Application-Specification File. For complete information on all of the unusual features of the Janitrol 570 Series ask your Janitrol representative for Form J-379S, or mail coupon.

JANITROL®
HEATING AND COOLING

JANITROL DIVISION
Midland-Ross Corporation
Columbus 16, Ohio

Please send me your Application-Specification File on the Janitrol 570 Series Comfort Package.

Name_____

Address_____

City_____ Zone____ State_____

AIR/TEMPERATURE

Air Distribution Test Code

Code has been developed for testing and rating air distribution and control devices. It serves as a basis for performance comparison of available equipment including determination of the comfort conditions of occupied rooms in air-conditioning, heating, and ventilating systems. Code initiates close controls to permit accurate data on: (1) uniform equipment for testing; (2) hydraulically calibrated flow standards for both high and low velocity systems; (3) certification of member company laboratories both with respect to the minimum physical facilities required and the level of professional competence of the staffing of the laboratories; (4) precise test provisions in code to permit maximum comparability of test data; (5) review of individual data and certification as to method and completeness. Code is available for $5.00. Air Diffusion Council, 333 North Michigan Ave., Chicago 1, Ill.

Self-Aligning Damper

Self-aligning, nonbinding "Link-Ball" damper linkage unit is explained in 2-page folder. Unit requires no force to operate, will never bind or seize, eliminates shop adjustment, and permits removal of any individual blade without complete disassembly of system. Folder includes specifications, illustrations, and details. Elgen Manufacturing Corp., 32-29 Gale Ave., Long Island City 1, N.Y.

On Free Data Card, Circle **200**

CONSTRUCTION

Tubular Steel Specs

Series of 14 charts covers specs for square, rectangular, and special shapes of mechanical and structural tubular steel. Column strengths, mechanical properties, and prices are included. Tex-Tube Inc., P. O. Box 7705, Houston 7, Tex.

On Free Data Card, Circle **201**

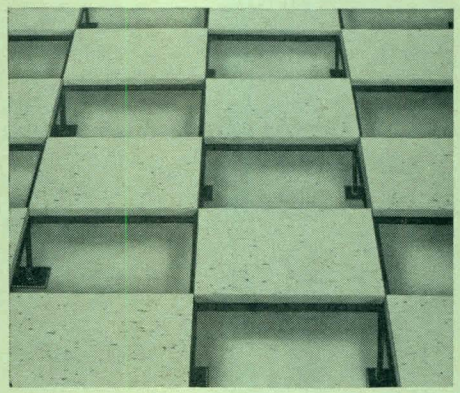
Aluminum Alloy Manual

Aluminum construction manual, entitled "Specifications for Structures of Aluminum Alloys," has recently been published. Aluminum alloys are noted for their strength, corrosion resistance, finishing, and fabrication characteristics. Manual, 96-pages, includes such topics as allowable stresses for welded or nonwelded building structures, riveted and bolted structures, and welded and nonwelded fabrication. Diagrams and charts are included. Manual is available at $1 per copy. The Aluminum Association, 420 Lexington Ave., New York, N. Y.

In-Floor Duct System

Booklet, 8-pages, describes "Trench Duct" used for in-floor distribution of electrical, telephone, and communications systems. Duct is primarily utilized to feed cells in cellular steel flooring, but can also be used with standard underfloor ducts in slab construction. Cover of trench is flush with finished floor and is fully gasketed to protect conductors from moisture seepage in normal floor maintenance. Cover plates are removable to provide completely free access when laying-in or removing conductors. Standard duct sections are 6′ in length and cover plates are in 3′ sections. Charts, details, and specs are included. T. J. Cope, Collegeville, Pa.

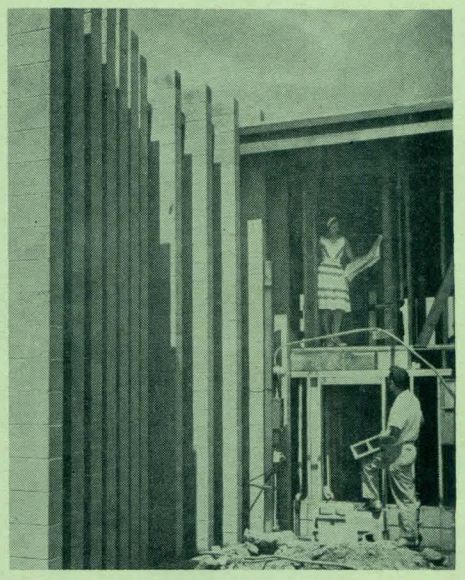
On Free Data Card, Circle **202**



Elevated Floor Systems

Flier, 2-pages, introduces elevated flooring for computer systems called "Supra-Floor." It provides concealed installation space and free access to computer, lighting, and communication wiring, ducts for air conditioning, and pipes for plumbing and heating. Panels are removed by employing a suction cup. All panels are interchangeable and available in standard 2′ x 2′ as well as other sizes. Load-bearing capacity is 250 psi with concentrated load of 1000 lbs. Stringer beams are pre-slotted to exact tolerances at factory so that installer simply drops crossbeams into place. Flier contains details, illustrations, and specs. Sandell Mfg. Co., Inc., 26 New St., Cambridge 38, Mass.

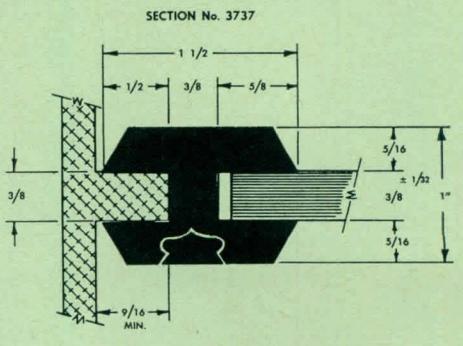
On Free Data Card, Circle **203**



Quality Concrete Block

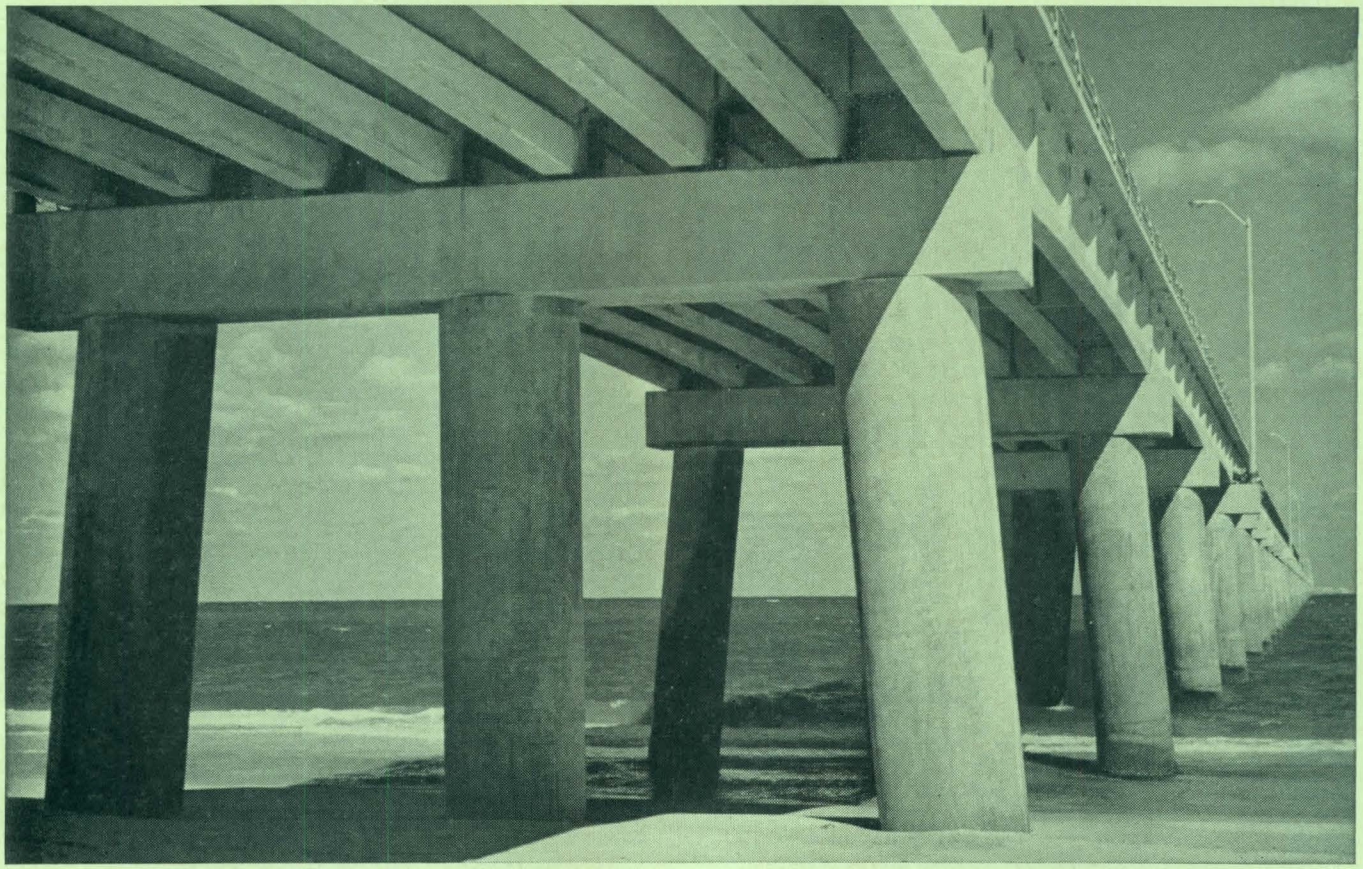
Two booklets in a brochure define and describe quality control program that has created a national standard for concrete masonry blocks. Any block manufactured by members of the program is called "Q Block." Samples of Q Block are periodically tested by independent testing laboratories to insure that block meets Q Block standards of quality. If block is below specified standards, then that particular franchise is removed from the membership. Two booklets include illustrations of typical Q Block applications. National Concrete Masonry Assn., 1015 Wisconsin Ave., N. W., Washington 7, D. C.

On Free Data Card, Circle **204**



Structural Gaskets

Pamphlet, 20-pages, introduces neoprene structural gaskets that give resilient weather-tight seal. Also covered are channels, spacers, setting blocks, and miscellaneous shapes. De-



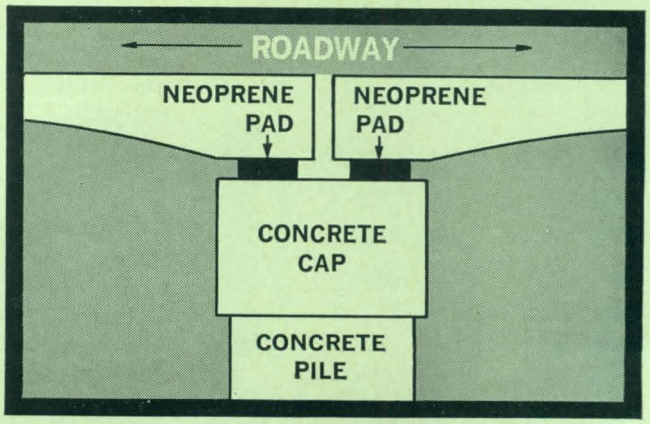
OCEAN BRIDGE RIDES ON NEOPRENE

More than 17 miles of open sea are being spanned in one of the greatest construction projects of all time—the Chesapeake Bay Bridge-Tunnel, joining the Delmarva Peninsula and the Norfolk, Virginia, area.

Supporting more than 12 miles of roadway are 14,700 bearing pads made with Du Pont Neoprene synthetic rubber. Eleven separately engineered types of pads provide for leveling, side thrust, expansion and contraction.

In hundreds of bridges and other structures throughout the world, bearing pads of Du Pont Neoprene have proved to be less expensive and more dependable than mechanical assemblies—both at construction time and over the long haul. Neoprene pads have no moving parts, never need to be cleaned or lubricated. Neoprene has been the elastomer which engineers have specified for years because it is highly resistant to set, ozone, temperature changes, salt spray, oil and the deteriorating influences of weather extremes.

For more information about Neoprene in structural bearing design, write E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Dept. PA-11-NM, Wilmington 98, Delaware. In Canada, Du Pont of Canada Ltd., 85 Eglinton Avenue, E., Toronto 12, Ontario.



16 Neoprene pads on each cap support the ends of the roadway sections. The pads are about 8½" by 10½" and vary in thickness and hardness to meet the assorted engineering requirements of this job. The pads require no maintenance.

NEOPRENE—A RELIABLE DUPONT ELASTOMER

REG. U. S. PAT. OFF.

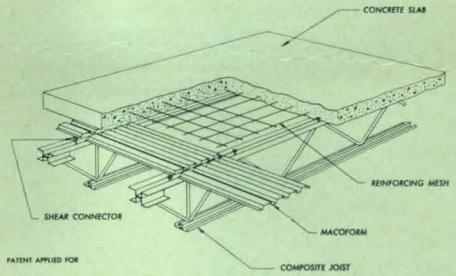
Better Things for Better Living . . . *through Chemistry*

tails and illustrations are given. F. H. Maloney Co., 2301 Texas Ave., Houston, Tex.

On Free Data Card, Circle **205**

Composite Structural System

Brochure, 8-pages, describes composite structural system based on open-web joist. It consists of steel joist, ribbed steel centering, and a wire mesh reinforced concrete slab. System utilizes strength of steel joist and



capacity of concrete slab. It has the following advantages: (1) long spans with shallower depths, reducing construction height per floor, with accompanying reduction in over-all building height. (2) Savings resulting from reduced size of columns and column footings. (3) Reduction in total dead weight of structure. Brochure includes load tables, specs, and illustrations. Macomber Inc., Canton 1, Ohio.

On Free Data Card, Circle **206**

Welded Tubing Handbook

Handbook discusses round, square, rectangular, and special shape welded steel tubing. Topics include advantages, selection of tubing, testing, fabrication, tolerances bending, physical properties, and typical applications. Charts and photos are given in 60-page handbook. Van Huffel Tube Corp., Warren, Ohio.

On Free Data Card, Circle **207**

Prestressed Floor System

Pamphlet, 4-pages, describes prestressed floor system. Tables of spans and loadings indicate capacities of prestressed concrete tensile component used with a composite field pour of reinforced concrete. Span ranges from 14′ through 60′, with floor loadings ranging from 40 through 300 psf. Pamphlet includes forming and shoring procedures. Leap Associates, P.O. Box 1053, Lakeland, Fla.

On Free Data Card, Circle **208**

Roofing Specs

Built-up roofing specifications manual, 1963 edition, has been introduced. Manual, 28-pages, describes specs for new construction, flat decks, steep decks, re-roofing, insulation, flashing, waterproofing, and dampproofing. Details, charts, and tables are included. Koppers Co., Inc., Tar Products Division, The Koppers Bldg., Pittsburgh 19, Pa.

On Free Data Card, Circle **209**

Tile Panels

Folder, 4-pages, describes ceramic laminated panels for use with curtain walls, exteriors, swimming pools, interior sanitary walls, and floors, vanities, counters, and drainboards. "Paneltile" features ⅛″ thickness, sizes up to 6″x 6″ and one-third weight of conventional tile. It is shock-resistant, frostproof, and noncrazing. It is available in wide selection of colors in matte and glossy finishes. Olympia Tile Corp., Spring Valley, N.Y.

On Free Data Card, Circle **210**

For more information, turn to Reader Service card, circle No. 399

Pools are sure getting around ...but water isn't!

Here's still another decorative pool adding distinctive flair to an outstanding modern building — 1120 Avenue of the Americas, New York. You see pools practically everywhere today — in lobbies (like this one), in and out-of-doors, upstairs and down. And it's thanks to lightweight, leakproof lead that you can put attractive pools nearly anyplace your fancy dictates.

Beneath these lead-lined pools you'll find all sorts of interesting (and profitable) things — garages, offices, stores, exhibit space — but never water. And you never will. Lead needs no maintenance and no replacement. It will outlast the building itself.

Lead is so workable, too. So readily conforming to any shape. And it's low in cost. You can really let your imagination soar.

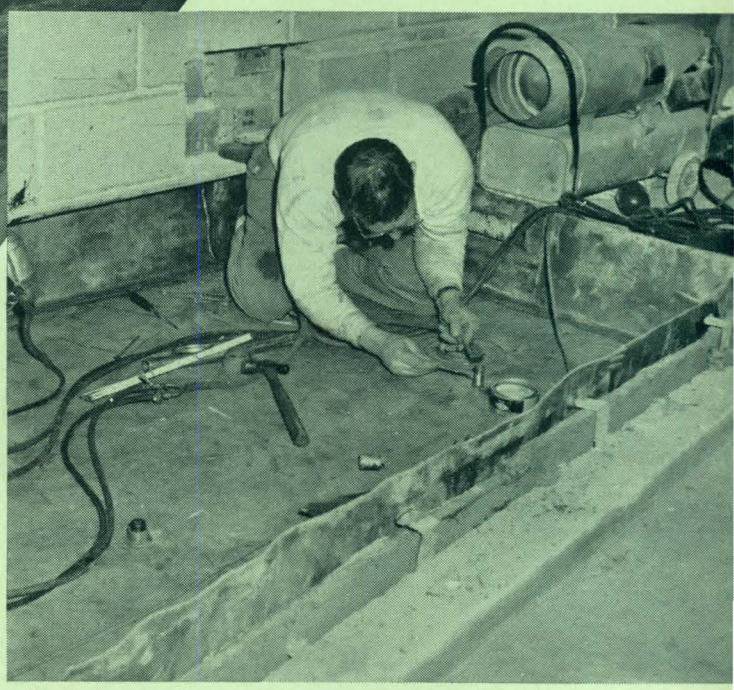
Let it soar a bit now. Couldn't you do something dramatic with lead-lined planters or pools on some project you're thinking about? Detailed technical data on lead in these applications are yours for the asking. Lead Industries Association, Inc., Dept. N-11, 292 Madison Avenue, New York 17, New York.

LEAD INDUSTRIES ASSOCIATION, INC.
292 Madison Avenue, New York 17, New York

Look Ahead with Lead

For more information, circle No. 346

ARCHITECTS: KAHN & JACOBS
GENERAL CONTRACTOR: HRH CONSTRUCTION CORP.
MECHANICAL ENGINEER: SYSKA & HENNESSY, INC.
PLUMBING CONTRACTOR: J. L. MURPHY INC.
LEAD WORK: JOHN F. ABERNETHY & CO., INC.



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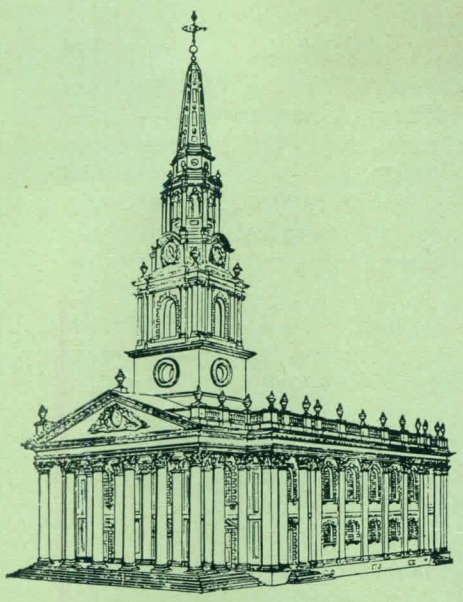


A Spiring

Brochure, entitled "The Spire," discusses design of spires from their earliest known antecedents, through Gothic, Restoration, and Early American to contemporary. Included in 44-page brochure, is a step-by-step photographic description of spire erection and checklist for determining spire requirements. Architects, clergy, and members of church building committees may obtain copies upon letterhead request. Brochure is also available to others at $1.95 per copy. Overly Mfg. Co., 574 West Otterman St., Greenburg, Pa.

DOORS/WINDOWS

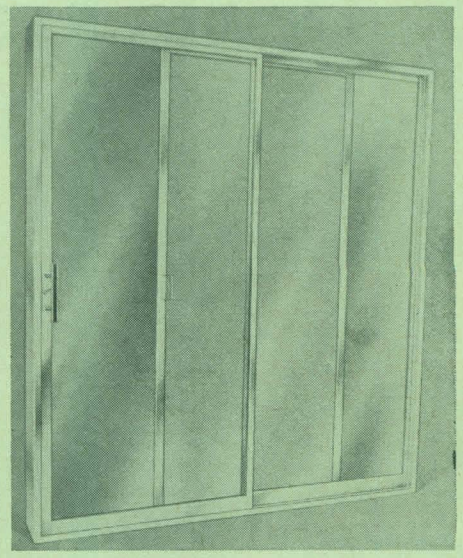
Metal Doors

Pamphlet, 32-pages, describes metal doors in widths of 1¾" and 1⅜". Topics include medallion doors, regent doors, stile and rail, underwriters doors and frames, special metal doors, louvers, standard frames, transom frames, and other accessories. Specs, details, and illustrations are also given. Ceco Steel Products Corp., 5601 West 26 St., Chicago 50, Ill.

On Free Data Card, Circle **211**

Sliding Door

Flier, 2-pages, offers anodized aluminum sliding glass door. Complete weather-stripping around perimeter on active panel consists of silicone-treated wool pile and natural gray vinyl to provide resistance to wind, dust, and water. Condensation trough at sill provides protection during most humid conditions. Door has adjustable



steel, ball-bearing wheels. Flier includes details and specs. IDA Products Co., 3001 Miller St., Detroit 11, Mich.

On Free Data Card, Circle **212**

ELECTRICAL EQUIPMENT

Religious Lighting

Catalog, 68-pages, offers church and institutional lighting. Fixtures include Gothic, Romanesque, Colonial, classic, functional, and contemporary. Sketches, charts, and specs are given. Price list is included. Gruber Bros. Inc., 90 S. First St., Brooklyn 11, N. Y.

On Free Data Card, Circle 213

Modern Lighting Units

Series of eight brochures offers various types of lighting fixtures. Fixtures include triangular lights, oriental shapes, recessed down lights, up-and-down cylinder lights, accent and display lights, adjustable pole units. Illustrations and details are given. General Lighting Co., 248 McKibbin St., Brooklyn 6, N. Y.

On Free Data Card, Circle 214

Yard Lighting

Catalog and price list of recently designed wall-mounted, hanging, floor, and yard lighting fixtures is available. Dimensions and details are included. Harry Gitlin, 917 Third Ave., New York 22, N. Y.

On Free Data Card, Circle 215

FINISHERS/PROTECTORS

Adhesive Tapes

Folder, 8-pages, lists characteristics of adhesive tapes. Types include latices, neoprene, natural rubber, reclaim, nitrile and resin. Recommended use, viscosity, color, tack period, and method of application are given. United Shoe Machinery, B. B. Chemical Div., 784 Memorial Drive, Cambridge 39, Mass.

On Free Data Card, Circle 216

Paint Performance

Booklet, 12-pages, discusses paint performance on house exteriors. Particular attention is given to control of condensation forming inside the house, as well as to control of moisture from the ground and other sources. Topics include vapor barriers, ventilation of enclosed spaces, and general recommendations for good construction. Drawings and bibliography are given. National Lumber Manufacturers Assn., Technical Services Div., 1619 Massachusetts Ave., N. W., Washington 6, D. C.

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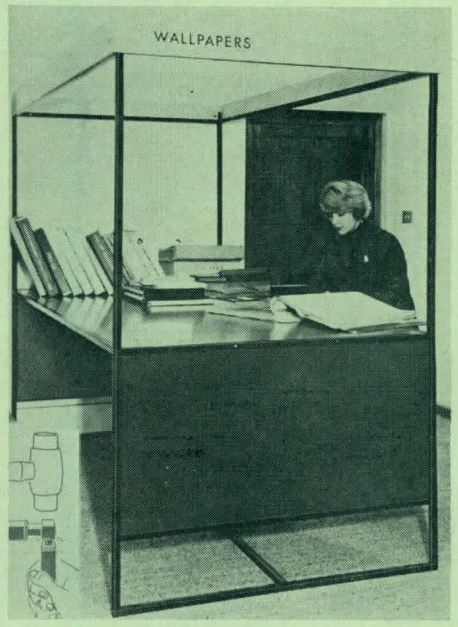
FURNITURE



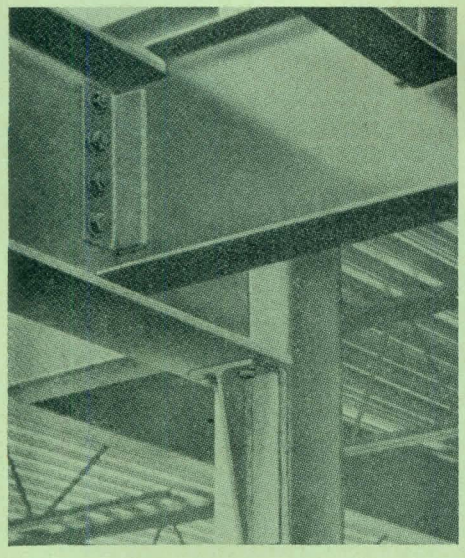
Tubular Steel Furniture Framing

Booklet on framing, 6-pages, describes simplified assembly of tubular steel furniture. Welding is eliminated by employing mallet to drive joints into tubular steel framing members. Joints cover all seven possible intersections at right angle frames. No painting is required. Manufacturer states that this system costs 50 per cent less than ready-made equipment. Units can be used for partitions, benches, counters, displays, merchandising fixtures, and laboratory equipment. All structural members are available in enamelled black mat finish. Apton Div. of Dexion Inc., 39-27 59 St., Woodside 77, N. Y.

On Free Data Card, Circle 218

New Grade For Tubular Steel

Brochure, 4-pages, introduces specs for hollow structural tubing. Three grades are described in 10 tables, including recently developed Grade 3 made from "Cor-Ten" steel. Grade 3 is a high-strength, low-alloy steel that has good atmospheric resistance (four to six times that of carbon steel, according to manufacturer), and a minimum yield strength of 45,000 psi. Tables include specs for both square



and rectangular hollow structural tubing. United States Steel Corp., National Tube Div., 525 William Penn Place, Pittsburgh, Pa., 15230.

On Free Data Card, Circle **219**

Modular Church Furniture

Catalog, 8-pages, describes modular storage units for Sacristy and Vestry. Upper cabinets, base cabinets, and wardrobe units are shown. Free-standing units, such as torch racks and sacrarium units, are also illustrated. Cabinets have laminated plastic surfaces on both interiors and exteriors, and include choice of five wood-grain finishes. Illustrations, details, and specifications are given. National School Furniture Co., Dept. VC, Odenton, Md.

On Free Data Card, Circle **220**

Modular Furniture

Furniture catalog shows recently designed desks, tables, wardrobes, and other components utilized in modular storage system. Catalog contains specifications, details, and illustrations. Hugh Acton, 588 Brookside. Birmingham, Mich.

On Free Data Card, Circle **221**

INSULATION

Silicone Masonry Fill

Brochure, 4-pages, introduces silicone-treated granular fill insulation for concrete masonry units and cavity wall construction. It consists of specially graded expanded perlite coated with repellent silicones. Fill is not subject to adverse changes in the event of wetting. It is free-flowing, easy to pour, permanent, and nontoxic. Drawings, specs, installation procedures, and insulating value of fill are given. Great Lakes Carbon Corp., 612 South Flower St., Los Angeles 17, Cal.

On Free Data Card, Circle **222**

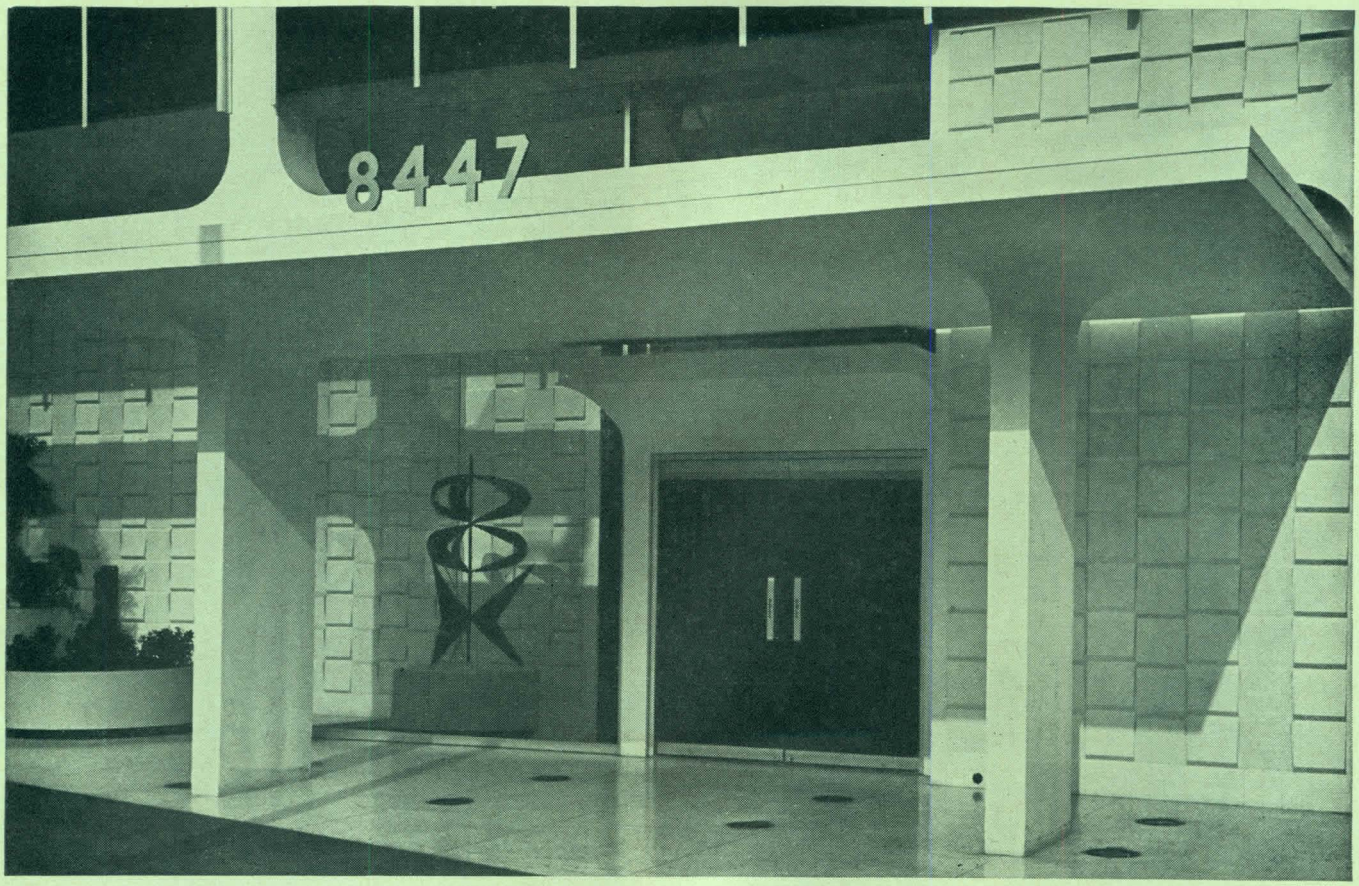
Hot Pipe Insulation

Brochure, 4-pages, describes a granular poured-in-place material used for protection of underground hot pipes. "Gilsulate" is not affected by acid or alkaline soils and is impervious to mold, fungus, or plant growth. Coating permits expansion and contraction. It is available in four types. Brochure gives technical data and illustrations. American Gilsonite Co., Municipal Airport, P. O. Box 15, Salt Lake City, Utah.

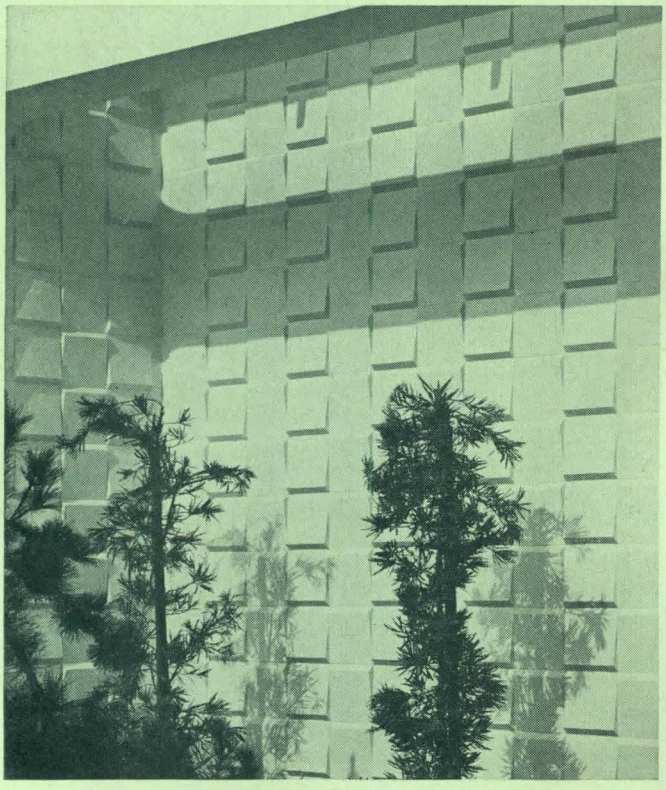
On Free Data Card, Circle **223**

Insulation Products

Booklet, 20-pages, describes building insulation products and systems. In-



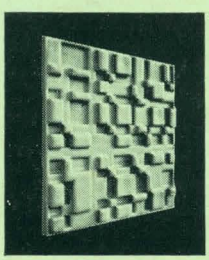
Ceramic Facing with Third-Dimensional Allure



Bas-relief or incised patterns, in **Contours CV**, subtly vary the shadow-play as lighting changes, to give exterior walls unusual beauty and textural interest. Shown in the photos is a custom design used by architects Kite & Overpeck Associates on the new Hamilton Towers Building, Wilshire Blvd., Los Angeles. Design and die charges for any custom creation are nominal.

Thirteen standard designs (and matching flat-surfaced pieces) are also currently available, in nineteen colors ranging from rich tones to pale pastels. Many varied textural treatments thus are feasible, without the modest expense of custom creations.

Contours CV offers lasting beauty, minimum maintenance, and all other advantages of high-fired ceramics. It is modular (11¾" x 11¾"), lightweight, and easily applied like glazed wall tile or adhesion-CV. Yet it is priced to fit the budgets of most jobs. Write for literature showing patterns and specs. Better, visit one of our salesrooms where you can see and feel the beauty of **Contours CV** itself.



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cluded are insulation on masonry walls as base for wallboard and wet plaster, cavity wall insulation, form line insulation, coated base sheet roof system, and perimeter insulation for foundations and floors. Low temperature zone map and heat loss through glass chart are given. Specs, drawings and and illustrations are also included. Dow Chemical Co., Midland, Mich.

On Free Data Card, Circle **224**

SPECIAL EQUIPMENT

Controlling Noise

Report entitled "Noise Control With Insulation Board for Homes, Apartments, Motels, Offices," has recently been published. Report covers six wall systems for reducing flow of noise between rooms. All systems utilize conventional materials. No unusual construction techniques are needed. Acoustical insulation board ceiling tile is also discussed as a means of controlling noise within the room. Positioning of buidings on lots, arrangement of rooms, quieting of appliances, plugging sound leaks, and other aspects of controlling noise are described. Insulation Board Institute, 111 West Washington St., Chicago 2, Ill.

On Free Data Card, Circle **225**

Boxing Mail

Brochure, 4-pages, describes apartment-house mail boxes. Structural details, optional finishes, and dimensional charts for both single and double row mountings as well as illustrations are given. Auth Electric Co., Inc., Long Island City 1, N. Y.

On Free Data Card, Circle **226**

Self-Sticking Tape

Catalog, 24-pages, lists assortment of self-sticking tapes and lettering. Tapes are available in 20 transparent colors and in 19 opaque colors. Also given are suggested uses, descriptive information, sizes, and prices. ACS Tapes, Inc., 217 California St., Newton 58, Mass.

On Free Data Card, Circle **227**

SURFACING MATERIALS

Ceiling Panels

Booklet, 12-pages, illustrates 14 acoustical ceiling panel patterns in color. Panels offer protection against fire

and comfort of sound control. Surface of panels is washable. Armstrong Cork Co., Lancaster, Pa.

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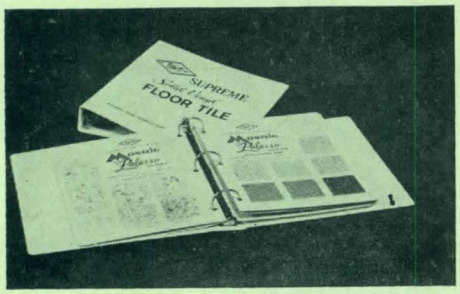

Sample Flooring

Specimen book, 8½″ x 11″, displays 70 samples of vinyl flooring in many colors and patterns. Specs and other pertinent data are given. National Floor Products, Inc., Florence, Ala.

On Free Data Card, Circle **229**

Seamless Flooring

Monolithic, seamless-resilient flooring is described in 4-page flier. It is combination of prepared chips and liquid glaze that can be solidified over new

or existing floors of wood, concrete, and most other firm surfaces. It can be applied both to exteriors and interiors. It is utilized as a coving and wainscot providing extremely tough, thin wearing surface against acids, alkalies, or solvents. Torginol of America, 6115 Maywood Ave., Huntington Park, Cal.

On Free Data Card, Circle **230**

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NEWS REPORT

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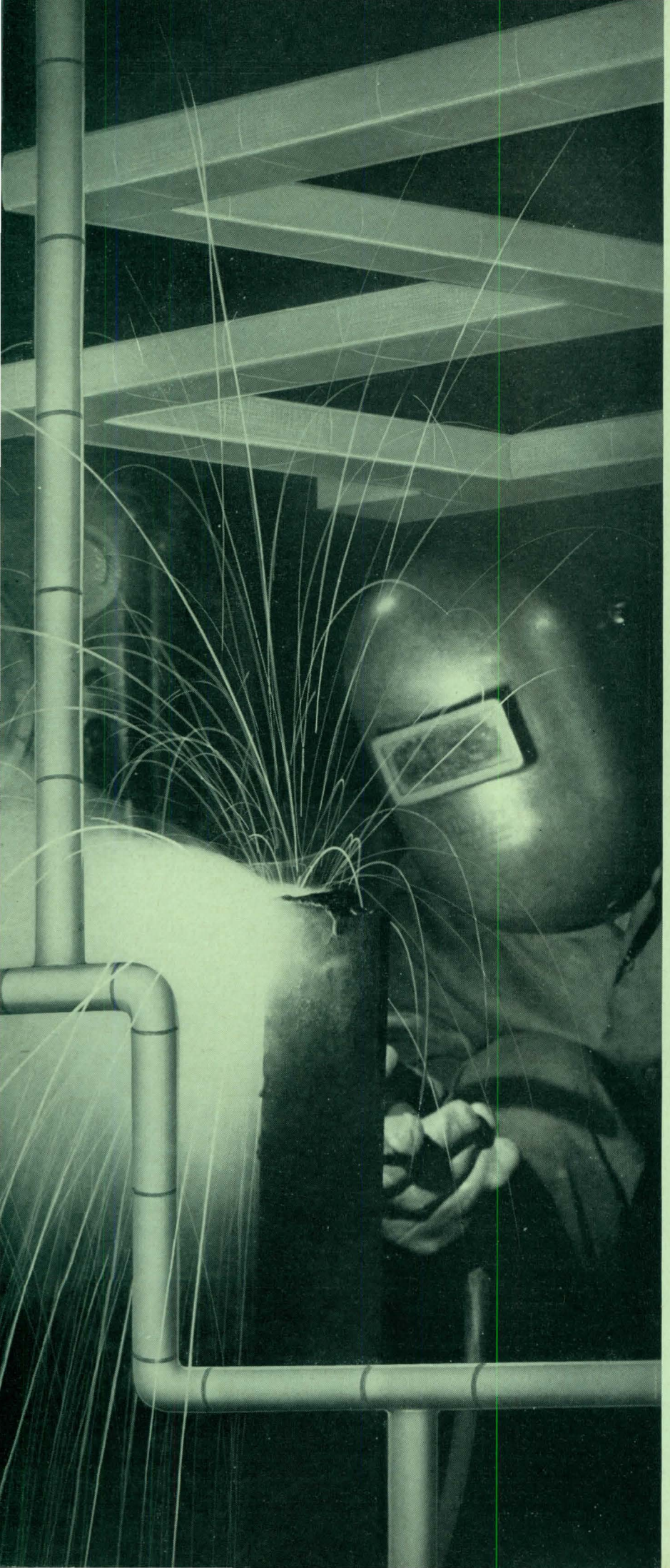

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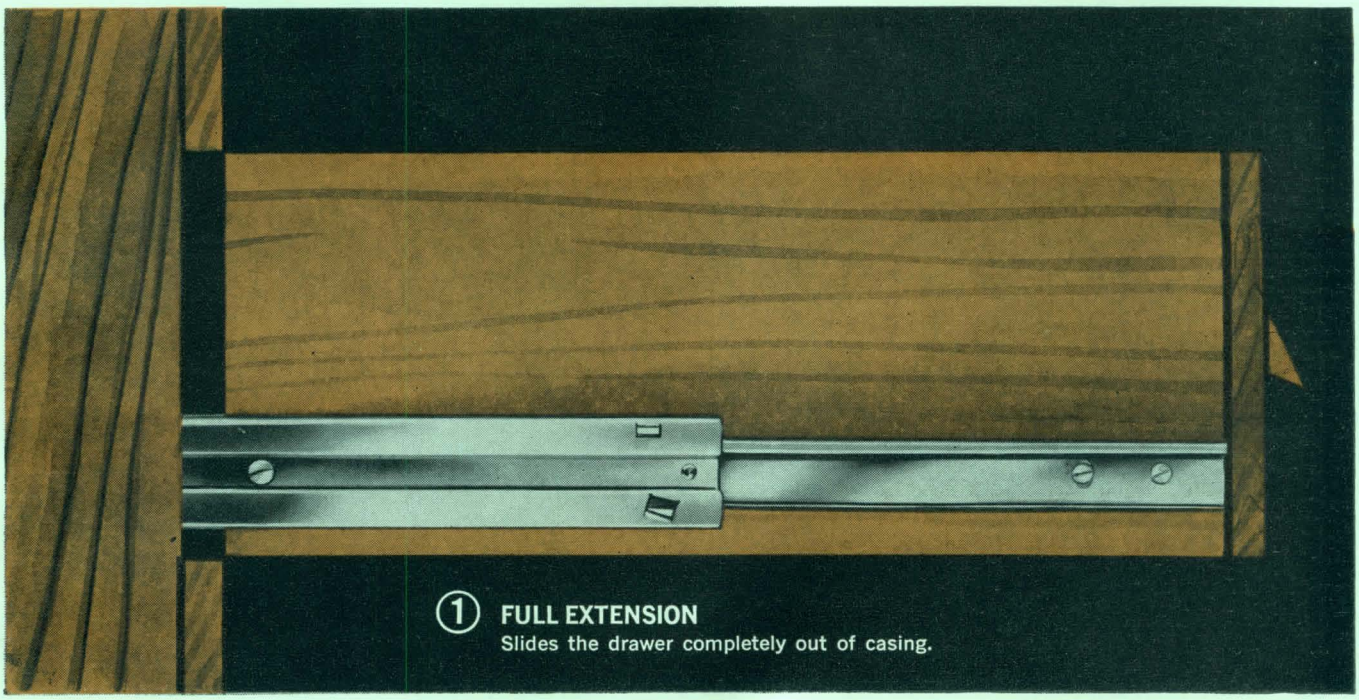

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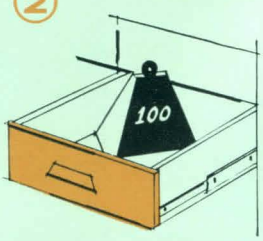
② 

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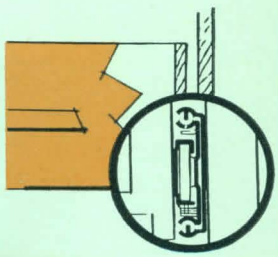
③ 

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USS National Hollow Structural Tubing Progress Report:

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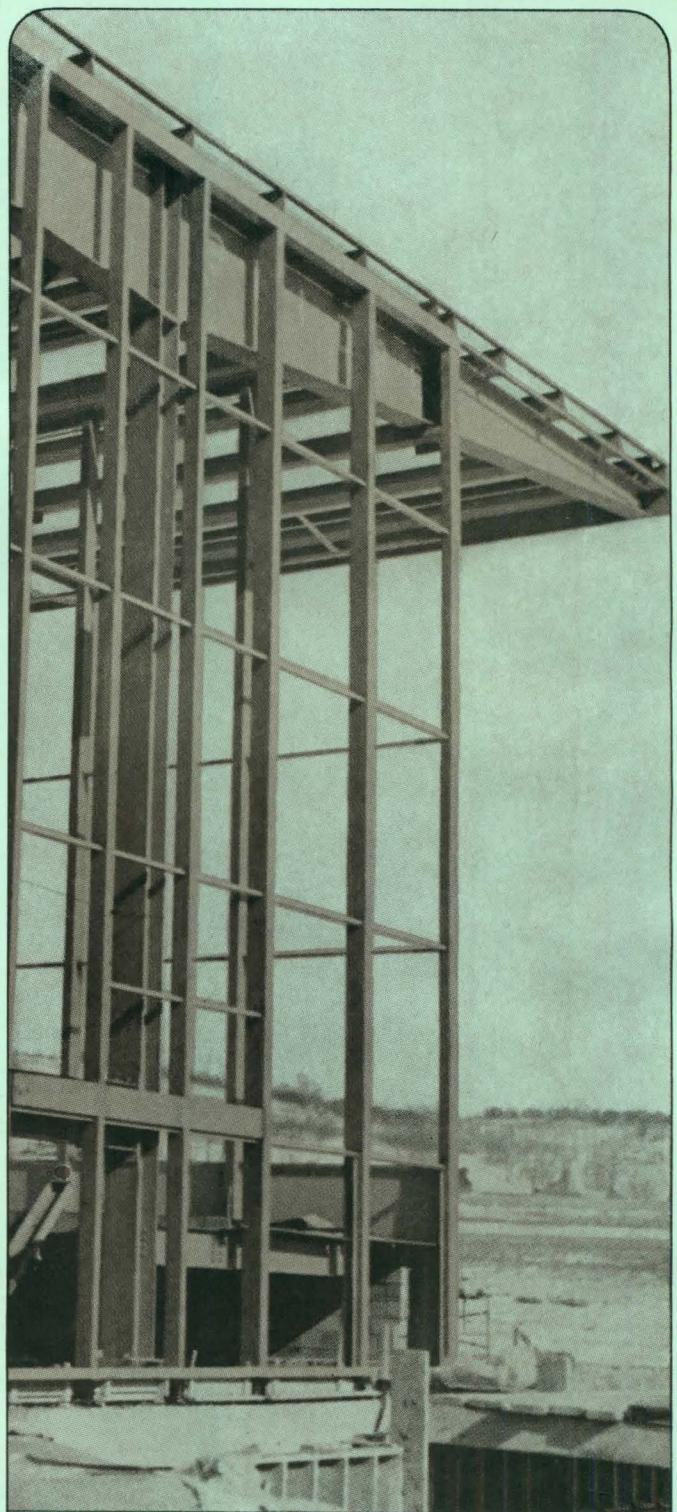
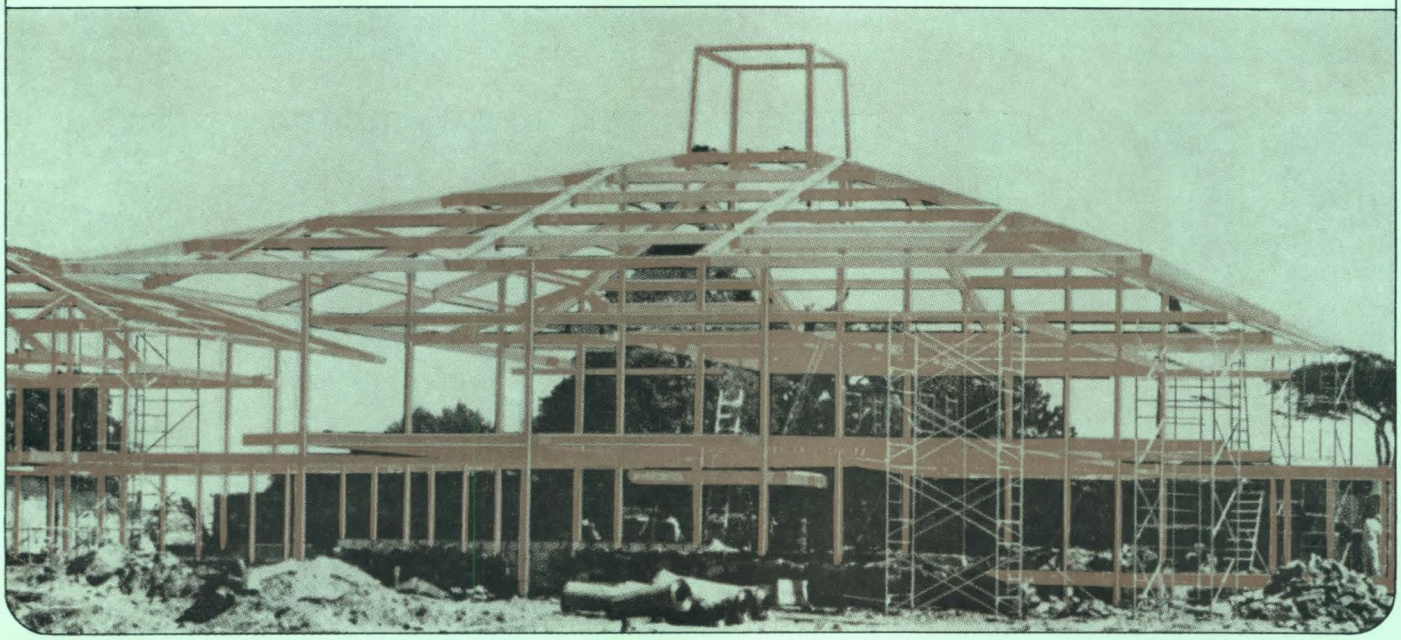


Grandstand act

The cover grandstand and combination clubhouse at the Washington Trotting Association's new Race Track, the Meadows near Washington, Pennsylvania, was designed by Harding H. Thayer & Associates, Architects of New Castle, Pa. They selected 30-foot sections of Hollow Structural Tubing for use as mullions in the clubhouse area. The tubing, framing large glass areas, presents a finished appearance when painted. Placement of the glass is simplified by the attachment of glazing stops directly to the structural mullions. Clean straight lines result in little obstruction to the spectators' view.

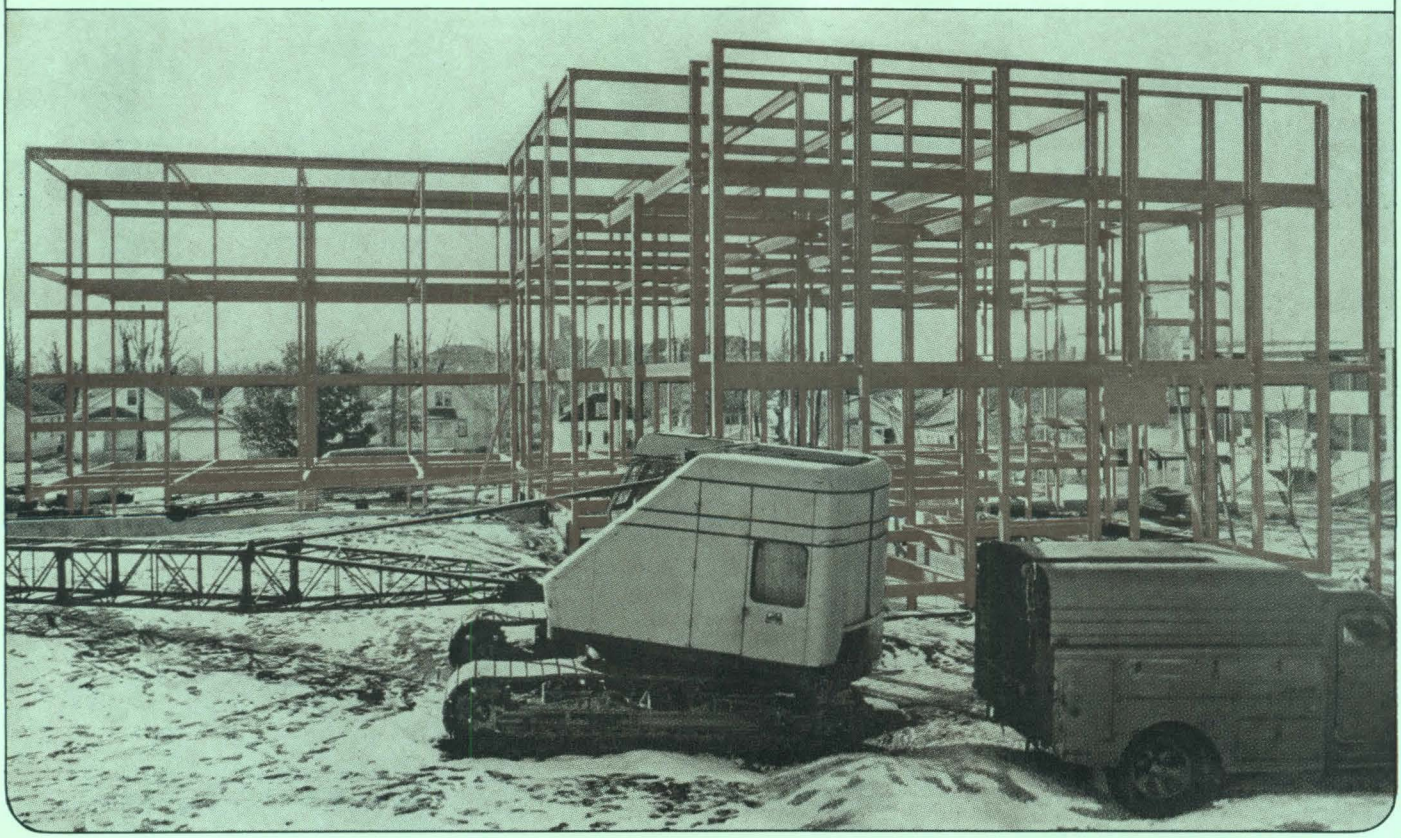
A steel house

Here's a large contemporary house in Baltimore where USS National Hollow Structural Tubing is used for columns and beams. The architects, Tatar and Kelly, and the structural engineers, Perry & Lamprecht, Baltimore, Maryland, specified structural steel tubing because of its attractive appearance, easy maintenance and the ease with which it can be joined to other materials. Structural steel tubing was fabricated by the Maryland Steel Products Company.



