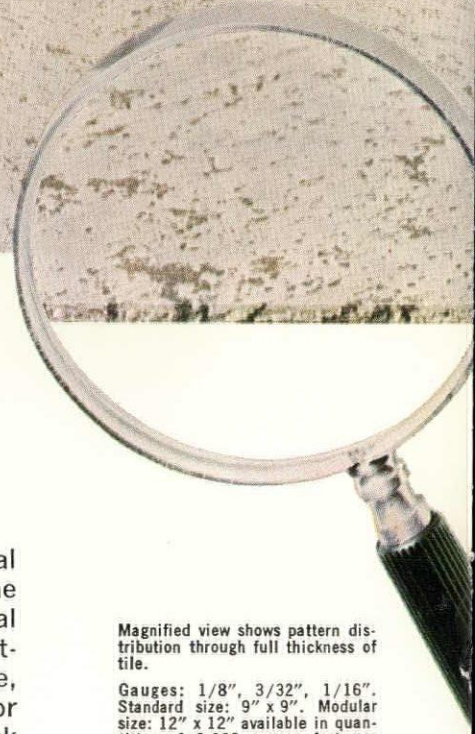

PROGRESSIVE ARCHITECTURE March 1963

Colors shown: V-428 Creme Italia; V-429 Franciscan

Vina-Lux® PREMIERE *Series*

...distinctive travertine styling that won't "walk off"!

Vina-Lux Premiere Series captures the elegance of travertine marble in economical vinyl asbestos tile. Because the pattern is distributed through the full thickness of the tile, Premiere can be installed anywhere indoors — even in heavy traffic commercial areas. For easy maintenance, Premiere has a textured surface, yet without the dirt-catching pits found in other travertines. Ideal for installation over concrete — above, on or below grade, or over wood or plywood subfloors. Consult Sweet's Catalog — or write us for samples, color charts and detailed architectural specifications. Azrock Floor Products Division, Uvalde Rock Asphalt Company, 522A Frost Building, San Antonio, Texas.



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 9,000 square feet per color — at no extra charge.

See us at the A.I.A. Convention Exhibition #411

an exclusive styling by AZROCK®

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six people with only one set of plumbing connections, reducing installation costs as much as 80%! They require so little floor space that you can convert even the smallest area into a high-capacity shower room. They save water, maintenance time and expense. And they move traffic faster than any other showers. Creative latitude? There are five different types: Columns . . . Multi-Stalls . . . Wall-Savers . . . Panelons . . . and Modesty Modules. And each is available in stainless steel, or enameled mild steel in standard grey or special colors (except the stainless steel Panelons). Small wonder that Bradley Showers are now paying their way through schools across the country; and no wonder they're called . . .

THE SHOWERS THAT SOLVED EVERYTHING!

Ask your Bradley representative for assistance on specific applications. And write for latest literature. Bradley Washfountain Co., 2377 W. Michigan St., Milwaukee 1, Wisconsin.

Bradley

Column Showers
2, 3, 4, 5, and 6-person

Multi-Stall Showers
2, 3, 4, 5, and 6-person

Wall-Mounted Showers
Wall-Savers and Panelons

Modesty Modules
Shower-Dressing Room

Now let's hear how the United States Testing Co. compares RAPIDOGRAPH and ACETOGRAPH with other technical fountain pens

Extravagant claims have recently been made about one line of technical fountain pens as compared to another. Such claims can cause confusion in the minds of those who buy and rely upon precision drafting instruments in their professional work.

In the interest of clearing the atmosphere and reducing the confusion that may be arising among professional draftsmen and other users, KOH-I-NOOR wishes to call attention to three such claims, and to present refuting evidence developed impartially after exhaustive laboratory tests by the U. S. Testing Co., a recognized authority in the industrial testing field.

CLAIM 1: *that a competitor's technical fountain pen lasts 4 to 20 times longer.* **The U. S. Testing Co. finds that actually the reverse is true; the KOH-I-NOOR technical fountain pen outwears the competitor's pen under test, especially on drafting film, many times over. KOH-I-NOOR points proved to have a much higher degree of fine workmanship in terms of point uniformity and smoothness.**

CLAIM 2: *that a longer point assures longer wear.* **The U. S. Testing Co. demonstrates that the life of the point is not determined by its length. They find, in actual fact, that extra length can cause flexing or fracture, especially in the fine sizes, and seriously compromise precision drafting.**

CLAIM 3: *that this competitor's pens can take any ink including acetate.* **The U. S. Testing Co. proved that at least one commonly used acetate ink actually disintegrated the competitor's point section (made of plastic) yet had no adverse effect on the KOH-I-NOOR Acetograph (made of hard rubber).**

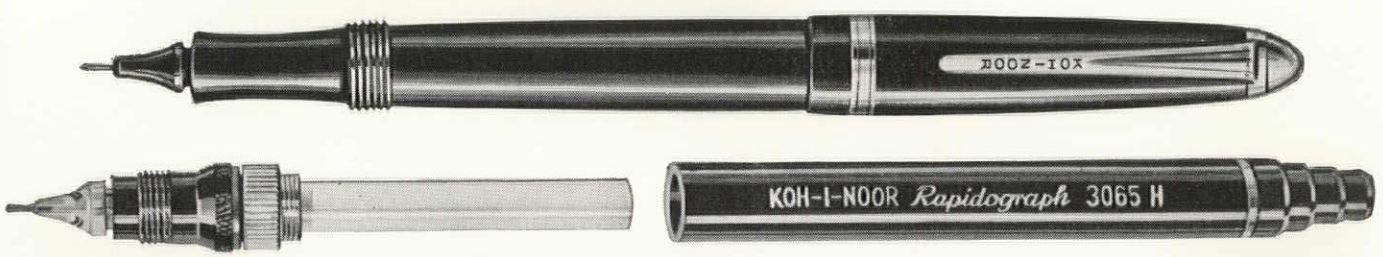
Other extravagant claims were also made—and refuted by the U. S. Testing Co. laboratory proof—but we rest our case on these three.

How shall a draftsman choose?

There can be but one choice for a painstaking professional draftsman who cannot afford to take chances with precision. He must choose the technical fountain pen designed for and meticulously manufactured for precision drafting. KOH-I-NOOR pioneered the technical fountain pen, and offers its Rapidograph and Acetograph pens as the finest, most durable drafting instruments of their type yet developed.

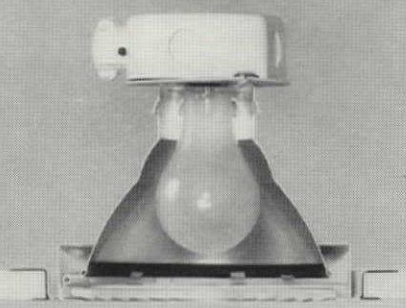
These pens have stainless steel points. They are airtight and leakproof. They are non-clogging, instant starting. Their ink capacity is 50% greater than others. Their points are truly interchangeable without ink spillage or soiling. *All* sizes have offset on the tube, to eliminate smearing when used with a straight-edge, French curve or lettering guide. KOH-I-NOOR pens are acknowledged to be the *proven* precision instruments of the drafting profession.

Write for a summary of U. S. Testing Co. Report No. 9541 of January 21, 1963 to KOH-I-NOOR, INC., Bloomsbury, N. J. The detailed test report may be examined at KOH-I-NOOR offices in Bloomsbury and New York, N. Y.; or your KOH-I-NOOR district sales representative will be glad to show you his copy.



KOH-I-NOOR

5006



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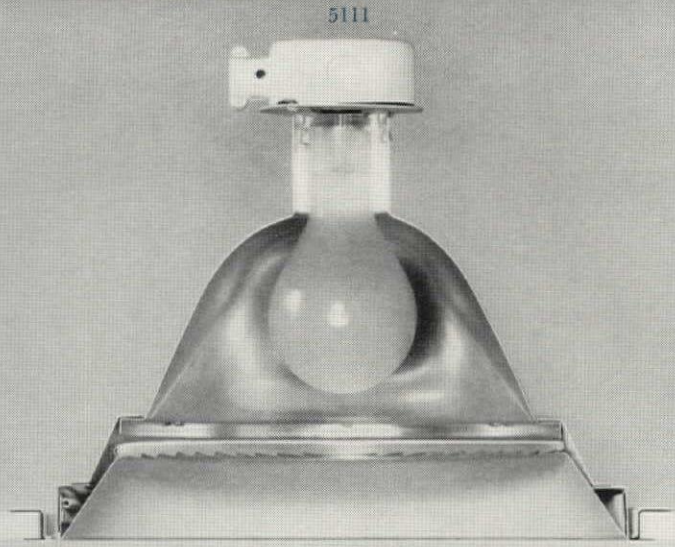

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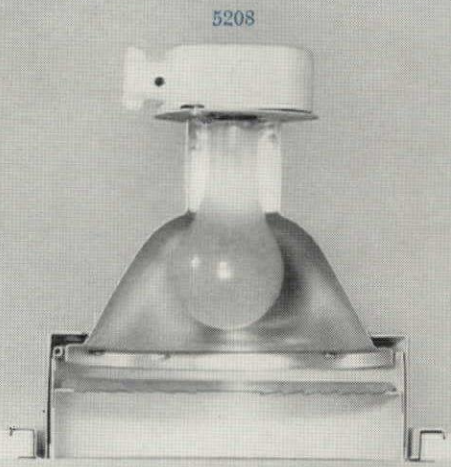


5000 SERIES

NO.	LAMP	LENS
5006	100w	6-5/8″d.
5007	150	6-5/8″
5008	150	8-3/8″
5009	200	8-3/8″
5011	200	11-1/4″
5014	300	13-3/4″

5100 SERIES

NO.	LAMP	LENS
5106	100w	6-5/8″d.
5107	150	6-5/8″
5108	150	8-3/8″
5109	200	8-3/8″
5111	200	11-1/4″
5114	300	13-3/4″

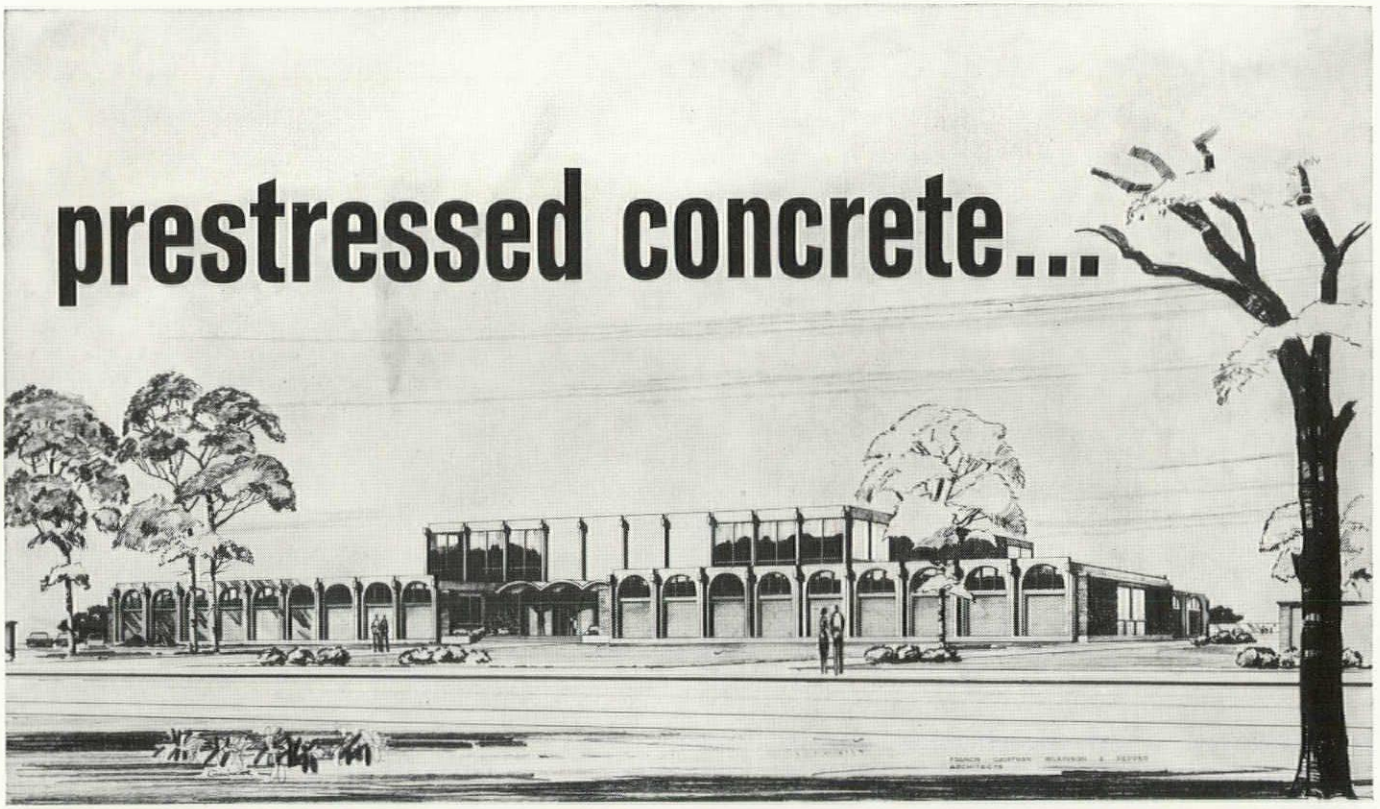
5200 SERIES

NO.	LAMP	LENS
5206	100w	6-5/8″d.
5207	150	6-5/8″
5208	150	8-3/8″
5209	200	8-3/8″
5211	200	11-1/4″
5214	300	13-3/4″

Here are three cross-sections of Gotham lighting units showing three fixture-to-ceiling relationships. Each series is made in four lens sizes; accommodates four lamp sizes; totals 18 different specific designs to fill 18 different specific needs. They are highly efficient wide-angle general illumination downlites incorporating Gotham's exclusive fresnelenses and alzak reflectors. And they all are built with the care and precision that insure predictable performance. For complete data: **GOTHAM LIGHTING CORPORATION**

37-01 Thirty-first St., Long Island City 1, N. Y.

prestressed concrete...



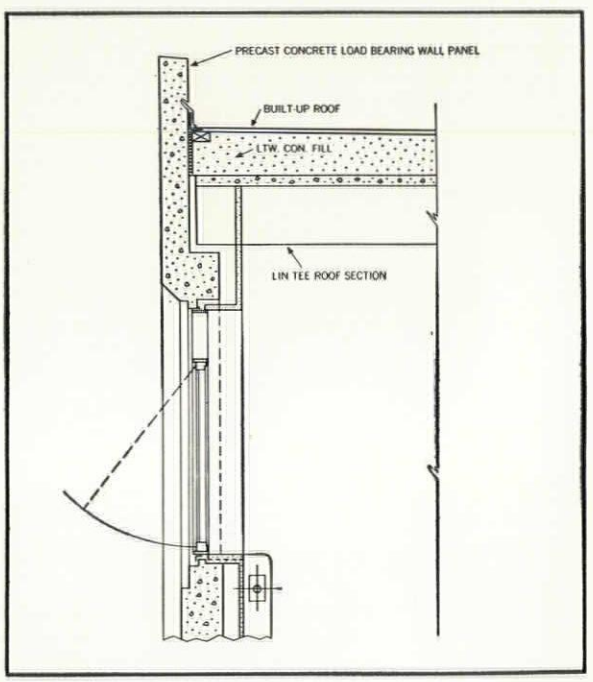
Prestressed concrete Lin Tees were used to achieve many advantages in this modern structure, the Nevil Field House for the Overbrook School for the Blind. Philadelphia, Pa. Architects: Francis, Cauffman, Wilkinson & Pepper. Engineers: Rothbaum & Davis, Contractor: J. S. Cornell & Son, Inc. all of Philadelphia, Pa. PRESTRESSED CONCRETE FABRICATOR: EASTERN PRESTRESSED CONCRETE CORP., HATFIELD, PA.

proves practical and attractive for field house

"Prestressed concrete was a logical material to use with the precast concrete wall panels which form the major part of the enclosing walls of this building," say the architects. And they add, "From an architectural point of view the prestressed members when exposed on the interior make a very handsome and interesting ceiling construction, particularly in areas where floating acoustical ceiling panels were used in conjunction with the prestressed members."

Structurally speaking? The contractor states that the ease of handling the prestressed members saved a great amount of time and that the building was "closed in" sooner than would have been the case with more traditional materials. The same crew that erected the walls also erected the prestressed roof members, resulting in easy coordination of labor and reduced erection cost.

Write or wire us for information on prestressed concrete. We are the original producers of prestressing wire and strand in this country and can give you the basic design and technical data you need. Just tell us what type of structure you are considering. We can also put you in touch with experienced engineers and fabricators in your area. The Colorado Fuel and Iron Corporation, Denver 2, Colorado—Trenton 2, New Jersey.



Section drawing shows how the prestressed concrete Lin Tees were connected to the precast load bearing wall panels with dowels (not shown) to eliminate all columns.

CF&I-ROEBLING
PRESTRESSING WIRE & STRAND
CF&I STEEL

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Flat, corrugated or sandwich-type reinforced panels made with 100% LUCITE® ACRYLIC SIRUP are attractive, functional, practical

Transparent, translucent and opaque panels made with 100% LUCITE acrylic sirup are now available in a wide variety of patterns and colors. ■ These panels make effective use of natural and fluorescent lighting to illuminate the interiors of factories, commercial buildings, schools, motels and churches. Their installed cost is less than glass and sash, and they also reduce daytime illumination costs. ■ Panels made with 100% LUCITE are the most weather-resistant reinforced plastic panels available . . . their resistance to moisture and sunlight is unsurpassed. For example, outdoor signs made from LUCITE have endured exposure to moisture and sunlight for more than 20 years — and they're still in service. In other words, panels made from LUCITE retain their color, gloss and light-transmission qualities far longer than any other reinforced plastic panel. ■ For more information about reinforced panels made with 100% LUCITE acrylic sirup, write: Du Pont Company, Department **PA-3**, Room 2507L, Wilmington 98, Delaware.

PLASTICS DEPARTMENT

DU PONT

REG. U.S. PAT. OFF.

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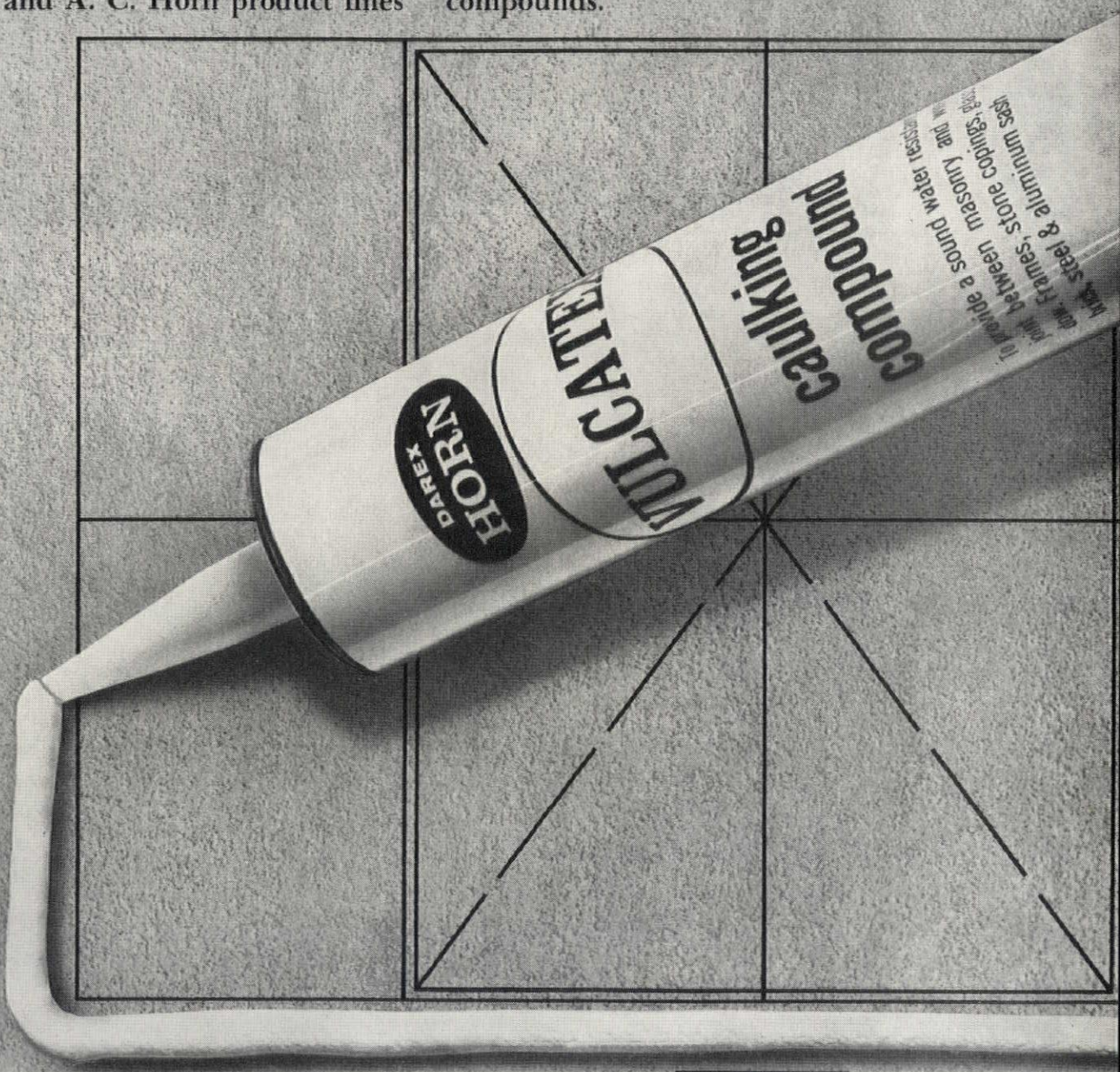

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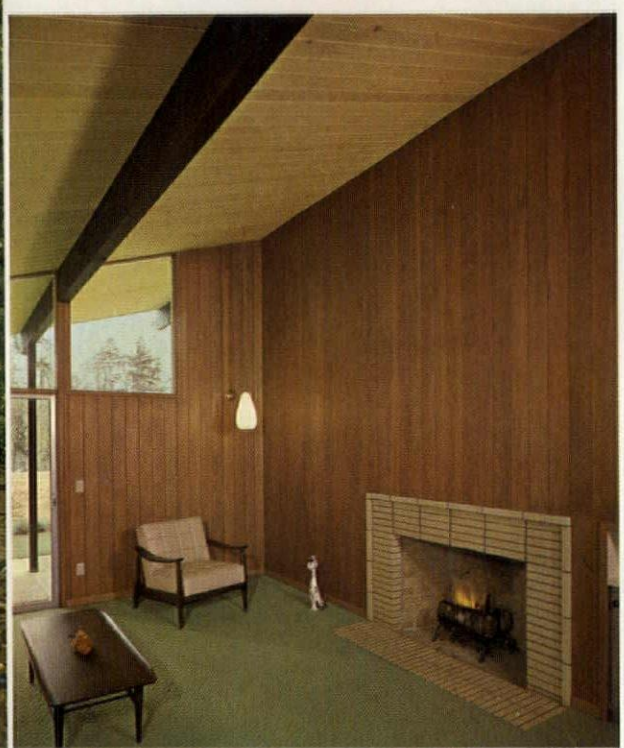
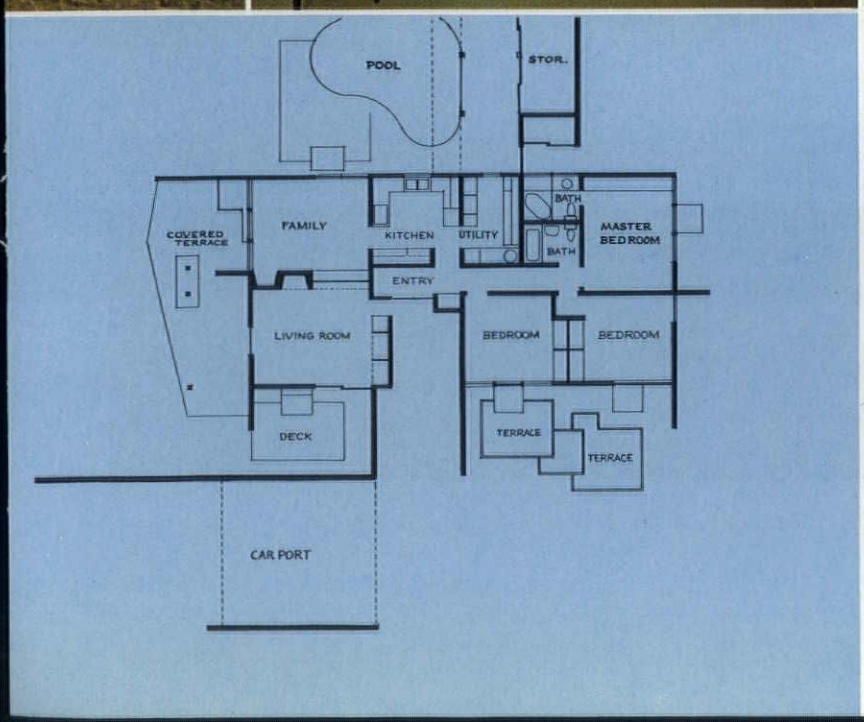
For DISTINCTIVE HOMES





The design of distinctive custom homes becomes economically practical with the blending of species, standard sizes and grades of West Coast Lumber. This outstanding Lake Oswego, Oregon home is an example.

Framed with West Coast Douglas Fir, paneled in West Coast Hemlock and sided with Western Red Cedar this 1600 sq. ft. home presents itself in a quality atmosphere that reflects the desire of owners for individuality.

Located on a suburban site, each of the three bedrooms has a private patio, screened from each other and the street with a fence of Western Red Cedar boards. The roof of West Coast Hemlock heavy flooring supported by Douglas Fir posts and beams extends beyond the wall line of the house to provide a covered patio easily accessible from the hemlock paneled living and family rooms. Basementless, a 6′ x 15′ storage space is readily available from the utility room.

Coast region West Coast Lumber to build outstanding homes, large or small, is available in standard sizes and grades from local retail lumber dealers—an important supply source for economies in time and money.

Architects: Frank Shell-Charles D. Hoyt, A.I.A.

Following are the applications of the standard sizes and grades of West Coast Lumber used in building this home:

MILL 10 WCLB STAND — **West Coast Douglas Fir** 2"x10" **floor joists;** 2"x4" **studs** and plates; 4"x4" **posts.**

MILL 10 WCLB STD-FLG 126b — **West Coast Douglas Fir** 2"x6" tongue and groove **sub-flooring.**

MILL 10 WCLB 1500-f DOUG FIR — **West Coast Douglas Fir** 4"x14" **exposed beams** support the roof of the house and carport.

MILL 10 WCLB SEL-FLG 126a — **West Coast Hemlock** 2"x6" tongue and groove heavy flooring for the **ceiling.**

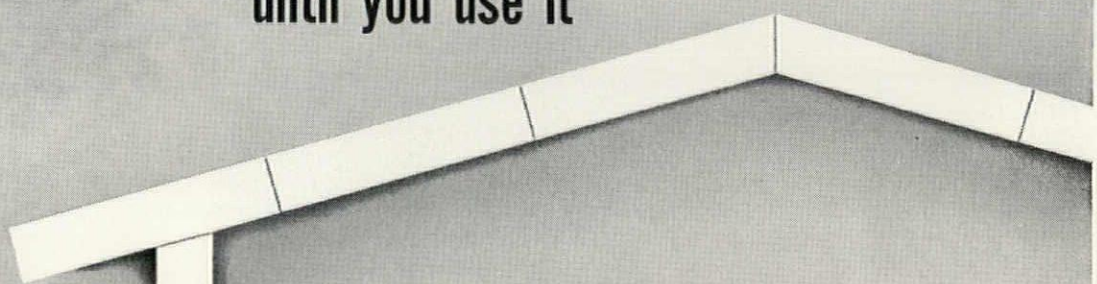
MILL 725 WCLB C&BTR — **West Coast Hemlock** 1"x6" tongue and groove **paneling.**

MILL 725 WCLB C&BTR — **West Coast Hemlock interior trim** and **louvered doors.**

MILL 725 WCLB C&BTR — **Western Red Cedar** 1"x4" tongue and groove **siding** with sawn surface exposed.

UNI-CREST is only a board of foamed polystyrene . . .

until you use it



then it becomes the most versatile, permanent insulation material there is!

Millions of feet of Uni-Crest are used every year in walls • floors • around foundations • under slabs • ceilings • dozens more! Here's why:

Readily adheres to masonry • Eliminates furring or lathing • Provides an excellent surface for plaster, cement, other finishes • Handles easily: lightweight, trims to any shape with ordinary tools • Types available are regular or self-extinguishing; in widths up to 4′, lengths up to 12′ and thicknesses from 1″ to 8″.

Write for installation instructions and free sample of Uni-Crest today!

UNI-CREST

Uni-Crest Division,
United Cork Companies, 30 Central Ave., Kearny, N.J.
OFFICES OR APPROVED DISTRIBUTORS IN KEY CITIES COAST TO COAST

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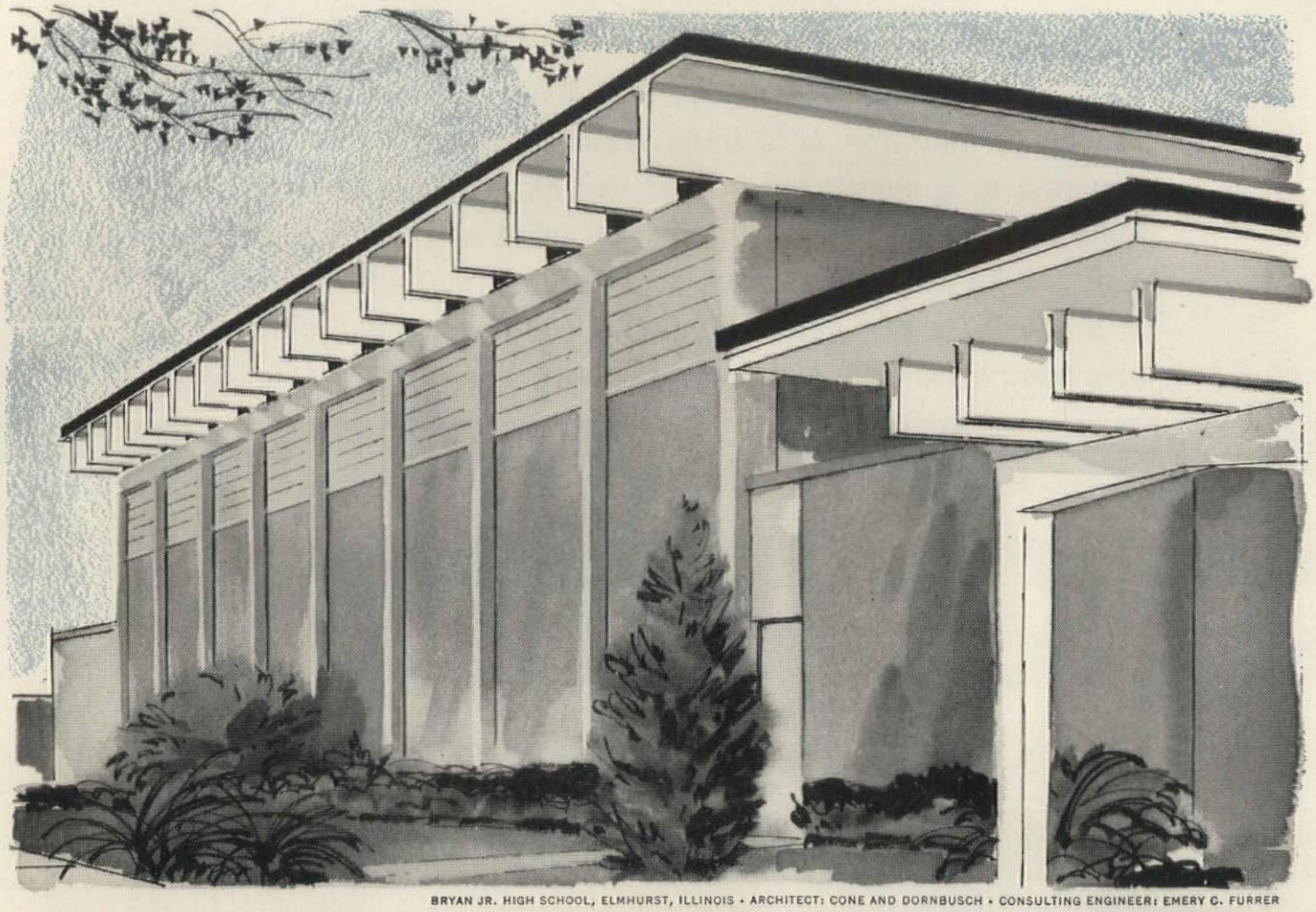

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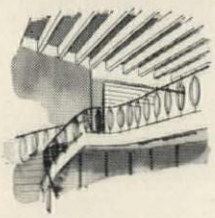
THE NATURAL BEAUTY OF EXPOSED PRESTRESSED CONCRETE



Visual effects of impressive beauty are achieved in precast prestressed concrete *without finishing of any kind.* Honest, natural texture is pleasing alone and combines well with other materials for exterior or interior use. The wide variety of plant manufactured units may be further varied to meet architectural and structural functions. For economy, adaptability, speed of erection, and striking visual effects, use prestressed concrete.

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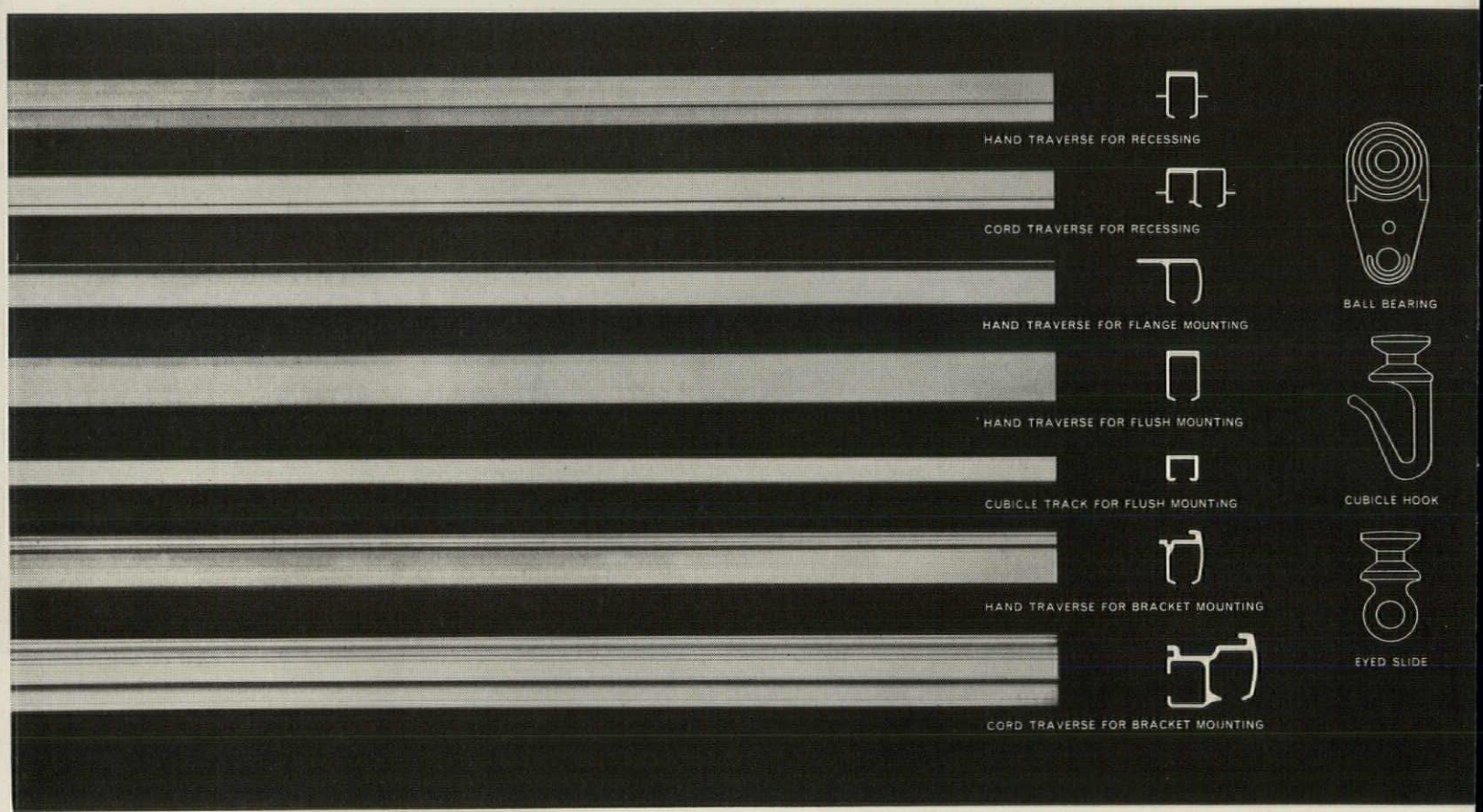

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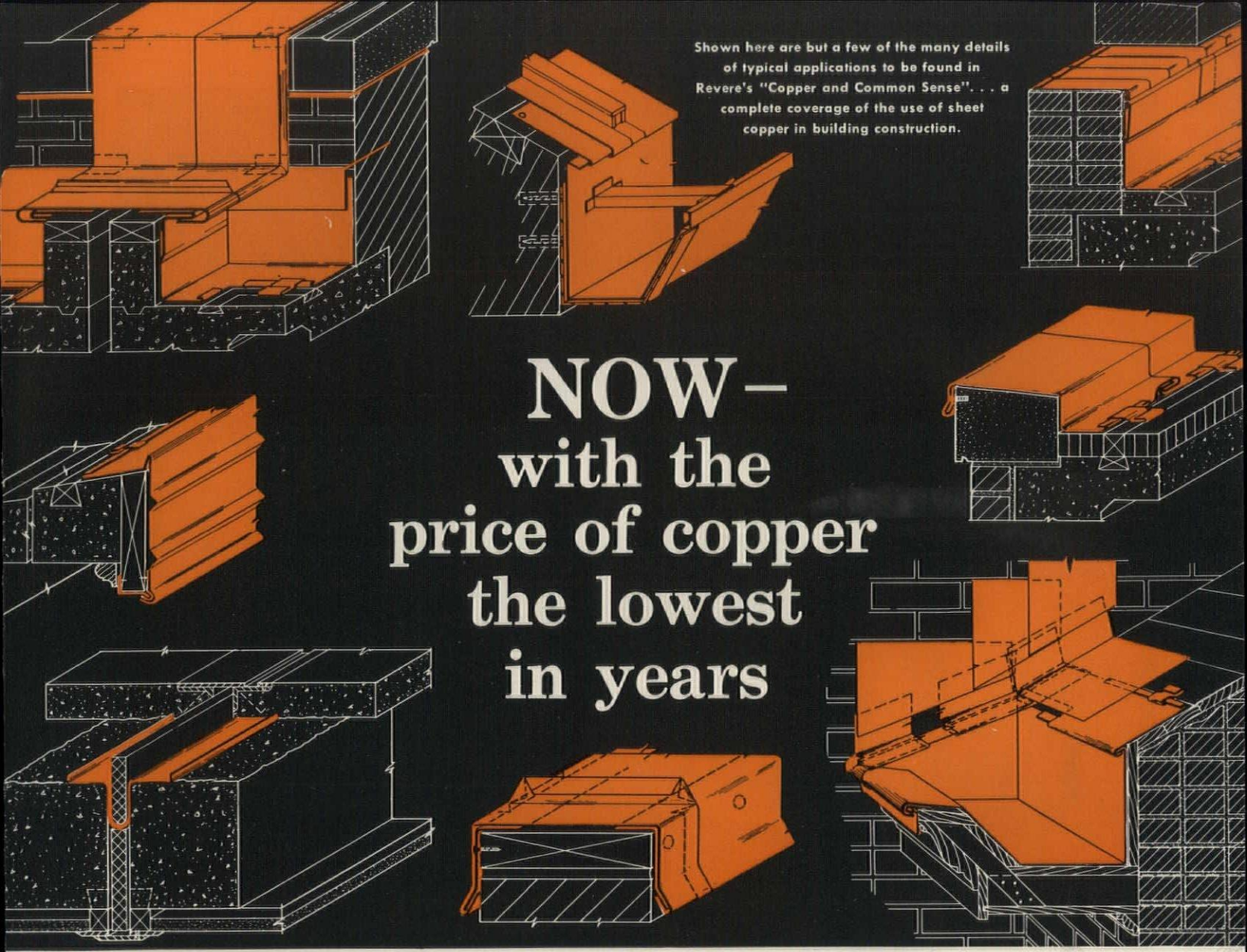

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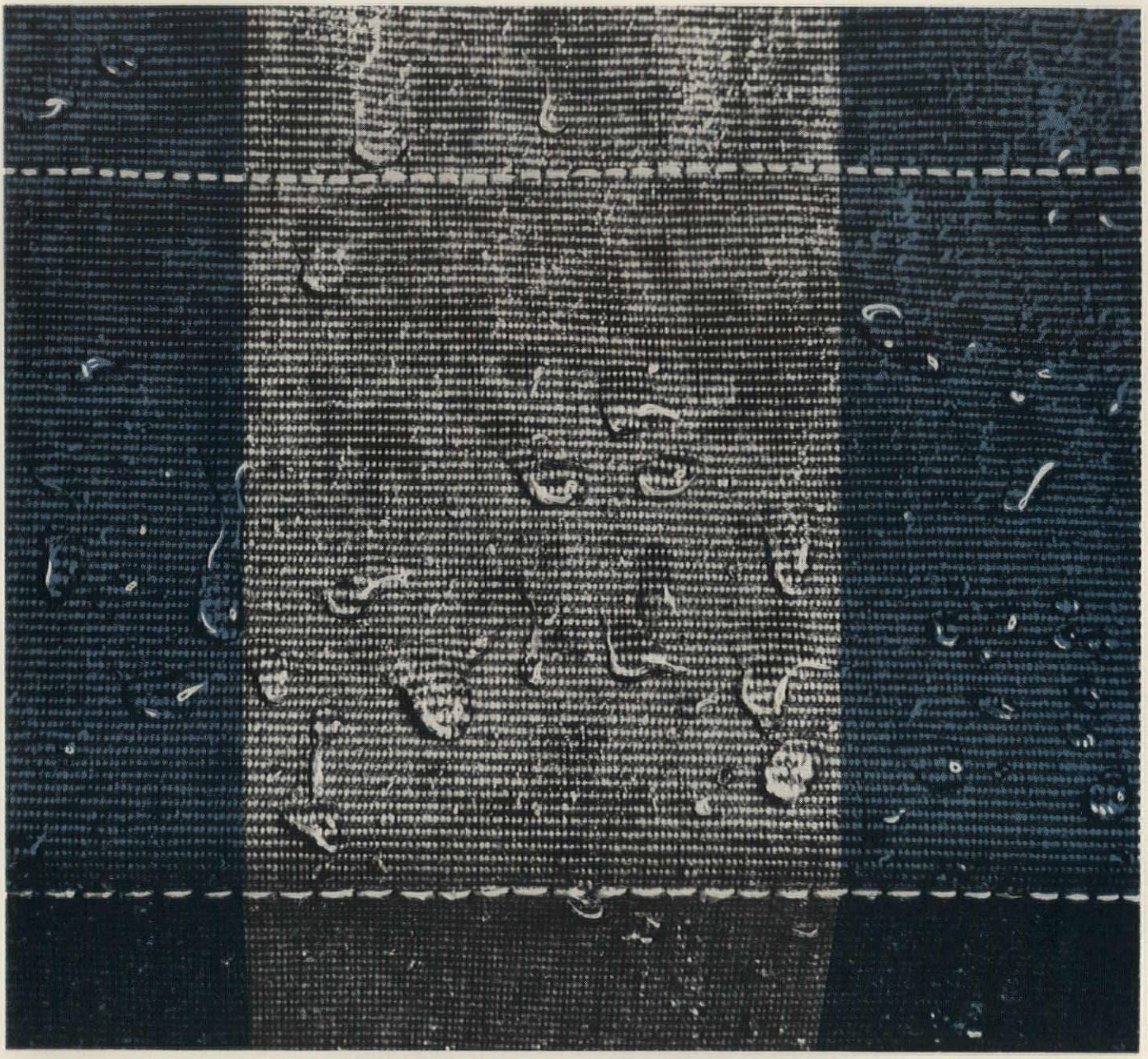

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ACRILAN acrylic fiber CHEMSTRAND

Glen Raven

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...and the data you need to use them

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Sheffield Division, Armco Steel Corporation,
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ARMCO Sheffield Division

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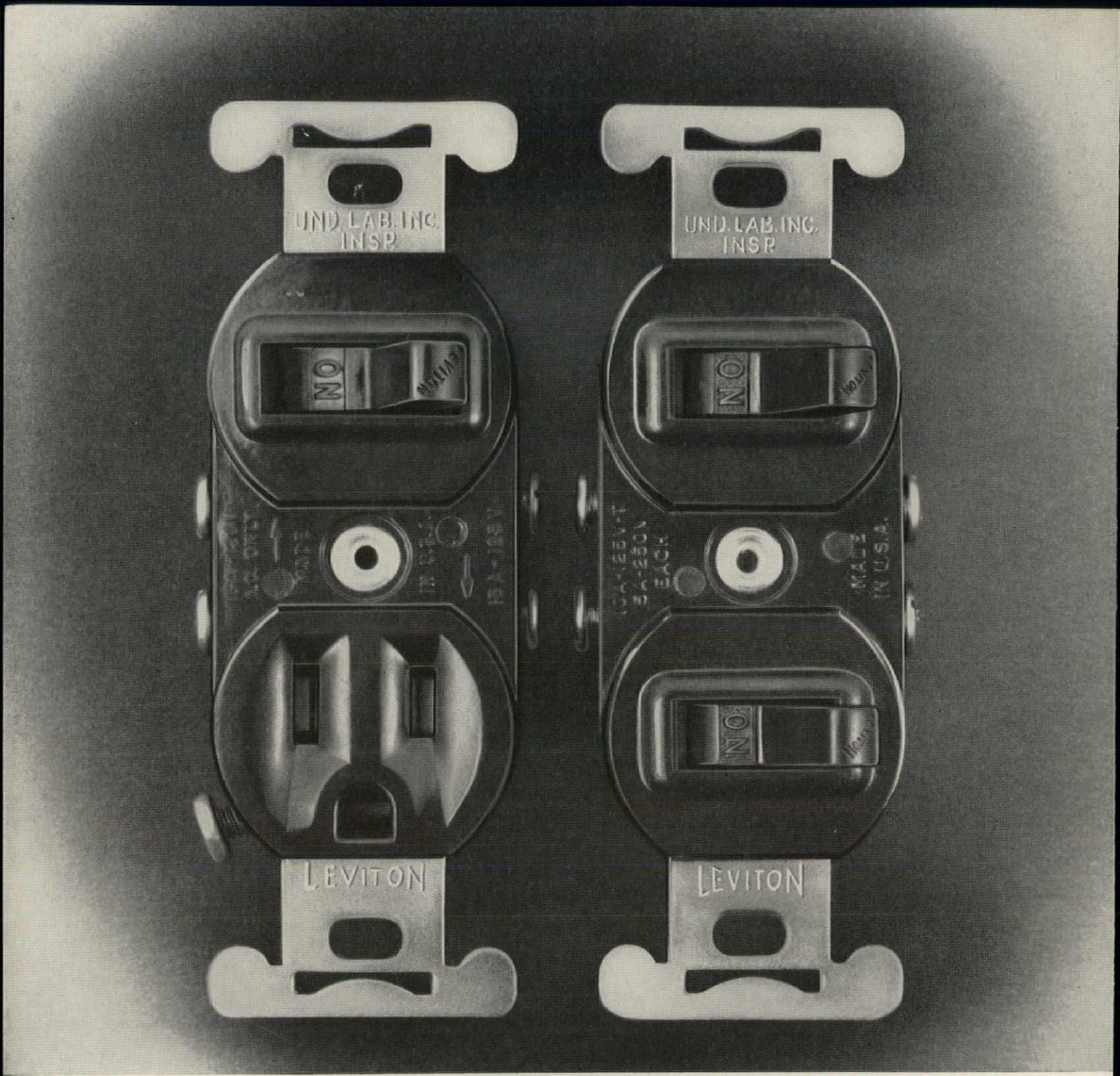

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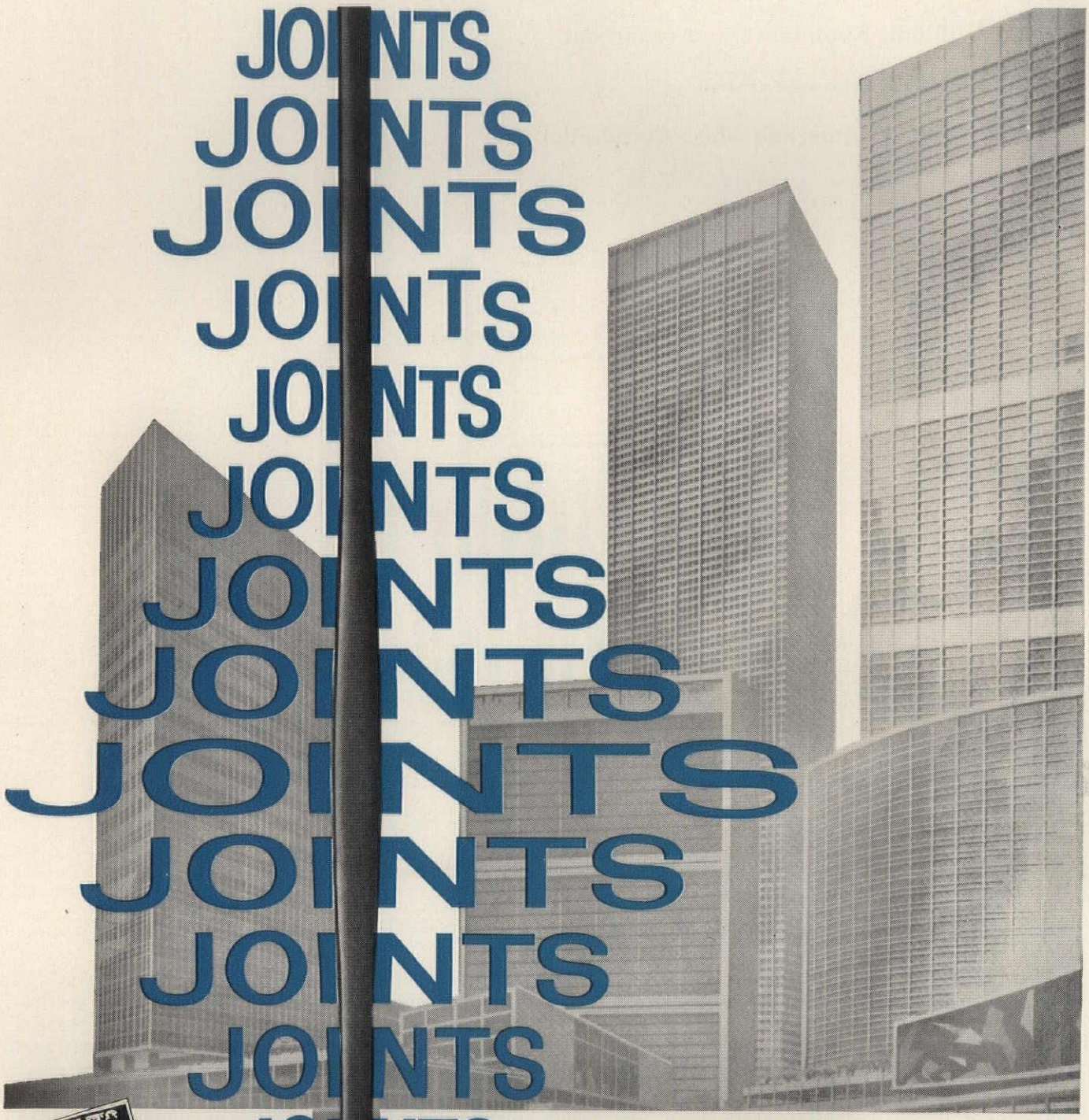

FREE APPLICATION HANDBOOK. Details methods of joint preparation and correct handling techniques for polysulfide-base sealant systems to assure a completely trouble-free and long-lasting weatherproofing job. For a copy, write to Thiokol on your letterhead. *Thiokol makes raw material only. Names of manufacturers of finished sealant furnished on request.*

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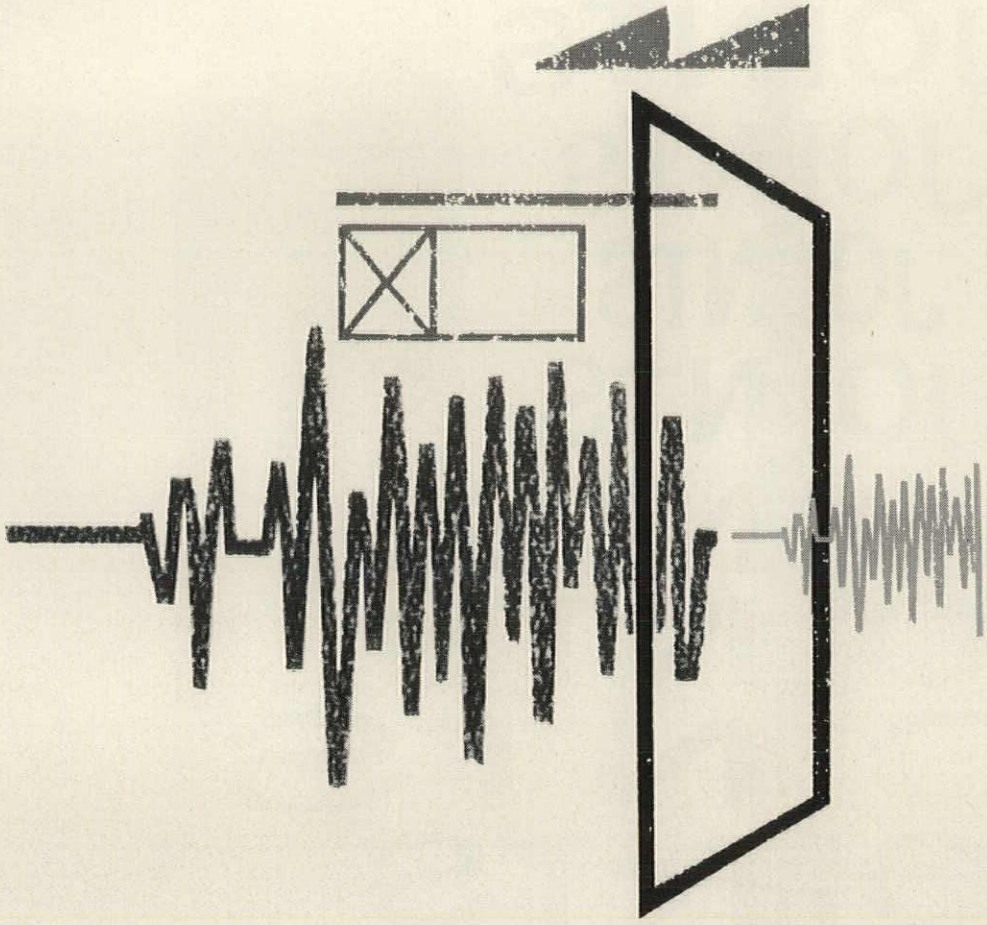
The Problem: Keep unwanted sound out

The Solution: Acousta-Pane®

The Producer: Amerada Glass Corporation

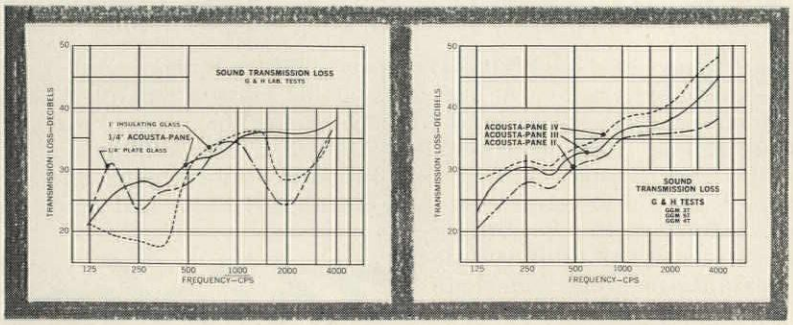


The development of Acousta-Pane has . . . for the first time . . . provided the architect with a glass which efficiently isolates sound.