And one for the girls

In the three-story Quincy College Women's Dormitory all the perimeter columns are square Hollow Structural Tubing. Frank W. Horn A.I.A., & Associates, Architects in Quincy, Illinois, specified tubing to support the floors and roof. The structural steel fabrication was done by Michaelmann Steel Construction Company of Quincy. Angle brackets were shop welded to the columns for easy connection with the beams and girders. Full height tube columns will be exposed on the exterior of the building and painted to express the structural frame between curtain wall panels.



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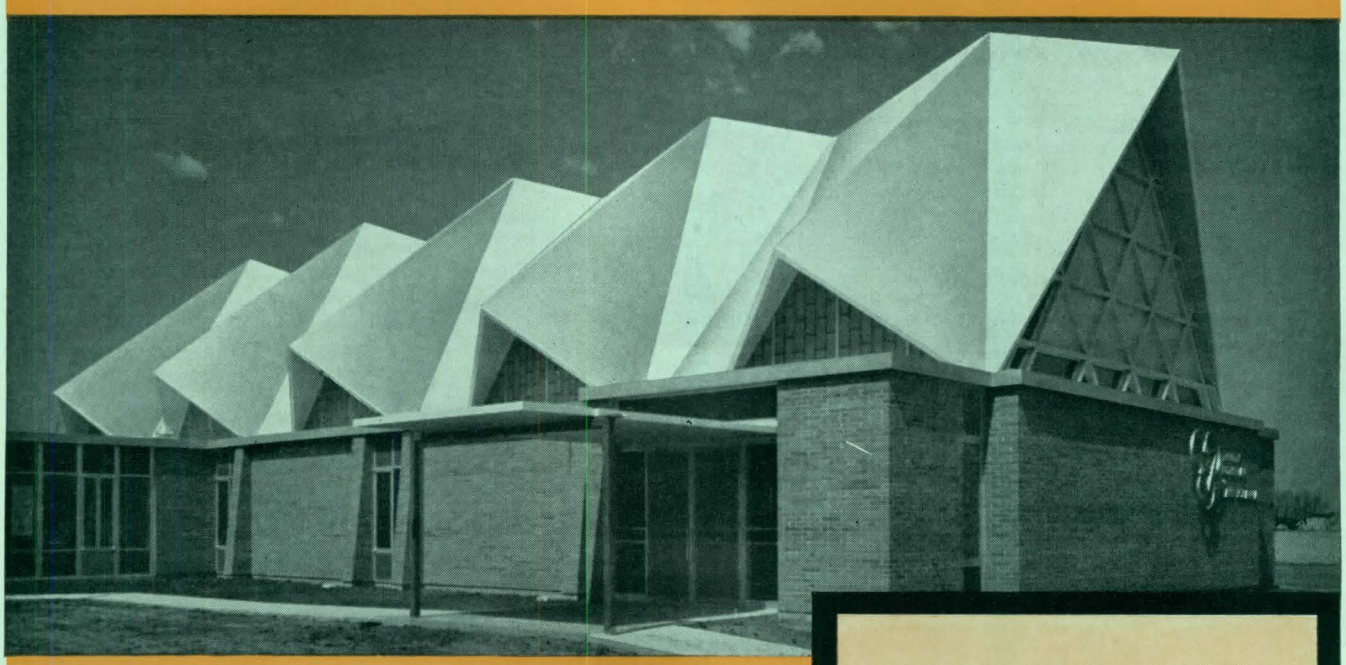
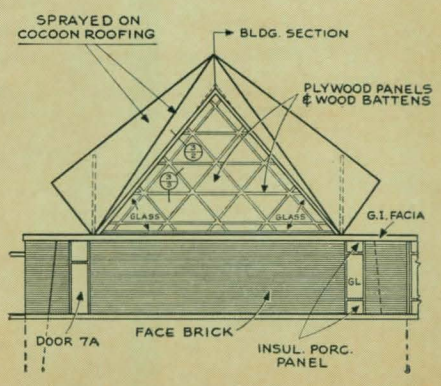


Architect: Buetow & Associates

General Contractor: Dean Lundholm Construction



In St. Paul, Minnesota, for example:

For this contemporary Lutheran Church, the architect chose Cocoon as the maintenance-free, weatherproof coating for all exterior areas of the shop-fabricated plywood stressed panels. *In an area where sub-normal temperatures are usual,* Cocoon's *tough, waterproof, jointless "skin" provided an ideal sprayable roof coating and helped keep costs within budget limitations.* Cocoon also resists abrasion, surface deterioration from acids, greases and fungi, as well as chemical laden fumes. Here, Cocoon in a cream color was used, but a wide variety of colors are available. Take advantage of the world's most versatile spray coating—Cocoon!

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November 1963 **PROGRESSIVE ARCHITECTURE**®

REINHOLD PUBLISHING CORPORATION
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Public acceptance of architects' leadership is an issue I raised on this page last month. I described several threats to the profession and pointed out that the Institute is reacting to them by stressing the "expanded services" concept. Architects, according to this concept, will be leaders of teams of experts who design man's total physical environment.

There is nothing wrong with such an approach. Architects in the past provided many more services than mere building design, and are doing so today. But, as in all other human activities, knowledge is becoming increasingly fragmentized, and one man can no longer be an expert in all the sub-fields of his profession. Structural design, for example, became some time ago a separate branch of building design. Then mechanical design grew into an independent profession. As building requirements grow in complexity, architects delegate an increasing percentage of their work to others and assume more and more the role of co-ordinators. This trend is still continuing, and it is therefore only natural that the architect's future role should be thought of in terms of co-ordinating functions as well as design functions.

I doubt that laymen who know how buildings are created would object to the theory that architects ought to be in control of all phases of building design. But "environmental design" goes much further than building design. First of all, environmental design involves other design disciplines that are parallel and not subsidiary to architecture. Urban design and landscape design need not be controlled by architects, although architects do wish that they were. Secondly, it involves disciplines that are outside of the design realm altogether, such as the statistical and social sciences. And thirdly, it involves the public weal. This last point—that environmental design in the full sense of its meaning is a civic and not merely a private affair—is of crucial importance. When one talks about "environment" one ceases to talk about buildings in isolation. The emphasis now shifts to groups of buildings, to cities, to the countryside—to the whole modus vivendi of the people. And architecture suddenly becomes a civic art as well as a fine art.

Therefore, if architects want to control man's environment, their actions must be supraprofessional, and all pronouncements made by the profession must be based on what is best for society at large and not on what is best for some members of the profession. And since the Institute represents the profession, its actions must reflect the supraprofessional nature of the problem. This is an issue that the AIA must now face. No longer can it subscribe to a double standard by claiming idealistic concern with the human habitat on the one hand and giving priority to protecting the interests of its chosen members on the other. No longer can the Institute refuse to take a stand for the reason that in doing so it might jeopardize the commission of one of its members. And no longer can an architect be silenced from opposing a project he believes harmful to the community simply because another architect is involved in it. As long as AIA rules say that such opposition is unethical, architects banded together under the auspices of the AIA will not be accepted by the public as its leaders. Civic leadership cannot be based on business politics. It can only be based on selfless consideration of what is best for the community.

That is why, in my opinion, the AIA must either change its existing policy or else cease to claim that it represents the profession in civic matters. Since the public will never accept the leadership of a profession that endorses a policy of self-interest, the danger is that, if the present attitude of the Institute persists, other professions will eventually take over control. Should this happen, all the talk about expanded services will remain only talk, and architects will find instead that the scope of their professional services is increasingly shrinking instead of expanding. ■

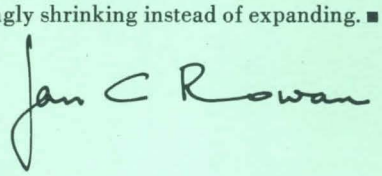


PHOTO: PAUL ASHWORTH

RELIGIOUS BUILDINGS

To a young child painting in primary colors, a steeple says *church*, just as a house is known by the smoke curling out of its chimney. But in the far more complex art of architecture, can a symbol, by itself, evoke the essential quality of a building? Is symbolism even necessary to the successful creation of architecture? The old aesthetic, with its literal symbols and limited forms, is gone; many of its embodiments are gone, too — or going, as witness the recent demolition of a church in a Cincinnati urban renewal area (left). What about the new religious architecture? Inherently, buildings for worship are the most tradition-bound of any building type, although, as the great religions seek to adapt to modern life, architects are finding increased encouragement from congregations in translating traditional symbols and forms into meaningful contemporary terms. Each building in this issue (as Dart's Presbyterian Church in Lansing, right and following pages) is emphatically of its time. Each must be evaluated on its own terms — of spiritual program, of materials selected and forms evolved, of setting — but ultimately, on the extent to which these convey the spiritual essence of a religious building: the sense of awe, of devotion, of participation.

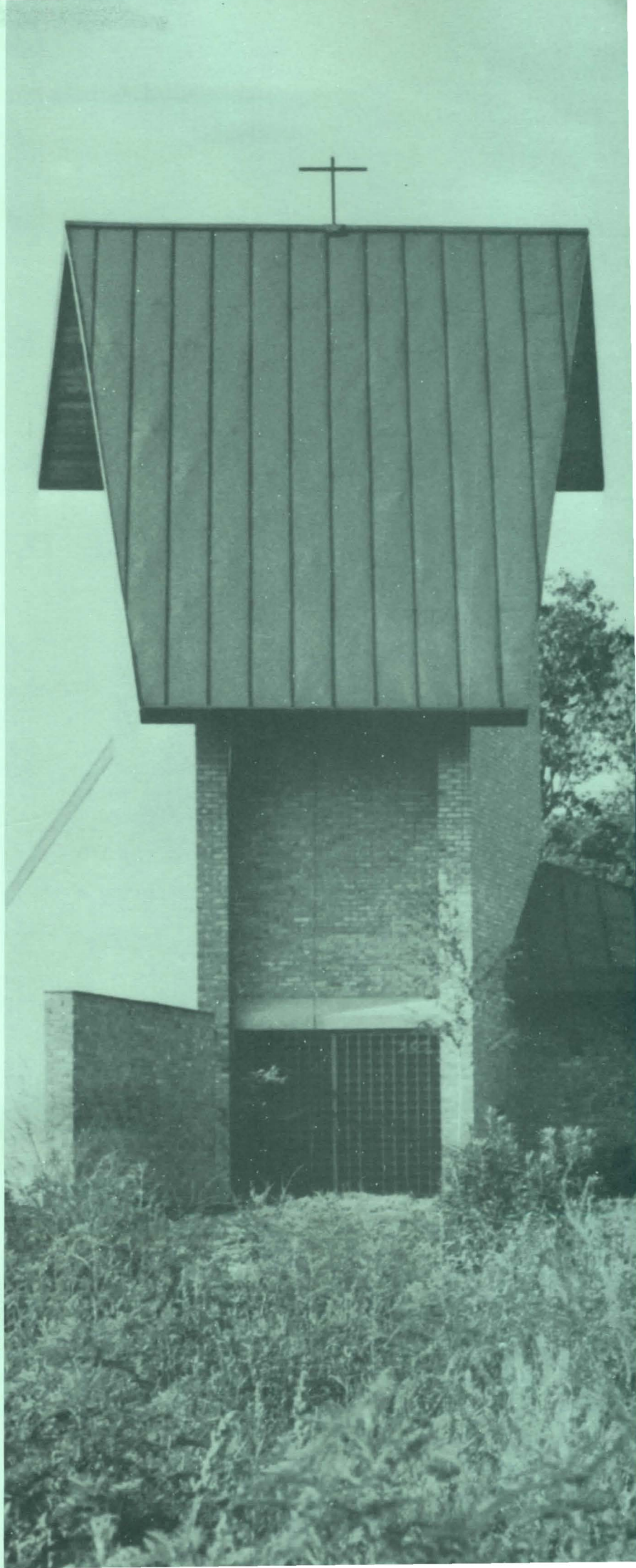
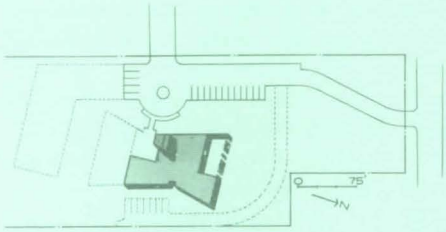
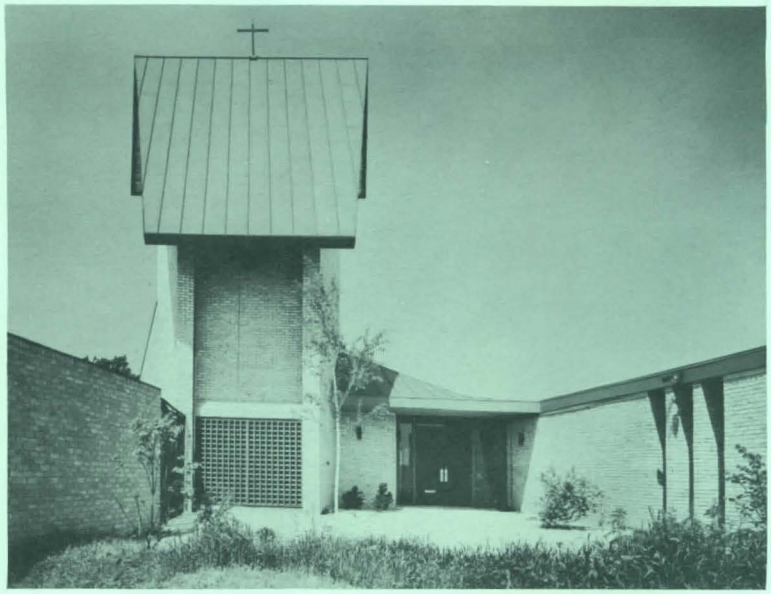


PHOTO: BALTHAZAR

PHOTOS (EXCEPT AS NOTED): BALTHAZAR

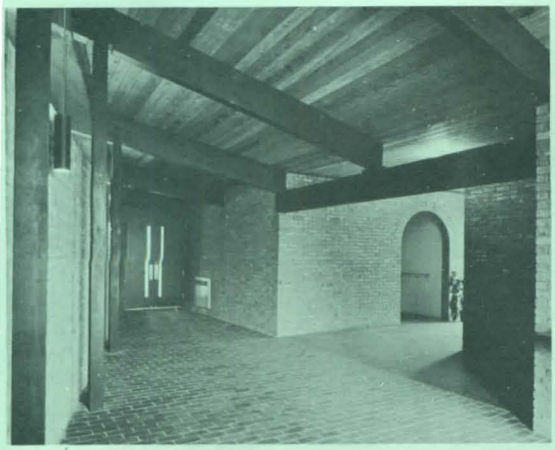
Stark Profile on the Prairie





LANSING PRESBYTERIAN CHURCH, LANSING, ILLINOIS • EDWARD D. DART, ARCHITECT

"From the beginning," says Dart, "Lansing was thought of as a simple prairie church—there was never any attempt toward monumentality or formal gymnastics." Above all, it was the architect's objective to fulfill the fundamental human and spiritual needs that were stated in the program requirements, and, if the objective were approached logically and thoughtfully, the building, he felt, would make a correspondingly strong architectural statement. The five-acre site in which the building is placed is flat and treeless, except for a few medium-sized oak trees flanking the entry drive. In this somber setting, the stark brick forms of the church are uniquely at home—at once in contrast and in harmony with the landscape. Although some members of the congregation have found it hard to accept the severity of parts of the building (as for example the board-textured reredos wall of concrete, page 126), the congregation as a whole admires its church. The building committee has judged it as modern in spirit yet preserving proper historical continuity, avoiding the boisterous and flamboyant qualities so often found in current religious architecture. In an area of architectural endeavor in which preservation of the historic symbols is of great significance, Dart has convincingly reinterpreted the ancient liturgical functions in contemporary terms. These simple, strong forms in their plain setting are not, in spirit, unlike the country churches of

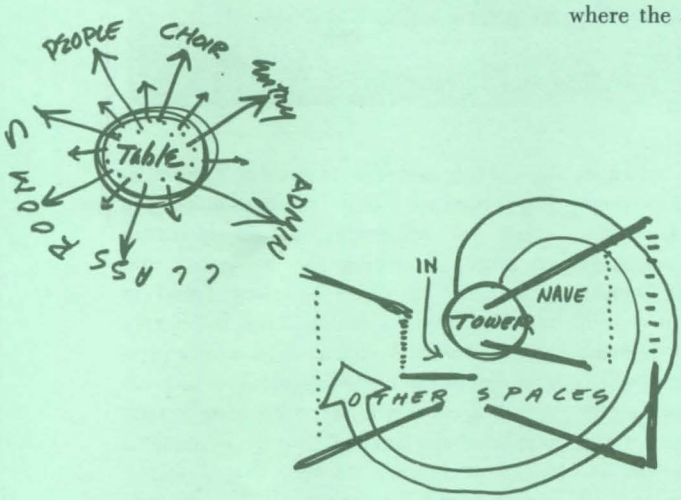


an earlier era.

As in those earlier buildings, the forms of this modern church spring directly from the interior spaces and their arrangement. "The idea of Lansing," says Dart, "begins at the chancel. The communion table is the whole rationale and heart of the church and this is placed below the highest part of the tower. Everything else radiates from this (*diagram left*). Ideally, then, the table is in the center, with all other requirements related to it." In the realized plan, auxiliary spaces surround the chancel in a volute form (*diagram right*). This arrangement, he believes, can be historically related to the ancient town where the cathedral was the visible symbolic center to which surrounding buildings subordinated themselves.

The specific physical requirements were a sanctuary seating 200, two offices, a conference room, a lounge, multipurpose room with kitchen, and classrooms. Future expansion of the nave is foreseen, as well as a two-story, ten-classroom wing to the south of the entry garden and multipurpose room, which will free the present classrooms for office space, conference room, lounge, and coat storage.

With the erection of the two-story wing, the entry court will be even more clearly defined and will give further direction to the flow of spaces—from the boundless area outside the gate, to the confines of



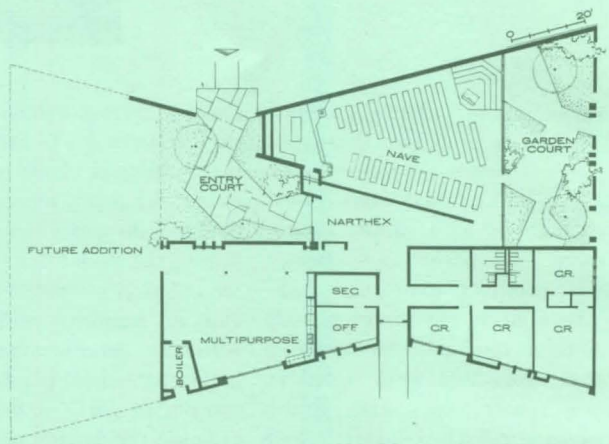


PHOTO: ROBERT NOWELL WARD

the entry court, through the funnel-shaped narthex, past another garden enclosure, into the nave with its focal point at the altar.

In the worship room, the eye is directed to the chancel by the converging lines of the nave walls, the sloping west wall, the ascending roof, and by the light flooding down from the hidden north window (*section below*) within the tower. At the opposite (north) end of the nave, the present garden court will eventually add considerable floor area to the worship room. "The nave proportions," says Dart, "already determined by the irregularly spaced piers defining the courtyard (*photo below*), will not be affected by the subsequent roofing of the courtyard."

In locating the choir to the rear of the nave, the architect hoped to further "the corporate aspect of worship" by treating the choir not as performers but rather as an integral part of the body of worshipers. He further believes that in this location "in the rear, on a focal axis in counterpoint to the nave axis, the choir utilizes a natural acoustical form created by the intersection of two walls."

Of particular design interest are the furnishings within the sanctuary. The communion table is a slab of gray granite, highly polished on top with rough, cleft edges and a pedestal of roughly textured concrete. A baptismal font, polished and hollowed on top to receive water, is of the same material. An iron cross, made of two parts—the background in black, the cross itself vermilion—projects from the board-textured concrete reredos wall. The pews are of oak, stained ebony with a dull luster, as are the laminated beams which span between the side walls. The pulpit has been made an integral part of the structure by building it of brick—the predominant building material throughout.

The structural vocabulary consists of masonry bearing walls, laminated wood roof beams, and wood decking. The floor is a concrete slab with a troweled finish left exposed in most areas. Terne metal provides the roof surface for the sanctu-

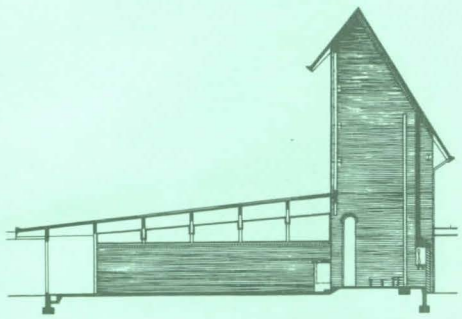
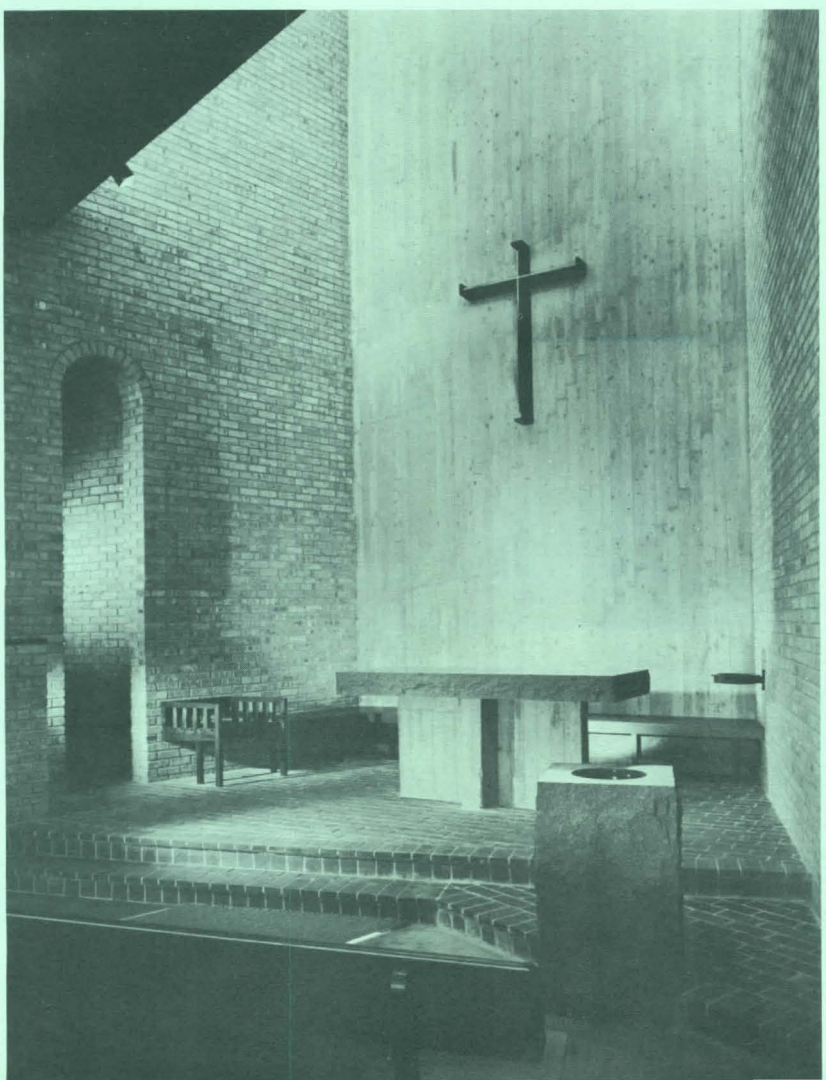
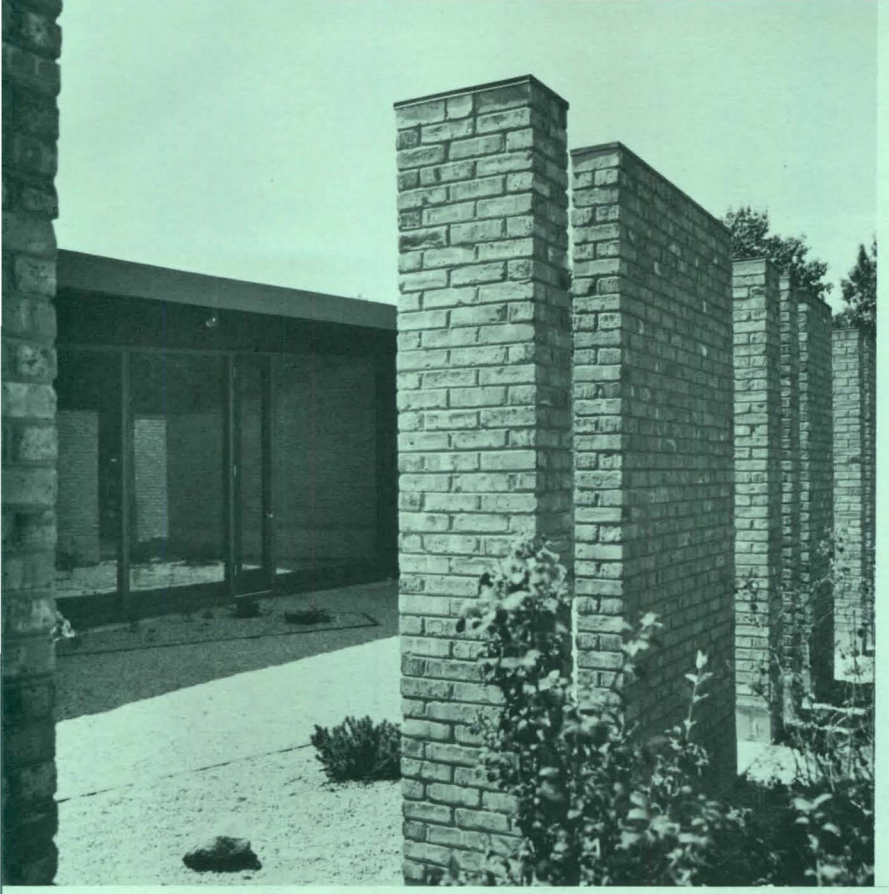


PHOTO: ROBERT NOWELL WARD

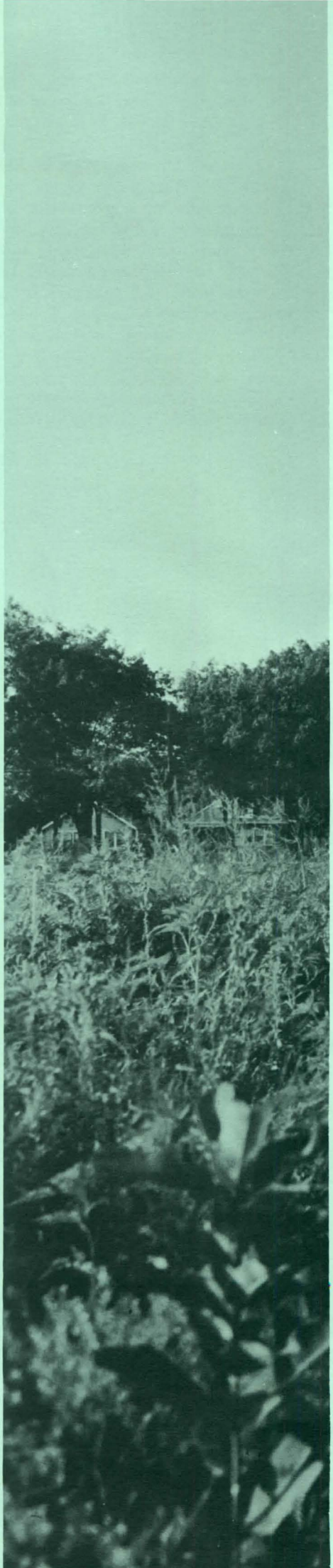




ary. The building is heated by hot water, conveyed through baseboard convectors. A mechanical exhaust fan which services the nave is housed in the base of the tower, behind the reredos wall. Air is expelled into the entry court through redwood louvers, which are at the same time an important design element in the entry court.

Frank Riederer was the Mechanical Engineer; Samartano & Robinson were the Structural Engineers.

Brick piers (above and below), *which now form a handsome closure for a garden court at the rear of the nave, are intended to become the actual north wall of the church at a later date. Seen from a distance* (facing page), *the brick forms of the building complex mount gradually toward a visual climax in the terne-roofed bell tower.*



Medieval Forms Transformed

ST. PATRICK'S CHURCH, OKLAHOMA CITY, OKLAHOMA • MURRAY-JONES-MURRAY, ARCHITECTS • FELIX CANDELA, ENGINEER

Although this church is very much "expressive of its time"—considered by the architects to be one of the more important design objectives—its concept is strongly rooted in liturgical tradition. Until the end of the Middle Ages, an entire parish could assemble on Sunday in a single act of worship; at St. Patrick's this is again possible, with a nave that seats 500, and surrounding aisles (sheltered and screened but not fully enclosed) that accommodate another 1200 parishioners on important feast days.

There are other medieval antecedents. "It has been suggested," state the architects, "that the unusual feeling of a holy space is forcefully demonstrated by the Gothic cathedral because of its exaggerated scale. The dramatic use of this space simply overpowers the individual. . . . But unlike the Gothic cathedral, which arranges unused space vertically, St. Patrick's lays huge space horizontally to permit the parish worship which has been such a force in the liturgical life of the people."

Another translation of medieval form is the concrete roof, which recalls stone vaulting but is executed here in the technology and aesthetic of today.

Actually, as one approaches the church, little of this medieval mood is apparent. The church presents a boxlike exterior to the public; surrounding the huge interior space are free-standing walls of concrete, the tilt-up panels separated by redwood louvers. This façade is in sober contrast to the riot of suburban honky-tonk along the major streets that border the site, and in distinguished contrast to the "rather nondescript existing buildings"—convent and classrooms—on the site itself.

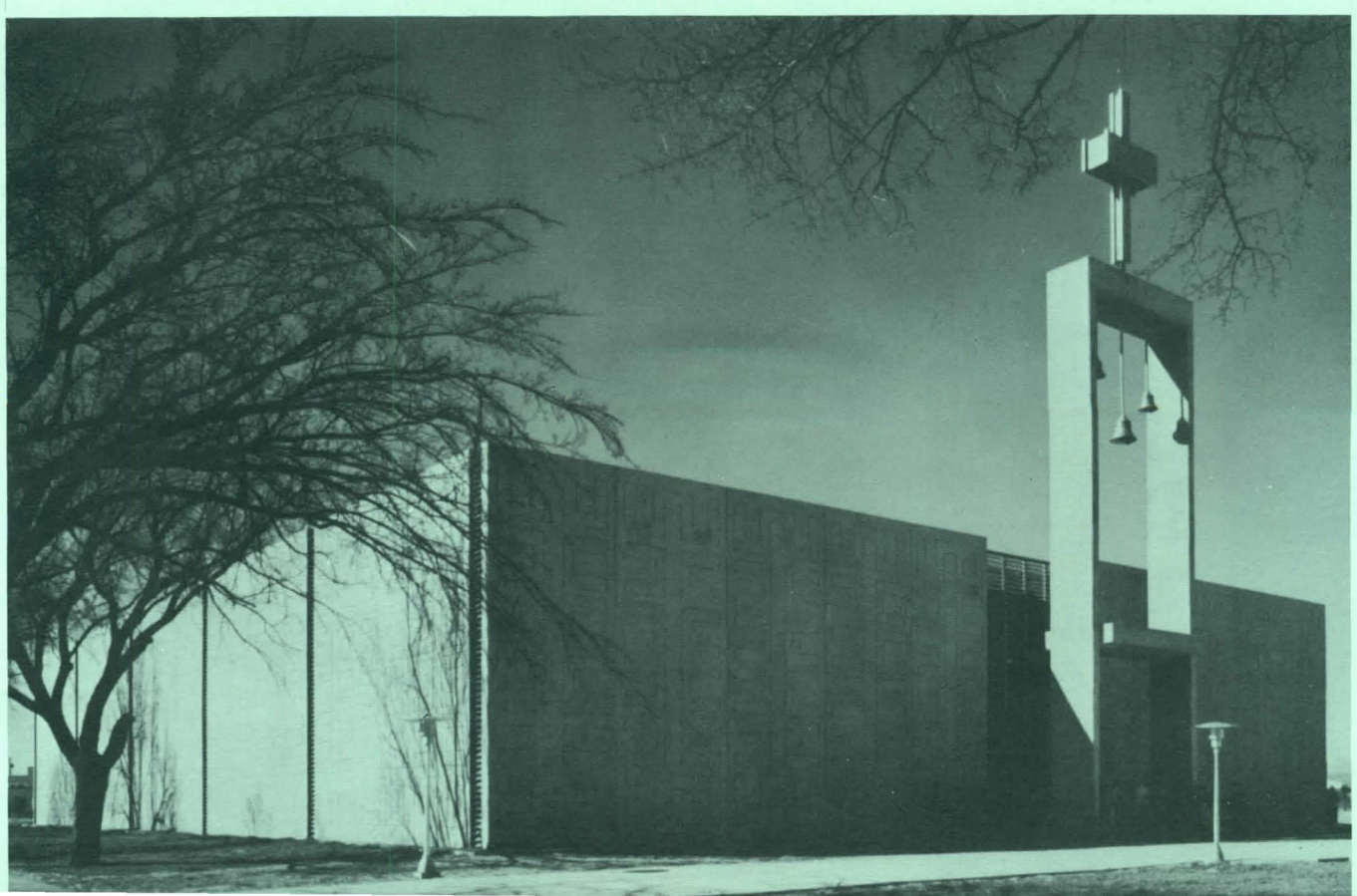
At night one can see the lighted ceiling from outside, through the louvers, but it is only from inside the church, as if only to the true believers, that the space and structure are fully revealed. In plan (*overpage*), the church is of an Early Christian simplicity, reminiscent of the elongated rectangle with side aisles that developed from the Roman basilica. "The location of the baptistery and the narthex, like those of the early church, emphasizes that through the sacrament of baptism one enters the Christian life," say the architects.

Upon entering the church, one is immediately aware of the unique sense of enclosure—it is a space, not a room, and suggests a cloister, a roofed courtyard. The concrete umbrellas, despite their association with more mundane shelters of today, have strong religious overtones. Ten umbrellas, each formed by four hyperbolic paraboloids, cover the total area of 120′ x 180′; their design is similar to Candela's Rio warehouse in Mexico City (*see* JULY 1955 P/A). Through the careful control of natural light—the umbrellas are articulated by strips of skylights—the architects have tried to establish a relationship between the individual and the larger space similar to that in the awesome Gothic cathedrals.

The enclosed building area is defined by glass between the columns of the inverted umbrellas. Sliding glass doors permit the congregation to move directly to the altar from the outer aisles. Only the inner space has pews, and is heated and air conditioned, although lighting and sound systems are identical for both areas. The importance of the altar in the liturgy is underscored by its accessibility from all sides; it is elevated and further emphasized by the contrasting wall behind it and the crowning canopy above it.

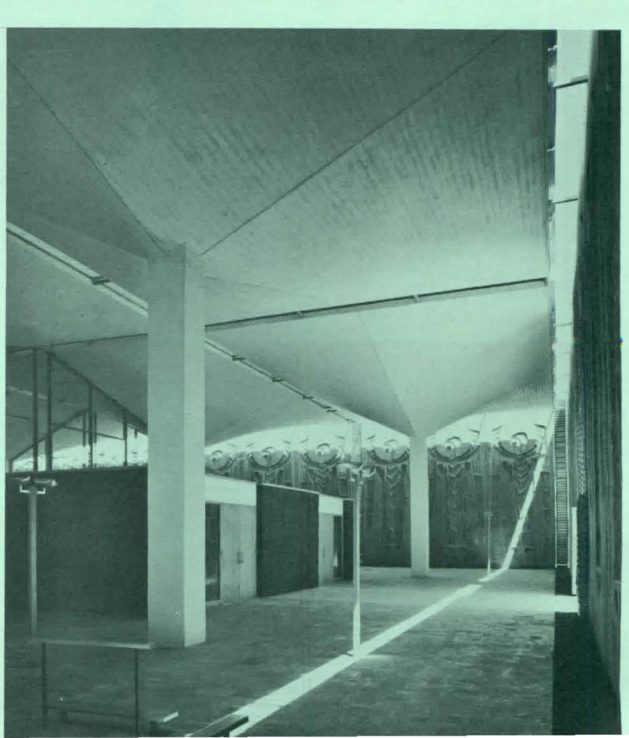
The church was awarded the Cardinal Lercaro Gold Medal in 1962 by the North American Liturgical Conference as the outstanding Catholic church built in the country during the past three years. Among other honors was one of four equal awards given by the National Council of Churches and the Church Architectural Guild of America in 1963.

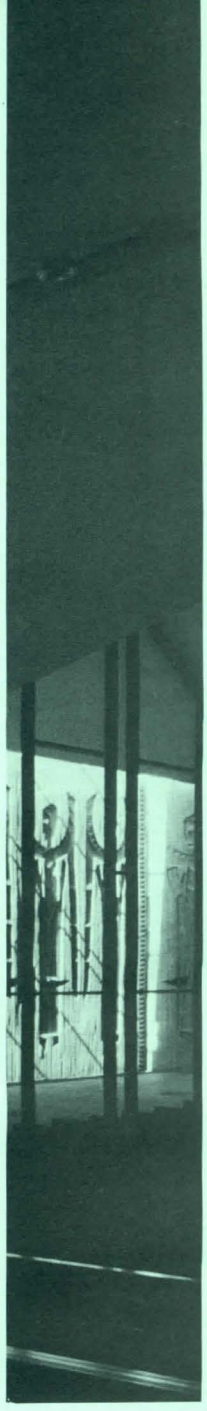
PHOTO FACING PAGE: JULIUS SHULMAN; PHOTO THIS PAGE: BEN NEWBY



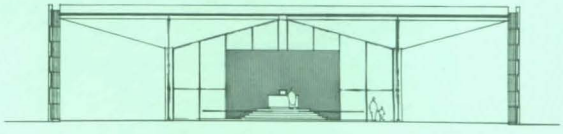
PHOTOS, EXCEPT AS NOTED: JULIUS SCHULMAN

In the "development of space, lighting, and art which dramatically suggests the atmosphere of a holy place," the architects sought to recall the Dedication Mass: "This is a fearsome place; it is the house of God, the gate of Heaven." One of the most compelling elements is the procession of huge angels along all four sides of the interior. Although they echo the monumental sculpture of medieval times, these angels were not individually and laboriously cut from stone but were cast from molds. Didactic purposes have given way to the more purely decorative—and to the financial. Frank Kacmarcik, the liturgical consultant, designed the angels and altar canopy, among other works. Gerald Bonnette did the sculpture for the devotional shrine; Josef Albers designed the dossal.





Simplicity and symmetry of plan emphasize the two liturgical focal points of the parish church—the baptistery (below) *and the altar* (above). *The interior is subdued; the only color is in the natural materials. Flooring is a local stone, rust in color; baptistery walls are precast concrete with exposed aggregate of black marble; Albers' wall behind the altar has gold leaf on alternating faces of the rough concrete block. Parishioners themselves did a part of the work, reducing costs 20 per cent by such jobs as cutting and laying the flooring, fabricating the redwood louvers, and casting the bas-relief angels.*



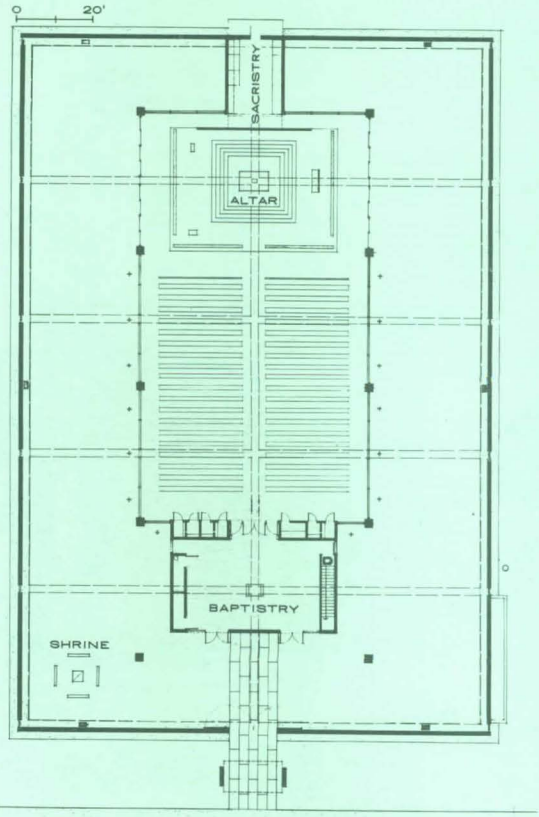


PHOTO: BEN NEWBY

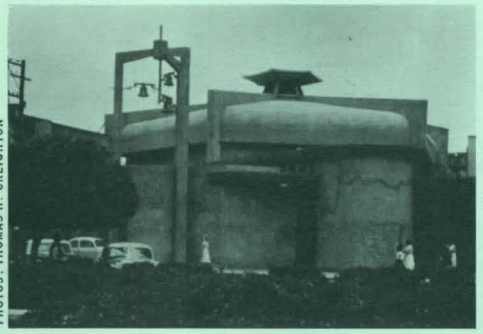
Parish Church on a Caribbean Plaza

DEL CARMEN CHURCH • CATAÑO, PUERTO *RICO* • *HENRY* KLUMB, ARCHITECT • BERMUDEZ, HERNANDEZ & MURATI, STRUCTURAL ENGINEERS

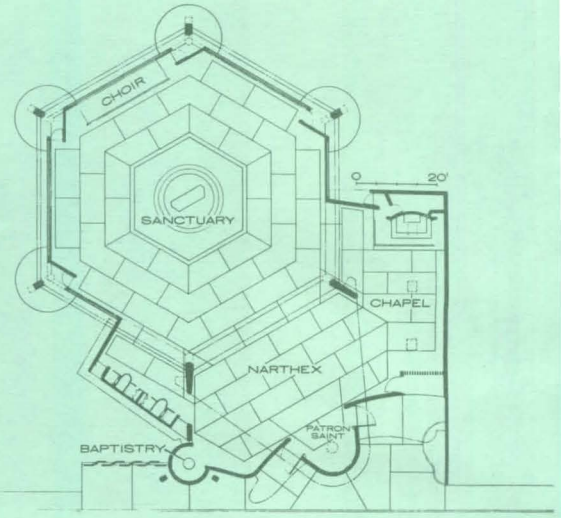
Across the bay from San Juan is the small town of Cataño, at its center a typical Spanish plaza with shaded promenade and well-trimmed greenery. An old church facing the plaza was demolished to make way for the new Del Carmen Church.

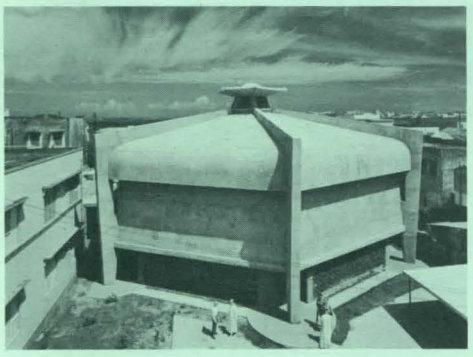
To fit the church onto the small site, which is choked by buildings along its irregular boundaries, Klumb devised a hexagonal plan. Special requirements in this church for 500 people were a side chapel within the church proper, and standing room at the rear for men (a local custom). The simple interior is centrally oriented to the altar and to the self-ventilating dome above. The bell tower, with electrically operated bells, is asymmetric to the plan but on axis with the plaza.

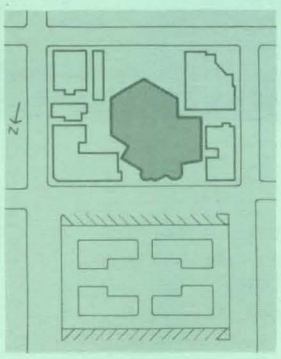
Reinforced concrete was selected as

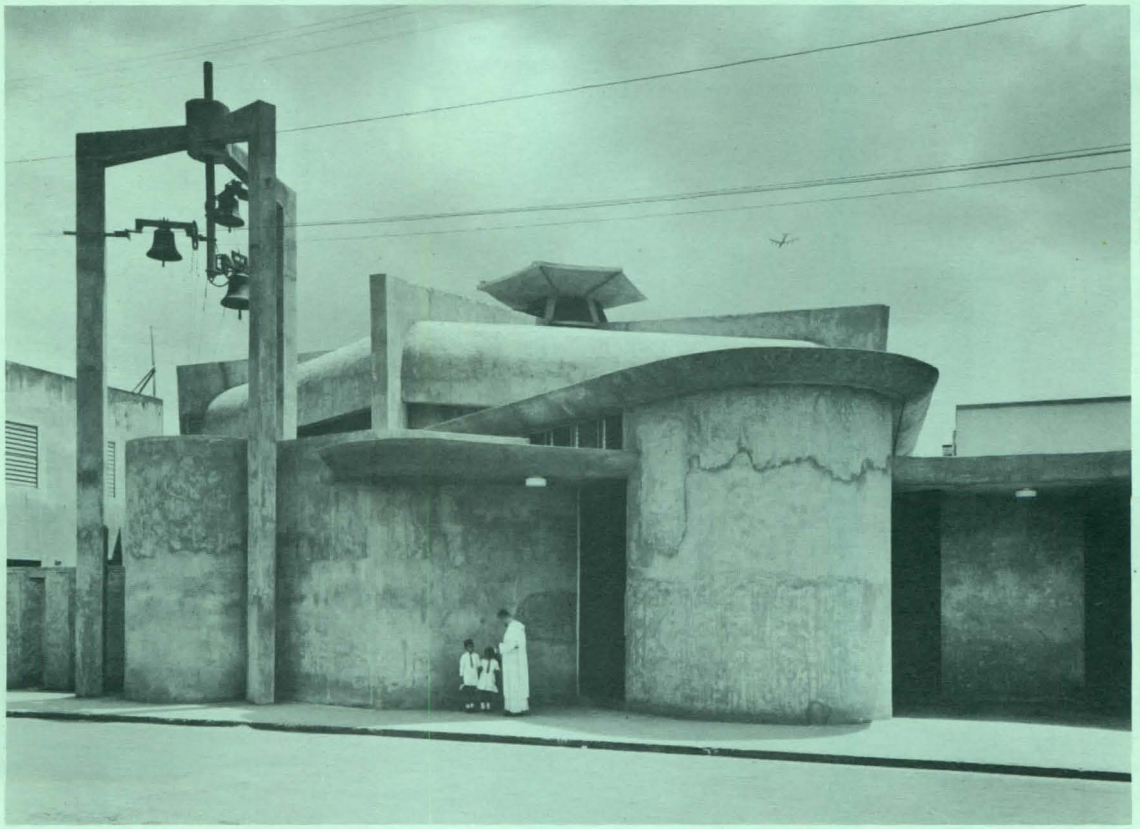


PHOTOS: THOMAS H. CREIGHTON





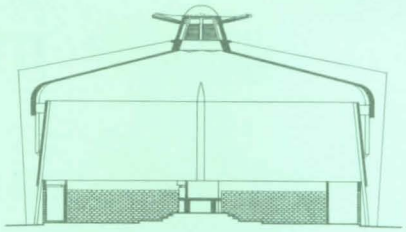




PHOTOS, EXCEPT AS NOTED: ALEXANDRE GEORGES

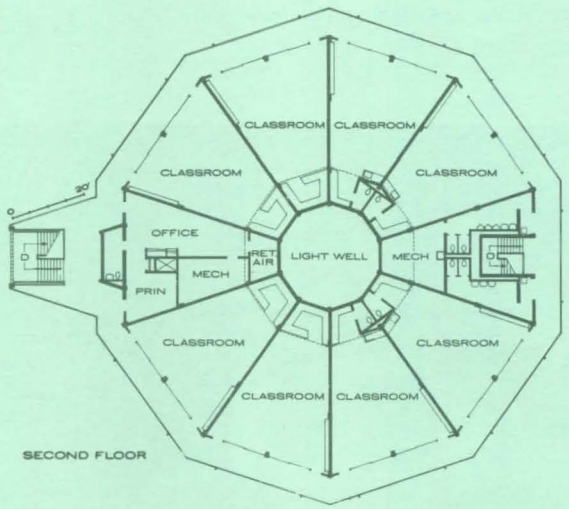
most economical for the design concept and for local construction methods. An earlier design, with Dr. August E. Komendant as engineer, was for precast concrete (*see his article*, "Concrete Technology," OCTOBER 1960 P/A), but costs forced the change to cast-in-place.

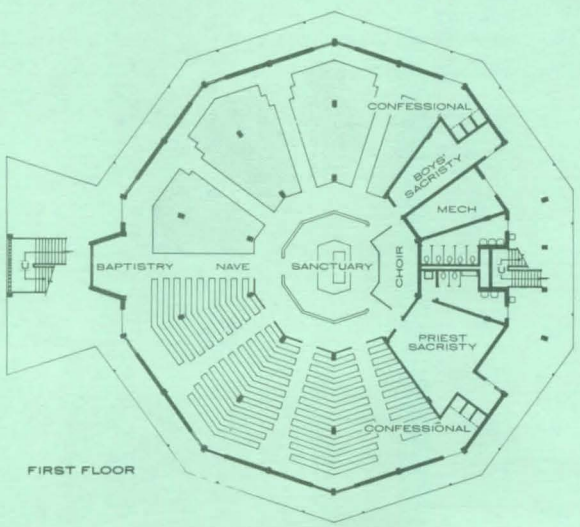
Forms are strong and simple: surfaces are rough and unadorned. The roof, supported by columns only, is free from perimeter walls. Natural light also enters the main space through an 8-ft-high screen of clay tile. Exterior walls and floor surfaces are finished in cement. Plastered interior walls are light blue, with the ceiling painted a lighter blue.



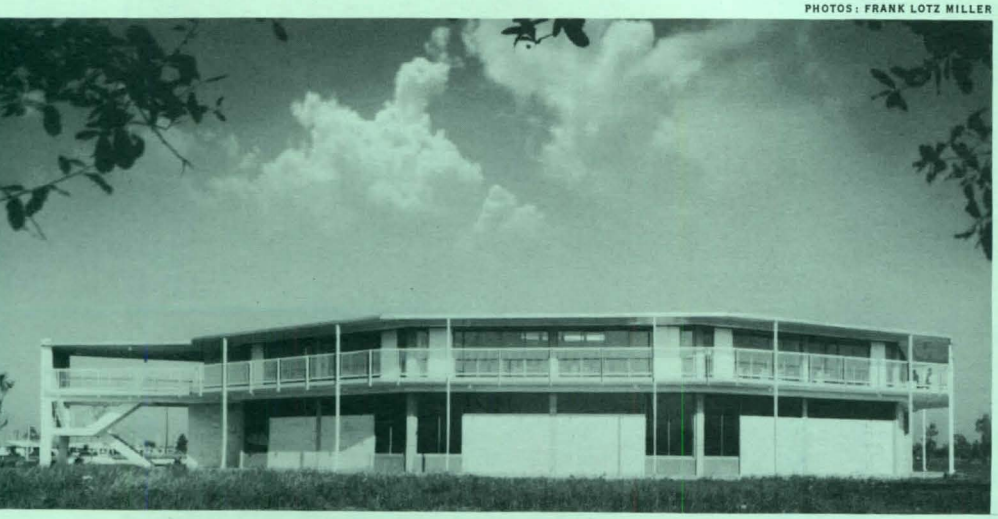
Church and School in the Round

ST. PHILIP NERI, NEW ORLEANS, LOUISIANA •
BURK, LE BRETON & LAMANTIA, ARCHITECTS





PHOTOS: FRANK LOTZ MILLER



Planned for a new residential subdivision in the New Orleans area, this building was to serve also as a pilot design for similar, newly established Catholic congregations with a need for a place of worship and parochial school facilities. This community required a church sufficiently large to accommodate 600 parishioners, eight classrooms, offices, and a faculty lounge. A single building envelope was found to be the best answer to the liturgical and functional requirements and also the most economical solution to the problem.

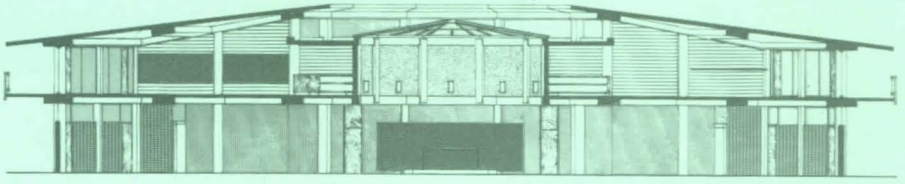
The unusual two-story, decagonal arrangement with a central void was the result of several considerations: (1) the architects felt that, "symbolically, nothing should occur over the altar area of the sanctuary"; (2) a two-story solution would best answer the minimal land coverage requirements; (3) the sanctuary would be most suitably located at ground level, with classrooms on the upper level to be served by a perimeter open-air access gallery.