Acousta-Pane can be utilized effectively for both interior partitioning to achieve acoustical privacy, as well as for exterior walls which will control transmission of outside noises. No other glass equals the sound isolation properties of Acousta-Pane.

Acousta-Pane standard thicknesses . . . 1/4" to 5/8" . . . require no special installation or handling. It is shatter-resistant and may be obtained in clear or with amber tint.

Acousta-Pane has broadened both the functional and esthetic utilization of glass. Its economy and practicability further commend Acousta-Pane to the architect's interest in the design of modern buildings. AMERADA GLASS CORP., 3301 S. Prairie Ave., Chicago 16, Ill.



Acousta-Pane is especially effective in the critical frequency range for speech and normal office sounds—from 500 cps to 4000 cps—where ordinary glass is relatively "transparent" to sound.

Relative proficiency of Acousta-Pane II (1/4") III (7/16"), and IV (5/8") in reducing sound transmission (measured in decibels) through the frequency spectrum from 125 to 4000 cps.

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CREATIVITY IN GLASS

*See Sweet's 1963 Catalog, Section 7a/Ae

Write for descriptive brochures on Acousta-Pane and other Amerada architectural glass products.

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For more information, circle No. 325

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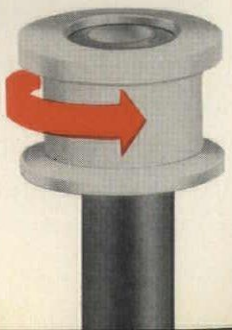

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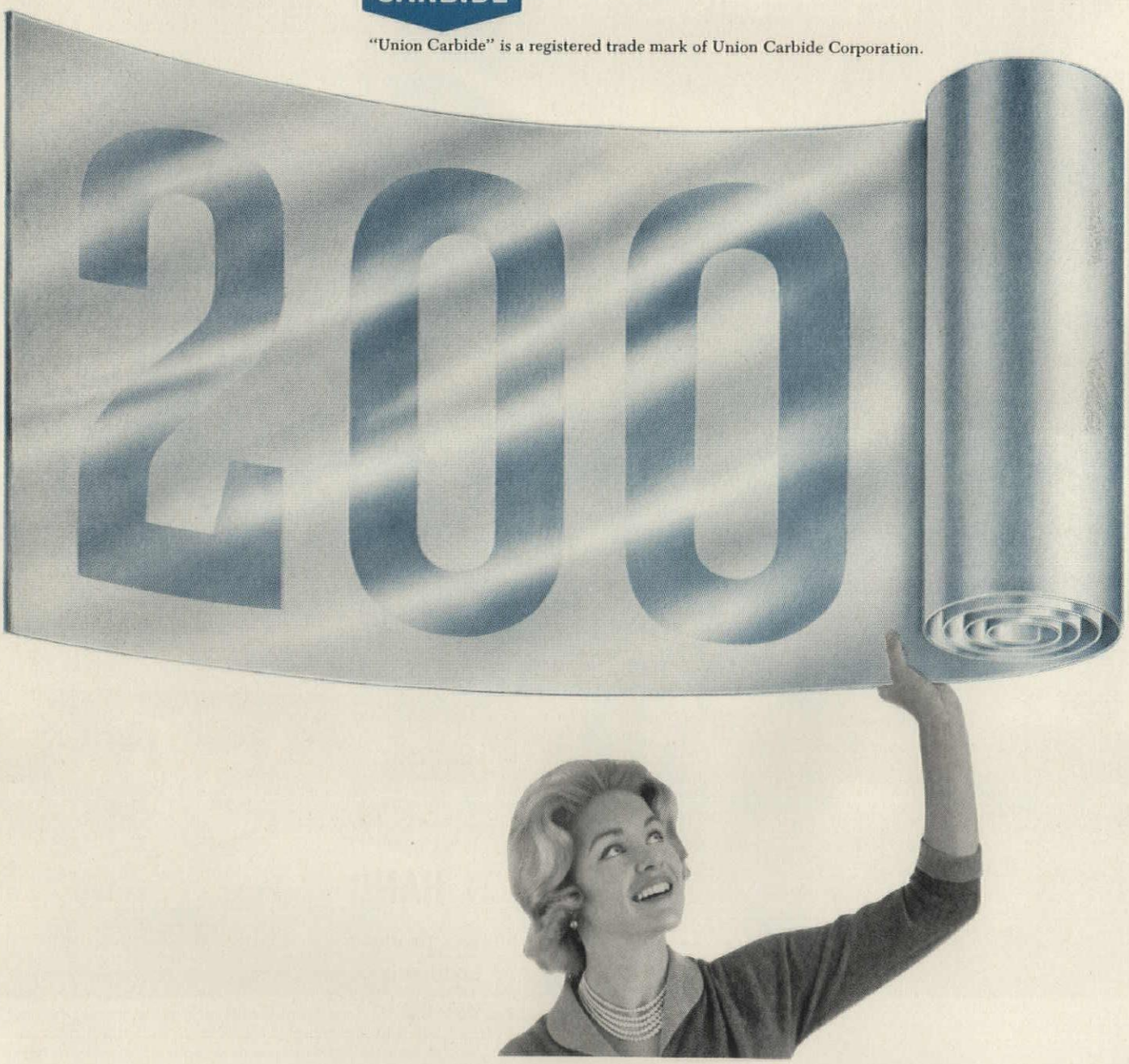
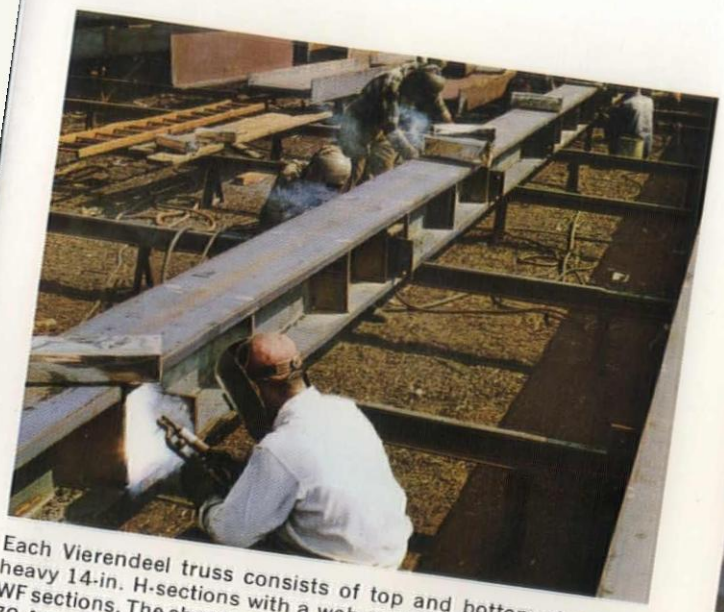
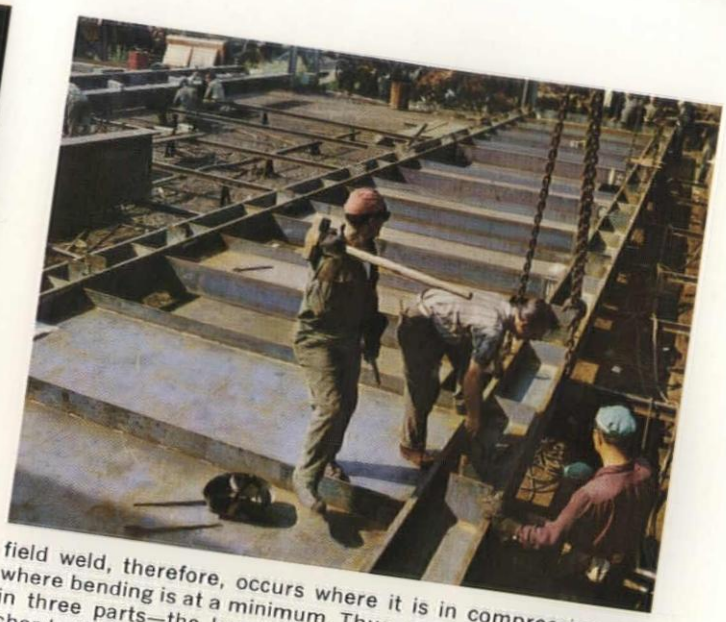


The heavenward spiral of wood shingles, laminated beams, and multi-toned planking makes the roof of the United Church in Rowayton, Connecticut, something spectacular. It demonstrates, too, the breath-taking wonders of wood's structural strength.



Each Vierendeel truss consists of top and bottom chords of heavy 14-in. H-sections with a web system of 33-in. and 36-in. WF sections. The chords were ordered full length, approximately 70 feet. The entire girder was fully assembled in the welding jigs and the web members were welded to the top chord only. The bottom chord was left in a 70 ft piece, but the top chord was cut approximately in half at the center of the middle panel. The



field weld, therefore, occurs where it is in compression and where bending is at a minimum. Thus, each truss was shipped in three parts—the lower chord, the right half of the upper chord with the web members attached, and the left half of the upper chord, also with the web members attached. Low hydrogen rod was used for all welds on the V55 high-strength steel, but no preheat was required.

Building in two units

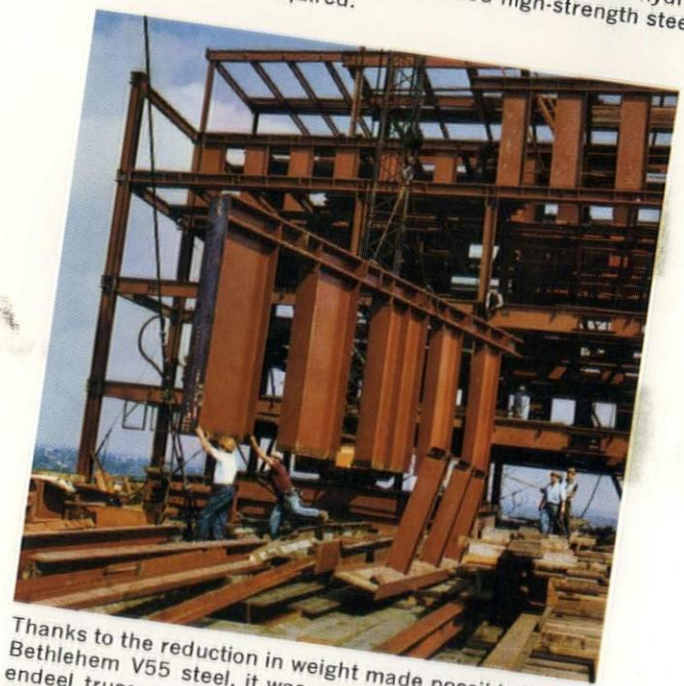
The structural framing for the 17-story structure divides the building into two units, separated at the 11th floor. The upper section is suspended from the story-high Vierendeel trusses, made up of Bethlehem V55 shapes and plates (14-in. wide-flange shapes for the chords of the truss; 33-in. and 36-in. beams, and 2-in. plate for the web members). These 14 ft-8 in. deep trusses span 70 feet between the exterior columns, which transmit the load in proper proportions to the existing subway wall and to the new caissons located outside the subway tunnels.

From the 11th floor down, the weight of the building is shared between the exterior columns and a single row of columns carried by the original foundation located between the parallel subway tunnels.

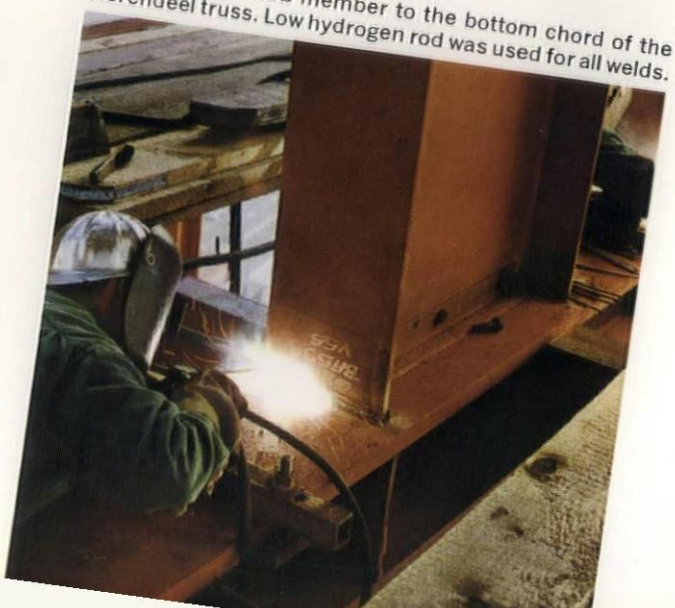
New V55 steel cut weight of trusses 33%

The 12 Vierendeel trusses were originally designed in A36 steel and weighed about 45 tons each. Hoisting this weight some 200 feet above the ground would have required extremely heavy erection equipment and substantial reinforcement of the floor steel.

These problems were greatly simplified when Frankel Steel Construction Limited, the structural steel fabricator, suggested that the Vierendeel trusses be redesigned in Bethlehem's new V55 high-strength steel (55,000 psi minimum yield). This cut the weight of each truss from 45 tons to 30 tons. By further breaking down the trusses into three parts, the heaviest lift was reduced to about 14 tons.



Thanks to the reduction in weight made possible by new Bethlehem V55 steel, it was possible to erect the Vierendeel trusses using regular equipment. Here, half of the top chord section, with web members, is being lifted for placement on the bottom chord.



Field welding a web member to the bottom chord of the Vierendeel truss. Low hydrogen rod was used for all welds.

BETHLEHEM STEEL

BETHLEHEM STEEL

Internal beams and columns for the lower four floors took 434 tons of Bethlehem V50 structurals and 4 tons of V50 plates. All of it was fabricated by Derby Steel Company, and erected by R. E. Linder Steel Erection Company. *Architects:* Wrenn, Lewis & Jencks, and Meyer & Ayers. *Structural Engineer:* Van Rensselaer P. Saxe. *General Contractor:* C. J. Langenfelder & Son, Inc.

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Scheduled for completion in the Fall of 1964, the $4½ million Johns Hopkins University Library will have an initial capacity for 1½ million volumes, with room for considerable expansion.

New V50 shapes replace reinforced concrete... solve "height" problem ...save $100,000

Four of the 6½ stories of the Johns Hopkins University Library will be underground.

These lower four floors were originally designed in reinforced concrete. But this concept had to be abandoned because it would have been necessary to brace the earth embankments until the foundation and floors were poured. This meant, of course, that the concrete would have to be poured *around* the bracing . . . that the bracing would then have to be removed and the "holes" patched. This system was considered too costly.

So the engineer turned to a welded continuous steel frame. First, A36 H-pile soldier beams were driven. Timber lagging was installed as excavation proceeded. The structural steel frame, partially erected before excavation was completed, served both as temporary and permanent bracing . . . eliminated the need for shoring.

Another problem: floor-to-ceiling height. A water table problem at the site limited the depth of excavation for the four underground floors. The depth was so limited that, literally, every *inch* of height counted.

So the engineer turned to Bethlehem's new high-strength V50 steel (50,000 psi minimum yield). Because of V50's higher strength and the use of welded continuous design, he was able to reduce the depth of the floor beams . . . and provide the strength and the story-height called for.

An interesting sidelight: not only did a steel frame make the building possible as designed, it also cost about $100,000 less than the proposed reinforced concrete frame, according to an estimate by the engineer.

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PROGRESSIVE ARCHITECTURE MARCH 1963

NEWS REPORT

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

Photos: Wurts Brothers

Circular stairway extends from basement to third floor in Pei's Society Hill townhouses.

FIRST SOCIETY HILL BUILDINGS OPEN

PHILADELPHIA, PENNSYLVANIA. On land once sold by William Penn to the Free Society of Traders, a group formed to help him promote and settle Pennsylvania, the first units of the handsomest project in Philadelphia's famous redevelopment program have opened.

The Society Hill portion of the Washington Square East Revelopment Project was the subject of a noted competition some years ago, won by I. M. Pei's designs for Webb & Knapp. The Pei plan [pp. 170–175, OCTOBER 1960 P/A and pp. 142–145, JANUARY 1961 P/A] called for a complex of three tower apartment buildings, town houses in rows and a quadrangle, shopping facilities, and the rehabilitation of fine old houses on the site. The first completed portion consists of the town house quadrangle near the projected apartment towers. When all elements are completed, Society Hill will become a "super-super block" interlaced with pedestrian walkways, plazas, courts, and service access routes.

The town houses are three-story brick structures with simple, dignified façades designed to blend with the fine old Federal buildings of the area. Each dwelling unit has an arched entrance from the street giving onto a hallway, where the visitor takes a circular stairway (*right*) to the second-floor living room and library (the latter can be converted to the master bedroom). Ground floor contains dining room, kitchen and breakfast room, and the top floor has three bedrooms and two baths. Second floor balconies overlook the street and interior court on each side.

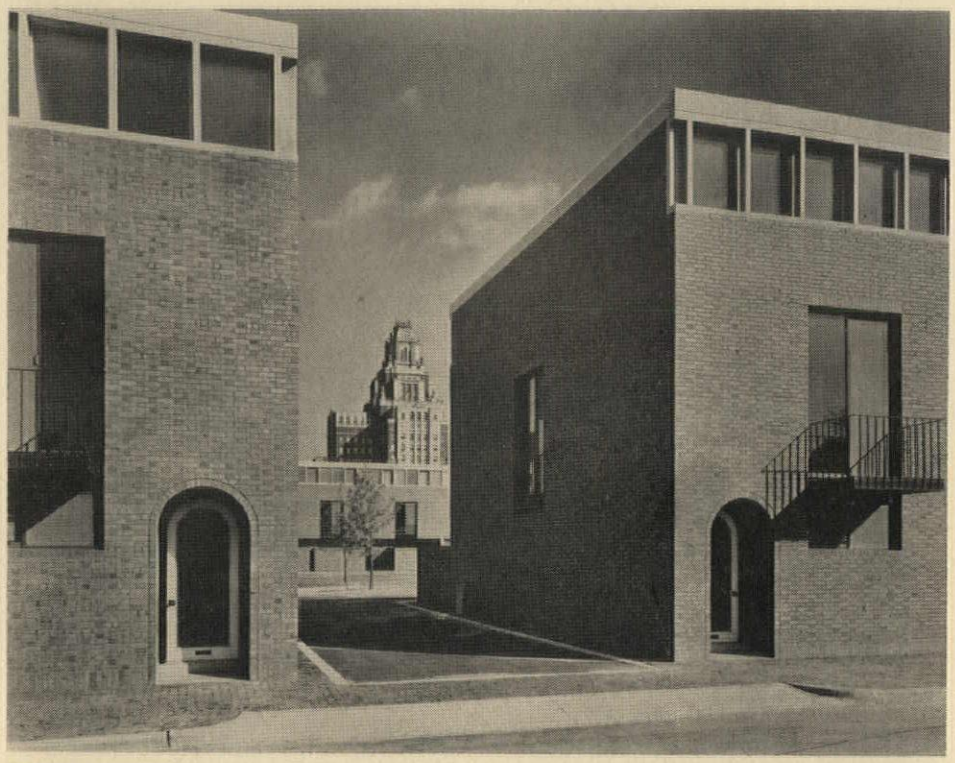
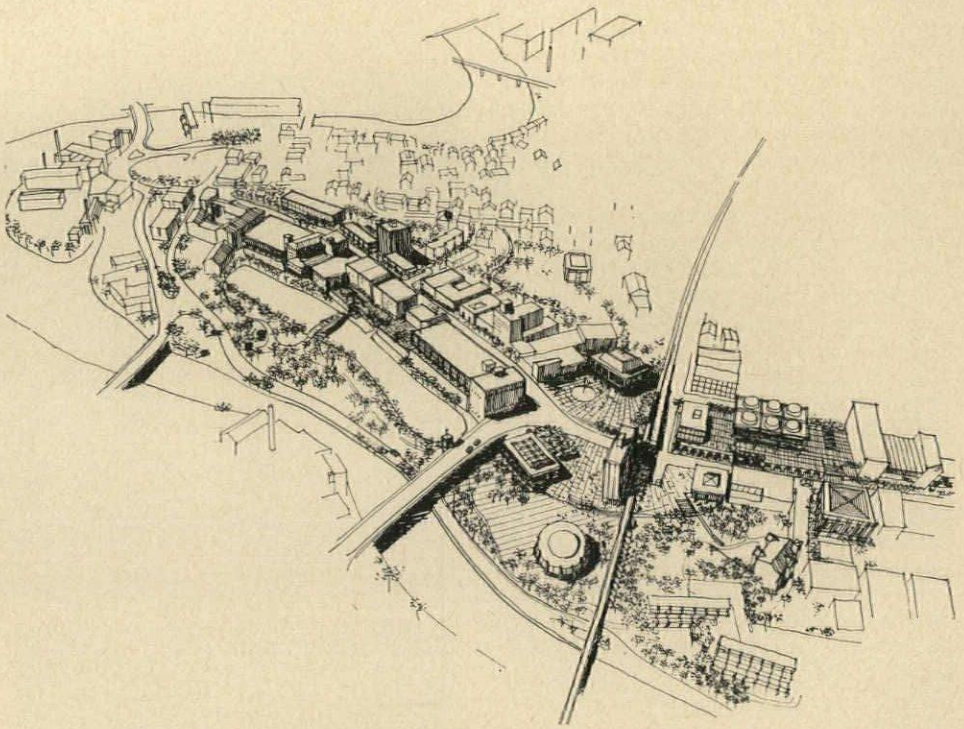


Photo: Wurts Brothers

Little Rhode Island Not So Poor Any More

WOONSOCKET, RHODE ISLAND This textile mill city of 47,000-plus is suffering the ills of many such New England municipalities—loss of industry, decline in population, a tendency of remaining enterprises to become moribund. *Unlike* similar cities, Woonsocket has decided to do something to resuscitate itself by redeveloping and revitalizing its central business district. Early in 1962, concerned citizens gathered to study the problem. With the plans and advise of Providence planning firm Blair & Stein Associates and its consultants, Architect Rai K. Okamoto, San Francisco, and economists Dr. Roy Gerard and Dr. Morris Budin, Project Magic WAND (Woonsocket Action for a New Downtown) was developed.

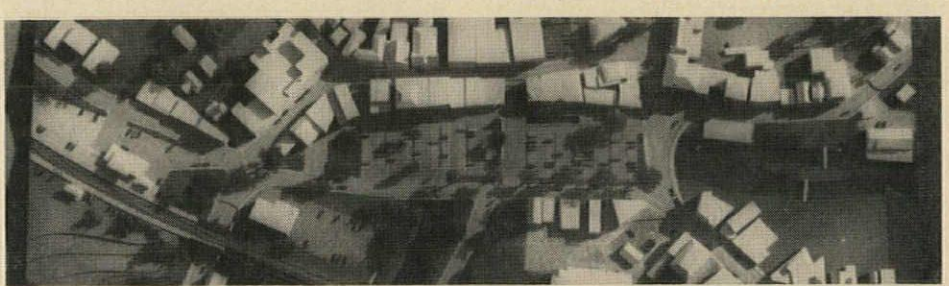
Focus of the 10-year renewal plan is on Main Street as it traverses three points: Market Square, Depot Square, and Monument Square. At the center, Depot Square, would be a new City Hall atop a series of terraces. A library and educational center would be in this area also. All along the street, new shopping and business facilities and remodeled older structures would attract customers back to downtown.

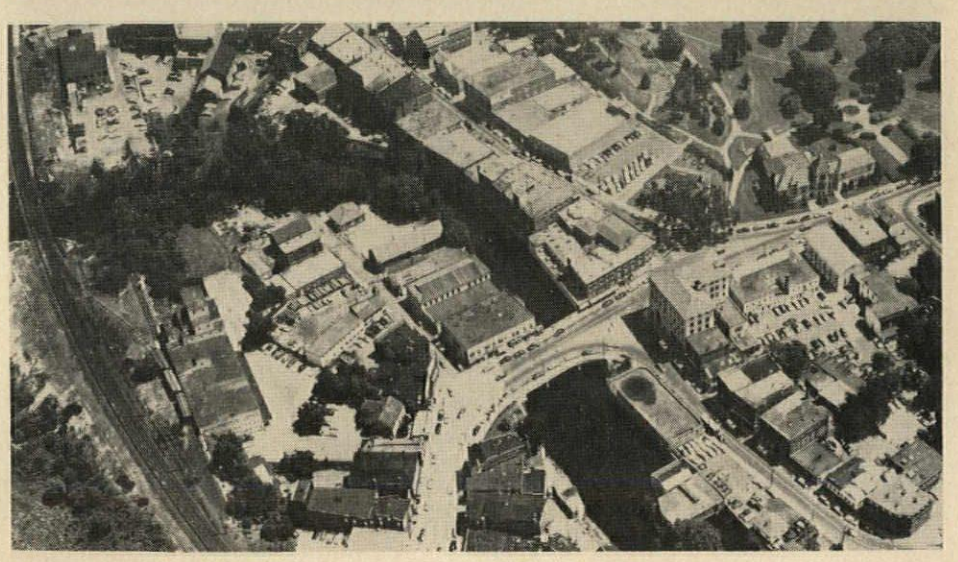


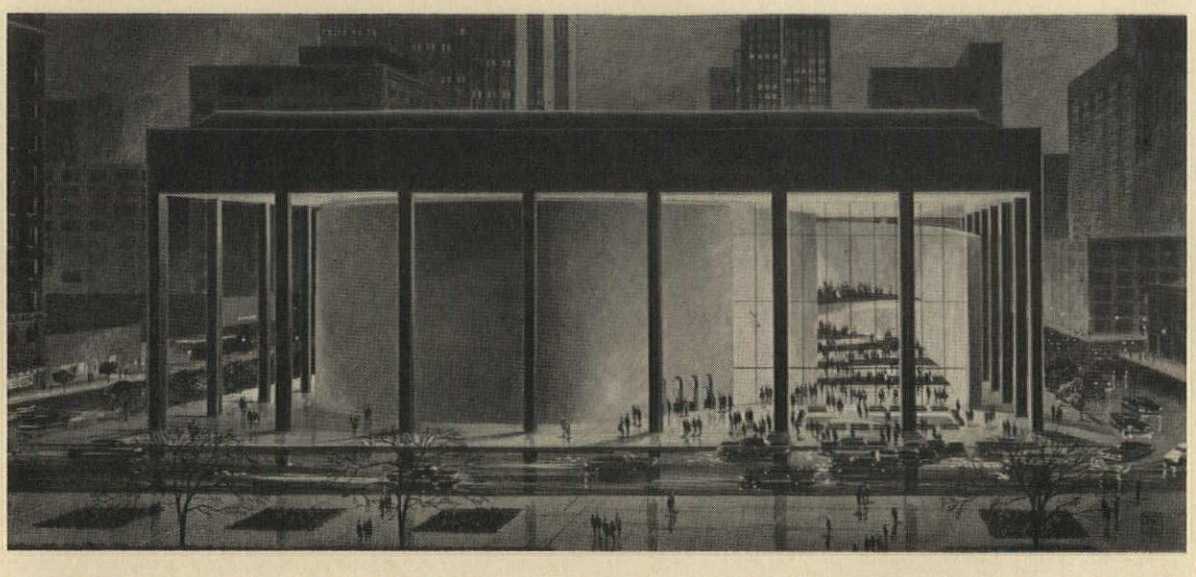
Parking Lots for Half-and-Half Municipality

Westerly and Pawcatuck are small cities one of which (Westerly) is in Rhode Island and the other (Pawcatuck) in Connecticut. Although separated by the Pawcatuck River, they form, in effect, one continuous municipality, and it is in this form that they are treated in the downtown development plan by New York Architect Charles James Koulbanis.

Presently lining the river as it flows through the center of town are business structures, warehouses, and loft structures, most of them dating from the 19th Century. Many of these structures are candidates for renovation and renewal; others have outlived their usefulness. What Koulbanis proposes—and it is a proposal that will startle many architects and planners—is to build a culvert 600′ long over the river in the CBD and convert the space into a huge car park. This would make the reconverted and new buildings, which would otherwise be looking onto the river, into a downtown shopping center. There *would* be a small park at the end of the parking area, and a small island upstream from the bridge would be developed as a recreational spot.







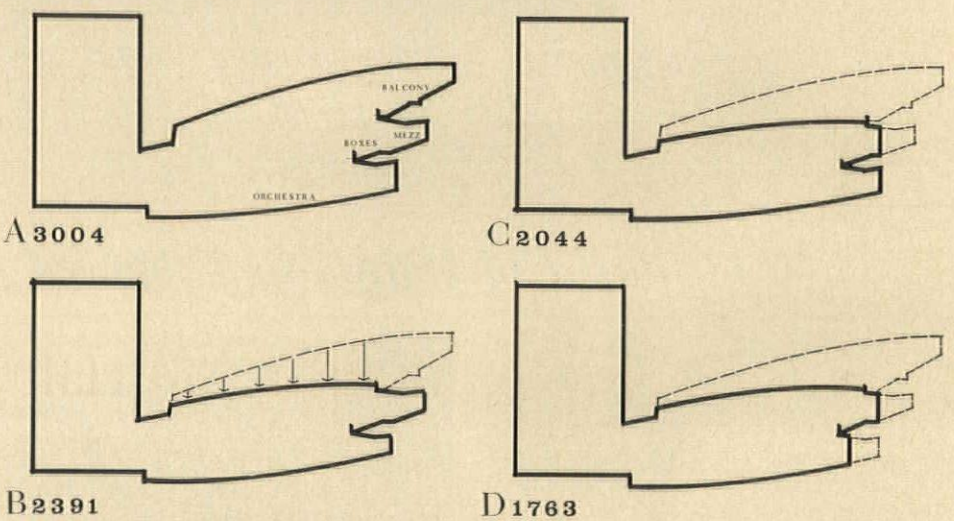
HOUSTON TO GET FOUR-CAPACITY AUDITORIUM

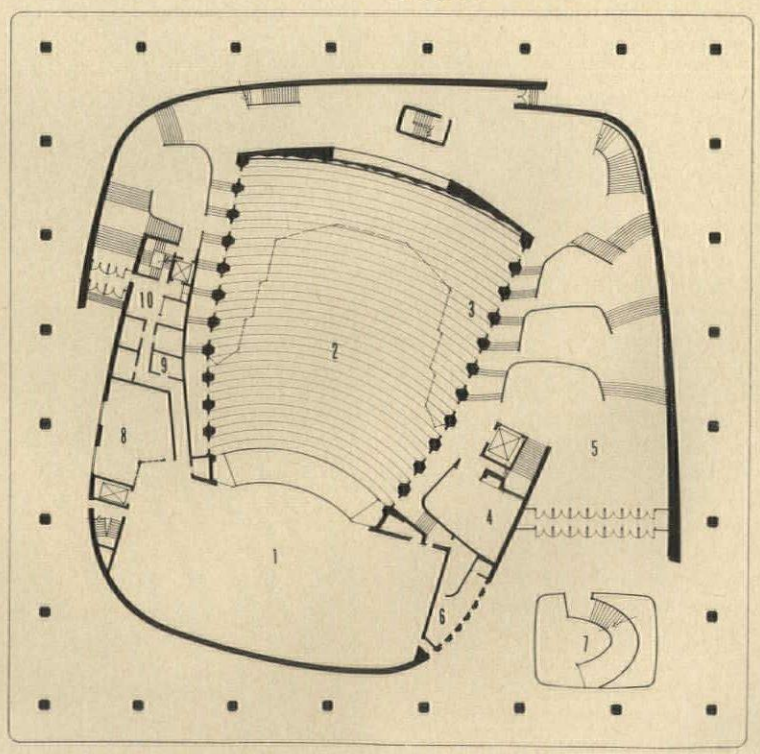
HOUSTON, TEXAS On land donated by the city and with $6,000,000 from Houston Endowment, Inc., the Jesse H. Jones Hall for the Performing Arts, designed by Caudill, Rowlett & Scott, will feed the cultural appetites of Houstoners by 1965.

The auditorium, named after Franklin D. Roosevelt's last Secretary of Commerce, will feature curved walls faced with travertine sheltered behind a classic colonnade sheathed with granite panels. A roof-high, glazed entrance will reveal the dramatic 65-ft-high terraced Grand Lobby. Generous tiered foyers at box, mezzanine, and balcony levels will also overlook the main lobby floor. Stage will be the largest in Houston, and will be adjustable from 60′ to 36′ in width and 28′ to 18′ in height. All but the top 6′ of the stage tower will be housed under the deep, flat roof of the building. A block-long civic plaza is being considered for the site across from the auditorium, to sit atop an underground parking garage.

A notable feature of the hall will be that it can be adjusted to four different seating capacities. For occasions requiring full seating, the entire auditorium will be opened to its 3004 capacity (*see A in sections, top, right*). For a crowd of almost 2400, ceiling panels will be lowered to the balcony rail (B). The mezzanine will be screened off by electronically-controlled panels for an audience of around 2000 (C). About 1800 (D), will be accommodated by screening off the last five rows of the orchestra.

Plan (right): 1 stage; 2 orchestra; 3 boxes above; 4 green room; 5 lobby; 6 ticket booths; 7 stairs to offices below; 8 receiving room; 9 stars' dressing rooms; 10 stage door.



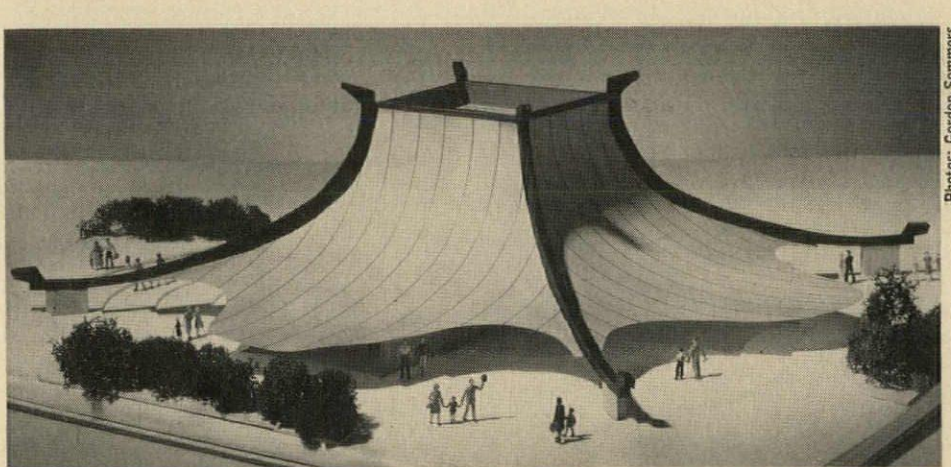


Fantasia of Forms in Proposed Marine Park

SAN DIEGO, CALIFORNIA. Marine Park is a recreational-educational area proposed for Mission Bay Park here. Described by the architect, Victor Gruen Associates, as "a new approach to the aquarium-type park," the project will feature many types of exhibits dealing with the world's ocean life.

There will be five major exhibits: a theater with underwater viewing facilities showing large sea mammals; a "reef building" with four great tanks showing reef denizens in natural settings; an exterior lagoon for whales and other large specimens, with an adjoining amphitheater for viewing; a separate aquarium for small sea life; and a pool and exhibit space for showing Japanese pearl diving and pearl culture. In addition, there will be a Hawaiian pavilion, outdoor pools for seals, otter, and water birds, and snack bars and other concessions. Materials to be used will emphasize natural look in the parklike setting—rough-sawn wood and stone.

Of architectural note is the disparity of forms selected for the various buildings. The theater (1) will have a long, swooping roof to house the underwater show; the Hawaiian pavilion (2) will recall the indigenous architecture of the islands; and the reef building (3) will have a rather formal design compared to the rest of the project.



Photos: Gordon Sommers

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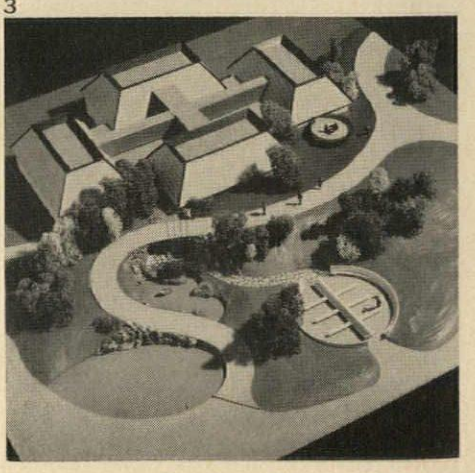

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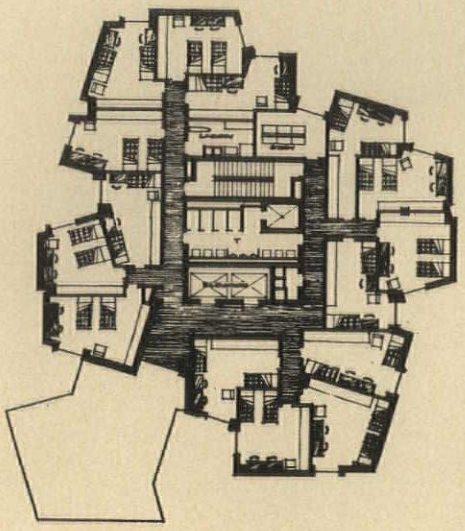
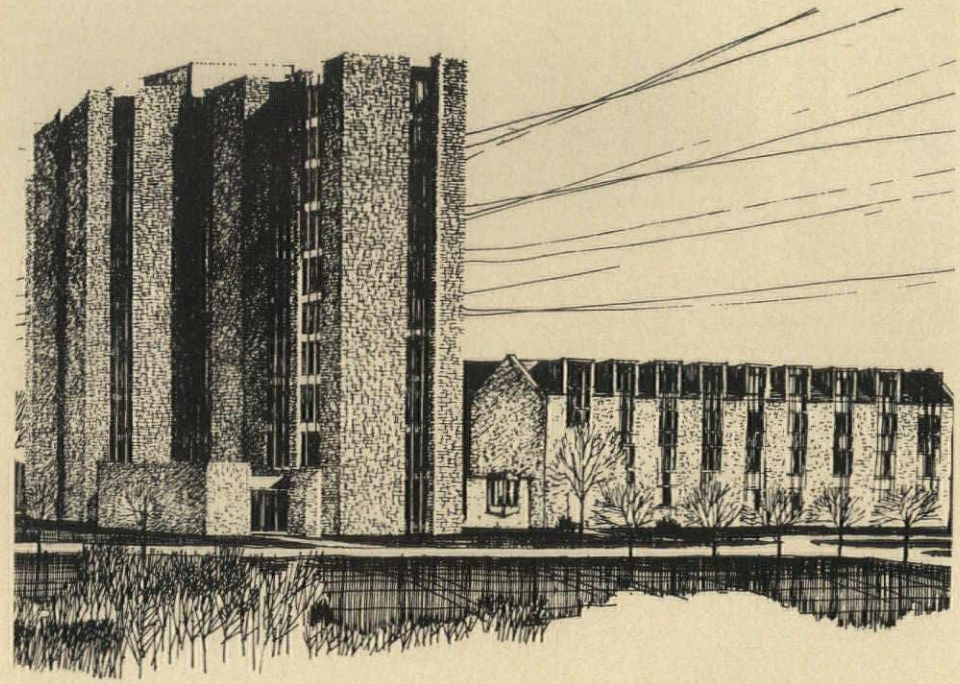


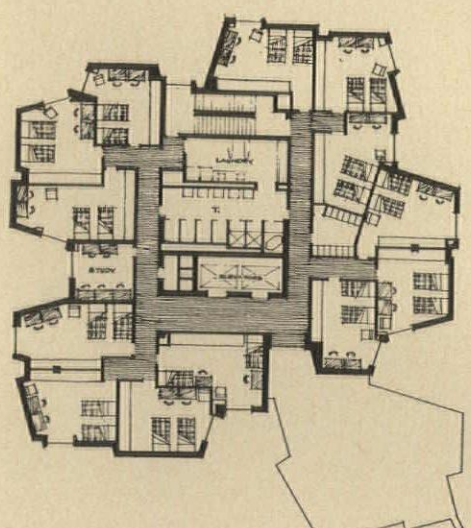
Men's residence hall



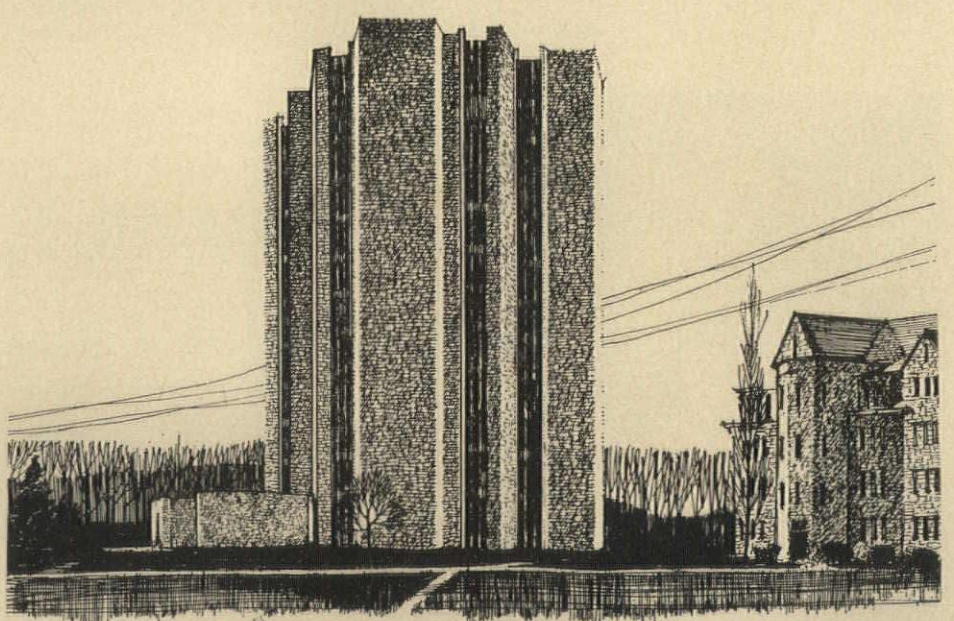
Minnesota Dormitories Have Noted Ancestor

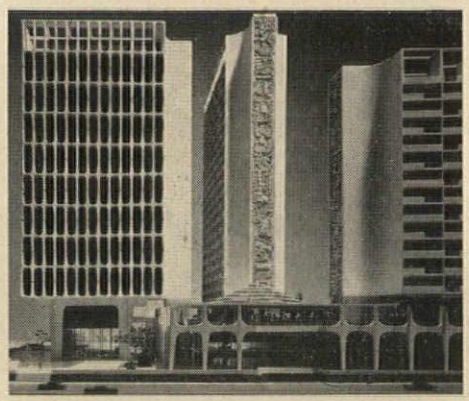
NORTHFIELD, MINNESOTA The outspoken critics of Eero Saarinen's Ezra Stiles and Morse Colleges at Yale University will be beside themselves when they see the designs for the men's and women's residence halls at St. Olaf College in Northfield, Minnesota. Fans of the Saarinen creation, on the other hand, may be either enthusiastic about or bemused by the project by Sovik, Mathre & Madson, for Yale is the unmistakable primogenitor of St. Olaf in this case. Is this bad? Opinions will differ, but it *will* be interesting to observe a somewhat similar solution at work in a small, rural college, as contrasted with that in a large, urban university.

High-rise dormitories are proposed for St. Olaf's to (1) avoid the monotony prevalent in repetitious low-rise units, (2) repeat the informal irregularity of the hilltop area, and (3) through vertical emphasis and use of materials, to blend with the more traditionally designed structures of the college. In both dormitories, from 25–30 students (a grouping found desirable by many deans of men and women) will occupy each floor in irregularly-shaped two-student rooms around a core containing showers, toilets, elevators, stairs, study, and laundry. No two rooms on any floor will be similarly shaped. Studies by the college indicate that these halls will cost no more than conventional halls. They will have stone exterior walls with steel casement windows.



Women's residence hall

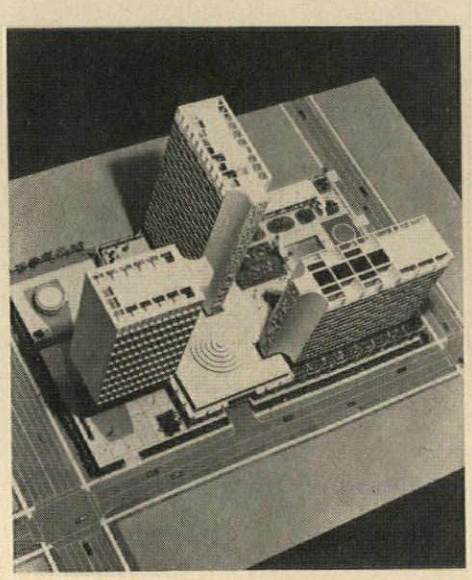


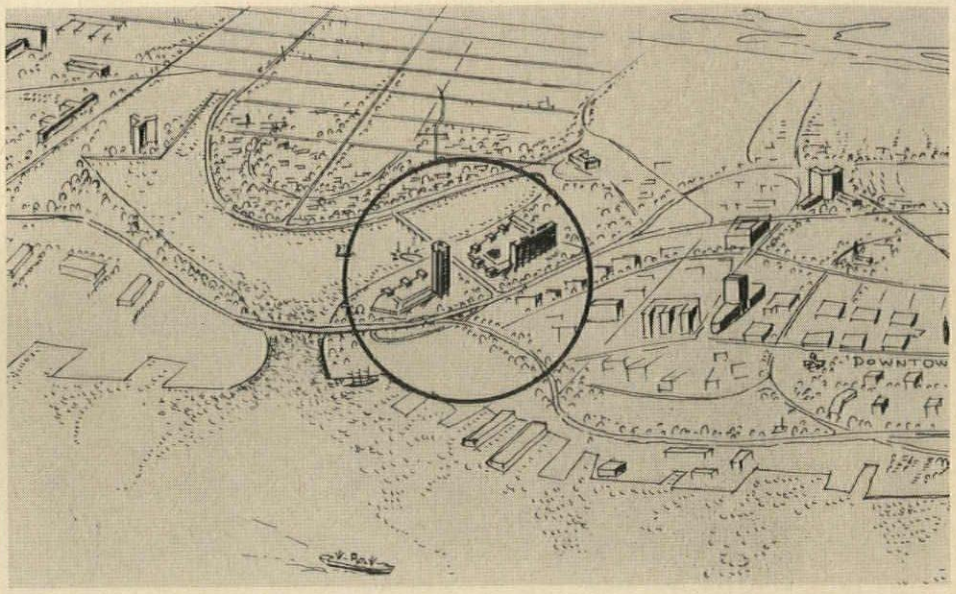


BIG-SCALE REGIONAL ART IN PHOENIX

PHOENIX, ARIZONA Sand castings reflecting the regional art of the Southwest will enliven the end, mechanical core walls and the exterior of a round brokerage office at ground level in the proposed "Phoenicia, Arizona Executive Center," by Daniel, Mann, Johnson & Mendenhall of Los Angeles. The project is expected to provide a business, commercial, and residential center in this rapidly growing city. The city-block area will encompass three high-rise buildings situated around a central "helicoid" sheltering a shopping area: a 12-story apartment building, a 20-story hotel, and a 16-story office building. There will be garden apartments and cabanas in a recreation area between the apartment building and the hotel.

Whoever named "Phoenicia" should know that the name refers to a civilization that flourished in the Eastern Mediterranean region from approximately 1250 B.C. to about the 4th Century B.C., whereas "Phoenix" was, of course, named after the fabulous avian symbol of death and resurrection sacred to the Egyptian sun god.