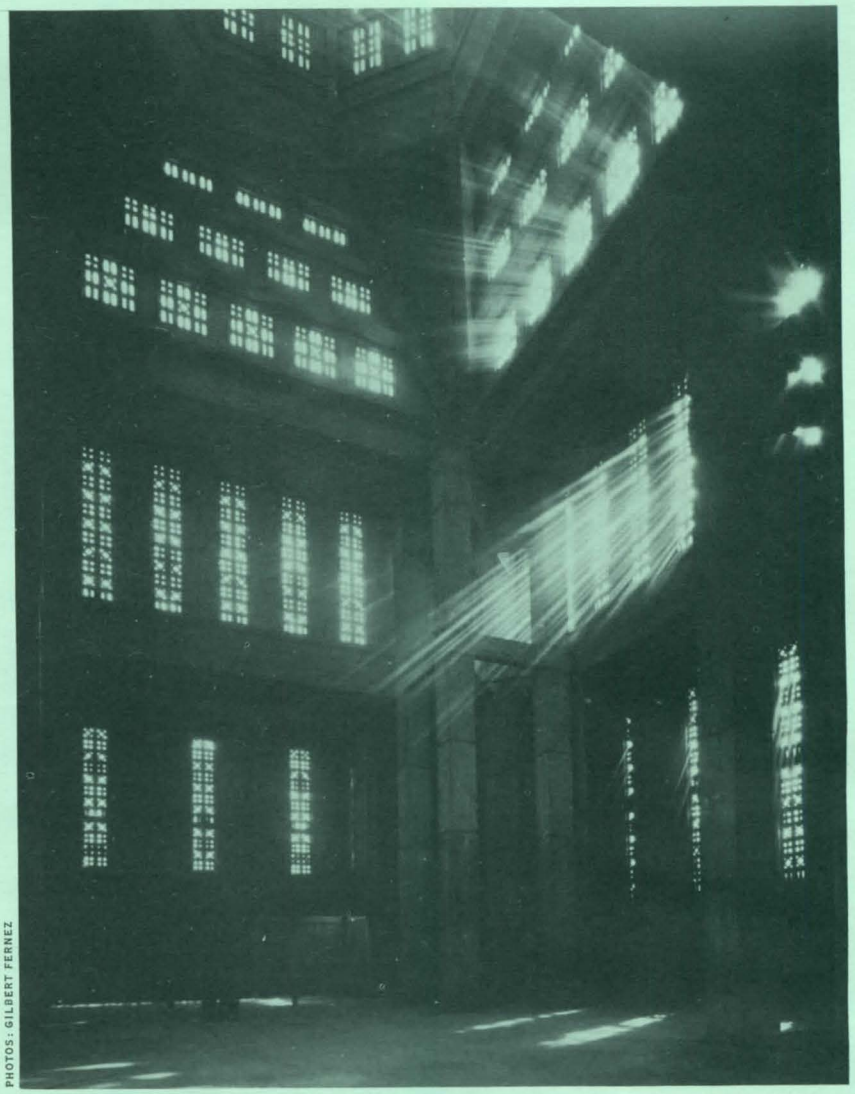
The combining of several functions resulted not only in obvious economies in land acquisition and construction, but yielded other significant savings as well. For example, one single air-conditioning system with change-over mechanism can supply either the church itself, or, on weekdays, the classrooms and offices.

The structural frame, roof, and floors are of reinforced concrete, chosen to withstand heavy live loads. The walls are constructed of non-bearing, unglazed structural tiles. At grade level, the floor surfacing is of terrazzo; vinyl asbestos tile has been used on the upper floor. Acoustical plaster has been applied to all ceilings.

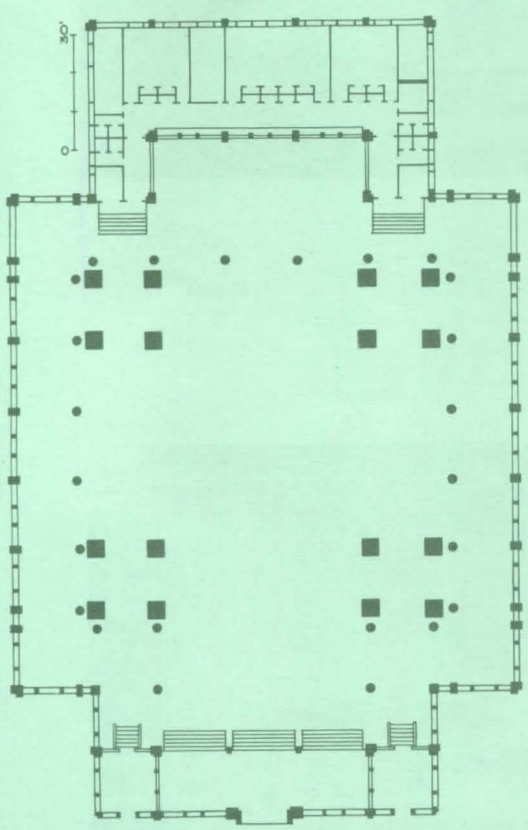
Notwithstanding the compactness of the building and the modesty of the materials employed, the worship room is of unusual design interest, both spatially and in its details. The central well, which penetrates the upper classroom floor, is roofed by a double-glazed aluminum dome skylight. This serves as a dramatic source of light and space, and focuses attention on the fine detailing of the altar, communion rail and lectern—all designed by the architects. The altar area is night-lighted by incandescent fixtures attached to the sides of the light well.

The crucifix is the work of sculptor Lin Emery. Burk, LeBreton & Lamantia were also the Structural Engineers; Harold E. Faller & Associates, the Electrical and Mechanical Engineers.

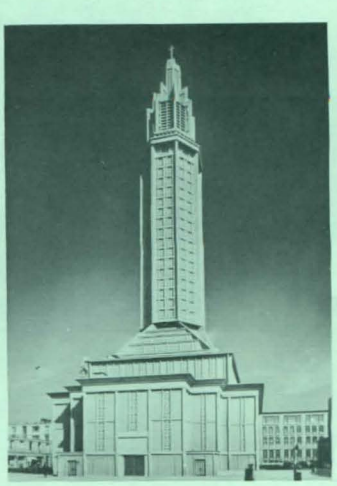


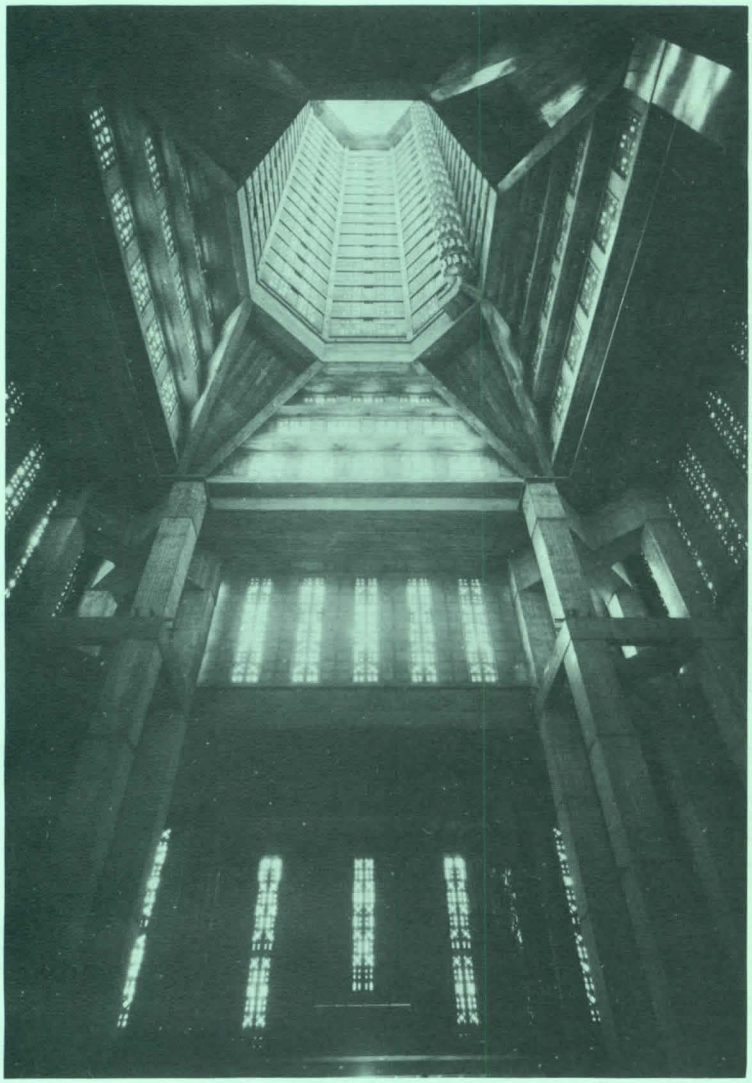


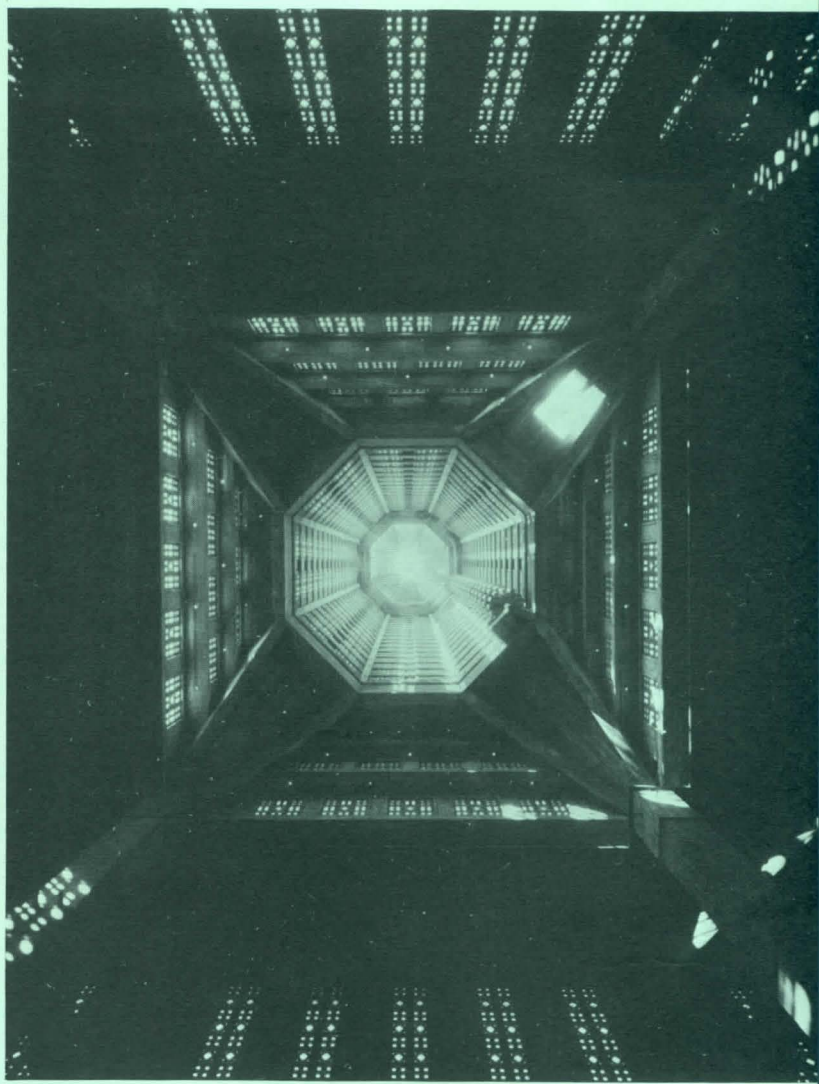
PHOTOS: GILBERT FERNEZ



Perret's Last Church







ST. JOSEPH'S CHURCH • LE HAVRE, FRANCE • AUGUSTE PERRET, ARCHITECT

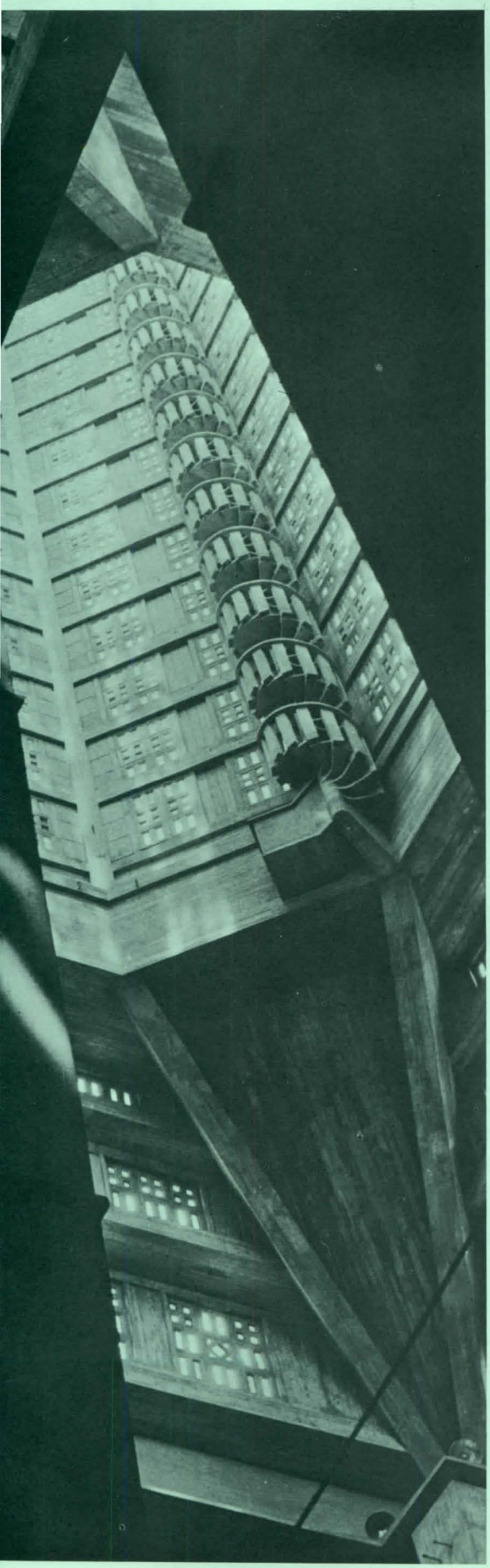
"The *architecte-constructeur* Auguste Perret," writes Giedion in *Space, Time and Architecture*, "was the first to find new architectonic means in the unexplored potentialities of ferroconcrete." His 1903 apartment house at 25b Rue Franklin in Paris was the first building to employ a reinforced-concrete skeleton without disguise or apology. Throughout a long career, Perret single-mindedly dedicated himself to the new material.

The church of Notre Dame du Raincy, completed in 1923, marked another innovation. Sir Banister Fletcher calls it "the first [church] in which reinforced concrete finds direct architectural expression"—the frame is emphasized and the wall is reduced to infilling panels. But for all Le Raincy's radicalism, and despite a certain romantic expressionism in its tower, the mood is essentially classic—orderly, symmetric, reposeful—and the post-and-lintel structure gives little hint of the plasticity to be developed by Perret's successors.

In his final church—St. Joseph du Havre—Perret was still working in the classic idiom. "Classical canons remained alive and flexible for the best French architects," writes Giedion. But if the vocabulary is similar to that at Le Raincy, and the signature is unmistakably "Perret," the church at Le Havre has a significance in its own right.

Le Havre had been hard hit during the war—156 Allied bombardments had reduced the center of the city to rubble. At the war's end, there was little to suggest that this was once the most important transatlantic port of France. Only a complete renewal was feasible, and Perret was chosen architect-in-chief. Although he was later too busy to take part in much of the reconstruction (only two major buildings—the town hall and St. Joseph's —are his own work), the philosophy of Perret is everywhere evident. There is a pervasive uniformity, resulting in part from the structural module to which all buildings of the various architects conform. (The module of 20′-10″ was devised as the most desirable column spacing for apartment houses.) Another unifying element is height; this was not decreed, but resulted from the lack of hoisting equipment and from the marshy soil.

The general effect of the rebuilding is oppressive, and might be summed up in the words often used about Perret's work —"frozen classicism." On the other hand, the town bespeaks a quiet stability and consistent rationalism that were undoubtedly a crying need after the war. Peter Collins, in his book *Concrete: The Vision of a New Architecture*, writes that "the result is unquestionably the most imposing civic center built in France since the 18th Century, and yet it fully conforms to contemporary needs." The forms



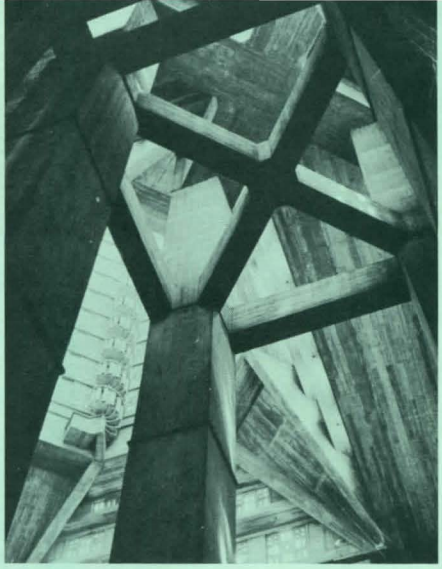
may be classical, as are Miesian forms, but the underlying structure is of our time.

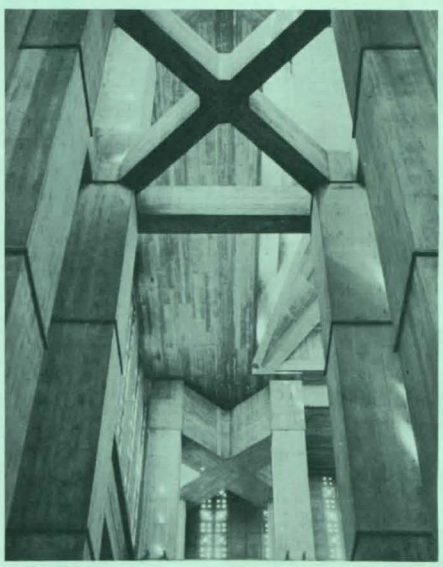
The church is an important part of the skyline. With its bell tower reaching a height of almost 350 feet, the church rises above secular buildings like a medieval cathedral. As the last monument one sees upon leaving the coast of France, and the first landmark visible upon returning, the church is, in effect, a "spiritual lighthouse." Its tower, when lighted, can be seen from 40 miles out at sea. It is dedicated to the memory of the 5000 who died in the liberation of Le Havre. (Presumably the form of the commemoration, not the fact of it, made Kidder Smith say: "[the church is] seemingly dominated by the *idée fixe* that a monument is more important than a setting for worship.")

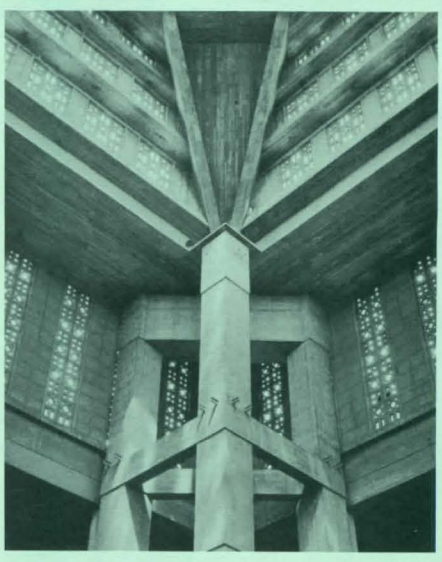
The tower has significance other than as a prominent feature from within the town or as a symbol of the town from afar. In plan, the tower is directly over the altar, at the center of a square nave—an unusual departure from the traditional both in the shape and the disposition of these elements. Perret's structural solution for joining the eight-sided tower to its four-sided base is an immense V-bracket at each of the four corner groups of columns—strong examples of what Giedion calls "Perret's precise engineering" and "sense for construction."

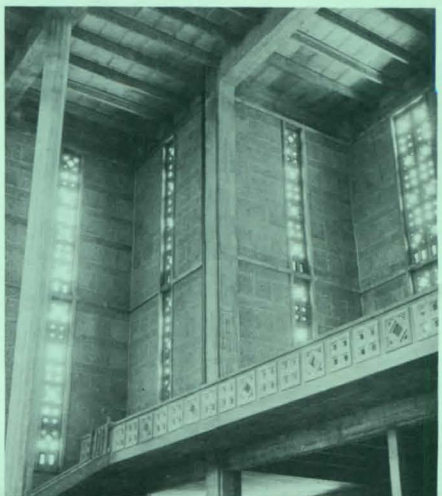
The structure is read from interior and exterior alike, but what is stolid from the outside is a tour de force from the floor of the large nave. The hollow tower rises straight up, its helicoidal stair winding slowly upward to the bell room. The windows by Marguerite Huré are a vital part of the interior, with layer upon layer of glass panels rising the entire height of the tower, producing what has been called "a masterpiece of truly stupefying originality." Glass segments are set in typical Perret grillework, the colored glass of the lower part being doubled on the exterior with white glass. On each of the four compass points of the bell tower, the colors are different, so that the tone and mood vary strikingly throughout the day. Pale colors on the north become more lively on the east, turning into brilliant flame on the south, and finally softening on the west to suggest meditation at the end of the day. In the quality of its light, and in the symbol of light radiating from above, St. Joseph du Havre is very much a place of worship, a holy place.

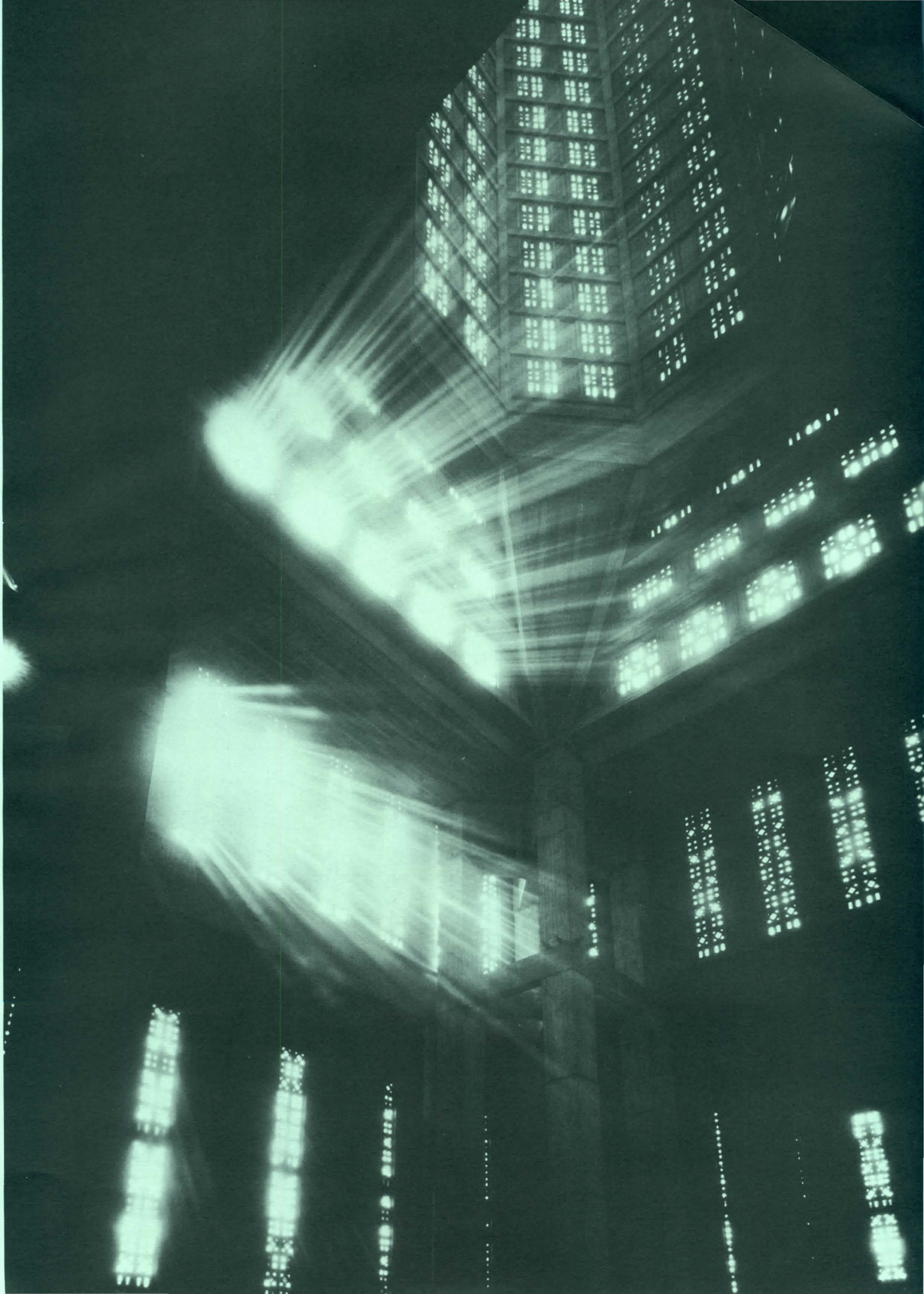
Associated with Perret were Raymond Audigier and Jacques Poirrier. George Brochard represented Perret's office after his death in 1954.











PHOTOS: LOUIS REENS

TEMPLE SINAI • STAMFORD, CONNECTICUT
• SHERWOOD, MILLS & SMITH, ARCHITECTS

Rural Tabernacle

This temple on the fringe of suburbia meets the needs of a modern Jewish congregation without disrupting the rural character of its setting. The natural terrain has been altered subtly to create a level platform for the building, which gives it an appropriate appearance of stability. Viewed from the road to the west (*facing page*), the new knoll—and the building crowning it—seem to be essential features of the landscape.

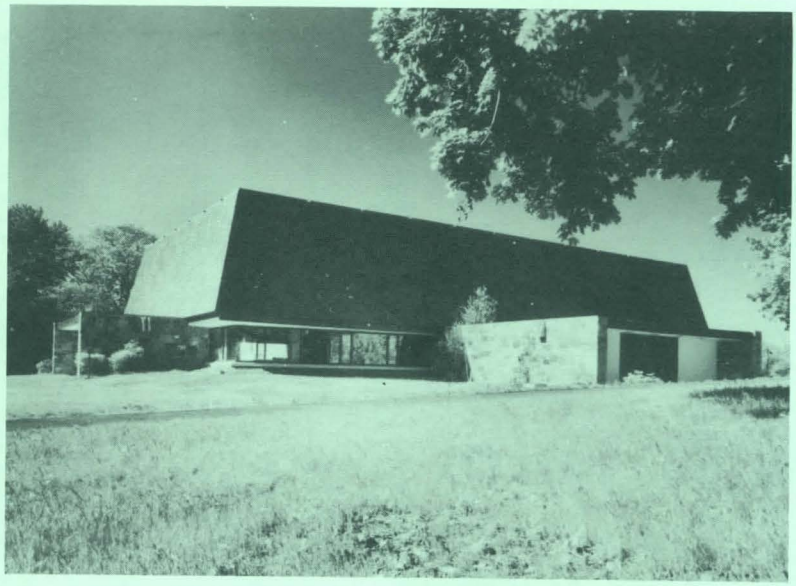
The temple is related to an existing structure, originally a house, which is used for religious education and other activities. The front entrance of the temple (*right*) faces this building, leaving a loosely defined forecourt that serves both. Parking is inconspicuously located to the side and rear of the temple.

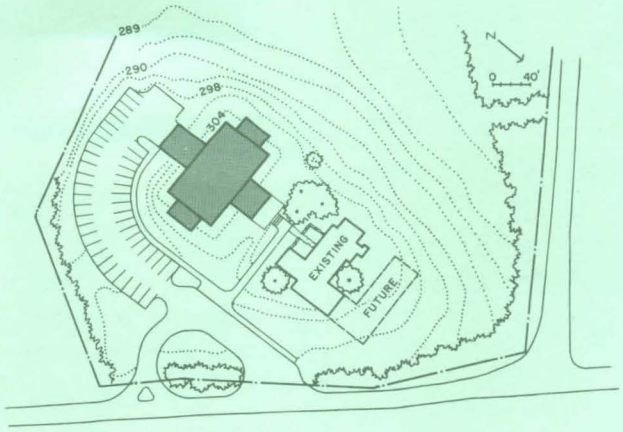
The stone walls and steep slate roofs of the older structure, which is in the picturesque Provincial idiom of the 1920's, are echoed in the new building. The simple, unadorned exterior of the temple is reminiscent of local farm buildings; the truncated pyramidal roof, however, recalls the medieval synagogues of Eastern Europe. This dominant roof form, according to the architects, "gives a feeling of enveloping, hollow shelter for the congregation unified in prayer below."

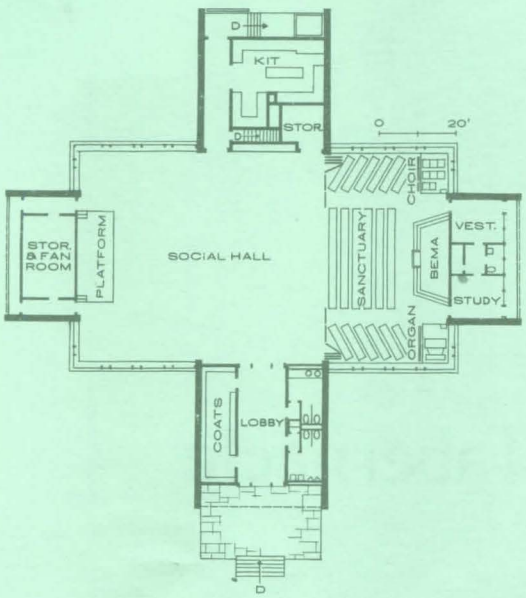
This voluminous envelope encloses a single, column-free space 96′ x 56′, which can be divided by a folding partition to separate the sanctuary from the social hall. The entire interior is unified by the consistent use of natural and neutral-colored materials and the prominence of the exposed structural members. Although barnlike in appearance, the space provides the comfortable acoustical and atmospheric conditions essential to its diverse functions.

The proportions of the partitioned spaces presented a problem. The 24-ft ceiling height is appropriate for the social hall or for the interior as a single space, but when the sanctuary is closed off it seems uncomfortably high and constricted in depth.

The structural frame of sloping wood trusses, which carries the laminated wood roof beams, is of special interest (*see* pp. 160–161, JUNE 1963, P/A). Supported at the center of each façade, the frame cantilevers out to shelter the glazed corners of the building. The stone-surfaced bearing walls on which the trusses rest extend outward to serve as buttresses.



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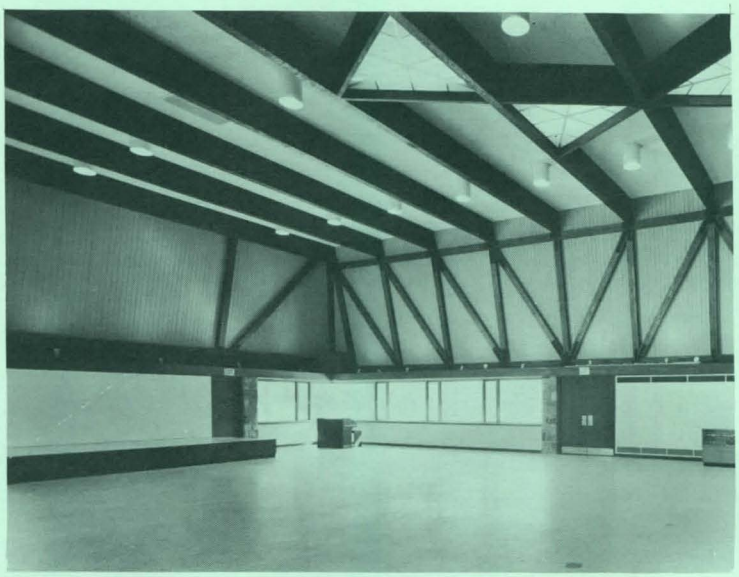
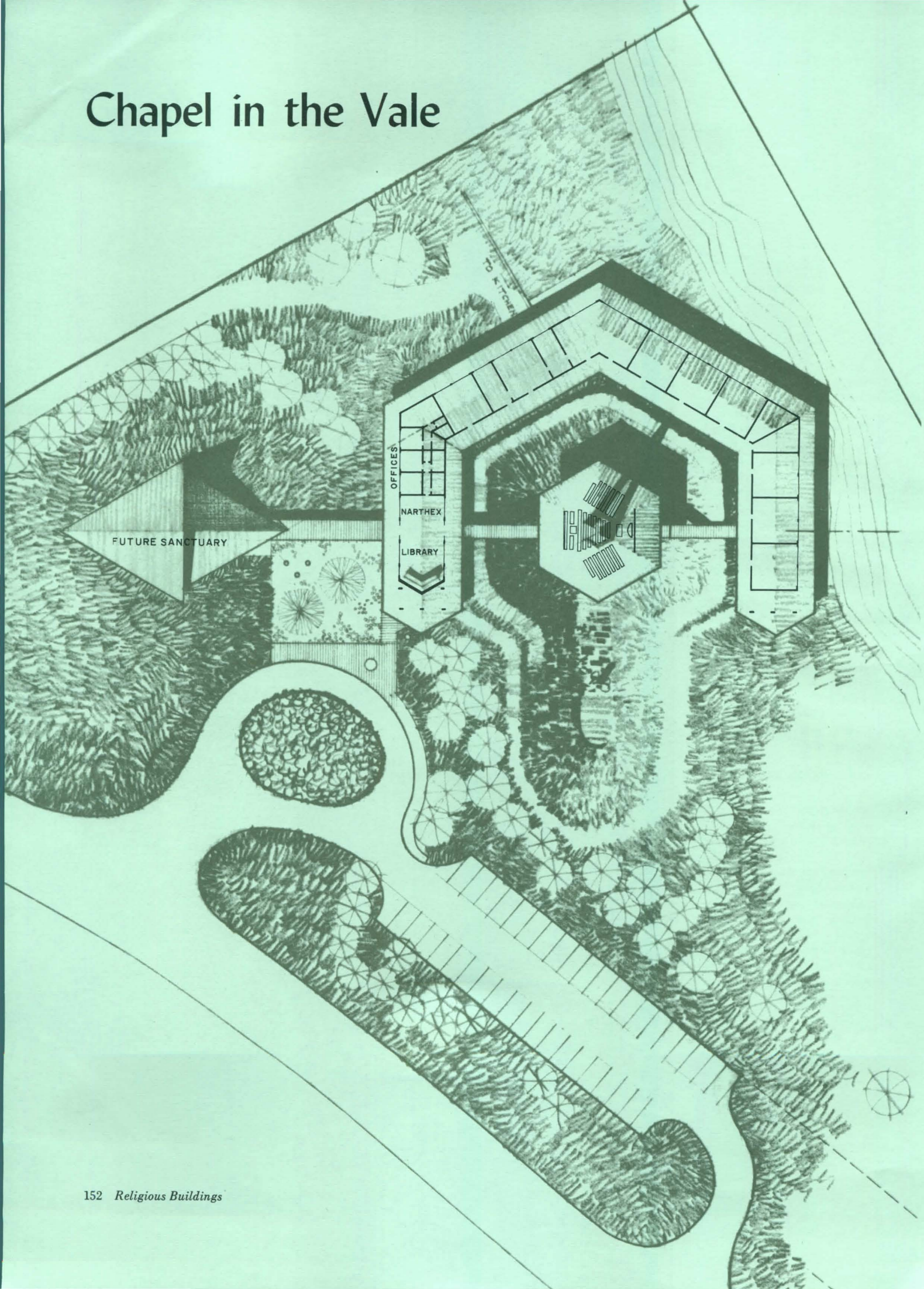


The main interior space of the temple (plan, facing page) *is divided by a folding partition to form a sanctuary* (facing page, bottom), *seating 150 people, and a social hall* (facing page, top) *seating 400 for meetings or 320 for banquets; the entire interior can be opened up to accommodate 625 worshipers on High Holy Days. Auxiliary functions are located in the flat-roofed wings enclosed between the pairs of stone bearing walls.*

The sanctuary is consistent in design and materials with the rest of the interior; the wood grille of the organ loft and the enclosures around the organist and choir areas are almost rustic in their simplicity.

At the corners of the building (right), *the slope of the knoll has been carried up almost to window-sill level. The volume of the roof and the depth of the overhang are thus emphasized, and the building more closely related to the terrain. This grading also expresses the seclusion of the main interior space and the function of the stone-walled wings as links with the exterior world.*

Chapel in the Vale



PHOTOS: HUGH N. STRATFORD

WAYSIDE CONGREGATIONAL CHRISTIAN CHURCH • FEDERAL WAY, WASHINGTON • KIRK, WALLACE, MCKINLEY & ASSOCIATES, ARCHITECTS

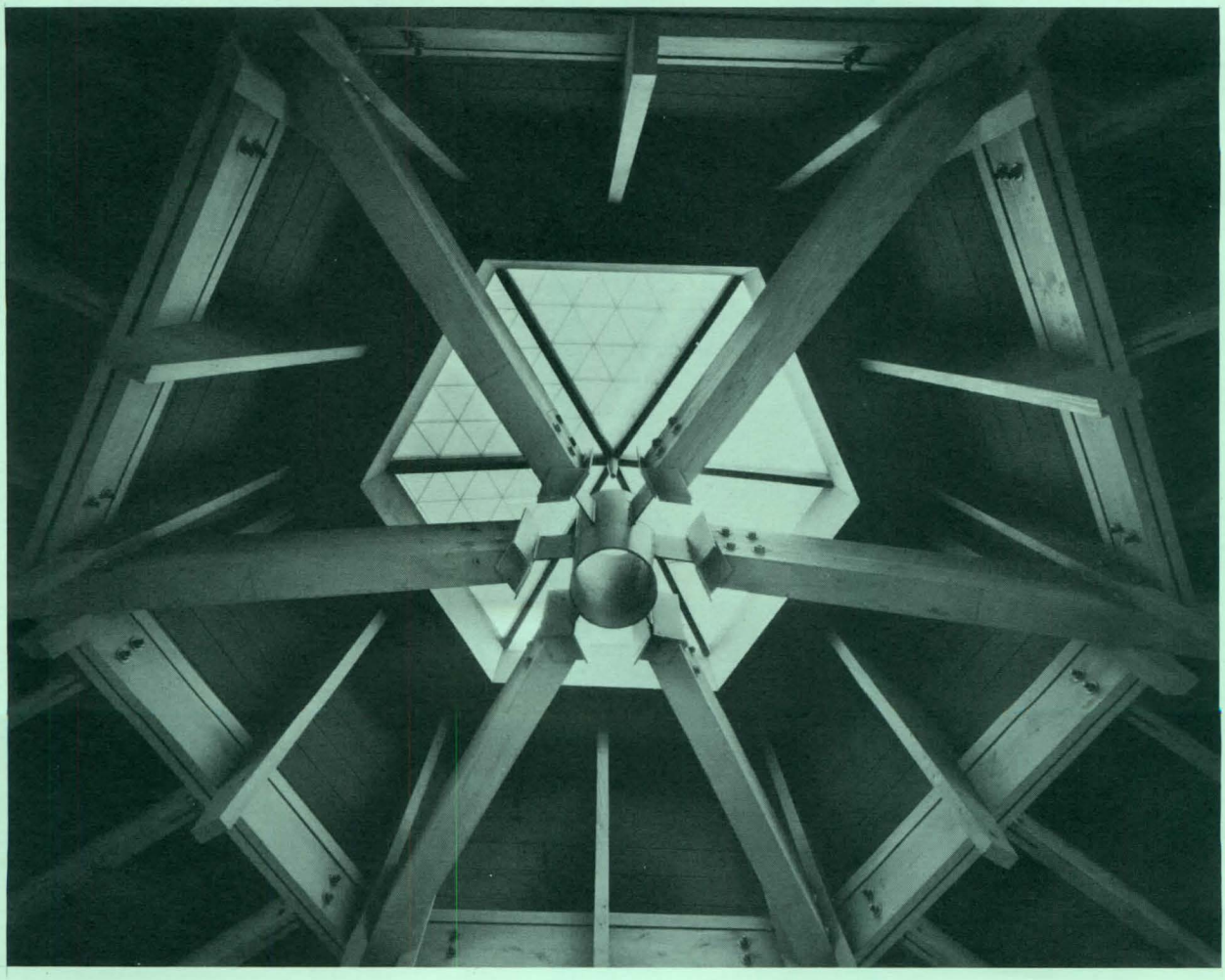
A shallow depression shaped like a keyhole provided the inspiration in siting this church and school complex for an expanding congregation. The chapel is elevated on wood posts and a concrete block core above the 10-ft deep hollow. Bridges connect it to the classroom building, which encircles the round end of the keyhole depression. The narrow end will be graded to provide seating for an outdoor devotional area.

The chapel is hexagonal in plan with a steeple rising over the center of its cedar-shingled roof. Two sides of the steeple are open so as to admit light to a central skylight; a cross suspended in the steeple opening can be illuminated at night. The split steeple relates to the structural design in which the beams are flanked by paired posts. This concept is also reiterated in the roof of the covered bridge where paired rafters are spaced to incorporate lighting between them.

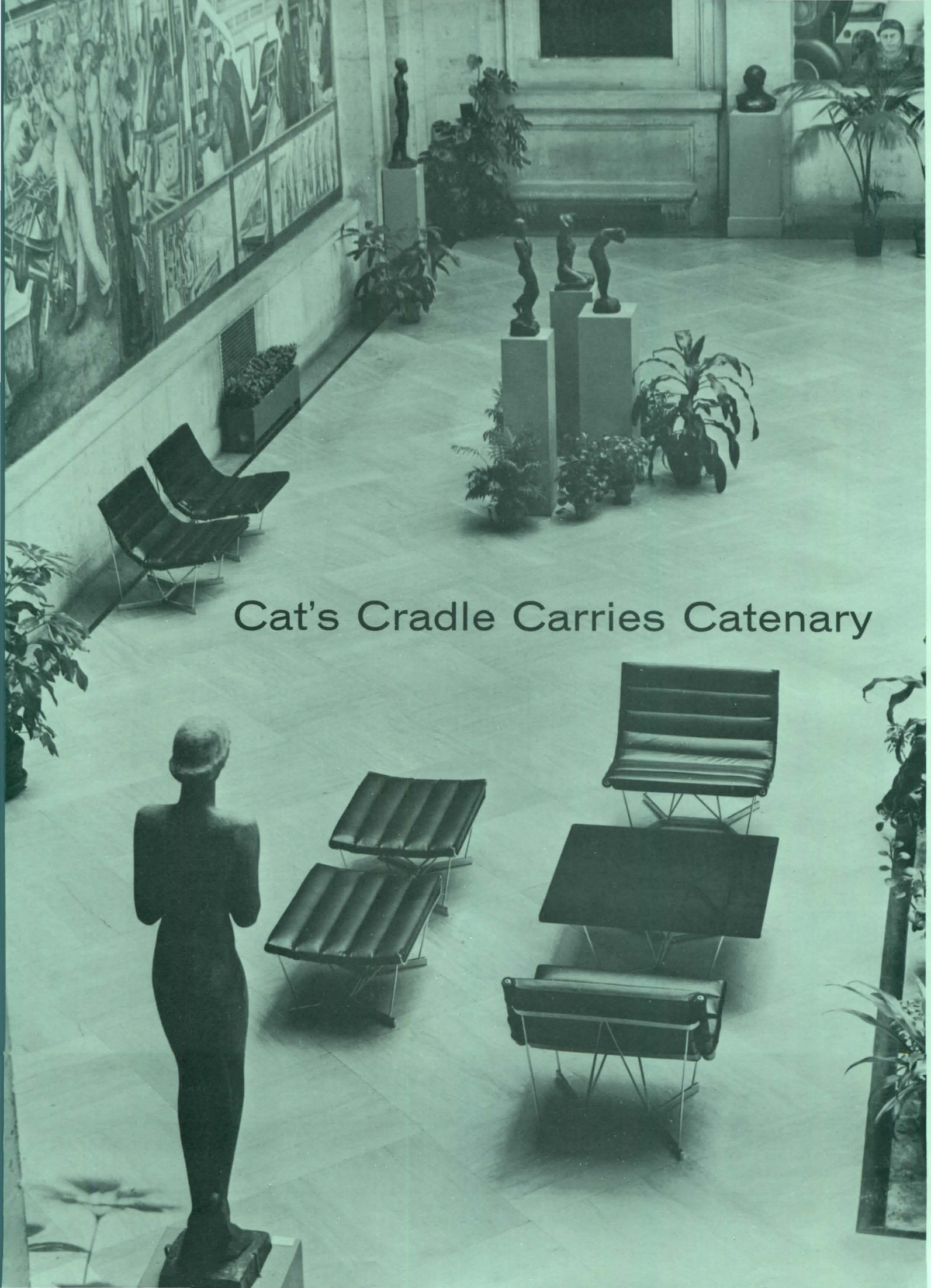
The roof structure of the chapel, which makes use of laminated wood beams, is deftly detailed. (*See* SELECTED DETAIL, *overpage.*) The school building is of a modular truss design that permits 6-ft additions as they are required.

Since the surroundings of the wooded site (top) *are both rural and residential, the building committee's request for a wood structure with shingled roofs seemed appropriate to the architects; the request was also consonant with the $60,000 budget. The bridge from the classrooms to the chapel is covered* (above); *keystone-shaped lighting fixtures repeat the motif of paired posts and split steeple.*

Inside the hexagonal chapel (above), *the altar is placed against a screen at the north end. The surrounding walls are of clear glass, which is protected from the sun by deep eaves. Like the exterior, the interior is stained a neutral, warm beige. Except for the colored glass lanterns, which were made by members of the congregation, richer furnishings are to be added at a later date. The skylight* (below) *is plastic.*



WAYSIDE CONGREGATIONAL CHRISTIAN CHURCH: Seattle, Wash. KIRK, WALLACE, MCKINLEY & ASSOCIATES, Architects	SELECTED DETAIL STEEPLE



Cat's Cradle Carries Catenary

Steel cat's cradles support catenary slings in a new group of seating designed by George Nelson & Company for Herman Miller, Inc. The furniture displays the originality of thought that has made Nelson renowned—particularly in its ingenious construction system, where similar units are diversely utilized, and in its technical innovations. The group comprises a chair, an ottoman, and a low table, which are intended for use in public areas.

"Furniture design today," George Nelson says, "offers several approaches—all of which are perfectly okay. There are the handcraftsmen—a small group of men, such as Nakashima, who make things with great affection in a natural way. This approach will remain valid as long as the cost can be controlled; in the main, however, the U.S.A. is excluded from the handcraft idea by circumstance.

"Then there is what we call the traditional approach, in which the production of furniture is carried on in simple, traditional ways. For instance, case pieces are no different today, really, from what was made in the Renaissance. The caneback sofa that we designed several years ago was not an innovation either. It is essentially a traditional sofa, except for its styling.

"We don't know how to revolutionize the sofa, to make a basic shift in the concept of the sofa. We just don't know what to do with it. So we work with the pieces: we change them and improve the production. We think the cane back is better than a great expanse of stretched fabric, but cane is exactly what was traditional in sofa construction in the 18th Century.

"The third is a new kind of approach to furniture design—the totally industrial piece. This is not a virtue in itself, except that it is the framework in which you have to work more and more. In the category of the pure industrial product, assembly costs must be nearly negligible. There is nothing traditional in the production of the Catenary chair, for instance. We are almost ready to imagine these cushions being squirted out in some sausage-like manner.

"The curious thing in the field of furniture is that you can still take the oldest road in the world—the medieval approach; or you can take the new extreme —the industrial road. Then there are, in addition, these hybrid things like the storage wall systems we do. They are not furniture entirely but not quite architecture yet. We are more and more concerned with these hybrids.

"The Catenary Group, on the other hand, is in the category of pure industrial design. It shows an attempt to use and re-use pieces so that there is an economy of design means and of physical means."

Ronald Beckman of the Nelson office, who was the project director in charge of development and execution of the Catenary Group, relates the furniture to the industrial approach in the following way: "The design is an attempt to make a statement about the machine and machine-made goods and to disprove the cliché about 'monotony' that the machine is supposed to create these days. The design is an aesthetic expression of industrial techniques. The intention was to evolve a simple solution for a furniture group, which would be elegant, formal, luxurious, and yet inexpensive, by combining identical parts in a variety of ways."

"The design started with the idea of independent pillows," Beckman says. In the Catenary seating, the pillows are sheet metal pans that contain latex foam rubber cushioning. The cushioning is intended to be upholstered in leather; the backs of the pans are vinyl coated.

These separate cushions, which are used for both the chair and the ottoman, are suspended on two concealed steel cables—one on each side—that hang from the frame in a catenary curve, from which the group derives its name. "Strung on cables like beads," as Nelson says, the independent pillows permit standardized production of interchangeable parts and also make it possible to replace damaged cushions individually, without reupholstering the entire chair or ottoman.

"Then we took the supports straight to the ground," Nelson continues, "as a rather direct approach. We did not want to make the seat and base a single unit. The notion was to treat the seating as a gem in a setting—held up on prongs."

"The base also," says Nelson, "represents the struggle to get things down to a minimum of parts and the desire to design components so as to give variety." Three kinds of steel elements are combined differently to form a distinctive base for each item in the group: a cross bar, a rod, and a U-shaped base bar. These three chrome-plated steel components are used to fulfill three different functions. First, a flexible ottoman base where the seat is *in tension*. Second, a semiflexible base for the chair, where the catenary *sling is in tension* but also provides back support. The bases of the seating units are both open tetrahedrons. And third, a rigid base, which is a true tetrahedron, for the table.

To achieve the simple structure that was desired for each base, the connections were of prime importance. "Every plated and joined chair that we know is either welded or screwed together," Nelson notes. In the standard welded assembly, joints must be hand-finished before plating and then polished in entirety. "Since plating of large bases is expensive owing to the necessarily large plating vats," Beckman explains, "we borrowed a technical advance from aeronautics, where epoxy-glued steel has been used to make high-altitude reconnaissance planes lighter." Glued steel is an innovation in the furniture field. However, it is paradoxical that in assembling the Catenary furniture it is the wood joiners and not the steel men who have found this work just like old times.

"This chair," Nelson says, "recalls the construction of the Windsor chair, in which you have a dowel, now made out of steel, glued to a stick with a hole in it."

The glue, in addition to its strength, provides a clean joint. And the glue joint makes it possible to chrome plate and polish the small components before bases are assembled. When the bases are assembled, the components are joined with a premeasured amount of epoxy and the joints cleaned of excess glue. No subsequent polishing is necessary.

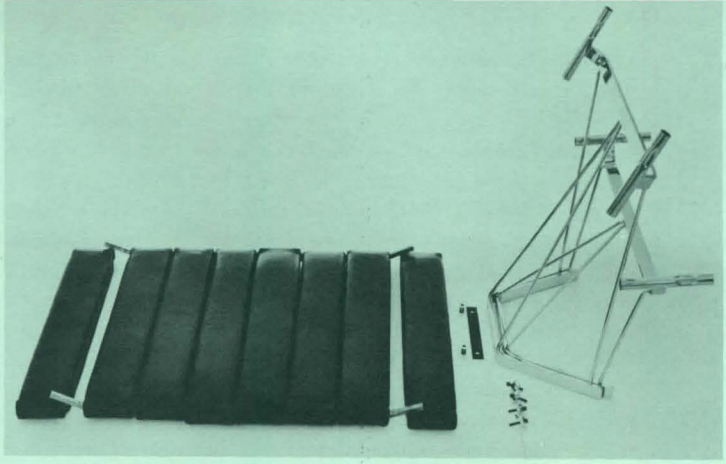
"Thus in production," Nelson states, "small metal parts can be mass-fabricated, mass-plated, and mass-polished. Gluing results in substantial savings in the ultimate cost of the piece. This saving makes the chair less expensive than any comparable chair—by which we mean an armless chair upholstered in leather with a monumental look that is suitable for formal settings."

"The furniture," Nelson emphasizes, "is obviously not intended for the average home. It is a response to the new formality of the elegant, art-buying corporate world that looks as expensive as it really is."

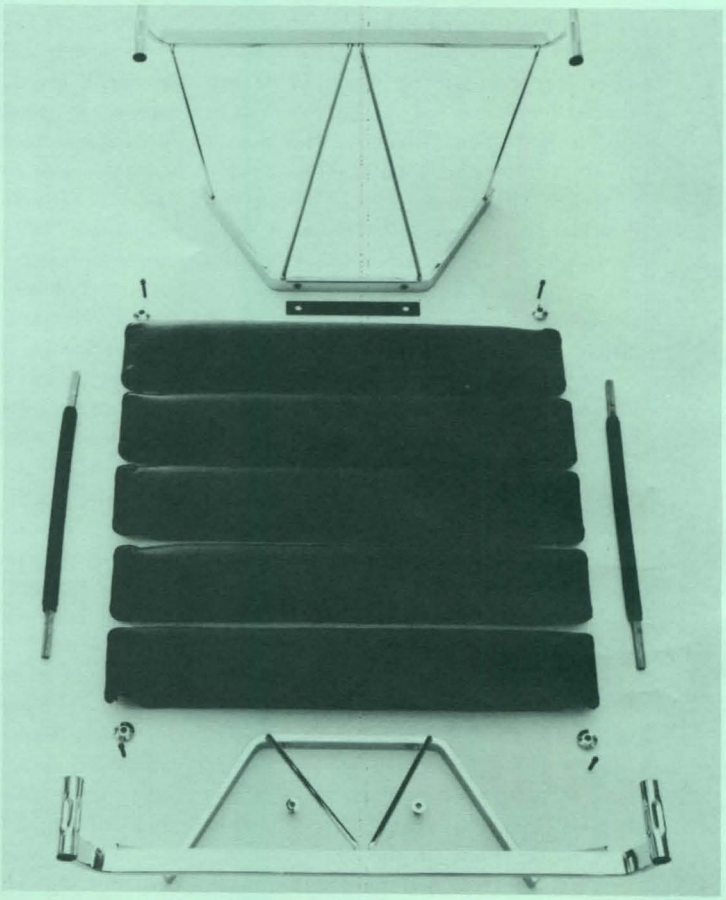
The glass table is also a technical advance: the top comprises two sheets of

PHOTOS, THIS PAGE: RONALD BECKMAN

PHOTOS, EXCEPT AS NOTED: BALTHAZAR



Components of chair (above) *and ottoman* (below) *to be assembled.*



Pre-assembled base sections as stacked for storage (below).