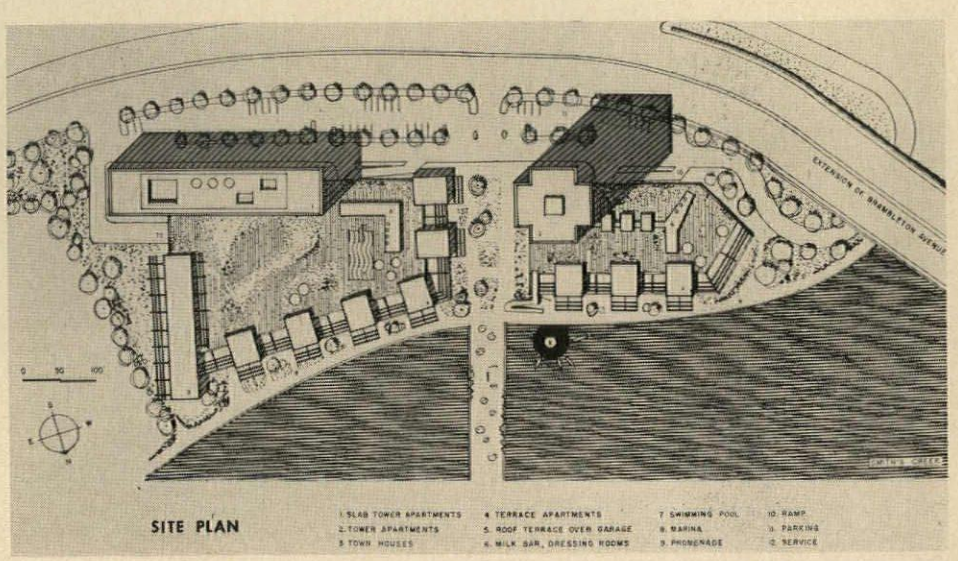


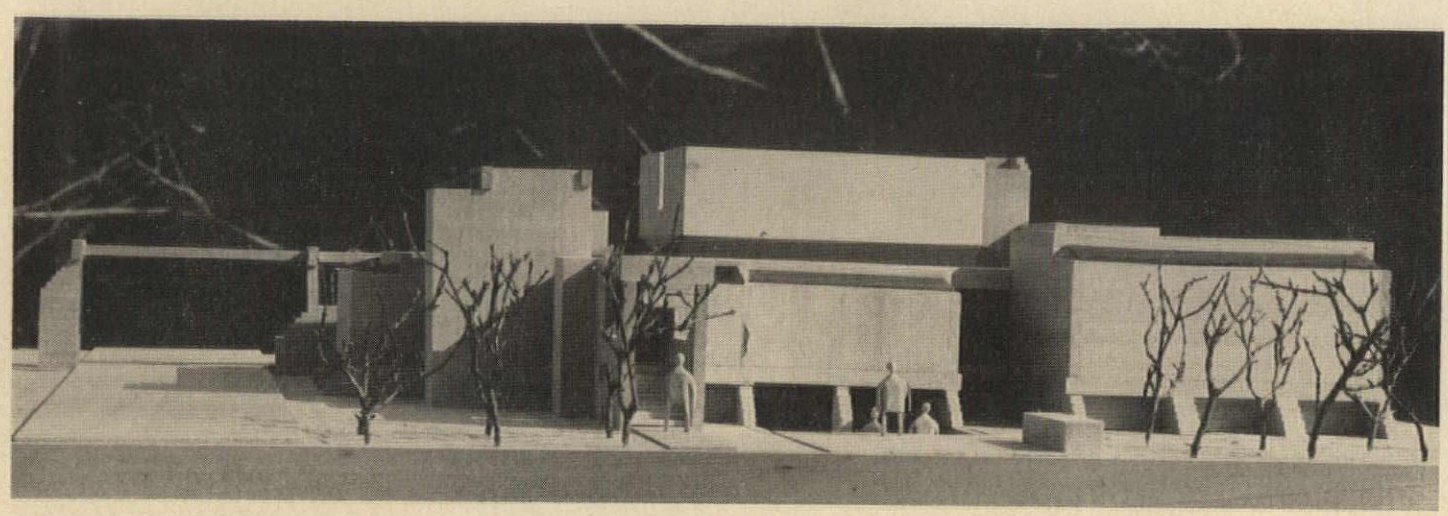


Housing for a Growing Norfolk

NORFOLK, VIRGINIA This city, which has had a 43 per cent population increase in the last decade, and is currently undergoing such improvements as the Civic Center and Medical Towers by Vincent G. Kling (with Childs & Smith), is experiencing a growing need for urban housing. To answer this need at least partially, a competition was held among developers not too long ago for a project on Smith's Creek, an offshoot of Elizabeth River, which flows past the city. Winner was the design by Otto E. Reichert-Facilides for Samuel and Harry Berger of Philadelphia.

The residential development, named "Golden Towne" by its sponsors, will be ideally located about halfway between downtown Norfolk and the new Medical Center–about a five minute walk in either direction. Since the site is blessed with a view worth looking at, the architect has proposed a slab apartment building and a cruciform apartment tower overlooking plazas sheltering two levels of parking. At the edge of the plazas, and appropriately blocked off from noise that may emanate from any recreational activities taking place there, will be the town houses, which will also enjoy uninterrupted views of Smith's Creek and the river. The lobbies, terraces, and promenades of the project will be embellished with especially-commissioned sculptures, murals, and fountains; more physical tenant amenities will include a marina on the creek, swimming pool with adjacent dressing rooms, and a milk bar. In addition to underground parking, there will be open-air parking screened by trees at the rear of the site, between the apartment buildings and the access road to the development.

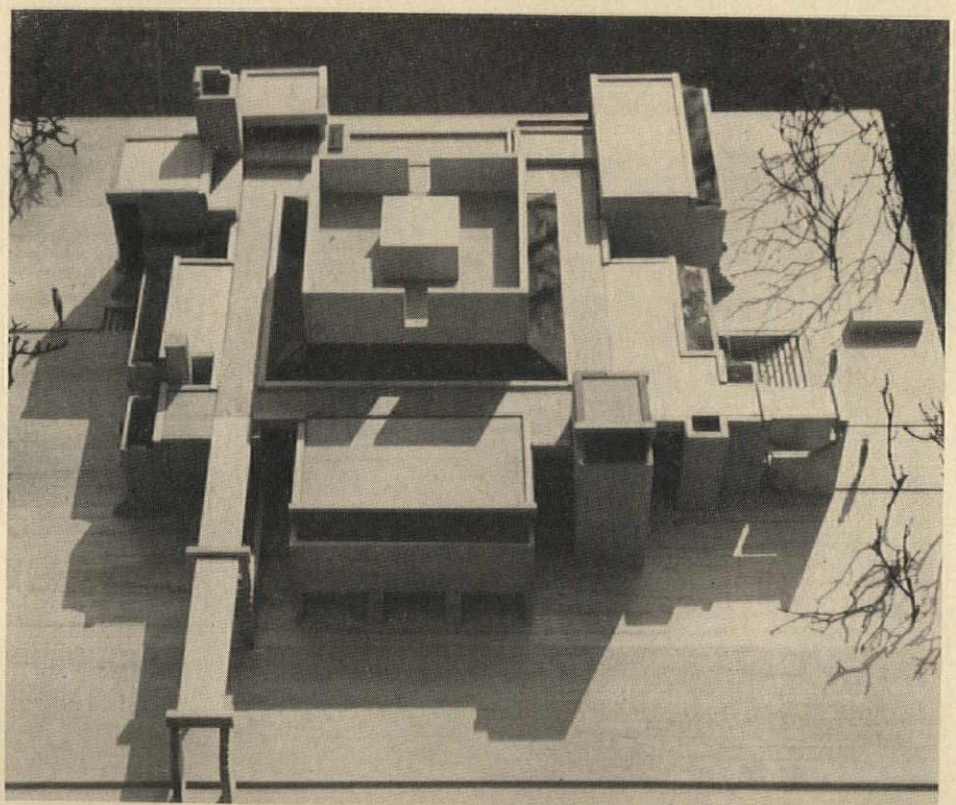


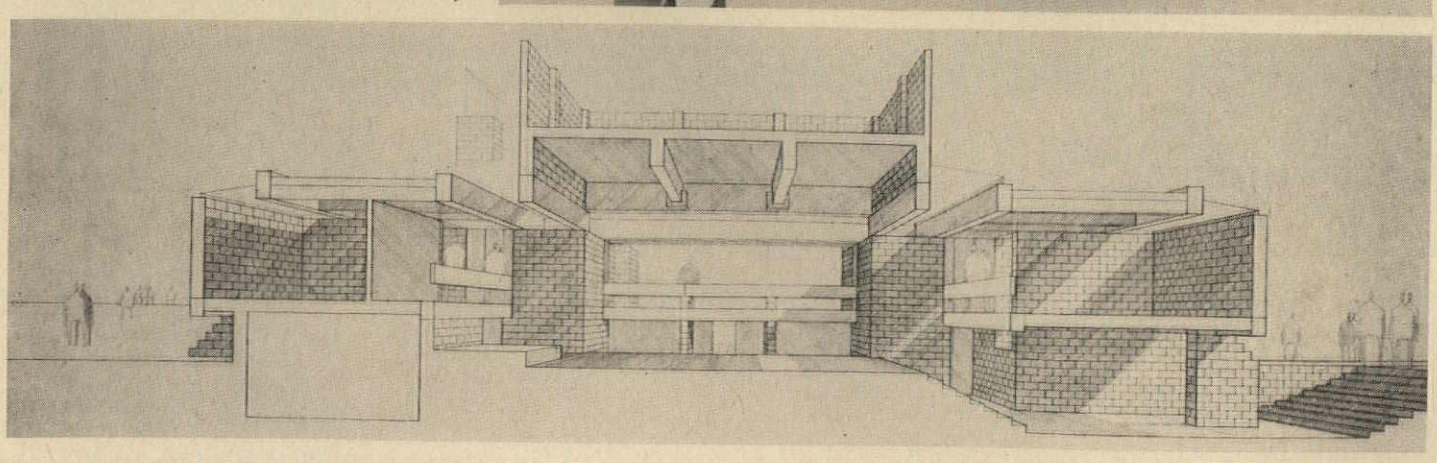


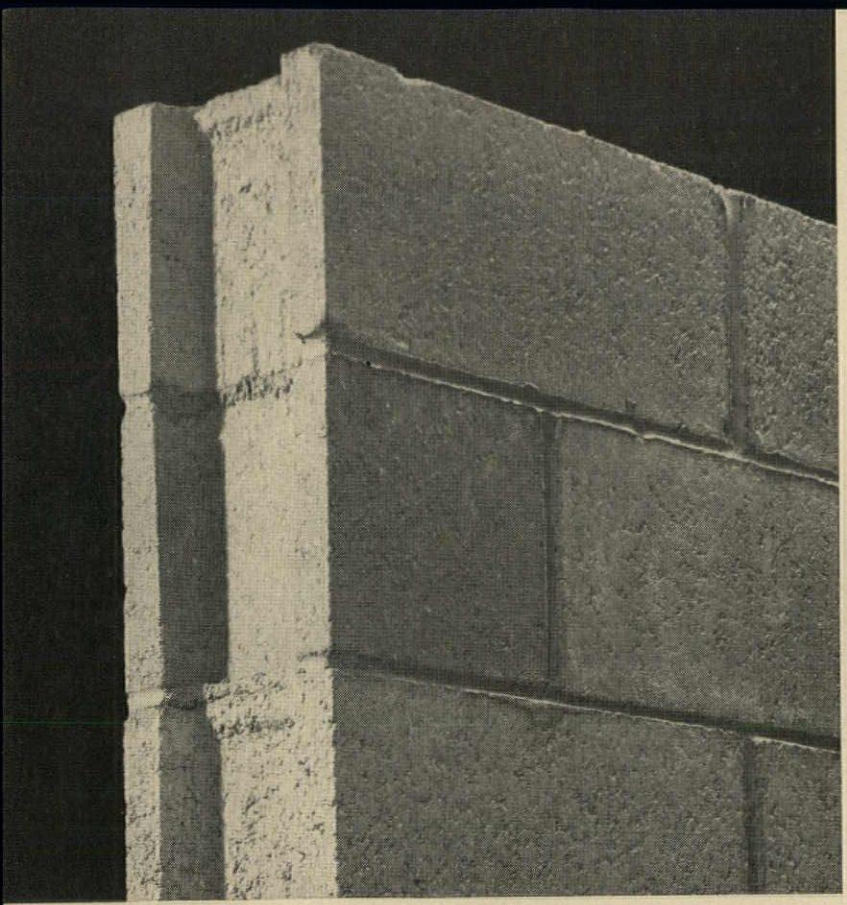
Another Notable Design Set for New Haven

NEW HAVEN, CONNECTICUT This city of 152,000 is rapidly becoming one of the country's outstanding galleries of mid-20th-Century architecture. Of course, Yale helps with buildings by Saarinen, Rudolph, SOM, and Johnson, but the town is doing almost as well as the gown: cf., Carlin's firehouse, an SOM school, Rudolph's garage, and now, an interesting union building by William Mileto and John Fowler.

Designed for the Teamsters, Chauffers & Helpers Union, the building will basically be a hollow square of offices elevated above a central meeting hall. Mileto states that the building must house the private functions of the president, secretary, and committees, plus the more public activities such as meetings, health checkups, receipt of subscriptions, and inquiries. There will be two entrances to the meeting hall, one from the street *(above)*, and one from the parking lot *(right)*. The president will have a separate entrance off the drive to the parking lot. A stairway at the front will take union members to the public waiting room. The 150-capacity meeting hall will admit light during the day through a continuous perimeter skylight, and the areas between the hall and the offices (called "cells" by the architect) will be side-lit. All "cells" will be top-lit. Materials will consist of concrete block walls, reinforced concrete beams, and heavy timber planks. Structural: Herman Spiegel; Mechanical: John Altieri.



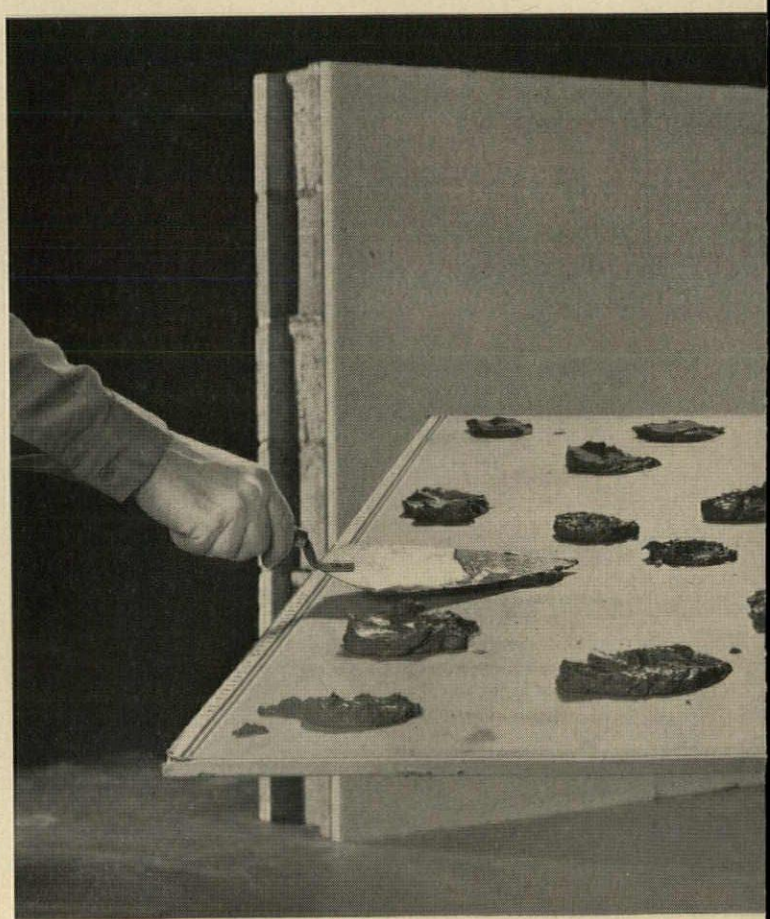




1. To insulate masonry walls *well:*

2. Start with Styrotac® bonding adhesive.

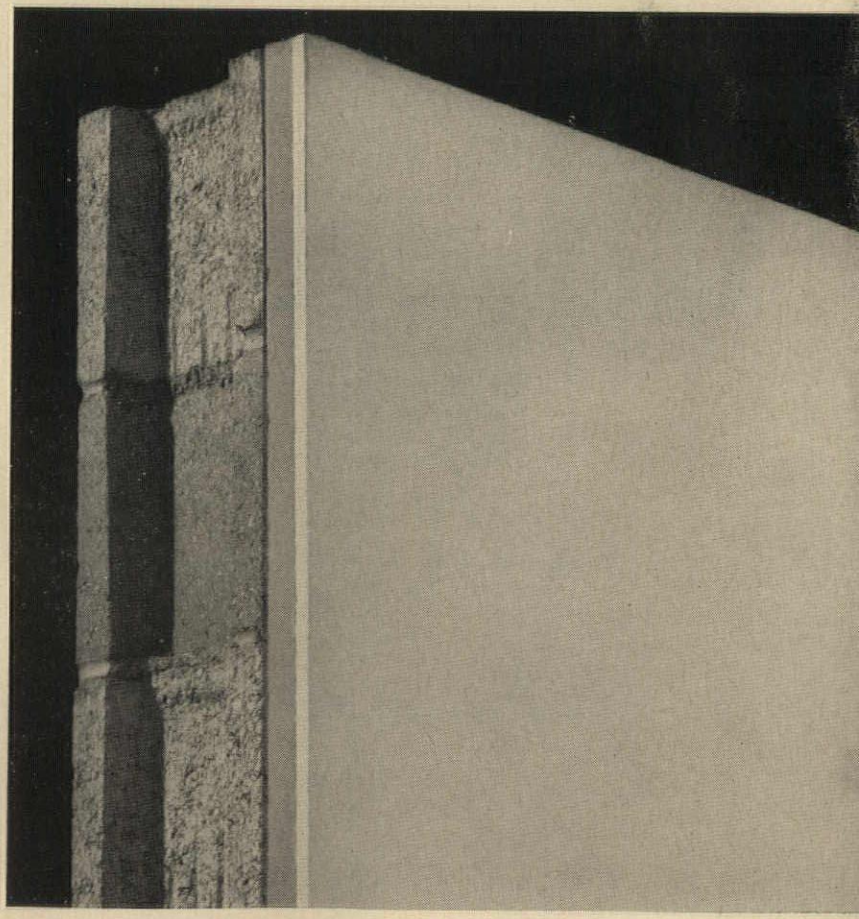
5. Take wallboard. (Forget the vapor barrier.)



6. Styrotac goes on.

3. Specify Styrofoam® FR insulation board. It prevents moisture absorption and migration; keeps its low "k" factor (0.26!) *permanently.*

4. Styrofoam FR is pressed into place.



7. Wallboard goes up. Finished wall (8-in. cinder block, 1-in. Styrofoam FR) has U factor of 0.14.

8. Want more data? Consult our catalog in Sweet's Architectural File, or write: The Dow Chemical Company, Midland, Michigan.

For more information, turn to Reader Service card, circle No. 317

DOW

Photo: Courtesy Italian State Tourist Office

OPPORTUNITY IN ROME

The entrepreneurs of Madison Square Garden, currently planning the destruction of New York's Pennsylvania Station, should be advised of an even more thrilling opportunity for vandalism in Rome. A recent advertisement in the *Rome Daily American* momentarily interrupted the flow of *la dolce vita* with the announcement that the Trevi Palace, which forms the integral backdrop for Anita Ekberg's more famous, "three-coins-in-the" fountain, is up for sale. The fountain-palace was designed in 1735 for Pope Clement XII by Niccolo Salvi, but was not completed until 1772. But let the ad speak for itself.

"Sensational Buy in Rome! *Trevi Palace for Sale.* For Important Use, Such As: *embassy, hotel, offices of large company or international organization,* [italics theirs] we offer you a unique opportunity, really exceptional! Think what an occasion it will be for you, from the point of view of prestige, to be the owner of this magnificent building. The world-famous Trevi Fountain at your doorstep would be invaluable publicity for you. It is one of the most beautiful palaces in the world, 5,338 sq. metrs. floor space—23,540 cu. mtrs. volume. Two Distinguished Entrances, Large Gracious Salons, Central Heating System, Plenty of Water, Two Elevators, Wonderful Panoramic View from Terrace, Possibility to construct additional floor. For information: Soc. S.A.F.I. (Sales Office), 41 Via G. Paisiello, Rome."

Several offers have already been made, one from a hotel chain.

Creese, new Dean of the School of Architecture and Allied Arts, University of Oregon; and Ernest P. Mickel, Washington Editor of F. W. Dodge.

Robie House Fund

A fund for the restoration of Frank Lloyd Wright's Robie House has been established with a view toward collecting $250,000 from the structure's admirers throughout the world. Recently, the deed to the house was presented to the University of Chicago by William Zeckendorf, chairman of the board of Webb & Knapp, Inc., who moved in and acted to save the building when it was threatened with destruction a few years ago. Information can be obtained from, and contributions sent to, Ira J. Bach, Chairman, Committee for the Preservation of the Robie House for the University of Chicago, Room 1006, City Hall, Chicago 2, Ill.

EDUCATION

The Paolo Soleri workshop, sponsored by Arizona State University, will emphasize the wash-away silt technique of producing scale models and sculpture. The five-week workshop, which begins June 17, seeks non-Arizona State applicants who have completed two years of architectural design or studio work. Final applications must be sent to James W. Elmore, Director, School of Architecture, by April 1 . . . William Strode, architectural engineering chairman for the American Society for Engineering Education,

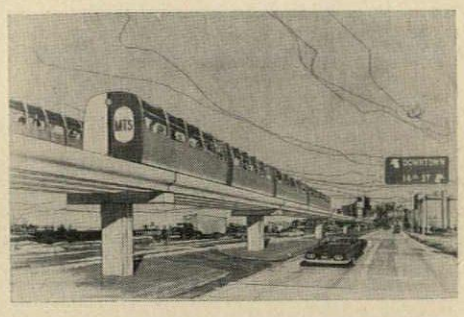
has joined the Texas A&M faculty to direct graduate research in structures. Other newcomers at Texas A&M are assistant professors Guillermo Vidaud and Weldon C. Steward, and instructors Steve M. Vaught and David G. Woodcock . . . The University of Washington, Seattle, has established two departments from its College of Architecture and Urban Planning, naming Meyer Wolfe chairman of Urban Planning and Victor Steinbrueck acting chairman of architecture . . . Staff additions at the University of Virginia are: Peter Faller of the Technische-Hochscule, Stuttgart, as lecturer in architecture, and Donald H. Miller, who recently completed a research fellowship at Delft, as assistant professor in city planning.

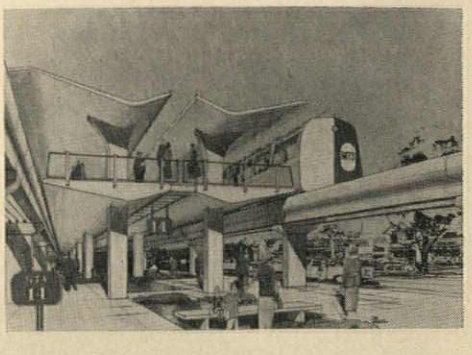
COMPETITION

The Government of Kuwait has announced a competition, open only to registered U. S. architects, for the design, construction supervision, and eventual demolition of that country's pavilion at the New York World's Fair. Competition prizes will be $4,000, first; $3,000, second; and $2,000, third. Winning architect will be engaged for supervisory and demolition operations, and will be reimbursed in accordance with standard AIA fees. Project information from Embassy of Kuwait, 2500 Calvert St., Washington, D. C.; fair information from Charles Poletti, Vice-President, International Affairs and Exhibitions, New York World's Fair Corp., Flushing Meadow Park, Flushing 52, N.Y.; competition announcement from Commodity and Export Promotion Staff, Business and Defense Services Administration, Room 4317, U. S. Dept. of Commerce, Washington 25, D. C.

Two for the Transit

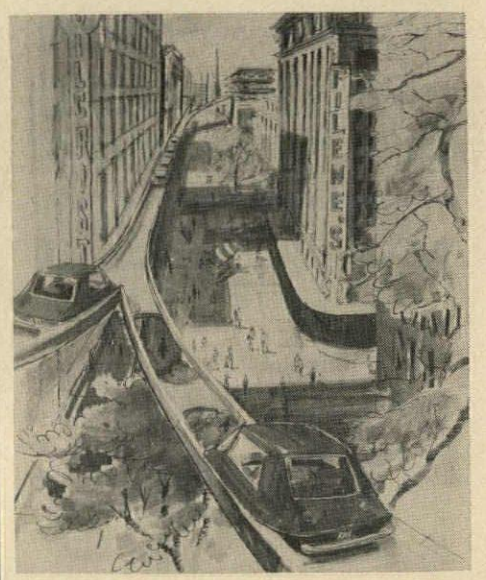
Two proposals for transit systems have come down the pike in recent weeks, one emphasizing in-town, metropolitan transportation, the other suggesting new means of car-less commuting. The "Transit Expressway" system proposed by Westinghouse Electric Corporation's Industrial Systems Group will recall to many the "Monorail" introduced at Seattle's Century 21 Exposition. The system utilizes a 20-passenger car (operating in trains of from 1 to 10 units) traveling at speeds up to 50 mph on a trespass-free, aerial, closed-loop expressway. The 8600-lb cars (present rapid transit rail cars weigh about 60,000 lbs) would travel on a



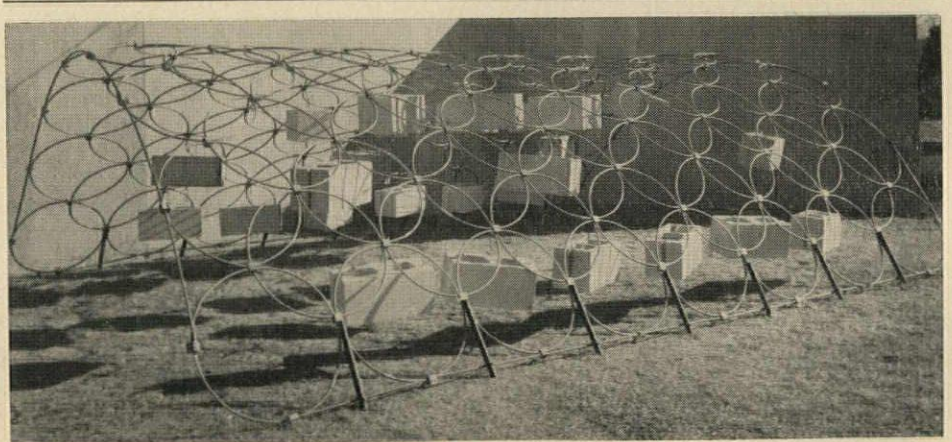


roadway of two precast, prestressed concrete beams supported by concrete piers at 44-ft intervals. Guiding principles would be four horizontal rubber guide wheels riding against the curbs of the roadway. Dual tires would be used on each wheel to guard against flats. Automation of traffic, speed, and other operating factors would be used "to the maximum extent consistent with safety and reliability standards."

A system that would function as an artery to stream commuters into cities, as well as get people around town without clogging the streets with automobiles, was proposed by Automation Management, Inc., of Westboro, Mass. Called "staRRcar" *(below)*—which stands for self-transit



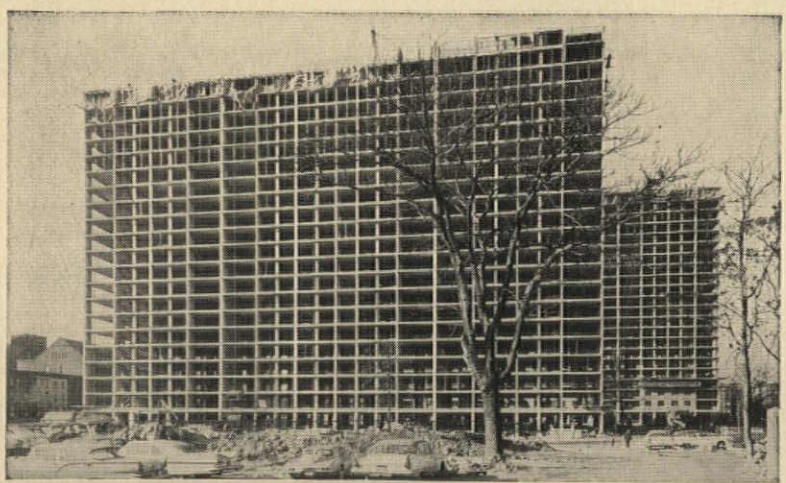
rail and road car system (automation hasn't caught up with the English language yet, obviously)—the system features small units called, naturally, "staRRcars," which the commuter can drive like a car to a spur track giving onto a main track leading into the city. The unit is automatically accelerated to 70 mph upon entering the main track, and joined to a train of similar units, all operating under the same propulsion. (This enables the traveler to have his hands free for finishing his coffee, reading his paper, or any other entertainments that may come to mind.) When his "staRRcar"



Truss System Wins Reynolds Student Prize

Winner of the $5000 Reynolds Aluminum Prize for Architectural Students, to be presented at the AIA Convention in May, is Manuel A. Fernandez of the University of New Mexico. The design is a structure on the geodesic principle using a series of interlocking aluminum rings. By interlacing the rings to achieve the desired curvature, Fernandez reduced the more familiar tetrahedron unit of the geodesic structure to a single, circular component. Joint used in fastening the rings is a simple cube with four holes through which the rings are threaded. Weight tests on the model gave it a load per weight ratio of seven to one. Jury for the competition included Linus B. Smith (chairman), Robert Anshen, and Philip D. Creer.

PENN STATION SOUTH, Manhattan—Ten buildings in a 5-block area, accommodating 2,820 families. Architect: HERMAN J. JESSOR; Engineers: FARKAS & BARRON; General Contractor: COMMUNITY SERVICES, INC.; Ready-mix Concrete: M. F. HICKEY CO., INC.



UNIVERSITY TERRACE, Brooklyn—Three 24-story towers containing 978 apartments. Architects: KELLY & GRUZEN; Engineers: FARKAS & BARRON; General Contractor: TISHMAN CONSTRUCTION CORPORATION; Ready-mix Concrete: RYAN READY MIXED CONCRETE CORP.

YORKSHIRE TOWERS, Manhattan—Twenty-one-story tower with 700 apartments. Architect: SLINGERLAND & BOOS; KAVY & KAVOVITT, INC.; Ready-mix Concrete: COLONIAL SAND & STONE CO., INC.

HIGH-RISE IN A HURRY

Major apartment builder specifies INCOR® for both summer and winter construction

Underhill Construction Corp., a leading concrete contractor in the New York metropolitan area, has established an enviable reputation for skillful, on-schedule construction of high-rise apartment buildings. Shown here are a few of the current Underhill projects.

To maintain efficient, streamlined schedules in both winter and summer construction, Underhill specifies concrete made with "Incor" High Early Strength Portland Cement. The early service strength of this concrete saves in finishing time, permits stripping forms sooner, and allows maximum construction speed.

With selective use of Lone Star Portland Cement and "Incor" 24-Hour Cement, the contractor has complete flexibility in setting up concreting schedules. Job practice often suggests, for example, that "Incor" be used for the first four days of a five-day week, switching to regular Lone Star on Friday for week-end curing. Such selective concreting results in maximum efficiency and economy.

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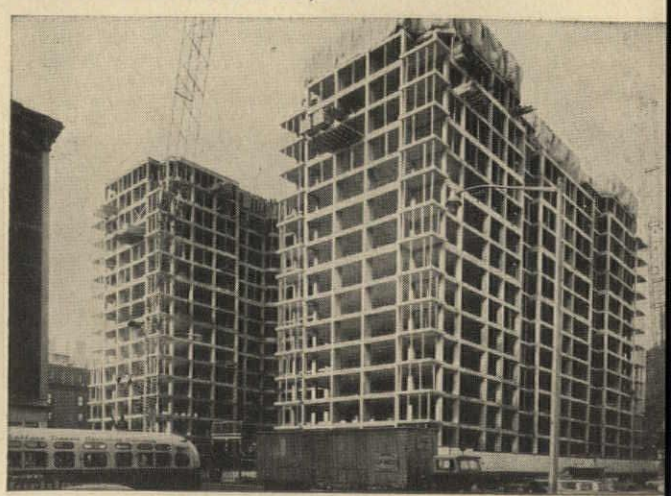
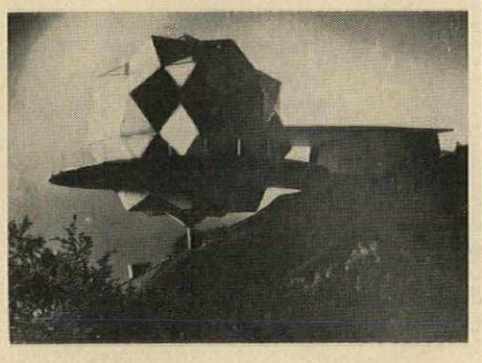
INCOR® 24-HOUR CEMENT

CAROL TOWERS, Manhattan—One of the tallest reinforced concrete apartment buildings in New York; 34 floors. Architect: PHILIP BIRNBAUM; Engineer: ROBERT ROSENWASSER; Ready-mix Concrete: COLONIAL SAND & STONE CO., INC.



approaches the desired exit in the city, the commuter (presumably in full control of his senses by now) presses dashboard buttons that cause the car to leave the main track automatically, decelerate, and enter a garage especially designed for the unit. Since individual cars would not be owned, but used instead on a special license and commutation ticket system, the garage would be set up on a first-in, first-out basis. As soon as he has downed his last post-work Martini, the householder could return to the garage, hop into the first "staRR-car" on line, and zip home to the madame blithe as a sparrow (and as unexpected, perhaps, given the absence of the good old train schedule).



Icosahedron House

House project in New Jersey by Mat Kauten of New Hope, Pa., is based on a truncated icosahedron, or twenty-sided polyhedron. (This one is a polyhedron of 12 pentagons and 20 hexagons having all sides equal, and acting as bases for 12 pentagon pyramids and 20 hexagon pyramids with all apexes in a sphere.) Main level features an open plan with living area, dining area, kitchen, and master bedroom around a central fireplace. A spiral staircase leads down to three children's bedrooms, and there is a bedroom balcony over the master bedroom, bath, and kitchen. The owner plans to construct a funicular railway on the precipitous site.

Greece-y Kid Stuff

Not exactly kid stuff, but a lot of fun, were the "columns" designed by New York architect Rolf Myller as décor for the Athenian Ball at the Plaza Hotel in Manhattan. The affair is the annual get-together of the Athens (Greece) College Alumni Association, a group, according to Myller, "to whom any theme must include columns." In order to introduce an airy feeling that would not compete with the already grandiose impact of the Terrace Room, the architect fashioned

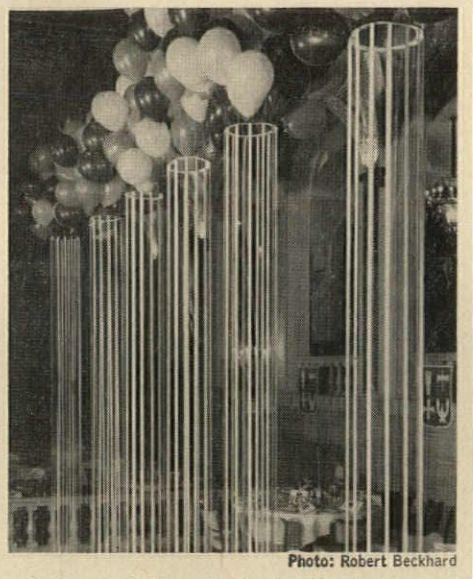
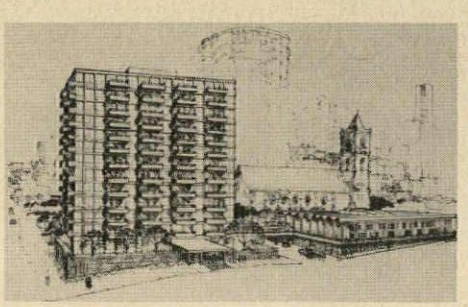


Photo: Robert Beckhard

columns of fireproof plastic tape supported by clusters of multicolored, gas-filled balloons. Circles of ¾" plywood acted as bases. Myller refers to the system as "columns in tension." He says that much of the fun of the evening came when dancers moved the columns around into casual groupings on the floor.

Church Houses Elders

Martin Luther Tower is a project by St. Marks Lutheran Church in San Francisco for a 12-story apartment



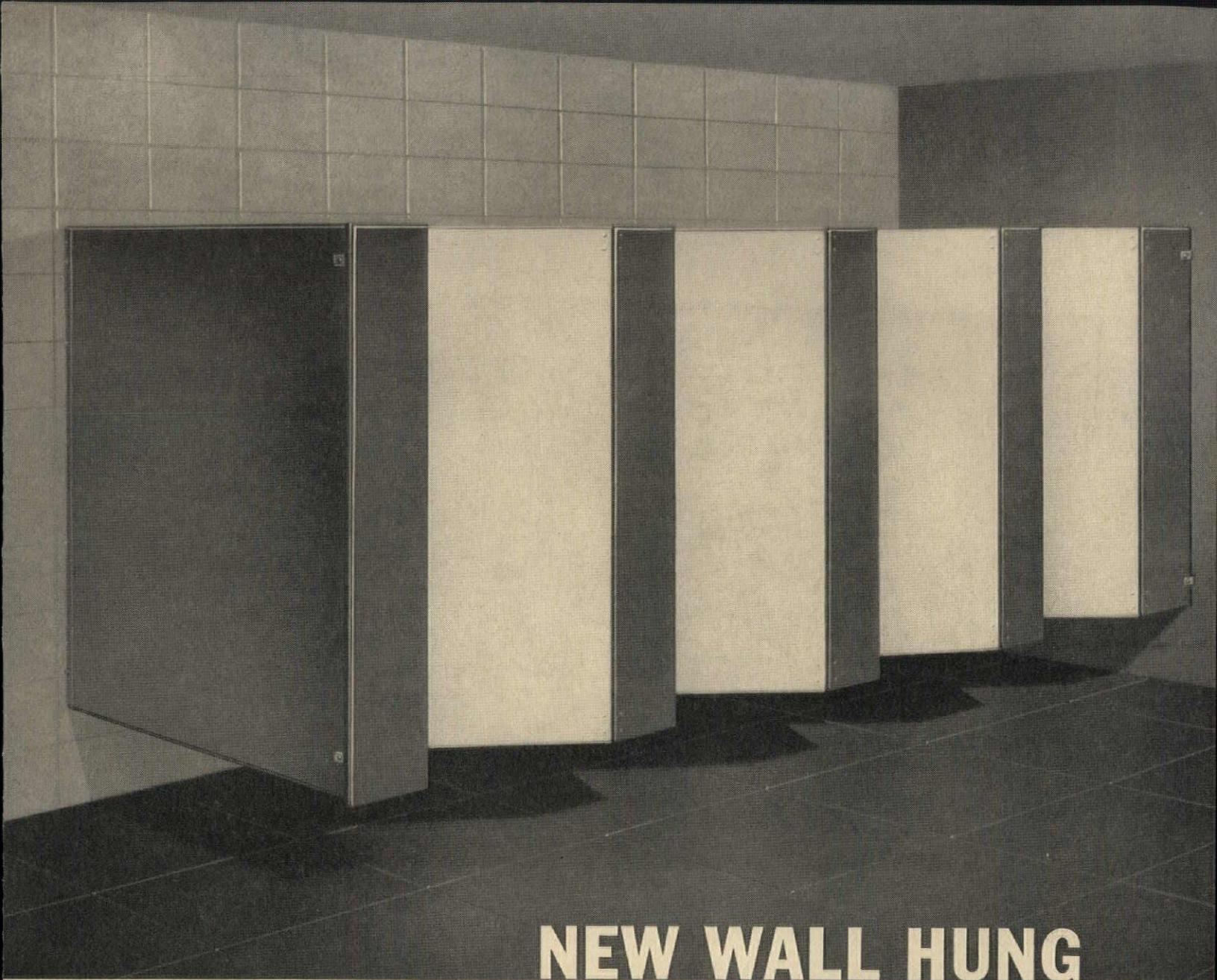
house for the elderly, designed by Donald Powers Smith. The building will contain 51 studio apartments and 72 one-bedroom apartments. The total project also includes a recreation building, a landscaped garden courtyard, and a parking area for residents. Cost is expected to be $2,012,000.

PERSONALITIES

New president of the American Society of Landscape Architects is JOHN ORMSBEE SIMONDS, Pittsburgh . . . The 1963 R. S. Reynolds Memorial Award sculpture will be created by DIMITRI HADZI . . . Cooper Union Alumni Association "Alumnus of the Year" is WILLIAM LUKACS, director of Research in Buildings and Furnishings Dept. of YMCA National Council . . . THORNE SHERWOOD, Sherwood, Mills & Smith, received the 1963 President's Award from the Columbia University Architectural Alumni Association . . . Recipient of the annual Building Stone Institute award is JAMES GAMBLE ROGERS II, Winter Park, Fla. . . . JEFFRY ELLIS ARONIN, New York, is conducting an architectural tour of Europe, June 30–August 10; itinerary will include Portugal, Spain, Italy, France, Holland, Sweden, Denmark, and England; information on the $1365 tour is available from Aronin, 101 Park Ave., New York 17, N. Y. . . . M. ELLIOTT CARROLL is new director of Division of Professional Services of AIA . . . PHILIP N. BROWNSTEIN replaced NEAL J. HARDY as Commissioner of FHA . . . The late ELEANOR ROOSEVELT was honored with the naming of a New York housing development in her memory; A. GORDON LORIMER is architect for the first section of the project, and HAUSMAN & ROSENBERG for the second . . . WILLIAM E. FINLEY resigned as director of the National Capital Planning Commission to join Community Research & Development, Inc., as a vice-president . . . S. ELMER CHAMBERS, Syracuse, is new president of the New York State Association of Architects . . . ROCKWELL KING DUMOULIN, former chairman of the Division of Architecture, Rhode Island School of Design, is serving AIA as program director for the Pan American Congress of Architects to be held in Washington in 1965.

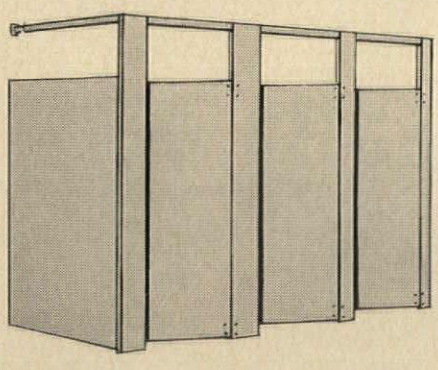
CALENDAR

"An Examination of the Shopping Center as a Nucleus of Intercity Activity" is the theme of the 1963 Urban Design Conference to take place at Harvard Graduate School of Design, April 26–27 . . . 67th annual meeting of the National Fire Protection Association will be in Portland, Ore., May 13–17 . . . "New Horizons for Engineering" is theme of the combined Design Engineering Conference/Design Engineering Show, New York, May 20–23 . . . 1963 Spring Seminar of the American Institute of Design and Drafting will be held May 23–24 at Wayne State University, Detroit . . . American Society of Landscape Architects will have its 64th annual meeting in Pittsburgh, June 23–26; theme is "The Landscape Architect and Public Parks"... Second Pacific Rim Architectural Conference will be in Mexico City, October 12–18; discussion topic will be "Consequences of Design."



NEW WALL HUNG COMPARTMENT

(Pat. Pending)



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The wall supports the compartment

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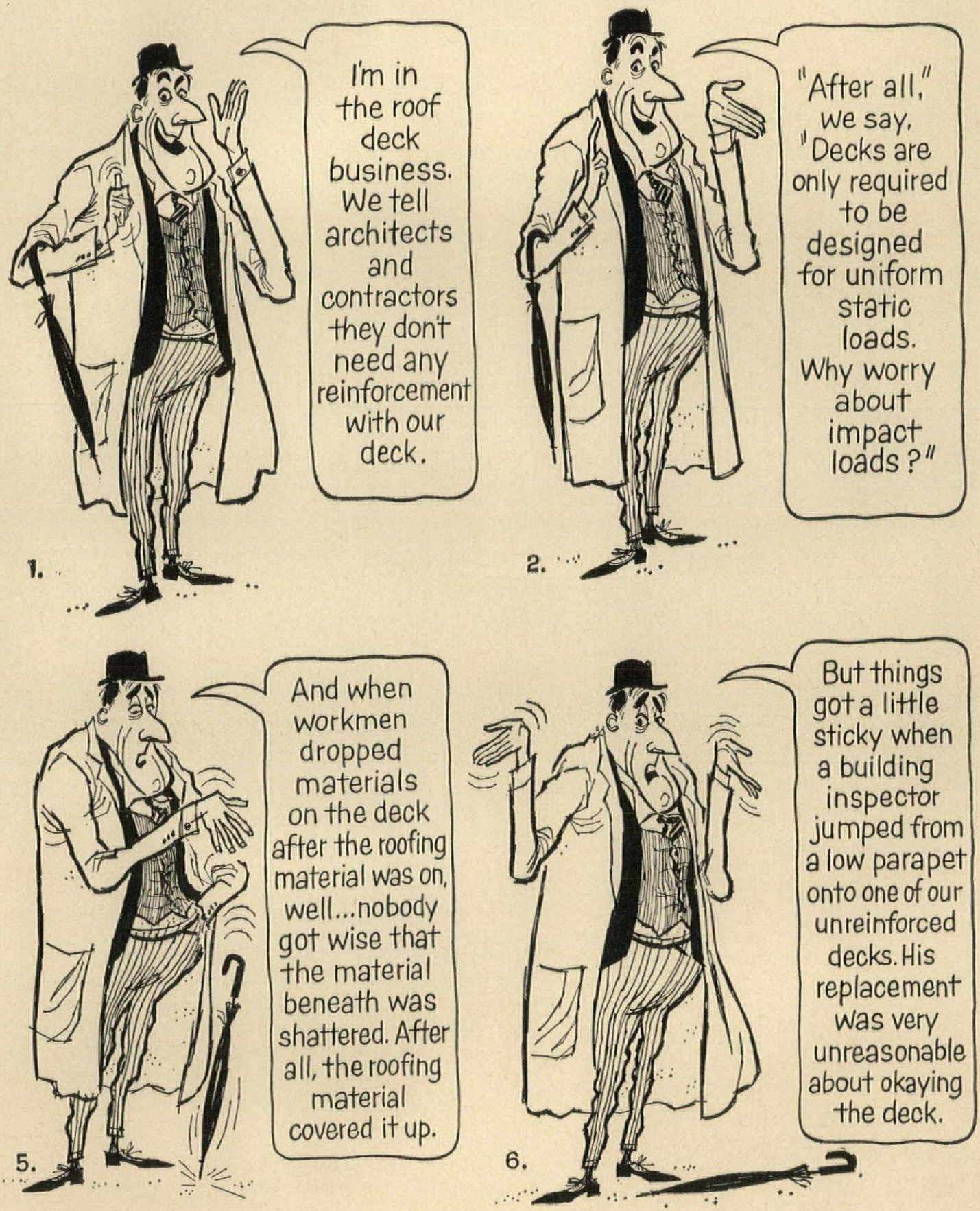

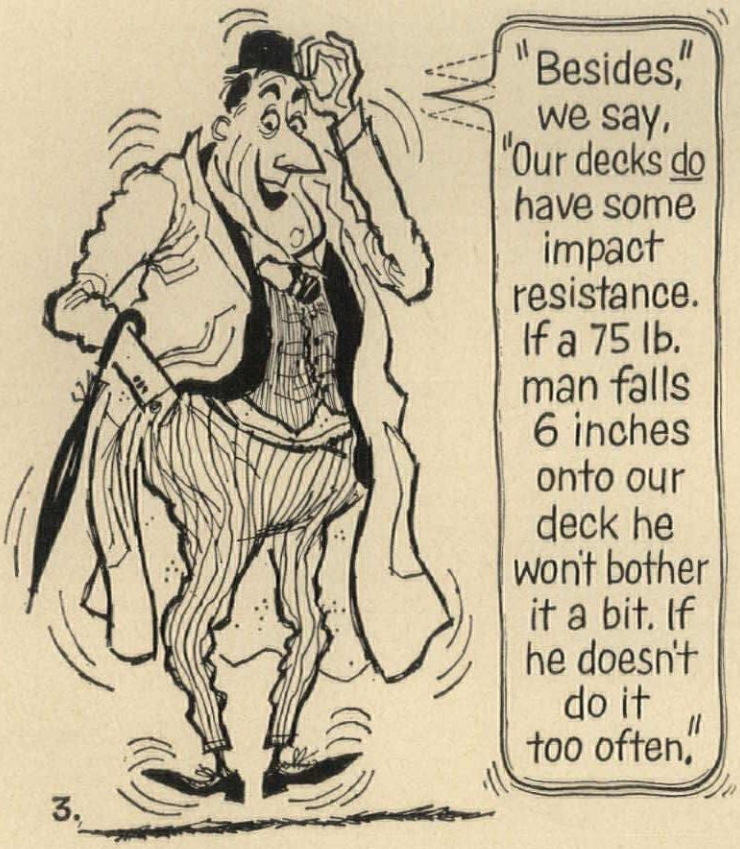

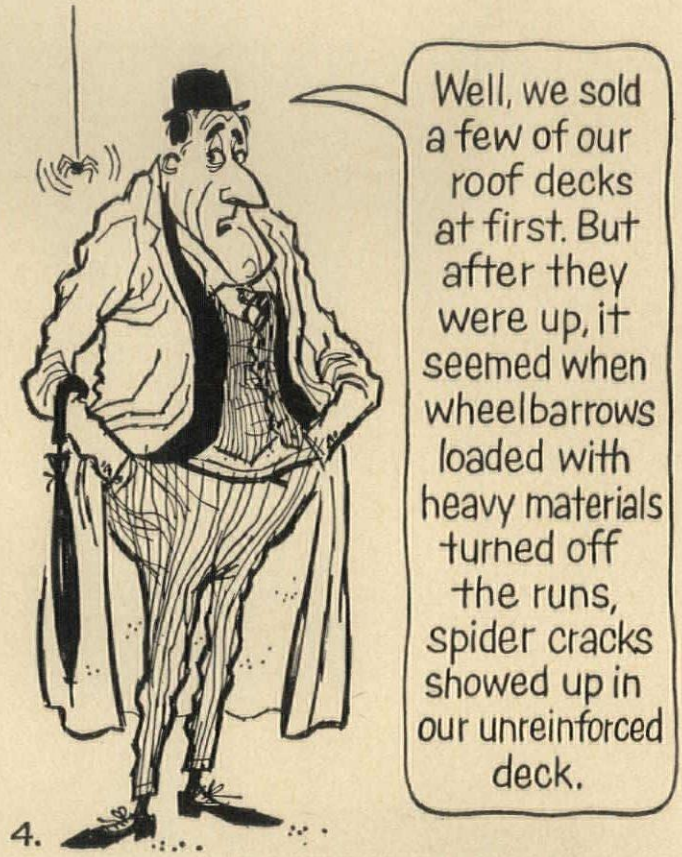

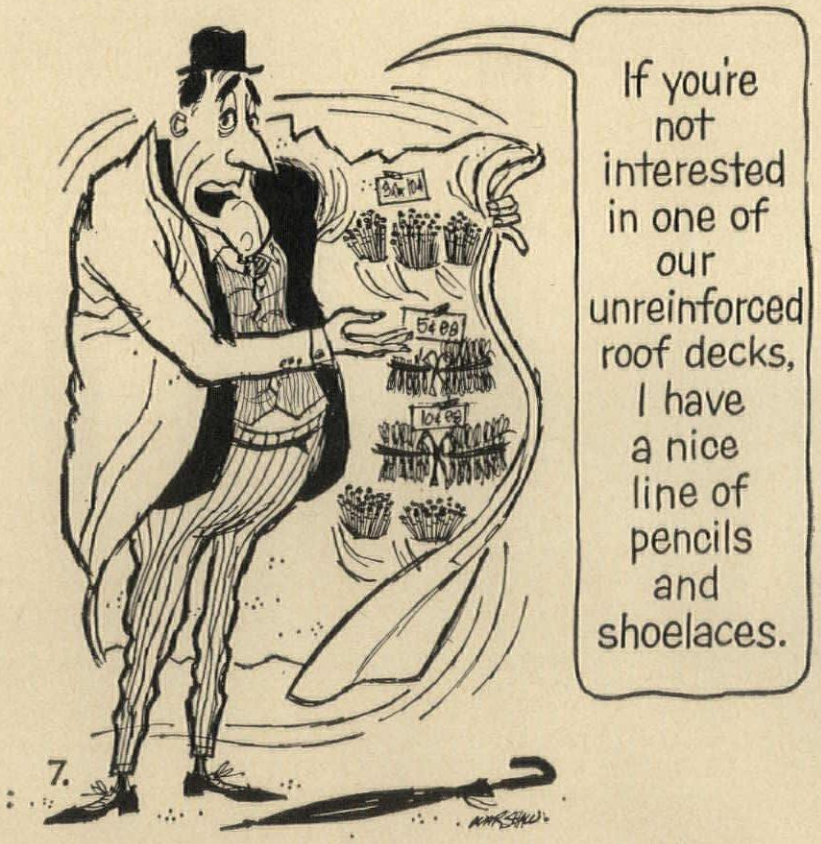

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THE EDUCATION BILL — ITS CHANCES

By E. E. Halmos, Jr.

Washington's intense concern with education this year is no surprise to observers. But it is no guarantee at all that any bills will get through Congress that will amount to very much.

Starting off with the President's own huge proposal, which could run to $4.5 billion over a period of years, the education proposals have been coming thick and fast since the current session started.

They range from a dozen or more bills in both Houses that would give parents extra tax exemptions (up to an extra $1000 a year in some cases) for children who are college students, to Senator Humphrey's plan for a sort of "study now, pay later" loan to students, plus grants for construction for specialized schools.

Biggest plans of all are centered in the Administration proposal: $400 million for Fiscal Year 1963 in loans and grants for construction of school, library, and laboratory facilities; and a $1.5 billion program of doling out funds to states for use in construction, for salaries, or for other purposes.

That could mean a lot of construction work, as well as new recruits for the profession.

But at this juncture, prospects for passage of any of these proposals are slim. Reasons are many, and some of them are political; but discount the heavy emphasis many commentators are putting again on religious issues. The real objections stem from financial considerations. Such proposed new spending, as part of the biggest budget in history, are frightening to many members of Congress.

In addition, there's the continuing mistrust in Congress of the basic figures on which Administration thinking is based—the annual releases by the Office of Education on classroom shortages, for instance.