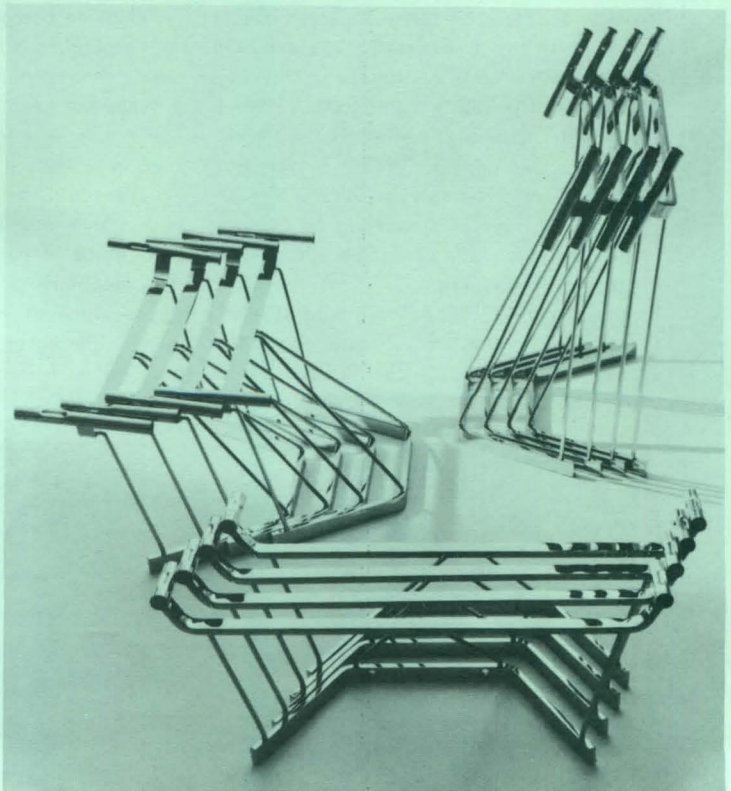


plate glass laminated to a plastic core between them. The result is safety glass. This sandwich idea suggests the possibility of having special colors of glass by using a colored plastic core between clear glass. "Standard colored glass of equal thickness," Nelson states, "is unavailable in this country."

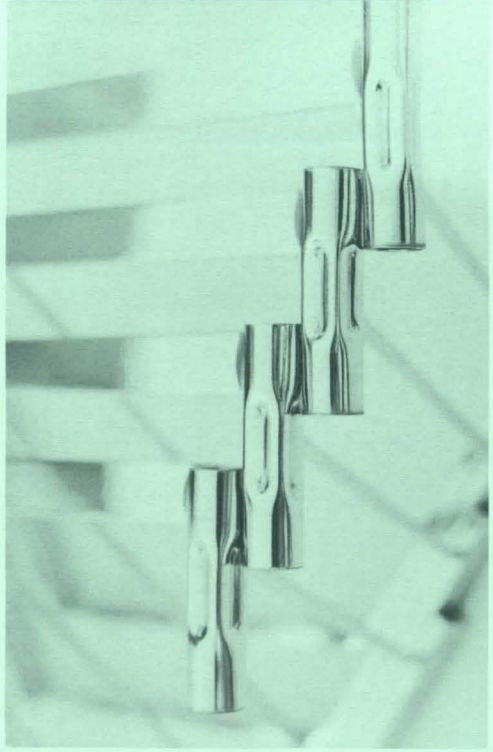
Several production advantages also accrue from the design: the use of identical parts results in lower tooling costs, factory precision, and better control of quality. And stocking and delivery are also benefited: identical, interchangeable components are machined and stored in the factory—the bases assembled and stacked in a minimum of space. When orders are received, the stocked cushions will then be hung on the cables—the chair is assembled in minutes.

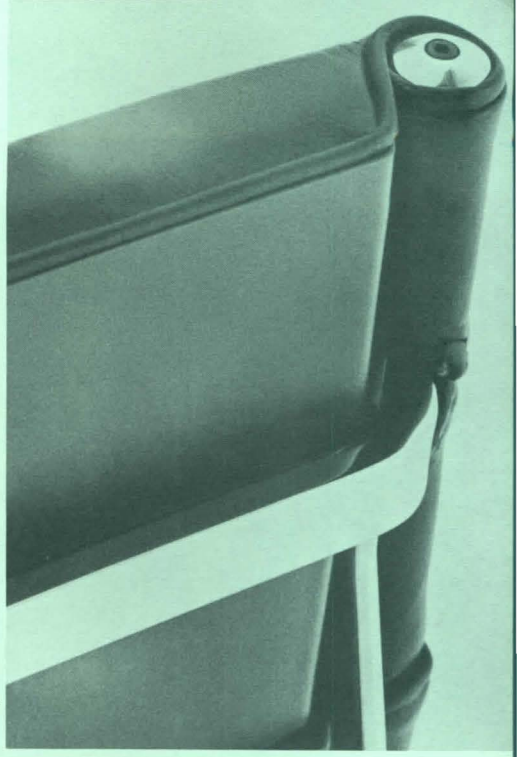
One might question the fact that the sling does not support the sitter at the small of the back, but the designers point out that the flexible cushion pans permit the cables to move both downward and to the center of the chair and that the flexible pans thereby accommodate themselves to the form of the sitter.

The designers also answer the question about the chair being rigid under the knees—which is always a problem in chairs that are slung from back to front instead of from side to side, like the collapsible "director's chair." The front edge of the Catenary chair, George Nelson points out, is more than a membrane; it is heavily upholstered under the knees, and this keeps the pan from being sharp there.

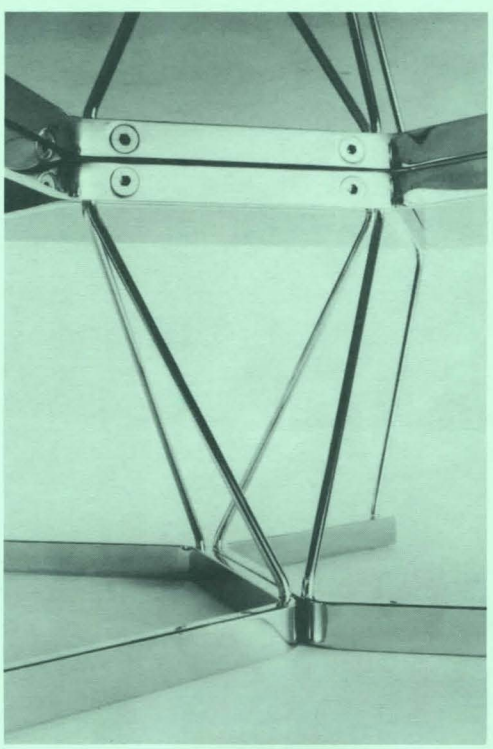
"Catenary is an attempt to synthesize the needs of many individuals concerned with its use, manufacture, and distribution," Beckman maintains. "But more, it is a statement about the order versus the freedom of manufacture imposed by the machine. The use of components generally imposes an order on a design. A system has to have enough flexibility built into it so that the designer remains in command of the application, rather than being controlled by the limitations of the manufactured part. We hope that the Catenary Group reinforces the statement that design for industry is capable of variety and freedom."

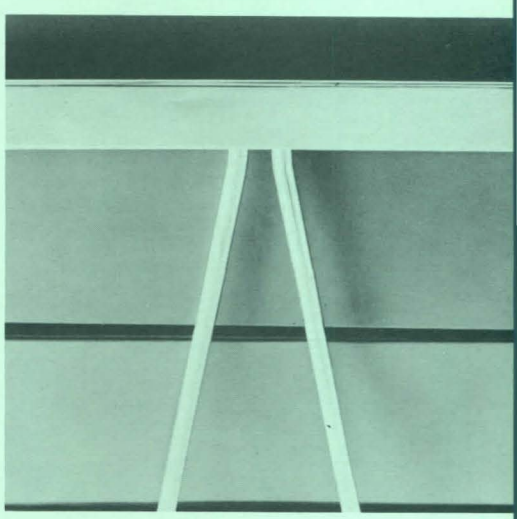
"The look of this furniture can be explained as a logical expression of the idea of how the chair is built," George Nelson concludes. "It has its own look and is not a variation on anything else. In other words, if there is anything surprising looking, that just happened. Nobody was very interested in making it surprising looking. We would be happy, of course, if it did stand up in a fast, taste-changing society. The chair does make a statement about the industrially produced product, but we could with equal logic go off on an opposite tack: This is a chair and not a manifesto."

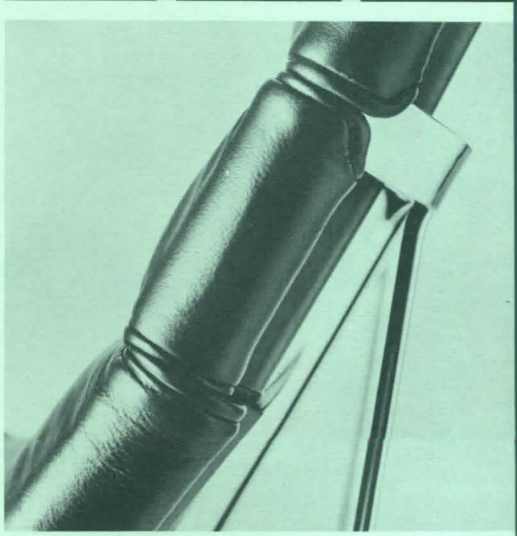


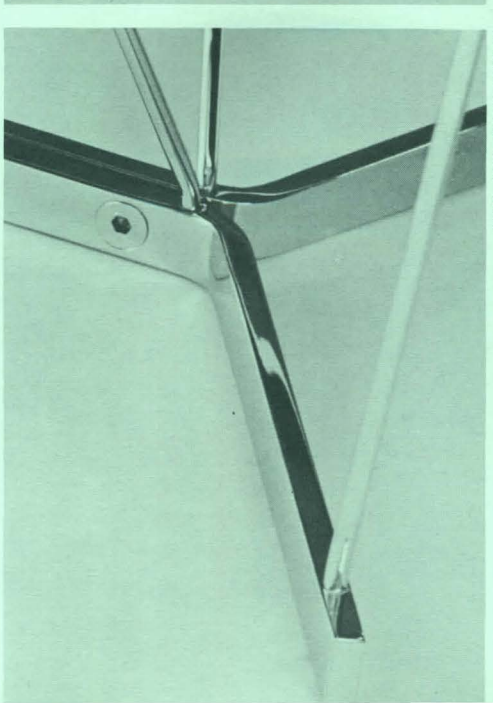


PHOTO, RIGHT: RONALD BECKMAN



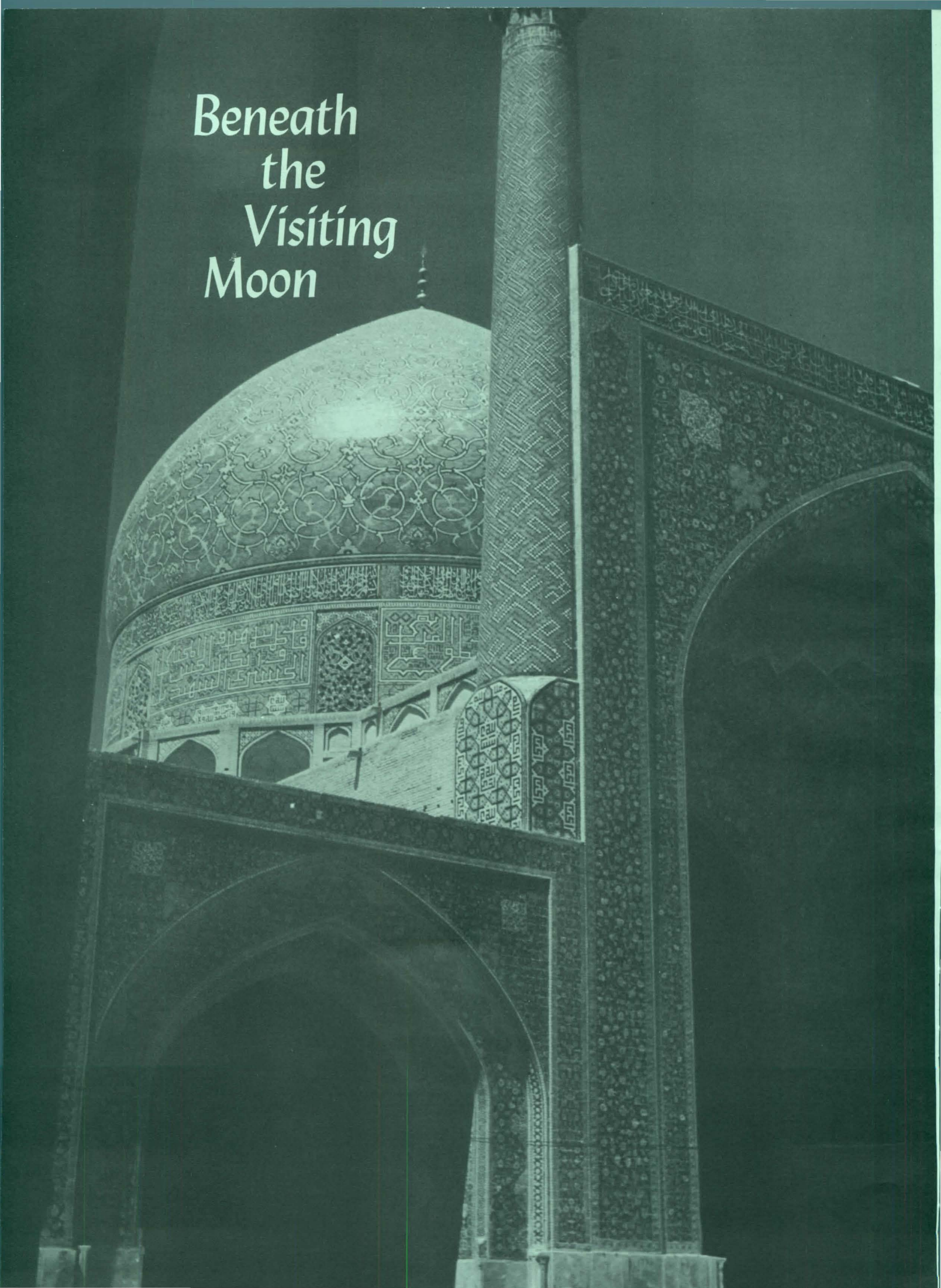






PHOTO, LEFT: RONALD BECKMAN

Beneath the Visiting Moon



BY JOHN E. BURCHARD

Dean Burchard of the M.I.T. School of Humanities and Social Science has traveled in all parts of the world where there are buildings to examine. In this first installment of a two-part essay, he compares the achievements of modern architects to the masterpieces of the past. The second part, to appear next month, will deal with the effect of new buildings on the cities of the world.

It is, on the whole, great fun to move around the world—but also discouraging. One has to accept, and quite soon, that we are running out of peaks in Darien, and even of quaint villages in the Vaucluse. One has to learn that there may be more solitude after 9 P.M. on the Place Ville Marie in Montreal than on the floor of the Yosemite Valley.

One may learn to accommodate to ubiquitous Muzak and to the uniformly dreary ride from an airport to a city too much like the one just left, even though at 3 A.M., in a place like Karachi, a camel may still loom out of the dark. But the Karachi camels are doomed. Exotic places will be less exotic, food less difficult to digest (and less interesting), bazaars less sinister. In the end, a horde of dangerous-looking men will stop pounding copper in the mysterious *souk* of Shiraz, and every bazaar will be as safe as Macy's basement. But only tourists and old Iranians will care.

Few indigenes would choose to be entertainingly exotic at the cost of any comfort unless tourists pay well for phony memories. The street-widening program for Istanbul will make the city less interesting to you and me, but more convenient for the local Turks. We may like it or not, but the old values can be retained only by a city which history has happened to pass by, a Wells or a Cordoba. But even then, if it is a Grand Canyon of a city, for example a Granada or an Isfahan, it may in the end have a Hilton like all other Hiltons, though serving *sangria* or *raki*. This may make us unhappy, but there is no alternative to reconciliation. C. E. Montague was right to say, "A place, like a person, must take the chances of life as they come. If it is great, it must face the normal troubles of greatness."

But even when the tongas and the dandies, the elephants and the cobras, the veils and the pantaloons are gone, travel will remain rewarding. There are first of all the ancient architectural achievements, so varied, so absolutely marvelous; and there is the recurrent hope that the inevitable new will, in terms of its own day, match the glorious old, even to the point of preserving national and regional diversity in the midst of the leveling and unifying climate of the contemporary world. It is the failure on these latter counts, the almost universal failure, that produces moments of deep depression about our brave new world.

The Glorious Revolution

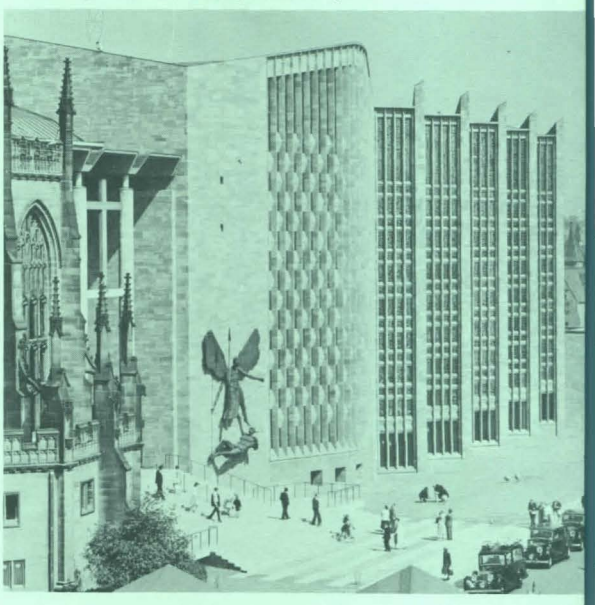
When the AIA conferred its Gold Medal on Alvar Aalto last spring, it had rounded the circle of all the aging principals who led the great and glorious revolution of the 20's. It was and is a gallant company. They made a revolution of strength, of much promise and—on isolated fronts—of considerable accomplishments. But the results are far short of the anticipations which stirred us in 1925. Most of the uncompromising premises of the revolution have in fact been compromised.

The revolution was, and indeed had to be, iconoclastic. Because history was being badly taught and misused as a basis for design, history had to be ignored. The great men all knew their history well enough; Le Corbusier leaped with joy on the Acropolis. But they did not trust their disciples to be strong enough to stand exposure to history. It may be that Lord Acton was quite wrong in thinking that a knowledge of history would prevent men from bad deeds and encourage them to good ones; but Cicero was surely right in saying that men who knew only their own times would always behave like children. Now history has crept back into our curricula, but meanwhile architecture is made by a generation of *Wunderkinder* whose knowledge of and taste for history is fragmentary at best.

The revolution broke the idols of ornament and stripped them from architecture, ignoring the fact, or glorying in denying it, that every great architecture of every preceding period had been abundantly ornamented and indeed had richly employed the collaborative talents of painters and sculptors. Among men like Gropius, there was always an uneasiness about this divorce, and he tried to develop teamwork both at the Bauhaus, with modest success, and later on in the design of the Graduate College at Harvard, with very little success. Breuer made a valiant effort at UNESCO in Paris, but again only partially successful. There have been other serious efforts, notably those of Skidmore, Owings & Merrill, but nothing that could be called a resounding success except in buildings scorned (though not by me) as eclectic, such as Östberg's Town Hall in Stockholm **(1)** or Spence's Cathedral of St. Michael in Coventry **(2)**. Wright had no use, really, for the other arts; Mies said the architectural problem was too severe without complicating it with the other arts; Aalto made his own forms into art, though he, like Wright, never scorned detail, even ornamental; and Le Corbusier generally supplied painting, sculpture, and architecture all by himself.

1 Stockholm Town Hall, 1911–23, by Ragnar Östberg.

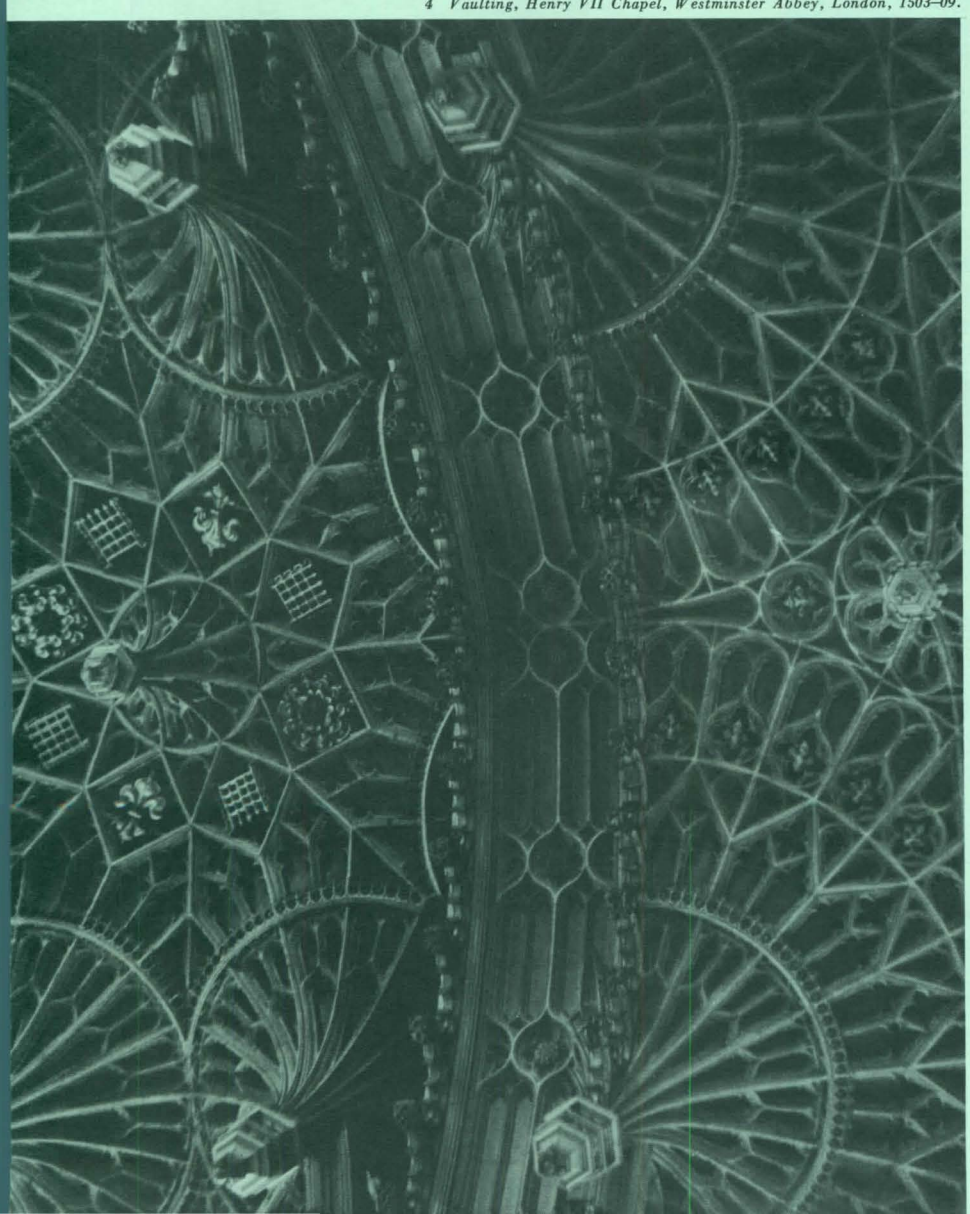
2 Coventry Cathedral, 1962, by Sir Basil Spence.



Their less talented descendants have made heavy weather of this problem. There have been patent efforts to bring back ornament, sometimes posing as structure (tetrahedra, as at Yamasaki's McGregor Memorial), or derived from structure (Mies' vertical I-beams), or as patterns (Stone, Yamasaki, Stubbins), or now as tricky precast concrete window details (almost everybody), spots of color (tesserae at the Air Force Academy), and so on—all very well-meaning. One does not realize how feeble all this is until one sees a mosque in Isfahan (*facing page*),

3 Pilgrimage Church at Wies, Germany, 1745–54, by Dominikus Zimmermann.

4 Vaulting, Henry VII Chapel, Westminster Abbey, London, 1503–09.



Jehangir's Fort in Lahore, Humayun's tomb in Delhi or the Alhambra for the first time, Wies **(3)** for the second, or the Henry VII Chapel in Westminster Abbey **(4)** for the sixth.

There is now a spirit of recantation on the matter of decoration and detail, but as yet no sensuous successes save on the small scale, for example, of Kepes' windows for Belluschi's church in Baltimore **(5)**, Bertoia's screen in Saarinen's M.I.T. Chapel **(6)**, Albers' brick wall at the Harvard Graduate Center **(7)**, and so on. The bigger efforts, such as the exterior murals of Rivera, Orozco, Siqueiros **(8)**, and O'Gorman—aside from the obsolescence of the social philosophy they assert —become less and less convincing with the passage of time, while paintings by the same men, along with the early Tamayo, age more successfully in the by-no-means contemporary interior of the Palace of Fine Arts in Mexico City. Picasso, Miró, Afro et al. did not come off much better at UNESCO; only Moore **(9)** was fully successful. One exceptionally successful effort is to be found at the University of Caracas, where Carlos Raul Villanueva has managed to combine arcades, gardens, buildings, stained glass, and murals by such men as Léger, and sculpture by such men as Arp and Pevsner **(10)**, in an absolutely brilliant way.

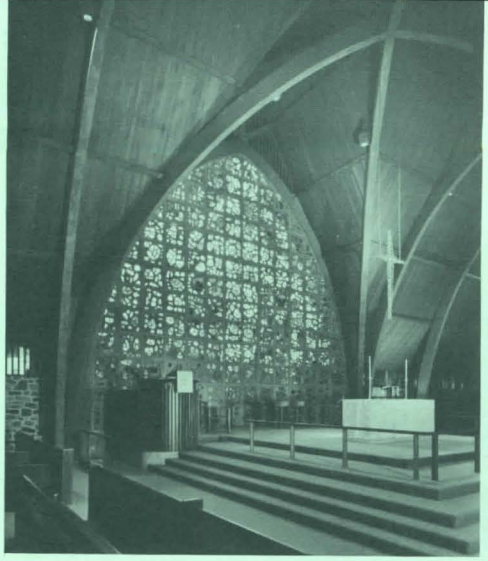
The revolution professed the greatest admiration for the age of technology and a determination to use its contemporary products to the hilt. It soon abstracted, or at least Gropius and Mies abstracted, glass and metal into a simple form which culminated, so far as perfection of detail could go, in Seagram's. But Le Corbusier, after his early flirtations with washbasins as works of art, continued to use concrete as a handicraft material, modeling his strong forms and deep embrasures and coarse textures with the skill and affection not of a prestressed-concrete man or prefabricator, but rather that of a skilled and sophisticated peasant. And it was this same affection for the soil, for wood and for humble brick (even if made to his personal specifications), which endeared and endears so much of Aalto's work to so many of us (and it may have some relation to some of the affection for Lou Kahn's work).

The metal and glass triumph was short; the discontent with its use as a classic solution was general even while it was much proliferated by mediocre men; and the effort to break its logical and constricting coils doubtless accounts for much of the unhappy attempt at innovation, the rest stemming from inept and insensitive adoptions of the forms of Le Corbusier,

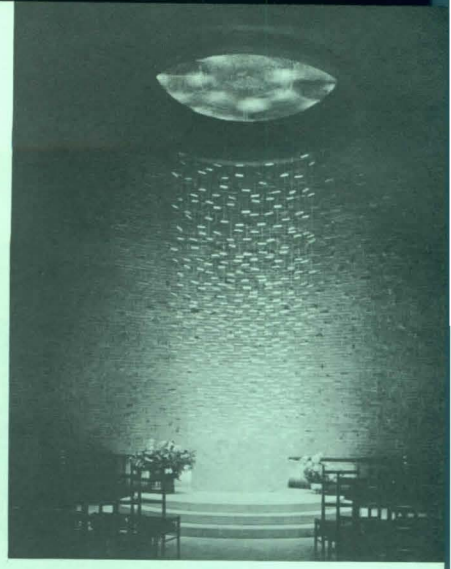
noticeable chiefly in Japan and among the Brutalists of Italy, England, and America. In any event, all the old slogans about structural honesty have had to be stored away in the dusty closet of forgotten propaganda, and claims that they are significant conditioners of modern design would fall flat among the candid admirers of Sert, Rudolph, Warnecke, Yamasaki, Johnson, and Kahn.

The sincere claims for functional architecture, too, have had a short life. Most of the most acclaimed buildings of our day, it has to be admitted, score very bad marks on one or more important points of comfort and use. Rudolph was all too near the target when he said once that function follows form. There was an unvoiced corollary, I think, that if function cannot follow form, so much the worse for function. The days when we could castigate McKim for the functional failures of the Boston Public Library while purring with pleasure at recent works in New Haven have passed. The arrogance of the architect with respect to the user did not die with McKim. Contemporary architects, led by Le Corbusier, have consistently set out to transform the lives of men they did not know. Banham's principal criticism of Sir Basil Spence's Coventry Cathedral is that the architect did not take the occasion to revolutionize the thinking of the Anglican episcopate, something which even Le Corbusier did not seek to do to the Dominicans of La Tourette (although he was less considerate of the *ouvriers* of Marseilles and of his friends who would try to work in the new ateliers of the Carpenter Center for the Visual Arts at Harvard).

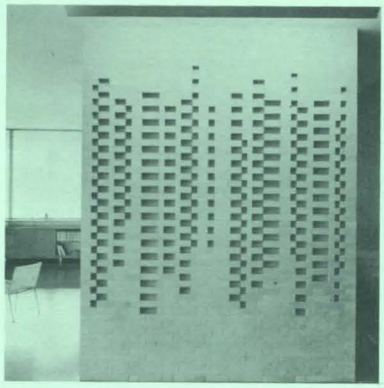
The movement never really agreed about the relation between anonymous collaboration and the cult of personality. Gropius wavered the least; in the early days of CIAM, when none of the talented participants had much to do, there was more talk of group work; at the same time, since architects who had work to do were, by CIAM standards, bad architects, it became the fashion to issue blanket denunciations of the large firms, and especially of America, where the firms were largest. Of many of these firms, the criticism was just on all counts. But of the largest—Skidmore, Owings & Merrill—it was never just. For a long time, they have accounted for much of the best contemporary architecture. They may never have been the wildest innovators, and indeed it seems to me that they are not at their best when they aspire to innovate dramatically. But how much innovation is beneficial to architecture or any other art depends on the state of the art, and a



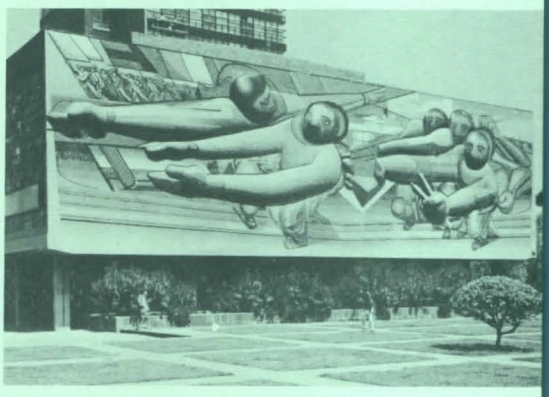
5 Window by Gyorgy Kepes; Church of the Redeemer, Baltimore, 1959, by Pietro Belluschi and Rogers, Talliaferro & Lamb.



6 Screen by Harry Bertoia; M.I.T. Chapel, Cambridge, Mass., 1955, by Eero Saarinen & Associates.



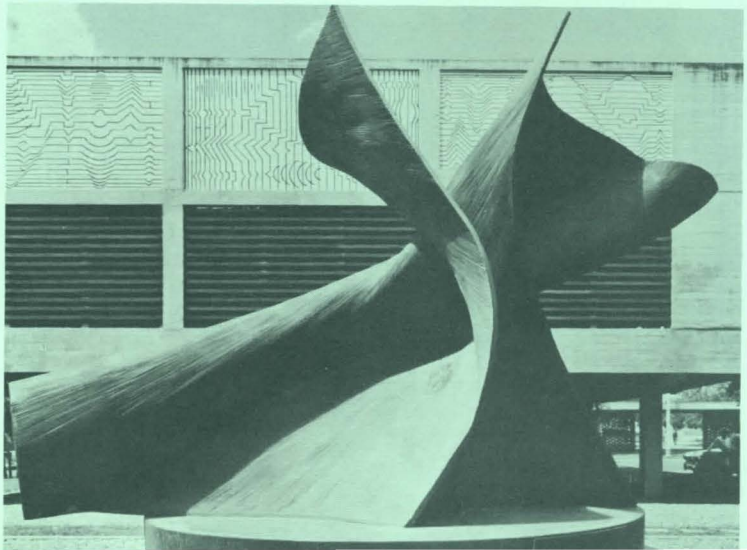
7 Wall by Albers; Harvard Graduate Center, Cambridge, 1950, by The Architects Collaborative.

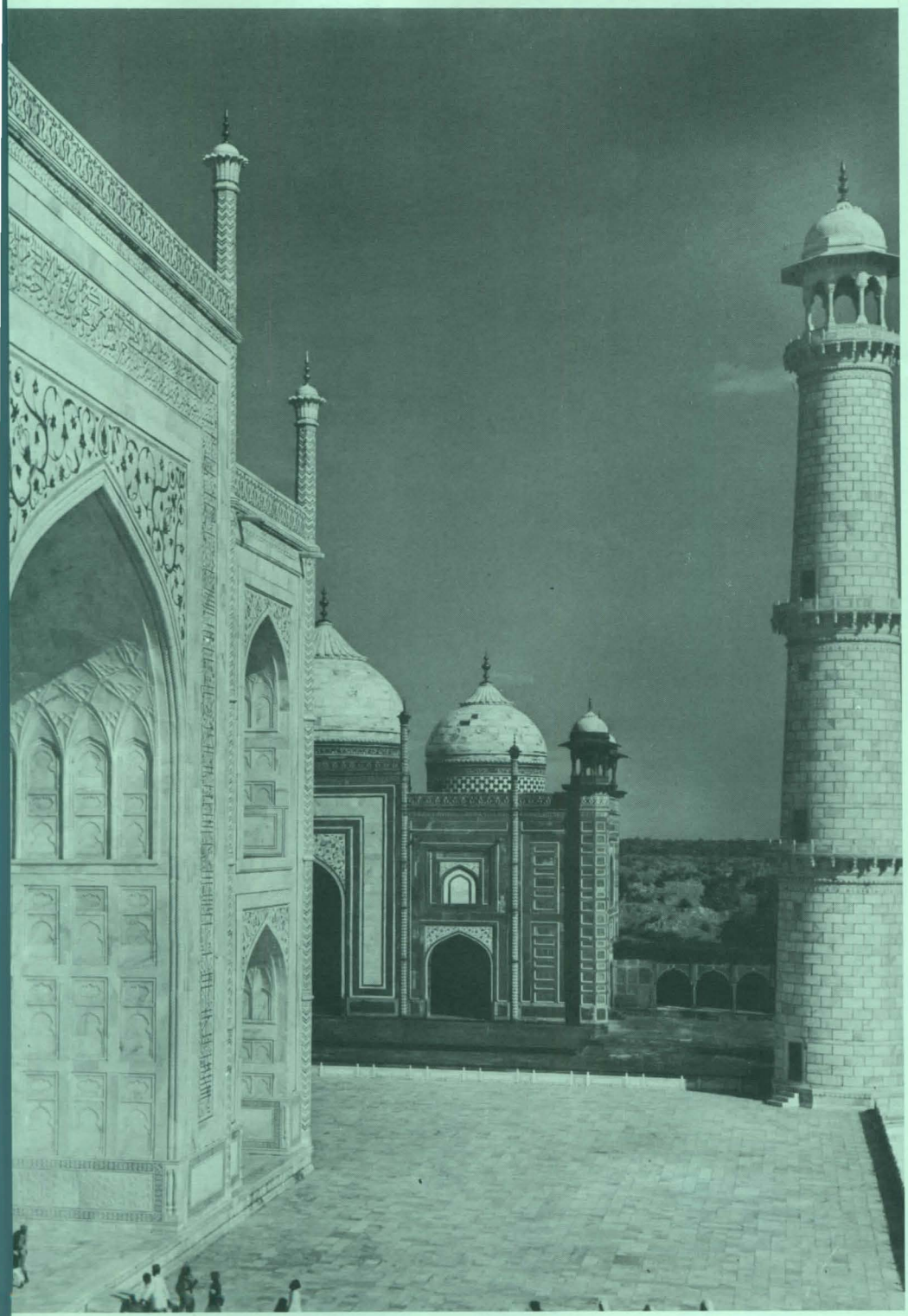


8 Mosaic mural by Siqueiros; Administration Building, Mexico National University, Mexico City, 1963, by Pani, Moral & Ortega.

9 Sculpture by Moore; UNESCO Headquarters, Paris, 1958, by Breuer, Zehrfuss and Nervi.

10 Sculpture by Pevsner; Mural by Vasarely; University City, Caracas, 1953, by Villanueva.





11 Taj Mahal, Agra, India, 1630–53.

classical consolidation might not be the worst thing that could happen to contemporary architecture. In any event, it was precisely Skidmore, Owings & Merrill, whom Giedion first deplored and only later came to praise, who carried farthest the principles of Gropius as to teamwork —much more, for example, than his own TAC; while the other main revolutionaries, all successful, now elevated the personality cult beyond its height in the Renaissance. This was true of Aalto, of Mies, and of Le Corbusier.

Unhappily, much abetted by architectural journalism always in search of sensational newness, this cult was gleefully adopted by a long list of ambitious successors—with an important difference. Any examination of the collected work of Aalto, Mies, or Corbu will show, just as will an examination of the work of Beethoven and Brahms, a steady development and working out of a personal style in which the deviations are almost deliberate experiments, to be quickly assimilated when they work and as quickly discarded when they do not; but each new building is not—as with the Japanese, the Italians, and us—a revolution. For the late Eero Saarinen, with all his talents, this attitude had not yet matured; while lesser men than he, all with far-flung names, continue to spawn off ill-digested ideas in riotous profusion, and competition juries made up of sober but jaded modernists continue to premiate the bizarre. The consequences of this are bad enough in the hands of talented if misguided men, but their ultimate degradation at the hands of men of no talent can now be seen almost everywhere, most blatantly perhaps in Beirut **(27)** and Mexico City, but not missing even in New York.

Finally, though several modernists such as Tange have dabbled in urbanism and all of them have talked about it, only Le Corbusier, of the great ones, has spent a great deal of time on it. Individually, the array of the great revolutionaries who have compromised their standards of urbanism, once given a chance to put an individual building in a city, is appalling, for not a single name can be left from the list. And the experience of Chandigarh and Brasilia make it much less certain that the thinking of the revolutionaries as to the form a modern city should take was not suspect altogether. Wright understood this intuitively, and Mumford intellectually, and no more needs to be said about it.

Acceptance of the Modern Movement

It may not be important to set an exact

opening date for the era of contemporary architecture. In a way, in the arts nothing can ever be said to begin; as one searches back, prototypes and "firsts" can always be found ever more remotely. But it is not really useful to think of a movement as beginning with its earliest prototype, and in this sense we can without qualms leave out Labrouste and Paxton. In view of the retreat from 1893 on, we can probably also leave out Sullivan and Major Jenney. I think myself that the best single date may be 1911 and the Fagus works. That would mean that the movement has had about 50 years of growing success as measured by popular acceptance. Put it back to 1888, if you will, or 1851. It simply elongates the period of gestation and magnifies the disappointment.

In 50 to a 100 years, then, the modern idea has passed from theory and ridicule to general acceptance. In this time it has yielded its theories about history, about ornamentation and decoration, about structure, about the pre-eminence of function, about group effort and the virtue of the indigenous, and has not scored any notable triumphs in the theory and practice of urbanism. Meanwhile, its master revolutionaries are aging, and so are the aspirants to succeed them, including those who have been touted, unconvincingly, to wear the mantle of Wright.

Modern architecture has had a world effect and has spread without much regional modification into wider areas than any previous great style. It has provided a common grammar for people of many backgrounds and purposes—perhaps too many. Perhaps they have been too ready to adopt its ideologies and forms, just as they have accepted the fashions of painters. In the larger countries of the world, the influence—not much altered, save by the Japanese—can be seen in greater or lesser degree everywhere except in the USSR and its satellites and in antithetical Spain, which seems to have got stuck on something pre-Dudok.

Yet it is simply impossible for an honest and even modestly observant man to assert that all is architecturally well in Japan, in India, in Iran and Turkey, in Greece, Yugoslavia and the South Seas; or in Africa, in Pakistan, in Italy and Germany and England; or in the United States of America. At best, one is reminded of some lines from *Samson Agonistes* (1.560):

> "What boots it at one gate to make defense, and at another to let in the foe?"

The kind of uneasiness I feel is multisourced: the abandonment of the indigenous with no soul-satisfying or even practical replacement; the relative paucity of masterpieces and the thinness of many of these; the ugly results of excessive zeal for innovation, both in practical and in aesthetic terms; the corruption of formerly lovely cities by new construction; the dreariness of the general urban scene; the utter failure to cope on any count, even in theory, with the expanding population and its automobiles. Against this is the realization that most of the real beauties and excitement of the great cities of the world stem from their architectural past and not their architectural present, while things that our predecessors have done very well and which have added to the richness of all previous architecture are either not done well now or are not even tried. When they are not tried, it is hard to be sure whether this is because of ignorance, apathy, disdain, or the sincere but misguided notion that they are no longer appropriate.

The Taj Mahal **(11)** is just the tomb of a favorite queen long dead, and lacks the social significance and the future of the new capital of the Punjab **(12, 13,** and **14)**. Yet no one in his senses, with only one day for India, could choose Chandigarh if he had never visited Agra. Still, Chandigarh is one of the greatest works of the greatest living architect of the first great architectural period since the Renaissance. Something is very wrong, and this is what prompted the title of these essays, taken from Shakespeare's *Antony and Cleopatra.*

> "O, withered is the garland of the war,
> The soldier's pole is fall'n'. . .
> . . . there is nothing left remarkable
> Beneath the visiting moon."

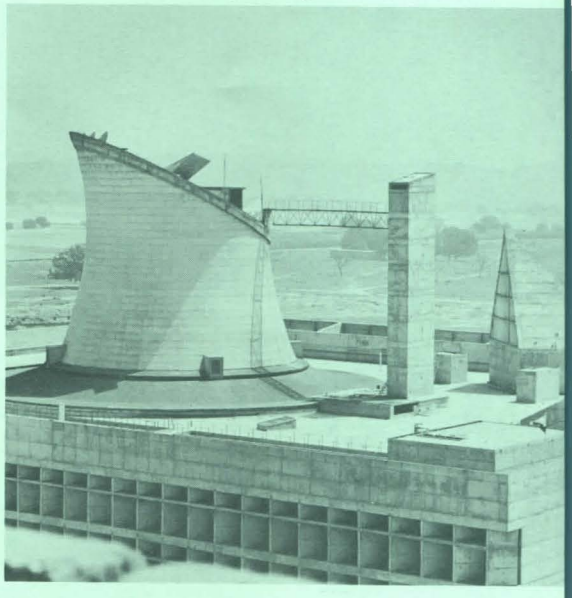
Masterpieces, Past and Present

It is chastening to look at old architectural masterpieces with a fresh eye, but it is hard to keep the eye fresh about the familiar. That may be one good reason for considering Moghul and Islamic work generally from the Taj Mahal and Akbar's Tomb and Jehangir's Palace at Lahore, all the way through the mosques of Isfahan to the Alhambra, and even such a derivative example as the Alcazar in Seville. Here there is a respect for craftsmanship and the virtues of decoration for which we have nothing approaching a match. Yet there is nothing in our life of today which fundamentally forecloses on such richness.

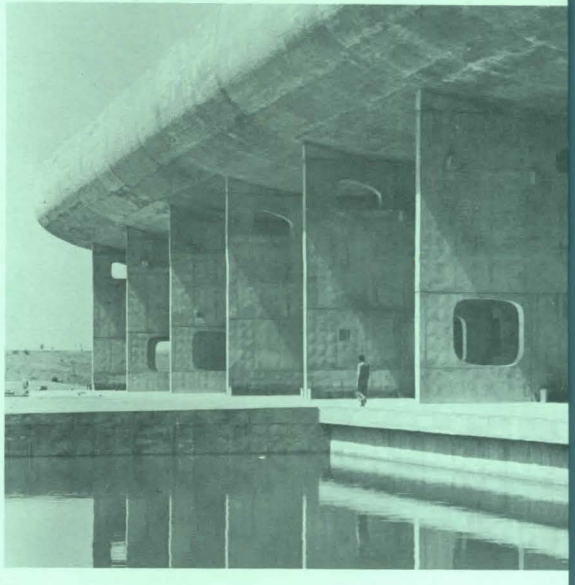
It is true that the screens, the mosaics, the tiles, the mirror halls of Islam, as well as the gardens and the larger layouts and the domes and minars, combine to produce the finest architecture in history —impressive, moving, and, to use a horrid

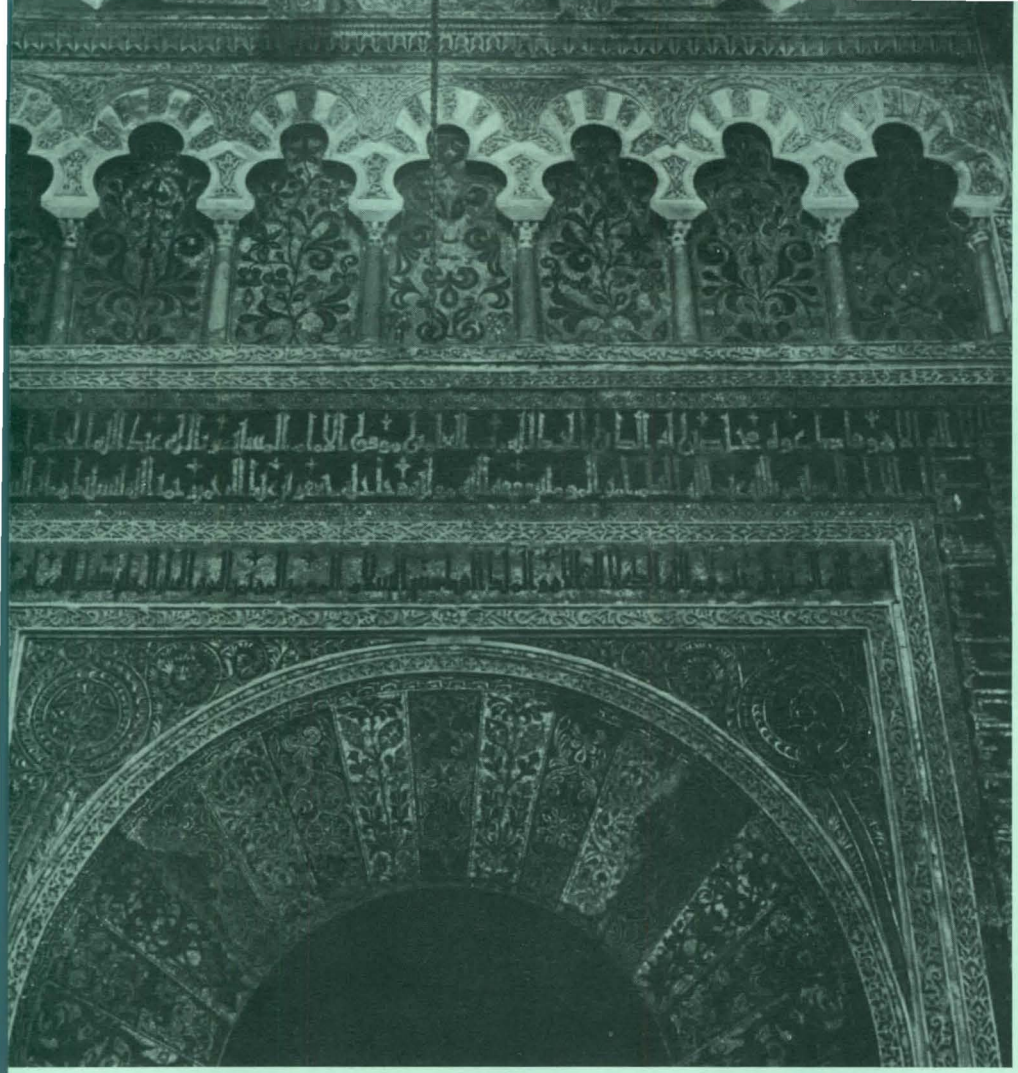
12 Assembly Building, Chandigarh, India, 1962, by Le Corbusier.

13 Roof of Assembly Building, Chandigarh.



14 Ceremonial portico of Assembly Building, Chandigarh.



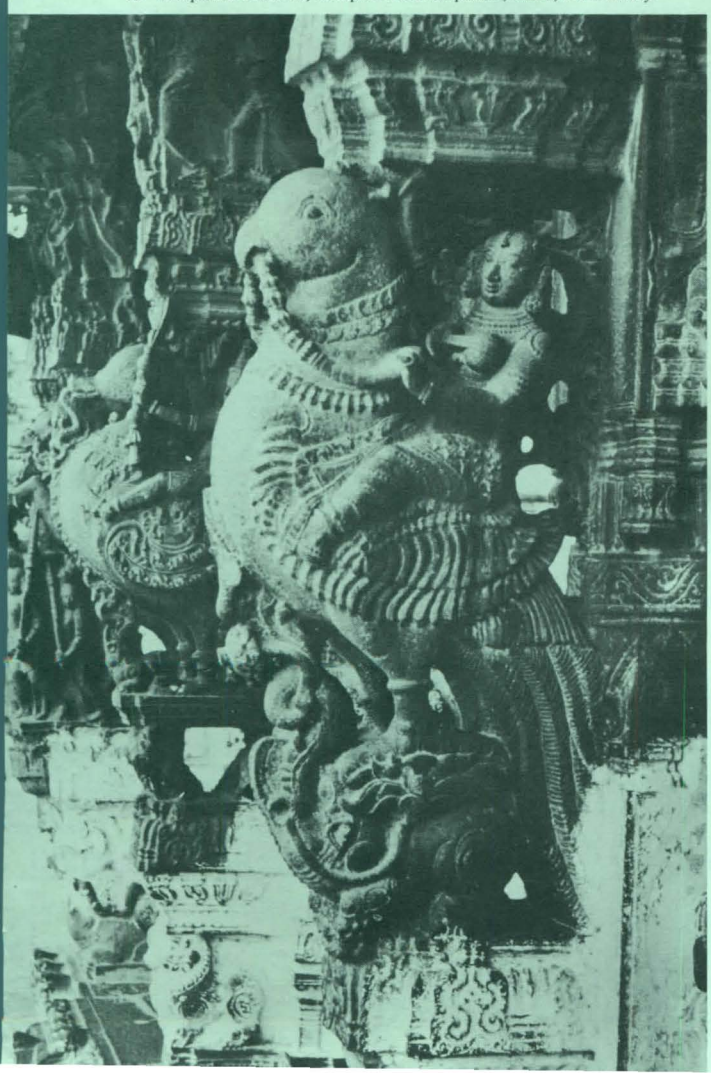


15 *Detail of Mihrab, Great Mosque, Cordoba, Spain, 786–990.*

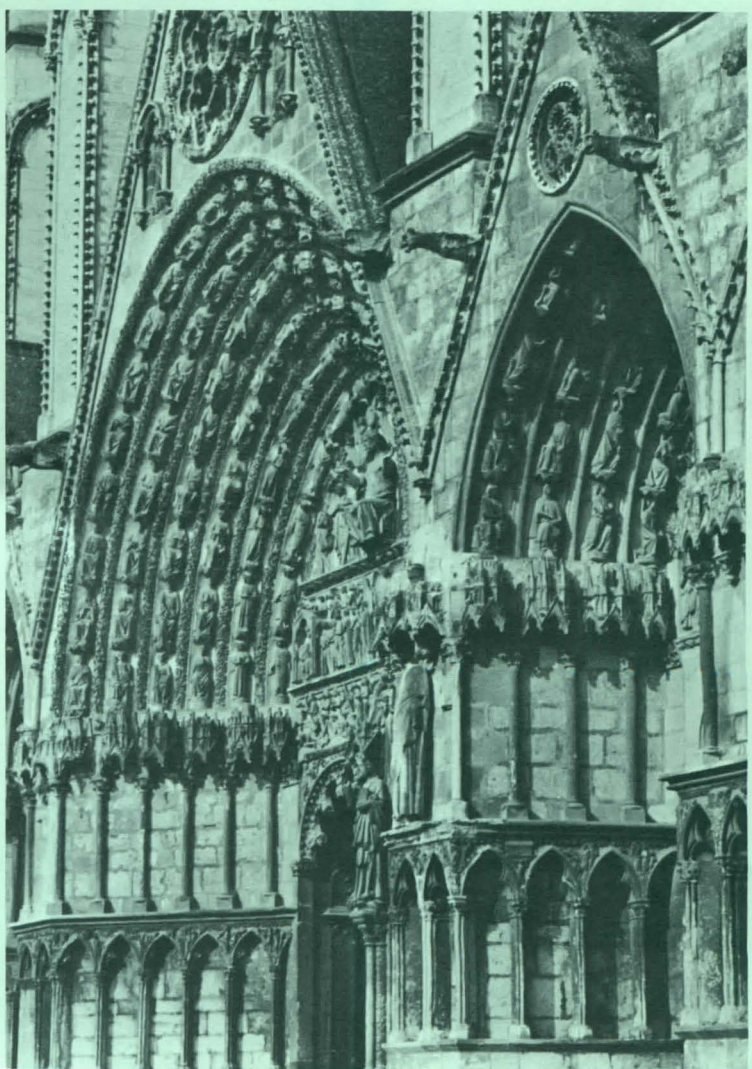
word, downright beautiful. But we cannot escape their message by such an admission. The Islamic *mihrab* in the cathedral at Cordoba **(15)** is admittedly much finer than the later Catholic chapel there. But there have been other Christian chapels, such as the Sainte Chapelle of Paris or the King's College Chapel in Cambridge **(21)**, which can hold their own with the *mihrab*. And so it is in other ways for the architectonic sculpture of Kanchipuram **(16)** or Uxmal, the static friezes of Persepolis, the Last Judgments and other apocalyptic messages from Vézelay to Bourges **(17)**, the Baroque altars of Wies **(3)** and Ettal, the patterned walls of Segovia, even the plateresque and churrigueresque façades and interiors of Salamanca. Everything tells us that decoration and other arts than structure and form are significant to great architecture, and we keep on trying to say that it isn't so.

I suspect that on a strictly statistical basis it might be shown that our 50 years of modernism have produced masterpieces at as fast a rate as other great times. It would be hard to prove either way. One would first have to define a masterpiece. For my purposes here, let me simply say that it is a building or buildings worth traveling some distance to see and demanding more than half an hour of the visitor when he arrives. Let me also say that the visitor should be a person of general culture and not a specialist fer-

16 *Sculptural Brackets, Temple at Kanchipuram, India, 8th Century.*



17 *West Front, Cathedral at Bourges, France, 1192–1295.*



reting out a detail or an historian looking for sources.

On such a measure, I have tried a personal count of the years 1100–1500. In these 400 years the builders of Europe delivered at least 130 genuine masterpieces, some 40 each in Italy and France, 30 in England, a dozen or so in the Low Countries, half a dozen each in Germany and Spain. These were not all cathedrals. There were abbeys, guild halls, palaces, chapels, manor houses, markets, inns, hospitals, bridges, universities, walled towns, castles, and fortresses. They filled a much smaller area than that devoted to modern architecture; they were built for a much smaller population, with vastly less wealth, vastly less technological skill, and a much narrower range of purpose. Our rate of building is many times that of the Middle Ages. I have no doubt that more large and would-be important buildings are begun in a year on Manhattan now than might have been in a decade or two in all medieval France. To be comparable, how many masterpieces should our time have yielded? It has been one-eighth as long. Does that mean sixteen masterpieces? Or shall we increase it because of our greater spread and our greater affluence, our greater variety of types, of technology, our rate of building? On the sole score of interesting pilgrimage and at the masterpiece level, I guess we could match the Middle Ages. Leaving out Fagus, Poissy, and other prototypes, there are still Sunila and Viipuri, Altstetten Church in Zurich, Neubüh, the church at Raincy, the Barcelona Pavilion and Tugendhat House, Ronchamp, Chandigarh, Brasilia, Rockefeller Center, Lever House, Seagram's, the Air Force Academy, the prefectural hall at Takamatsu, Falling Water, the Larkin Building, The Johnson's Wax Buildings at Racine, Eliel Saarinen's Minneapolis church, the Dulles Air Terminal, and so on, until each of us might be able to put together a list of 50 or so, and that might be enough of a list. I would want to add to this some very pleasant eclectic pieces such as the Town Hall in Stockholm or St. Michael's in Coventry.

Judged solely, then, by the distribution of a reasonable number of first-class works by a few first-class designers, our period might stand up to be favorably counted. Despite the number of good, modest works, especially in the United States, of schools, churches, private houses, we have to be a little less certain about the average. In England alone, the Middle Ages produced 9000 parish churches, almost all of them seemly and with a rich variety of towers, windows, and especially of timber roofs.

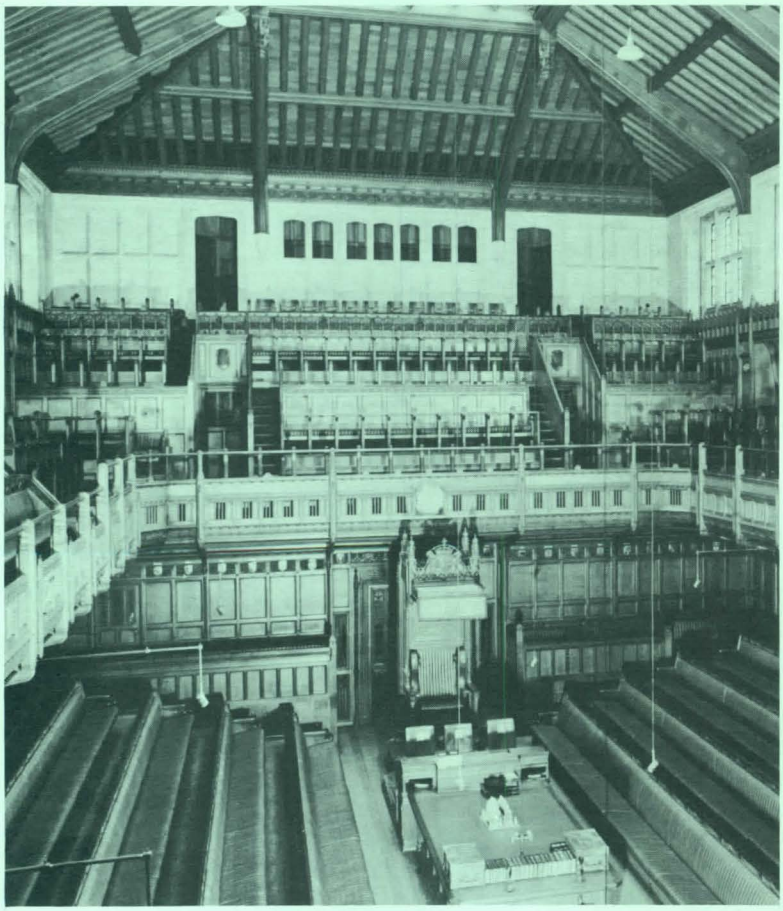
I end with the awkward impression that though it may be as rewarding for some to seek out Raincy or Chandigarh as it is to go to Vézelay or Ettal, the totality of the contemporary influence is less ingratiating than that of the Middle Ages, the Renaissance, the Baroque, or the Georgian. It is not that contemporary architecture is hard to find any more. It is rather that so much of it would be better unfound.

The Period of Exposure

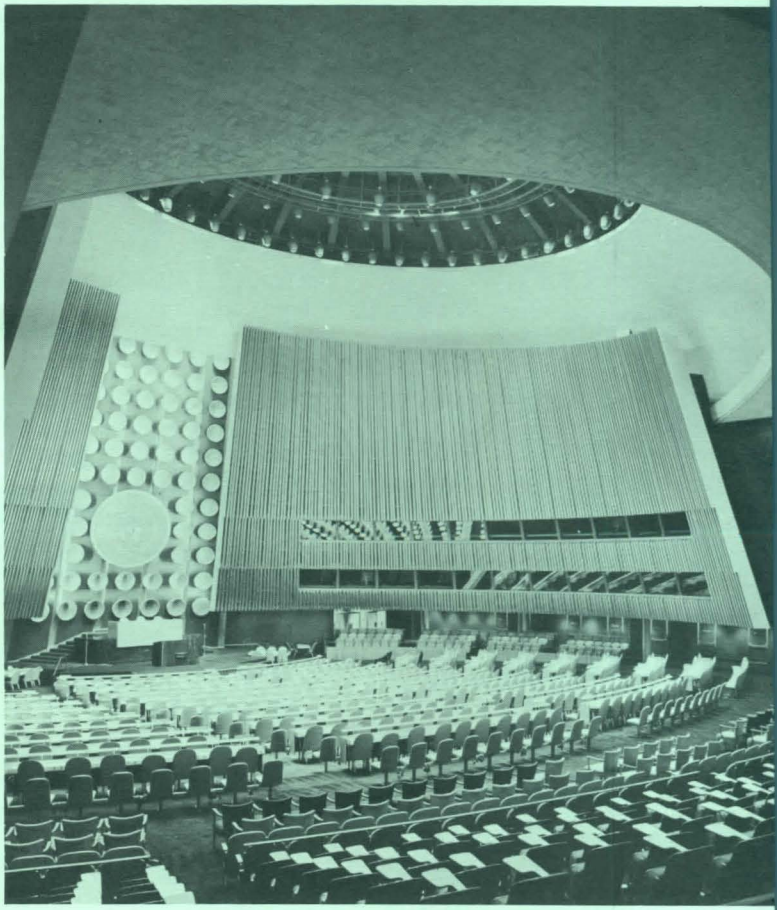
But there is another difficulty. It is that so many of the masterpieces of today are so short-breathed, so hard to spend much time at. It is not true of all modern masterpieces. It is not true of Ronchamp and La Tourette and perhaps not of Chandigarh or Brasilia. But it is usually true.

The question is a tricky one. It takes a full day to visit Hampton Court **(22)**, for example. One would have to deduct as not related to the architecture the time spent looking at the great Mantegna panels in the Orangery. One could take out also the historical portraits and any moments spent in thinking about the foreboding of Catherine Howard's corridor. But surely the grounds and the gardens and the maze and the tennis court and the royal chapel and Henry VIII's clock and the various apartments and even the Great Vine—surely these are all part of the architectural display. This is not different for Barry's "eclectic" Houses of Parliament **(18)**, which demand and elicit more total interest than even the UN buildings in New York **(19)**, or for

18 House of Commons, Houses of Parliament, London, 1840–60, by Barry and Pugin.



19 General Assembly, U.N. Headquarters, New York, 1950, by Wallace Harrison and others.



20 King's College Chapel, Cambridge, England, 1446–1515.

21 Interior, King's College Chapel.

22 Queen's Drawing Room, Hampton Court Palace, England, C. 1700.

any of the old cathedrals—art galleries as they may have tended to become. Cambridge University is more interesting to explore than the Air Force Academy, and this is not only because of its historical associations. It does involve the variety of experience it provides, of course, but the absence of variety is one of the great sterilities of the contemporary scene. On the other hand, King's College Chapel **(20** and **21)**, as much of a unity as or more of a unity than the Air Force Academy Chapel **(23** and **24)**, unquestionably lures me to tarry longer.

It simply does not take as long to understand the architecture of Chase Manhattan **(25)** as it does to understand that of Hampton Court or even the very simple Hagia Sofia. If you wander among the art works at Chase, you can spend more time, but few of our buildings today have art work to detain us, and making buildings into galleries is hardly a full solution. There is, however, more to it than the works of art, much as these may increase the interest of so many of the great buildings of the Old World. We must not underestimate its importance, however; the art—especially the built-in art—does offer a major experience, whether it is anthropomorphic, or didactic as at Kanchipuram, Mahabalipuram or Amiens, or almost totally abstract as in great mosques, tombs, forts, or palaces of Islam. There is also the matter of flow of space, and use of space, and what manner of men seem to be operating in the building.

The Houses of Parliament, for example, have a really simple plan. Perhaps what is done there is more important, more interesting, more varied, better understood than what is done at the UN, but this is not necessarily so today. No doubt the history of the British Empire is more fascinating than the history of the UN to date. The aura of history may make even an average painting of an average king or queen worthy of a pause and a thought in an historic place such as the gallery of the Tudors, while we have not been taught to be very interested in the past UN Secretaries-General, who were less colorful and less powerful. But it may equally be the case that there is not much aura that history will ever be able to add to a canvas by Motherwell or Rothko. Even here one must be careful; if ever a group of paintings seems certain to become passé, it is the collection of Riveras in which the Angelic Stalin and Mao smirk as they embrace each other. Of course, the Houses of Parliament are a century old, Westminster Hall much more so, and the UN but a few years.

Consider, however, a different type—the Chase Manhattan, a good building. To the extent that the activities, floor by floor, of the occupants of the Chase are not really very different and are quite dull *au fond*, a bureaucratization is inevitable that may not have been inevitable in the Houses of Parliament. For such a condition Bunshaft is obviously not responsible, and it must be said at once for his talent that his bureaucracy is far more adroitly suppressed by the architecture than is the bureaucracy of Chandigarh or Brasilia. Nor is it the architect's fault if another hundred years are unlikely to add much to the totality of the Chase, save that they will surely make the present building obsolete, while one cannot look on the Houses of Parliament as something to be revised lightly. Perhaps a bright young modern architect might succeed in eliminating the speech from the throne, the ridiculous vestigial woolsack, the division lobbies; he might manage to seat all the Commons at once in well-lighted rooms in which the MP's could all hear. The result would not inevitably be better than the present one. It is not at all clear that a new Houses of Parliament by the Smithsons or even by Lou Kahn or Le Corbusier would be nearly so fine as the present admitted masquerade.

Whether or not any building serving the purposes of Chase could be so developed as to offer a longer period of interesting exposure may be a moot question. But there are other building types, including churches and universities and new government buildings, where it would be reasonable to entertain expectations which less stringently "modern" buildings sometimes satisfy.

St. Michael's at Coventry **(2)**, for example, is romantically eclectic in the same sense as Östberg's Town Hall at Stockholm **(1)**, while the Air Force Academy Chapel at Colorado Springs is determinedly innovative. Each is the work of a sincere man. It is even possible that Walter Netsch is more talented and thoughtful than Sir Basil Spence. But Spence had something going for him that Netsch did not. There is bound to be a good deal of uncertainty about a multi-faith fane in a modern military school; is it historic, symbolic, merely a bow to the once viable tradition of "In God We Trust," or what? The Coventry Cathedral had no such hesitations to deal with. There was little doubt as to its purposes. If the purposes of a great church are to assist one to reverence, devotion, awe, the attainment of consolation—private and public—spiritual uplift, or just plain coming nearer to God, Coventry is a much greater success than Colorado Springs. It is not because the symbols are lifted

from some copybook and therefore familiar, for they are not. Indeed, it is hard to say logically why it is so, even after one knows that the roof is more interesting and convincing, the glass far more beautiful, and so on. It is not worthwhile to worry here about the controversial west window (which I think a failure), or the tapestry at the altar, which unfortunately should not be viewed from as close as many visitors manage. On the whole, Coventry and the Town Hall at Stockholm and the Houses of Parliament more than whisper a warning to us. It is not a warning to be eclectic; it is a warning not to be afraid of color, of warmth, of detail, of exuberance, of variety, even of our past. I believe a society cannot long be content with a gallery containing only Mondrians.

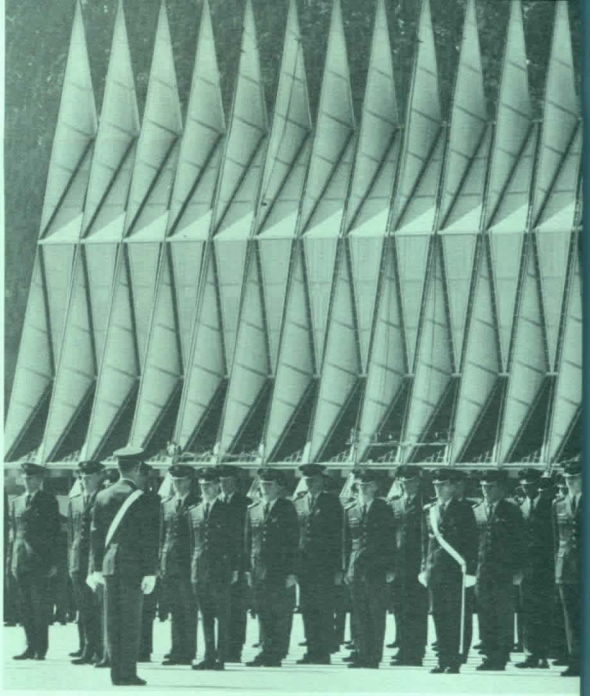
Coventry poses a different problem, however. Good or bad as the details may be, and I think most are more than good, they offer very little space for later ones. And though people may not bring gifts of gratitude to the Air Force Academy Chapel, they are almost certain to bring them to St. Michael's. A new donor may have to have enough influence and power to have something eliminated altogether, say the tapestry, if something better turns up, but on the face of it, Coventry is complete right now. There have been a few good things of this sort, e.g., the Sainte Chapelle, but an example of the difficulty is offered by King's College Chapel, which is currently faced with the impossibility of hanging a magnificent Rubens that, by the terms of the bequest, cannot be hung anywhere else. I am not sure how one would go about providing for future accretions; the only solution may be not to have enough money in the beginning.

The great Gothic cathedrals, on the other hand, learned to accommodate themselves to change; they permitted the devout and the grateful to make palpable donations, naturally not always in good taste and certainly not always in keeping with the original masterpiece. All these buildings are rabbit warrens of the history of sculpture, often bad sculpture as well as wonderful works. The cathedrals of Italy and Spain add a history of painting to this, even more often bad, but of course full of masterpieces, too. The proliferation of *Pietàs*, Resurrections, and Coronations of the Virgin certainly tends to diminish the effect a single one might have had. Yet out of all this agglomeration of good and bad there came a certain increase in grandeur, a certain sense of continuity with the life that was gone as well as with the life that was to come. It is perhaps a commentary on Colorado Springs that it seems unable to stand even the meretricious detail already provided for it by lay committees of the Air Force and of various denominations and their plastic-minded interior decorators **(26)**.

You could say, I suppose, that it is foolish to worry about the fact that our buildings are not rich enough or varied enough to demand a very long view. Some of this long view of the old may be attributed to the undoubted fact that we find more to linger with in an historical building because it is less familiar. On that argument, it is possible that we slip by many interesting contemporary details, taking them for granted as our posterity will not. For example, did Gothic men go around looking at the details of the carving of the misericordes, turning up every one as the 20th-Century Burchards did in Seville? Would we do it to the misericordes in the Air Force Academy Chapel if there were any and if their unstandardized details had been cut by a talented, even a scurrilous sculptor? The question is academic, since variegated details do not exist in contemporary work save at eclectic places such as St. Michael's or the Town Hall where we do stop to examine. Would Walter Netsch want individualized misericordes in the Air Force Academy Chapel if he could get them? Could he get them? Would the Congress not consider them as superfluous as trees? And if the desire and the money were at hand, is there any sculptor anywhere now ready to dedicate himself to cutting a hundred different works of art in hardwood, at a small scale, and in a place where not many will think to look? Is there a first-rate architect who would encourage him to do it? Even at Coventry, the cushions are of a standardized quasi-contemporary design; and the range of colors used by Eero Saarinen on the seats of M.I.T.'s Kresge Auditorium is hardly an equivalent to the misericordes of Seville; nor is the Bertoia screen in the chapel there **(6)**, good as it may be, to be compared in any serious way with one of the great Spanish predellas.

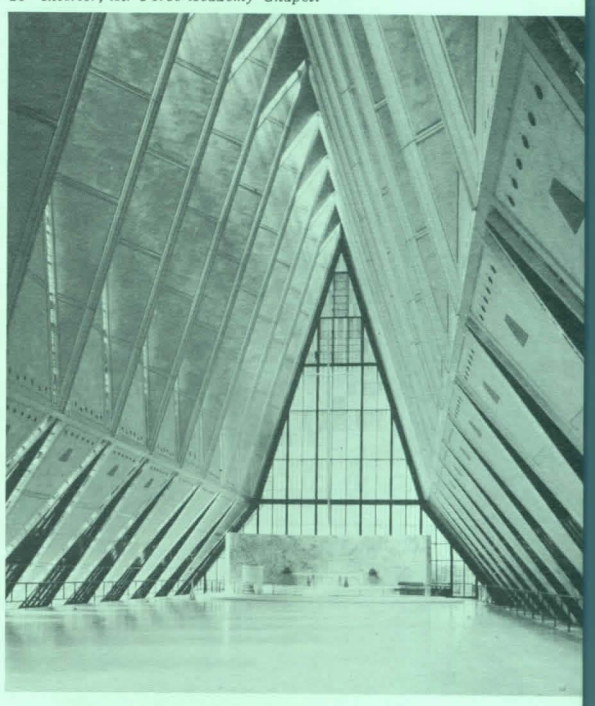
We cannot safely dismiss this by simply saying gladly or happily that we have abolished the decorative arts, though this is largely so, and no one led the abolition with more zest than the great masters of the revolution. Nor can we exculpate ourselves by decrying, what is also largely true, the fact that when we do go in for decoration it seems to fall into the hands of materials mongers and the purveyors of contemporary *kitsch*. Nor is it an answer that our artists have no great affection for our buildings and their purposes, and vice versa, though this also is true.

One unattractive "out" is to say that our programs and our egalitarianism result in a large number of repeated and

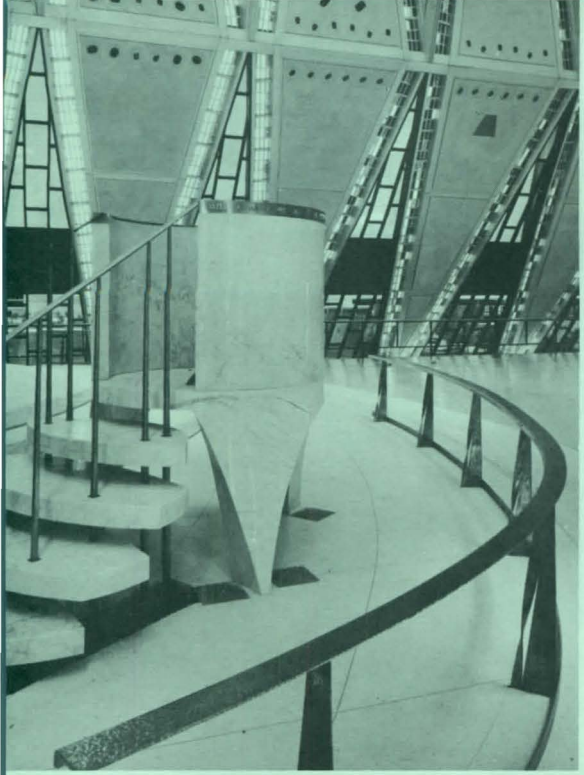


23 Air Force Academy Chapel, Colorado Springs, 1962, S.O.M.

24 Interior, Air Force Academy Chapel.

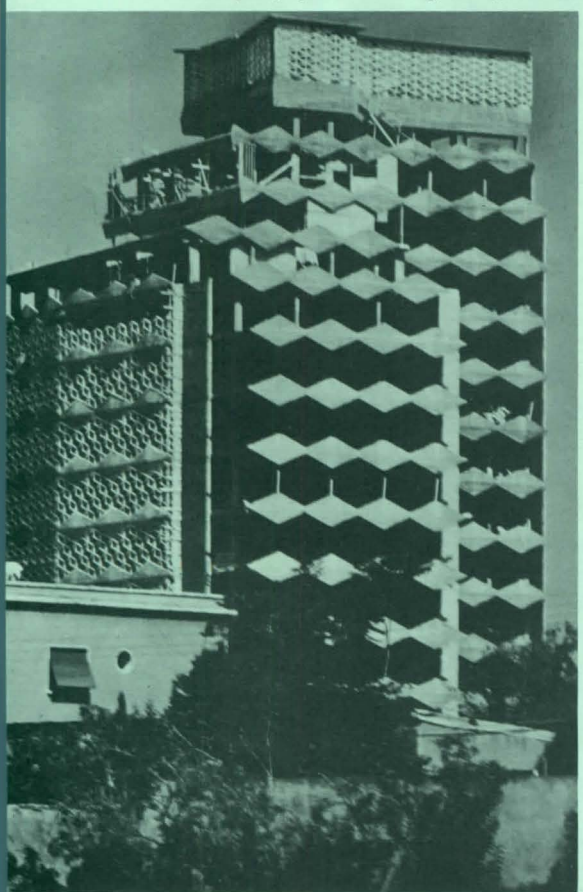


25 Directors' Lounge, Chase Manhattan Bank, New York, 1961, S.O.M.



26 Pulpit, Air Force Academy Chapel.

27 Contemporary apartment building, Beirut, Lebanon.



undifferentiated spaces on which we play our undifferentiated insect comedies, so that floor after floor is alike, not only in the same building, but in building after building; and thus we are reduced in examining a building to seeing a single sample from which we can conjecture the rest, plus a few linking or public show places which cannot really be made as interesting as the Hall of the Ambassadors in the Alhambra. I do not know that it would frustrate the upward ascent of a corporate stenographer reporting for the morning coffee break to be confronted at the elevator by Ghiberti doors, but perhaps there are too many doors and too few Ghibertis and perhaps she would rather have the money put into the air conditioning anyway.

A Possible Remedy

Our world is a good world, on the whole, even if our intellectual achievements outscore our aesthetic ones. So it remains hard to understand why contemporary architecture has not succeeded really in pushing much above the powerful shoulders of Sullivan and Wright and Gropius and Le Corbusier and Mies and Aalto. It is even more frustrating to try to estimate how another thrust can be made, since a retreat to historic eclecticism would be fatal and so might a more frenzied determination to be innovative, while the attitude of contemporary designers toward the amenities of building design changes slowly if at all.

Perhaps the only sound remedy—and I do not suggest it lightly—is to restore the Grand Tour to the curriculum of the architectural schools, requiring the students, if not their teachers, to experience the great winds of the past even at the risk of catching cold. Some may fall back to copying, and this would be unhappy. Some may be so distressed by their obvious inability to compete with their great ancestors that they would not try at all, and this might even be a good thing. But some will learn that it is not always important to get excited about what was so daringly dedicated in Dubuque last December, and that you might be able to pass up Lou Kahn's center for Jonas Salk, at least until after you had seen Carcassonne. We should not be too afraid that if they experience great architecture no one will dare to be an architect again. Plays have been written after Shakespeare; brushes have been laid on walls after the great succession from Cimabue to Botticelli; sculptors have chiseled stones, and well, who knew the work of Michelangelo and Phidias; music was not destroyed by Bach, and musicians of the day are not destroyed by listening to him.

If our young architects do not go out to see, a great many others are going out, and many more will. In the end they may develop standards with or without the help of contemporary architects. At that point they are likely to ask embarrassing questions.

Certainly the few brilliant contemporary solutions that one can search out and find are outweighed by the obviously awful consequences of the application of their forms by men of no taste or sense; and also by the effort of men with no imagination at all to emulate the masters in the field of innovation. This unhappy fantasy is to be observed everywhere, and even sometimes, as in the case of Mayekawa's Tokyo Kaikan or Sert's Student Union at Boston University, by men of a great deal of audacity and past accomplishment. Other famous falls from grace can be seen in Milan and Rome and Mexico City—and on Park Avenue. But most of the really horrible development is at the hands of unknowns, and fortunately a great deal of it is at the periphery.

Quiet people like the Swiss, and to some extent the Scandinavians, willing to build most buildings modestly, manage by this abstemiousness to avoid much outrage and even to achieve a kind of anonymous grace; this is especially clear, it seems to me, in Switzerland. A country that is architecturally asleep, like Franco's Spain, at least gets no worse; England's troubles are not usually of this kind, but that doesn't mean that tepid tea doesn't offer its own troubles.

There is a good deal of confusion in Mexico City, partly because it has not yet seemed to be apparent that bad mosaics on enormous buildings are not a good thing, whatever their social significance, and partly because most of the new housing is conceived at a crushing scale. Bad taste is rampant in Italy, but especially in Greece, and most especially of all in Lebanon, where the fine hills of Beirut are covered with extraordinary, loudly shrieking, competitive apartment buildings with bizarre colors, unbelievable fenestration, queer-shaped balconies, and studs of concrete diamonds, disks or corbels **(27)**. Lebanon is just the worst, though, and in the end I am not sure a bounty hunter could not have as rich a time on the almost equally Levantine Third Avenue in Manhattan.

Since most people do not make pilgrimages to the great contemporary masterpieces with quite the same devotion with which they go to the Grand Canyon or the Isles of Greece, it is clear that most of the modern architecture they see lies along the road to something else. If they are annoyed enough to rebel, things may yet be all right. If they get used to it, which is equally likely, or even come to admire it, heaven help us. We cannot blame a few masters for this corruption of their work, but we can worry nevertheless about what has happened and is happening.

(For photo credits, see page 222.)

MANUFACTURERS' LITERATURE

BY SILAS SNIDER

What this author has to say about the mass of printed material addressed to the architect is aimed at P/A readers who are producers of building materials and components. It is felt, however, that architects, who frequently complain about the kind of literature that producers give them, may find this of interest and value also, since this is a recurring subject for discussion at professional meetings. The author, trained as an architect, heads Silas Snider Associates of New York, specialists in the writing and design of industrial literature.

This article, though written from a specialist's vantage point, is nevertheless hindsight and not intended to give the impression that the writer has never made any of the mistakes or omissions dealt with in his list of do's and don'ts. Nor would it be proper to suggest that the mastery of do's and don'ts can become a guarantee of perfect performance. Knowing the rules is one thing; experience, including the experience of one's mistakes, is something else again. Then again there is talent, which often accounts for the difference between good writing and good graphics on the one hand, and bad writing and bad graphics on the other. Last but not least comes the quality of the collaboration with the client. A good client, one who has learned that it pays to be deeply concerned about writing, graphics, reproduction, and printing, is an invaluable asset to the industrial literature writer; likewise, the craftsman who has acquired enough experience in his work to give a sympathetic ear to both the producer's and the architect's problems can do his part to bring us all closer to the goal of better sales literature in the building field.

Making a compilation of do's and don'ts is a game any number can play, but it may well be the best way to get around the problem of elucidating our subject. This review has, at least, the authority that comes from a background of trial and error in the work of helping industrial organizations say what they should be saying (in the manner they should be saying it) to architects and engineers.

The best answer we ever received to the question, "What does the architect want in producers' literature?" was: "We want something we can use at the drawing board; something that will instruct us and help us design and specify."

Profit from the example of the pharmaceutical manufacturers, whose audience is also composed of professionals, and who would not think of releasing advertising or publicity material without having it checked by physicians. Literature addressed to architects by producers should either be written by architects or checked and edited by them.

It is generally a misguided idea to try to make one piece of literature serve more than one kind of audience. For example, the same piece cannot adequately serve both architects and manufacturers' agents. All-purpose literature reminds us of what Tyrone Guthrie, the theater director and producer, said to a group of architects about the all-purpose stage: "The all-purpose stage is a no-purpose stage."

The cover should be a poster. Copy for it should be limited to the name of the product or service, and the one most important claim one can make for it. Do this in five words, or, ideally, in one. Follow the same rule in working out the graphics for the cover. Eliminate all elements that do not implement the statement and its supporting claim.

Architects are design-conscious people, susceptible to the charm of the typographic amenities and likely to be offended by their non-observance. The logic of taking the utmost pains with typography and layout, when addressing a readership whose very profession centers upon design, is indisputable.

Avoid the crowded look. White space costs money, but it's worth it.

The field of architecture is not the only one in which language is treacherous. (Classical examples from other areas: the English Public Schools, which are private; the French Radical-Socialist Party, which is neither radical nor socialist, by its own admission.) Some absolutely corrupt terms in the building business are nevertheless well established and clearly understood: hollow metal, for example, which is a standard subtitle in specs. Everyone knows it's the door that is hollow, not the metal . . . Your writer must be an initiate, with a third ear.

"Carefully engineered and manufactured to offer all possible advantages" is a sentence one might not object to, provided it is followed by an explanation of how engineered and manufactured, and an honest-to-goodness listing of what the advantages are—or at least of what they are in the opinion of the producer.

It is a good idea to approach the job of manufacturers' literature as if one were writing a textbook. When one pro speaks to another in the academic field, there are common obligations as well as a common language. If a quote is used, the source of the quote is given, etc. . . . If a manufacturer has a responsible organization, he will not be afraid to tell the reader how his information can be checked up on.

Good display and forceful typographic presentation should be devoted to the main features: i.e., what the producer himself thinks is great about his product.

Likely as not, one manufacturer's material is not the only one that can be used in a given application. By all means, assign your own material an honored position, if not a primary one, since it is the material that produces your bread and butter; *but* be relaxed and remember to demonstrate also how your material might work in conjunction with competitive materials. If, for example, a certain metal in one form or another is accented, show its compatibility with "classical" building materials. Most architects like to combine different materials for design and/or structural purposes.

The architect wants to know how a product will stand up. A photograph showing it in a building 10 or 15 years after its original installation will go a long way toward giving him the answer. It is an important factor in helping him make a realistic estimate of what we call the "cost of ownership."

The preparation of plans, detail drawings, and related architectural graphics is a rather specialized art. Do not risk inadequacy or the effect of amateurishness, with its consequent loss of the reader's respect, by using work which might reveal an unfamiliarity with the architect's graphic vocabulary.

In presenting text and graphics relating to materials, design, fabrication, or installation, err on the side of too much information rather than too little.

Sky hook department: It's all right to be deeply absorbed in the product and in the description of its functioning, but not to the

extent of forgetting to show and describe how it is installed, erected, or affixed.

Make it clear that you welcome the architect's comment or criticism. Your attitude should be that, since your product or services exist for his choice and application, it stands to reason that you are more than willing to listen to him when he tells what he requires of you.

If your product differs in an important, fundamental way from those with which it is competing, state the difference clearly. "Sway braces have been eliminated" implies that sway braces are undesirable and that your competitor's product has them—a real difference indicating an improvement, in the opinion of the producer. The architect can from that point decide for himself whether he agrees that the elimination of sway braces brought the improvement that the producer implied they would.

What kind of firm stands behind the literature? How many years has it been in business? What other products does it make? How many plants does it have? What kind of plants are they? Where are they?

People are what a company is all about. One company's facilities brochure gave brief biographies of key technical personnel, listing qualifications and experience. A good idea, if only for the reason that biographical notes make interesting reading.

Sometimes, in presenting a product, there is nothing like a photograph, and sometimes nothing like a drawing. Occasionally, the two can be combined. For example: a window wall (photograph) set in a brick wall (line drawing), if you are selling window walls; the other way around if you are selling bricks.

Explosion drawings are rather costly, but there is nothing like them to demonstrate the components that make up a unit, or how something is taken apart and reassembled.

The use of more than one ink color does not automatically spell reader interest. Color must be functional as well as decorative. For example, yellow is fine as a tint block for type to be surprinted upon. (Black against yellow gets highest rating in the type legibility researches of Matthew Luckiesh.) But yellow on white paper will not carry type—not even bold type—effectively. It is not strong enough.

The human figure in a product illustration, even if it is only a stick drawing, can serve at least two important purposes. It can be used to demonstrate the manner of the product's installation and at the same time show how large or how small it is in relation to a human scale.

Architectural specifications are not in the category of the small print on the back of an insurance policy. They are meant to be read, and architects do want to read suggested specs because, ideally, they describe in words all those aspects of a product which elsewhere in your catalog are delineated visually. Clearly written specs are your guarantee that there can be no two ways about it. In laying them out typographically, use bold subheads, leave adequate space between items, and provide for a decent amount of leading between lines of type (which should, of course, be set in readable sizes and widths).

Irresponsibility and refusal to consider what your reader has to contend with are indicated by such things as type running over phantom halftones, or decorative line drawings over type, or copy set in 8-point type in lines 6 in. wide, with hardly any leading between the lines. Yet it is not uncommon to find all these in current producers' literature.

"Beautifully designed". . . "Old-world craftsmanship"—Avoid the gushy, breathless prose of the "home-maker" magazine when talking to architects.

Avoid dullness, as well as lack of respect for the reader's intelligence: "Ingenious design." Ingenious in what respect?

The unwillingness of some producers to list in their literature the names of their agents or distributors because they do not want to help their competitors by providing them with agent-distributor mailing lists, works against the architect. Provide such information, it at all feasible.

After giving the name of a project that your product was used for—along with the usual credits to the architect and contractors—it may be a good idea to spell out just what you supplied and in what quantity: "1654 Number 6856 double-hung windows in natural aluminum finish," or, "678 Number 458 sliding doors in charcoal gray anodized aluminum."

Not all architects have the temperament to study tabular material thoroughly and to make an evaluation based on it, but for the reader who is willing and able to do this, it is a good idea to include such material. It indicates good intentions on the producer's part. For the man who is not given to the reading and analysis of tables, summary copy—should be provided. In any case, present your tabular material in an uncluttered way, with plenty of white space. In so doing, there is always the chance that even the person who habitually shuns tabular material might read your tables.

SIGN-OFF: If architectural advertisers realized the extent to which architects are almost willingly a captive audience, they would probably take a lot more pains with their copy. Most architects, and particularly the younger ones, look to producers' literature for a side of professional education that they rarely get at school. This is a fortunate circumstance that producers should be grateful for, rather than indifferent to, because it provides a unique opportunity for indoctrination. The assurance that the architect is listening to what the advertiser says is, quite literally, money in the bank.

At the top of the list of guiding principles, this writer would suggest: take the reader seriously and respect him as a professional. The reader is serious about trying to find in your literature information which will help him do his job, and if you are equally serious, you are bound to gain the architect's respect. It does not follow, though, that if you take a reader seriously you cannot use humor. On the contrary, to assume that a reader has a sense of humor is to take him seriously indeed. But be careful, for humor in text or graphics requires specialized skills. There is nothing more pathetic than some of the attempts at humor on the part of professional advertising copywriters and graphics men. Next on the list comes candor. Don't be afraid of it. Readers know you are only human and that your product is not perfect. Candor makes life easier for a reader by eliminating double-talk, which requires extra effort to decode. It is also a manifestation of your respect for him, which he certainly deserves.

Remember, the architect wants to listen to your story—if it has a good punch line!

TUBULAR STEEL REVIEW

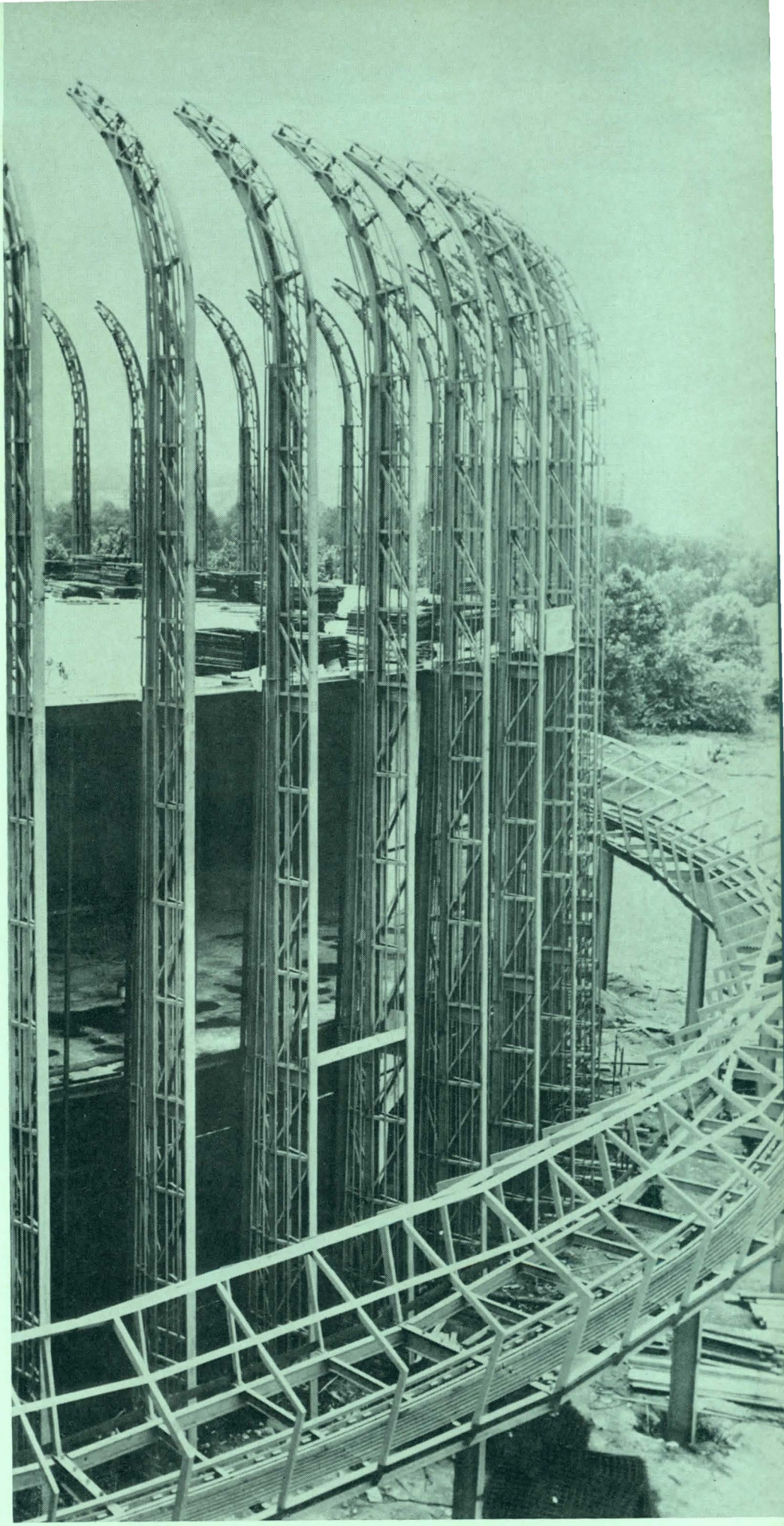
Advances in the development of structural tubular steel within the last five years are summarized in the following comprehensive review.

Because of its high strength-to-weight ratio, close tolerance (faithfulness to specified dimensions), and fabrication methods, structural carbon tubular steel is finding more economical applications from the framing of curtain walls to the construction of complete load-bearing column systems. Advantages of employing tubular steel are found most significant in the design of one- and two-story office buildings, shopping centers, schools, as well as unusual building types such as the Ford Motor Company pavilion at the New York World's Fair (1).

General Advantages

When strength-to-weight factors of structural carbon tubular steel are properly utilized, a building erected with tubing will average 30 to 40 per cent lighter in weight than a similar structure employing conventional steel members. Its lighter framework permits lighter footings and foundations as well as lower construction costs. As a result of the increase in strength-to-weight ratio in structural members, the thickness of the wall becomes one-third less than previously required. Furthermore, tubular load-bearing columns not only produce thinner walls but also increase the usable floor space between adjoining walls. Tubing transfers wind loads from the curtain wall to the structural frame as well as carrying the weight of the curtain wall paneling and windows. According to local codes, there may be no need for boxing or plastering as required for conventional structural members; tubular columns can be left exposed after they are installed, provided there are weep holes in the bottom of the tubular members of the column. Absence of sharp corners and bare edges, as well as the smaller section of exposed material, increase the rust resistance of the tubular steel.

Most of the quality tube-producing mills can furnish welded-steel tubing fully prefabricated to specification, complete with welded flanges or drilled for



mechanical fastenings, or with other types of attachment devices welded in place. Welded joints at pipe intersections provide a simply joined and extremely rigid connection. Bending, flaring, flanging, tapering, flattening, beading, upsetting, reducing, and punching are possible. Curtain walls can be fabricated into larger sections on-site, thereby reducing erection time and costs. Carbon steel tubing is adaptable to such finishing processes as painting and plating, including such metallic finishes as aluminizing and galvanizing as well as plastic coating.

Specifying Tubular Steel

One factor that prevents architects from employing tubular steel more often is the lack of a specification by an authoritative agency such as the American Society for Testing Materials, which would enable them to easily plan the fabrication of the tubular steel. The only available ASTM specification for structural tubing concerns hot-rolled structural sections and flat hot-rolled steel utilized in conjunction with the sections. More specifically, these specifications do not specify cold forming the flat rolled steel into welded tubing which has higher yield strengths. As a result, Republic Steel has written the first specification (ST-101) for electric resistance welded carbon steel tubing for structural use. The ASTM is now preparing to discuss this specification for tubular steel.

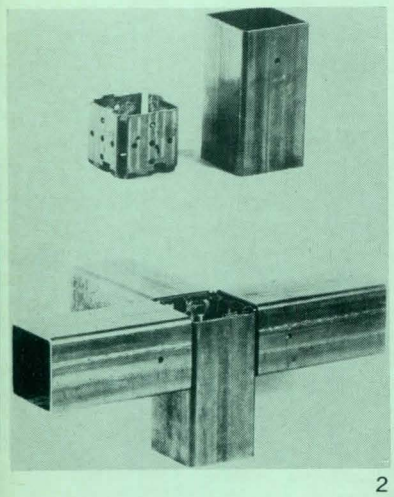
Republic's ST-101 specification has some minimum yield strengths higher than ASTM A–7 or A–36. In employing tubular steel for bridges and buildings, ASTM specifies minimum yield strengths for 33,000 and 36,000 psi, whereas ST–101 specifies 33,000 psi for Grade A round tube, 42,000 psi for Grade B, and 50,000 psi for Grade C. Square and rectangular shapes have minimum yield strengths of 33,000 psi, 46,000, and 60,000 psi for Grade A, B, and C. The revised ST–101 specifications for square, rectangular, and special-shaped tubing has a minimum yield strength 36 per cent above ASTM's A–7. Republic's ST–101 specification clearly indicates that utilization of carbon steel tubing for greater structural strength will cost less than that of conventional steel members.

Advantages of Round, Rectangular, and Square Tubular Steel

There are four advantages to employing round tubular steel: (1) Because of the high rigidity of the tubular design, the round tube has increased resistance to torsion. (2) It distributes bending stresses equally in all directions, which is a prerequisite for use as columns. (3) Because round tubes have less cross-sectional area and weight, greater radii of gyration and smaller ratios of slenderness are achieved. The reduced slenderness ratios indicate higher allowable stress values. Reduced weight of tubular section means less dead weight must be incorporated into the design load of the structure. (4) Round welded tubing is progressively rolled-formed from hot-rolled pickled or cold-rolled steel, with the butting edges fused together by electric resistance welding.

There are five advantages to employing square and rectangular tubing: (1) These tubes are employed more often because it is easier to connect them to flat rather than curved sides. (2) Square tubing is utilized more advantageously as a beam, especially where loading is in two directions at right angles. It is also efficient as a long column member in situations involving two-directional side loading. It is as strong as its cross section for tension or short column compression loading. (3) Rectangular tubing is utilized more advantageously as a beam or a long column with one-directional side loading, especially when located with the long axis of the section in the direction of loading. (4) It resists tension, compression, or shear loads to the limit of its cross-section. (5) Square, rectangular, and special shapes are made by rerolling or cold-drawing, deforming the round welded tube to the required shape. The roll-forming process used to manufacture tubing does not alter the gage dimension of the flat-rolled steel; therefore, it produces a round tube of exceptional uniformity of inside and outside diameter wall thickness.

Generally, the cold working of the



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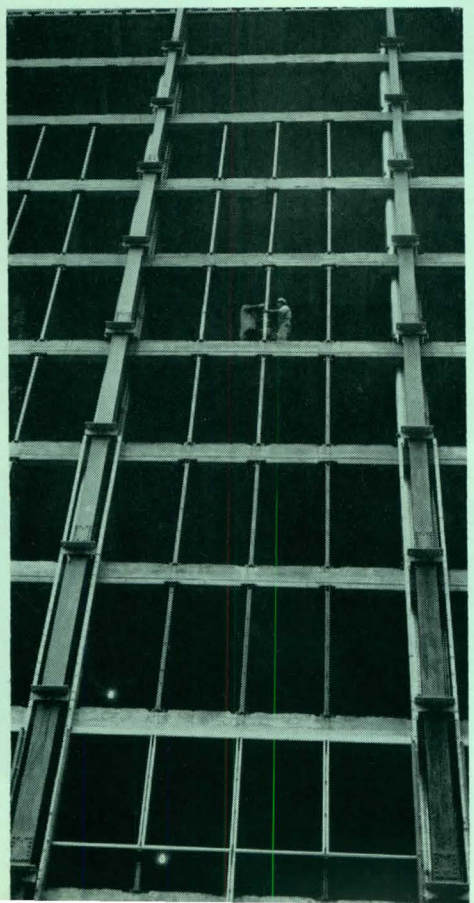

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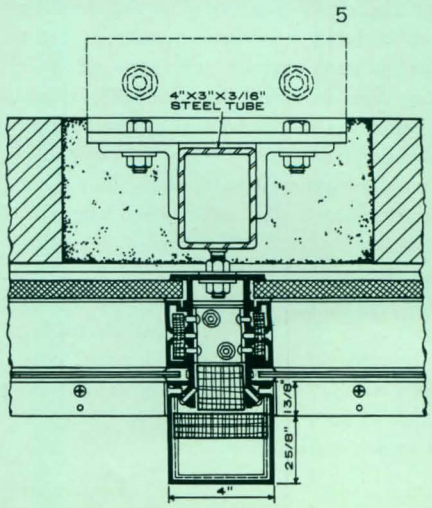

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PLAN AT SPANDREL PANELS

square, rectangular, and specially shaped tubing increases the mechanical properties of the tube. For example, no additional window framing around the glass is required because the close tolerance of the steel allows window components to be fitted in with ease, saving time and money.

Welding

There are five conventional methods employed to weld electric resistance carbon tubing that will enable the tubular steel manufacturer or fabricator to eliminate installing costly special equipment. Choosing the correct method depends on the tubing wall thickness and joint design. The conventional methods are arc and gas welds, spot welding, projection welding, and brazing. Among the mechanical welding techniques are threaded joints, bolted and rivited joints, telescopic joints, compression joints, flanged joints, and T-joints.

Recently, the Artman Metal Products Company of Cleveland, Ohio, developed a new joining system for square tubular steel construction. The joiner consists of a cube utilizing five closed sides and one open side. One part interlocks with another connecting device to mechanically join the tubing in any of six directions. This joining system decreases the high cost and skilled labor required for conventional joining methods because sections can be quickly snapped together. For example, one joiner unit can be bolted through its bottom face to the side of an upright to which a square welded tube is to be attached **(2)**. Then, the tube is simply slipped over the joiner to make the connection. If additional joint tightness is needed, the tube can be locked in place by means of a simple, hole-finding internal spring-tension clip. This interlocking feature allows complex framing systems to be easily assembled. Because the tubing is made from flat rolled steel and held to close tolerance at the mill, the wall thickness of welded steel tubing is extremely uniform. Therefore, the joiner can be put in place easily and tightly providing a sturdy joint.

Future

As strength-to-weight ratio increases and welding processes are perfected, structural carbon tubular steel will be utilized to construct column load-bearing systems in structures of more than two stories in height. Longer spans for truss systems and the design of curvilinear shapes are also increasing in practice. With these developments, the economy in employing tubular steel will become more evident.

Contemporary Buildings

New York Life Insurance Company. Architects Carson, Lundin & Shaw have utilized more than 1300 rectangular structural tubing pieces (4″x3″) for the 16-story New York Life Insurance Company headquarters addition, recently completed **(3)**. The tubing is supplied in two wall thicknesses (.180 in. and .238 in.) and ranges in length from 10′-4″ to 15′-11½″. The rectangular tubing is used to bolt the curtain-wall panels flush with the structural columns and to eliminate the need for additional framing around the glass **(4, 5)**. Since the long axis of each rectangular tube points in the direction of the load, it provides maximum resistance to tension and compression to the limit of its cross section.

Fabricating the tubing consisted of machining a step at one end of the tube for subsequent juncture with the main structural steel at the job-site; welding heavy steel angles at the tube ends where these are permanently bolted vertically to the main structural beams **(6)**; and welding ½-in. diameter studs along the exterior length of the tube for attachment of mullions to which the curtain wall panels and window framework were permanently secured.

Buffalo and Erie County Library. For this library, architects Kideney, Smith & Fitzgerald used over 7000 ft of 3½″x 2″x11-gage welded tube pieces as substeel supports to which stainless steel window framework is permanently bolted **(7)**. Window metal framing is bolted flush against stainless steel covers installed along the outer face of the tubing. The substeel tubing supports provide corrosion-resistant framing for deep-toned red and green granite exterior panels **(8, 9)**.

In this project, the low tolerance of

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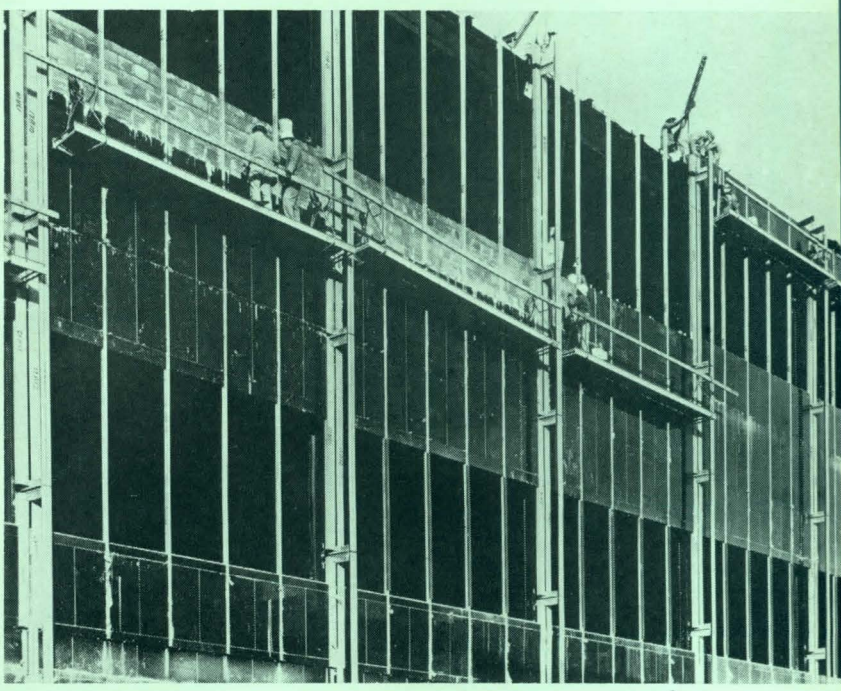

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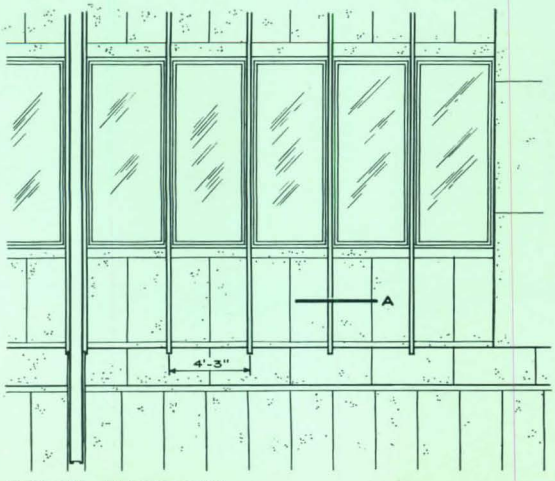
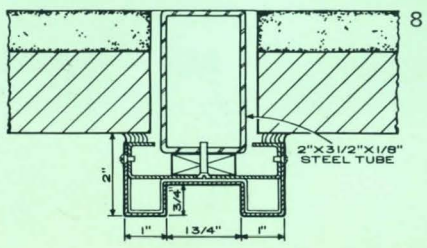


PARTIAL ELEVATION



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SECTION AT 'A'

the steel tubing eliminates the cost of reworking that sometimes occurs with rolled structural steel. The framework was fabricated by cutting and hot dip galvanizing over 500 tubing pieces into 16 ft lengths. Three of these 16 ft lengths are bolted at the job site to form the 48 ft required lengths of each vertical run of tubes.