Recently, OE reported a reduction in the national classroom shortage of about 6100—to a current total of 121,-200 rooms. Arizona's Senator Goldwater, however, commented that some 72,000 classrooms were actually built in the 1961-62 period. "The Office of Education," said Goldwater, "will not allow the alleged shortage of classrooms to be overcome . . . no matter how many classrooms are built."

His comment had obvious political overtones, but it does reflect a growing feeling that the figures are being adjusted to suit theories, not facts.

Further reason for Congressional caution on this and other programs is the new flood of extracurricular requests for money—"supplemental" spending bills, in the Washington jargon—that has already started.

More $ From Highways

Architect/engineers could get some help on highway work, if Congress okays a new bill that would raise limitations on their fees from 10 to 15 per cent.

The 10 per cent limitation is written into the 1956 Highway Act, which limits fees to 10 per cent of Federal participation. Amid pressures last year, the Bureau of Public Roads cracked down further and limited the fees to a percentage of contract prices instead of on estimated costs.

But the new bill (S 626), introduced by Alaska's Senator Bartlett, recognizes that the limitation is inadequate, since, as Bartlett said, "the complexities of modern highway planning . . . have increased such costs substantially."

While on the matter of highways, incidentally, note that persistent comment on the part of architects on the minimal attention given to aesthetic considerations in highway construction seem to be having some effect.

Several of the speakers at the recent Washington session of the Highway Research Board also took engineers to task for failure to consider the impact of their roads on surrounding land.

Limiting Labor

You can take it for granted that Congress will pass some sort of legislation this session to restrict labor's powers.

The long-drawn-out newspaper strikes in New York and Cleveland, the month-long longshoremen's strike, plus increasing stoppages in missile and defense construction work, have worn Congressional tempers very thin.

Several bills have already been introduced in both Houses to curb union power. Most of them would place union operations under antitrust laws in some way.

Favoring Labor

Construction workers, however, would gain some advantages—and architects would have to anticipate some higher costs—from proposed changes to the Davis-Bacon act, which controls rates of pay on Federal construction projects.

The bill (S 450) would require contractors to pay not only the "prevailing hourly rates," as determined by the Labor Department, but also "prevailing contractor payments" to (a) health and welfare funds, (b) retirement funds, and (c) apprenticeship funds.

These reforms have long been pushed by construction unions to keep non-union "outside" contractors out of established local areas, or at least force them to pay into union-managed funds.

FINANCIAL

While the debate over the growth—or lack of it—of the national economy continued in Washington, the construction economy seemed to be rocking along in unspectacular but healthy shape.

For one thing, prices of FHA-insured new home mortgages leveled off during December, indicating an easing of a money market that had been tightening steadily for some months.

For another, there was a definite upturn in planning for industrial construction of all kinds during December. Utilities also were greatly expanding their plans for new construction.

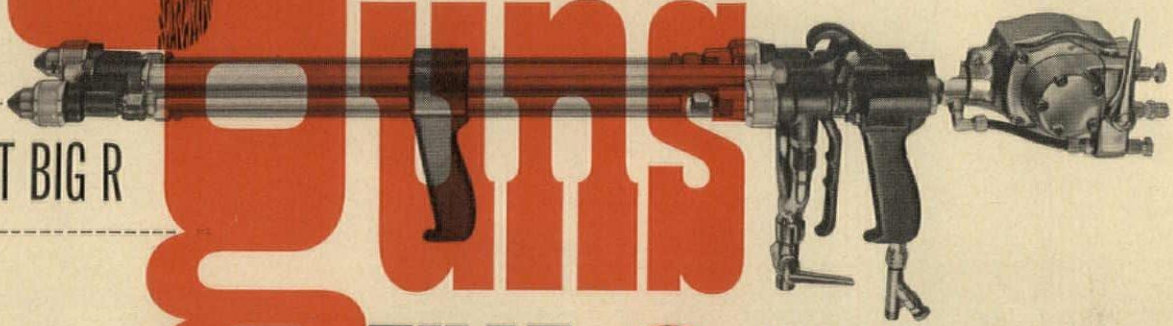
Voters also had given the industry a major boost by approving during November local bonds totaling $1.9 billion, which represents 87 per cent, by value, of the total submitted. After months of rejecting proposals at the polls, voters surprisingly approved a whopping percentage of bonds proposed for administrative and office buildings, okaying $277.1 million's worth, as against $25.1 million disapproved.

The one uncertainty remained the housing field. In 1962, the industry racked up an estimated total of 1,454,-700 new starts—up 11 per cent over 1961. But builders were still being very cautious about the coming year. Not only were they uncertain of the effect of the antidiscrimination order, but also of further restrictions in new income-tax recommendations. These would have the effect of reducing deductions for interest payments on home mortgages and local taxes. If these recommendations are enacted into law, they could have a serious bearing on the attractions of home ownership.

great guns THAT HAVE MADE HISTORY

COLT .45

SEALZIT BIG R



Roofing history was made with the introduction of the Flintkote Monoform Roofing System employing the ingenious Flintkote Sealzit roofing gun ■ This amazing gun does all the work of the conventional crew—does it better, does it faster ■ It applies special Monoform compounds simultaneously with chopped reinforcing glass fibers, forming a tough weather resistant monolithic protective membrane ■ Whatever your concept of shelter surface... conventional flat... soaring curve... advanced geometric design... let Flintkote Monoform take over! ■ Monoform Roofing is UL approved for new construction, class B for 20-year bondable application ■ The Flintkote Sealzit roofing gun is manufactured under the following U.S. patents: 2,787,314; 2,933,125; 3,033,472; 3,039,702 and D-187,504. Other U.S. patents pending. Patented in Canada. World wide patents pending.

FLINTKOTE® monoform® ROOFING SYSTEM*

*U.S. PATENT APPLIED FOR

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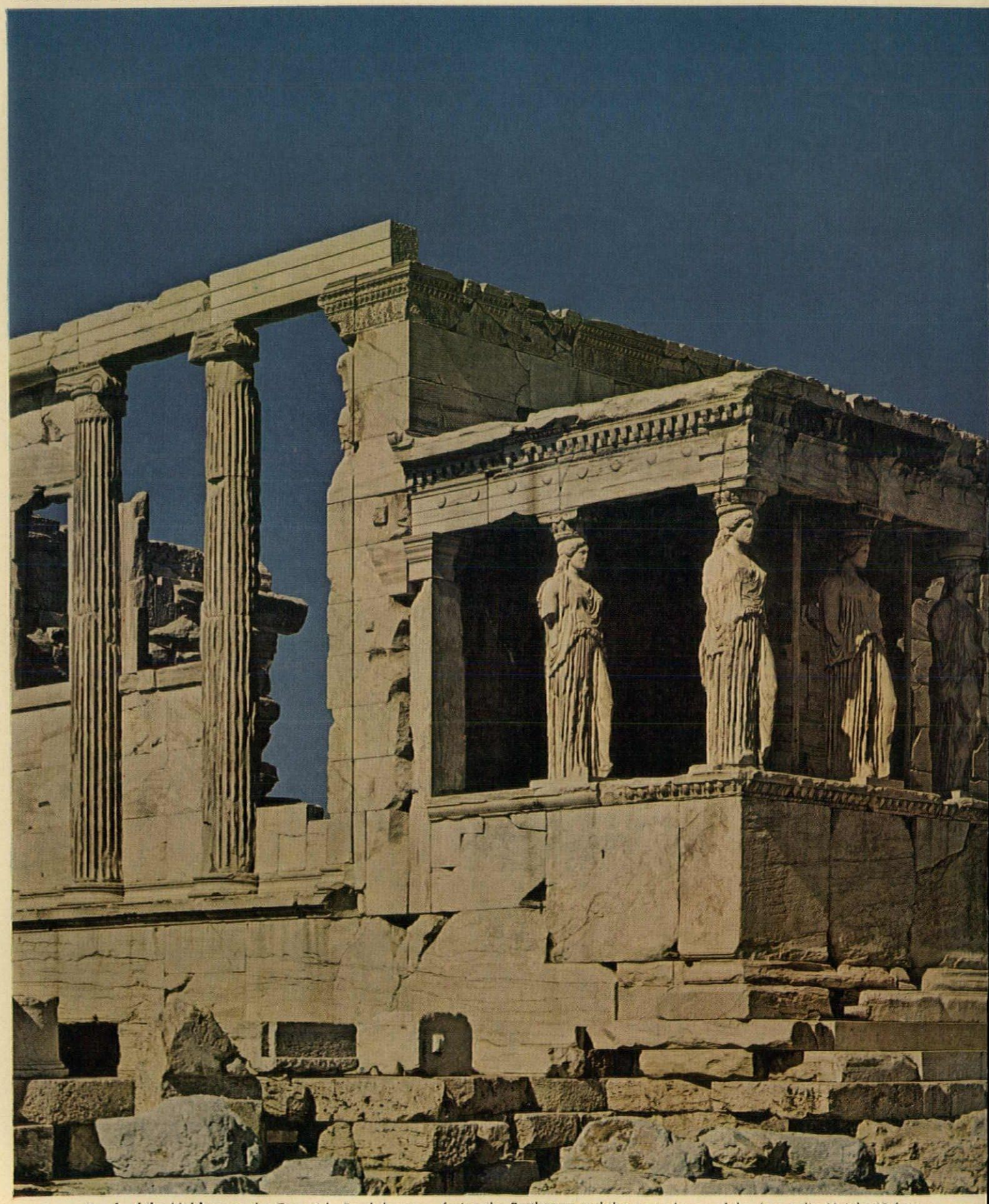
☐ Builder, Other _____

For more information, turn to Reader Service card, circle No. 323



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.

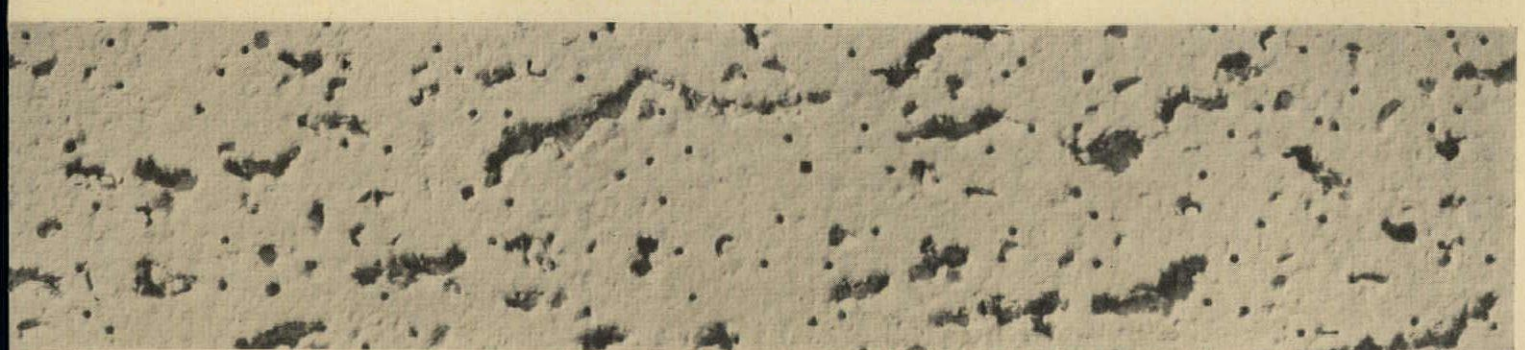
New Fissura tile is available in 3/4" thickness with tongue and groove kerf, as well as in butt joint, kerf and rabbeted. This assures a completely level ceiling and eliminates the need for splines between the edges of the tiles. This new ceiling tile can be installed by all regular application methods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

LO-TONE®
"FISSURA"
MINERAL ACOUSTICAL CEILING TILE AND BOARD



Section of new FISSURA tile shown ACTUAL SIZE.

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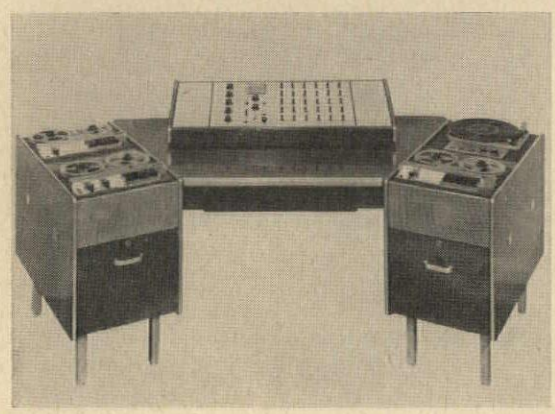
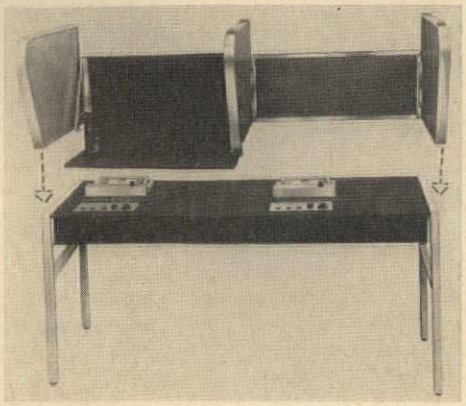
For more information, turn to Reader Service card, circle No. 395

TWO ELECTRONIC LEARNING SYSTEMS





New line of electronic language laboratories is thoroughly modular to permit a basic initial installation expandable as needs require and finances allow. System expansion is said by the manufacturer to be as easy as plugging a light cord into a wall outlet. A variety of recording systems is available in the line, including two exclusives: reusable magnetic disc and tape magazine. Shown are several of the units in the new line. Because of its modular construction, the teacher's console (*above, left*) may have one, two, or even more pedestals, depending on the program sources required by the curriculum. The TRW "Mobile Lab" (*center*) has 10 positions, expandable to 20 or 30. Recording, programming, and individual supervision are incorporated into the movable unit. It can be converted easily into part of a larger lab system by becoming an end pedestal of the teacher's console. Student positions (*above, right*) may be either boothless type or with sound absorbing partitions. Thompson Ramo Wooldridge, Inc., 6325 Huntley Rd., Columbus 24, Ohio.

On Free Data Card, Circle **100**

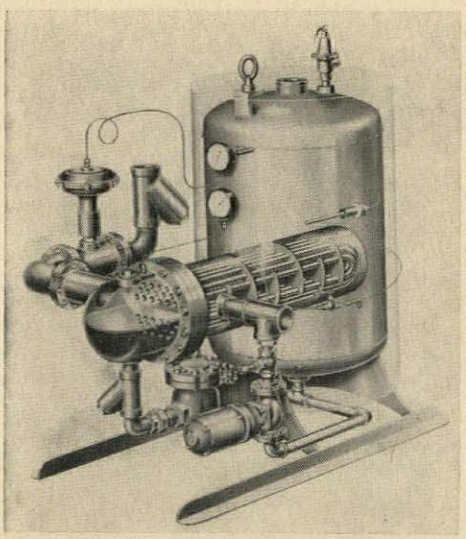
An electronic learning system said to bring this type of instructional technique within every school budget and provide for a variety of classroom requirements is manufactured by American Seating. One feature is the "Consolette" (*left*), a unit designed for use in standard classrooms. Student headsets can be installed at desks or tablet-arm chairs, and as many as 60 positions connected to the console through standard floor jacks. Five lesson sources are available, and students may be instructed or monitored individually. The portable "Suzette" (*right*) is an itinerant teaching aid with five lesson sources (three-track taped deck, four-speed phonograph, and teacher's voice) and nine headsets. Students listen to either tape or record and respond individually to teacher. Line also features "Chancellor" electronic learning center with 11 lesson sources and provision for student-to-student conversation. "Deluxe" model has 19 lesson sources, student-to-student conversation, and provision for 14 lessons. American Seating, 901 Broadway NW, Grand Rapids 4, Mich.

On Free Data Card, Circle **101**

Cantilevered Legs

Desks and cabinets initiate the AIV line of office furniture from Peerless. The design is one of the first fruits of U.S. Steel's promotional program, which offers designs by Peter Muller-Munk Associates to manufacturers. The AIV line features center post cantilever "V" legs of mirror chrome steel; desk pedestals are suspended from the "Spiracor" top. Variety is offered in back panels (half or full length), finishes (painted steel, wood, plastic laminate, etc.), and drawer fitments and accessories. Peerless Steel Equipment Co., Unruh & Hasbrook Ave., Philadelphia 11, Pa.

On Free Data Card, Circle **102**



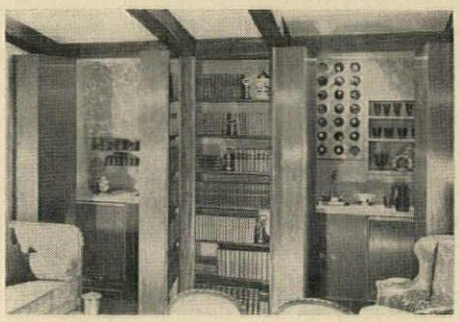
Compact Water Heater

P-K's "Compact 400" is a completely new packaged steam hot-water heater, which combines high recovery capacity and optimum heat transfer in an extremely small space. A unit with recovery capacity of 10,500 gph, for example, measures approximately 56″ x 53″ x 46″. A key feature of the Compact 400 series is the patented "Anticipator," which senses hot-water needs with speed and accuracy. The entire unit is factory-insulated, and whenever possible, complete assembly is done at the factory. Maintenance is simple, with parts easily removed. The Patterson-Kelley Co., Inc., East Stroudsburg, Pa.

On Free Data Card, Circle **103**

Silk-Screened Formica

New from Formica is a silk-screening process for plastic laminates which gives line-for-line replicas of fabric, artist's sketch, caning, maps, wallpaper, or printed page. Size may be the same as the original or different. Formica's current library of silk-screenings contains 30 designs; unlimited possibilities are available with custom designs. Cost is estimated at



$.75 to $2/sq ft, depending on complexity and quantity. Shown here is a guestroom whose bookcase wall swings away to expose kitchen and bar, a design by Renny Saltzman, AID, for Formica's recent group of Second Kitchens. The linen print used on the sofa has been silk-screened onto Formica for cabinets and wine rack along the back wall. Formica Corp., Subsidiary of Cyanamid, Cincinnati 32, Ohio.

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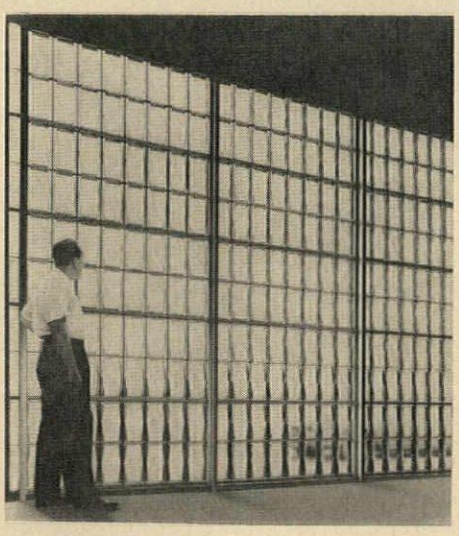

New Shapes for Glass Block

Glass block, called here "shadow tile," has received interesting new shapes. The one shown is a modified hexagonal shape recessed within a 12″ x 6″ rectangle. The other design features a deep longitudinal rib down the center. Also new from the company is the color "Royal Gray," styled for sun-control purposes. Kimble Glass Co., Subsidiary of Owens-Illinois, P.O. Box 1035, Toledo 1, Ohio.

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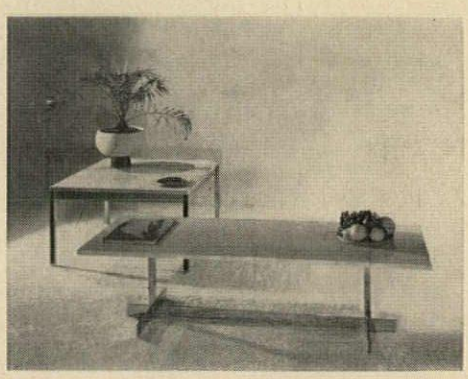


New Collection by Cherner

Industrial designer Norman Cherner has designed an extensive new line for this company, formerly known as Robert Barber, Inc. The group, which contains more than 70 pieces, includes desks, conference tables, credenzas, lamp and coffee tables, pull-up chairs, lounge chairs, swivel chairs, sofas, benches, and ottomans. Two main subgroups are: one all in wood (mostly walnut); and the second a chromed steel collection with accents of wood or (as shown) travertine. Robert Benjamin, Inc., 6 E. 53 St., New York, N.Y.

On Free Data Card, Circle **106**

Moisture-proof "Cocoon" for Cigar Warehouse

What is probably the world's largest "humidor" has been erected at Port Newark, N.J.—a large marine terminal—as a distribution warehouse for the Consolidated Cigar Corporation. Since a constant high relative humidity had to be maintained within the building and there could be no vapor transmission or condensation through any part of it, a practically maintenance-free container for the storage of smokes had to be designed by Roushey, Smith & Miller and the cigar company staff. The designers selected exterior steel wall panels sandwiched with foamed-in-place "Hetrofoam," a one-shot, rigid system offering heat stability, excellent K-factor, dimensional stability, low water absorption, and low moisture permeability. The material will not distort at temperatures

Prudential takes out "insurance" against vibration . . . with lead

Main-line railroad trains create vibration adjacent to the new 52-story office building now being erected in Boston by The Prudential Insurance Company of America. That vibration, however, never reaches the pleasant plazas surrounding the building. Where the plaza floor slabs rest on their supporting walls, they are bedded on a double layer of one-inch lead pads. These pads (cut section shown below) are a laminate of lead, asbestos, and steel sealed in lead sheathing. They stop vibration in its track.

Other modern buildings which muffle subway, railroad, or highway vibration with lead pads include the Pan Am Building, the Waldorf-Astoria Hotel, and many, many others.

Look into lead whenever you have a problem from heavy machinery, cooling towers, or any other source of severe vibration. For complete technical information relating to your area of interest, write today. Lead Industries Association, Inc., Department N-3, 292 Madison Avenue, New York 17, N. Y. 3828

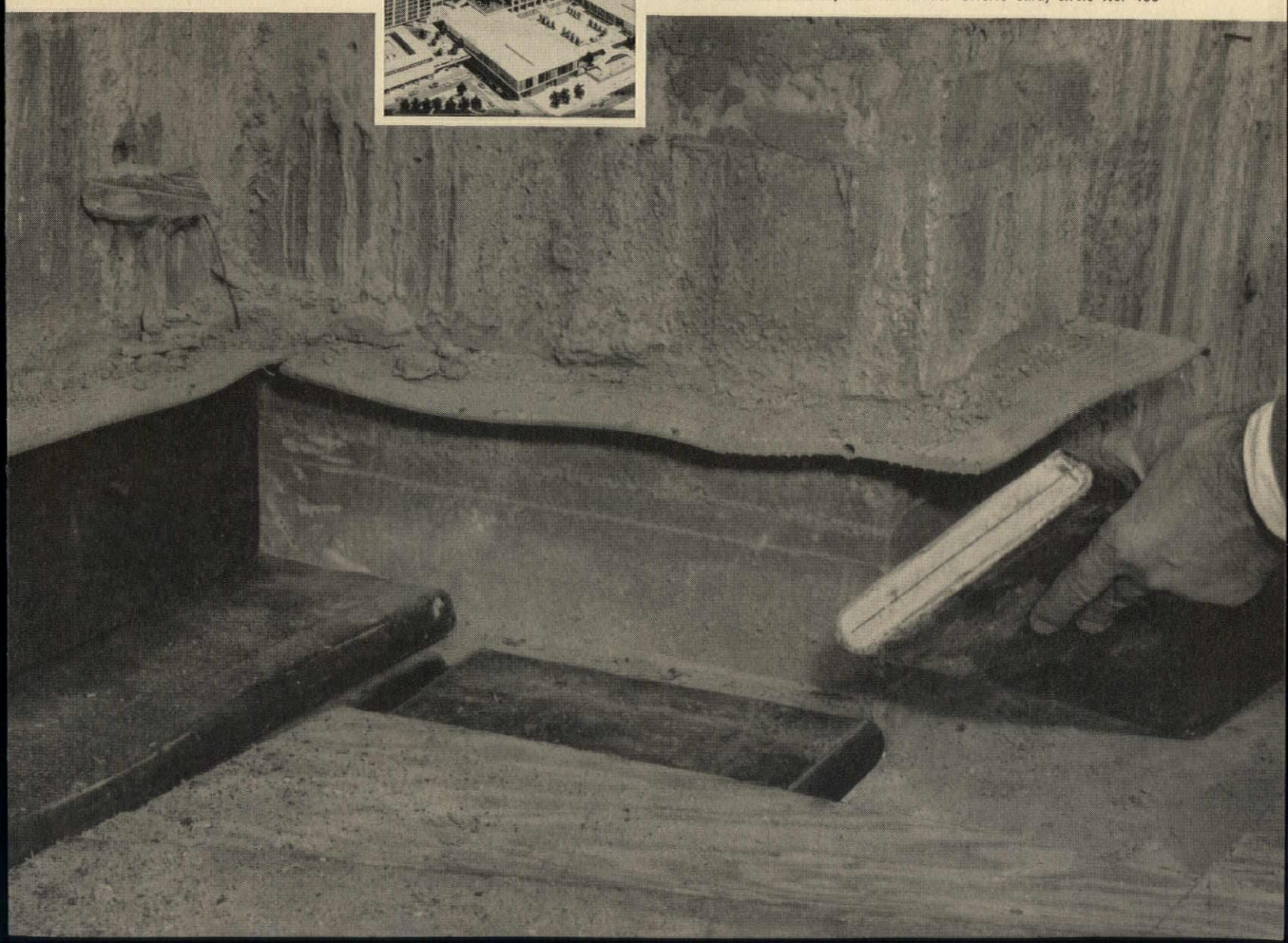
Charles Luckman, Architect
Hoyle, Doran & Berry, Associate Architect
Metcalf & Eddy, Foundations
Edwards & Hjorth, Structural Engineers
Syska & Hennessey, Mechanical Engineers
Knapp Mills Inc., Pads

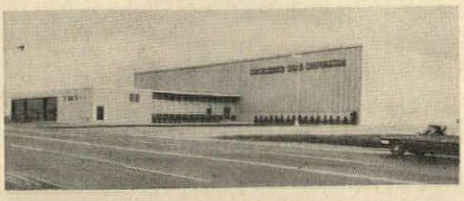
Pb

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

Look Ahead with Lead

For more information, turn to Reader Service card, circle No. 406





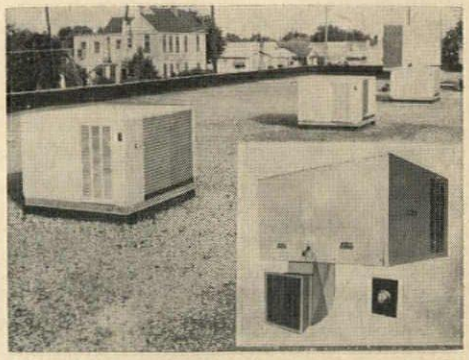
exceeding 200 F; its K-factor is rated at 0.11. The panels measure 30′ x 3′ x 1½″, and are thought to be the longest used to date. They were fabricated by the American Bridge Division, U.S. Steel, and formed and painted by Bowman Steel Corporation. Roof of the building is steel deck insulated with foam, and the concrete skirt wall has foam insulation covered with plaster cement. Durez Plastics Div., Hooker Chemical Corp., Niagara Falls, N.Y.

On Free Data Card, Circle **107**

Reduced Costs in Hydronic Installations

Attempting to reduce costs of hydronic installations to compete with warm air in medium-priced new construction markets, American-Standard has developed several new products: two light-weight, cast-iron boilers, gas or oil-fired, that are lower-priced than any cast-iron product now on the market; ½″ heating element to permit use of smaller piping and connecting; new tools to cut material and labor costs that could reduce job costs as much as 15 to 20 per cent. New tools include jig by which length of ½″ or ¾″ copper tubing can be quickly bent to form smooth, one-piece connection between the baseboard element and tubing below floor joists. In addition, a new system of design method allows more accurate equipment selection. American-Standard, Plumbing & Heating Division, 40 West 40 St., New York 18, N. Y.

On Free Data Card, Circle **108**



Multiple Units Preserve Building's Silhouette

Multiple, five-ton rooftop cooling units to take the place of multi-ton central systems on low-rise buildings have been introduced. The 5′x 4′x 2½′ units can be easily shifted to different locations in cases of short-term leases. "Market-Aire" system represents a large saving in ductwork, which is here measured in inches rather than feet. Each unit is individually controlled with its own thermostat, allowing for zoned cooling. Texas Products Manufacturing Co., Inc., 919 Taylor St., Waco, Texas.

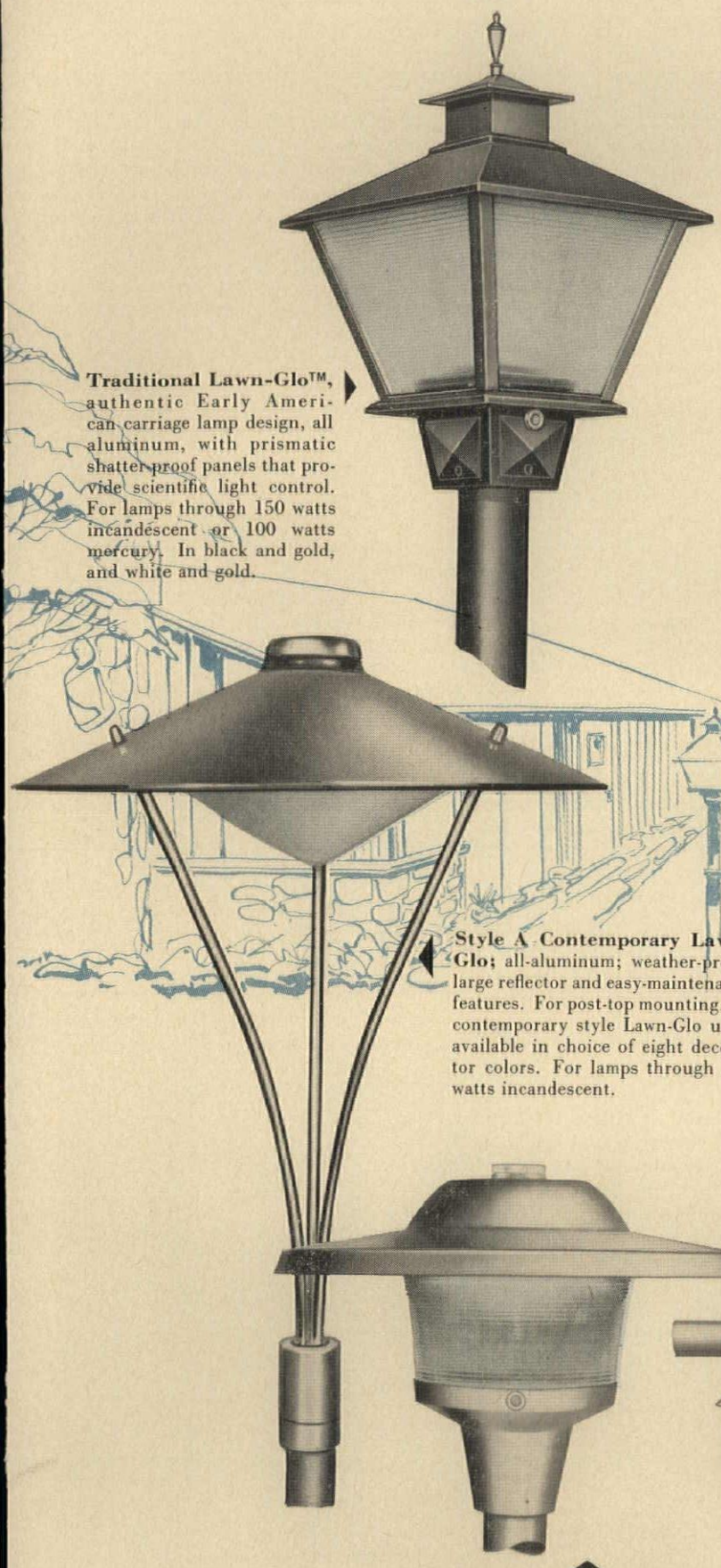
On Free Data Card, Circle **109**

Residential Lighting by L-M offers wide variety, highly styled designs

Line Material, long a leader in styled outdoor lighting, offers a complete line of units for residential and commercial applications. These units provide soft, low-level illumination. The optical systems reduce and almost completely eliminate glare. Light is directed out and down where you want it.

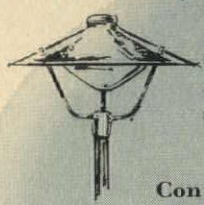
The units are constructed to provide long service, eliminating replacement cost. Weatherproof construction, and easy access for cleaning and relamping, are additional features. All are available with or without photo controls. These units excellent for outright or term sales or leasing programs.

Authorized L-M Distributors, or L-M Field Engineers, will be glad to provide technical data, and lighting application data or engineering service where required. Call your distributor, your nearest L-M office, or write Line Material Industries, Lighting Dept., Milwaukee 1, Wisconsin.

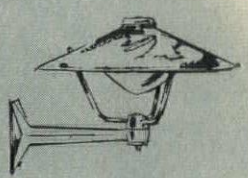


Traditional Lawn-Glo™, authentic Early American carriage lamp design, all aluminum, with prismatic shatter-proof panels that provide scientific light control. For lamps through 150 watts incandescent or 100 watts mercury. In black and gold, and white and gold.

Style A Contemporary Lawn-Glo; all-aluminum; weather-proof; large reflector and easy-maintenance features. For post-top mounting. All contemporary style Lawn-Glo units available in choice of eight decorator colors. For lamps through 150 watts incandescent.

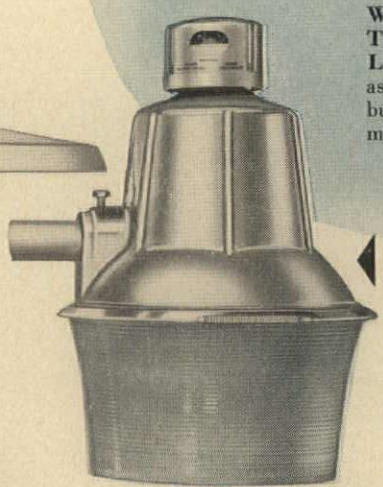


Contemporary Style C, for post-top mounting. Excellent for patios, gardens, motel grounds.



Contemporary Lawn-Glo-Style B—with bracket for wall mounting. For door-ways, porches, walks.

Wall-Mounted Traditional Lawn-Glo; same as the post-top unit but with cast aluminum bracket.



L-M's-new Styled Suburbanaire® is a new version of the original dusk-to-dawn lighting unit used in thousands of farmyards, commercial and neighborhood lighting locations. Mercury or incandescent; glass or plastic refractor; choice of 8 colors. Open refractor reduces maintenance, makes it simple, easy, economical.

L-M's new Stylette™ Post Top Light provides glare-free lighting for a wide variety of applications—residential, motels, hotels, schools, stations. Through 405 watts incandescent with glass refractor, 200 watts with plastic refractor. Choice of 8 colors, seven light patterns with glass refractor. 3-inch mounting collar.

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NEMA MEMBER

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White-Room Engineering

Environmental control of "white rooms," and their exacting demand for controlled air filtration, temperature, and humidity, is the subject of new 12-page bulletin from American Air Filter. Bulletin discusses the development of the white room and the need for super-clean air, and illustrates a typical layout of a dust-free complex. Air-filter performances required, plus filter recommendations for various room classifications, are shown in chart form. Also described is AAF's packaged approach to the environmental control of dust-free rooms. Dept. PD, American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.

On Free Data Card, Circle **200**

CONSTRUCTION

Slate Types and Specs

The many types and uses of Pennsylvania slate are illustrated in an informative 4-page bulletin. Photographs differentiate between ribbon stock and clear stock, and show surface alternatives of natural cleft, honed, and sand-rubbed. Sketches suggest a variety of ways in which slate can "enhance every architectural feeling"—interior and exterior paneling, baseboards, lintels, roofing, interior and exterior window sills, patios and walks, shower stalls, stair treads, hearths and mantels, counter tops. Bulletin includes table of properties and results of corrosion-resistance tests, as well as specs covering workmanship, sizes, setting, and cleaning. The Structural Slate Co., Pen Argyl, Pa.

On Free Data Card, Circle **201**

Thin-Shell Construction

Forming Thin Shells, 28 pages, is the second major bulletin by Dow on the use of "Styrofoam" in thin-shell construction. (Earlier bulletin discussed the expanded polystyrene as a plaster base, as a core material for concrete sandwich panels, and as a form liner for on-site casting of concrete roofs.) New publication describes and illustrates advanced techniques that make possible economical construction in this country of thin-shell buildings. It discusses the use of Styrofoam as a form liner, semistructural form board, and structural form board to create the desired shell surfaces and to act as a support for the application of the structural roof material. In so doing, Styrofoam remains an integral part of the roof as permanent insulation, effective vapor barrier, and base for interior finishes, after the shell material has attained strength and is a self-supporting structure. Bulletin presents case studies, engineering data, references, and specs. Plastics Sales Dept., The Dow Chemical Co., Midland, Mich.

On Free Data Card, Circle **202**

Masonry Wall Reinforcing

Comprehensive Data File on Masonry Wall Reinforcement consists of a 36-page technical booklet on "the original masonry wall reinforcement with truss design." The foreword states that the file has attempted to draw together all the major recommendations proposed or adopted by agencies of the Federal Government, private research organizations, and, of course, the Dur-O-waL Company, in as complete and objective a manner as possible. Various sections then set forth data and details on use in combination with control joints, in composite masonry walls, (Dur-O-waL in lieu of headers), in stacked-bond masonry, in cavity walls, and with glass block. Other sections discuss Dur-O-waL truss design and butt-welded construction, the merits of galvanizing, and mortar-mix specifications for unit masonry. Dur-O-waL National, Inc., P. O. Box 150, Cedar Rapids, Iowa.

On Free Data Card, Circle **203**

Structural Framing

New 28-page manual of architectural details for "Penmetal" structural framing has been issued by Penn Metal Company. Illustrations show connection details for the various sections when used both as an integrated framing system and in conjunction with heavy steel beams, wood framing, and masonry. Included are floor, ceiling, and roof systems; load-bearing walls; curtain walls; and high-bay walls. Also shown are methods for the attachment of various collateral materials, bracing details for wind and seismic loads, and fabricating and welding data. Penn Metal Co., Inc., Parkersburg, W. Va.

On Free Data Card, Circle **204**

High-Strength Stainless

The high-strength and cost-saving advantages of the 200-Series stainless steels are presented a new 28-page booklet from Union Carbide. Discussed in detail are the compositions,

Continued on page 88

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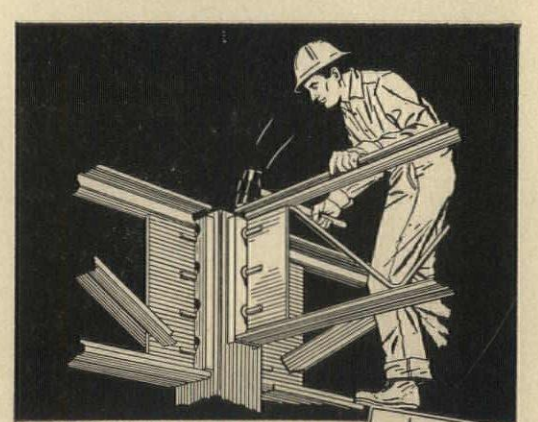

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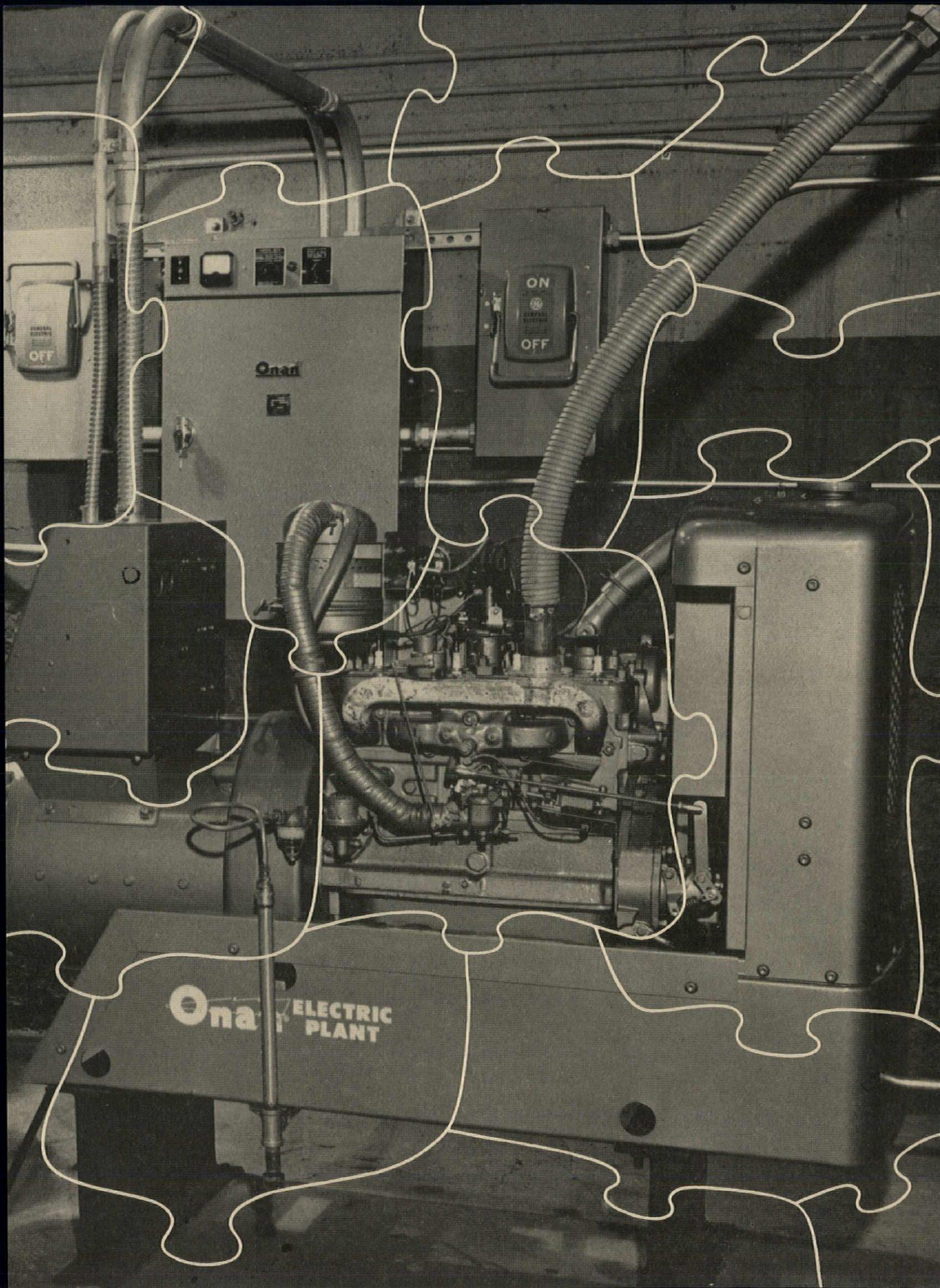
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OFF
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ELECTRIC
PLANT

Why buy bits and pieces?

Onan provides a complete package for your standby power installation

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You avoid the buck-passing that invariably occurs when you have multi-supplier responsibility when you specify Onan. We take complete responsibility for supplying everything in the installation . . . from line transfer controls to fuel tanks. Available in Gas, Gasoline, Diesel Models to 230 KW.

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When you specify Onan, you have one local source for service. Forever. No matter what part of the system needs service—whenever required—one local phone call to your Onan distributor takes care of it.

Why don't you call your Onan man next time? He'll work with you and the electrical contractor all the way. He'll recommend the best location for the plant, best fuel system, best cooling system. And don't be surprised if he recommends *less* power than you had thought necessary.

You'll find your local Onan distributor listed in the Yellow Pages. Thomas' Register, Sweet's. Ask him to send you a copy of Bulletin F-170 "Unit Responsibility." Or, write the factory, 2515 University Ave. S.E., Minneapolis 14.

ENGINE/GENERATOR DIVISION

Studebaker CORPORATION

PERFORMANCE CERTIFIED

We certify that when properly installed and operated this Onan electric plant will deliver the full power and the voltage and frequency regulation promised by its nameplate and published specifications. This plant has undergone several hours of running-in and testing under realistic load conditions, in accordance with procedures certified by an independent testing laboratory.

Continued from page 84
design and engineering properties, and fabricability of Types 201, 202, 204, and 204L. Special attention is given to the 40% higher yield strength of these grades over corresponding 300-Series stainless steels in the annealed condition. Booklet gives comprehensive technical data, and also describes the available mill forms, the history of the 200-Series Cr-Ni-Mn steels, and the functions of the major alloying elements. Some 30 photographs suggest a variety of applications. Sales Promotion Dept., Union Carbide Metals Co., Div. of Union Carbide Corp., 270 Park Ave., New York 17, N.Y.

On Free Data Card, Circle **205**

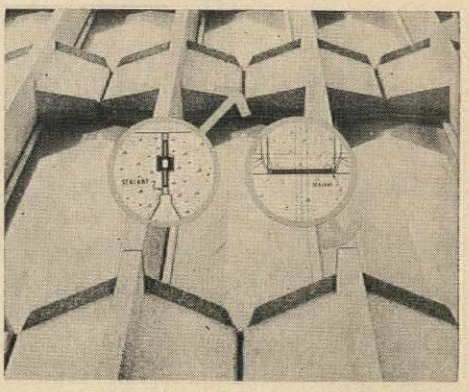
Sheet-Copper Design

An excellent 140-page publication, *Design Principles and Techniques of Sheet-Copper Construction,* is the sixth edition of Revere's *Copper and Common Sense,* which began reporting, in 1945, the results of extensive research into the causes of failure in modern sheet-metal constructions. Revere's research has determined, beyond question, that such failures are the consequence of improper design. This same research led to the recognition of the importance of columnar strength and of other critical factors involved in the proper design of sheet-metal work and to the compilation of recommended procedures for the guidance of the architect and the sheet-metal worker. In this design manual, there is a discussion of the behavior of copper under stress and a review of the research that has led to new design principles. Then follow 46 sheets of design details and installation techniques. Final portion of the bulletin is a data section giving properties, thicknesses, weights, expansion factors, and estimating and sizing information. Revere Copper & Brass Inc., 230 Park Ave., New York 17, N.Y.

On Free Data Card, Circle **206**

Seals and Gaskets

New 8-page catalog provides technical information on the full line of Wil-



liams seals, gaskets, and waterstops for masonry and concrete construction. The complete description of each product includes schematic drawings, property tables, and application methods. Among the Williams products are "Everlastic" masonry seals that are made of wholly nonabsorbent elastomers; and panel seals that seal both vertical and horizontal joints (up to 1″ in width) between precast or prefab wall panels. Williams Seals & Gaskets, 486 W. Eight Mile Rd., Hazel Park, Mich.

On Free Data Card, Circle **207**

DOORS/WINDOWS

Film on Glass

The role of the architect is the theme of *Point of View*, a new 20-minute film produced by American-Saint Gobain. It stresses the architect's choice of glass in bringing natural light into a building while reducing heat and glare, and illustrates the part that glass can play in today's designs. In addition, the film shows how plate glass is manufactured, by taking viewers through the new A-SG plant at Greenland, Tenn.—from the giant melting tanks, through the cutting, grinding, and polishing operations, to final inspection and packing of the glass. Write to: American-Saint Gobain Corp., P.O. Box 929, Kingsport, Tenn.

Latest Data on Fire Doors

Latest engineering data on hollow metal and kalamein doors has been assembled in thick *Engineering Manual* for architects. The manual contains extensive specification information and dimensional data (with many full-scale details) on a broad range of products—steel frames, hollow metal doors, kalamein doors, tin-clad fire doors, industrial steel doors, and sound-insulating doors. In addition to the standard items shown, special assistance is available on unusual design and installation problems. Pioneer Fireproof Door Corp., Pioneer Industries, Inc., 401 Washington Ave., Carlstadt, N.J.

On Free Data Card, Circle **208**

Full Specs on Upward-Acting Doors

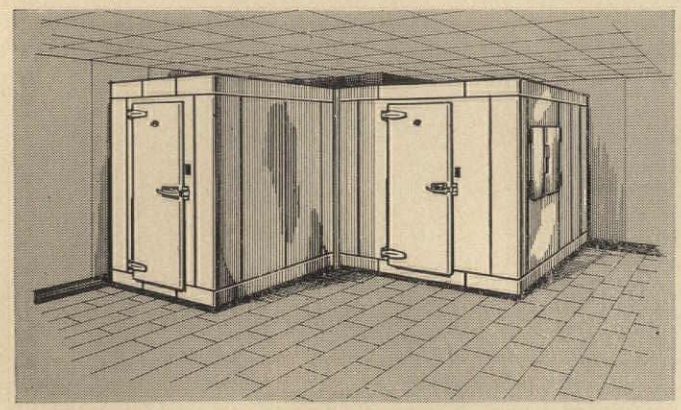
File folder from Crawford contains specifications and latest developments on their "Marvel-Lift" upward-acting doors and door operators for industrial, commercial, and residential use. Several copies of a master specification and a short-form spec are provided; these can be conveniently edited by the architect and incorporated into the specs of a particular job. A postcard to be returned to the manufacturer insures that supplies of the specs will be available. Another helpful insert in the folder is a 6-page tabulation of parking dimensions of 1962 cars. Crawford Door Co., 20263 Hoover Rd., Detroit 5, Mich.

On Free Data Card, Circle **209**

Insulating Glass

Brochure, 4 pages, describes "Viking Insulating Glass," available in a broad range of sizes, thicknesses, and air spaces to accommodate a variety of project requirements. With these

Continued on page 94



Two Walk-Ins, one a normal temperature and the other a low temperature, installed at the **Lora Little Elementary School, Stanton, Delaware.**

Specifications prepared by **Thomas M. Donohue,** A.I.A., 3807 Kirkwood Highway, Wilmington 8, Delaware.

Bally pre-fab walk-ins

all-metal coolers and freezers

World's most advanced design. New materials and construction techniques offer architects an opportunity to provide tremendous refrigeration advantages to their clients.

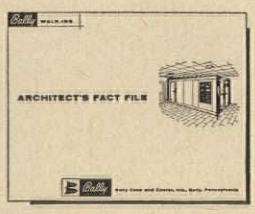
Urethane 4" thick (foamed-in-place) has insulating value equal to 8½" fibreglass. Standard models can be used as freezers with temperatures as low as minus 40° F. Urethane has 97% closed cells . . . cannot absorb moisture . . . ideal for outdoor use.

Speed-Lok Fastener designed and patented by Bally for exclusive use on Bally Walk-Ins. Makes assembly accurate and fast . . . easy to add sections any time to increase size . . . equally easy to disassemble for relocation.

New foamed door, so light in weight it ends forever the "hard pull" . . . the "big push". Door is equipped with new type hand lock (with inside safety release) and convenient foot treadle for easy opening. Also has special hinges that close door automatically. Magnetic gasket guarantees tight seal.

Self-contained refrigeration systems combine balanced capacity condensing units and refrigeration coils. Mounted and hermetically sealed with necessary controls on small wall panel. Simplifies installation. Four-hour factory test assures quiet, efficient, trouble-free operation.

Write for Free Architect's Fact File which includes 12-page brochure . . . Specification Guide . . . and sample of urethane wall construction.



See Sweet's File, Section 25a/Ba

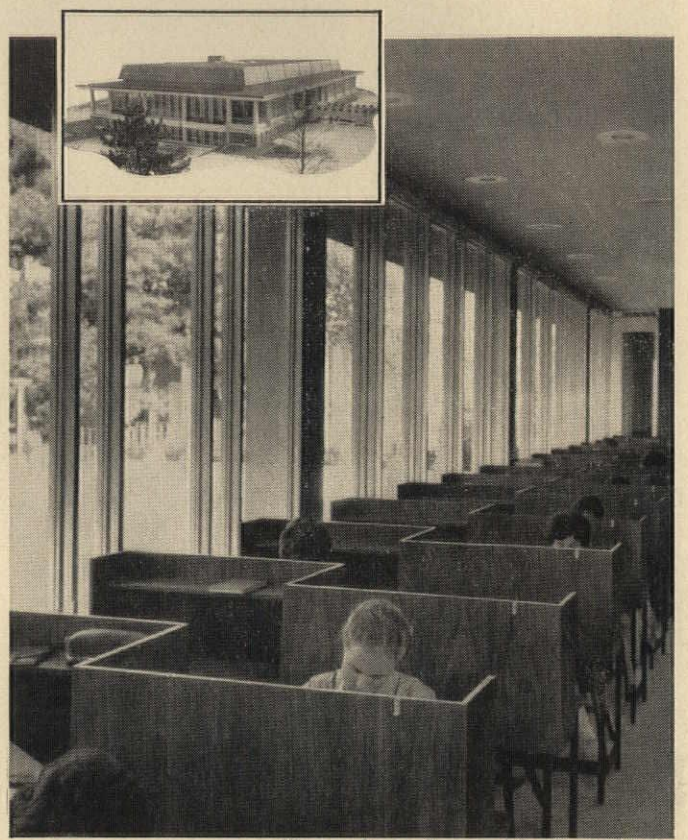
Bally Case and Cooler, Inc.
Bally, Pennsylvania

Address Correspondence to Dept. PA

For more information, turn to Reader Service card, circle No. 309

Lighting News

at DOUGLASS COLLEGE LIBRARY OF RUTGERS UNIVERSITY

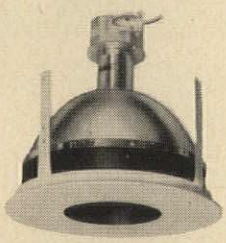


Warner, Burns, Toan and Lunde, Architects
Fred S. Dubin Associates, Cons. Engrs.