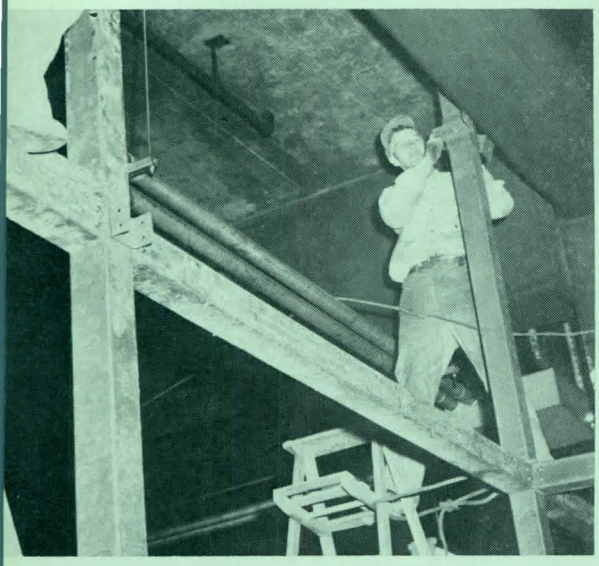
Port of New York Authority Bus Terminal. In this building, square tubing is employed to frame glass and porcelain enamel sandwich panels which protect waiting passengers from bus exhaust fumes. Welded steel tubing pieces, 4″ x 4″ x 10-gage, form a vertical and horizontal columnar framework extending from floor to ceiling and full-length along each 200 ft long platform (**10**). Fabrication consisted of cutting tube lengths to required sizes, drilling holes on all four sides and at each end of the tube for later bolting at job site, and tack welding "U" shaped metal brackets on opposite sides of selected type pieces which will be bolted to other pieces during erection.

To securely anchor each 25 ft long tubular "sill" member to the concrete platform, a 6-in. long, ½-in. diameter bolt was driven through the predrilled base at each "U" bracket, with the bolt extending down through the tube into 2 in. of concrete. Vertical framework members, 17 ft. high, were bolted at right angles to the sill and to the overhead structural beams. After installation of vertical members, horizontal framing pieces were bolted in place between verticals at 5 ft and 9 ft heights above ground. Lightweight metal framing bolted to the tubing rigidly holds the glass and porcelain sandwich panels in each framework section (**11**).

Ford Motor Company Pavilion. Welton Becket & Associates of Los Angeles employed over 50 tons of 4″ x 2″ x ¼″ rectangular tubular steel in the design of this pavilion (**1**). Tubing serves as framework support for the glass panels enclosing the 235-ft diameter, 56-ft high rotunda. The 30,000 sq ft of plate glass will be held in position by lightweight metal extrusions and neoprene glazing gaskets especially developed to resist extreme changes in weather and winds of hurricane force. The architects decided to utilize rectangular tubular steel because it provided a greater strength-to-weight ratio than conventional H or I beam members. The tubing also eliminated the necessity of covering rolled sections with any false fronts.

Fabrication of the tubing consisted of cutting sections to required lengths to form a welded frame measuring 28 ft high by 11 ft wide (**12**). Steel plate, 5/16 in. thick, was welded to one side of the frame to connect the tubing to the main structural steel at the job site. Individual frames were raised into position by cranes, after which the framework plate sheathing was welded at top, bottom, and sides to the main structural steel. Glass will be installed just before completion of the building construction.

In designing the rotunda, two frames are installed in each of 53 bays comprising the circular wall, totaling 106 frames in all. Then frames are set in place one above the other, extending from ground level to the roof. Framing each window bay and encircling the rotunda are 64 steel pylons, 100 ft high.



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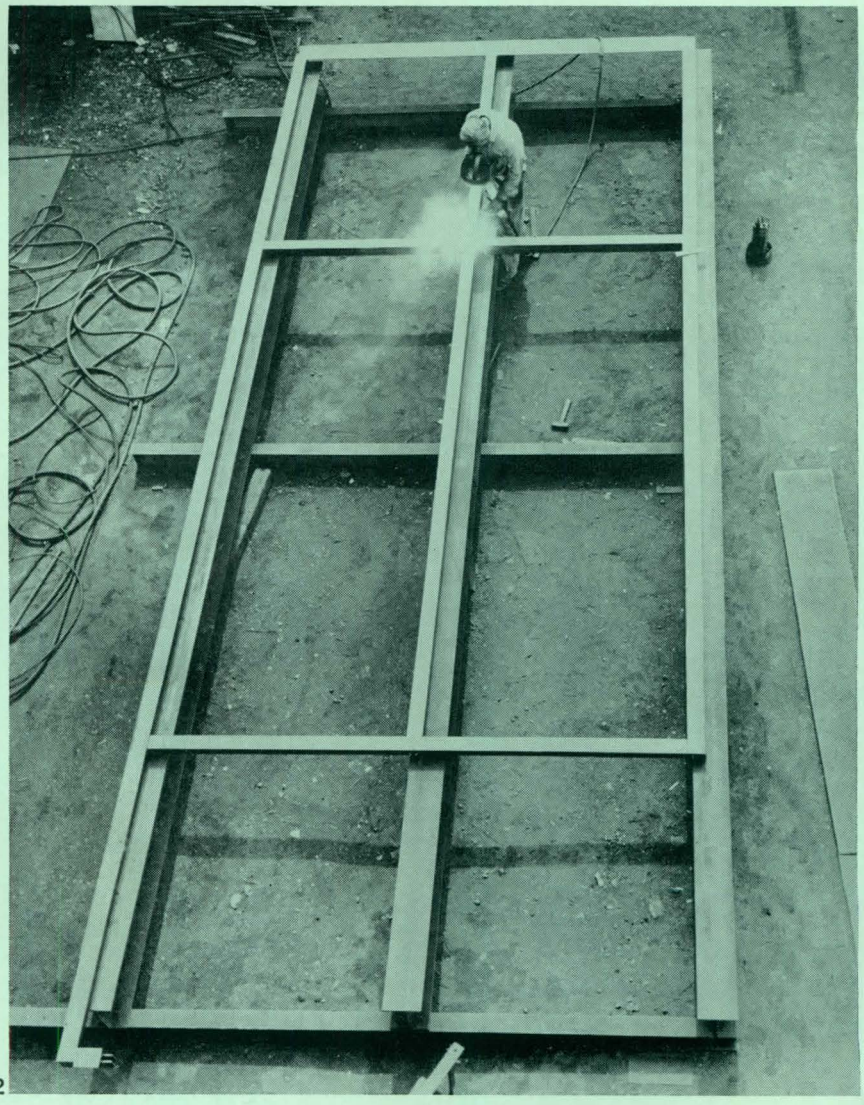

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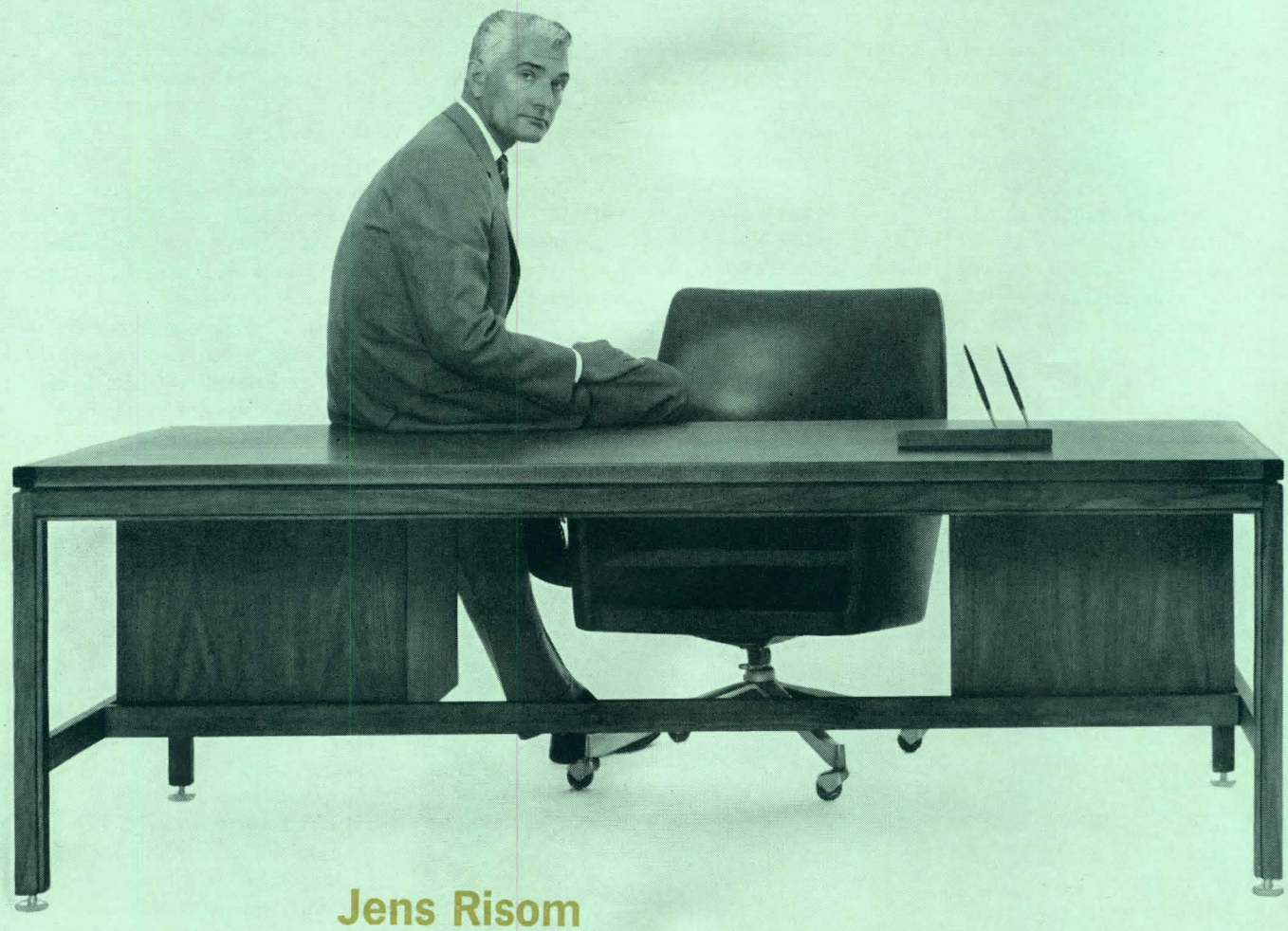

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Expansive Concrete

BY JAMES JOSEPH

A new concrete that expands rather than contracts as it cures promises to hand architects and design engineers a basic new structural material. Information contained in this report was gathered by a writer on technical subjects residing in Los Angeles.

Called "expansive concrete," this new concrete will not crack when properly reinforced (thus requires no construction joints), has upwards of twice the wear-life and about four times the load-strength of ordinary reinforced concrete, is waterproof, and, moreover, chemically "prestresses" itself — putting its own structure in compression and thus relieving crack-causing stresses.

Formulated at the University of California by research engineer Alexander Klein (with preliminary development by internationally famed structural authority T. Y. Lin, professor of civil engineering at the university and director of T. Y. Lin & Associates), the new concrete was announced only last September by Chemically Prestressed Concrete Corporation and three major U.S. cement companies (Permanent Cement Co., in the West; Medusa Portland Cement Co., Cleveland; and C. W. Blakeslee and Sons, Inc., New Haven, Conn.) which are licensing the formula—as an additive to standard portland cement—to cement makers nationally. Industry spokesmen predict the new cement will be generally available to industry by mid-1964.

"The new expansive concrete," says one expert, "is the first basic change in concrete . . . in 100 years."

Expansive concrete looks, works, and pours exactly like ordinary concrete. The difference, however, lies in how it behaves *after* being cast: it expands. What makes it expand rather than contract—the crack-causing problem heretofore endemic to all concretes — is a basic "expansion component" added to the cement during manufacture.

The additive, which includes specially processed bauxite, gypsum, and limestone, and which replaces anywhere from about 5 per cent to perhaps as high as 30 per cent of the normal portland cement content of concrete, rigidly controls the batch's expansion.

"Control" is the key word. Researchers over the past 20 years, including those in France and more recently the U.S.S.R., have sought a way to "reverse" the natural shrinkage of concrete. Though a number of expansion-causing compounds have been found, none, until now, could be adequately controlled. In a word: expansion was neither controllable nor predictable. The new expansive concrete is both.

For example, expansive concrete composed of only 10 per cent additive expands only .1 to .15 of 1 per cent, less than 1½ in., over a 100-ft. slab. High additive-content expansive mixes (with upwards of 30 per cent "expanding component") may, over the same slab, expand 3 to 4 in. (roughly, .3 to .4 of 1 per cent).

In fact, high-additive expansive mixes would, were their expansion not restrained (controlled restraint is one key to their high structural strength), expand as much as 6 per cent, or perhaps 6 ft over a 100-ft. slab. In high-expansive mixes, expansive forces are converted by mechanical restraints (including reinforcing bars) to compressive forces, putting the structure in compression while doubling and quadrupling its effective load-strength.

The expansive difference between high-low additive concretes—the greater the amount of additive, the greater the expansion—gives designers not just a single basic new structural material, but, in fact, two:

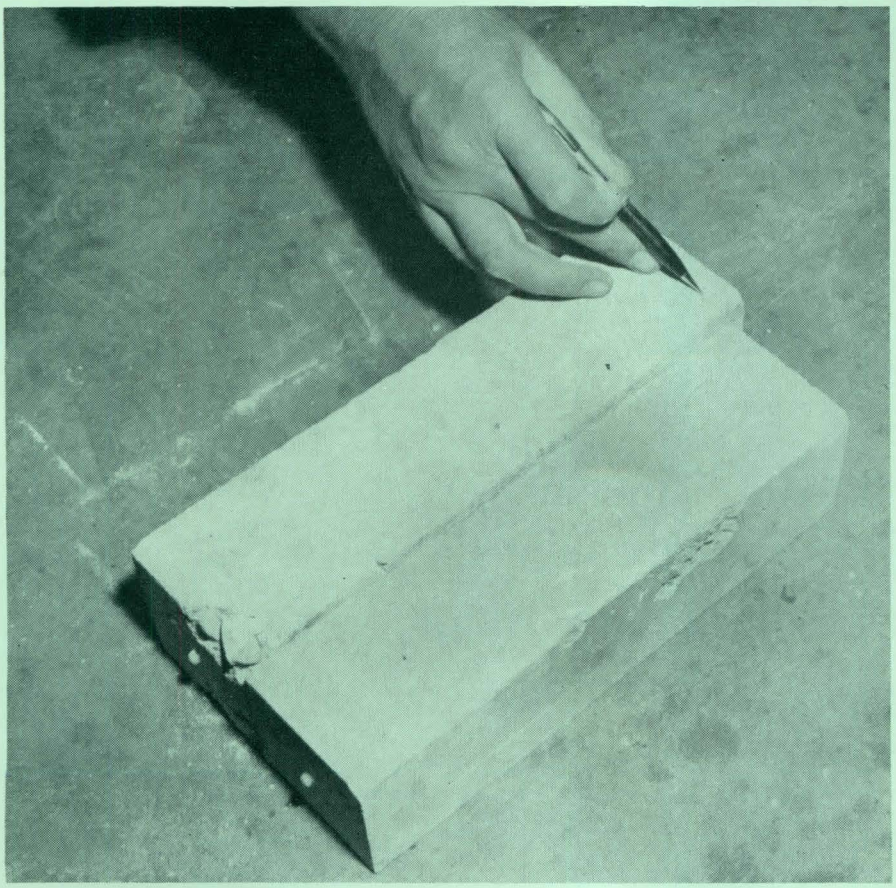
Shrinkage-Compensated Concrete. With only a minimum amount of "expanding component" (5 to 10 per cent) in the mix, expansive concrete "grows" scarcely at all. More correctly, its growth is calculated to overcome, and compensate for, the normally expected shrinkage of the mix which it comprises.

Result: concrete without shrinkage, but also without appreciable "growth."

Shrinkage-compensated concrete can be poured flush with an adjoining slab, without leaving a telltale joint line. Since the mix does not shrink, it does not pull away from the old slab. Instead, it bonds to it, forming a continous and —to the eye—monolithic slab.

The same shrinkage-compensated mix (with low expansive component) becomes a long-sought crack-filler for old concrete, the "patch" drying without shrinkage.

Chemically Prestressed Concrete. Per-



Expansive concrete's growth is illustrated by these two test samples. One was cast with ordinary concrete, and the other (longer) *with concrete containing about 15 per cent "expansive component" in the cement.*

Architects: Eggers and Higgins, N.Y.C., and King and King, Syracuse, N.Y.
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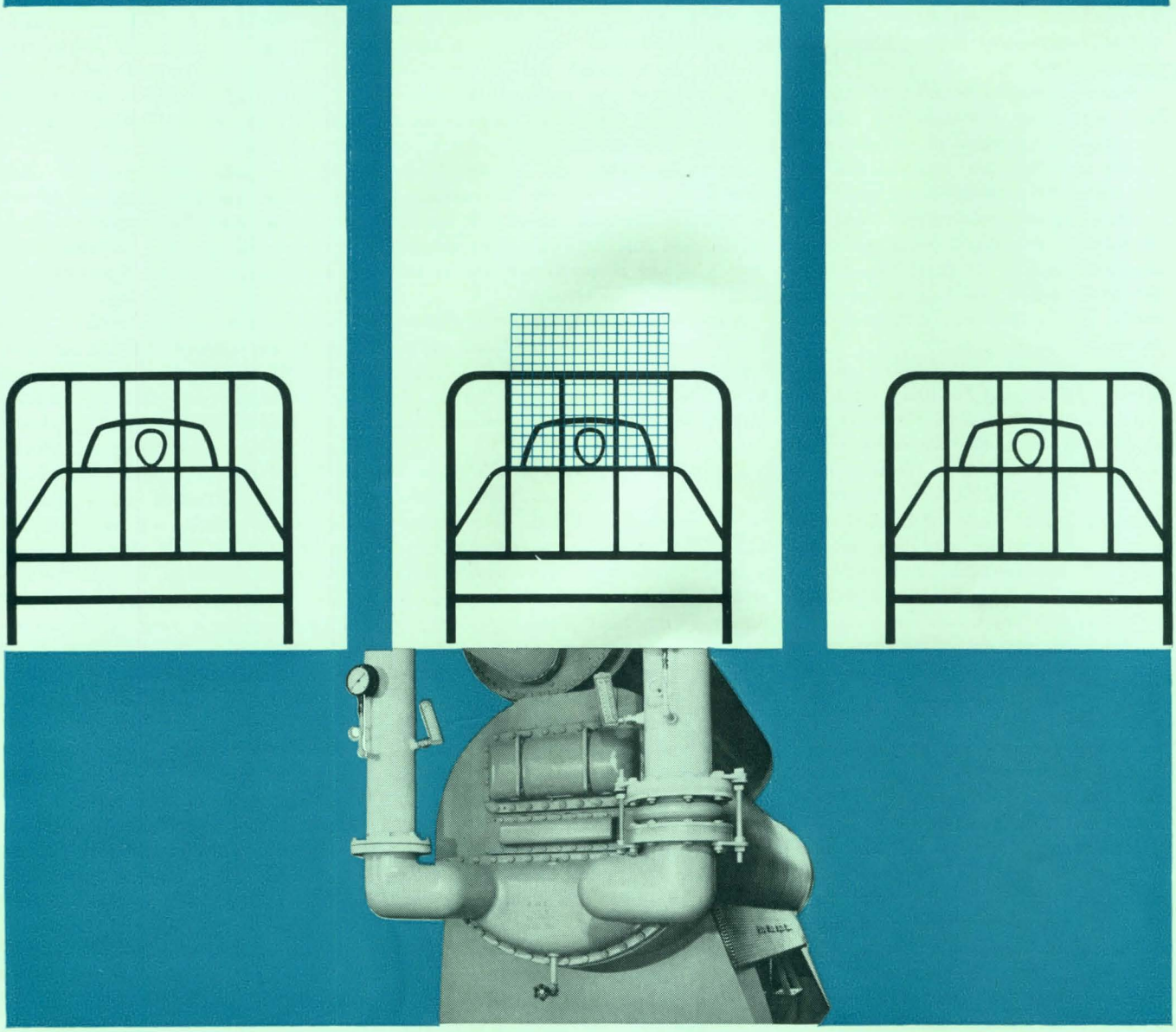

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haps the most exciting use of the new expansive concretes will be for high load-strength, long-lived — and self-stressed—*structures*: everything from beams to bridges.

When expansive concrete contains a high percentage (12 to 30 per cent) of the expansive component, it takes on a wholly new character: it is endowed with the ability to prestress itself, sometimes quadrupling its load-strength (compared to ordinary reinforced concrete), doubling and tripling its durability, and, at the same time, providing design engineers with a no-crack structural concrete.

Here is how self-stressing works: When a reinforcing bar and a prestressing steel cable are used to reinforce expansive concrete, the concrete's expansion *stretches the steel*, putting it in tension. Thus tensioned, the reinforcing members in turn place the finished structure in *compression*, radically increasing its load-strength and relieving stresses ordinarily caused by shrinkage, which tend to crack concrete.

This prestressing is automatic and inherent in the expansion of the mix as it cures around the reinforcing members.

Explains one engineer: "Newly poured expansive concrete literally grips and holds tight to the reinforcing members. As the concrete expands, it stretches them, just as the steel reinforcement in prestressed concrete is mechanically stressed by hydraulic jacks or other mechanical stretching devices."

The reinforcing members, as they are stretched, react against stretching, both restraining the maximum growth of the concrete and putting the finished structure in compression.

Result: concrete with upwards of four times the effective load-strength of nonstressed concrete.

"Obviously," says Richard R. Pegram, president of Chemically Prestressed Concrete Corporation, which will license the formula's use, "self-stressed expansive concrete will permit significant reductions in structural cross-sections—reductions as high as 30 to 50 per cent."

Despite such cross-sectional "thinning," self-stressed load-strength will equal or exceed the strength of conventional reinforced structures twice as thick.

In some self-stressed applications, says Pegram, designers can, at the same time, realize 40 to 50 per cent reductions in structral costs through the use of expansive concrete (mainly because slab thickness can be reduced, thus cutting labor and material costs).

Generally, however, the "put down" cost of expansive concrete, especially the self-stressed high-expansion types, will probably cost somewhat more (2 to 3 per cent more, over-all) than comparable pours of ordinary concrete. Reason: even though slab or structure thickness may be reduced, relatively more internal structural reinforcement is used, direct casting costs are apt initially to be higher, and so, too, is the cost of expansive cement (as compared to ordinary portland cement). It is estimated that the high-expansive component will add 20 to 40 per cent to the cost of a sack of cement.

Actually, however, reduced maintenance costs, especially in floors, aisles, heavy-wear areas, roads, and concourses, should, over the long pull, allow designers and their clients something of a bargain.

Typically, initial estimates indicate a 40 to 50 per cent reduction in *total costs* (originally casting plus maintenance) for expansive concrete slabs.

Most of these early estimates stem from highway research, which expansive concrete's innovators have been engaged in for the past several years.

Highway engineers generally estimate that the cost of maintaining an average highway over a 20-year use span equals the original cost of paving. Much of this long-term maintenance is debited to cracking and wearing around construction joints (currently necessary every 15 to 40 ft along concrete roads). Expansive concrete eliminates these heavy-wear joints, reducing highway maintenance costs and comparable wear-area maintenance.

In a single mile of concrete highway, for example, there are on an average 260 wear-prone contraction joints, plus about 9 expansion joints.

Self-stressed expansive concrete eliminates all 260 contraction joints. And, though the concrete's formulators originally believed it would be necessary to retain expansion joints, it is notable that in a recent self-stressed highway test-strip poured in Connecticut, only four expansion joints were laid along some 1500 ft of pavement (three contiguous 500 ft slabs).

Aside from the obvious advantages of expansive concrete for self-stressed, high load-strength roadway and airport runway construction, and for structures subject to cracking or where prestressing is desirable, the formulators have, in particular, been experimenting with self-stressed pressure pipe, beams, and hyperbolic paraboloid shells.

Moreover, the 250–300 psi compression under which self-stressed concrete puts itself tends to compress the structure, reduce porosity, and make even thin cross-sectional structures waterproof.

Although the formula's "expansive components" have not been fully divulged (they include limestone, bauxite, and gypsum), formulator Klein and Professor Lin, in a co-authored paper in the *Journal of the American Concrete Institute* (September 1963), revealed that "expansive cement consists of a blend of portland cement of high tricalcium silicate and low tricalcium aluminate content with an expansive component made by grinding a clinker of calcium alumino sulfate composition."

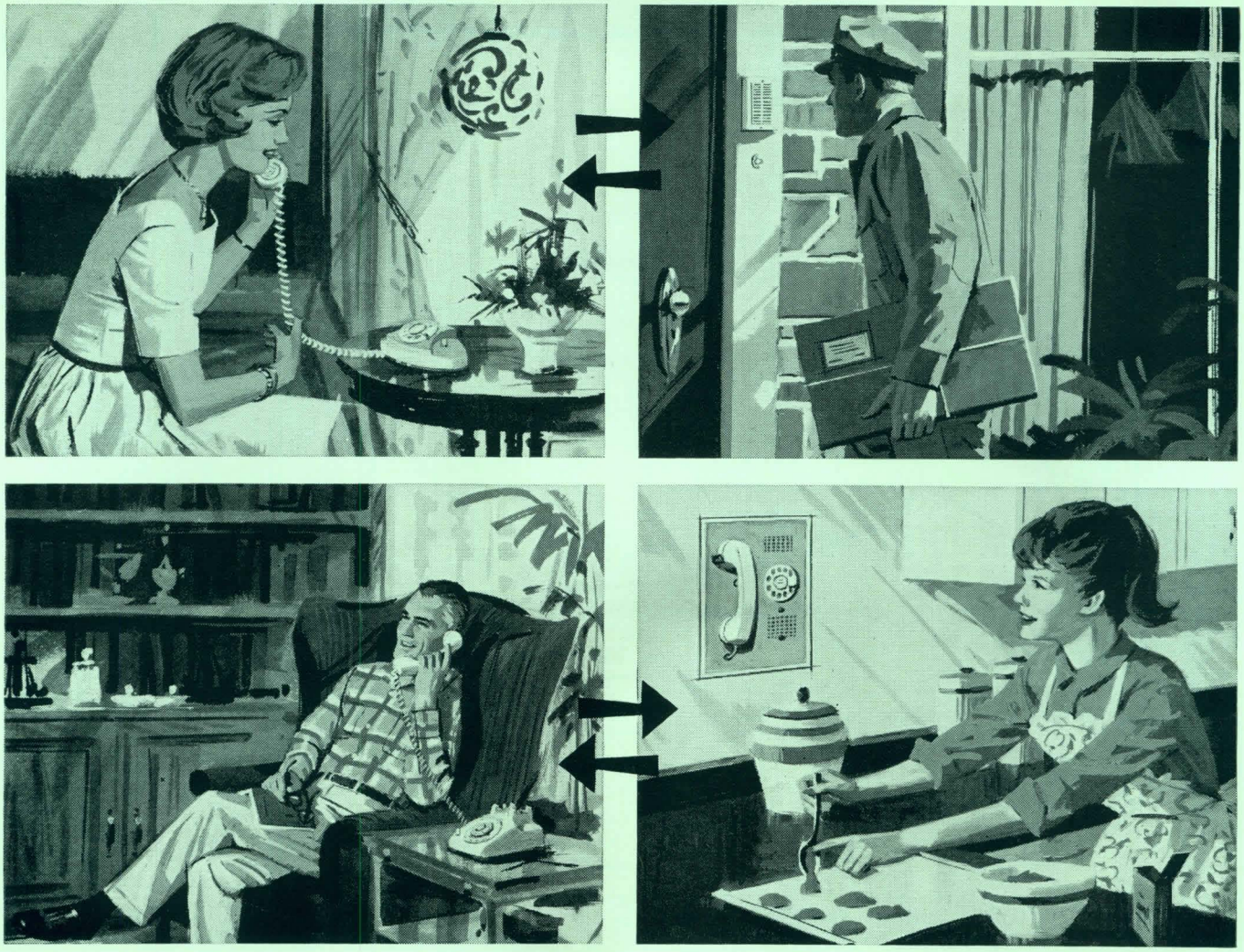
The expansion-causing characteristics of calcium sulfoaluminate crystals, heart of expansive cement, have long been known. Nearly 70 years ago, a French researcher established that the interaction of tricalcium aluminate and calcium sulfate in an aqueous medium produced a hydrated salt of calcium sulfoaluminate (called Candlot's salt—after its discoverer—or ettringite). A few years later, other researchers blamed this reaction, when occurring between the tricalcium aluminate in portland cement and sulfates from mixing waters, for expansive disruption in otherwise sound concrete—and thus named the salt "cement bacillus" (a veritable expansive "germ" plaguing some concretes).

For a good many years, scientists tried to harness this "disruptive" expansive phenomenon to overcome shrinkage inherent in drying concrete. In 1949, the Frenchman H. Lossier claimed that an expansive clinker of calcium sulfoaluminate interground with portland cement and blast-furnace slag effectively controlled expansion. By 1957, Soviet researcher V. V. Mikhailov had compounded "SC," a self-stressing cement consisting of a mixture of portland cement, gypsum plaster, and aluminous cement.

Klein's formula, it is claimed, goes beyond both Lossier's and Mikhailov's work.

Klein and his associates have likely hit upon the key factor that not only rigidly controls expansion and prevents cracking, but in high expansive-content mixes encourages self-stressing. That key factor is "restraint"—some device, usually reinforcing members, which effectively *curtails* total expansion, converting some or much of the expansive forces into compressive forces.

The phenomenon was explained by formulator Klein in 1961 in a paper appearing in the *Journal of the American Concrete Institute*. Explained Klein: "To prevent cracking of concrete, at least sufficient restraint is required to impose a degree of compression in the concrete, at early ages, adequate to reduce tensile stresses set up (through restrained drying shrink-



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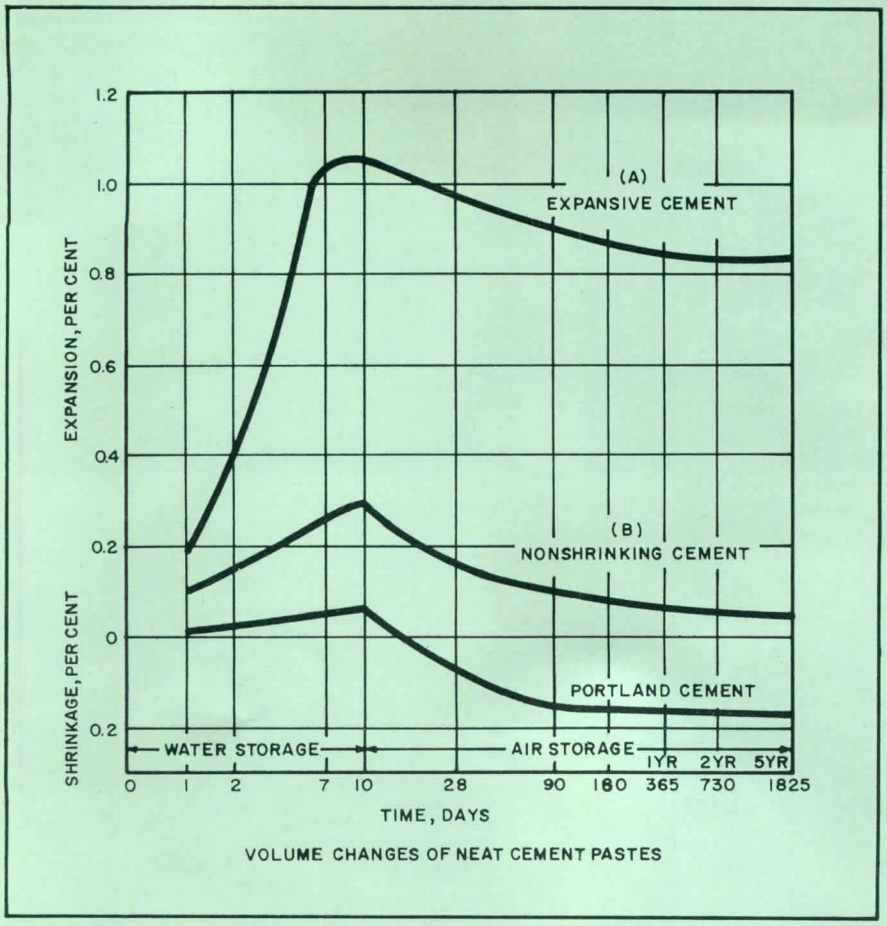

Graph illustrates "net expansion" phenomena of (A) high-expansive component self-stressing concrete, and (B) low-expansive component shrinkage-compensated concrete as compared with ordinary portland cement concrete. Note that portland shrinks appreciably. Shrinkage-compensated actually gives small net expansion. Net expansion of high-expansive component self-stressing concrete remains at high level.

Lab-batched "expansive concrete" looks like ordinary concrete (left). *Twenty per cent of the "expansive component" was used in the cement. Researcher tests samples* (right). *Each cube was cast with slightly different amounts of "expansive component."*

age) to values less than the tensile strength of the concrete at any age."

Though no new concrete casting techniques are actually involved, use of the new expansive concrete will demand more careful concrete mixing, a more judicious concern with the mix's water content and cure cycle, and, in addition, selection of cement with an expansive component (percentage of expansive ingredient) best suited to the particular job at hand.

Behind this appraisal lie some characteristics peculiar to the new concretes:

1. The higher the proportion of expansive component, the larger the ultimate expansion.

2. Although low expansive-component "shrinkage-compensated" concrete retains relatively the same strength (despite some slight expansion) as ordinary concrete, high expansion—without self-stressed reinforcing—reduces significantly the structural strength of a given slab.

3. On the other hand, the greater the restraining forces (among them self-stressed reinforcing members), the greater the load-strength of the slab.

4. Strength of self-stress, in high expansion component concrete, is adversely affected by a too high water content in the mix.

5. Total restrained expansion of the pour is reached within seven days. In fact, much of the mix's expansion takes place within the first few hours, and most of it within the initial 24 hours. As with most concretes, slab strength continues to increase, despite the cessation of expansion, during the normal cure cycle and beyond.

Aside from handing architects and engineers a new high-strength, no-crack, basic structural material, expansive concrete will undoubtedly lead to major changes in structural considerations and engineering.

Explains one engineer: "Every concrete slab and structure designed today is designed as though it were already cracked, because, in time, almost all concrete develops structure-weakening cracks. Thus, calculated overdesign is applied. Given a self-stressed, no-cracking expansive concrete, architects and engineers may soon design without allowance for inevitable cracking. Such design is bound to reduce construction costs for many projects, as well as less dramatic day-to-day maintenance costs."

Shortly, predict structural engineers, the revolution that has come to concrete will make itself felt, as expansive cement opens a new era of crackless concrete.

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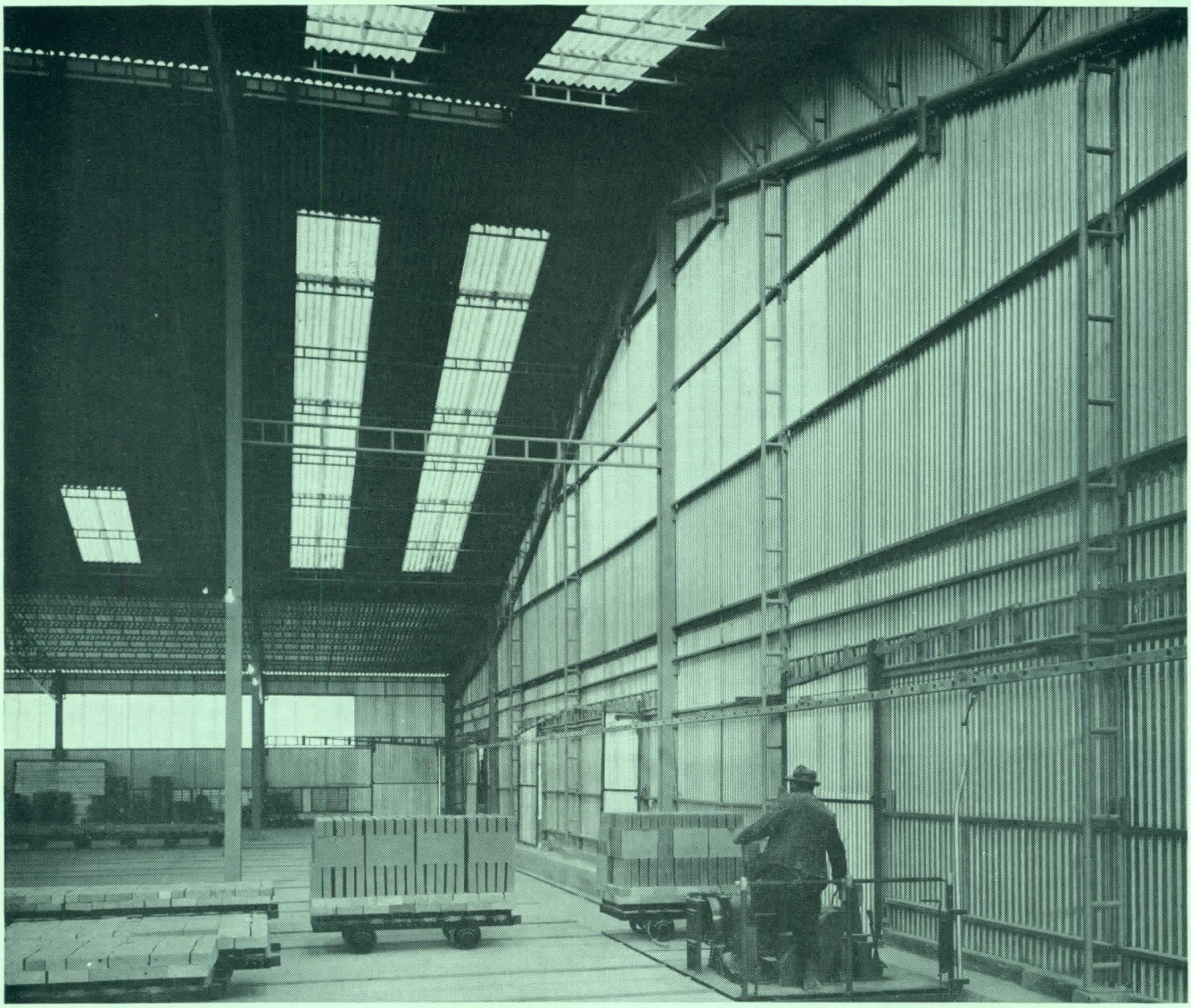

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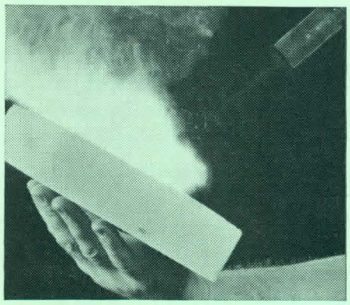

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Prepacked Concrete

BY HAROLD J. ROSEN

Another mechanical method of finishing concrete in which special aggregate is selected for desired aesthetic effects is discussed by the Chief Specifications Writer of Kelly & Gruzen, Architects-Engineers.

In the JUNE 1963 P/A, this column discussed the various methods available in finishing concrete to obtain different surface textures. One of the methods listed under mechanical finishes was prepacked concrete.

Prepacked concrete, also known as intrusion or grouted concrete, was developed essentially for placement under water, for mass concrete bridge piers, and for heavy concrete work such as the construction of steam hammer foundations and the restoration of dams.

However, this same principle can be applied to architectural-concrete finishes where specially selected aggregate is desired for exposure to obtain aesthetic effects.

With ordinary concrete, cement, fine and coarse aggregates, and water are mixed together before being placed within the formwork. In the prepacked method, the forms are filled with coarse aggregate only and the interstices subsequently grouted with a specially prepared mortar. The final stage in the process for architectural concrete is to expose the aggregate by removing the skin of cement by wire brushing, sandblasting, bush hammering, or grinding.

Structural concrete placed in normal construction contains approximately 1950 lbs of coarse aggregate per cu yd. In prepacked concrete, about 2700 lbs of coarse aggregate per cu yd can be obtained. This provides approximately 23 per cent more aggregate available for exposure at the surface. In addition, with ordinary concrete, there can be segregation of aggregate so that some aggregate may not be near the surface upon exposure by sandblasting or wire brushing.

The materials for prepacked concrete —cement, sand, and coarse aggregate— should all be obtained from the same source in order to be of consistent quality and color; otherwise, variations in material will be reflected in the finished product.

The formwork for prepacked concrete must be of a high standard to prevent deformation and the loss of grout at joints, due to the internal pressure of the expanding mortar. To prevent loss of grout, joints in the formwork should be sealed.

The operation of placing the coarse aggregate can be assisted by the use of form vibrators. Generally, the coarse aggregate is placed in horizontal layers in a minimum void content. The selection of coarse aggregate is the choice of the architect; it may range in size from $\frac{3}{8}$″ to 3″. The aggregate should be washed thoroughly and well drained of water before use, and care taken to prevent it from becoming contaminated while on the site. Generally, the coarse aggregate should not be dropped into the forms from heights greater than 5′.

The mortar used for prepacked concrete is usually an activated cement mortar having an intrusion aid. The intrusion aid contains a dispersing agent and a chemical that reacts with the alkalis of the cement to form a gas. Its action improves the workability of the grout, reduces bleeding, and causes a slight expansion before final setting.

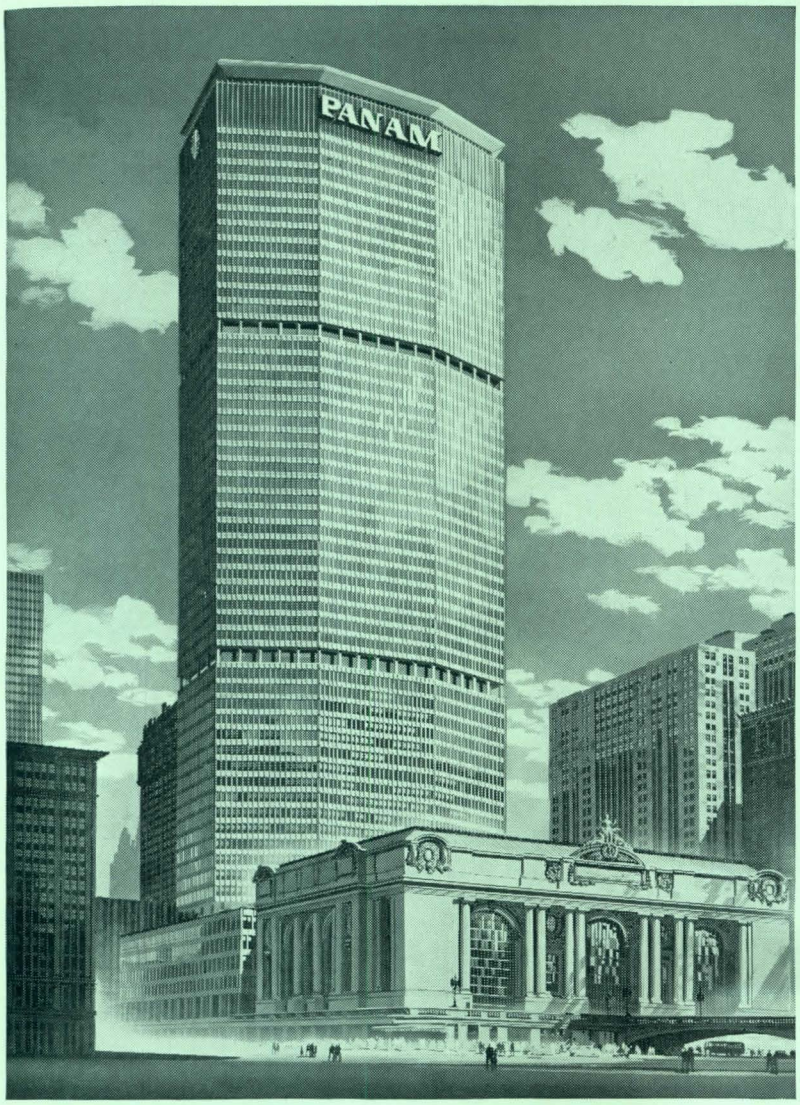
The mortar is placed during the grouting process through 1″-diameter steel pipes, placed vertically and spaced about 2′ o.c. or as necessary to insure uniform placement of grout. Initially, the outlet end of the pipes is about 2″ above the bottom of the formwork. The pipes are raised as the grout rises. After grouting has progressed sufficiently, the pipes should extend to a depth of 12″ in the grout. In order to check the level of the grout in the forms, holes are sometimes bored in the forms that can be plugged later. Another means of checking grout levels is to install small lights of acrylic plastic in the forms so that it may be seen visually. Forms are generally vibrated during the grout intrusion process to help distribute the grout uniformly.

The sand blasting of the surface to expose the aggregate is carried out as soon as possible after the forms have been stripped.

There are some proprietary methods, such as the Prepakt and Colcrete processes, and the Naturbetong method, which is covered by patents in Norway. Another process that has been used recently in this country is "Arbeton," developed by the Shilstone Testing Laboratory of Houston, Texas. In this process, a special retaining barrier is placed between the reinforcing-steel cage and the formwork. The aggregate selected for the surface texture is then placed dry between this barrier and the form. A specially designed concrete mix is then placed in the core of the section. This mix contains a surplus of mortar, which is moved by means of vibrators through the voids between the particles of the preplaced face aggregate. When the forms are removed, the concrete section appears as normally cast concrete. In this method, expensive aggregate may be used, since it is limited to within 3″ of the face, whereas the core is filled with normal stone or gravel aggregate.

Bibliography

J. Gilchrist Wilson. *Exposed Concrete Finishes*, Vol. 1, C. R. Books Ltd., (London).
D. F. Orchard. *Concrete Technology*, Vol. 2, John Wiley & Sons, Inc., "Corps of Engineers Guide Spec. CE 1401.03."



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Year-Round Through-Wall Units

BY WILLIAM J. McGUINNESS

A unique through-wall air-conditioning installation, an "incremental" unit system that is essentially a custom job, is discussed by the Chairman, Department of Structural Design, School of Architecture, Pratt Institute.

Problems that attended the early use of through-wall, self-contained air conditioning units are being solved, thus extending and firmly establishing many areas in which this type of climate control is most appropriate.

Architectural acceptance and design-integration of the essential exterior grille, impressive up-grading of the engineering design and the quality of materials in excess of industry minimum standards, and, most importantly, the development of controls for comfort of occupants and economy for building owner—all these have combined to give this type of air conditioning a new place.

A new, eight-story office building at 499 Warren Street in Syracuse, N.Y., demonstrates an especially suitable application. Architect Gordon P. Schopfer and his Engineer, Edward A. Fassler, chose unit conditioners for this building in preference to a central-station ducted system for the all-year comfort of office occupants. With the collaboration of Remington Air Conditioning, Division of Remington Corporation, Auburn, N.Y., this design team has produced a unique installation which is essentially a custom job. It is so successful that a number of similar projects are now being planned.

Tenants in these offices, about 85 per cent of which are peripheral, make use of the self-contained units for heating, cooling, and ventilation. Electrically powered, each contains a hermetically sealed cycle of compressor, condenser, and evaporator. Room air is recirculated, cooled, and dehumidified with the addition of fresh air admitted through a motor-operated and gasketted damper. Heat is available through a separate coil supplied with hot water from central boilers. Integral thermostat and unit controls permit any desired selection of comfort level. Occupants in different offices have the choice of heating *or* cooling at the same time. Two limiting devices operate automatically, one to supply heat in any case when room temperature drops below 55 F and the other to make the cooling cycle inoperable when the outdoor temperature is below freezing.

To this point, the foregoing description is reasonably typical of the service in many high-cost apartment houses and possibly a few office buildings. A number of additional, distinctly new features were responsible for making this building quite different and perhaps the forerunner of a strong new trend. That is why this installation shows a marked improvement in control and quality, and why the architect and engineer felt justified in selecting it in preference to the central ducted system so common in office buildings.

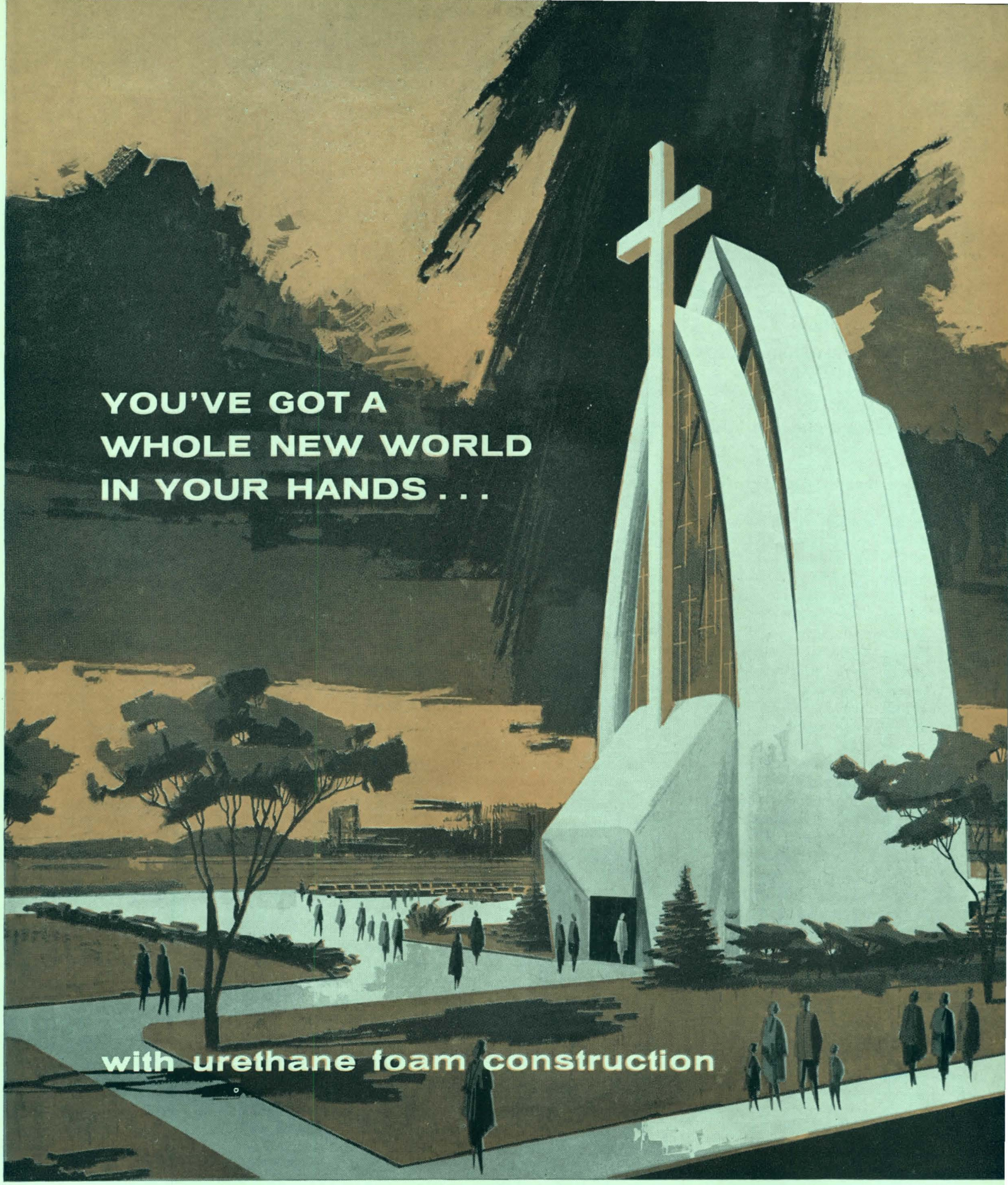
The predominantly important feature is Remington's triple over-riding dual control system (TODC). Following a schedule established by the building owner (hours can be varied), a clock device turns all units off at 5:30 P.M. and on at 7:00 A.M. This shutdown represents economy for the building owner. Units start and each operates at its setting (for cooling or heating) of the previous afternoon to prepare the offices for 9:00 A.M. occupancy. At 5:30 P.M., however, when all units are turned off, they are all immediately "reset" by an electric impulse over the regular power wiring. No additional electric or pneumatic controls are required for this—an economy in installation cost. When units are thus reset through the special TODC panel within each unit, a single tenant may turn on his conditioner for full operation by pressing a button. His will be the *only* conditioner operating in the building, unless others are similarly activated. At 9:00 P.M. and 12:00 midnight, impulses again turn off and reset all units previously operating. The individual occupants may again press their buttons to continue the service, but if everyone has gone the entire system shuts down. The occupant is only slightly inconvenienced by his need to push a button at three-hour intervals during an evening or on a weekend or holiday. In many major cities, owners who keep central systems operating for work after hours often feel obliged to charge the tenant from $25 to $100 per hour for this service. In the building under discussion, however, there is no charge for this privilege.

The savings in the costs of installation and operation by using small local units are, of course, well known. Unit conditioners are usually installed for less than $800 per ton, while central systems might exceed $1000 per ton, with costs as high as $2000 per ton for dual-duct high-velocity installations. Remington reports that typical office building installations of this "incremental" unit system have operating and maintenance costs of 8½¢ per sq ft of building per year. Operating and maintenance costs for central-plant installations averaged 18½¢ per sq ft per year in 1961, according to the National Association of Building Owners and Managers.

It begins to appear that by building extra quality into through-wall units, reasonably long life may be expected. Those at Warren Street have many special features. One solves the common problem of sleeves that rust out. By use of heavier gage bonderized and zinc-coated steel, with special plastic finish where it is exposed to outdoor air, such corrosion is virtually eliminated.

Qualified and approved service agencies that operate under the supervision of the manufacturer can be responsible for repairs, or a trained mechanic at the building can make them. It is considered mandatory that a number of operable elements be kept available at the site for instant replacement. By means of accessible latches and two or three easy plug-type disconnects, the entire cooling element can be taken out of the cabinet in 30 seconds. Only five minutes are needed for a complete replacement.

The elimination of the usual central system ducts from core to office at each story cut the height of this building by about 6 ft.