. . . another installation by **KLIEGL**

A unique system that combines light for reading and light for accent on the architecture and furnishings. To make possible this desired high key yet warm light (without visible spots) 143 Kliegl 200- and 300-watt downlights were installed.

Libraries or auditoriums, schools or commercial buildings . . . no matter what the lighting requirement, Kliegl experts have always been able to provide the solution that saves time and money and produces a lighting system to meet exacting specifications. Over five decades of Kliegl broad experience in reflector and optics craftsmanship can help solve your lighting problem, too. For your next project, why not simplify your lighting problem by calling on Kliegl assistance.



Kliegl Model 2158 Downlights provide widespread distribution of light with low brightness and high efficiency.

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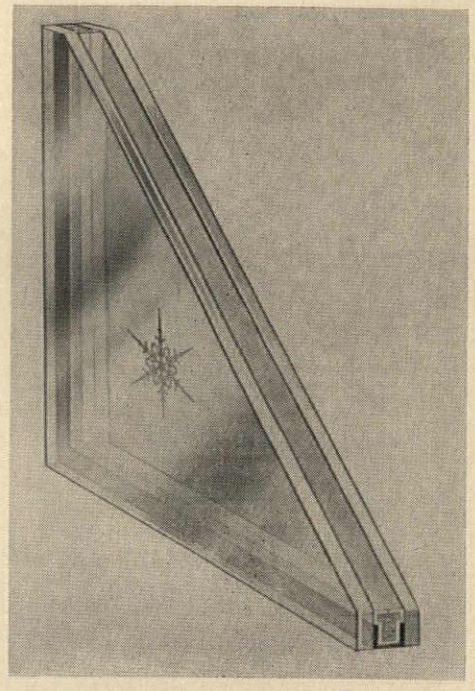
For more information, turn to Reader Service card, circle No. 392

Continued from page 90



windows, fuel costs and summer cooling load are reduced substantially, downdrafts are minimized, condensation is eliminated, storm windows are not required, and noise transmission is effectively lowered. A special sealant, with superior adhesive and cohesive qualities, eliminates the need for metal banding to hold the unit together; there are no exposed metal parts to become corroded and cause deterioration of the seal. Brochure gives full glazing instructions and explains the five-year warranty. Peterson Window Corp., 700 Livernois Ave., Ferndale 20, Mich.

On Free Data Card, Circle **210**

ELECTRICAL EQUIPMENT

New Fixture Designs

The new "Honeycomb" line of residential lighting fixtures by Moe is presented in 8-page color catalog. The Honeycomb fixtures are produced en-

Neoprene and HYPALON® Roofing Systems

The search for a practical, durable covering for free-form roofs is ended. Now you can design roofs with complete freedom—striking shapes, dramatic contours, bright colors.

Fluid roofing systems based on Du Pont Neoprene and HYPALON® synthetic rubber are the answer. Properly applied to concrete, plywood or other hard roof decks, these systems provide flexibility, tested and proved toughness, watertightness and low-cost maintenance. They resist heat, cold, sun, ozone, abrasion, oils, chemicals and flame.

For factual data and a list of suppliers or for technical questions, write E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Department PA-3-CB, Wilmington 98, Delaware. In Canada, write Du Pont of Canada, 85 Eglinton Ave., East, Toronto 12, Ontario.

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tirely by hand; the cellular material is shaped into the desired conical or cylindrical form, then treated with a polyester plastic in the liquid state. Allowed to cool and harden, the plastic produces a finish that is resistant to heat and abrasion. Color is hand-applied—emerald-blue, tangerine-gold, or natural. The line includes a variety of pull-down, pendant, and close-to-ceiling styles, at retail prices ranging from $20 to $50. Moe Light Div., Thomas Industries Inc., 207 E. Broadway, Louisville 2, Ky.

On Free Data Card, Circle 211

SPECIAL EQUIPMENT

Lightning Protection

Comprehensive 48-page handbook covering every possible protection against lightning-fire damage is available from Independent Protection Co. Individual sections discuss exterior and built-in (concealed and semi-concealed) lightning systems for all types and shapes of buildings, as well as for trees, smokestacks, and chimneys. Diagrams and charts clarify the information. All rules and regulations set forth in the manual meet or surpass latest code requirements. Independent Protection Co., Inc., 1603-09 S. Main St., Goshen, Ind.

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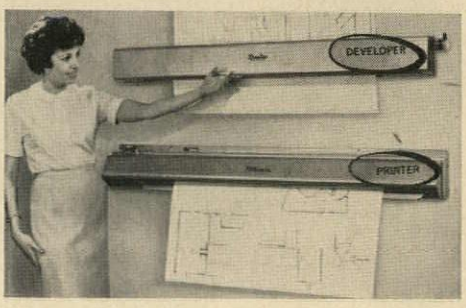

Lowest-Cost Developer

Rotolite describes its completely new 42″ diazo print developer in 4-page brochure. The "Thermomatic" features a self-contained heated roller which assures, for the first time on low-cost whiteprinters, good color tone on blackline prints as well as blue-line. The heating unit also allows faster development in a smaller travel area and therefore permits a more compact machine; over-all dimensions are 56″ x 7″ x 5″, for wall or table mounting. Also shown in brochure is the Rotolite "Expeediter" with an outstanding list of features—lowest diazo whiteprinter on the market ($258.50), lowest cost per copy (1½¢/sq ft), takes paper up

to 42" width, requires least amount of space. Rotolite Sales Corp., Stirling, N.J.

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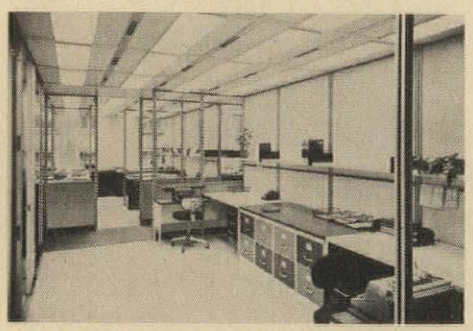

New Partitioning Line of Simplified Design

Aetna announces a new partitioning line called "Aetnawall Designer Series"—a movable partition in the fullest sense of the term. The new design features a single-unit, universal, extruded-aluminum post permitting four-way access without supplementary fastening devices. Post covers, interlocking keys, and link plates have all been eliminated, making for faster and more economical erection, dismantling, and re-erection. Typical of the extent to which this partitioning system has been simplified is the black vertical strip, a gasket which doubles as a decorative element when not receiving a panel component. Aetna Steel Products Corp., 730 Fifth Ave., New York 19, N. Y.

On Free Data Card, Circle 214

Ink Specs Chart

A 2-page ink specification chart has been issued by Higgins Ink Co., covering Higgins carbon inks for art and drafting purposes. Aimed at those who prepare originals for reproduction, the chart relates the correct ink to the surface and to the instruments being used. Also tabulated are methods of erasure or removal. Higgins Ink Co., 271 Ninth St., Brooklyn 15, N. Y.

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PROGRESSIVE ARCHITECTURE
NEWS REPORT

REINHOLD PUBLISHING CORPORATION
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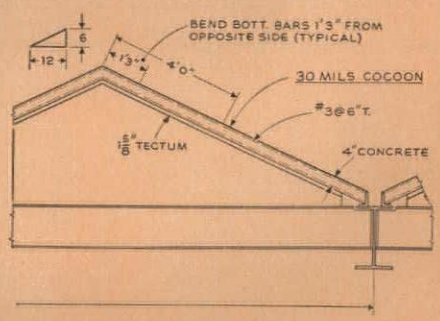

In Jackson, Mississippi, for example:

For this striking conical folded plate Coliseum, the architect chose Cocoon as a coating for all exterior concrete not only for pliability, color and maintenance-free weatherproofing—in a region subject to high moisture and humidity much of the year—*but also because* Cocoon *saved the weight of extra concrete; most of the roofing weight; and eliminated all need for metal flashing and trim.* Cocoon's tough, waterproof, jointless "skin" is available in a wide range of colors. Take advantage of the world's most *versatile* spray coating—Cocoon!

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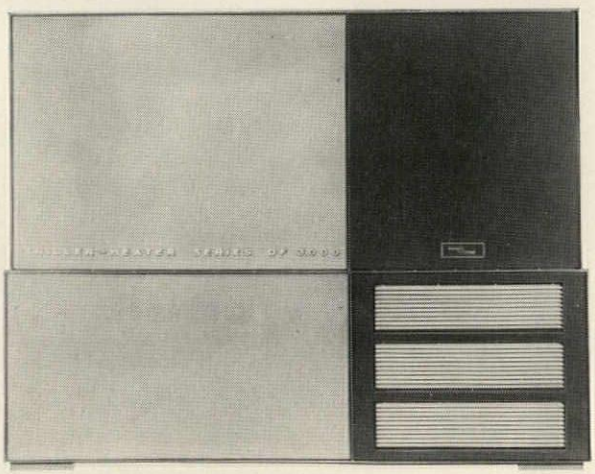

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BY THE SAME REVOLUTIONARY ARKLA GAS UNIT! It's the DF-3000—the first large tonnage air conditioner that both heats and cools! Here's why it's fast becoming the favorite of architects and builders of medical centers, offices, churches, apartments, shopping centers everywhere: ☐ No moving parts to wear out or service. ☐ Instantly heats or cools, automatically—without a boiler or a compressor. ☐ Requires no lubrication. ☐ Operating costs are rockbottom, because gas is so dependable, efficient, economical. For all the facts, call your local Gas Company. Or write Arkla Air Conditioning Co., General Sales Office, 812 Main Street, Little Rock, Ark. ☐ FOR COOLING & HEATING... GAS IS GOOD BUSINESS

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For more information, turn to Reader Service card, circle No. 302

Is he covering a time bomb? That's right . . . a delayed action time bomb. Most roof insulations soak up water or vapor until sooner or later the "bomb" goes off. The insulation stops insulating. Water damage may occur and the insulation value you paid for—and expected—is destroyed. Not so with FOAMGLAS.

Nothing but FOAMGLAS® Roof Insulation completely prevents this costly threat. Nothing but FOAMGLAS gives you an *all-glass* cellular structure completely sealed against moisture in any form. To match your exact needs, FOAMGLAS Roof Insulation comes in a range of thicknesses from the new 1½" x 2' x 4' board form to 4" thick FOAMGLAS blocks. Incidentally, FOAMGLAS has a high melting point and is completely incombustible. Our Building Insulation catalog contains full details. Why not send for it today? Pittsburgh Corning Corporation, Department AB-33, One Gateway Center, Pittsburgh 22, Pennsylvania.

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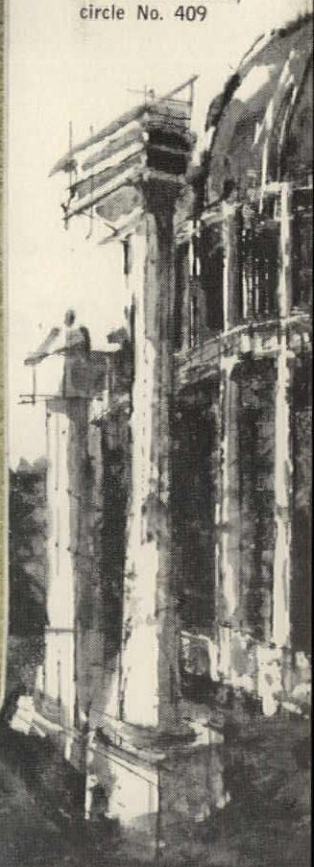

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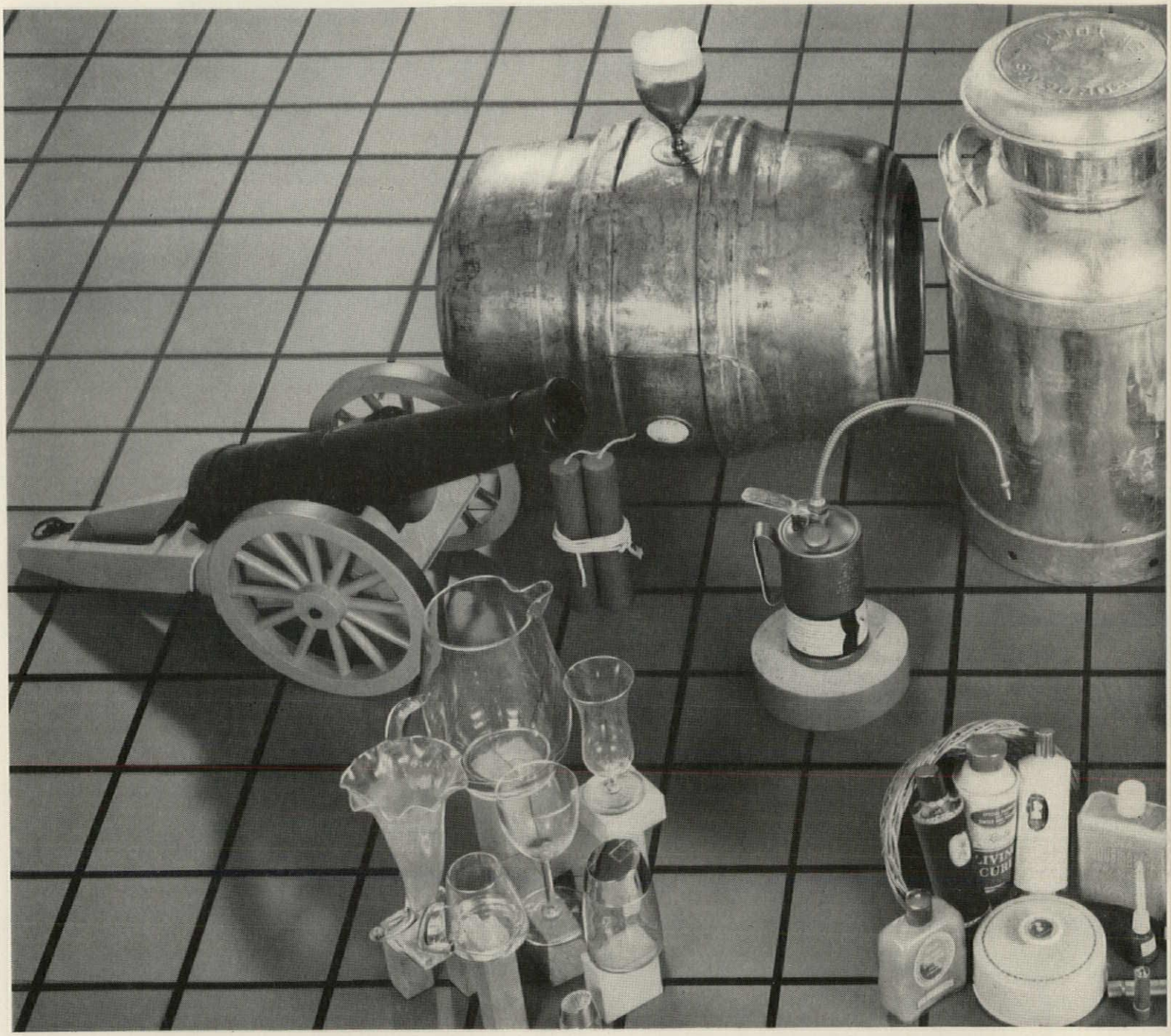
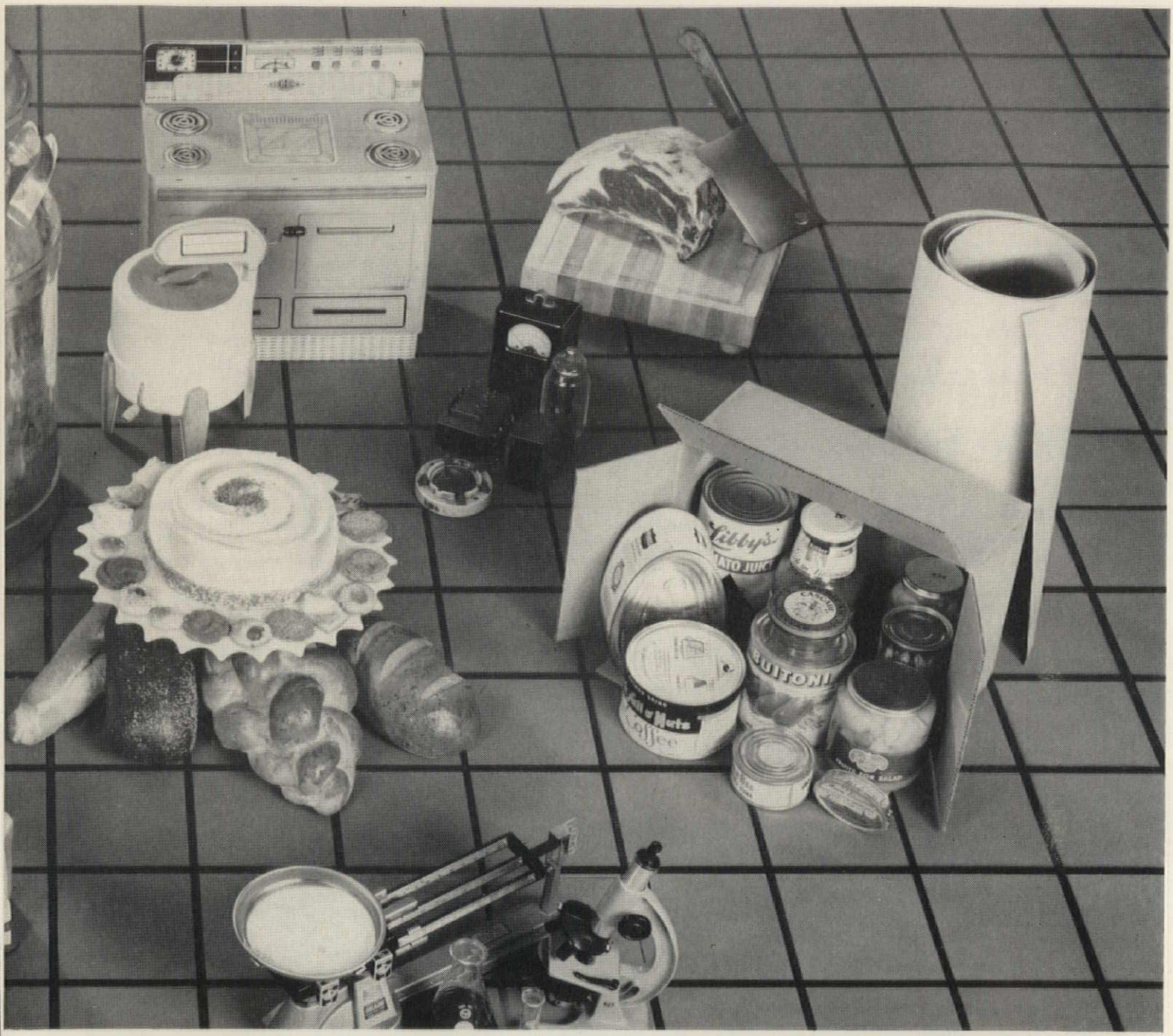


New development in industrial flooring:

an epoxy-based mortar-grout that makes ceramic tile floors acid & alkali resistant, stronger, easier to install than ever before.

Participating Companies: American Olean Tile Co. / Atlantic Tile Manufacturing Co. / Cambridge Tile Manufacturing Co. / Carlyle Tile Co. / Continental Ceramic Corporation / General Tile Company / International Pipe and Ceramics Corporation / Jackson Tile Manufacturing Co. / Jordan Tile Manufacturing Co. /



AAR-II (Acid and Alkali Resistant) is a rugged, new tile setting and grouting material developed by the Tile Council of America after 3 years of research and testing. This new material makes it possible to install heavy-duty quarry tile floors with superior chemical resistance and strength at considerable savings of time and money. It is a double-duty material, used for both the tile setting bed and as a chemically resistant joint filler. It is especially designed for ceramic tile installations in laboratories, breweries, dairies, metal working, food processing, and other industrial plants and commercial buildings. ▲ Tilemen find AAR-II much easier and faster to handle. It is water cleanable during installation, has a long pot life and working time. It forms a tremendous bond with tile, metal, wood, or concrete. There are no joint shrinkage problems. And AAR-II is always consistent because manufacturers are producing it with the precise Tile Council formula. ▲ These five manufacturers are marketing AAR-II: Cambridge Tile Manufacturing Company, Hydroment, Inc., L & M Tile Products, Inc., Summitville Tiles, Inc., The Upco Co. For further information about this great new grout write: Tile Council of America, Inc., 800 Second Ave., New York 17, N.Y.

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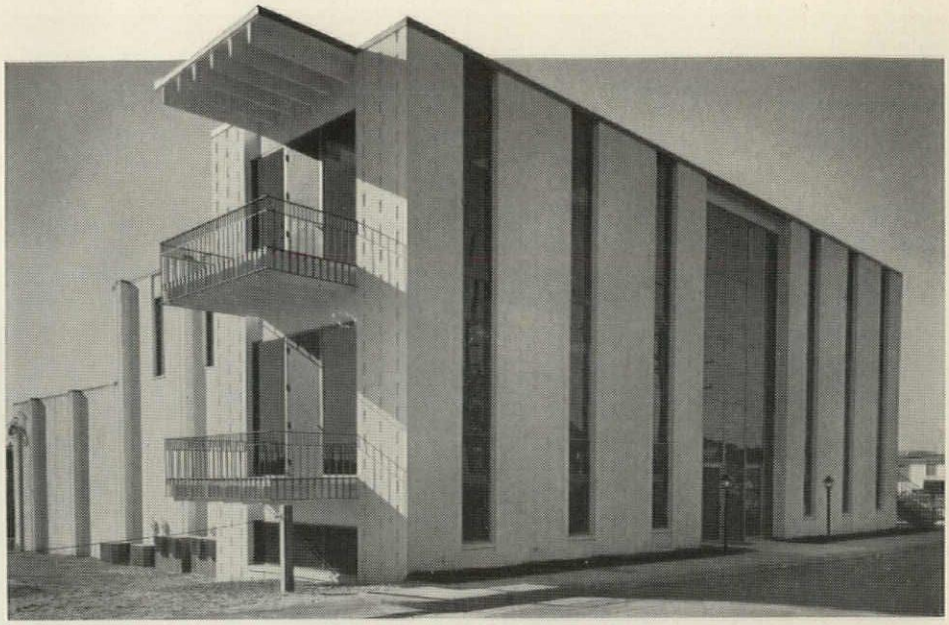
This new office was designed to demonstrate the potentials of modern concrete by N. C. Products Corp. Note how cantilevered double tee prestressed units provide canopies for balconies. This firm uses Lehigh Portland Cement in the manufacture of their concrete pipe and prestressed units as well as their masonry units.

Owner: N. C. Products Corp., Raleigh, N.C.
Architect: Holloway-Reeves and Associates, Raleigh, N.C.
Contractor: Clancy Construction Company, Raleigh, N.C.



IMAGINATIVE CONCRETE MASONRY for commercial building

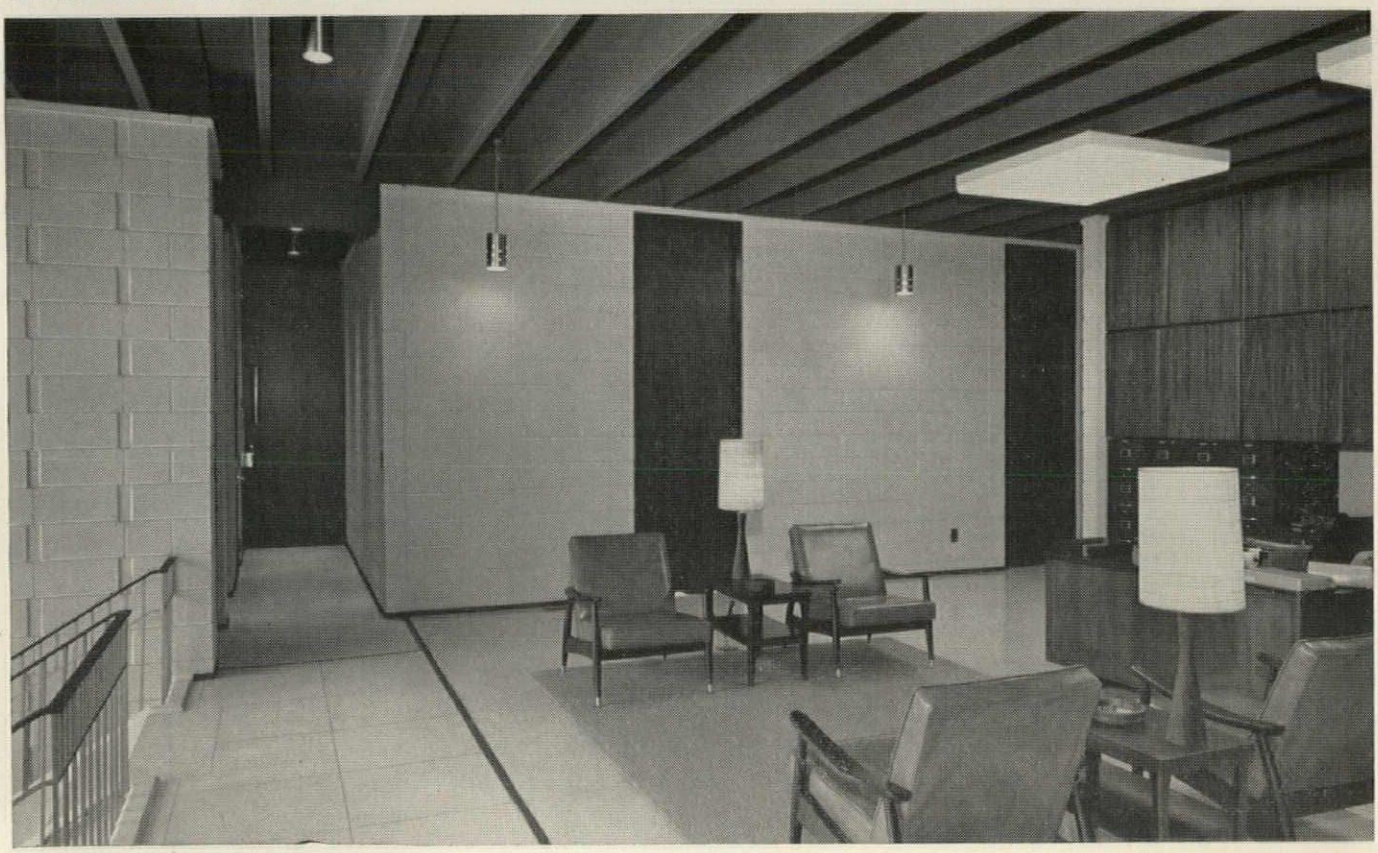
• This attractive commercial building is all concrete. Standard units combined with 2″ concrete block provide the architectural effect on the exterior. Inside office walls are stacked and running bond. Exposed double tee units for floors and roof complete the desired architectural effect of this modern, functional structure.

Architects everywhere are developing new and exciting designs with modern concrete masonry units. From standard units to the many special shapes, sizes and textures, today's strong lightweight units serve both structurally and decoratively in all types of buildings.

As plans and specifications take form on your next job, consult your local producer of concrete units. He can show you a wide variety of applications which may help you carry out your ideas. Lehigh Portland Cement Company, Allentown, Pa.

LEHIGH CEMENTS

The reception room unites exterior and interior by repeating the outside wall pattern. Terrazzo steps are also precast. Lighting fixtures suspended from the exposed tee ceiling give an unusual architectural effect.



March 1963 **PROGRESSIVE ARCHITECTURE**®

REINHOLD PUBLISHING CORPORATION
430 PARK AVENUE, NEW YORK 22, NEW YORK

FOREWORD

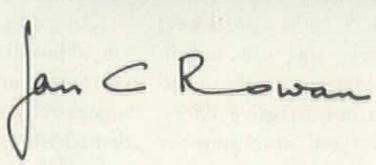
Architecture today, it is said by some, is in a sad state. Last month, reminiscing about his period of Editorship of P/A, Tom Creighton wrote on this page that architecture's healthy, simple, and logical direction of the early days of the modern movement degenerated in the last few years into a chaotic confusion of aims, hopeless lack of ideals, and a general malaise of the whole profession. I think this is a true picture, but only when viewed from the doctrinaire perspective of a rigidly fixed ideology. For there are other ways of looking at this problem.

The modern movement, like so many other revolutions, killed what was good as well as what was bad. So it is not surprising that the inevitable aftermath followed—a counter-revolutionary period during which the slaughtered fundamentals were being slowly revived. It is during this period that prominent modern architects discovered what was obvious to previous generations: that buildings can have an element of delight; that they can be elegant; that façades can have plasticity; that roof lines are important; that spaces need not always flow freely; that symmetry is not necessarily an evil; that an axis can be a useful tool; that heavy volumes have an emotional impact. One by one, all the centuries-old design fundamentals were brought back into the vocabulary of modern architecture.

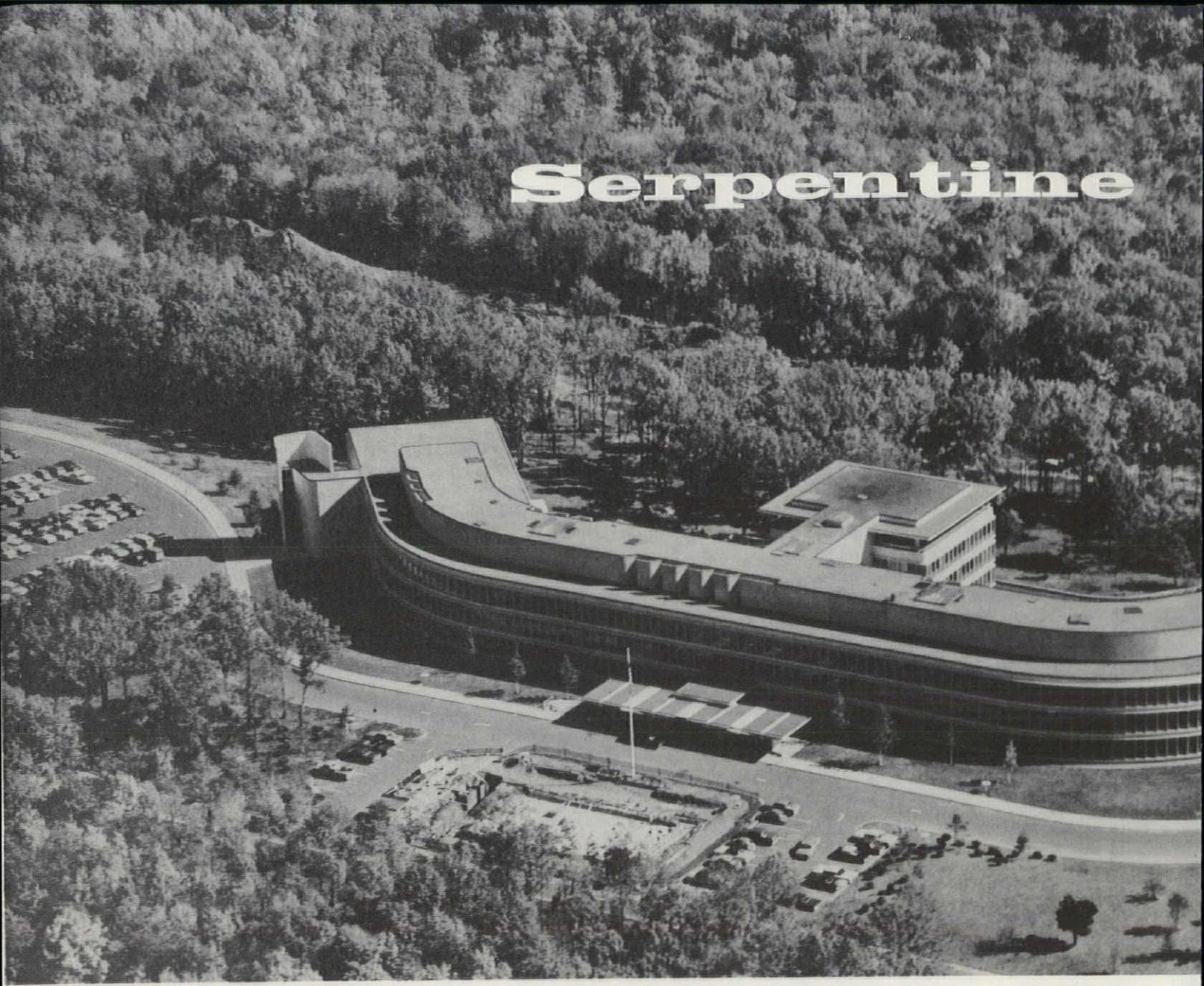
Most architects were overjoyed by this rediscovery. Freed from the shackles of a few puritan truths, they embraced the new religion with wanton abandon. But they lacked experience in the use of the many concepts re-introduced into the design language. The situation was aggravated by the simultaneous introduction of a multitude of new materials, construction techniques, and mechanical systems, and by the rapid shifts in the socio-economic structure of the country. It takes years for a student of architecture to learn self-discipline in design—how not to force ideas into unsuitable situations, how to underplay instead of overplaying when such a course is more desirable, how to mesh all the elements into a harmonious whole. Eventually they learn this and start using the vocabulary at their disposal in a way that differentiates the professional from the amateur. Change the vocabulary, and the learning process has to start all over again. As I see it, this is exactly what happened to the profession, and, as a result, much of the work has become immature. Often, a single idea—whether suitable or not—was overemphasized to the point of ridiculousness. Instead of using the many instruments now available to them and creating great symphonies, architects grabbed the most fashionable instrument of the day and gleefully tried to find out how much noise it would make. Since one big noise does not make music, and a collection of discordant noises results only in cacaphony, it was not long before an apparent confusion appeared on the architectural scene.

It is my belief that we are now reaching the end of this postrevolutionary period of re-evaluation and about to begin a new one. Now that we are free not only from the Victorian and post-Victorian eclecticism but also from the Weimarian academy of more recent years, the fight is no longer for *modern* architecture but for *good* architecture. The time is ripe, therefore, for a cool appraisal of all the design means at our disposal and for the start of a great new era—it is time for architecture to be great again.

I find it gratifying that my period of Editorship of P/A begins at such a time. ■



Serpentine



AMERICAN CYANAMID COMPANY HEADQUARTERS • WAYNE TOWNSHIP, NEW JERSEY • VINCENT G. KLING, ARCHITECT • SEVERUD-ELSTAD-KRUEGER ASSOCIATES, STRUCTURAL ENGINEERS • MEYER, STRONG & JONES, MECHANICAL ENGINEERS • FRANK BRISCOE COMPANY, GENERAL CONTRACTORS

The sinuous plan of this corporate headquarters building was inspired by the contours of the ridge on which it stands. Its 180-acre wooded site, 25 miles northwest of midtown New York, was selected in 1958 for the consolidation of the company's executive and administrative offices, which were then scattered at a number of separate locations in Manhattan.

By moving these functions to a single suburban site, the company gained several desired objectives: custom-designed facilities, a rural environment, space for expansion, and convenient access both to pleasant living areas and to the company's production facilities in the New York area. It also took on the new responsibilities of providing parking, medical services, food service, grounds maintenance, and steam and power installations.

Kling's first objective was to lay out the office building, with its auxiliary utility structures and parking areas, so that the topography and the natural planting were disturbed as little as possible. He also wanted to take advantage of the view of a 600-acre reservoir now under development along the east side of the property. The first stage of development provides office space for 1400 employees, and future expansion has been planned to double this capacity.

The main office structure is four stories high, 72 ft wide, and runs 935 ft along the eastern brow of the ridge. Because of the slope of the terrain, the first floor level is below grade on the west side. The entrance has therefore been placed on the second level and, as a result, vertical distances to the upper office floors have been reduced.

The first level contains fixed facilities that need not be adjacent to office spaces,

Structure

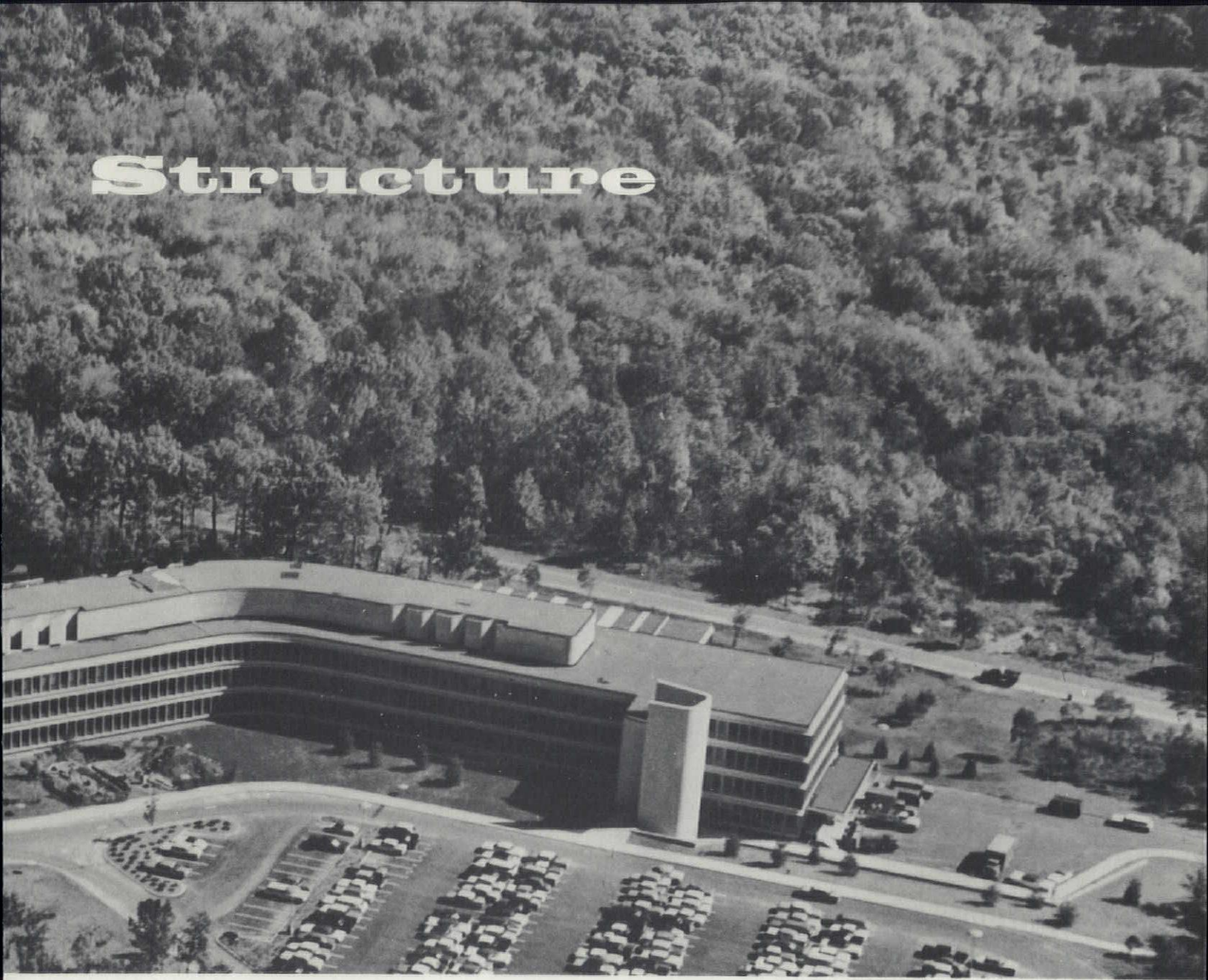


PHOTO: LAWRENCE S. WILLIAMS

such as the mail room, the stenographic pool, the clinic, the graphics and reproduction departments, maintenance facilities, and kitchens. Besides the entrance lobby, the second level houses general office space and a computer area. The two upper floors are devoted entirely to flexible office space.

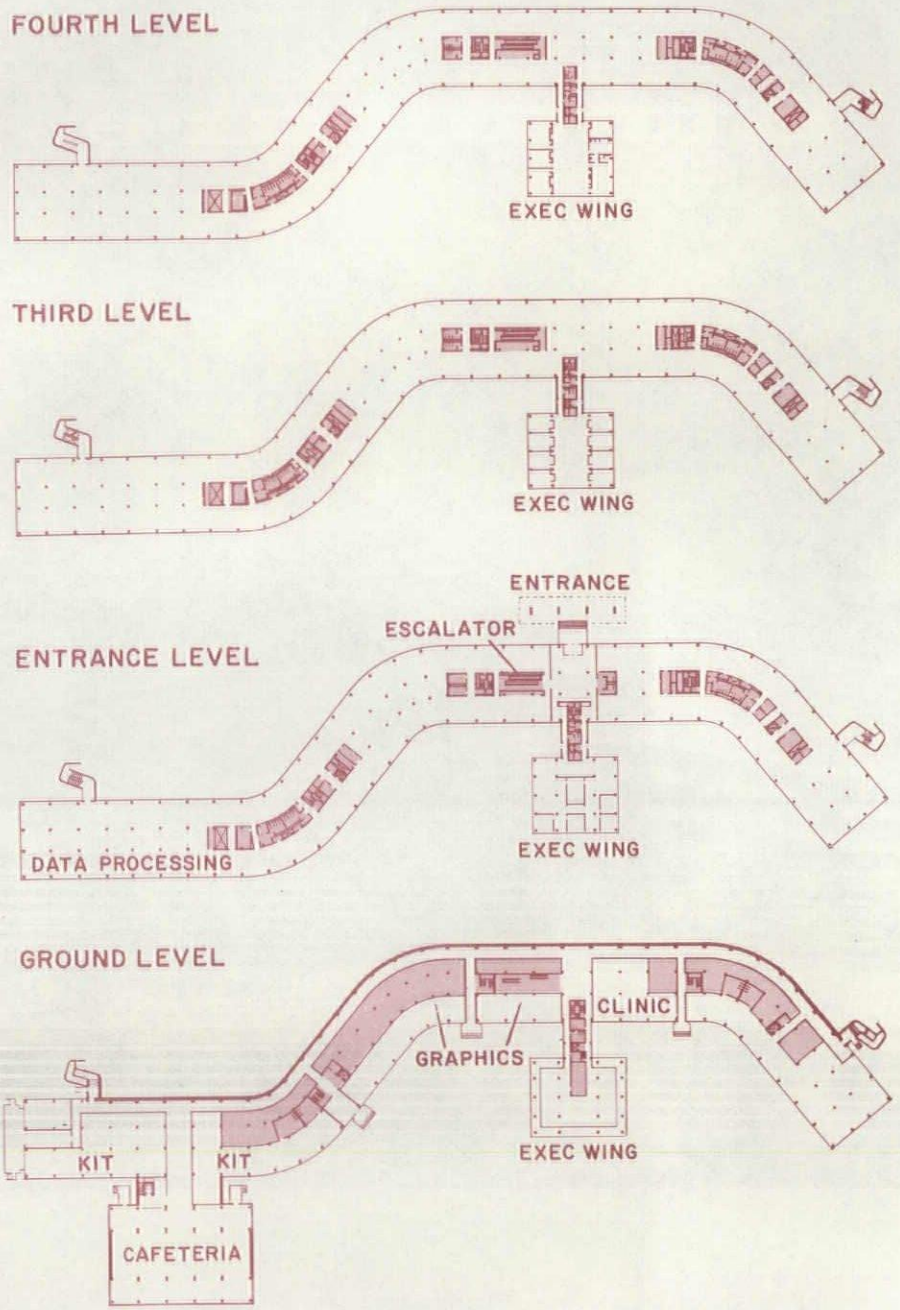
The office floors have been laid out with a central spine that contains stairs, elevators, washrooms, vending rooms, conference rooms, and other fixed elements requiring no outside exposure. The 25-ft strip of flexible space running along either side of the floor can be divided into individual offices 9 ft to 18 ft deep, with widths based on the 4'-6" module of the window wall. Occasional general offices span the entire width of the floor.

The curvilinear plan relieves the monotony of the long office floors without reducing the flexibility with which they can be divided. It also creates a variety of views, many of which include portions of the structure itself and thereby establish a sense of relationship to the whole building.

The cafeteria and executive offices have been housed in two distinct wings on the east side of the building. The five-story executive wing stands within the curve of the main building, directly opposite the main entrance. Its small floors, each providing 5400 sq ft of space, offer a high degree of exposure to light and views.

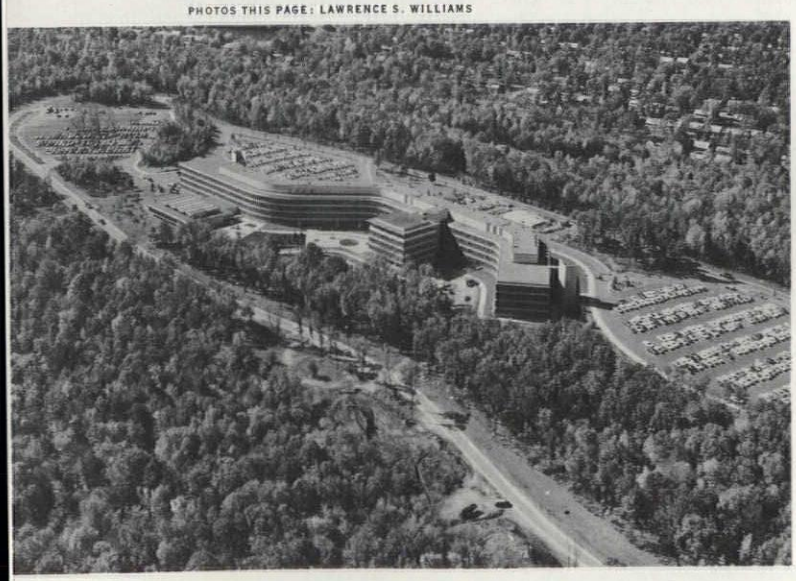
The lower two floors contain offices of the secretary and treasurer and their staffs; the third floor contains offices of the staff vice-president; and the fourth floor contains offices of the executive vice-presidents, the president, and the chairman of the board. The fifth floor, at the level of the mechanical penthouses of the main building, includes a board room, an executive lounge, conference and dining rooms, and a kitchen. The covered promenade surrounding this floor offers an excellent view of the natural surroundings and the future reservoir.

The cafeteria wing was designed to provide a change of atmosphere for employees and visitors who have little choice



Most of the building is devoted to flexible office space. On the plans at right, major fixed facilities have been labeled and service and storage areas shaded. The aerial view of the present building (below) *and the model of the projected complex* (below right) *indicate the proposed 100 per cent expansion and the location of the new reservoir.*

PHOTOS THIS PAGE: LAWRENCE S. WILLIAMS

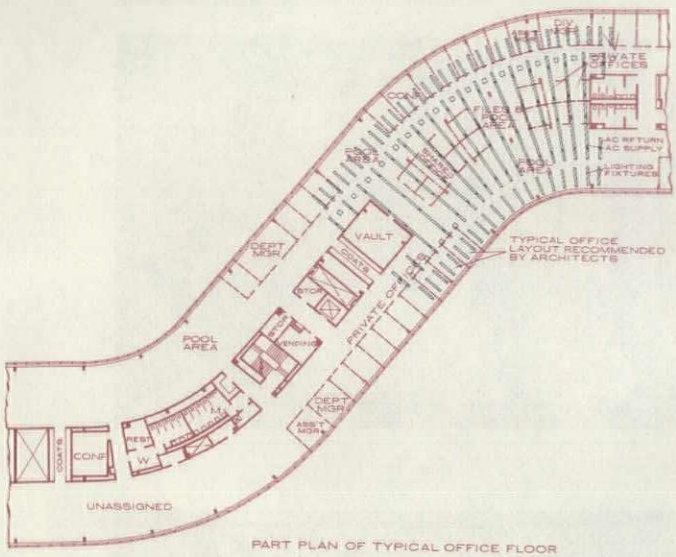


of eating places. It offers 600 diners a variety of spaces and views, as well as a choice of self-service or waitress service. The captive luncheon clientele has been so pleased with the cafeteria that a substantial number arrive in time for breakfast or stay on for light suppers after work. The space is used at other times for conferences and meetings. The kitchen also services the coffee carts that circulate on the office floors.

The plasticity of the building form is emphasized by the deep concave bands of the precast spandrel panels and accentuated by the curved sculptural forms of the stair towers and the baffles on the mechanical penthouse.

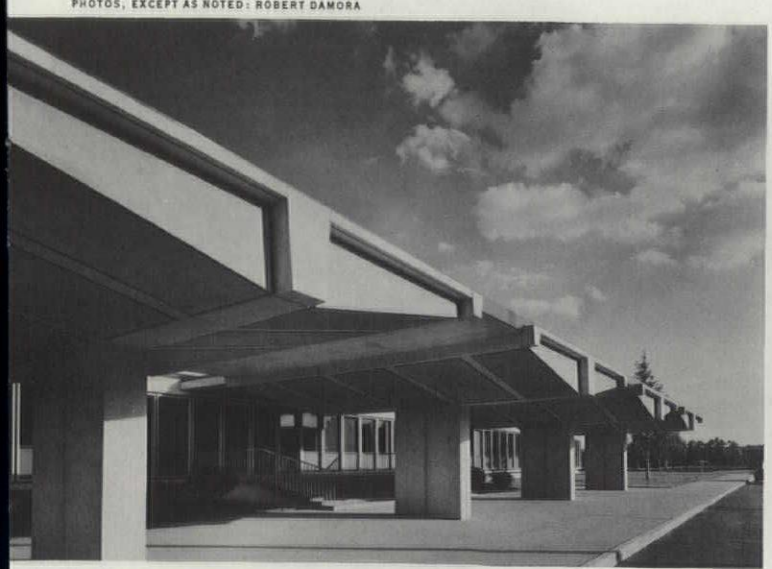
The concrete spandrels, cast in 9-ft lengths to match the width of two windows, are supported on outriggers that project 18 in. from the outer face of the columns, so that induction air-conditioning units can run in a continuous strip between the wall and the columns. The windows are designed to give the effect of a continuous band of dark glass set between the bold projections of the concrete spandrels. The thin window frames, of off-white porcelain-enameled aluminum, are separated by recessed bands of dark brown anodized aluminum. The windows are glazed with soft brown opaque glass up to the top of the air-conditioning units and bronze-tinted glass above them. The view through the tinted window glass is flattering to the landscape.

The spandrels and the precast panels on other parts of the building were precast by the Schokbeton process, using white quartz aggregate, with small quantities of gray and brown stone, in a matrix of white cement and tan sand. The interplay of the glass and the aluminum elements with the creamy-white concrete produces an

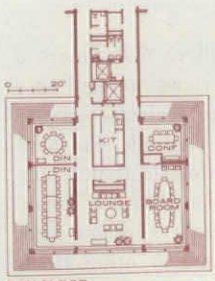


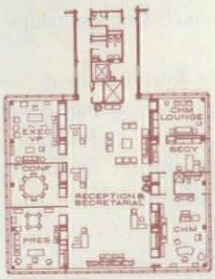
PART PLAN OF TYPICAL OFFICE FLOOR

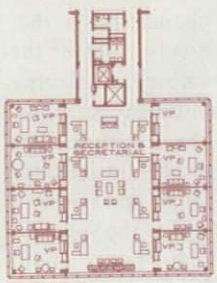
PHOTOS, EXCEPT AS NOTED: ROBERT DAMORA



The main entrance (left) *is at the second floor level. The engineering drafting room* (above) *is representative of the open office areas, except that extra lighting fixtures have been added to the standard pattern* (shown in plan, above left).







The upper floors of the executive wing are laid out around central reception-secretarial spaces (above). *Wood paneling, deep carpets, and incandescent lighting create a "living-room" atmosphere. The teak table and the oval chandeliers in the fifth-floor board room* (right) *were custom-designed by the architects; a "captain's walk" surrounds this floor.*

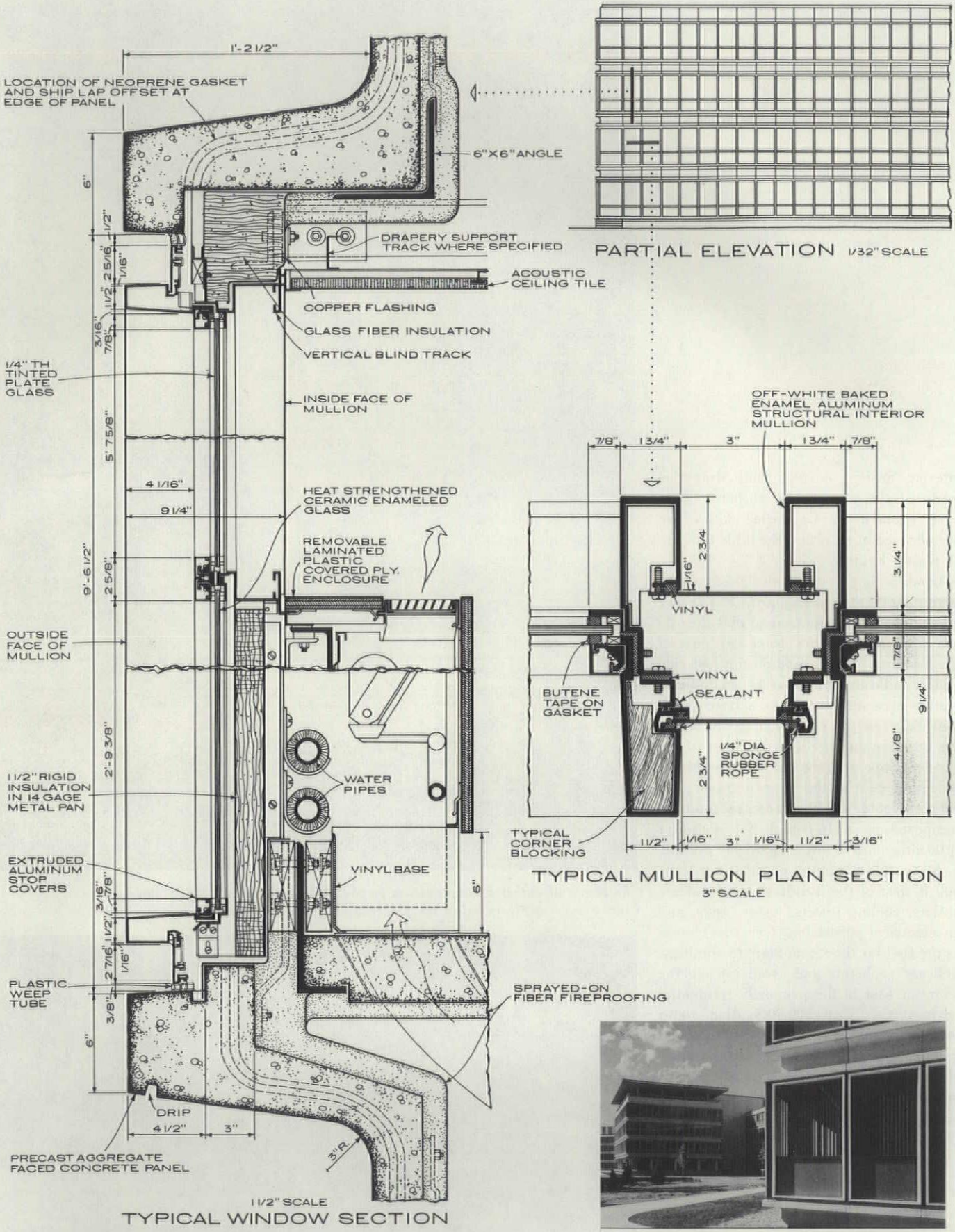
The cafeteria is designed as a "change-of-pace" area, with a variety of atmosphere and outlook. The high, clerestory-lighted central space (right) *is surrounded by lower, more intimate spaces under a ceiling of butternut wood. Some portions look out on the terrace* (facing page) *and others overlook the wooded slope* (below).

effect that is rich and urbane, yet not out of place in the wooded setting.

The structural frame is of steel, with floor slabs of poured concrete on steel decking. The cafeteria and the entrance canopy are poured-in-place concrete structures. Their identical roof canopies were poured using precast form-liners that remain exposed in the finished structure.

On the interior, an effort was made to use materials produced by the company wherever appropriate. More than 80 per cent of the interior walls are covered with either plastic laminate panels or vinyl wall covering. Plastic laminate was also used for baseboards, movable partitions, doors, and air-conditioning unit enclosures. Floors are of vinyl or vinyl asbestos tile. In the cafeteria and executive wing, where the architect's services included detailed

The typical window units (photo above and details facing page) *have bronze-tinted glass in the upper part and brown opaque glass in the lower. The off-white porcelain-enameled aluminum frames are separated by bands of dark brown anodized aluminum from the cream-white precast concrete spandrels.*



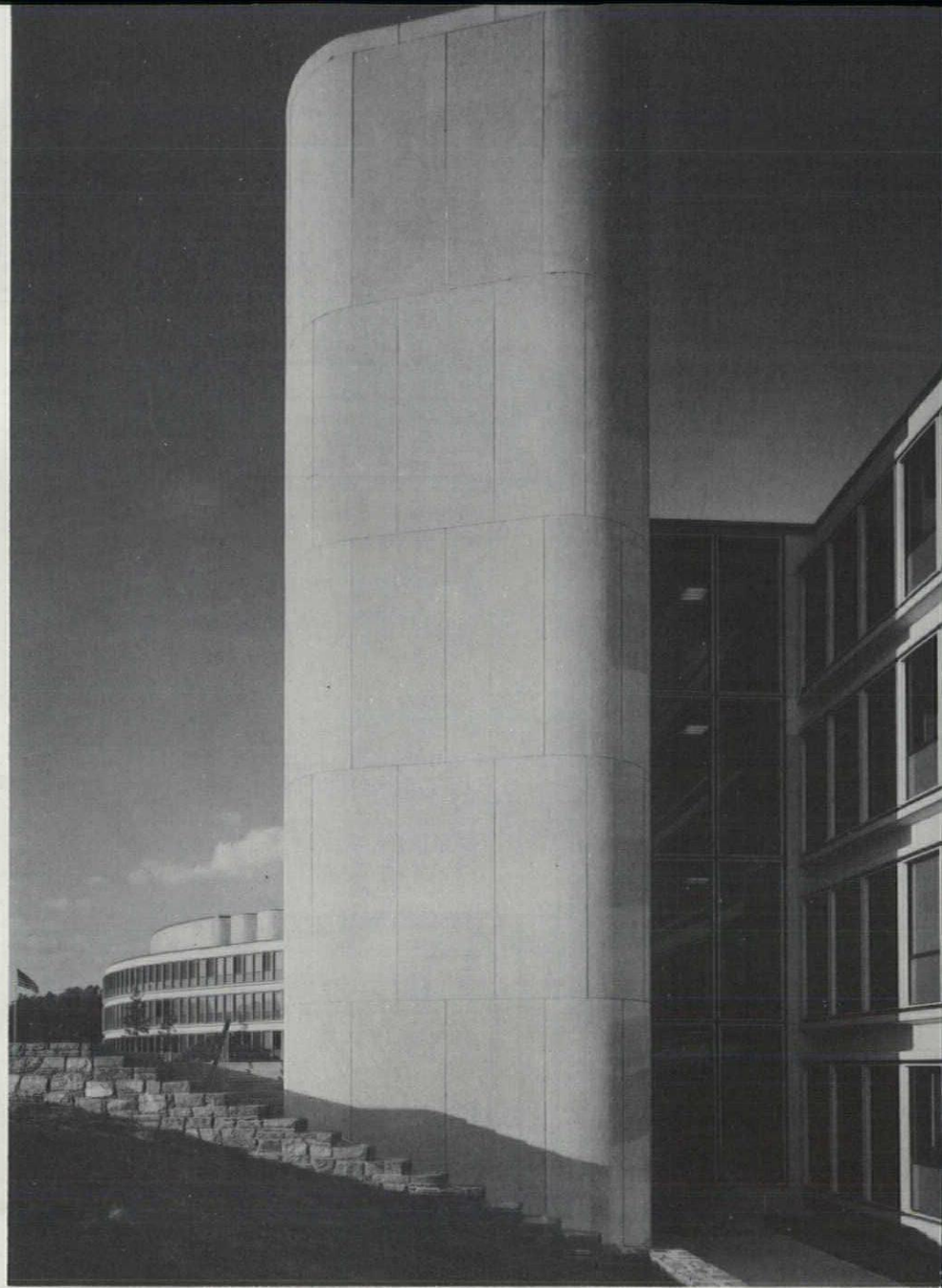
AMERICAN CYANAMID COMPANY HEADQUARTERS: Wayne Township, N.Y.
VINCENT G. KLING, Architect

SELECTED DETAIL
WINDOW WALL

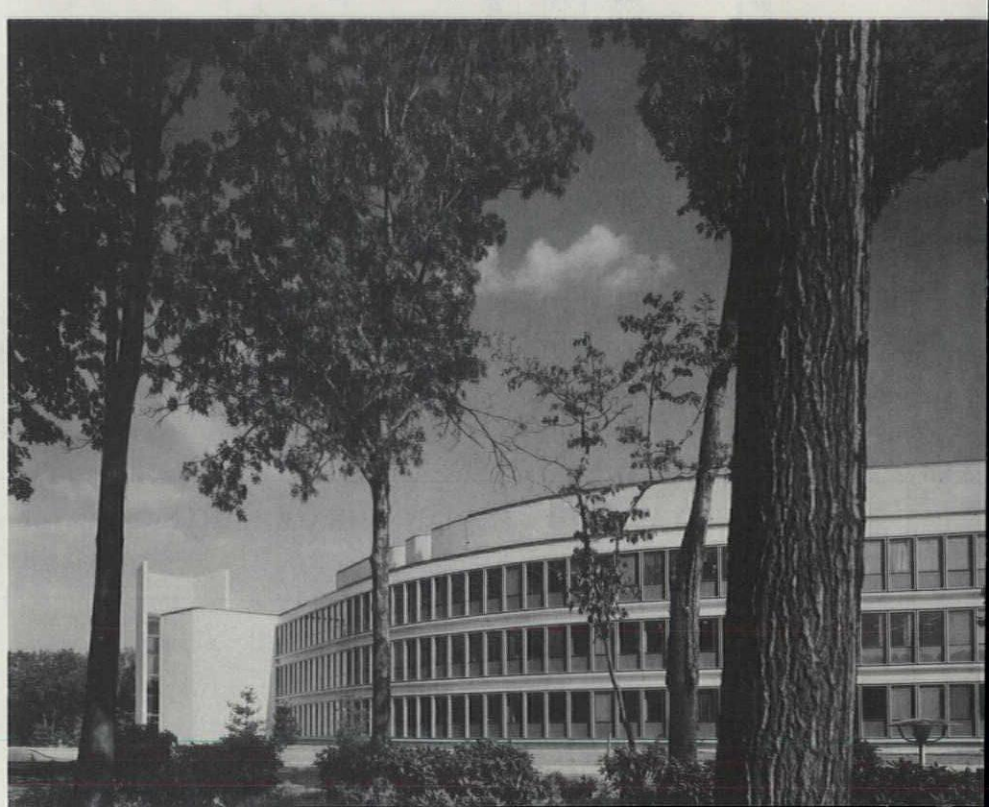
interior design, carpets and draperies made of the company's synthetic fibers have been used. Cafeteria chairs are upholstered in vinyl and the table tops are of plastic laminate.

Landscaping has been designed to take advantage of the existing growth. Parking areas have been dispersed so that they do not dominate the view from any part of the building. The terrace on the east side of the building functions as an outdoor lounge area and serves as a transitional zone between the controlled geometry of the building and the natural forms of the wooded slope and the future reservoir. A reflecting pool at the main entrance, not yet completed, will have a central fountain composed of a 16-ft-high jet of water splashing onto a circle of black granite.

A separate structure, on the lower slope 600 ft west of the building, houses steam boilers, cooling towers, water tanks, and an electrical substation. Gas was chosen as the fuel for the steam plant to eliminate delivery problems and avoid introducing odors or soot in the primarily residential environment. Two 300,000-gallon water tanks were required, one for potable water and one for fire-protection. The possibility of interruption in electric power was minimized by bringing in lines from two opposite directions.



The theme of curves and tangents is emphasized by the deep shadow lines of the window walls and restated in the penthouse baffles and the sculptural stair towers.



FURNITURE GIVERS AS FORM GIVERS:

is design an all-encompassing skill?

BY PETER COLLINS

Several little-discussed aspects of the relationship between architecture and interior design are examined by the author, who is a Professor of Architecture at McGill University, Montreal.

It was not until about 60 years ago that the ultimate test of architectural genius became whether or not one could design a new kind of chair. There were of course architects in earlier eras who made names for themselves as chair designers, such as Robert Adam. Moreover, as early as 1883, Montgomery Schuyler criticized a building by McKim, Mead & White as looking "less like a work of architectural art than a magnificent piece of furniture." But it was only when the German Arts and Crafts Movement was established at the beginning of this century that the ability to design chairs was regarded as important evidence of architectural aptitude, and the idea of regarding a man like William Morris as the first of the "Pioneers of the Modern Movement" would have been inconceivable before the era of what industrialists call "styling," and what architects (who understandably hate this word) usually term "industrial design."

By a curious paradox, it was largely because of the unquestioned belief, in the mid-18th Century, that architecture was the Mother of the Arts that this new idea asserted itself. Immanuel Kant, in his *Critique of Pure Reason* (1781), used "Architectonics of Pure Reason" as the title of the penultimate chapter of his book, because "architectonics" was the best word he could think of to express the notion of a complex system of rationally assembled components in the domain of abstract ideas. But a century and a quarter later, the word "architectonics" came to be used by German industrialists as a synonym for what they also called "pure functional art" (*reine Zweckhunst*)—presumably because, in some vague way, they thought that "pure reason" could be equated with "pure form."

It was in this sense that Hermann Muthesius, the Prussian civil servant who was sent to London in 1896 to study British architecture and industrial design, used the word "architectonics" when justifying the establishment of the *Deutscher Werkbund*. Form, he proclaimed, was above all "architectonic," and he cited the Greek temple, the Roman thermae, and the Gothic cathedral. Most significantly of all, he also cited "the princely salon of the 18th Century"—i.e., the decoration and furnishing of luxurious interiors, with which, at that time, industrial design (or, as it was then called, "decorative art") was mainly concerned. Thus the re-establishment of an "architectonic culture" was for him a basic condition for the improvement of all the products of industry. "Germany's vocation is to resolve the great problem of architectonic form . . . the whole class of educated Germans, and above all wealthier private individuals, must be convinced of the need for pure Form."

Ideals such as these were responsible for the general philosophy of the Arts and Crafts School founded in Germany at this period, the most influential being the school at Weimar directed by Henry van de Velde, the famous exponent of Art Nouveau.

The role played by Art Nouveau in reinforcing the idea that architectural forms are analogous, if not interchangeable, with those of furniture is only too obvious **(1, 2)**, as anyone can see by comparing the illustrations of Art Nouveau furniture and Art Nouveau buildings in S.T. Madsen's well-documented monograph. Even Sigfried Giedion has remarked that "in Austria around 1900, the movement was from handicrafts to architecture and from architecture to handicrafts," and that "as late as 1914, in Hoffmann's Stoclet House in Brussels **(4)**, the influence of the cabinet-maker is still evident" **(3)**—a fact also remarked upon by Eric Mendelsohn. Now Art Nouveau's principal ancestor was unquestionably the Rococo style of the mid-18th Century, and Madsen very properly draws attention to the fact that the city of Nancy, which contains some of the finest architecture of the Rococo period, is also the city where French Art Nouveau first emerged. What he fails to emphasize, however, is that the characteristics generally described as Rococo were, in France at any rate, specifically confined to the *interiors* of buildings, and that the only Rococo features on the *exteriors* of the buildings surrounding the plazas at Nancy are confined to the ornamentation of the keystones and the vases which surmount the balustrades.

This fact is of considerable importance in the present context. The façades constituting the two main plazas at Nancy were by Emmanuel Héré de Corny (1705–1763) **(5)**, who based them on those of two buildings in Nancy by his master, Germain Boffrand (1667–1754) **(6)**. Boffrand was not only one of the greatest architects of his day, but, together with Jean-François Blondel (1681–1756) and Robert de Cotte (1656–1735), was one of the first to establish himself as an interior designer. His interiors **(7)**, to which his designs for furniture (such as console tables) were carefully fitted, have been described by one recent author as being among "the great masterpieces of Rococo art." Yet his exterior façades, and those of his pupil Héré de Corny, are as severe and as classical in their use of standardized tectonic elements as those of his own master, J.H. Mansart, and indeed depart little from the French tradition of the previous 100 years.

Boffrand's own views on this matter are quite explicit, and, in view of the popular misunderstanding of the nature of French Rococo, are well worth quoting. "Fashion, at various times (and especially in Italy) has taken pleasure in torturing all the parts of a building, and has often tried to destroy all the principles of architecture, *whose noble simplicity should always be preserved*," he wrote in his *Livre d'Architecture*, published in 1745.

"Ornamentation has (in the work of Guarini and Borromini) passed from the interior decoration of houses, and from the carved woodwork for which delicate work is suitable, to exteriors, and to works in masonry, which require to be worked in a more vigorous and more masculine way."

Since the notions which Boffrand condemned (8, 9) were also popular in Germany, Spain, and the Spanish Netherlands, it is not surprising that a Belgian Art Nouveau decorator should so easily introduce into Germany the idea that architecture and furniture are designed in much the same manner, especially after Muthesius had paved the way. Van de Velde, whose training and experience prior to opening his Decorative Art Workshop near Brussels in 1894 had been that of a painter, naturally showed himself less sensitive than Boffrand to the distinctions between architecture (10) and furniture (11), or to those between the private, ephemeral interiors of buildings and the public, permanent character of exterior structures. Moreover, not having even been trained as a craftsman in wood or metal, he had no sense of the nature of materials, as Auguste Perret soon demonstrated with respect to his facade for the Théâtre des Champs-Elysées (a commission which van de Velde then resigned in Perret's favor). Thus, when van de Velde's attention was called to the fact that his furniture was constructed in open conflict with the nature of wood (12), he declared, according to Kurt Behrendt, that for a long time he had been convinced of wood's inadequacy as a material for his designs, and that he anticipated the discovery of a more suitable material which could be cast.

Since cast furniture can be mass-produced with ease, few people will regret that the influence of Art Nouveau was so short-lived (13). Indeed, it would not have lasted as long as ten years had not its reputation been artificially inflated by the energetic enthusiasm of Sigfried Bing, who made a living out of selling its more exuberant manifestations, and by the sudden appearance of a number of new Decorative Art magazines. What is surprising is that it was succeeded not by something more rational, but simply by something more angular. Thus whereas van de Velde's chairs, though structurally irrational, were at least sufficiently sinuous to accommodate themselves to human posteriors, those designed by Constructivists, and Neo-Plasticists, such as Gerrit Rietveld (who should have known better, since he was a master cabinet-maker), were pure geometric abstractions, and seem to have had no merit except in terms of the Dutch art movement that was known as *De Stijl*.

The *De Stijl* movement was, in general, undoubtedly instrumental in promoting the cause of nonrepresentational art (if by this one means painting and sculpture). But the *De Stijl* chair was not; for all chairs are nonrepresentational, from the most archaic three-legged stool to the more sophisticated masterpieces of fiberglass and foam rubber produced today. Where the *De Stijl* movement was original, as regards furniture design, was in creating the first chair deliberately designed, not for comfort, not for dignity, not for elegance, not for rational assembly according to commonly accepted principles of woodwork, but simply "designed" (14). Even Theodore Brown, Rietveld's biographer, has had to confess, in the five lengthy pages he devotes to this chair, that "the jagged, angular quality of the piece, as well as its hard surfaces, are not conducive to bodily comfort, and those who have used it, including Rietveld himself, have complained about bruising their ankles on it. Obviously factors other than comfort determined its design."

These factors were, according to Brown, economic, social, and aesthetic, but it seems fairly clear that the aesthetic motive predominated, and it was this which caused the chair to be the "determinant" (as Brown calls it) of the much publicized house that Rietveld designed for his friend and collaborator, Mrs. Truus Schröder, in 1924 (15). The historical importance of this house (and this is at least the sixty-ninth time, to my knowledge, that it has been discussed in print) resides essentially in the influence it exerted on the teaching methods of the Bauhaus. But it is also important in being the first architectural monument to be designed by a cabinet-maker; that is to say, by a man whose only architectural training, after working as a cabinet-maker for 20 years, was gained during three of those years by studying architectural drafting at evening classes. By 1928, he was sufficiently influential to be a founder-member of CIAM.

The influence of Rietveld's chair on the work produced by the Bauhaus under the influence of Walter Gropius—the last of the "Pioneers of the Modern Movement"—is only too apparent. Gropius, unlike his precursor at Weimar, van de Velde, was an architect by training, and has always been an architect to his very fingertips. But after graduating, he went to work immediately for Peter Behrens, a painter, who at the age of 39 had just been appointed industrial design consultant to the German General Electric Company, and who designed not only their trademarks, type-faces and electric kettles, but their factories and probably their furniture as well.

Doubtless because of Behren's influence, Gropius not only accepted Muthesius's interpretation of the word "architectonics" in its totality, but saw the Arts and Crafts Schools as the ideal places in which a New Architecture could be created. He therefore accepted with alacrity the offer to succeed van de Velde in 1919, and, by combining the Weimar School of Arts and Crafts with the Weimar Academy of Fine Arts (i.e., the Academy of Architecture, Painting and Sculpture), he was not only able to take responsibility for training designers of furniture, stained glass, pottery, metalwork, weaving, stage-scenery, wall-painting, and typography, but also for training architects, who had never been linked academically to the so-called "decorative arts" before. No machine technology was introduced into the Bauhaus curriculum until 1923, and even after that date, all the architectural students were trained essentially as building craftsmen (whereby "the pupil, if proficient enough, obtained his Master-Builder's Diploma from the local Trades Council"). It is therefore evident that, for Gropius, the principal virtue of the Bauhaus (or "School of Design," to give it its official title) was that all these specializations could be treated as variations of the same kind of activity. The world of furniture could be treated not only as a microcosm of the world of architecture, but also as a laboratory for experiments in the organization of urban space.

When Gropius was established at Har-

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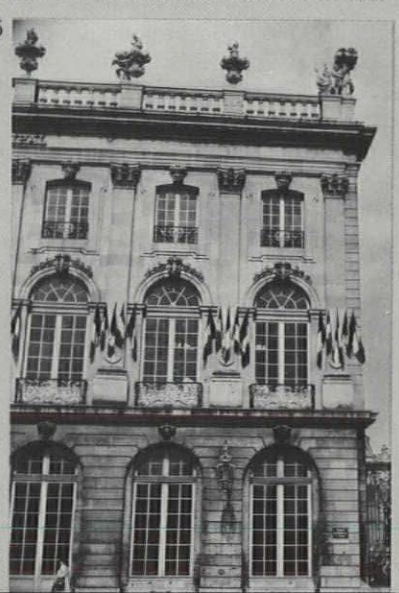

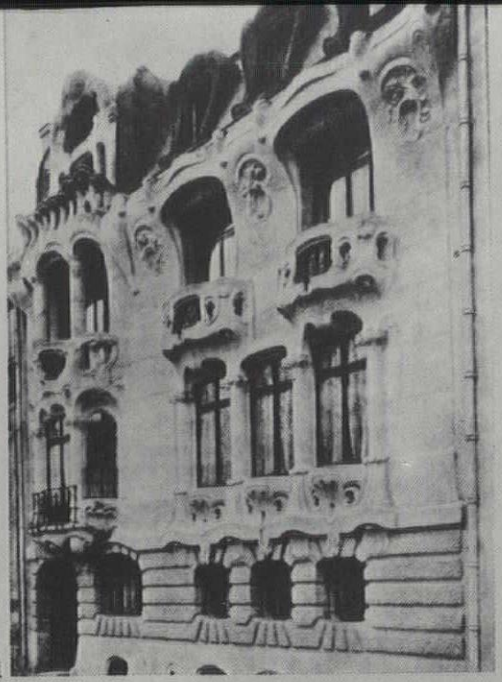

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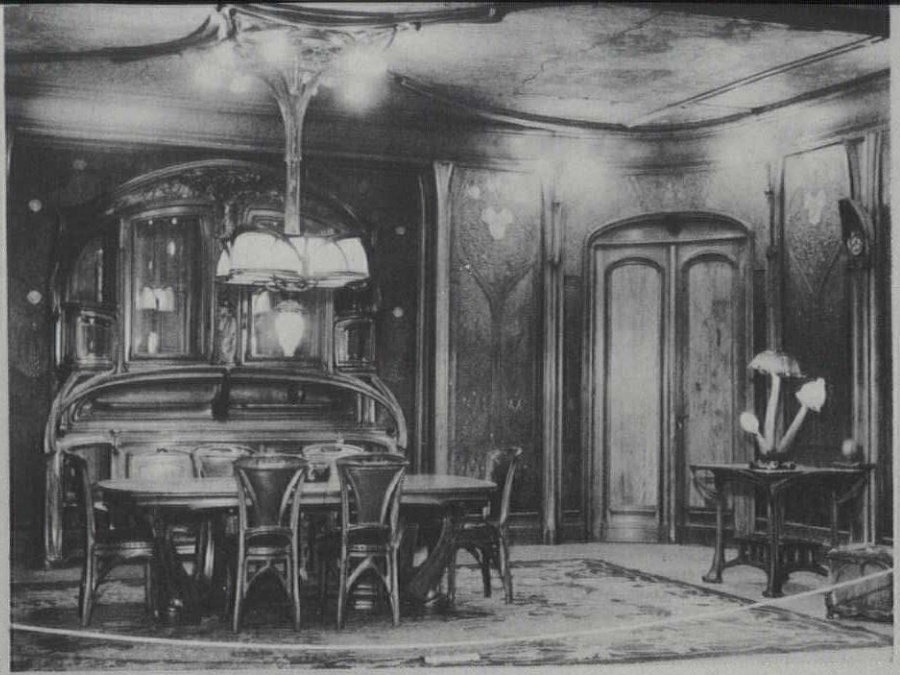
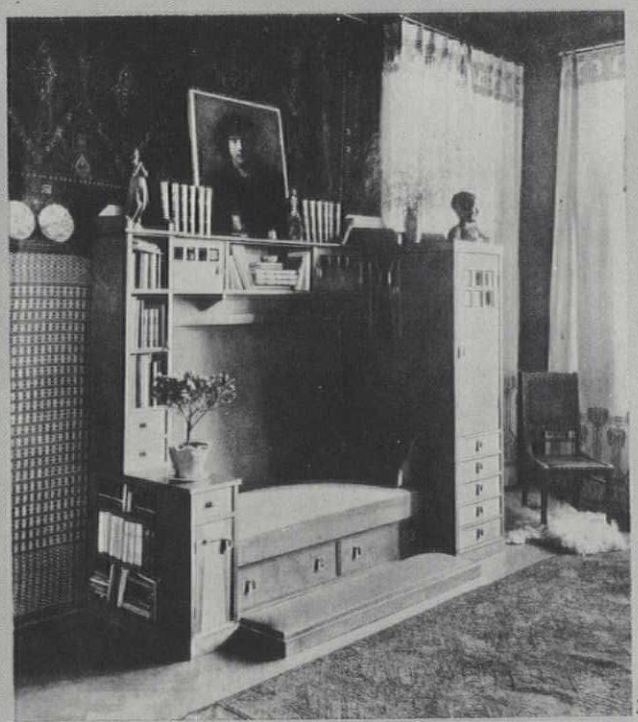


2

The Art Nouveau style reinforced the idea that architectural forms are analogous to those of furniture, as can be seen by comparing a house in Paris ***(1)*** *by Xavier Schöllkopf with a dining room* ***(2)**** *designed by Eugène Vallin.*



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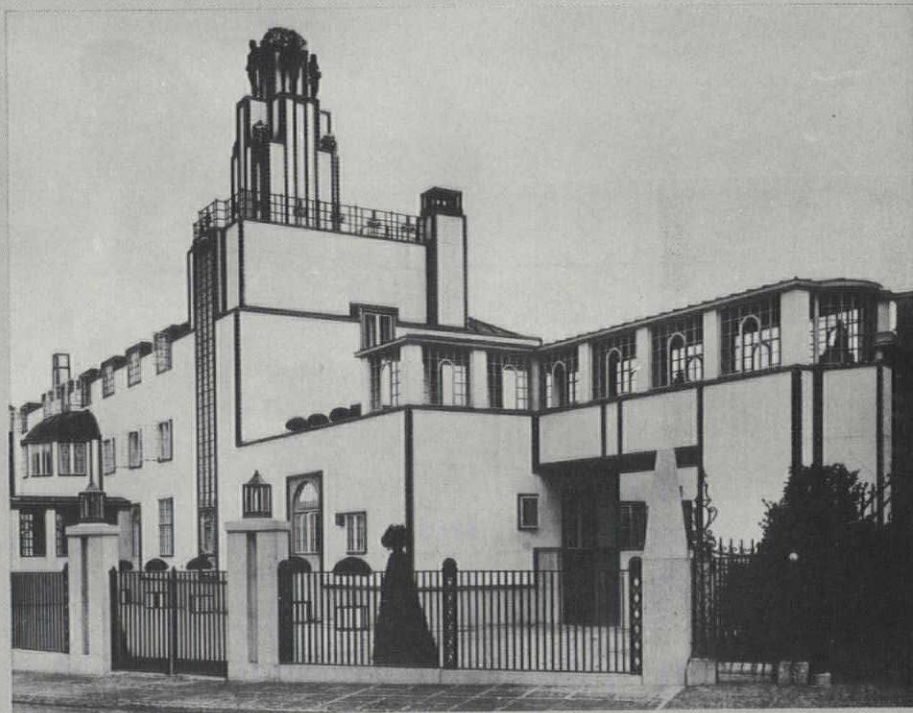

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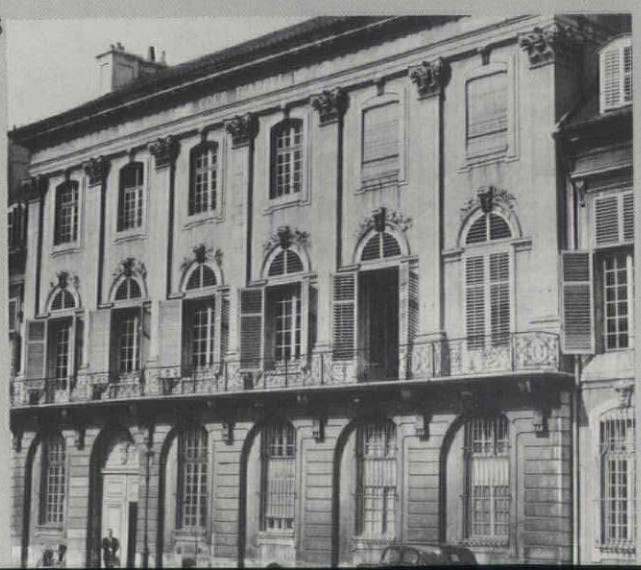
The Sezession style shows a similar relationship: the Stoclet House ***(4)*** *in Brussels by Josef Hoffmann and the sofa corner of a living room by E. Beutinger* ***(3)***. *Earlier, in France, Rococo features were confined mainly to interiors: compare the Oval Salon* ***(7)*** *of the Hôtel de Soubise, Paris, by Germain Boffrand, with* ***(5)*** *a building on Place Stanislas, Nancy, by Emmanuel Héré de Corny and* ***(6)*** *the Hôtel Beauvau-Craon, Place de la Carrière, Nancy, by Germain Boffrand.*

6



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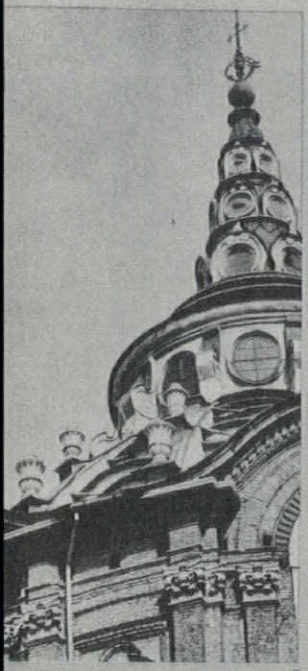

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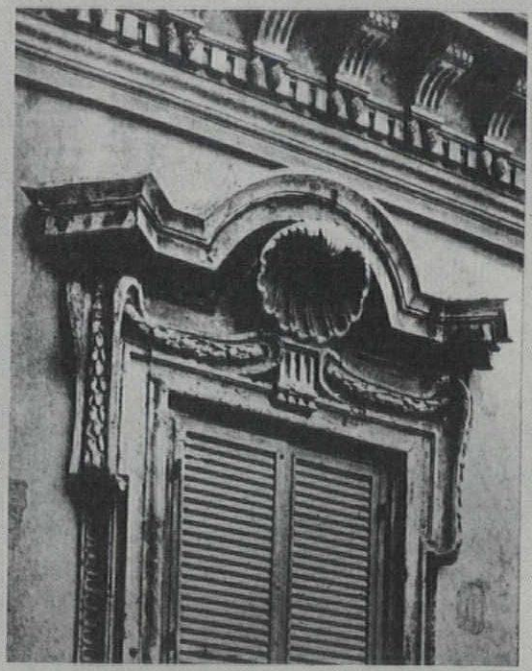
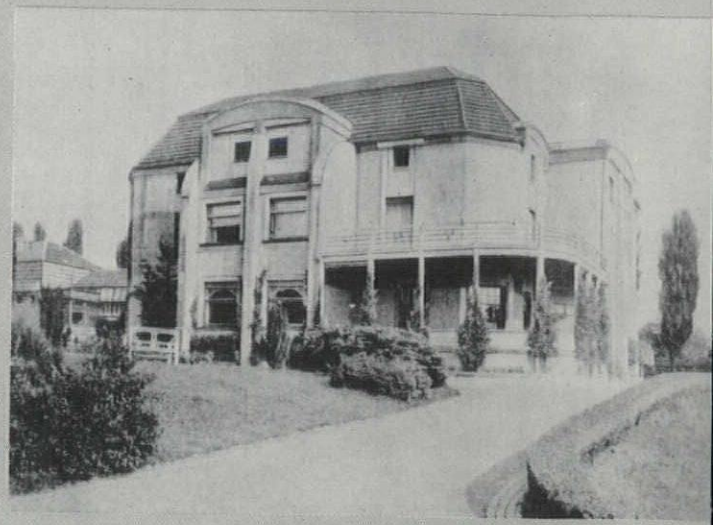


9

*Ornamentation had passed from interior decoration to exterior masonry, as in the work of Guarini (**8** Chapel of the Holy Shroud, Turin) and Borromini (**9** a window of the Barberini Palace, Rome).*



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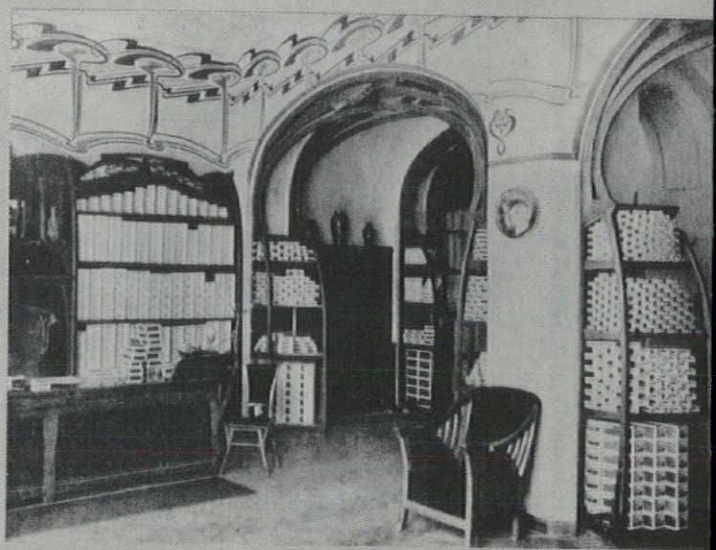

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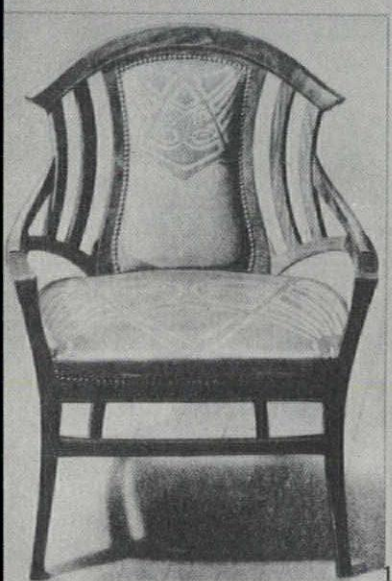

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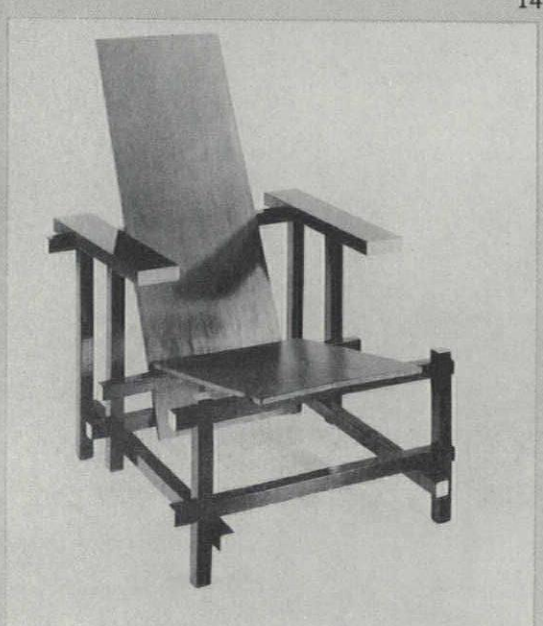
*Henry van de Velde "showed himself less sensitive . . . to the distinctions between architecture [**10** Esche house, Chemnitz, Germany] and furniture [**11** Havana Company Cigar Store, Berlin]." Van de Velde's "furniture was constructed in open conflict with the nature of wood"—a desk chair **(12)**. Few will regret that Art Nouveau furniture, such as August Endell's carved armchair **(13)**, was not mass-produced. The aesthetic motive predominated in the design of an armchair by Gerrit Rietveld **(14)** and the Schröder house, Utrecht, **(15)** by Rietveld and T. Schröder.*

14



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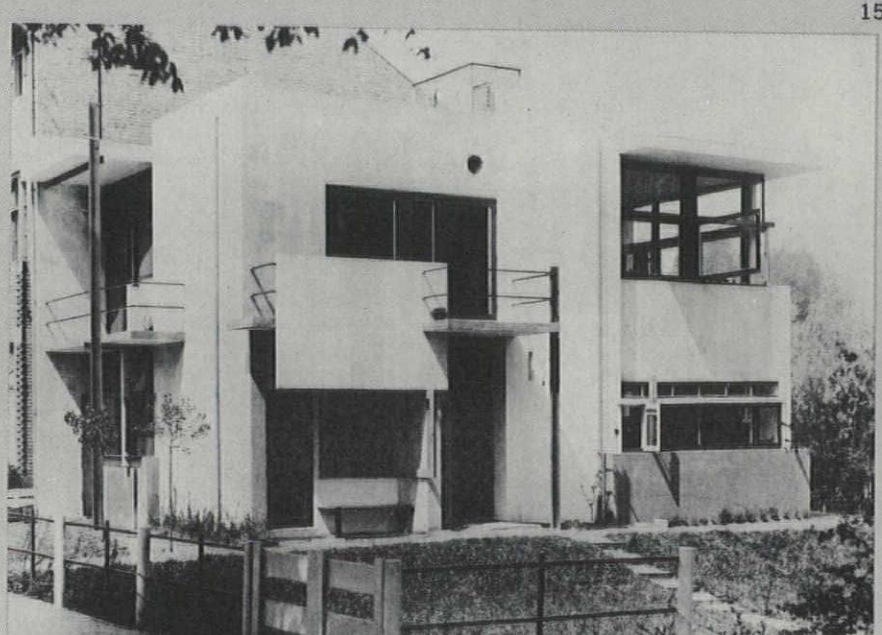


vard (where virtually every element of the Bauhaus curriculum, except for the Basic Design courses, or *Vorlehre*, was abandoned), he still contended that "the approach toward any kind of design — of a chair, a building, a whole town or a regional plan—should be essentially identical, not only in respect to their relationship in space but to social aspects as well." In 1947, he was even more explicit, insisting in his essay "Is There a Science of Design?" that "the process of designing a great building or a simple chair differs only in degree, not in principle."

Whether or not Gropius's assertion is true, it is a fact that the only graduate of the Bauhaus to have signally furthered his ideal of "realizing a modern architectonic art" in the purely architectural sense has been Marcel Breuer, who studied only furniture design there (or rather taught himself, since the carpentry workshop seems to have been virtually unsupervised until he took charge of it himself, on graduation, in 1925). Breuer's architecture is probably no more like furniture than that of the other European "Form-Givers." But it is certainly no less. His UNESCO Secretariat stands on legs; its façades may not unfairly be likened to a filing cabinet with the drawers removed; and its compositional form, though obligatorily curved on one side to relate to the Place de Fontenoy, is curved likewise on the other two sides to look good from the air: i.e., from the point of view from which one normally sees furniture when entering a room.

"Aside from the obvious differences in scale," writes Theodore Brown, in *The Work of G. Rietveld, Architect*, "chairs are as much spatial creations as buildings." But the difference in scale is crucial to the whole problem. Whereas architecture is related fairly directly to structural engineering by techniques of assembly, as well as by other factors and objectives (although here again, it is differences in scale which make the two disciplines essentially distinct), it is related only *analogically* to the discipline of furniture design. Undoubtedly, between 1900 and 1930, furniture design, being both functional and nonrepresentational, and requiring a pleasing appearance, proved to be an analogy of the utmost value in allowing architecture to escape from the more inept aspects of Revivalism, and was heuristically far more successful than the other well-known analogies—biological and mechanical—by which architectural theorists had tried to escape from Revivalism during the preceding 50 years. But the linking of architecture so closely to furniture, pottery, weaving, typography, etc., would seem now not only to be less defensible but in some cases demonstrably harmful. For as Arnold Toynbee has observed in the last volume of his *Study of History:* "Two or more phenomena may have facets which genuinely correspond with each other and between which analogies can therefore properly be drawn; but we may fall into error by failing to abstract the genuinely corresponding features precisely, or by making the unwarrantable assumption that an analogy which holds good just for these facets is also applicable to the phenomena in their entirety."

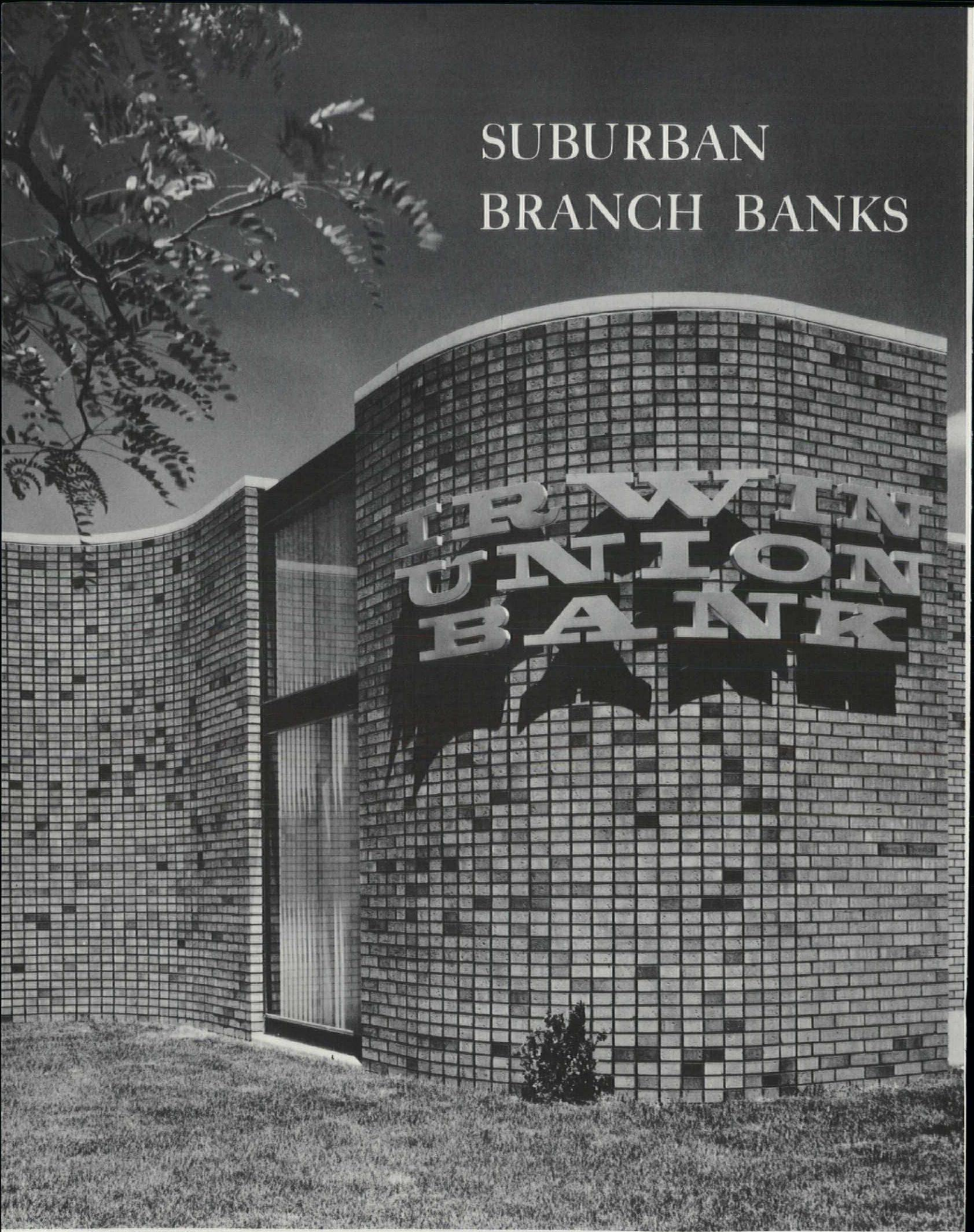
With Revivalism no longer a living issue, there seems no good reason why architectural students should not simply study architecture from the very beginning of their course, as they did in the days when the art of building evolved steadily and rationally in harmony with the technological and sociological evolution of the people it was intended to serve. Indeed, such is in fact what generally happens in our leading schools, despite the lip-service paid to the Bauhaus ideal. But this is not to say that architectural students should not also study the design of interiors. On the contrary, the architect's role as a co-ordinator of interiors and exteriors is more vital than ever before. But co-ordination, as Gropius has been the first to insist, must be by means of collaboration, and collaboration implies respect for the peculiar skills which each member of the team brings to the task.

The criticism levelled here is thus aimed not at the idea that certain gifted architects are capable of designing good furniture (which would be nonsensical), but at the notion that there is some mystical skill called "design" which, once it has been mastered, entitles one, without further ado, to design anything from a toothpaste tube to an ocean liner, and which obviates the need for a prolonged, specialized study of the respective techniques and materials by which various structures and artifacts are made. It is this notion which has produced the "stylist," and it is the stylists, whether they accept the title or not, who are producing today most of the bad architecture and bad interior designs.

For sources of illustrations, see page 207.

DRAWING BY SAUL STEINBERG

SUBURBAN BRANCH BANKS



PHOTOS: BALTAZAR KORAB

Absence of Corners

STATE STREET BRANCH, IRWIN UNION BANK & TRUST COMPANY • COLUMBUS, INDIANA • HARRY WEESE & ASSOCIATES, ARCHITECTS

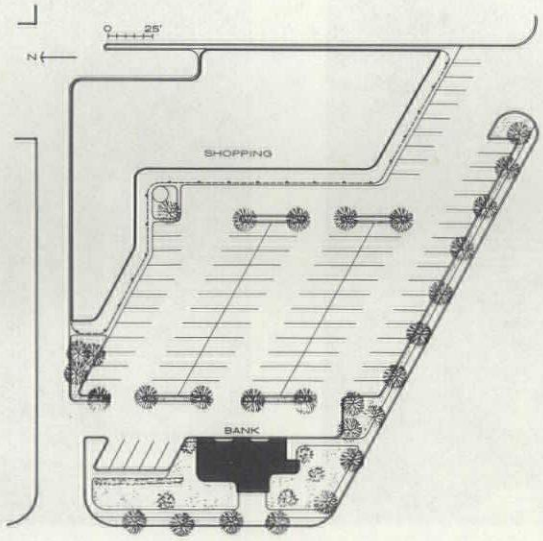
Designed for a site exposed on all sides, this branch bank has a fluid outline, with no corners and no clearly defined façades. The composition of curved wall segments that forms its exterior, although unusual, is not merely bizarre.

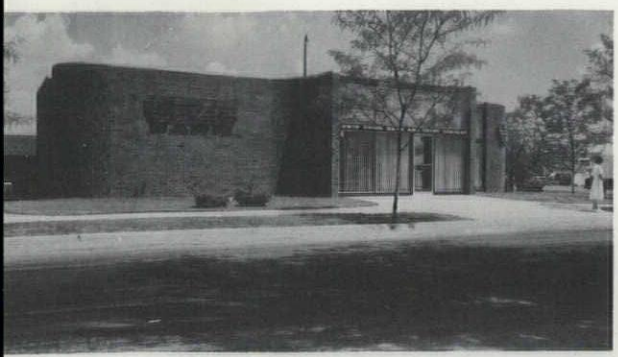
The wall segments—exposed at the top and ends and only loosely linked together by recessed planes of metal and glass—seem almost free-standing; they appear to define a volume, rather than enclose it. Projections flanking the entrances suggest continuity of space through the gap between them, despite the tangible barrier of the curtain wall. Where the brick walls are interrupted merely for windows, however, the line of the wall has been maintained.

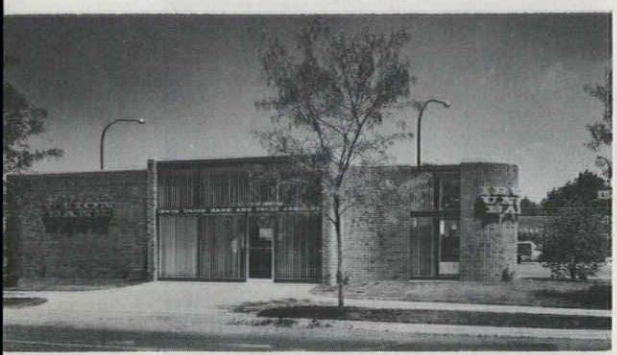
The walls are of red brick with black mortar, and the curves are accentuated by changes in bond. The glass areas are framed in black painted steel, with aluminum doors, stops, and glass heads. Vertical blinds have been used for all glass areas; although they screen the interior from view, they reinforce the illusion of transparency by making reflections on the glass less visible.

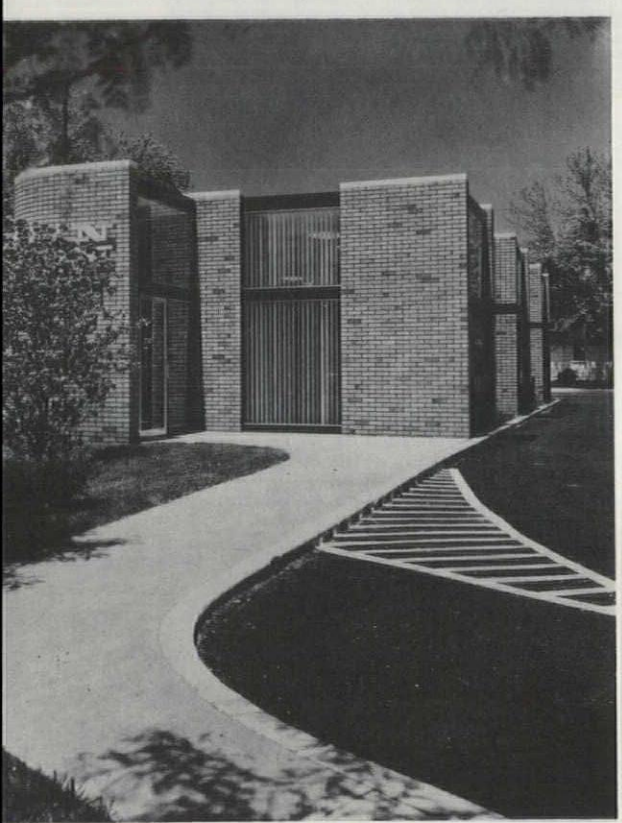
The bank was built as part of a neighborhood shopping center developed on land owned by the bank. The bank maintained nominal design control over the entire center. Weese was commissioned to draw up a master plan and establish over-all design criteria.