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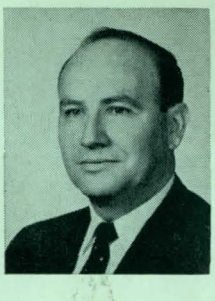

Aesthetics and the Law: Part 3

BY JUDGE BERNARD TOMSON AND NORMAN COPLAN

In the last of three articles, P/A's legal team discusses the implications of the Seagram Building case, in which the owner is, in effect, being penalized for erecting a commercial building possessing unusual aesthetic features.

In last month's column we reviewed the decision of the Appellate Division of the New York Supreme Court (*Joseph E. Seagram & Sons, Inc.* v. *Tax Commission*), holding that a commercial building containing unusual aesthetic features (such as open spaces, distinctive decorative effects, and striking materials) could be taxed on a different and higher basis than buildings of ordinary quality and usual characteristics. The premise of this decision was that these unusual architectural features did not reflect in the income of the building, and therefore the ordinary rule that the tax assessment of commercial buildings shall be measured by market value, as reflected in the capitalization of the building's net income, would not apply.

The Seagram Building was erected on Park Avenue in New York City at a cost, including tenant improvements, of $36,000,000, as compared to a market value, as calculated by the Court, in the sum of approximately $17,800,000. This difference led the Court to conclude that the traditional method of ascertaining value for tax purposes was not applicable, stating:

"Nowhere in the record is it explained how just two years before the period under review an experienced owner employing a reliable contractor and having the services of outstanding architects put $36,000,000 into a structure that was only worth $17,800,000. Such a startling result requires more than speculation before it can be accepted as fact."

It was the conclusion of the Court that the cost of the building, rather than its market value, was the significant factor in determining its value for tax purposes, and that those aesthetic elements of the building that were not reflected in its market value, but which were of substantial cost, inured to the financial or economic benefit of the owner and should, therefore, be included in the tax base. How could the difference between cost and market value be otherwise explained, asked the Court, if the "sagacity of the corporate managers" is assumed, and corporate assets were not being wasted. This economic benefit to the owner, reasoned the Court, results from the publicity or prestige that this type of building furnishes to the Seagram name, thereby assisting it in its primary function of selling its product. Thus the Court, in effect, reached the questionable and novel conclusion that the financial benefits of advertising could be deemed a real estate value for the purpose of taxation on real property.

The difference between the cost of the Seagram building and its market value is, of course, accounted for by its distinct and unusual architectural features and the reservation of areas and space for aesthetic effect, rather than utilization for commercial income. The Court apparently made no allowance for the possibility that the motivation of the owner in creating this type of building was not primarily to enhance its name for economic gain, but rather for the purpose of making a contribution toward a more beautiful city. It is far from an absurdity to conclude that many of our large corporations might construct buildings of high taste and superior quality in fulfillment of their civic obligations without any substantial financial benefit or gain to themselves. The cost of producing a building of architectural excellence is not the least expensive method of securing publicity or prestige for a commercial name, and there are many other methods of advertising available that contribute nothing toward aesthetic objectives, but which carry no tax penalty.

Critics of this decision were quick to point out that its probable effect would be to discourage quality building and to condemn the City of New York to perpetual architectural mediocrity. The architect who designed the Seagram building was quoted as stating that "if this ruling stands, no one will dare leave space and trees in New York." *The New York Times*, in an editorial entitled "A Penalty on Quality," asserted:

"The ruling decrees that, precisely because this is a 'prestige building,' Seagram must pay higher taxes than its neighbors, and that these taxes are to be determined not by the traditional rule of assessment, the building's 'market value,' but by its cost. Seagram's construction is frankly extravagant; its beauty of design, materials and execution have made New York a handsomer place. By this ruling, its gift of architectural excellence and open space is to be penalized by the city's Tax Commission, which will, in effect, levy a stiff fine on Seagram for giving New York a great building. . . .

"If the ruling stands, no sensible investor will put up a quality building, knowing that he will pay outrageously for the privilege. No realtor in his right mind will proceed with anything but minimum standard construction and maximum plot coverage. No corporation will build superbly for its own use, as Chase Manhattan did downtown, contributing architectural monuments and plazas to the city."

New York City has adopted a new zoning ordinance that provides benefits to builders who provide space and arcades. The consequence of this decision would, in large part, appear to nullify the incentives for that type of building. If large and successful corporations are to be discouraged by tax penalty from rendering public service by furnishing buildings of architectural superiority and thus performing a significant and needed public service, who else is available to serve the function of "patron of the art" in the architectural and building field?

This decision has been appealed to the New York Court of Appeals and, upon the determination of that Court, we will report further.

The new look of elegance in fire exit bolts...

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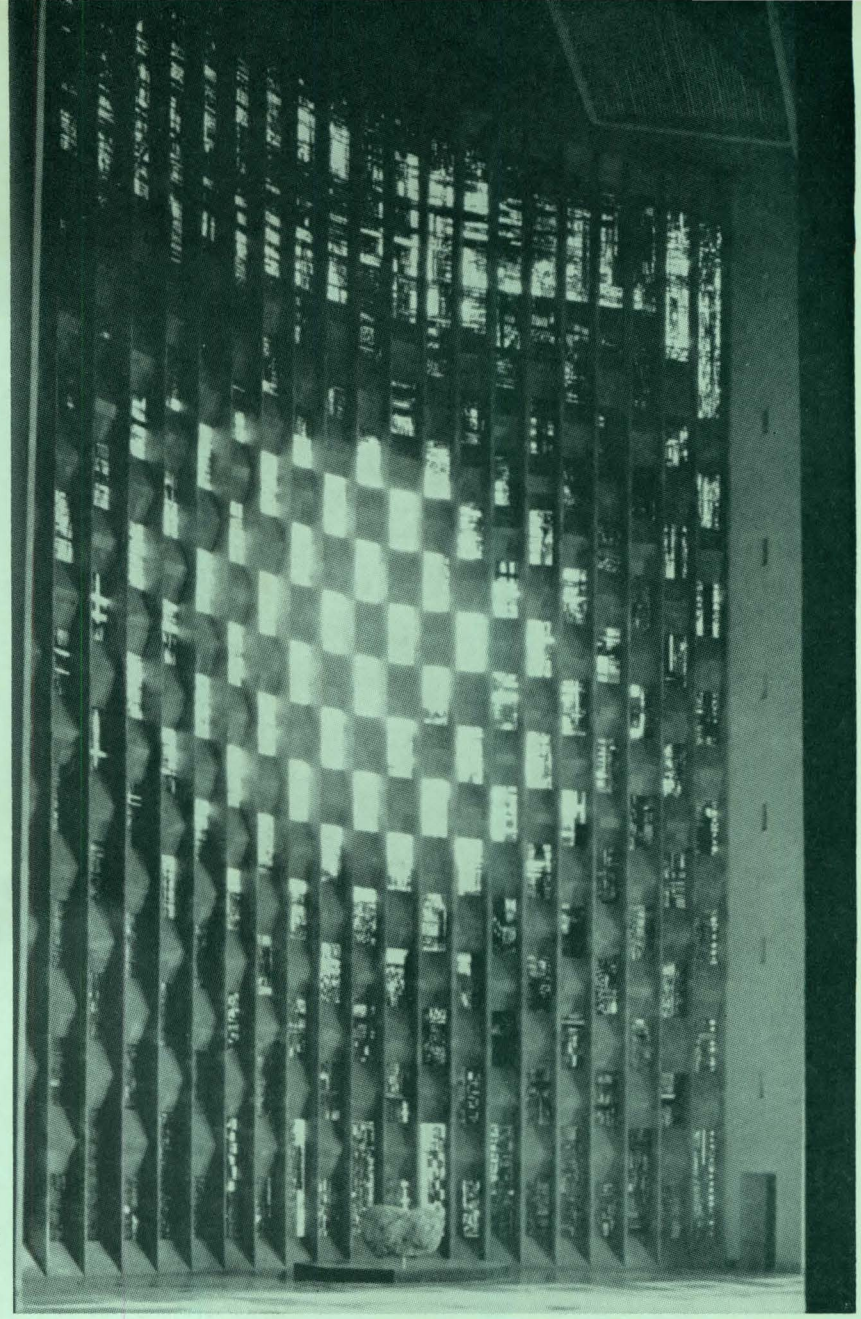
Greatest Achievement or Greatest Lost Opportunity?



Baptistry window designed by John Piper: "By far the best work of art installed in the cathedral."

BY PAUL DAMAZ

PHOENIX AT COVENTRY: THE BUILDING OF A CATHEDRAL *by Sir Basil Spence. Published by Harper & Row, 49 E. 33 St., New York 16, N. Y. (1962, 141 pp., illus., $6.95). Reviewer is an architect who has devoted much of his professional life to problems of the integration of art and architecture. His new book,* Art in Latin American Architecture, *is a companion to his earlier* Art in European Architecture.

So much has been said and published on the new Cathedral of St. Michael at Coventry that this building would seem to be the greatest achievement of our time in church architecture. The architect himself is so fascinated by his work that he has written a full-length book to explain the birth and growth of what he considers the culmination of his professional career.

Designing and building a cathedral, particularly one of such historic significance, is certainly the dream of any architect. As Sir Basil Spence relates it, describing the hopes and frustrations of 11 years of his life through 150 chaotic pages, one feels more and more in sympathy with this baffled idealist. Still professional sympathy must not prevent impartial criticism, and as one ponders plans, sketches, and photographs, one becomes more and more aware that this "greatest achievement" is in fact the greatest lost opportunity: the opportunity to create a truly modern cathedral corresponding to the latest social tendencies of liturgy and to the aesthetic conceptions of our time, and the opportunity to create a major breakthrough in English church architecture.

The entire project is the result of compromises and indecisions which probably started at the level of the sponsors and which continued in the mind of the architect himself. The lack of unity between the basic conception of the project and the details of its execution already appears in Sir Basil Spence's initial statement: "It is clear that the whole character of our churches in the past has depended on integrity and a sense of adventure from which sprang our native architecture." The plan of Coventry, however, is basically medieval, with the long nave and side aisles that made sense in Gothic times. The exterior appearance of the building reminds us of past methods of construction. In fact, the "walls are of solid stone construction pierced with windows," a method of construction that can hardly be called adventurous in our time of light steel members and prestressed concrete. Still, several details of these walls, such as the baptistry windows, the zig-zag nave windows, and the

Continued on page 196

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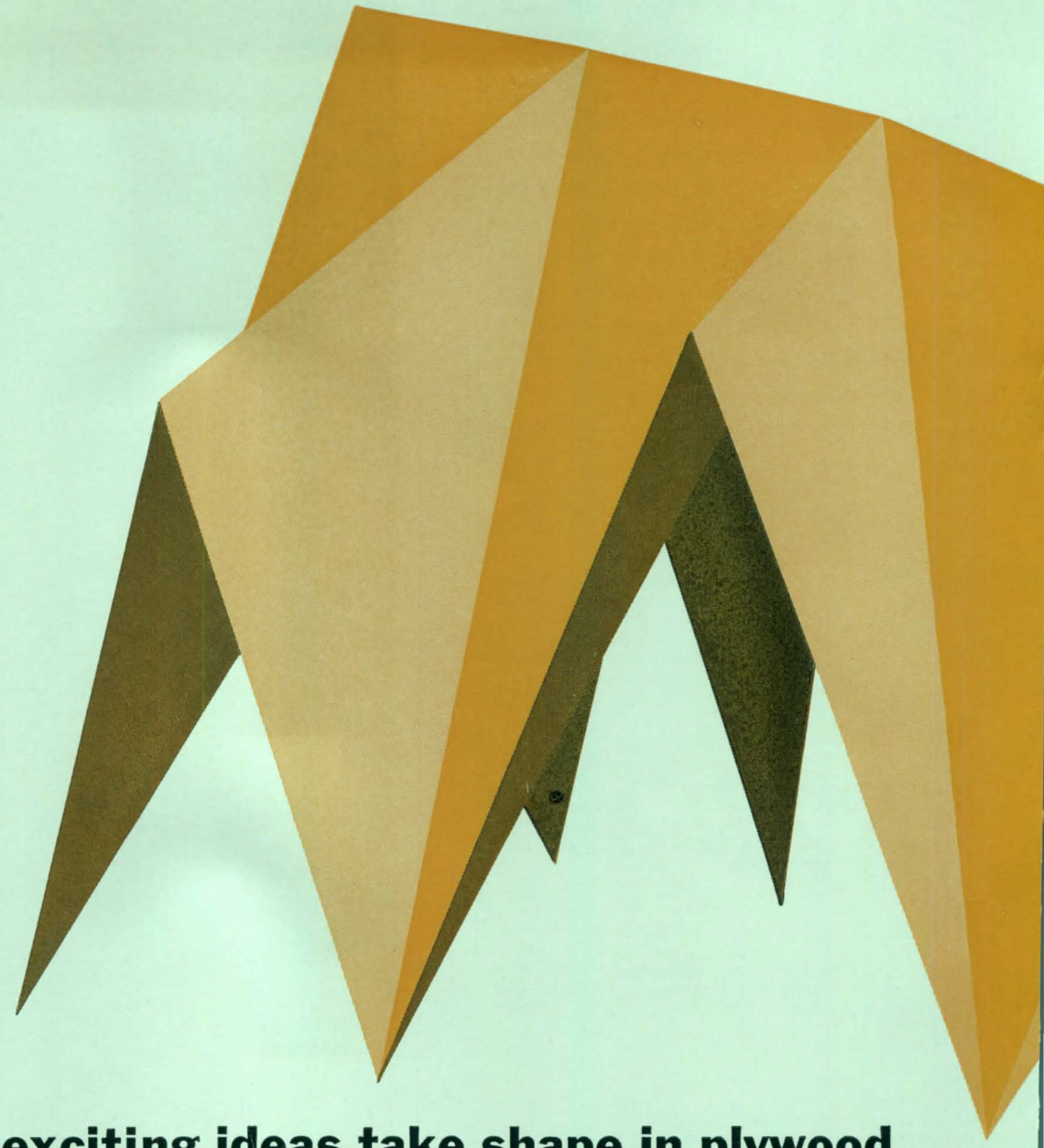
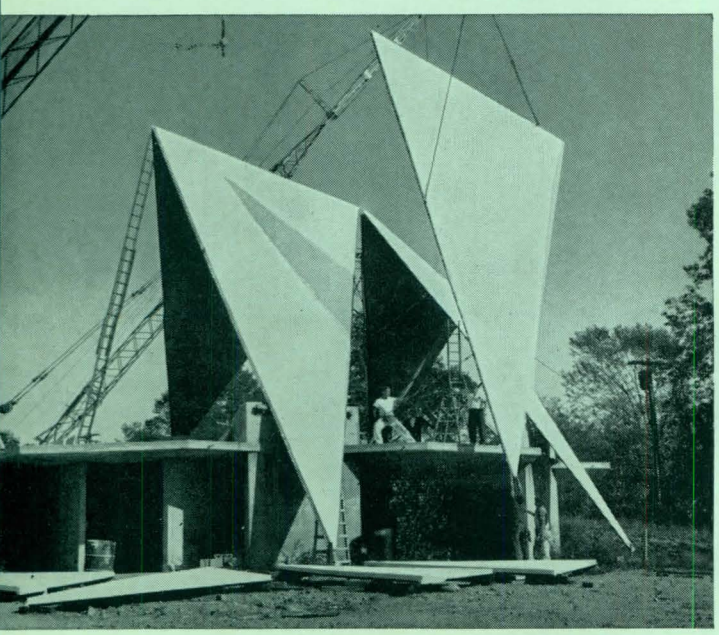
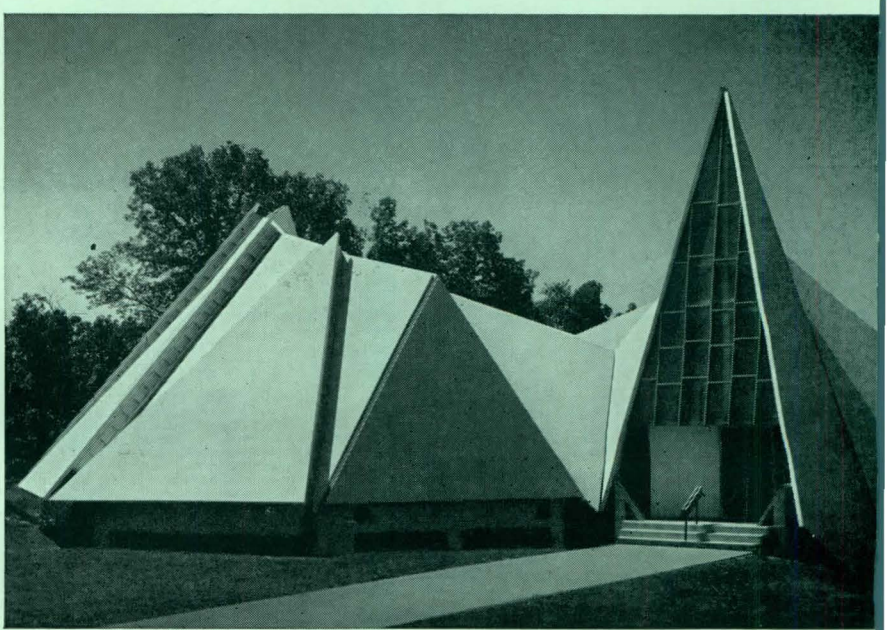


the most exciting ideas take shape in plywood





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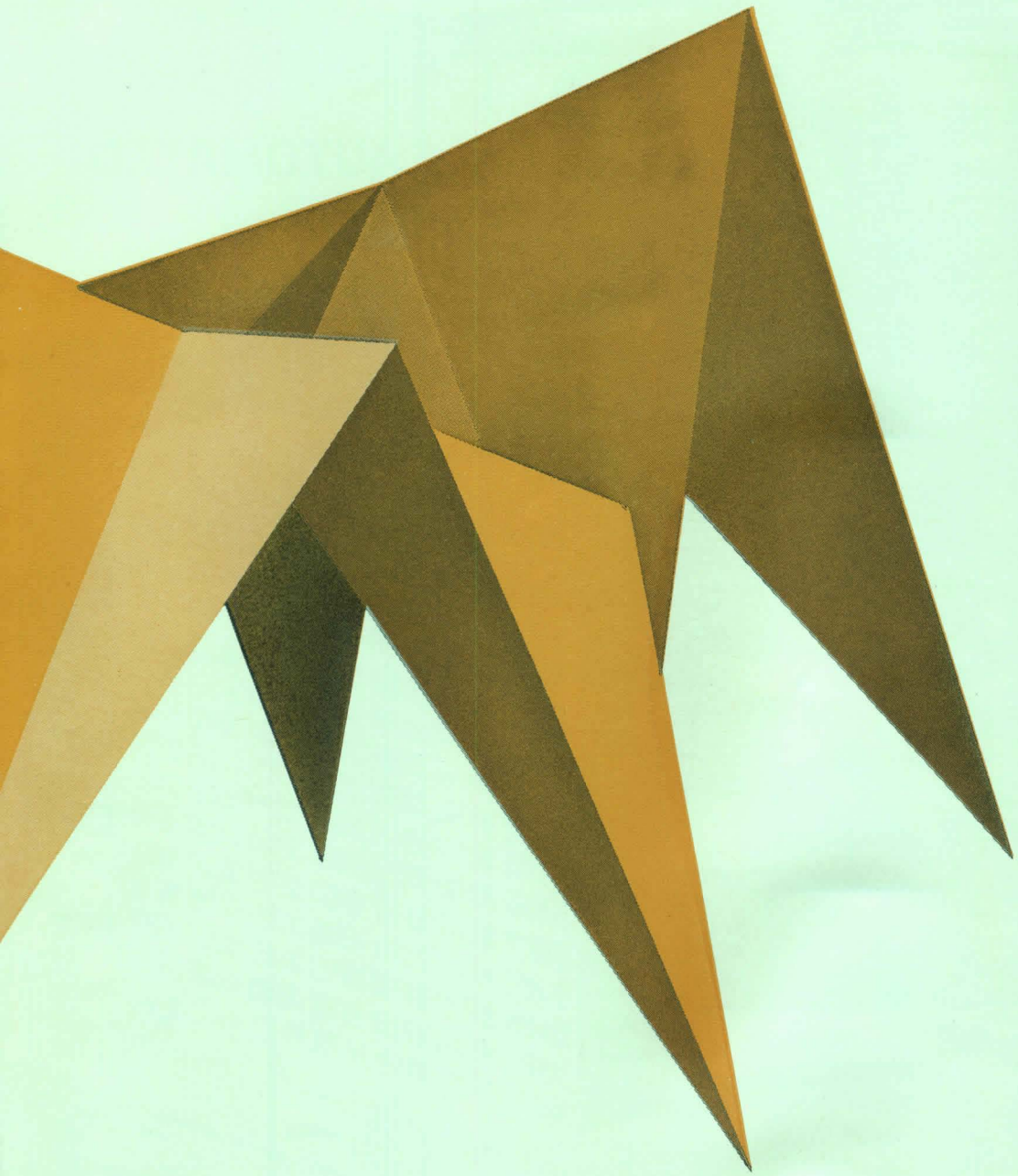

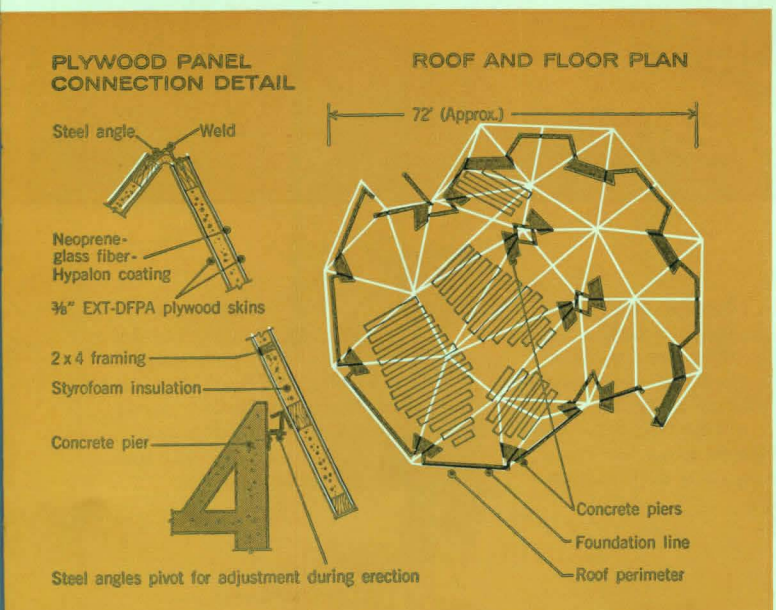

The soaring canopy of this church demonstrates again how modern plywood technology can turn a sophisticated design into practical reality. ■ Perhaps the most complex plywood space plane yet built, it is actually a variation of the folded plate. The roof becomes self-supporting by the interaction of inclined diaphragms—in this case 42 triangular stressed skin plywood panels. It shelters 5,000 sq. ft. and rises to 35 ft. at two points. ■ Plywood's size, strength and adaptability to precise fabrication made it possible to execute the design within a tight budget, and to erect the entire roof in seven working days. For more information on plywood folded plate systems, write (USA only) Douglas Fir Plywood Association, Tacoma 2, Wash.

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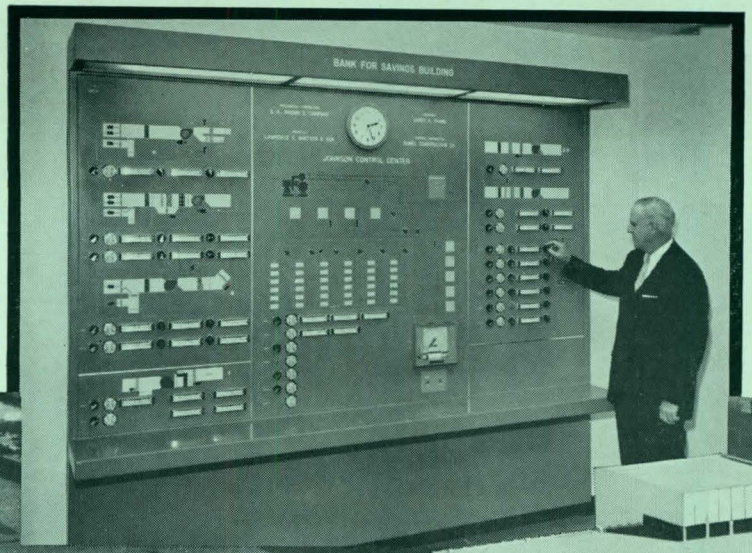

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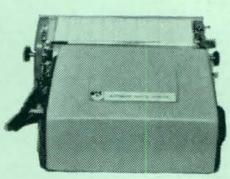

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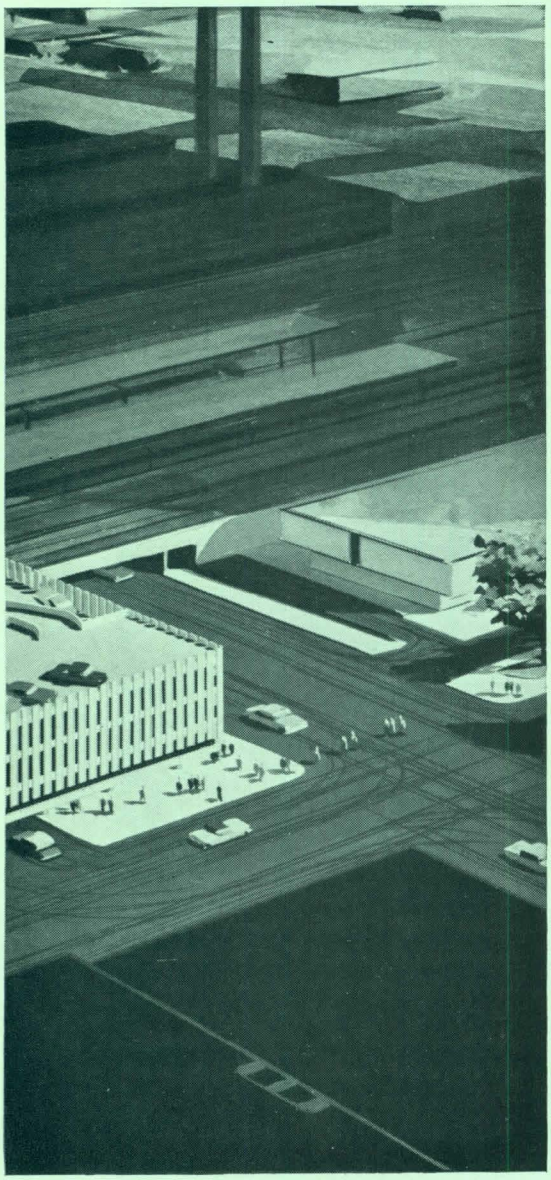

Efficient Climate Control a Highlight in New Bank for Savings Building

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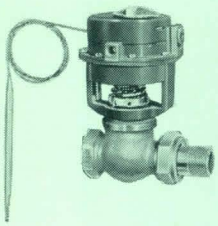

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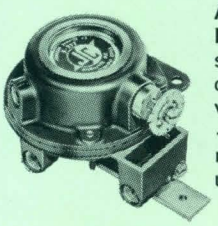

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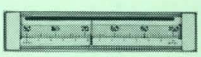

INDICATING RECEIVER. Provides continuous pneumatic indication of strategic control points. Any deviation from the set point activates the data logger which records off-normal values.

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Continued from page 190

Chapel of Unity are basically "modern" and quite effective if not original. The ceiling is obviously inspired by the beautiful English Gothic fan vaults, except that what once had a structural meaning has now become gratuitous decoration. The contradiction between traditional conceptions and modern forms extends to the works of art. They are placed exactly where tradition demands them: reredos, nave windows, entrance wall, pulpit, etc., but modern artists, some of them of great standing, were commissioned to do them. These artists, in turn, also had to compromise with the requirements of a traditional architecture and the tastes of conservative committees.

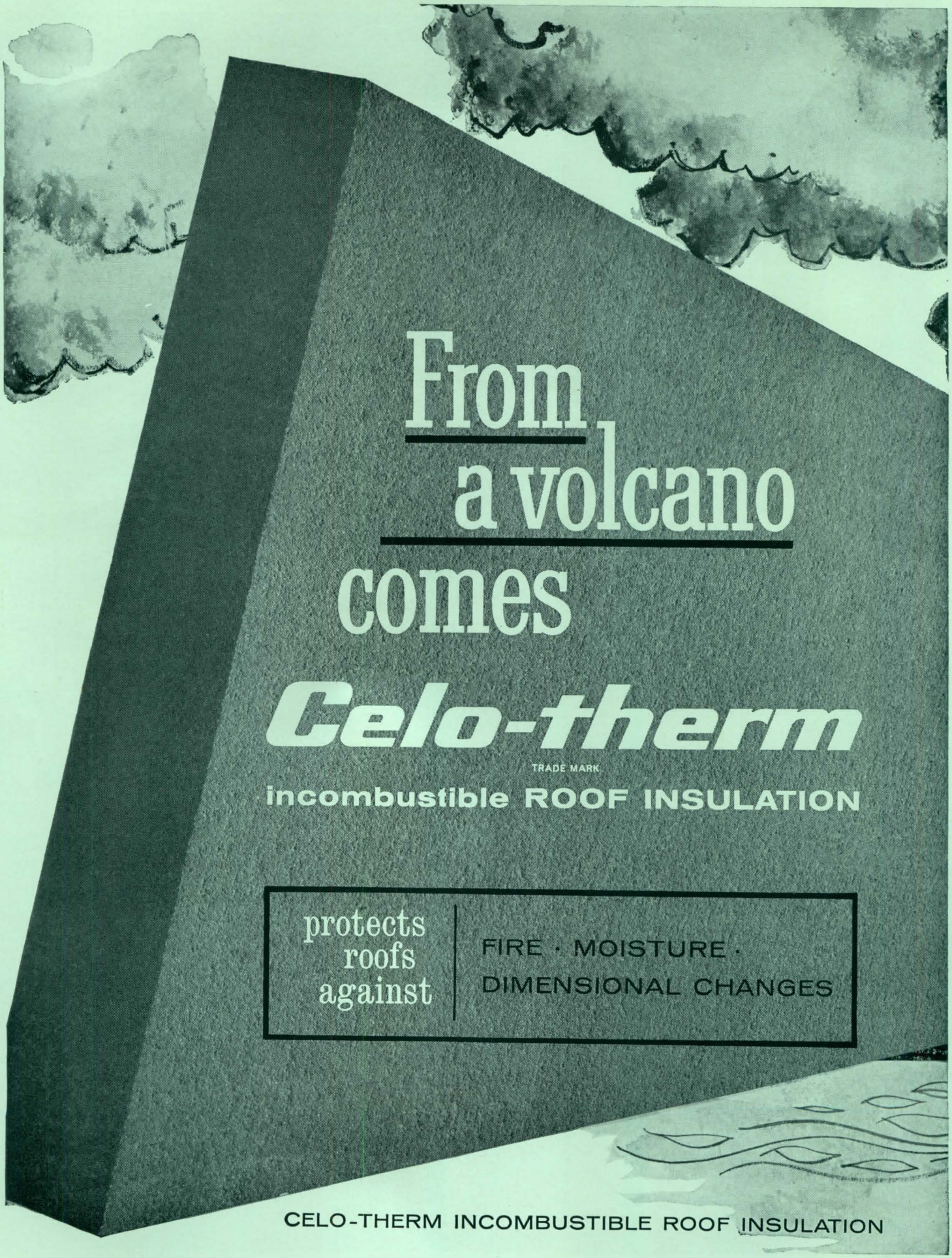
The most interesting element of the architectural conception is the role given to the walls of the old cathedral. The ruins were left as "an eloquent memorial to the courage of the people of Coventry" and as "a Garden of Rest." In fact, the plan shows that the new structure is fused to the old and seems to grow from it, making the walls of the old cathedral an outdoor adjunct to the new structure. This was indeed an excellent solution, perhaps the most striking idea of the whole project, for it expresses architecturally the continuity of spirit through changing times. Unfortunately, this solution also has its setbacks. The proximity of the ruins makes the new cathedral appear a dispirited and lifeless structure, a feeling further emphasized by the contrast between the elegant old tower and the timid (almost flat) roof of the new nave. It is more than tough competition. It is as if modern religious architecture had lost all hope of achieving the elegance and greatness of other times and had to rely on help from the past—a discouraging thought indeed.

The link between the ruins and the new nave consists of a high porch which has great monumentality. Although the architect declares he is "bored with the stretched glass skin over a frame," he has placed such a glass skin (in fact a very geometric and "boring" one) between the monumental porch and the nave. The mechanical division of the glass is offset to a degree by a large number of delicately designed figures carved on the glass by John Hutton. Carving this huge screen (70′ x 45′) was a gigantic task, and when I visited the studies of this pleasant and talented artist in 1954 he was proud to point out that the entire screen would be hand-carved and that this work would take several years to execute. One wonders whether such an effort was called for by the comic banality of the subject matter: "It was suggested that it should go up in layers of saints and angels. . . . This idea was accepted . . . so that the effect now is of celestial 'cream cake' layers of saints and angels."

The idea of this glass wall was brought about by Sir Basil Spence, with the "intent that the ruins and the new building should be directly related . . . physically divided only by a glazed screen." It is sad indeed that this screen, which is an outcome of the best idea of the whole concept, should have been at the same time one of the major mistakes of the plan. The large stain-glass windows of the nave, arranged in a zig-zag fashion, are intended to be seen by the worshiper only when he turns back toward the entrance. However, I am told that on a clear day the glare of the light coming through the screen is such that the stained glass of the side windows loses all its value and can hardly be seen by the blinded spectator.

As for the stained glass itself, it is the best element of

Continued on page 204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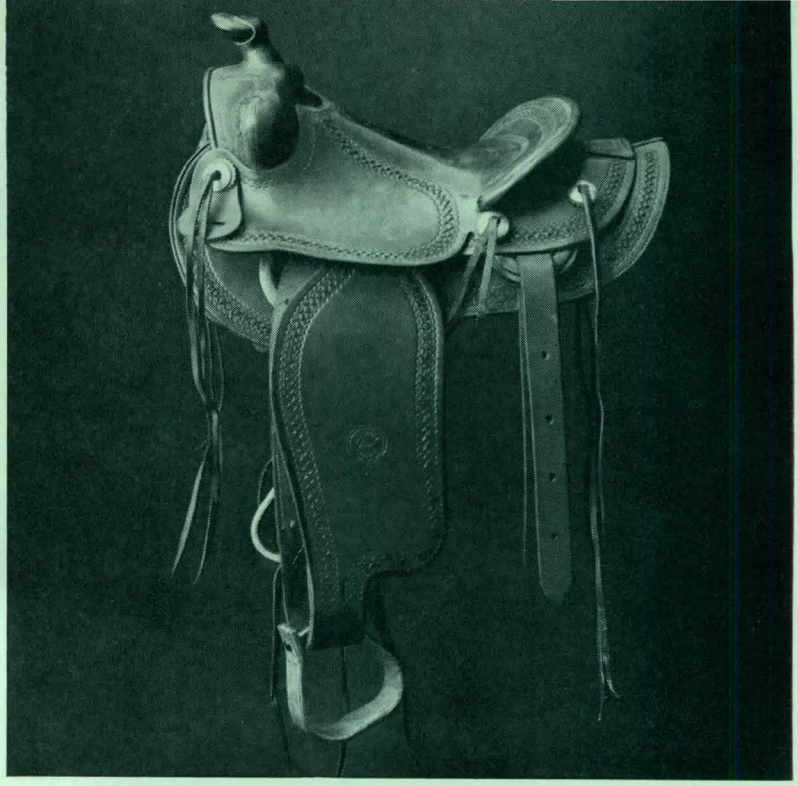

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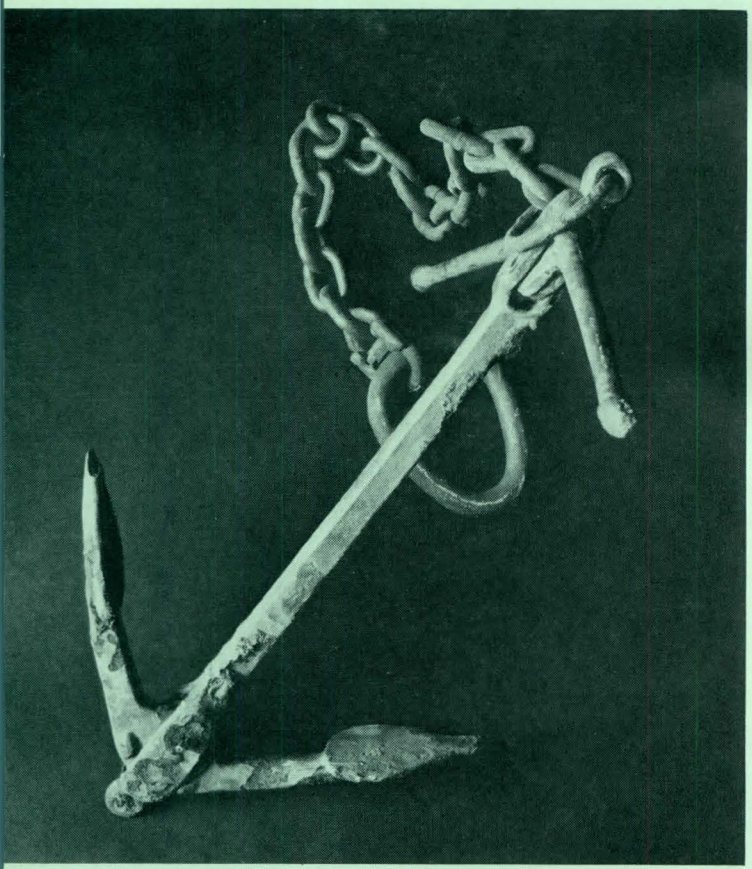

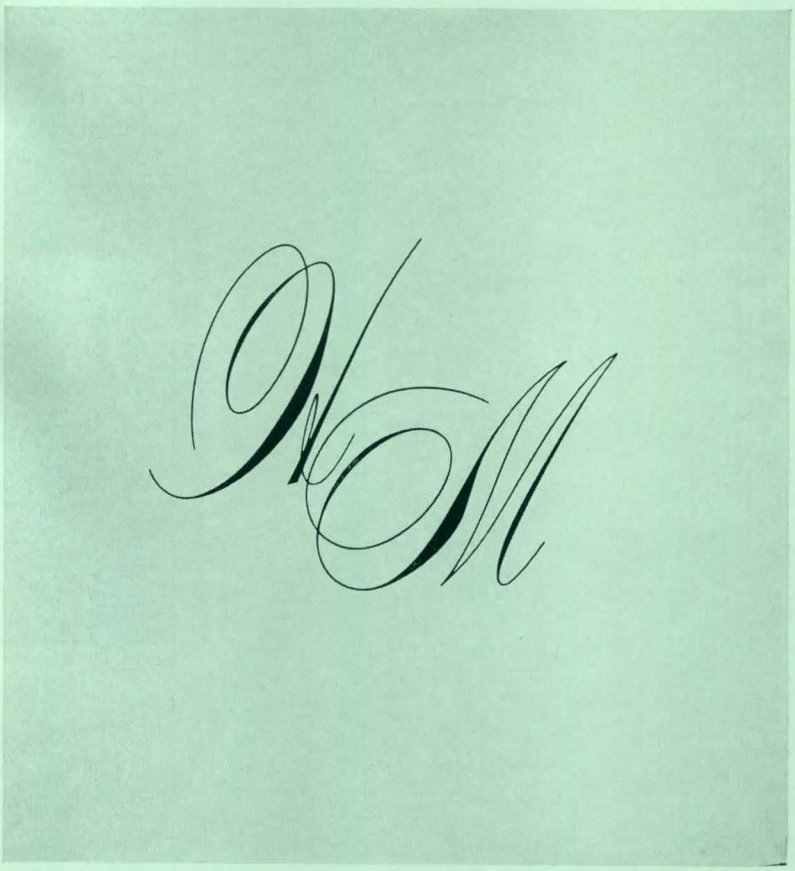

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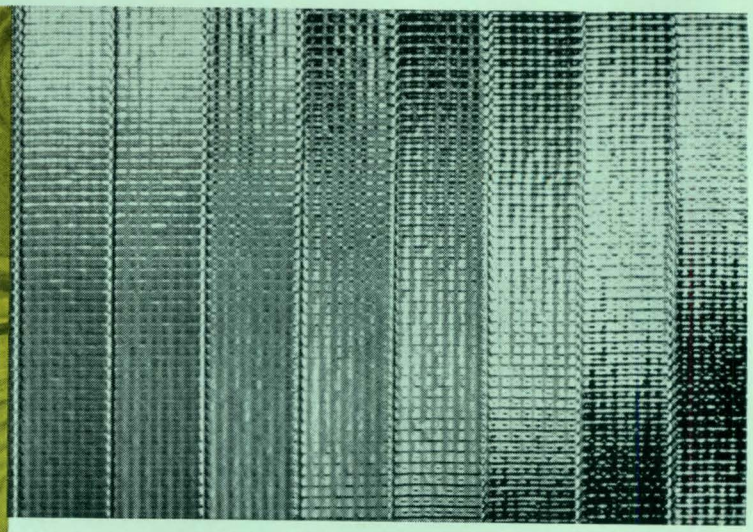

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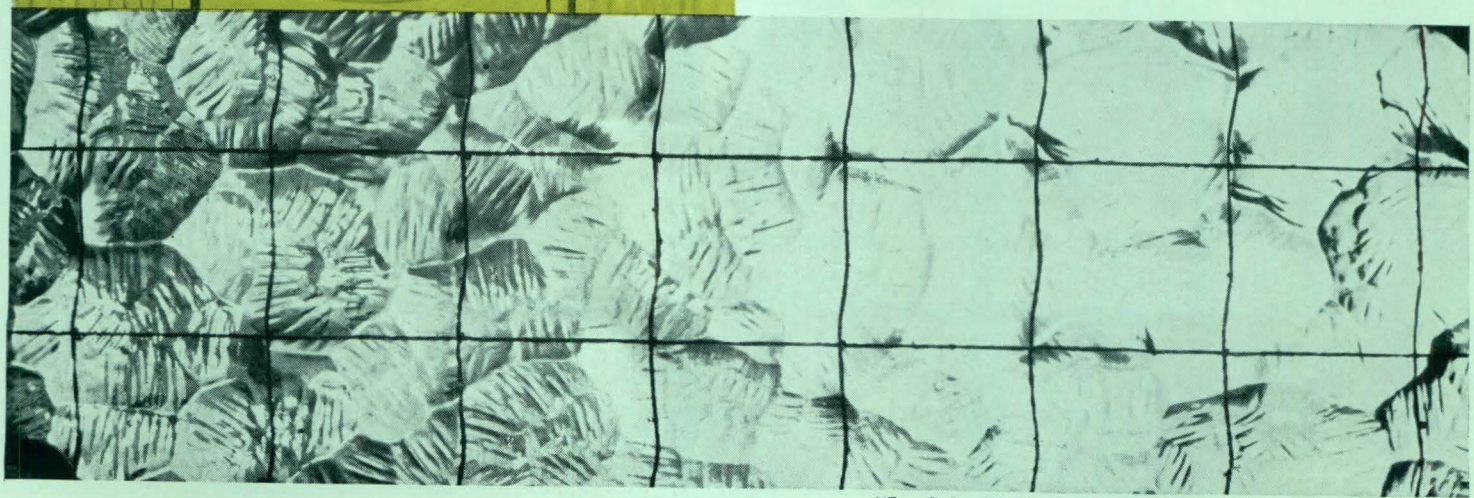
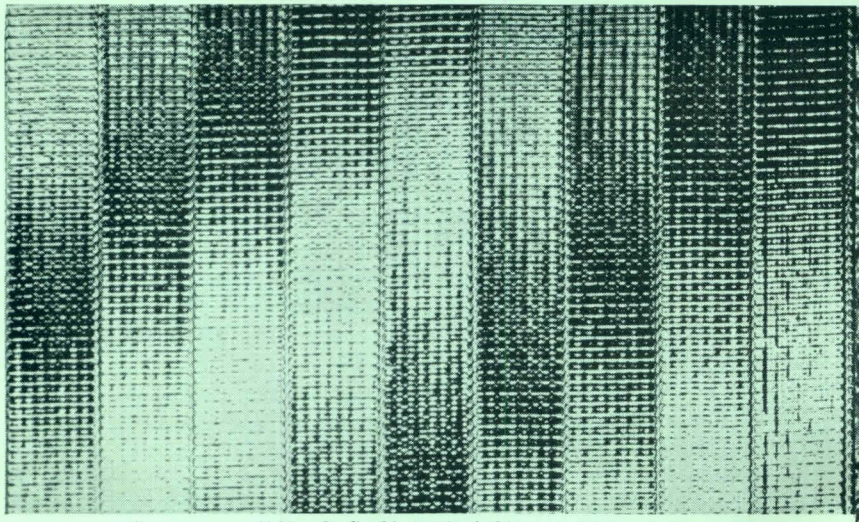


"Ice Cubes" Wired Glass No. 73; 1/4" thick, 49"x120".



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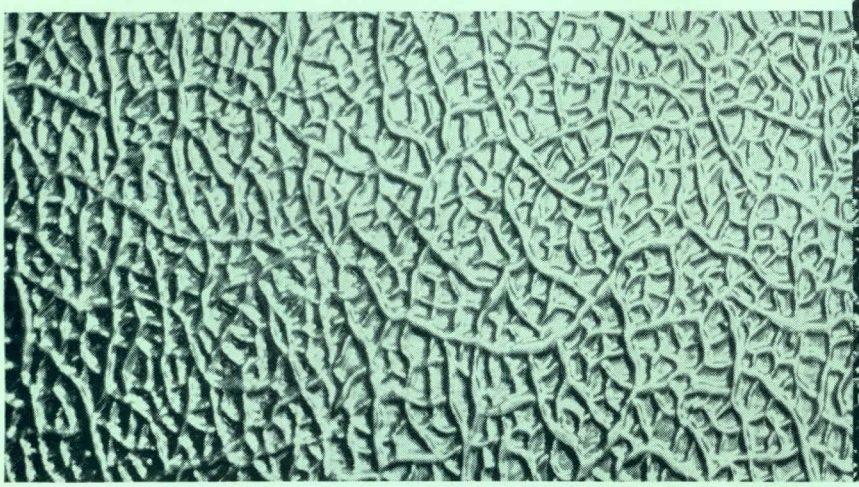
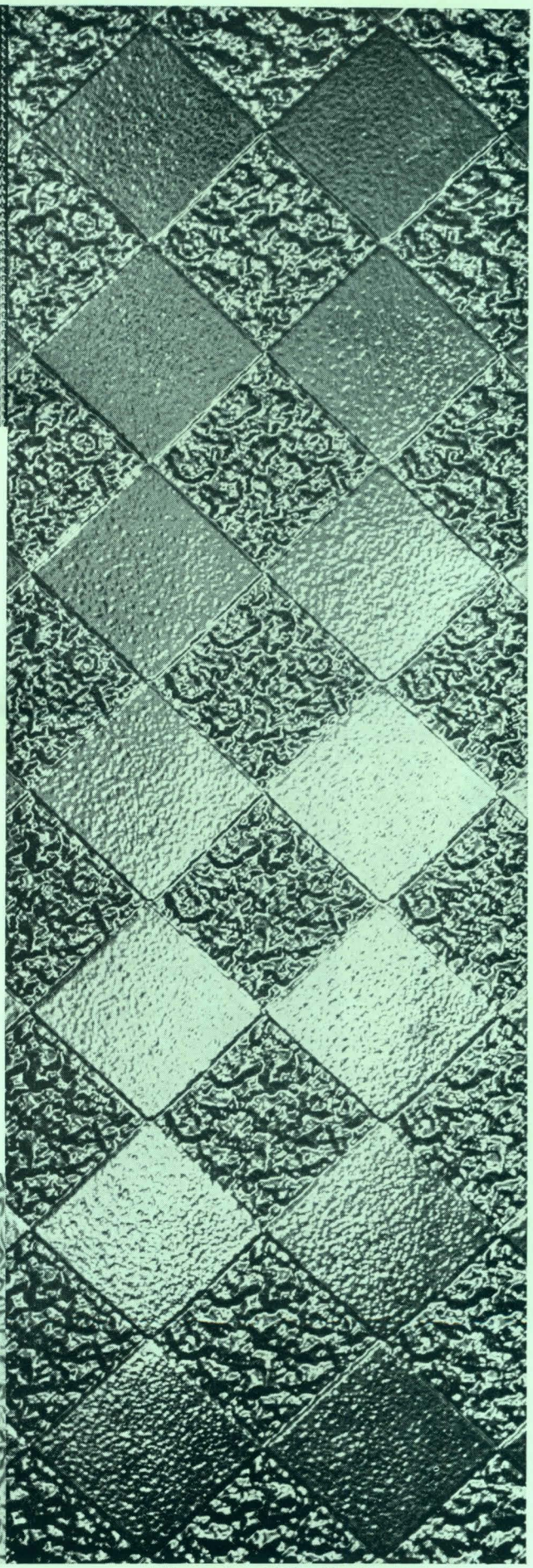


"Melon Skin" No. 9; 1/8" thick, 60"x120".



"Checkerboard" No. 86; 1/8" thick, 60"x120".

Continued from page 196

the cathedral. The stained-glass windows of the nave, erroneously described by Sir Basil Spence as "the largest single commission of stained glass in the history of the craft," are beautiful and well-integrated with the architecture. They were designed by Lawrence Lee and two of his students, Geoffrey Clarke and Keith New. Here the architect must be congratulated for his insight, for these two young and untested artists have produced beautiful windows, which (as far as can be seen by the poor color reproductions of the book) are much superior to the windows designed by their master. Excellent also, and particularly effective in its architectural purpose, is the abstract stained glass of the baptistry wall, designed by a well-known artist, John Piper. It is by far the best work of art installed in the cathedral.

We must also congratulate Sir Basil for having selected Sir Jacob Epstein to do the St. Michael bronze and for having defended his choice against a prejudiced committee. Epstein was certainly one of the best living British sculptors at the time, and his St. Michael, traditional as it is, shows strength and sincerity.

There are several small art objects which are very well designed: the baptismal font, the lectern eagle, the altar cross. However, all works of art are overshadowed by the gigantic, eye-catching mural of the reredos wall. This huge tapestry (70′ x 40′), designed by Graham Sutherland, is the most controversial art work installed in the cathedral. To start with, it is doubtful whether tapestry is a technique appropriate to such a monumental scale, since the beautiful texture of the weaving disappears when it is seen at a distance. Its greatest weakness, however, lies in the design itself. It is a typical example of how an excellent artist can become "frozen" when he is given a religious subject, either because he does not "feel" it or because he is too much aware of the conservative taste of the client. Otherwise, how can it be explained that the final design by Sutherland resembles so closely the preliminary sketch of the architect? Although the four symbols of the Evangelists reveal Sutherland's personal talent, the central figure of Christ is conceived in the realistic conventional manner typical of so many "Christs in Glory" in so many churches, with the exception of a few strong geometric lines which have no relation to the architectural environment.

Sir Basil Spence mentions several times that the artist's cartoon was drawn quite small, about 7 ft high, and was photographically enlarged to the 70 ft actual size of the tapestry, leaving the "interpretation" up to the weaver. Is this, indeed, how a mural should be conceived and executed? How can an artist, no matter how experienced he may be, foresee the final result of a little sketch blown up tenfold and placed in an actual architectural space that no small-scale model can create? As for the execution, the fallacy of omitting the intermediary cartoon stage is shown in the fact that the English weavers were unable to translate Sutherland's sketch and that the French weavers, after being stuck for lack of Sutherland's guidance, had to use a large degree of "interpretation," thus adding their own creation to the artist's design. Several times throughout the book, we are told that this is the largest tapestry in the world. It may very well be so, but I am rather surprised at this identification of quantity with quality, a misunderstanding usually attributed to Americans, and definitely un-British.

The interest of *Phoenix at Coventry*

Continued on page 214

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION (Act of October 23, 1962; Section 4369, Title 39, United States Code) of Progressive Architecture, published monthly at 430 Park Ave., New York, N. Y. 10022, for October 1, 1963.