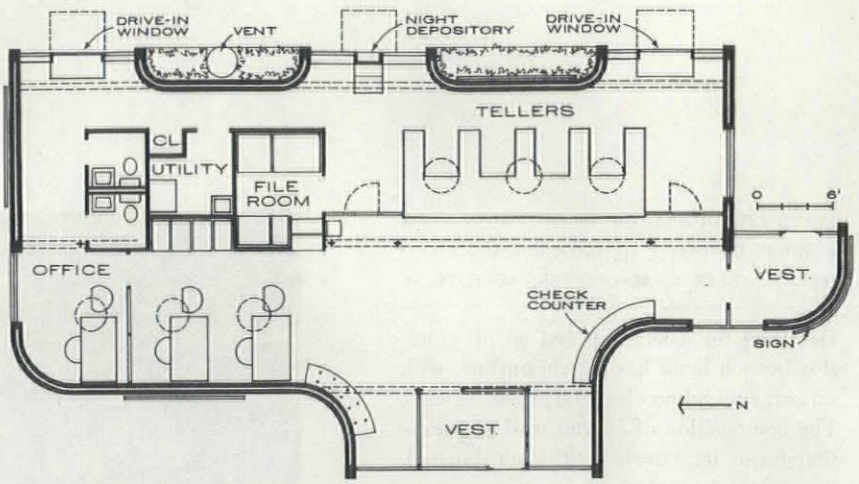
The bank itself was given the most prominent corner of the site, and the layout and façades of the stores were regulated to form a harmonious backdrop for it. The store building has a continuous recessed arcade, so that advertising and window displays are kept in the shadows. The design of signs on the uniform brick ribbon above the arcade was controlled by the architect.





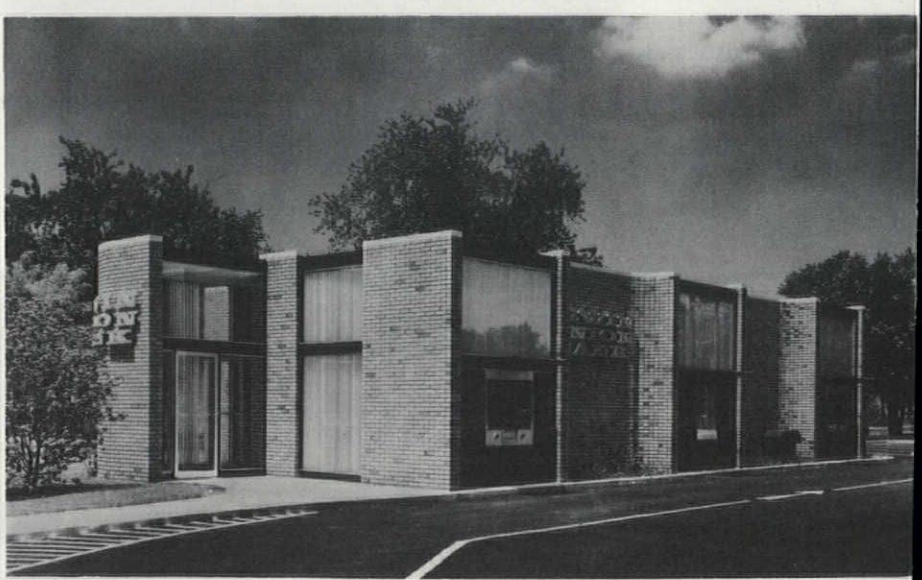






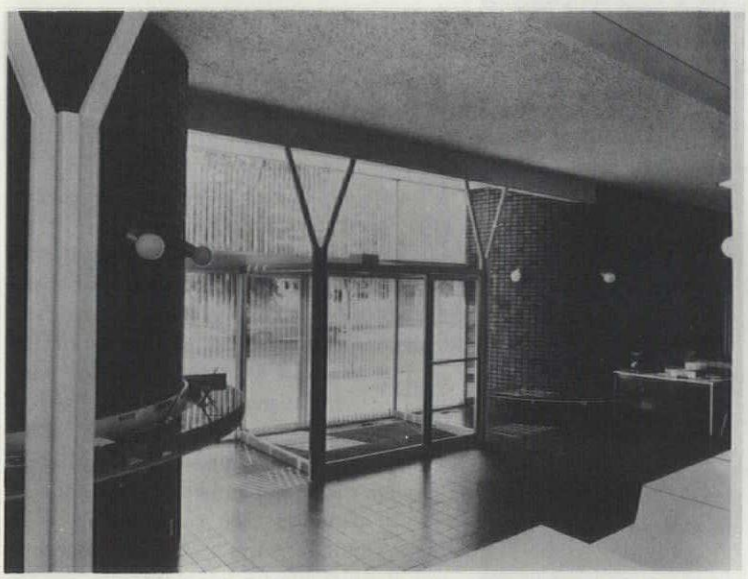
The continuous transition from one face to another makes the building an effective sculptural form when seen from any angle (photos this page). *Projecting walls reach out as if to welcome the customer at all of the entrances and drive-in windows.*

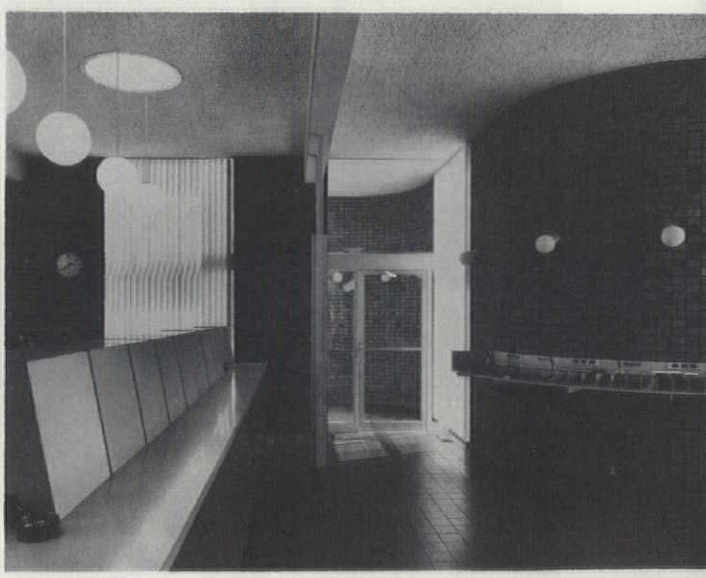
On the interior (facing page), *the ambiguous limits of the enclosure make the small space seem less constricted. Counters and partitioned rooms are seen as free-standing rectangular elements in a fluid space. The quarry tile floor serves as a unifying field related in color and pattern to the brick walls. The pattern of white vertical lines that appears in*



the blinds is repeated in the vertical boards applied to the partitions.

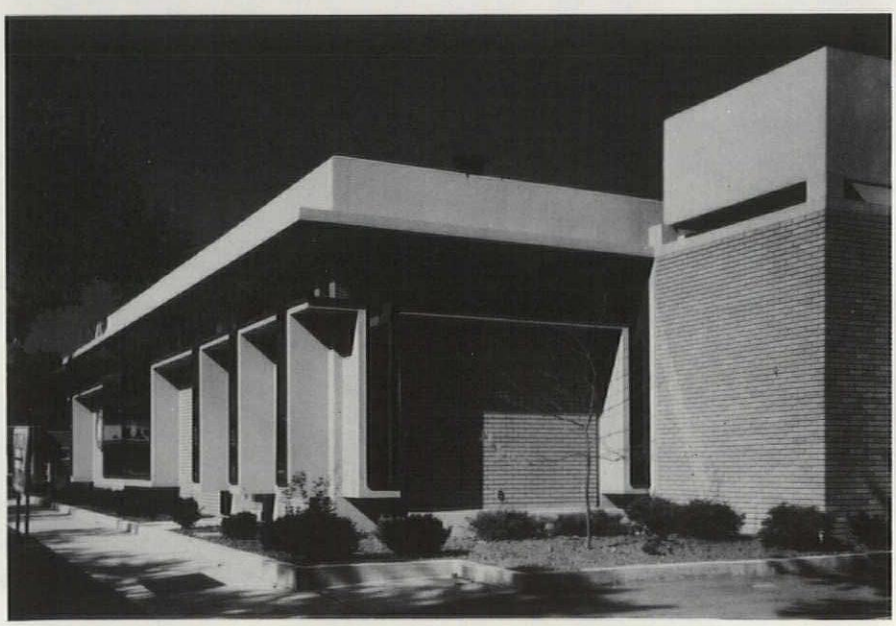
The wood roof structure is supported partly on the walls and partly on cross-shaped steel columns fabricated out of rectangular structural tubing. The tubular prongs that project from the top of the main shaft reduce the girder span.





Cubist Corners

PHOTOS: BALTAZAR KORAB



BRANCH OFFICE, PEOPLE'S FEDERAL SAVINGS & LOAN ASSOCIATION • ROYAL OAK, MICHIGAN • BIRKERTS & STRAUB, ARCHITECTS

Situated on a small lot in a disorganized commercial strip, this branch office has been given distinction by its sedate exterior. The over-all plan and form are symmetrical, superficially similar to the banks found on any small-town street-corner. The disposition of interior spaces and the treatment of the long side elevations, however, are asymmetrical.

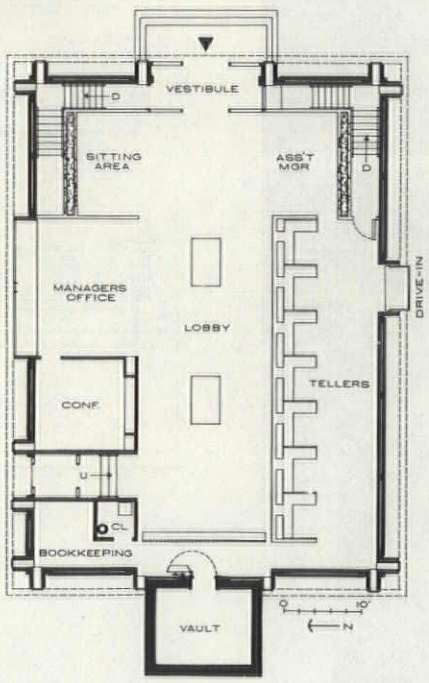
All savings and loan operations are on the main floor. A meeting room, which the association can make available to neighborhood groups free of charge, is located in the basement and is accessible directly from the vestibule.

The non-bearing exterior wall is made up of three components: an inner plane of light gray brick, an outer plane of gray glass, and a continuous band of reinforced concrete connecting them. The masonry wall stops short of the roof, leaving a strip of glass at the ceiling line around the entire building. The concrete band dips down at irregular intervals to frame the windows. (Doors, however, are cut into the masonry wall.)

The band of concrete gives a third dimension to the wall, making the window openings sculptural elements on the exterior and giving the wall a reassuring appearance of depth when seen from the inside. The projections also serve as blinders, reducing the feeling of exposure to view from outside.

The concrete columns that support the roof are not regularly spaced, but flank each of the openings in the masonry wall. The poured concrete edge beam is uniform in size, regardless of the variable span, but the reinforcement varies. The roof is framed with long-span steel joists.

The interior is finished with plaster, painted white and off-white, and natural walnut paneling. The vault walls are of black-painted plaster and the counters are of white plastic laminate.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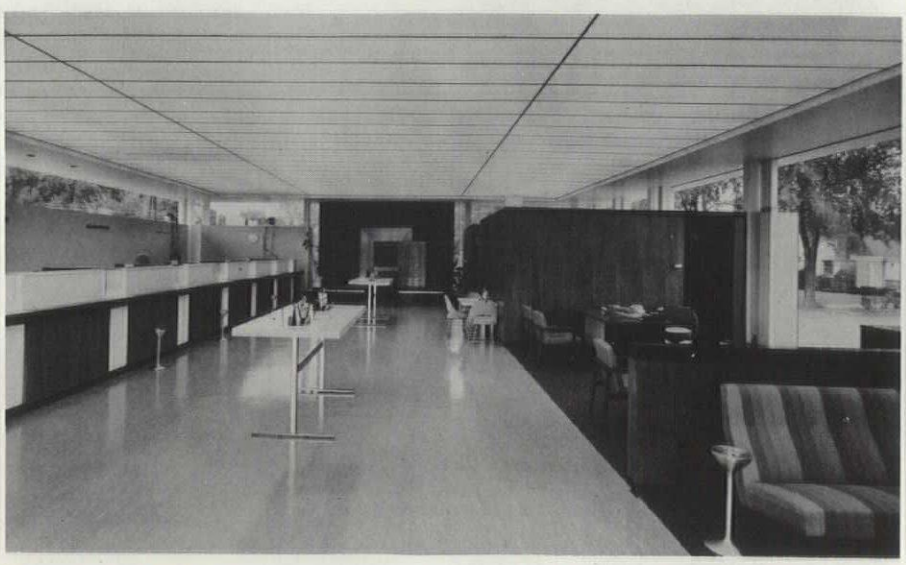
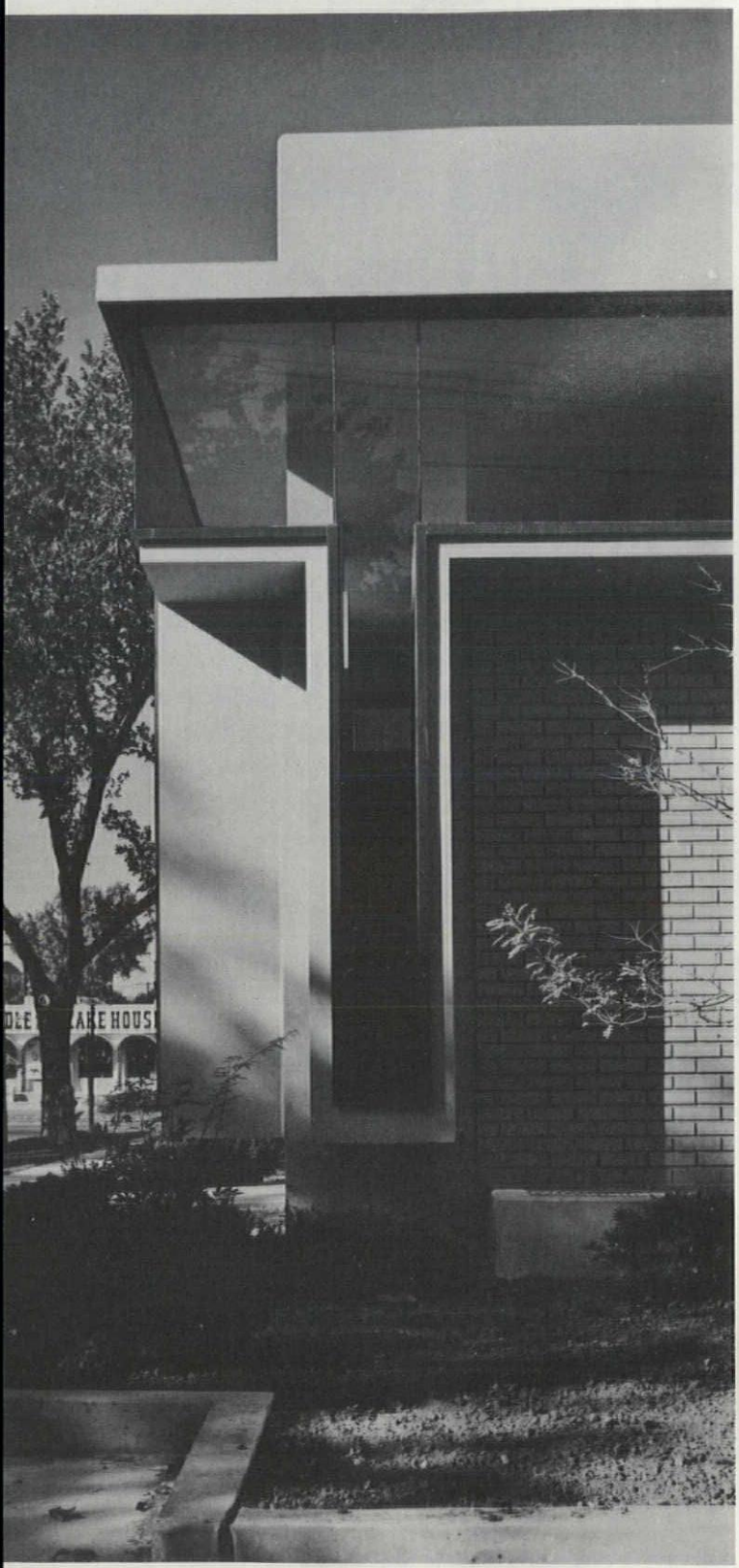
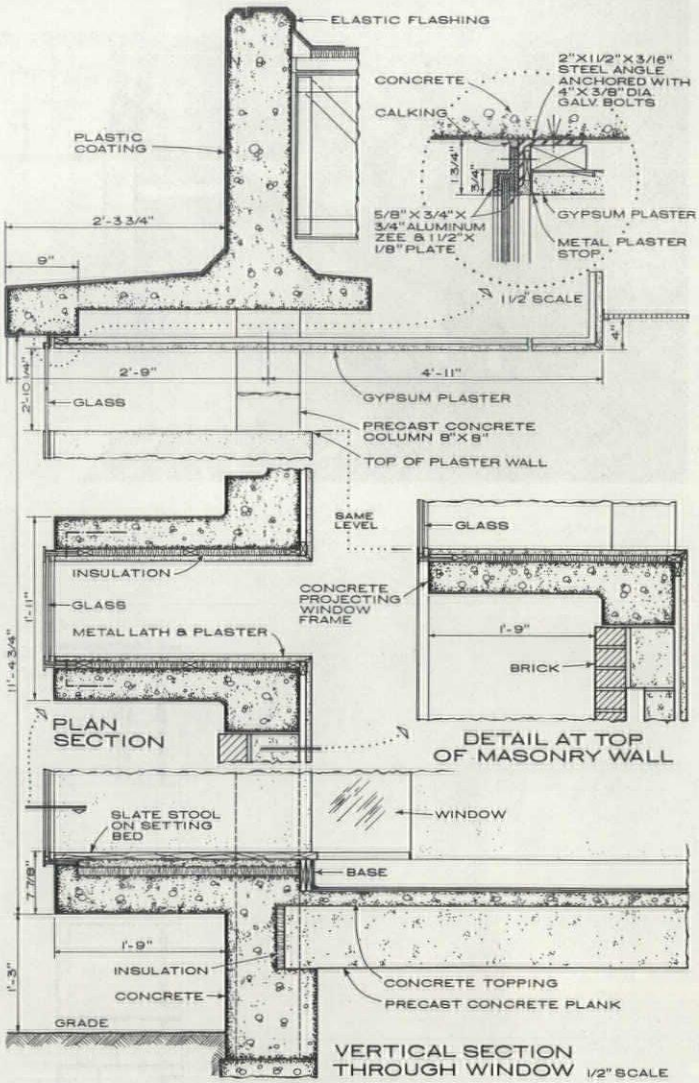
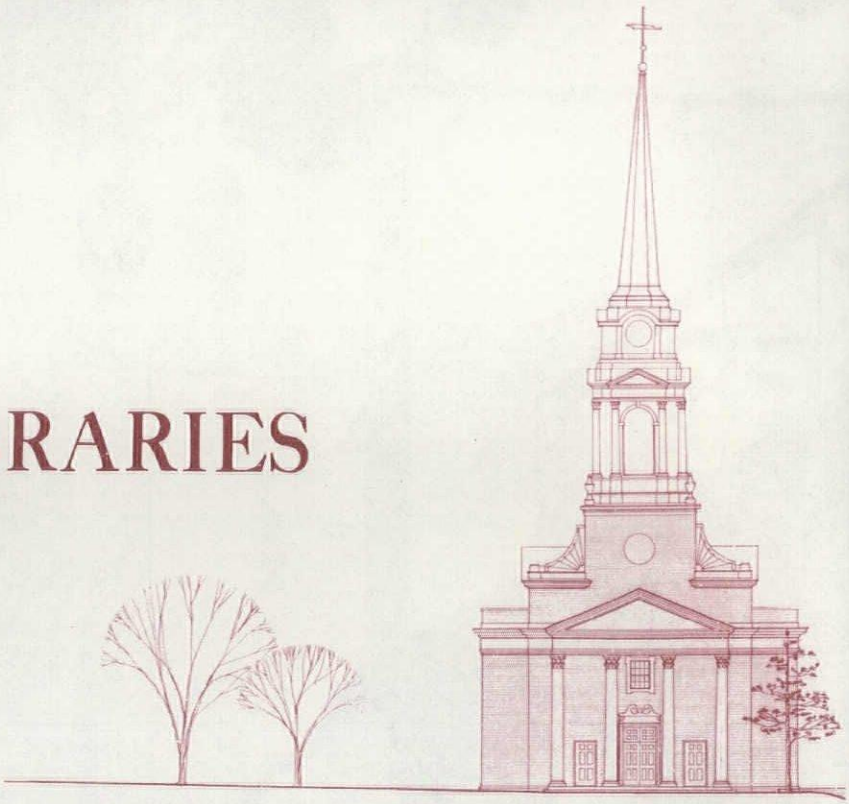






Windows are introduced at all corners to maintain the illusion of wall thickness and to shed daylight on otherwise dark interior surfaces (photos left and facing page). *The continuous band of concrete separating the windows from the masonry wall varies only slightly in detail to meet different conditions* (sections above). *The concrete is painted a "natural" grayish color and the brick, the glass, and the porcelain-enameled aluminum frames are all in shades of gray.*

COLLEGE LIBRARIES



Bridges to Learning

DOUGLASS COLLEGE LIBRARY, NEW BRUNSWICK, NEW JERSEY • WARNER, BURNS, TOAN & LUNDE, ARCHITECTS • ELEANOR LARRABEE, PROJECT MANAGER • FRED S. DUBIN & ASSOC., STRUCTURAL & MECHANICAL ENGINEERS

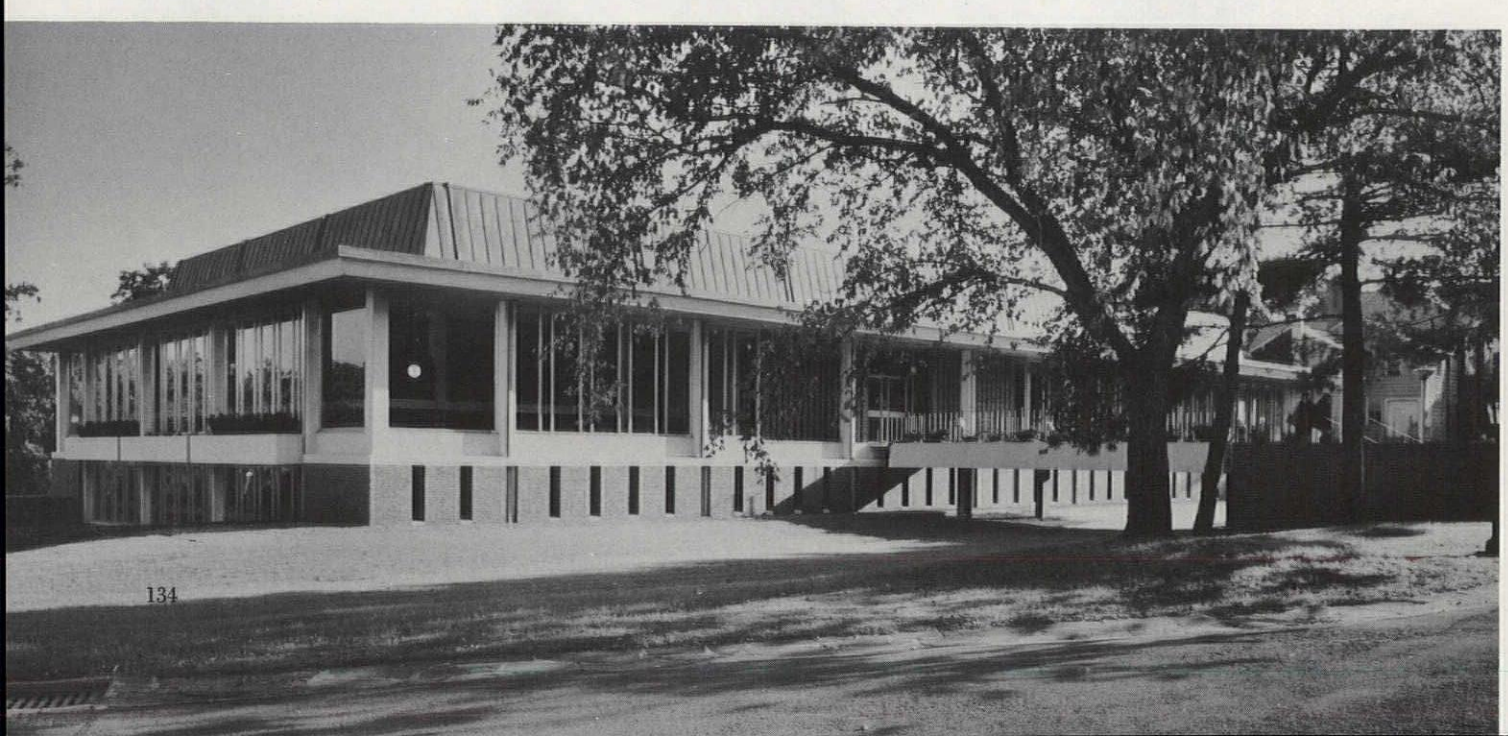
The primary aesthetic problem in designing a library for Douglass College was to make it compatible with the Colonial-style college chapel. The library is located next to the chapel between the academic campus and a future arts campus; this site slopes down to a small ravine that is spanned by a suspension footbridge.

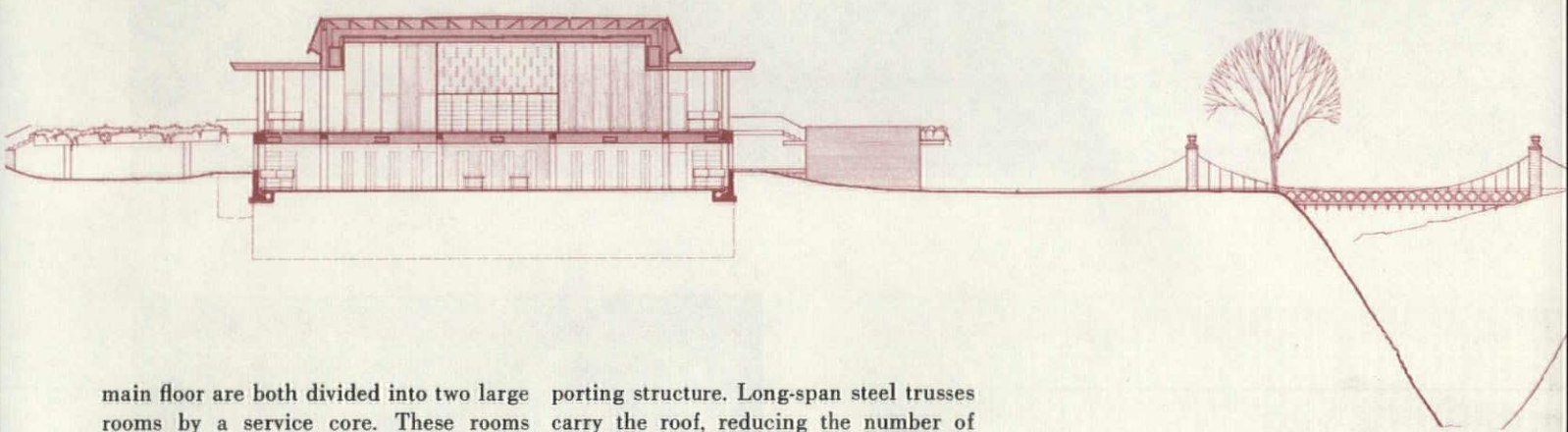
The library is set part way down the slope so that its middle level, which is the main floor, is nearly at the grade of the chapel; access to this main floor is by a bridge. By utilizing the grade in this way, the architects were able to build a three-level structure that appears low and thereby dramatizes the height of the chapel.

The roof design also contributes to dramatizing the height of the chapel by minimizing the height of the library. A cornice is set immediately above the glass walls of the library's middle level—that is, at the ceiling height of its main floor. Above this low cornice is a windowless attic that accommodates a mezzanine-level reading room and also the two-story ceiling height over the reading rooms on the main floor.

The materials used on the exterior of the library were chosen to harmonize with the chapel, which is of pink brick laid in Flemish bond and of white stone. The same brick and bond are used in the library, along with white cast stone; other exterior materials are glass, anodized aluminum, and lead-coated copper.

On the interior, the ground floor and



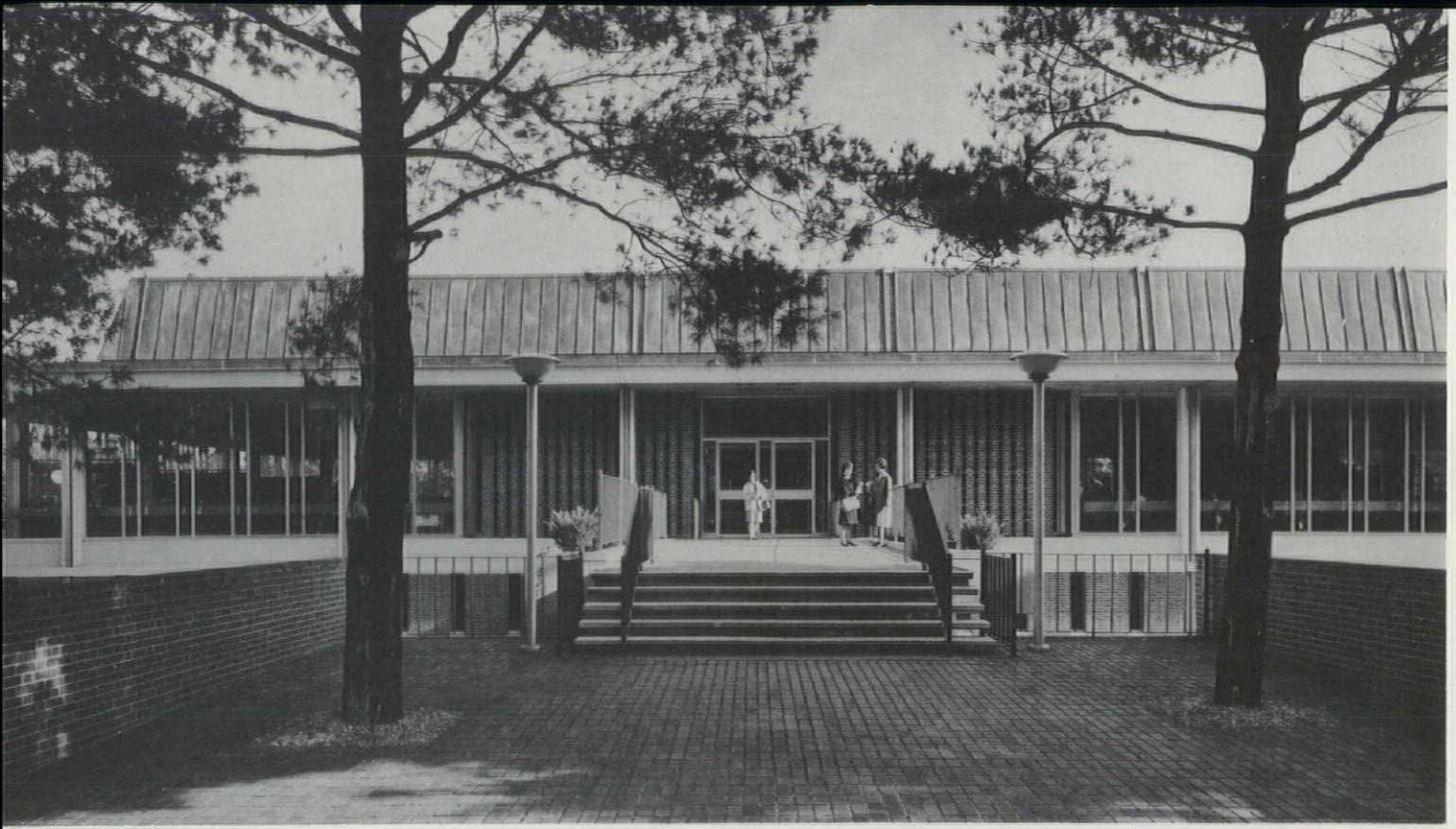


main floor are both divided into two large rooms by a service core. These rooms house an open-shelf collection of 150,000 volumes. On the periphery of these rooms, study facilities with varying degrees of privacy are provided: lounges, carrels, and rooms for individual research and group study. Six hundred students can be accommodated in close proximity to the open stacks.

Reinforced concrete is used for the framing of the ground floor and main level in order to deal with the relatively heavy live and dead loads of the stacks and supporting structure. Long-span steel trusses carry the roof, reducing the number of interior columns needed on the main floor. The depth of the trusses provides a plenum; asbestos fireproofing is sprayed on the underside. "By hanging an egg-crate luminous ceiling from this plenum, flexible airy rooms that are acoustically treated and without visible lighting fixtures or air diffusers have been created economically," the architects note.

An outdoor reading deck, which overlooks the ravine, is connected to the rear of the building by another bridge.

PHOTOS: GOTTSCHO-SCHLEISNER



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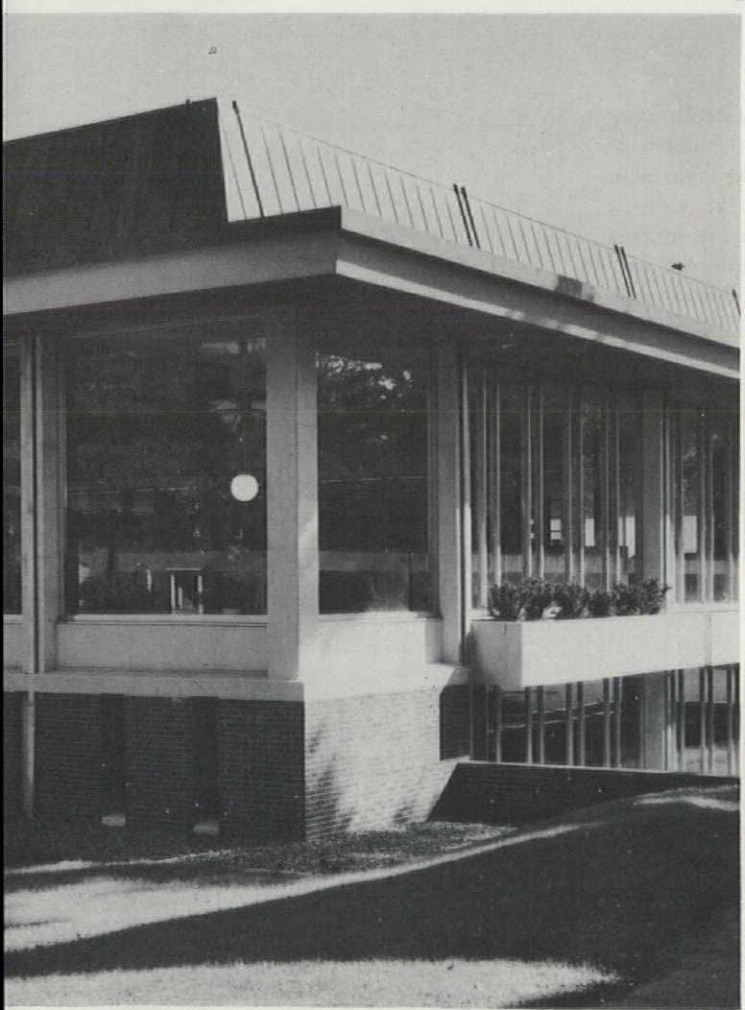

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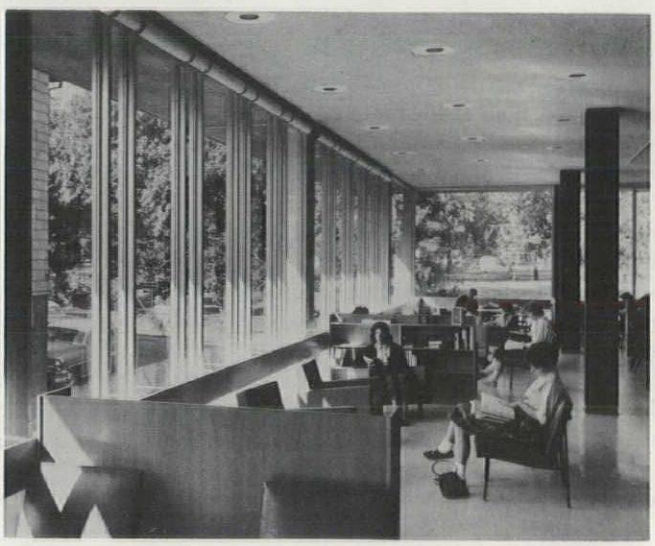

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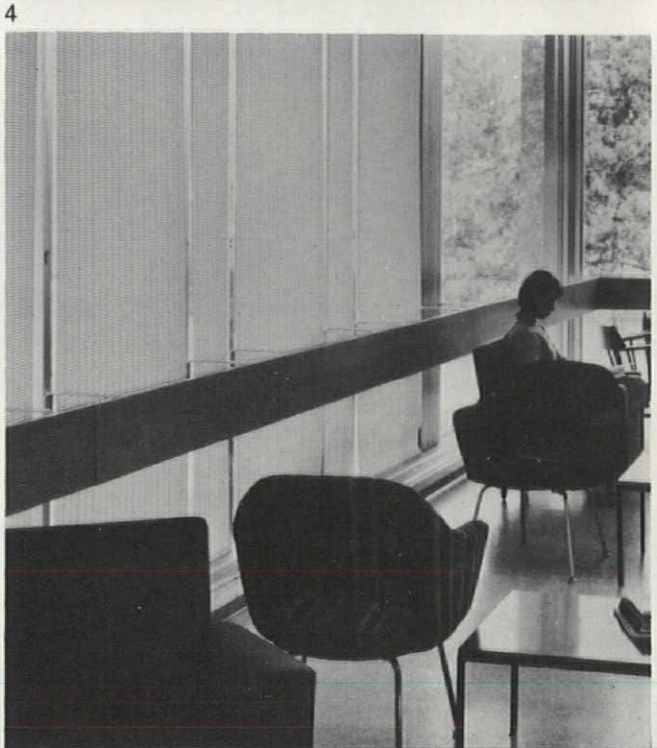
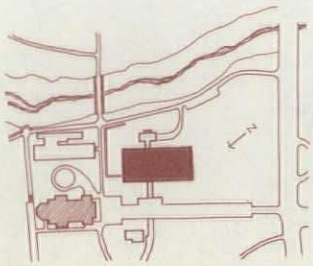
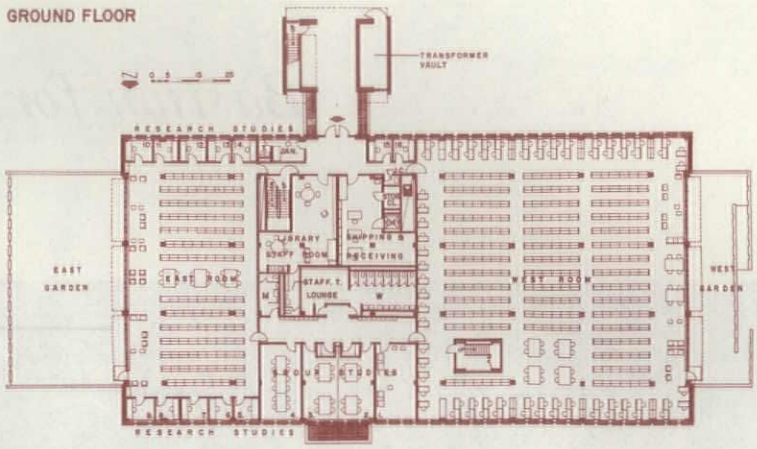


The roof overhang **(2)** *and roll-down blinds* **(4)** *shade the glass walls from direct sun and from excessive glare.*

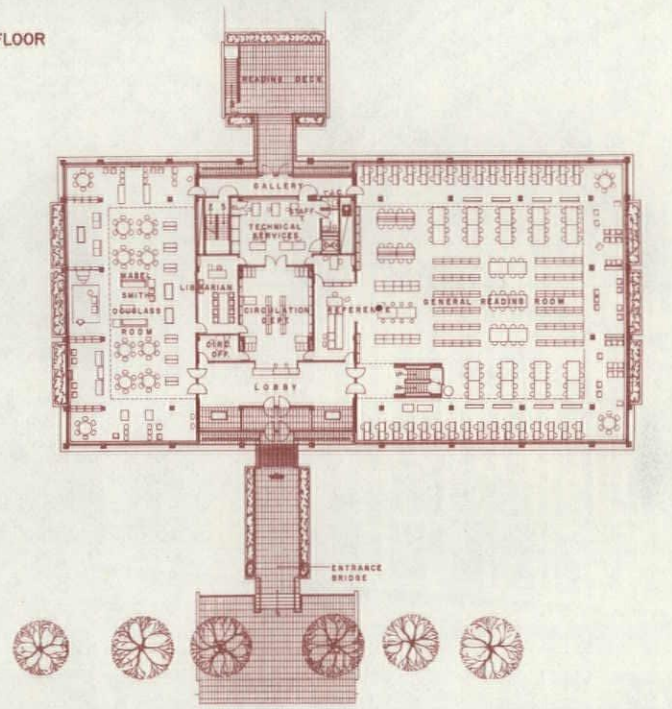


GROUND FLOOR



A bridge leads to the main floor **(1)**, *which is divided into two large reading rooms by a library-service core* (plans, right). *The central part of the reading room* **(5)** *is two stories high; a lower-ceilinged area around the periphery is devoted to study lounges* **(3)** *and double carrels* **(6)** *designed by the architects. The glass walls are protected by a wood chair rail* **(3, 4)**, *which is secured to the mullions with aluminum brackets.*

MAIN FLOOR



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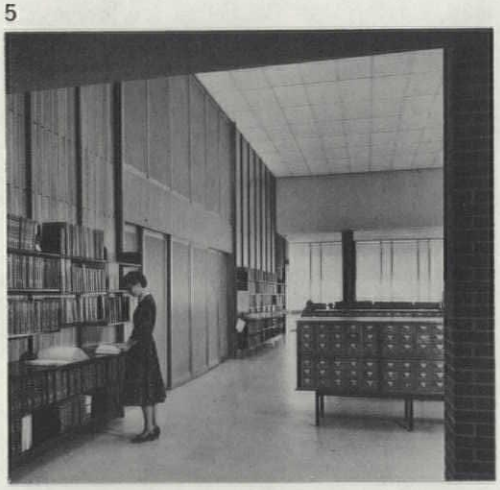
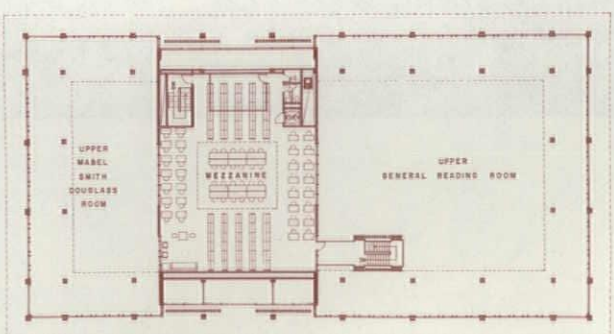


6

MEZZANINE



Bastion for Books

PHOTOS: JOSEPH MOLITOR

THE AUGUST HORRMANN LIBRARY • WAGNER COLLEGE, STATEN ISLAND, NEW YORK • PERKINS & WILL, ARCHITECTS • INTERIOR DESIGN BY I.S.D., INTERIOR SPACE DIVISION OF PERKINS & WILL

The Horrmann Library, the first building in a 20-year expansion program for the college, exemplifies a concept of the master plan. This plan calls for a series of contrasting outdoor spaces: large and small courts are to be juxtaposed, short as well as long views to be provided.

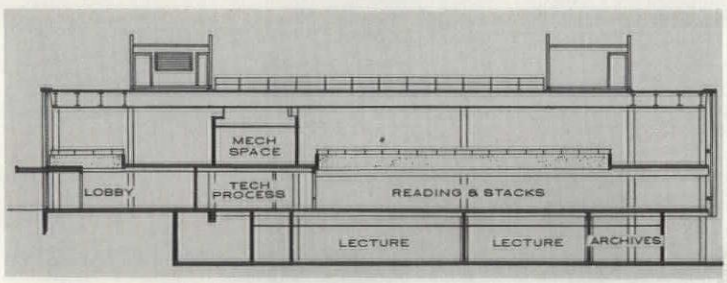
The library is sited at the end of the academic campus on a slope from which there is a panoramic view of lower New York harbor. The building, which projects over the slope somewhat like the watchtower of a fortification, acts as a closure to this end of the campus. From inside the building, however, the view is exposed again by a glass wall at the rear. The dark tinted glass wall on the front was designed "to be light and open at night," the architects state, "in order to attract the attention of passing students."

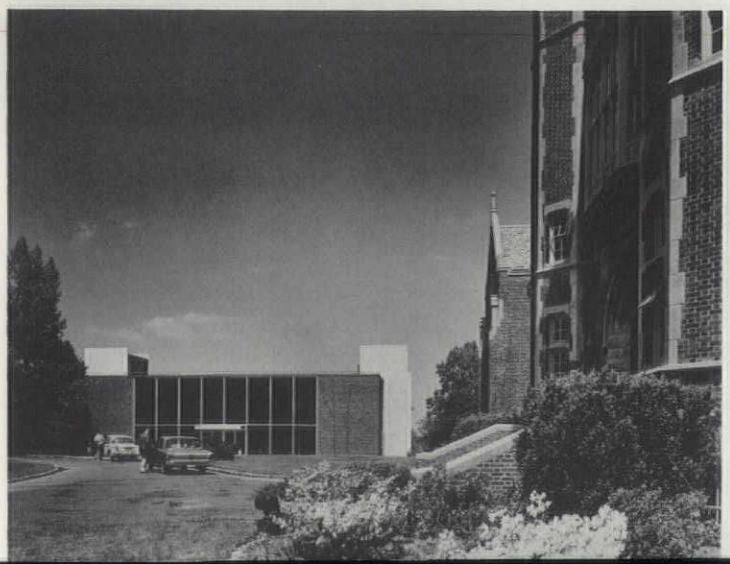
Although from the front the building appears to be a two-story structure, it actually has three levels. A ground floor has been introduced below the main floor by exploiting the slope of the site. The rectangular building is enclosed in rough clinker brick, concrete, and glass; its reinforced concrete structure is exposed on the ground floor, which is recessed under the overhanging upper stories. Long-span steel bar joists support the roof.

Four stair towers, two on each of the long sides of the building, project beyond the outer walls. The towers define small gravel gardens, which are designed to provide short-range views for the lecture rooms, conference rooms, and office on the ground floor.

The concept of contrasting spaces govens the interior spatial arrangement also. The single open-plan space of the upper two levels is varied by changes in ceiling height: from a low vestibule to a 24-ft-high entrance lobby and on to an 8-ft-high space under the mezzanine. Beyond a core of library services, the ceiling height opens up again to 24 ft in the main reading room. Surrounding the reading room, on and below the mezzanine, are secluded, low-ceilinged study areas.

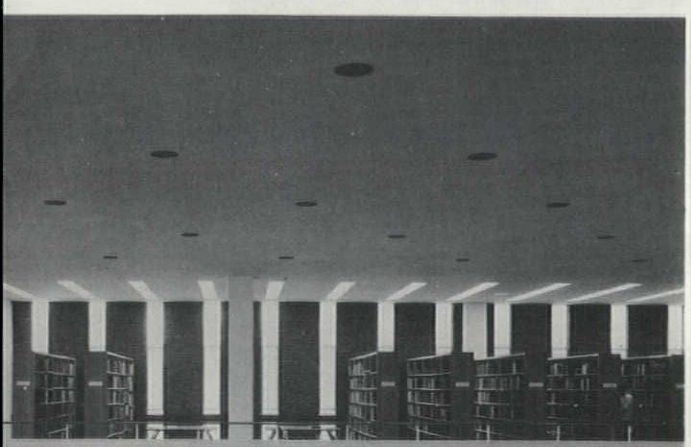
The open plan provides the flexibility that was one of the requirements of the college. The stacks for the collection of 110,000 volumes are interchangeable with the reading areas, which accommodate 442 readers. Glass walls of the library core permit easy supervision of the open stacks.

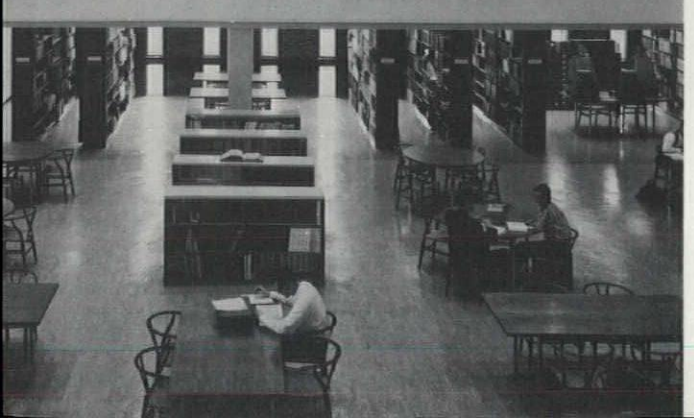


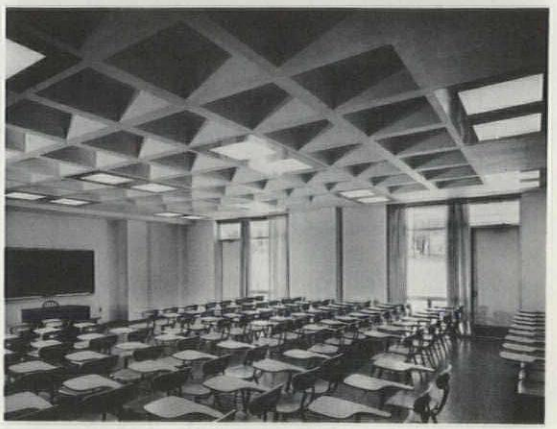


In the entrance lobby, the variations in ceiling height and large plants serve to enliven the space.