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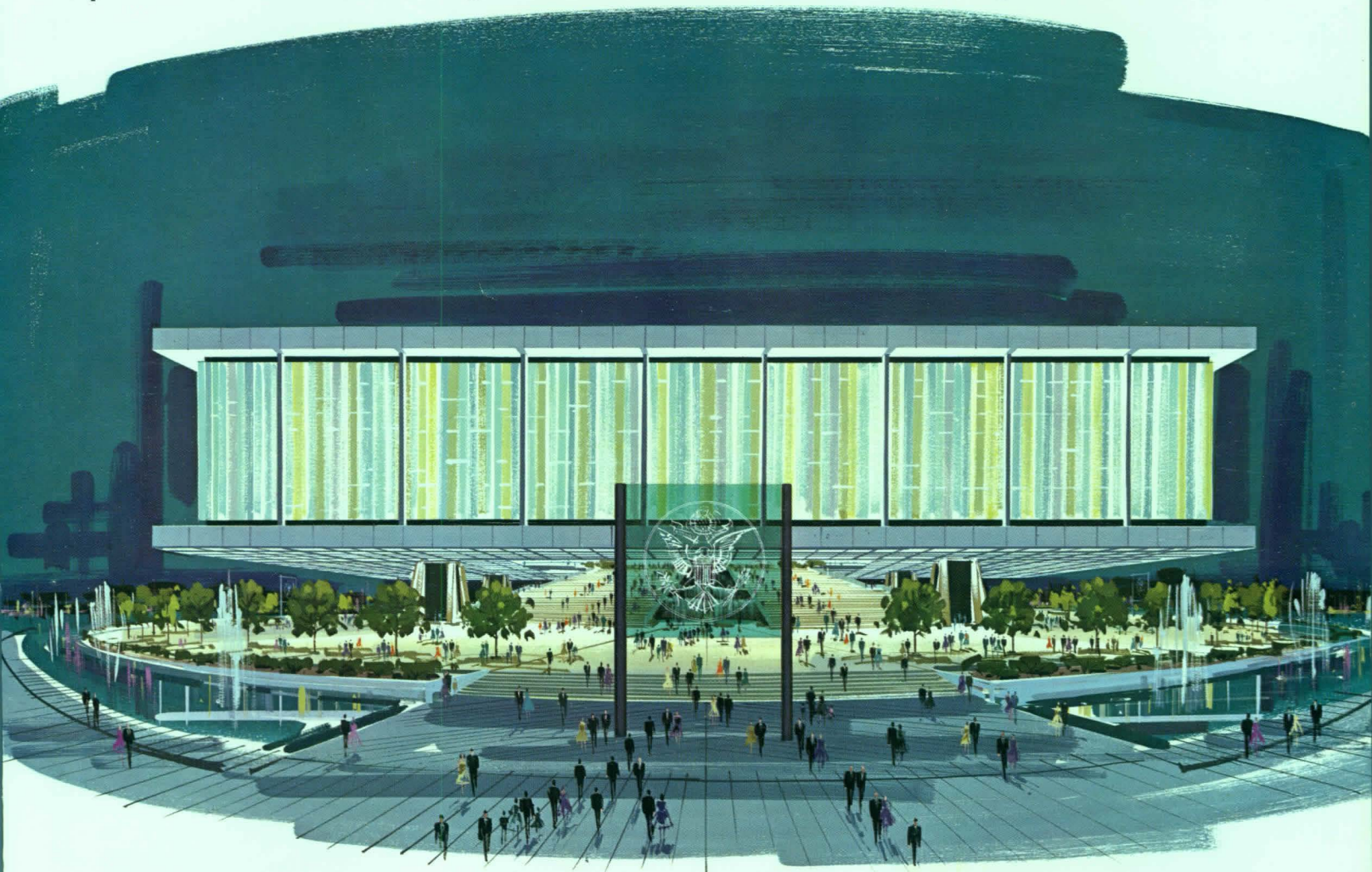
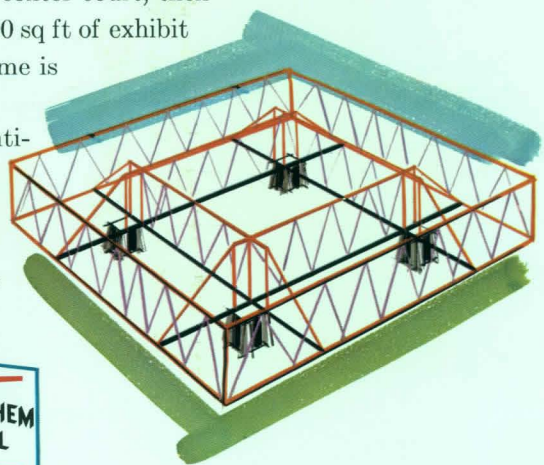
Report from the New York World's Fair...

A preview of four outstanding structures fabricated and erected by Bethlehem Steel



"Challenge to Greatness"—The United States Pavilion

The theme of the Federal Government's exhibition calls for a touch of greatness in its architecture as well. Here is the response to the challenge—a colossal hollow square with luminous exterior walls, raised on mighty pylons above an elegant plaza. Some 330 ft square, the structure reaches a total height of nearly 90 ft . . . An estimated 40,000 visitors daily will ascend a truncated pyramid to the center court, then cross bridges to the building where they will circulate through some 150,000 sq ft of exhibit space on two levels . . . Shown here in simplified form, the structural scheme is based on eight mighty trusses, each 57 ft high and 310 ft long. The inner trusses span some 170 ft between the four steel supporting columns, and cantilever to pick up the outer trusses, which extend around the periphery.



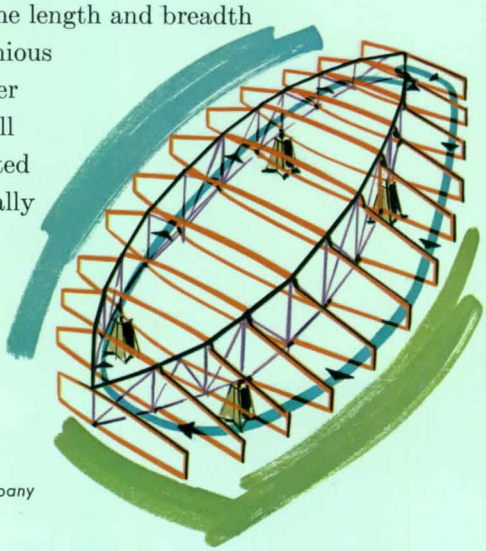
The Federal Pavilion is operated by the United States Commission, Department of Commerce, Norman K. Winston, Commissioner; Construction supervision: General Services Administration. Architect: Charles Luckman Associates of New York and Los Angeles Exhibit Design: Usher-Follis, Inc.; Cinerama Camera Corporation Structural Engineer: Severud-Elstad-Krueger Associates Mechanical and Electrical Engineer: Slocum & Fuller General Contractor: Del E. Webb Corp.

BETHLEHEM STEEL

BETHLEHEM STEEL

"A Tribute to Man"—Bell Telephone System Exhibit Building

Within this dramatic "floating wing," the Bell System will describe Man's needs, desires, and accomplishments in the field of communications. An estimated 4,000 visitors an hour will pass through a series of theaters in the comfort of a chair ride which travels the length and breadth of the structure . . . The building itself could be called "a tribute to ingenious steel design," for it is undoubtedly one of the most unusual structures ever conceived. 400 ft long, it is raised above an amphitheatre on four 30-ft-tall pylons. Its steel skeleton has dual backbones—two trusses forming a pointed ellipse extending the full length of the building. They are connected laterally by rigid bents, with welded U-frames extending outward, forming soaring cantilevers on the front and rear of the wing. Virtually all of the shop and field connections are welded, making this one of the most unique welded structural projects ever conceived.



Architect: Harrison & Abramovitz Exhibit Design: Harrison & Abramovitz Consultant: Henry Dreyfuss
Producer-Designer, Ride: Jo Mielziner Structural Engineer: Paul Weidlinger
Mechanical and Electrical Engineer: Syska & Hennessy, Inc. General Contractor: George A. Fuller Company

BETHLEHEM STEEL

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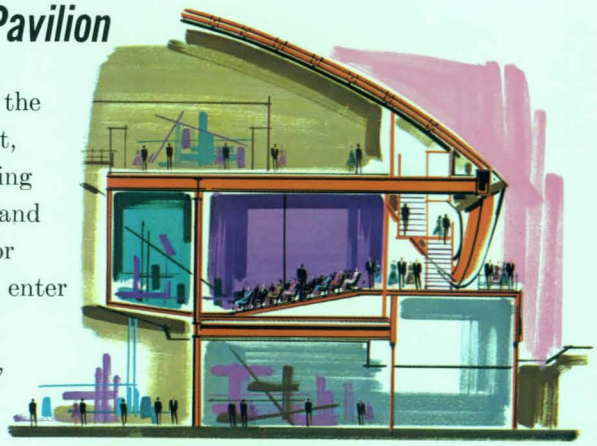
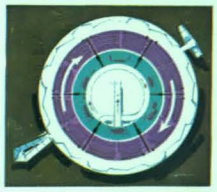
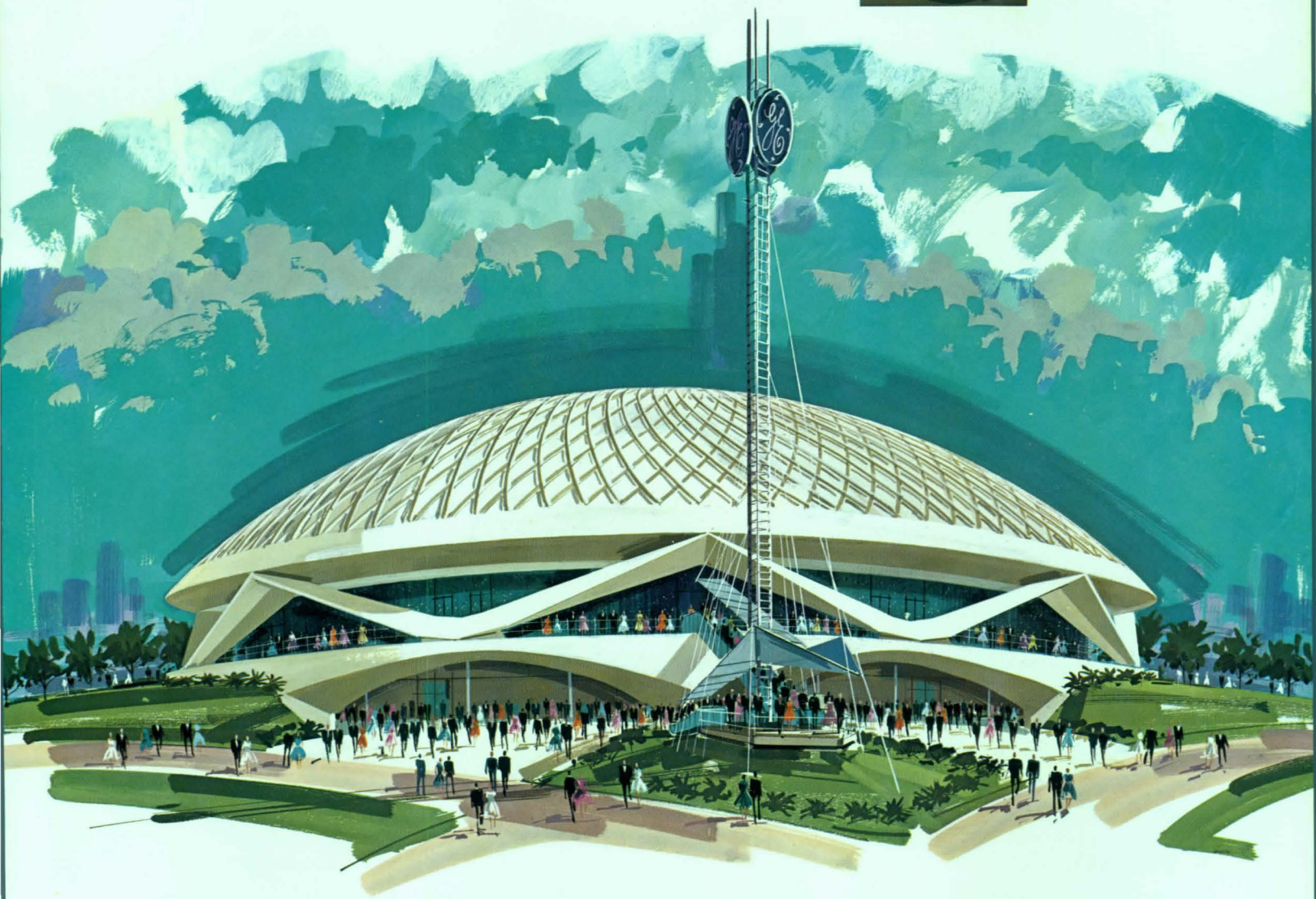
"Progressland"—General Electric Company Pavilion

A graceful dome, suspended from a lacy lamella web of steel pipe, crowns the General Electric Pavilion. Two hundred ft in diameter, with a rise of 40 ft, the dome springs from a welded-plate compression ring supported on sloping steel pipe columns. It will be a breath-taking scene at night, with a thousand quartz lights on the dome creating a kaleidoscope of color, programmed for a sweeping rotary motion phased with the theater rotation below. Visitors enter at the second level, which is actually a giant carousel enclosed within a sparkling circular wall. Seated in six separate theaters within the carousel, audiences view a show created by Walt Disney and designed by WED Enterprises. The carousel rotates slowly, stopping in front of the six stages, each presenting a different act of the show . . . Visitors proceed to additional exhibits on the stationary upper level, then down ramps in the center well to a final display area at the ground floor.





Visitors enter a theater (lavender); observe exhibits (blue) at each of six stages; then ascend ramp to upper level.



Architect: Welton Becket and Associates Exhibit Design: WED Enterprises, Inc. Structural Engineer: Richard Bradshaw
Mechanical and Electrical Engineer: Syska & Hennessy, Inc. General Contractor: Turner Construction Co.

"The Triumph of Man"—The Travelers Insurance Companies Pavilion

Mirrored by an inverted form below, the red roof of The Travelers' Pavilion is an abstract adaptation of the company's well-known "umbrella of protection," seemingly floating above a continuous curtain of water jets . . . Within the shell-like structure is a clearspan auditorium, 132 ft in diameter, containing 21,000 sq ft of exhibit space on varying levels . . . Here visitors will see dramatizations of Man's age-old struggle to achieve safety and security in a free society . . . The basic structure is formed by 24 boomerang-shaped, welded-steel ribs, supporting purlins with tie-rods. The ribs are connected at the apex by a 66-ft-diameter space structure of bridge strand radiating from a central tension ring. To counteract unsymmetrical loads, the ribs are girded at the equator by four post-tensioned steel cables . . . This unique design, which reverses the usual stress pattern, uses only about one-fourth the steel required for conventional schemes and, because of the lightness of the overhead structure, provides maximum headroom.

Architect: Kahn & Jacobs Designers: Donald Deskey Associates, Inc. Structural Engineer: Lev Zetlin & Associates
Mechanical and Electrical Engineer: Jansen & Rogan Landscape Architect: Clarke & Rapuano
General Contractor: George A. Fuller Company

BETHLEHEM STEEL

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***If you would like** to have additional technical information on the design and construction of these four unusual structures, you have only to write for Booklet 1968. Please address your request to*

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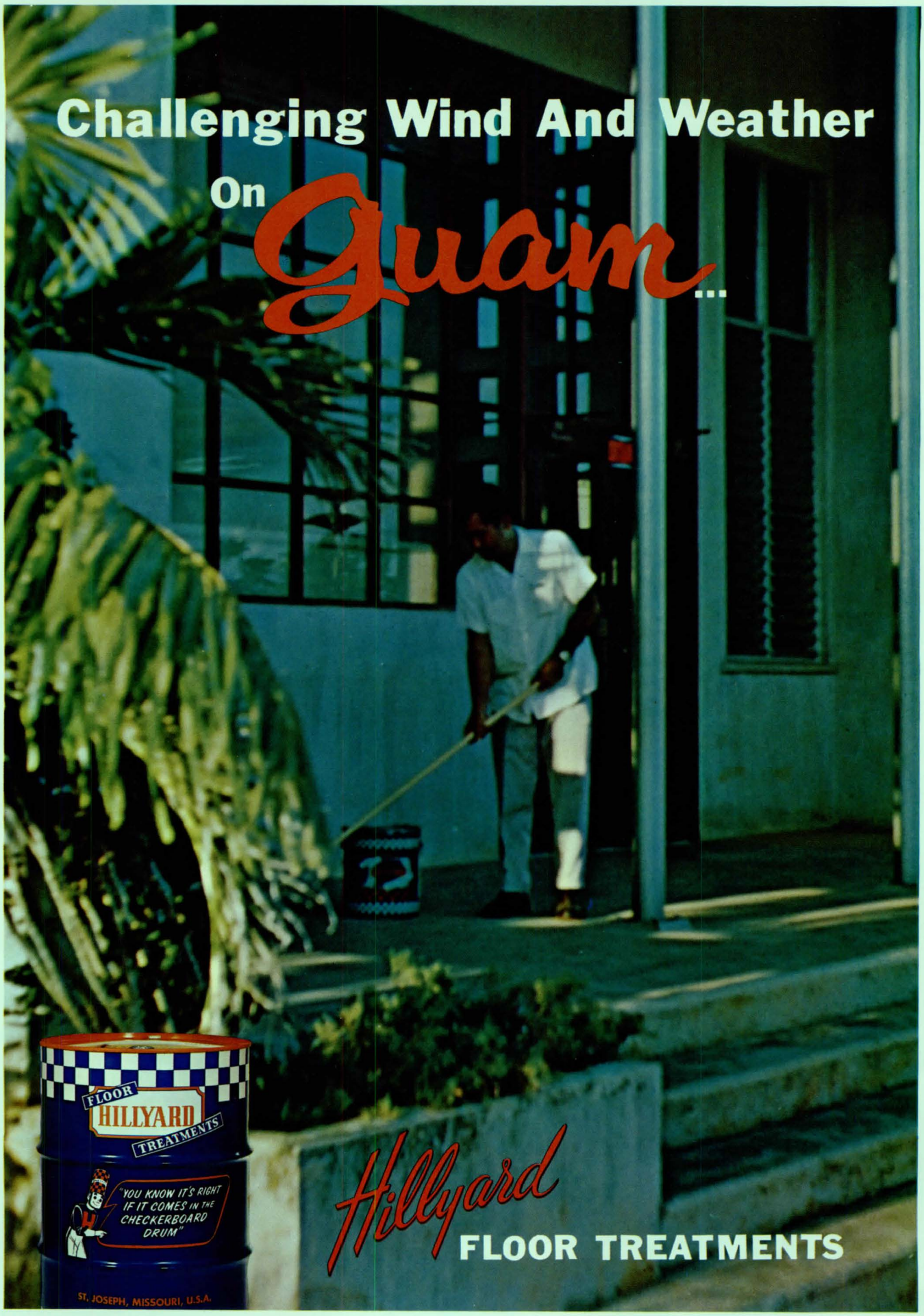
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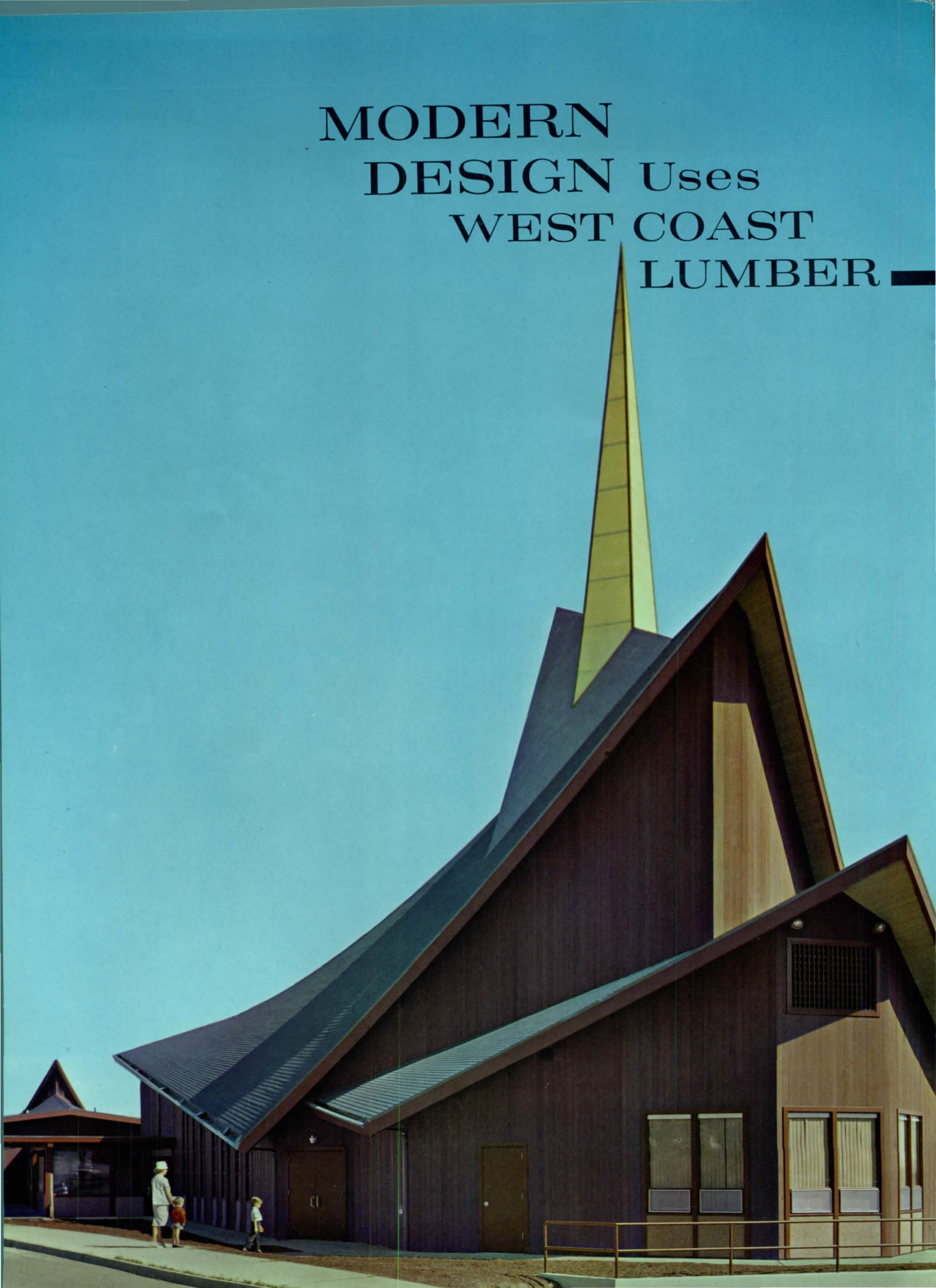

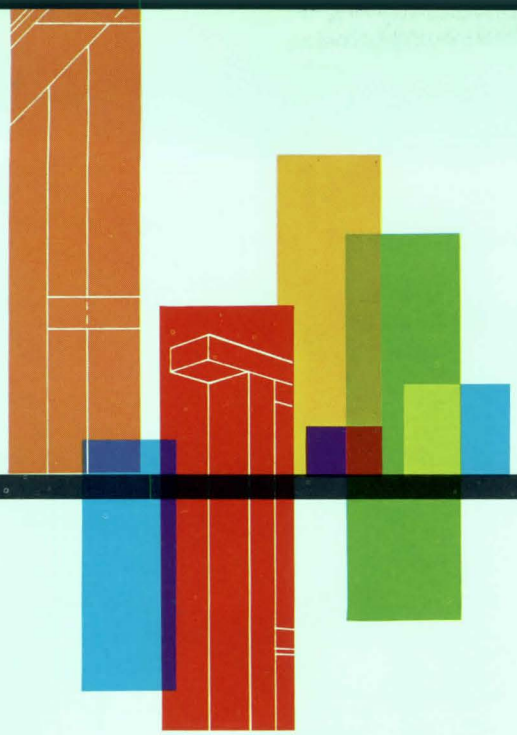

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WEST COAST LUMBERMEN'S ASSOCIATION

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Continued from page 204

does not reside in the description of the architecture, the originality of which, according to Lewis Mumford's devastating compliment, "consists in its indifference to orginality." It is a book that will be read with interest and sympathy by any architect engaged in religious work, for it shows that despite the importance of the building and the country in which it is located, the objections raised by client personalities and the compromises imposed by building committees always happen on similar occasions and on similar matters. It is a book that has its place in the architect's library—provided it is first stripped of its old-fashioned jacket.

OTHER BOOKS TO BE NOTED

Airspace in Urban Development (TB 46). Michael M. Bernard. Urban Land Institute, 1200 18 St., N.W., Washington, D.C., 1963. 20 pp., illus. $2 paperbound

Introduction to the concept of airspace applied to surface transportation, air travel, condominiums, and scenic easements. Text by lawyer-city planner Michael Bernard is implemented by illustrations and numerous references for further research.

Arches, Continuous Frames, Columns, and Conduits: Selected Papers of Hardy Cross. Introduction by Nathan M. Newmark. University of Illinois Press, Urbana, Ill., 1963. 164 pp., illus. $5

To be reviewed.

Architecture in Transition. Constantinos A. Doxiadis. Oxford University Press, 417 Fifth Ave., New York 16, N.Y., 1963. 200 pp., illus. $7.50

To be reviewed.

Candela: The Shell Builder. Colin Faber. Foreword by Ove Arup. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y., 1963. 240 pp., illus. $16.50

To be reviewed.

La Cathedrale de Bourges et sa Place dans L'Architecture Gothique. Robert Branner. Wittenborn & Company, 1018 Madison Ave., New York 21, N.Y., 1963. 205 pp., illus. $10

French translation of 1954 book by Robert Branner relates the history of the construction of the Cathedral at Bourges and discusses the finished building. Black and white photos illustrate details of the crypt, apse, nave, and façades. Final section discusses the place of the cathedral in Gothic Architecture. Branner is author of the book Gothic Architecture *in Braziller's series,* Great Ages of World Architecture.

Community and Privacy: Toward a New Architecture of Humanism. Serge Chermayeff and Christopher Alexander. Doubleday & Co., Inc., 575 Madison Ave., New York 22, N.Y., 1963. 236 pp., illus. $5.95

To be reviewed.

The Domesticated Americans. Russell Lynes. Harper & Row, Inc., 49 E. 33 St., New York 16, N.Y., 1963. 308 pp., illus. $6.50

To be reviewed.

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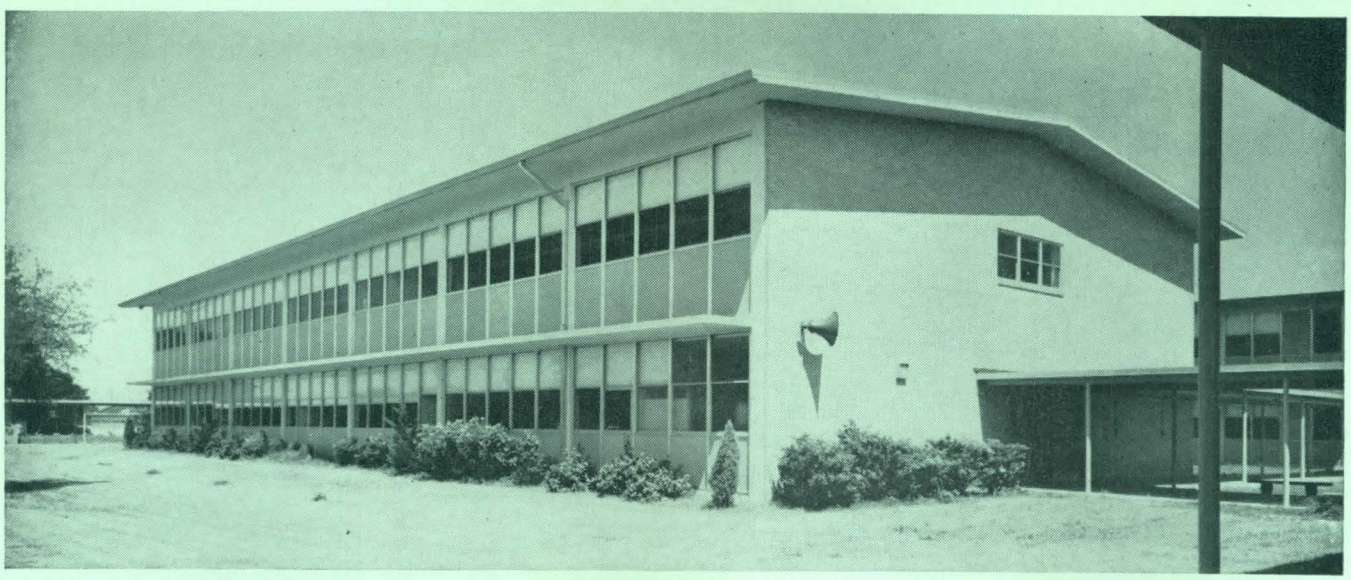

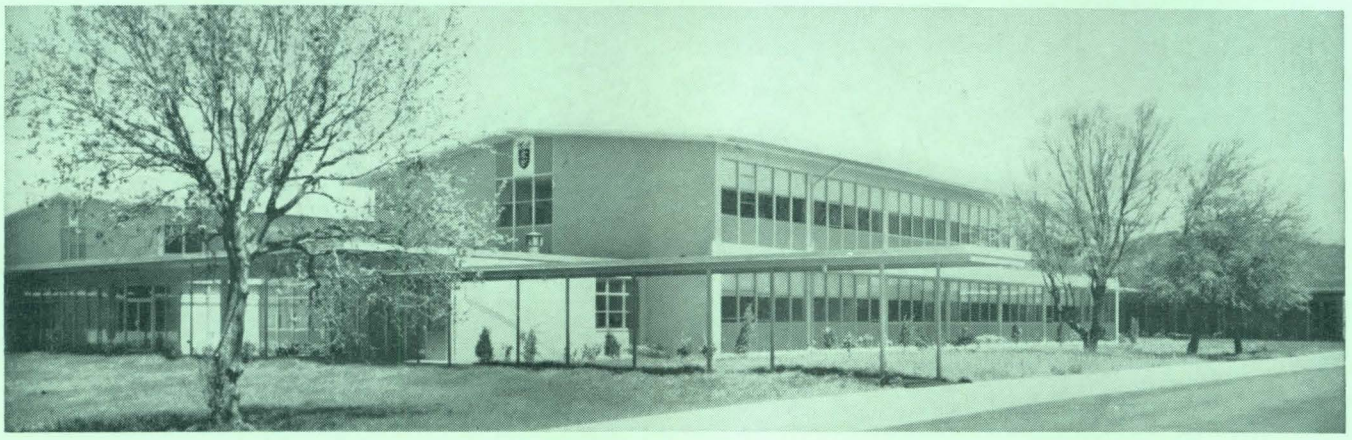

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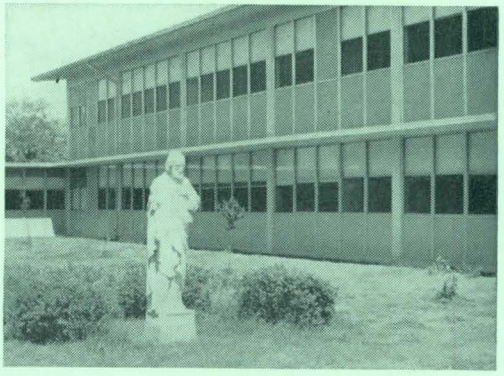

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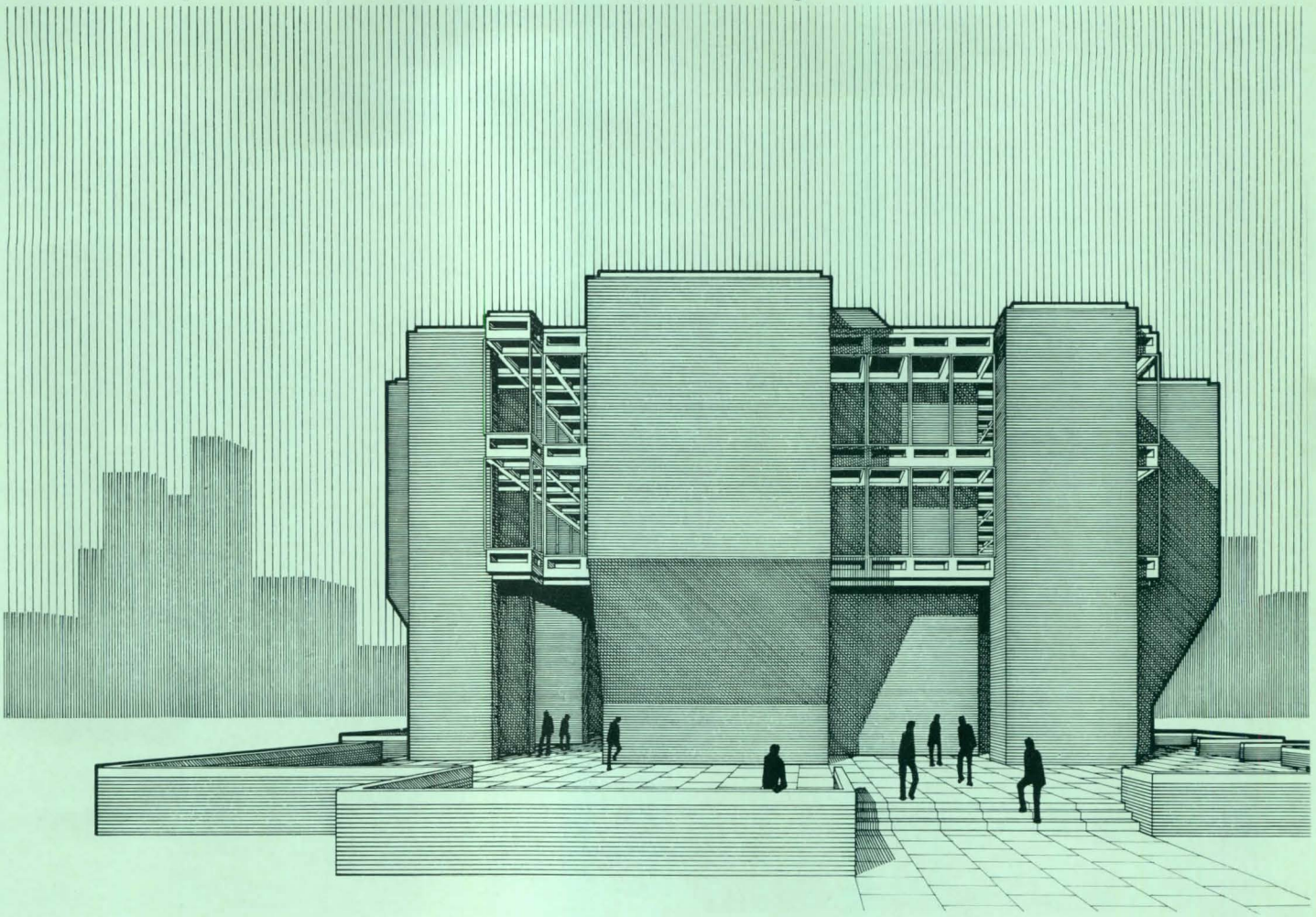
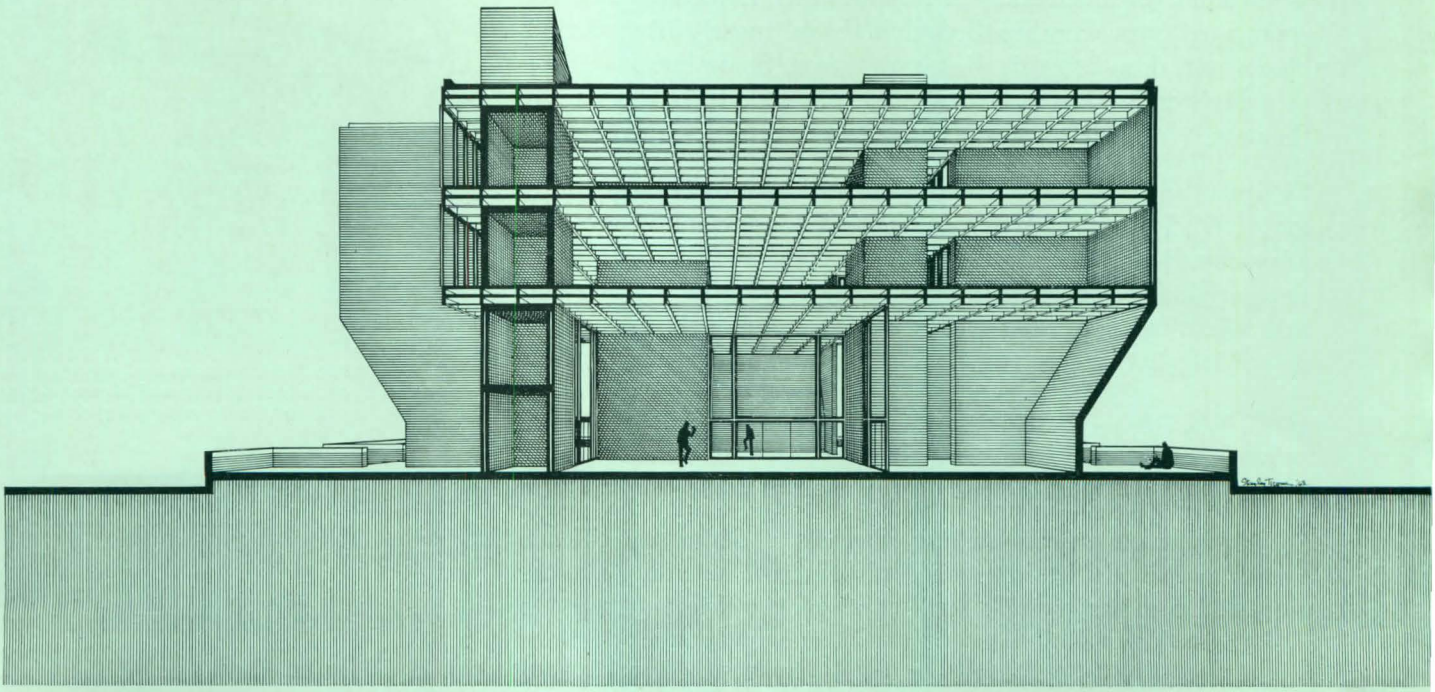
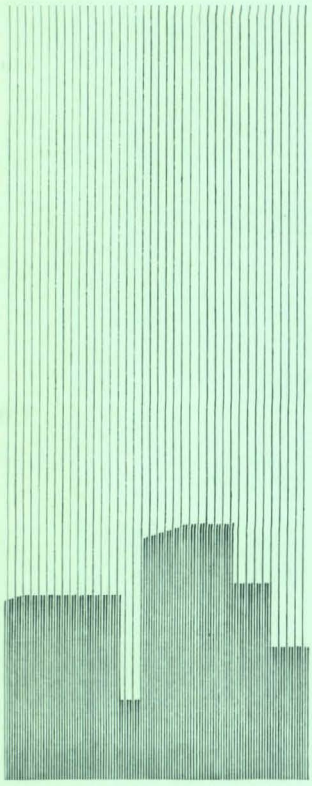
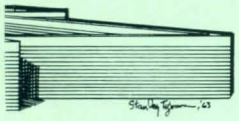
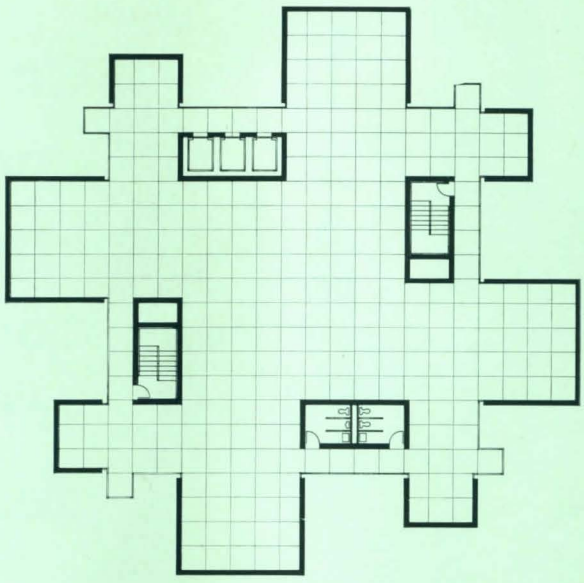








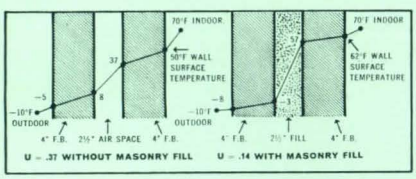


The concept derives from point tower block; the practicality is provided by Zonolite Masonry Fill Insulation in the cavities

Stanley Tigerman of Tigerman and Koglin, Chicago architectural firm designed this office building. Consulting engineer Norman Migdal of Chicago engineered it. Zonolite commissioned it.

The practicality of the building is improved in several ways by the use of Zonolite Masonry Fill Insulation in the cavities.

It forms a permanent, clean, dense barrier which cuts heat costs 17.29% in this particular installation. Cooling costs are cut 5%. In addition to a reduction in heating and cooling costs of $490 per year, a proportionately smaller heating unit can be used (see chart). Note, too, in the smaller diagram, how interior wall surfaces maintain a more comfortable temperature.



Initial construction costs are further reduced because wall surfaces do not require the finishing necessary when conventional insulation is used on the inside. Moreover, Zonolite Masonry Fill Insulation is water repellent. Interior walls stay dry.

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At an installed cost of approximately 10¢ per square foot in cavities of this type, obviously the use of Zonolite Masonry Fill Insulation is more than justified. The installed cost is so low mainly because the material is simply poured out of the bag into the cavities.

Our Bulletin MF-83 contains additional facts you will want to consider. Write Department PA-113, Zonolite Division, 135 South LaSalle Street, Chicago 3, Illinois.

ZONOLITE
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Design Conditions			Winter Heat Loss in Btu/Hr Assuming 75°F Indoor −10°F Outdoor		Summer Heat Gain in Btu/Hr Assuming 78°F 50°RH Indoor 95°FDB 75°FWB Outdoor	
	Without Masonry Fill	**With Masonry Fill**	Without Masonry Fill	**With Masonry Fill**	Without Masonry Fill	**With Masonry Fill**
Wall	4" Face Brick Air Space 4" Face Brick	4" Face Brick 2½" Fill 4" Face Brick	390,000	151,000	72,000	**28,100**
Solar and Transmission	Roof 3" Insulation Overhang 4" Batt Glass-Heat Absorbing and Regular Plate		386,800	386,800	220,300	**220,300**
Infiltration Ventilation	600 CFM 6,000 CFM F.A.		610,000	610,000	227,000	**227,000**
Lights	—		—	—	240,000	**240,000**
People	—		—	—	81,000	**81,000**
Total			1,386,800 Btu Hr	1,147,800 Btu Hr	840,000 Btu/Hr 70 tons	**796,400 Btu/Hr 66.5 tons**
Percent Savings with Masonry Fill			$\frac{1,386,800-1,147,800}{1,386,800}$ **17.2%**		$\frac{70-66.5}{70}$ **= 5.0%**	(1)

(1.) Heating and Cooling operating costs are reduced by approximately $490.00 per year. First cost of insulation ($1,250.00) can be paid off in less than 3 years.*

**Based on 6113 degree days. Gas at 7 cents per therm. Absorption refrigeration 60 hrs./week of ventilation operation.*

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HUGH DOWNS REPORTS ON AN ENTIRELY NEW TYPE OF BUILDERS HARDWARE PRODUCT

Complete door control in a single attractive unit compatible with your architectural design

NEW NORTON UNI-TROL®

WHAT IS UNITIZED DOOR CONTROL?

Unitized door control is a new hardware product designed to perform all door control functions through the use of a single unit. It combines complete door control into a single unobtrusive installation.

MORE ATTRACTIVE DOOR APPEARANCE

You can eliminate the cluttered look on your doors. There's no need to install multiple products to obtain complete control. Norton Uni-Trol unitized door control offers complete door control in a single attractive installation. And Norton Uni-Trol is compatible with modern architectural design. Another Norton contribution to the aesthetic revolution in builders hardware.

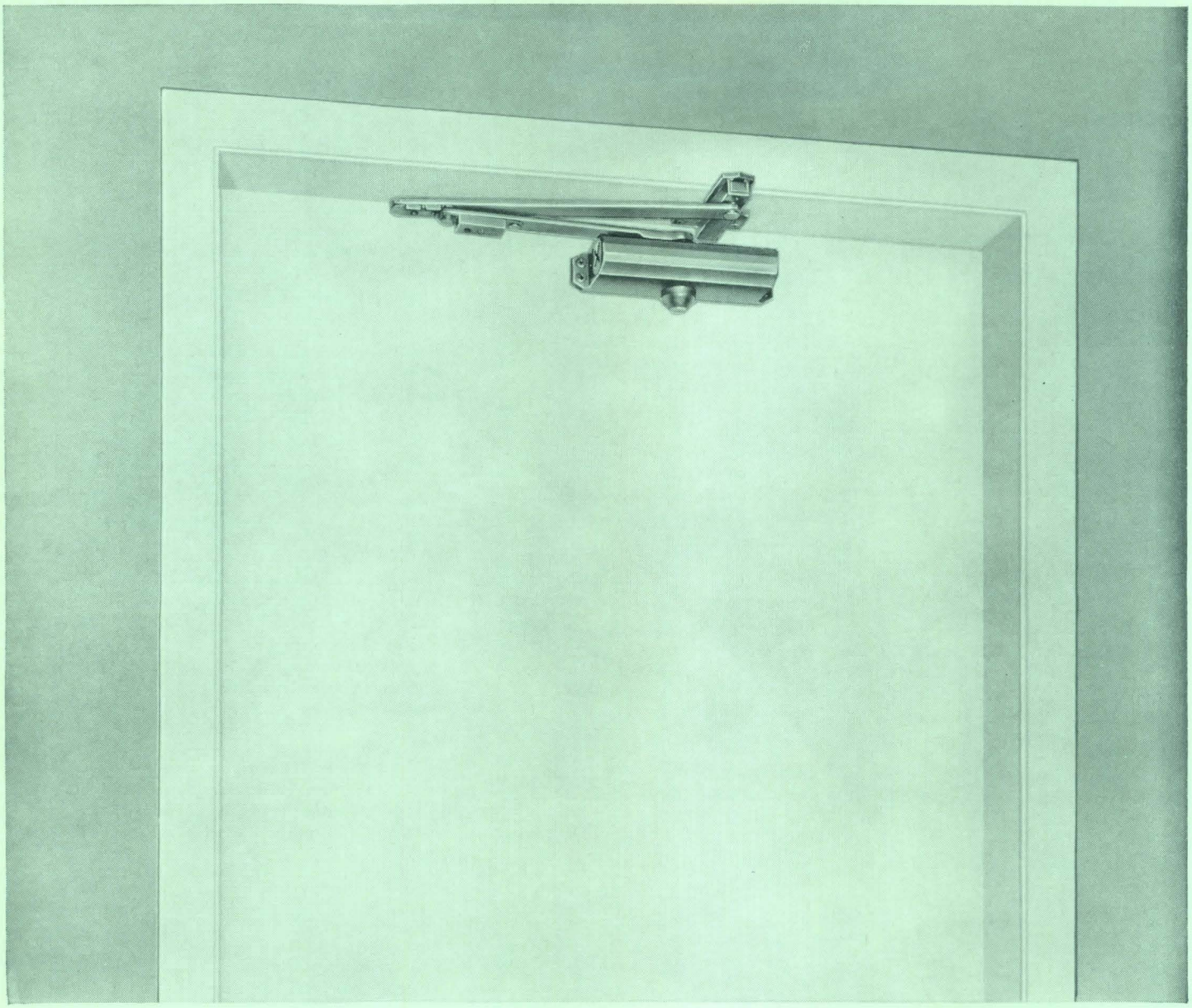
COMPLETE COORDINATED CONTROL

Here for the first time it is possible to specify complete door control that has been engineered as a unit. No more coordinating various products to get the door control you wish. Norton Uni-Trol unitized door control combines all these door control functions into a single coordinated product, engineered for the maximum efficiency of each function.

SIMPLIFIED SPECIFICATION

You'll only have to specify a single Norton Uni-Trol, to obtain complete control for your door. One simple specification covers all door control functions. There's no possibility of products arriving at the job that won't fit; no installation problems.

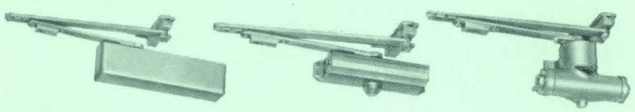
ASK YOUR NORTON REPRESENTATIVE TO SHOW YOU A SAMPLE OF NORTON UNITIZED DOOR CONTROL OR WRITE FOR NORTON MANUAL "U".



UNITIZED DOOR CONTROL

CHOOSE FROM 2 BASIC STYLES
6 VERSATILE MODELS

SERIES 6100



SERIES 6110 SERIES 6120 SERIES 6130

SERIES 6300

SERIES 6310 SERIES 6320 SERIES 6330

Performs all five door-control functions

1. Cushions the opening of the door
2. Stops the door
3. Holds the door open
4. Closes the door
5. Regulates door closing and latch speeds

1062

NORTON® UNITIZED DOOR CONTROL

372 Meyer Road, Bensenville, Illinois

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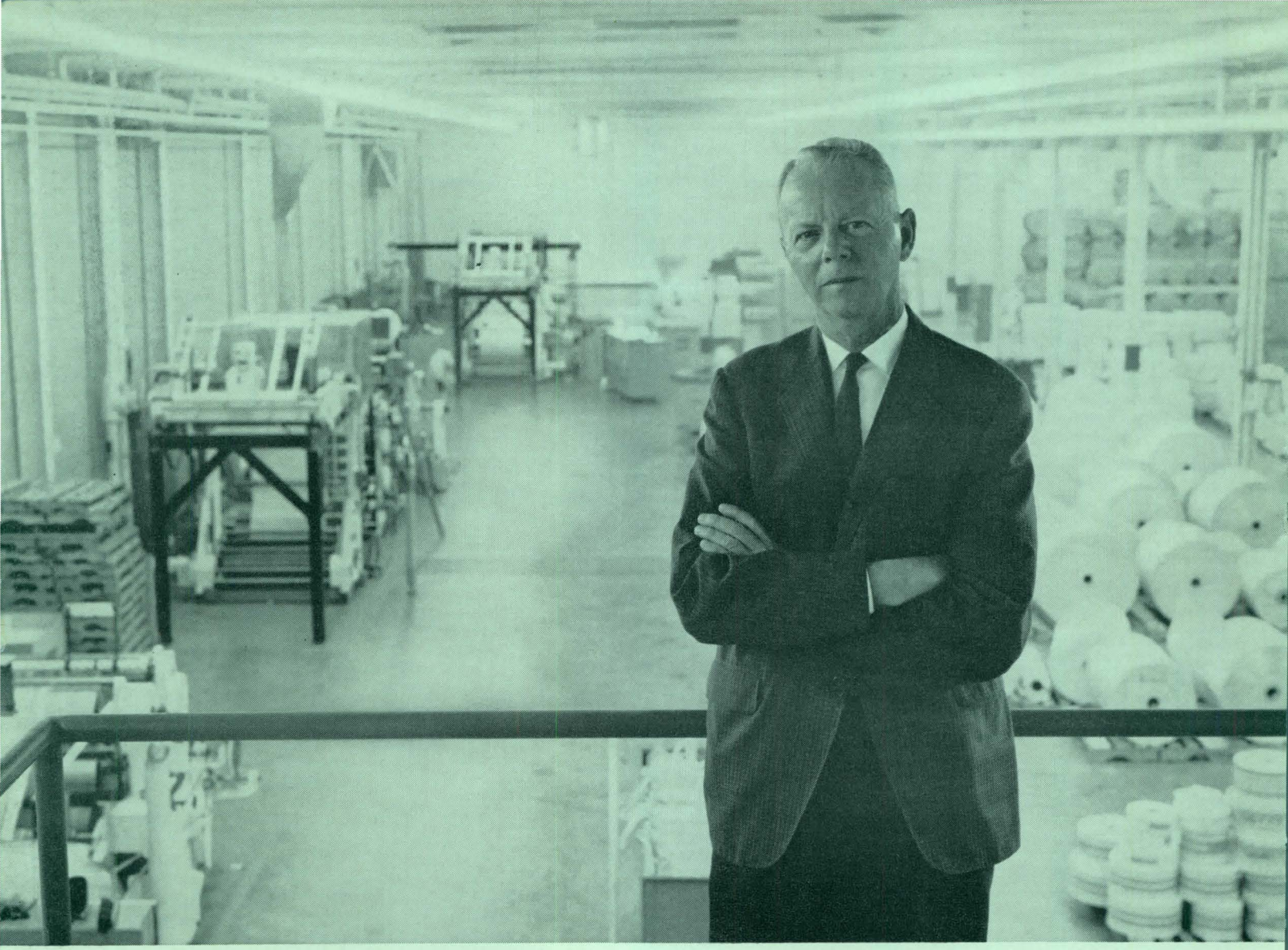


"AS CHIEF ENGINEER, I CAN TELL YOU WHY WE DECIDED ON TOTAL ELECTRIC SPACE CONDITIONING FOR OUR NEW PLANT"

Russell H. Bush, Chief of Engineering for the Deering Milliken Service Corporation, reports on the advantages of using flameless electricity as the single source of energy for all heating, cooling, lighting, and processing in their new Spartanburg, South Carolina, paper plant

"When my department put together the specifications for our new Tetra Pak paper plant," explains Chief Engineer Russell Bush, "we needed a design that would give us both construction savings and operating economy, and would also allow us to make provision for any future expansion. We found total electric space conditioning to be the best answer.

"For example, by installing a total electric heating and cooling system, we were able to save approximately $7000 in initial costs alone. And as far as maintenance is concerned, we haven't put in a single hour on it since our plant opened last year!

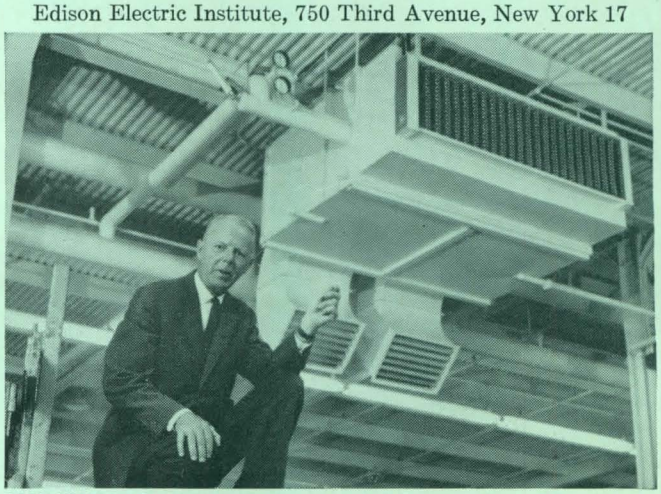
"In addition, the plastic-coated paper we manufacture here for food packaging is a new product which we expect to catch on fast. When it does, we'll have to expand. And this, of course, will be much simpler for us because our electric heating and cooling system permits complete flexibility and easy installation at a lower cost."

For architects and consulting engineers, total electric space conditioning is the modern method of combining heating, cooling and lighting into one efficient operation with a single source of energy. In many cases, for example, recommended lighting levels can provide a substantial part of the heat as well, and thus reduce the size and cost of heating equipment.

If you want to know how total electric space conditioning can help you in the design of industrial and commercial buildings, contact your local electric utility company. They will welcome the opportunity to work with you.

BUILD BETTER ELECTRICALLY

Edison Electric Institute, 750 Third Avenue, New York 17



COMBINATION ELECTRIC UNITS suspended from roof provide air conditioning in summer and have built-in resistance coils for winter heat. Chief Engineer Russell Bush points out their compactness.

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by **Ginori** *of Italy*
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New Kentile® Travertine Solid Vinyl Tile is greaseproof, easy to clean, need not be waxed. Its pitted texture and distinctive veining require minimum maintenance. Seven attractive colors. Installed cost in jobs of 1,000 sq. ft. or more: about $1.00 per sq. ft. for standard sizes (9" x 9" and 12" x 12", in .080" thickness). Prices slightly higher for special sizes and 1/8" thickness.

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