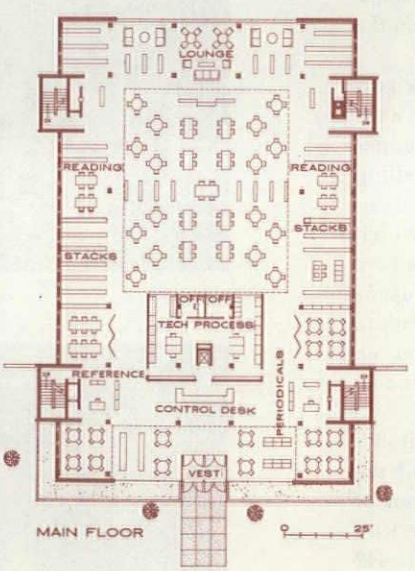
The main reading room (above and below) *rises to a 24-ft height. Surrounding it is a mezzanine that provides low-ceilinged areas for secluded study. Reading areas are intermingled with stacks throughout.*

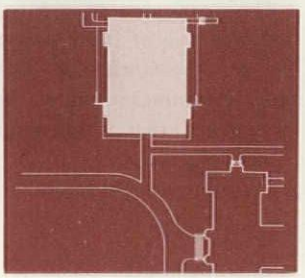




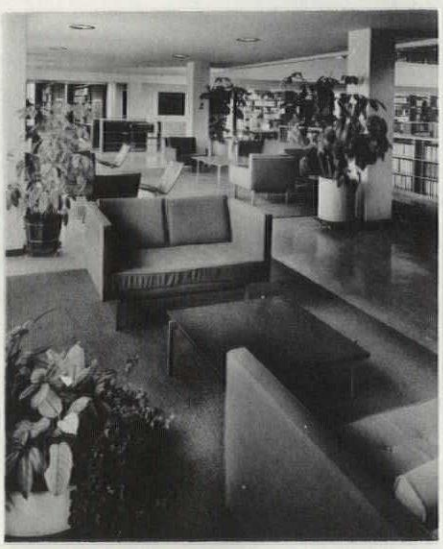


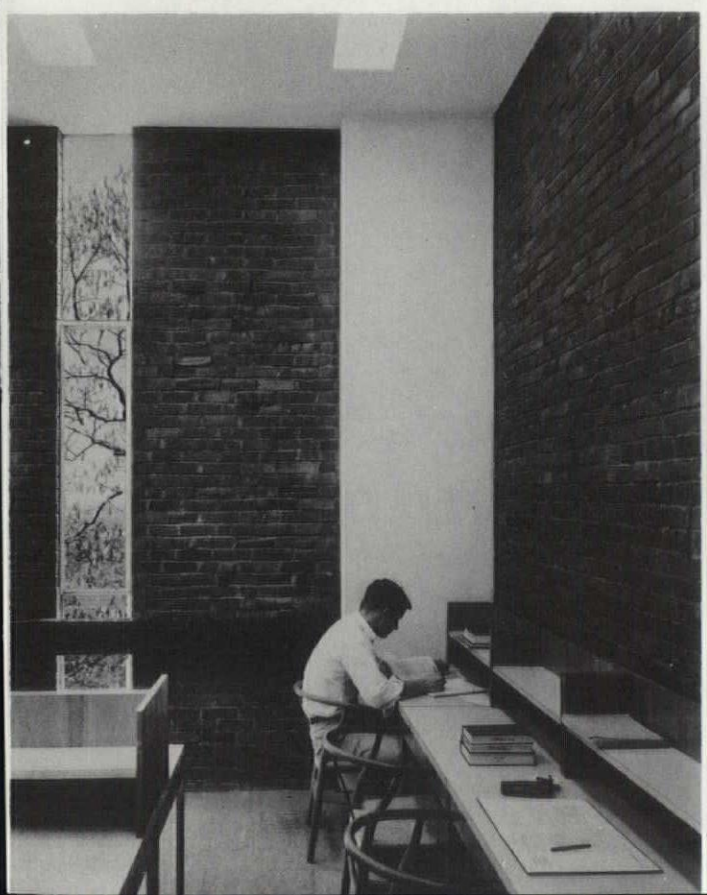
The lounge areas along the glass rear wall (top) *overlook a dramatic view of New York harbor. Recessed incandescent downlights augment the illumination in these areas and in the center of the reading room. Fluorescent troffers are lined up with the narrow vertical windows on the long sides of the building* (bottom, left, and facing page, right) *in order to illuminate the bookstacks set between the windows. These troffers also define the side mezzanine areas along the ceiling. In the lecture rooms on the ground floor* (above), *square fluorescent fixtures are hung within the coffers of the ceiling.*

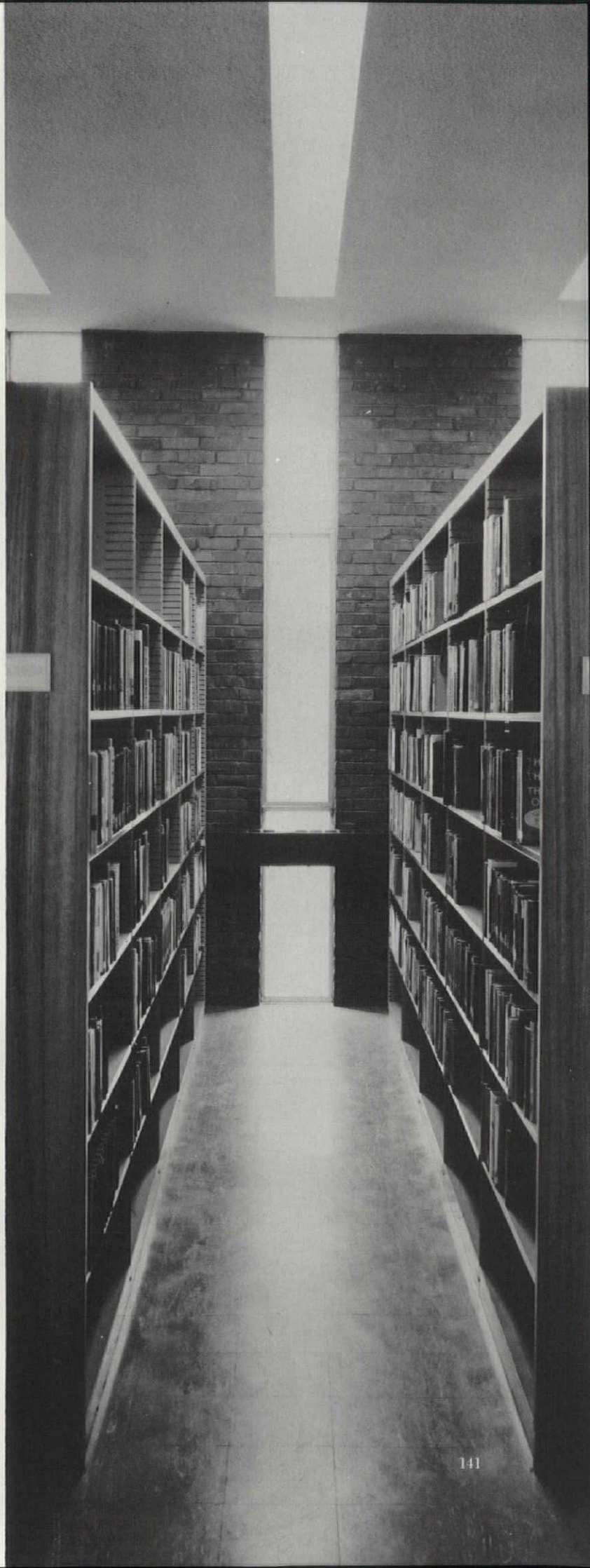




The furnishings give the interiors an appearance more comfortable than the average institutional scheme: seating used includes Wegner chairs, natural and blue lacquered, around study tables and at carrels (bottom); *and Poul Kjaerholm leather chairs in the lounge* (below). *Large interior plants are on platforms with castors so that they can be rolled to the windows for necessary light. The convector is elevated to chair-rail height to protect windows and walls* (bottom and right).

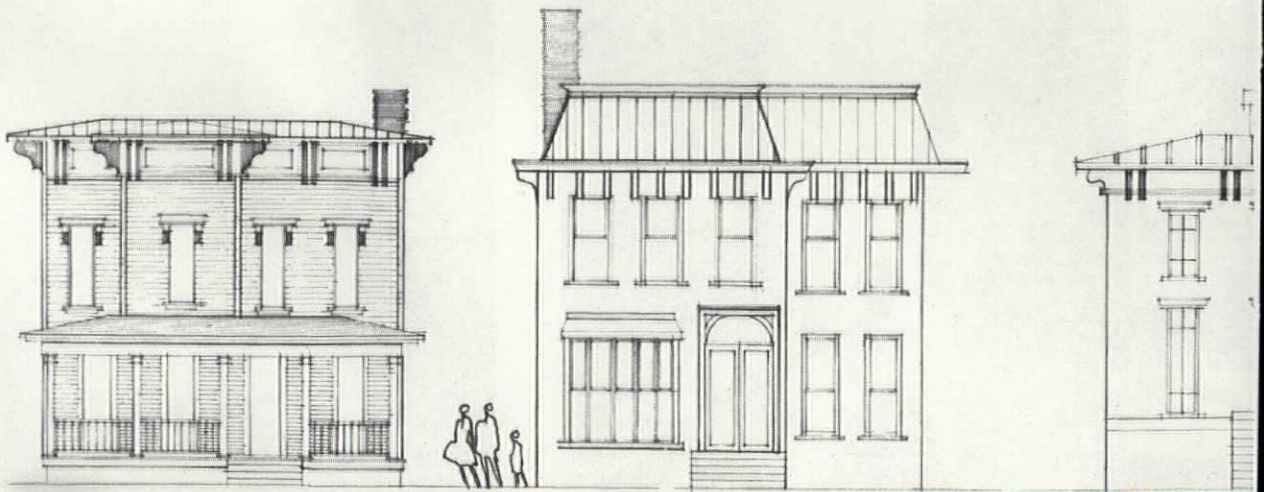






MUNICIPAL BUILDINGS

PHOTOS: C. W. ACKERMAN



Neighborhood Continuity

MUNICIPAL BUILDING • WOOSTER, OHIO •
DALTON-DALTON ASSOCIATES, ARCHITECTS

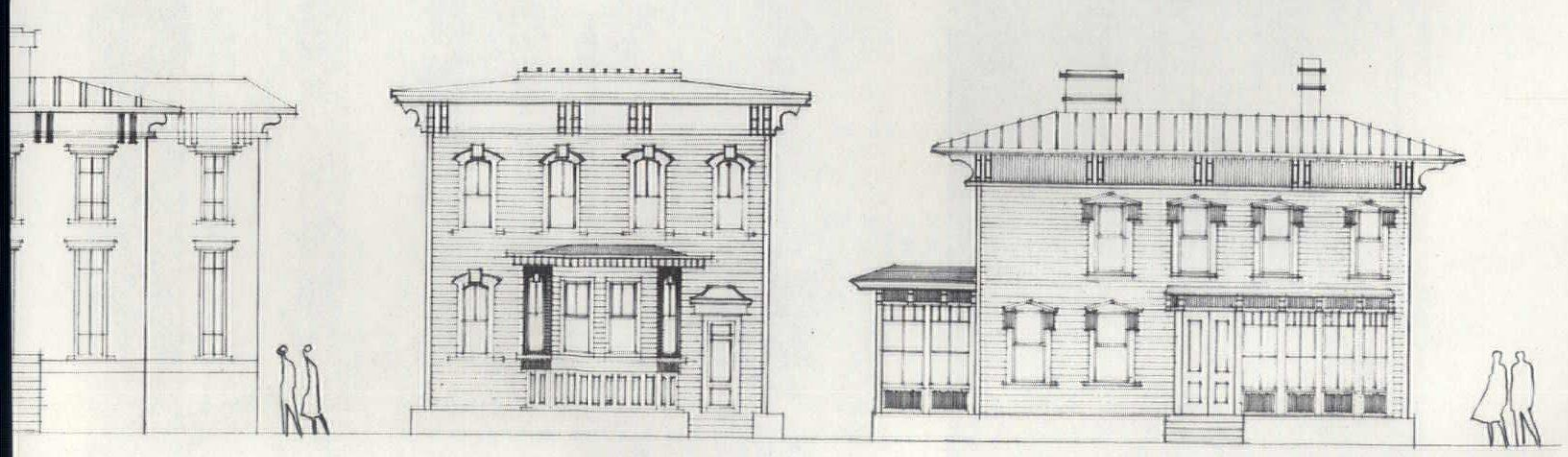
The program, which the architects were commissioned to write for Wooster's Municipal Building before the site was chosen, prescribed a three-level building with services in the basement, space for transactions with the public on the first floor, and private offices on the second floor. Besides the administrative suite for the mayor, service director, and solicitor, the second floor of the completed building also contains the engineering department, drafting room, and city planning commission. The departments dealing frequently with the public are located on the first floor to facilitate circulation and also, in the case of the lobby and courtroom, to gain a greater ceiling height. Subordinate police facilities, such as the cell block and pistol range, are in the basement, along with the civil defense department and other services.

Before design work was commenced, the architects were asked to advise on site selection of the several locations considered. All were in residential areas. The architects recommended a site relatively close to the central business district, but since most visitors would drive to the building and on-street parking space was inadequate, it was necessary to provide additional parking space. Therefore, the structure is sited fairly close to the street so as to leave room for day-long parking for employees on the rear; the building is also raised on a podium, both to give it visual prominence and to elevate the basement level so that garages could be readily incorporated. Short-term parking for visitors is provided on the south side.

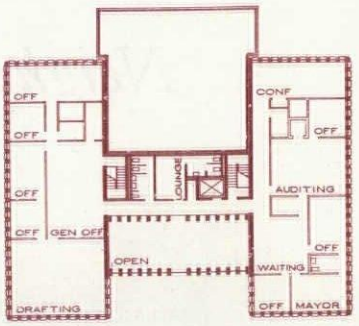
Since the building was to be a public monument, the architects felt that symmetry was desirable. The U-shaped plan that was adopted provides wings of offices on each side of the central lobby, service core, and courtroom.

The design of the building was also to be "compatible with the character of the surrounding residential area, which has a strong Victorian flavor." This conscious effort to preserve the continuity of the neighborhood led to the use of brick piers and narrow windows, both of which also have advantages of economy. The piers are load bearing and are exposed on the interior so that they provide both exterior and interior wall surfaces; the floor-to-ceiling windows admit adequate light but are narrow enough to keep the cost of air-conditioning down.

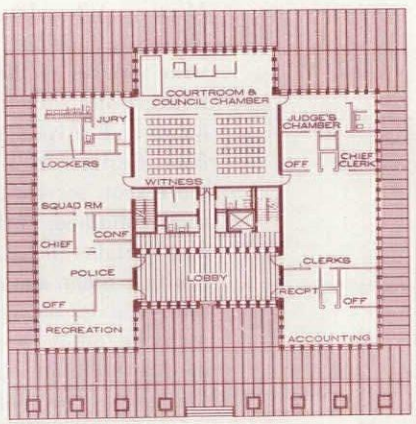
Each pier has two projections on its exterior face that makes it an extension, in plan, of the U-shaped plan of the building. The faces of the piers apparently owe their inspiration to the paired corbels under the eaves of Victorian buildings; this motif is repeated throughout the building. Precast segmented arches are used over the narrow windows as another allusion to the vintage of the neighborhood.



1

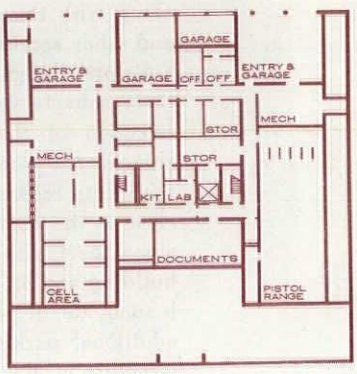


UPPER LEVEL



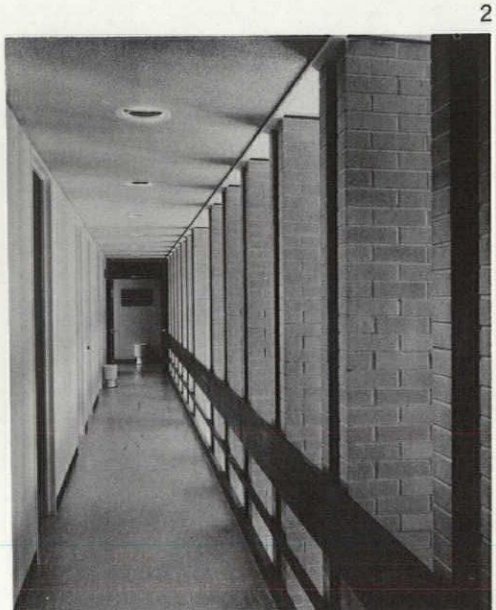
PLAZA LEVEL 0 20'

*Inside the main entrance **(1)**, a two-story lobby **(4)** connects the police and recreation departments on one side with the water and clerk of courts departments on the other. Beyond the lobby is the courtroom **(5)**, which was located on the first floor so that the room could have a two-story ceiling height; the judge's chamber and jury room are adjacent. On the second floor, an open corridor **(2)**, which overlooks the lobby, connects offices in the executive wing with those in the engineering department **(3)**.*



LOWER LEVEL

2



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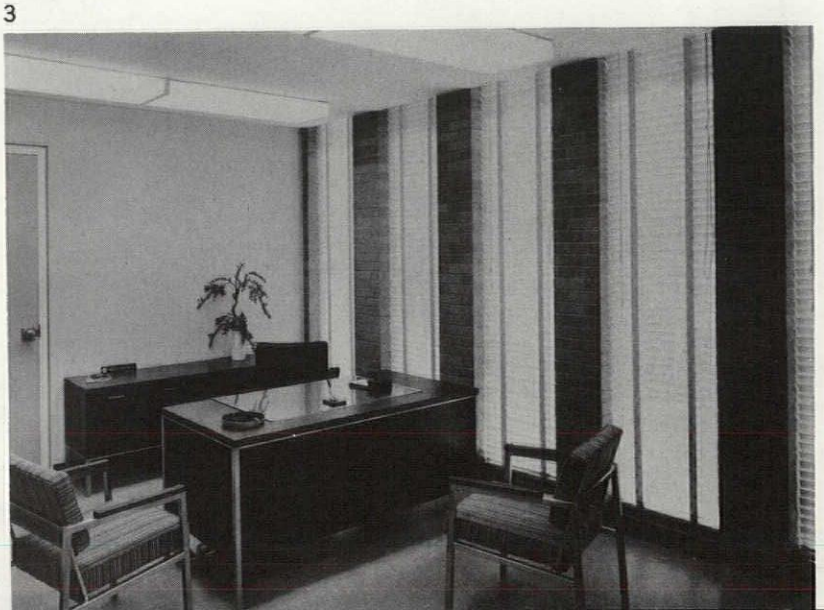
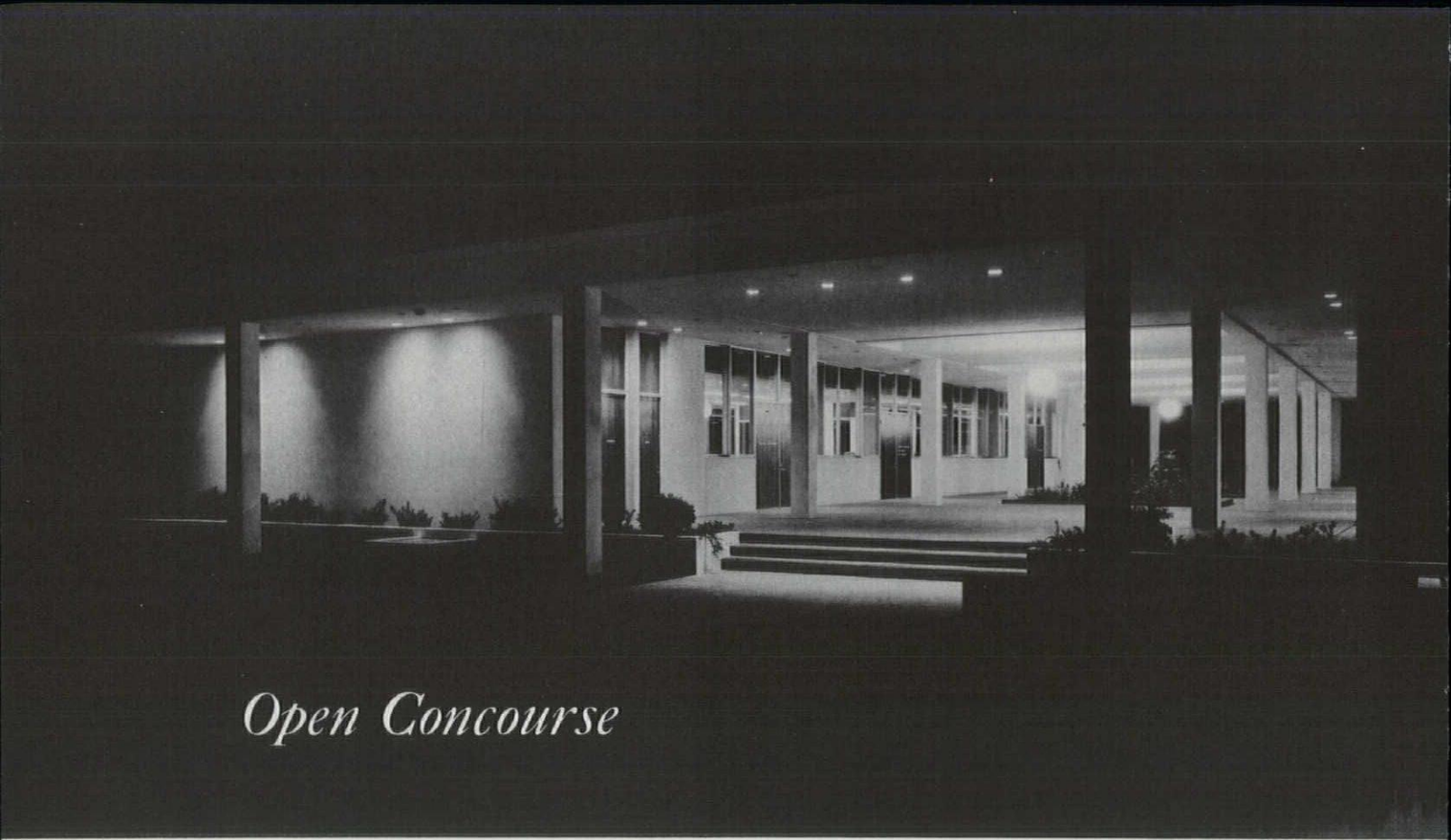


4

5

The design concept of the exterior is carried inside by the repetition of materials and the motif of the piers. In the lobby **(4)**, *the precast arches are used as doorway lintels; the brick piers have an H-shaped section and therefore read as pairs of slim verticals. The motif of paired parallel lines is expressed in the terrazzo and in the hung ceiling where the segmented vaults meet; strip lighting is set between the vaults. In the offices* **(3)** *the piers are flat, but the tapes of venetian blinds seem to carry out the design concept.*



Open Concourse

1

CITY HALL • WINTER HAVEN, FLORIDA • GENE LEEDY, ARCHITECT

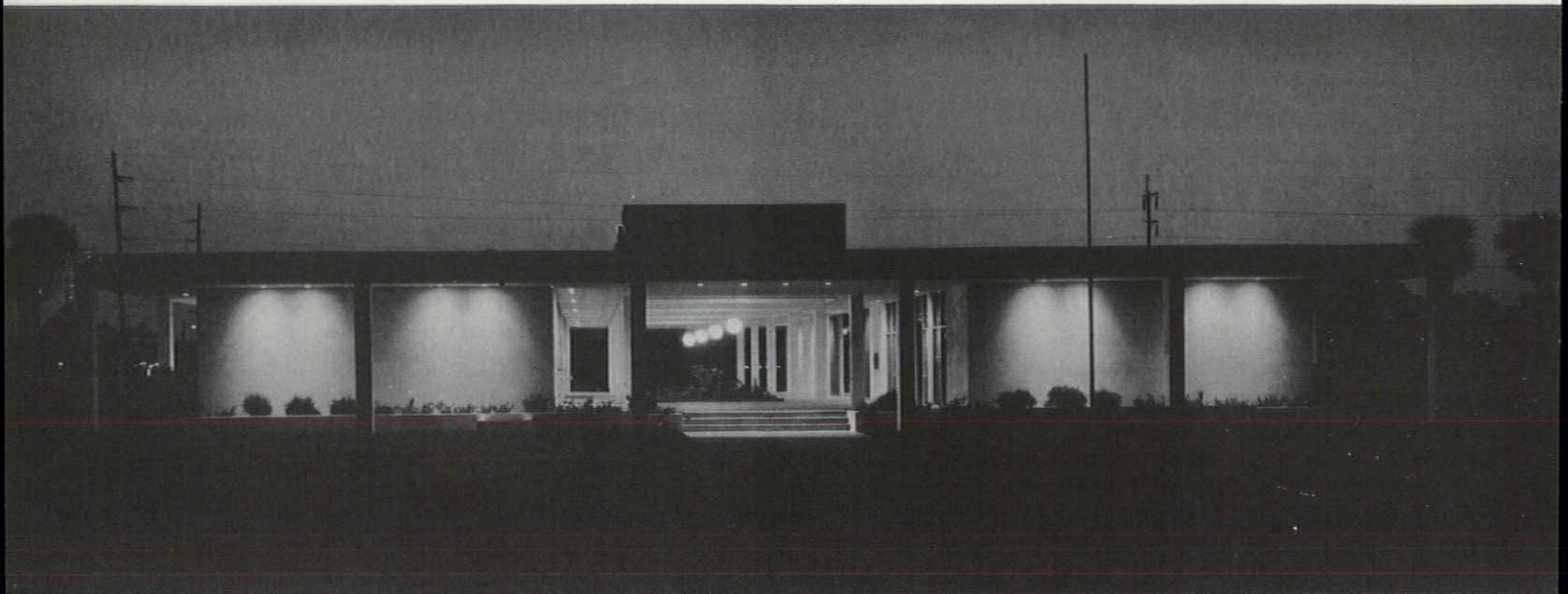
All the executive and administrative facilities of Winter Haven, except for the police and fire departments, are housed in this City Hall. The building is divided into three areas: one is the executive wing, which contains the Commission Room and the offices of the mayor and city manager; the second is the administrative area, comprised of the departments of finance, water, billing, building, and offices of the city clerk and treasurer; between these two office areas is a public concourse that provides a central access from the street and from a rear parking lot.

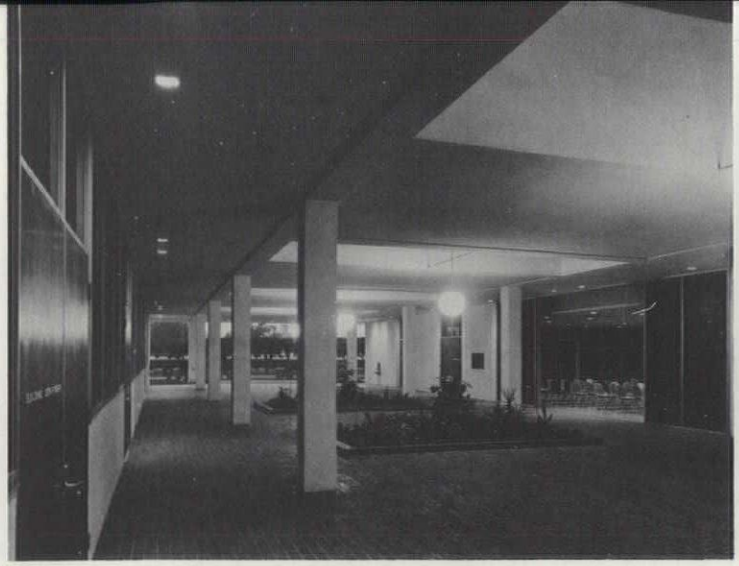
All three areas are covered by a roof structure of poured concrete beams with long-span steel joists between them resting on poured concrete columns. The nonbearing walls of the office wings are of concrete block and aluminum sliding glass door units. "All columns stand free of the walls in order to create a rhythmic, monumental atmosphere," states the architect. Four large monitors, which light the concourse, contribute to this objective.

The economy of the design is exemplified by the multiple functions of several areas. For example, each office area overlooks a courtyard that provides a semblance of seclusion. By opening sliding glass doors, the courtyard serves, in addition, to accommodate an overflow crowd from the Commission Room, which is designed for civic meetings and art exhibits. Similarly, an overflow can also be accommodated in the concourse, which is the central access to the building. When the concourse is used for this purpose, this central convergent access to City Hall becomes, functionally as well as linguistically, a public assembly.

PHOTOS: ALEXANDRE GEORGES

2





3 4

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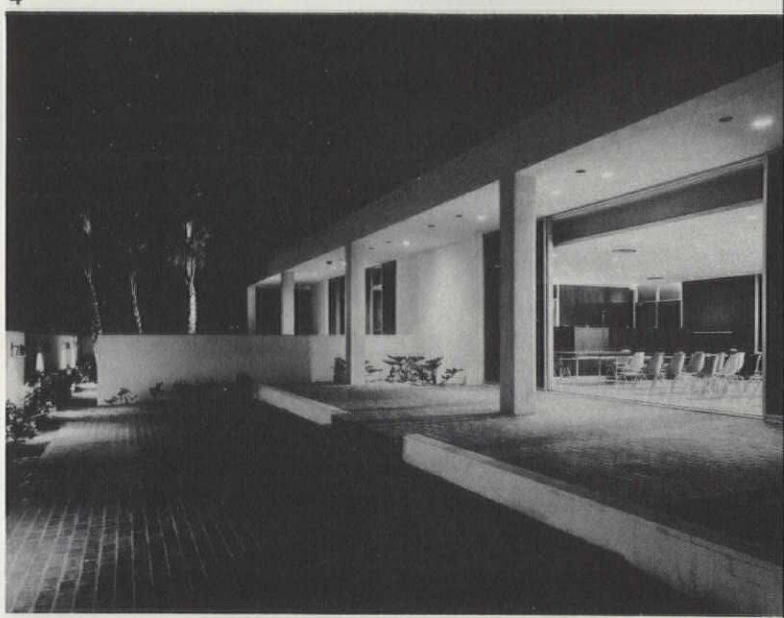

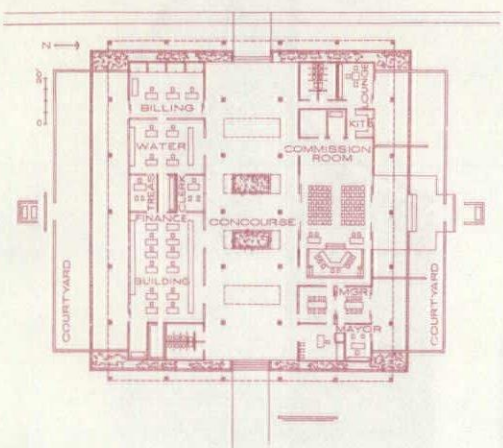

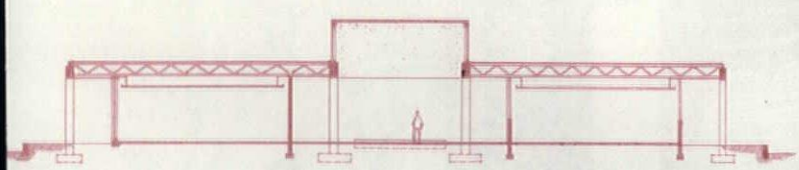

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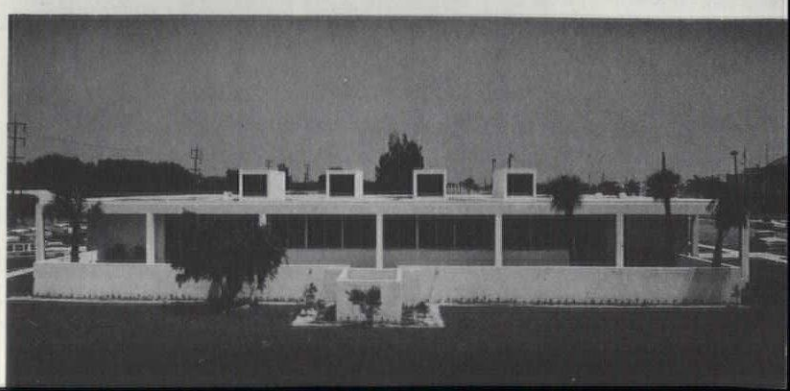
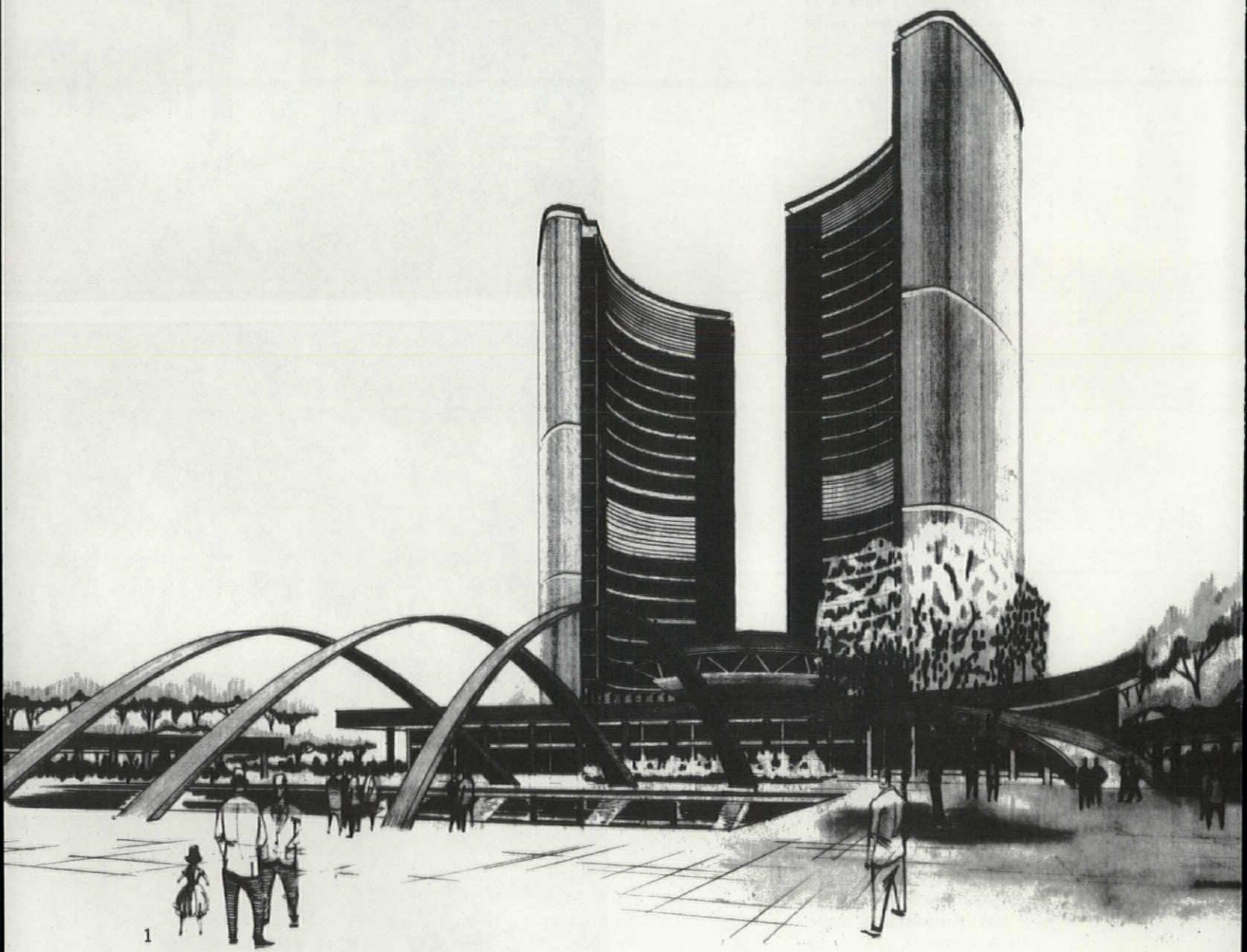


A roofed concourse ***(1, 2)*** *serves as a central access to the Winter Haven City Hall from the street and from a rear parking lot. The concourse is lighted by four monitors* ***(3, 7)****. Sliding glass doors to the Commission Room* ***(4)*** *can be opened so than an overflow crowd can be accommodated in the concourse. An overflow can also be handled in the courtyard* ***(5)*** *outside the Commission Room. Small cubicles that complement the courtyard wall* ***(6, 7)*** *house mechanical utilities. The building is raised on a brick-paved podium that incorporates planting beds. The structure, which is of concrete columns and beams with long-span steel joists, and the concrete block office walls, which stand free of the columns, are both finished with white sprayed-on stucco. The roof overhang provides sun protection and neatly incorporates lights for exterior illumination.*

Wind Loads on High Buildings of Unconventional Shape



1

BY N. SEETHALER AND
G. K. KORBACHER

Purpose of this article is: to familiarize the architect with the problems of wind loads on high buildings of unconventional shape; to demonstrate how wind loads, wind-load distributions and fluctuations can create critical structural problems in such buildings; to discuss the ways that are available today for the determination of wind loads, steady or oscillating; to demonstrate the usefulness of wind-tunnel model tests; and to give an idea of the costs involved in determining wind loads by means of such tests. The authors are, respectively: Consultant Engineer, Toronto; Associate Professor of Aeronautics/Astronautics, Institute of Aerophysics, University of Toronto.

The magnitude and distribution of wind loads on buildings depend on the shape of the structure and on the velocity and characteristics of the wind. As building shapes, with advances in technical know-how, tend to become more unorthodox, the question of wind velocity becomes more complex.

Effects of wind speeds on the surfaces of buildings depend not only on the shape of the structures, but also on their location (hill or valley) and surroundings (downtown or open country). These wind speeds also change with height above ground and with wind direction. In addition, wind velocities are nonuniform in time: i.e., natural winds are full of gusts. An exact determination of the acting wind loads on a building of given shape would, therefore, require: (a) knowledge of the characteristics of the natural wind as a function of height, location, and surroundings of the prospective building; and (b) knowledge of the changes in velocity that the natural wind undergoes as it follows the particular shape of the building.

Both cross section and height greatly affect the wind load on a structure. Circular cross sections, besides suffering from high-suction pressures at the sides (when viewed from upstream), may shed a "Karman Vortex Street" that would cause the wind loads to oscillate in the flow (drag) direction as well as crosswise **(3f)**. Shell-like structures, depending on the direction of the oncoming wind, may behave either as cylinders or as airfoils. If two shell-shaped buildings are erected in close proximity to one another **(1)**, they may behave as cylinders, airfoils, or as a diffuser. Wind loads, when shells act like airfoils, will be strongly nonuniform along the outside surfaces: i.e., high-suction (negative) pressure peaks may be followed by positive pressure peaks resulting in critical torsional loads. Needless to say, an analytical determination of either the magnitude or the distribution of wind loads on such structures is beyond our present-day knowledge. Oscillating torsional loads as a result of vortex shedding add still more complexity to an analytical treatment.

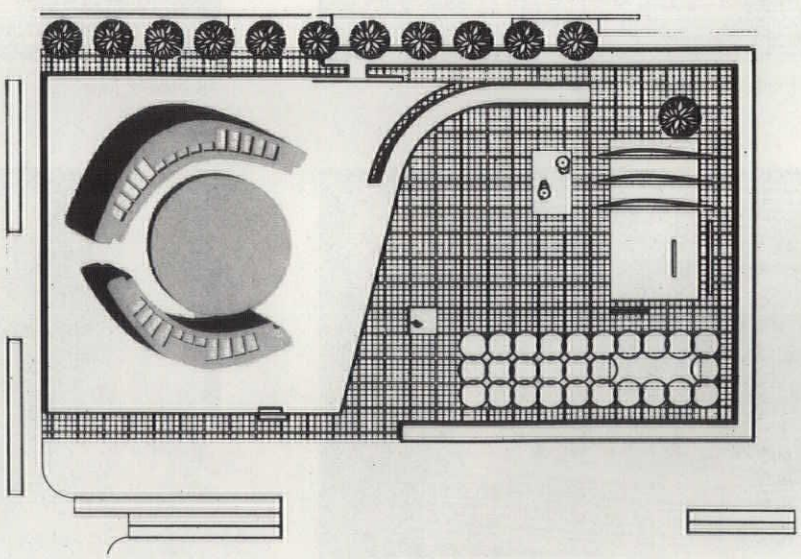
To illustrate these phenomena, let us consider the wind loads expected to act on the new Toronto City Hall **(1, 2)**.

Architecture, Structure, and Aerodynamic Shape

The new Toronto City Hall, now under construction, was designed by Viljo Revell, of Finland, who won the international competition for this project in 1958. Working drawings and engineering designs are being carried out by Viljo Revell–John B. Parkin Associates, of Toronto.

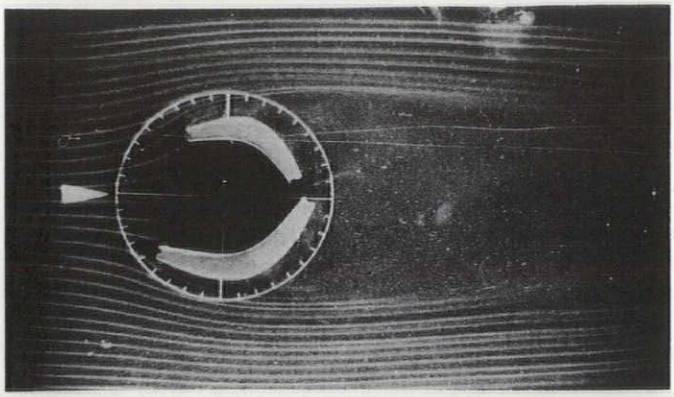
Two crescent-shaped towers rise to respective heights of about 290 ft and 225 ft above a two-story connecting podium. A round council chamber placed on the podium between the towers is roofed by a concrete dome about 30 ft high.

Framing of the towers consists of a vertical shell, columns and beams, and 6-in.-thick floor slabs **(4)**. Floor beams are cantilevered 16′-6″ from the face of the columns to the curtain wall. A section through the taller tower **(5)** shows the extreme slenderness of the "column-shell frame." This frame carries vertical loads

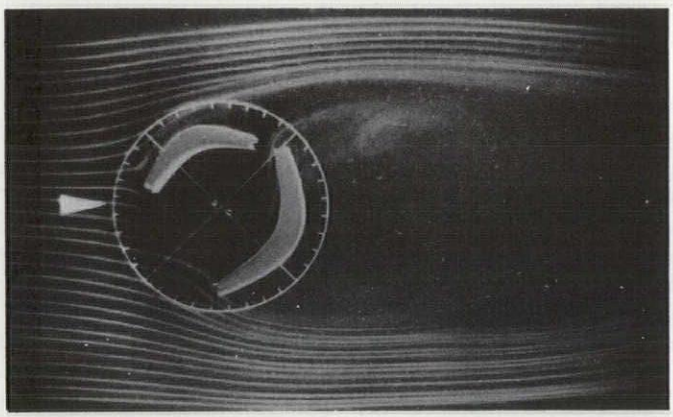


2 *Site Plan.*

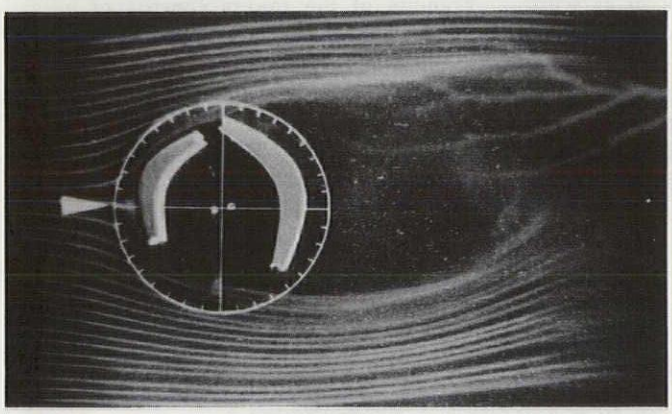
Streamline Patterns Around Model



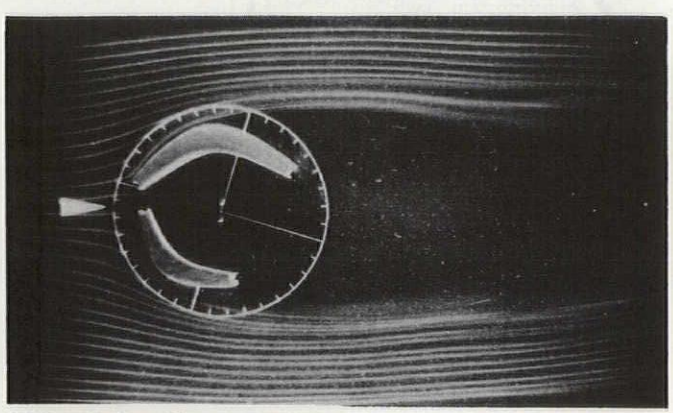
3a *Steady flow. Wide gap faces upstream.*



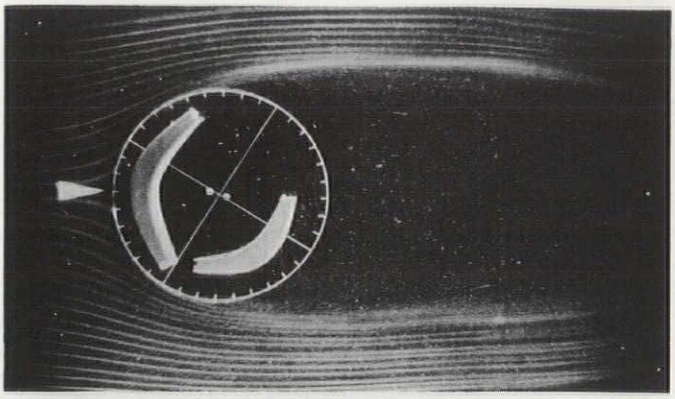
3b *Steady flow.*



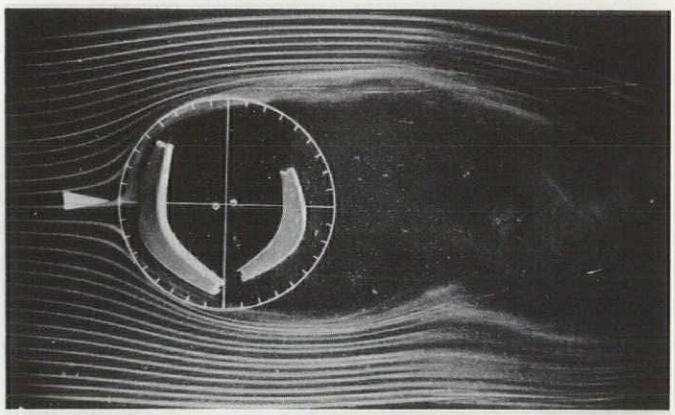
3c *Unsteady flow. Vortex shedding occurs.*



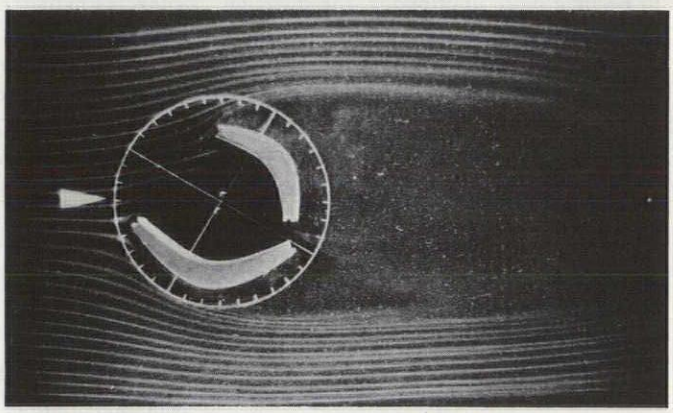
3d *Steady flow. Narrow gap faces upstream.*



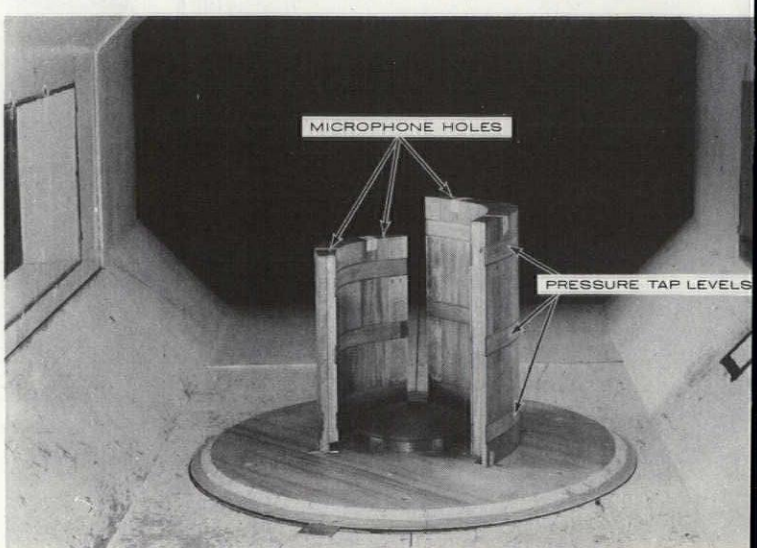
3e *Unsteady flow. Vortex shedding occurs.*



3f *Unsteady flow. Vortex shedding occurs.*



3g *Steady flow.*



3h *Original model of Toronto City Hall in UTIA subsonic wind tunnel.*

only. Horizontal loads (wind loads) are resisted by the vertical shell. Cantilevered cylindrical shells are relatively stiff for loads acting along the axis of symmetry, but are inherently weak for asymmetrical or torsional loads. However, torsional stiffness can be considerably improved by deep "edge beams" (note shells turning at the ends of the towers **4**).

Aerodynamically, the cross-sectional shape of both towers, resembling that of a cambered airfoil, suggested that considerable asymmetrical and torsional wind loads were to be expected. However, neither their nature nor their magnitude could be predicted, not even within a 100 per cent margin, primarily due to aerodynamic interaction as a result of the two towers being positioned so close to one another. Therefore, wind-tunnel tests of a City Hall model were mandatory to obtain the wind-load information required for the structural design.

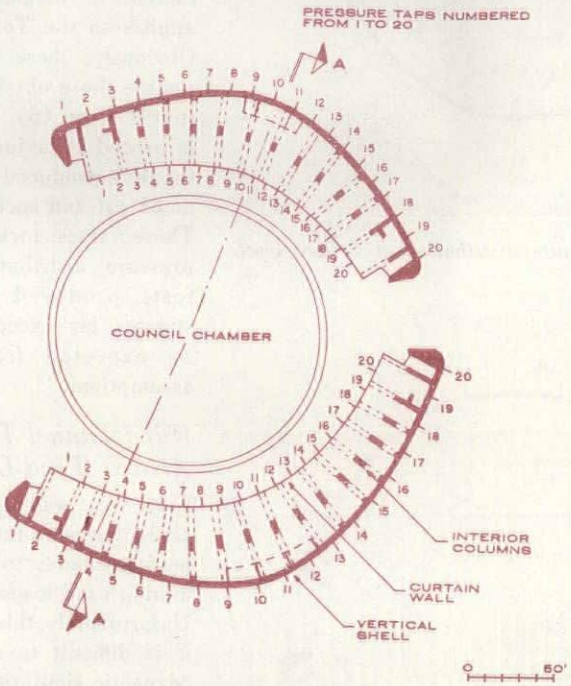
Model Wind-Tunnel Test Results[1,2]

A model of the City Hall was tested in the wind tunnel of the Institute of Aerophysics, University of Toronto, at a wind speed of about 115 mph **(3h)**. How the flow around the shells changes with wind direction is shown in the smoke tunnel pictures **(3a–3g)**. Note that vortex shedding (unsteady flow) occurred with both towers (**3c**, small tower; **3e**, and **3f**, large tower). Vortex shedding produces oscillating wind loads on any structure, the frequency of which, if in resonance with the natural frequency of the structure, may lead to its destruction due to a resonance-load buildup.[3,4] Under wind directions other than those that produce vortex shedding, wind loads are steady but their distribution could inflict torsional loads on the building **(6)**. In this and the following diagrams, arrows indicate the direction of the wind loads, and the lengths of the vectors are proportional to their magnitude. As these loads **(6)** can change from suction ($C_p = -1.8$) to pressure ($C_p = +1.6$), the resulting torsional load can be highly critical for structures that are inherently weak against asymmetric loading. For other wind directions, loads may be either peaked **(7)**, or almost uniformly distributed **(8)**. Effect of height on wind loads or their distribution is rather small.

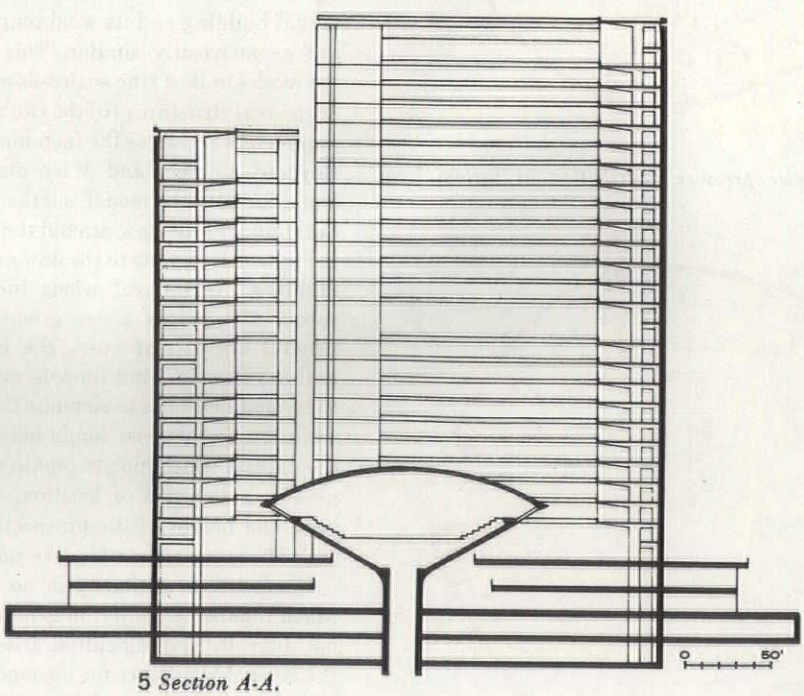
Corner pressures vary with the direction of the oncoming wind **(9)**. Note the high-suction pressure on corner 2. In addition to structural-load calculations, the pressure distributions obtained from wind-tunnel testing also have to be consulted for the determination of wind loads on

NOTATIONS

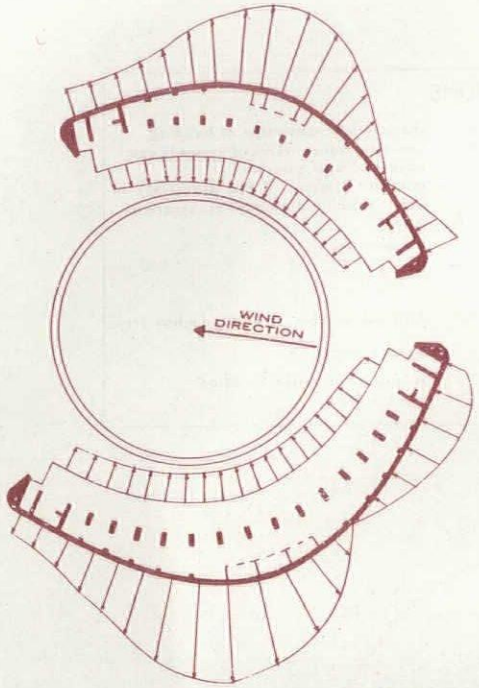
C_p	dimensionless pressure $= \frac{p - p_\infty}{\frac{\rho}{2} U_\infty^2}$	d	characteristic dimension of building
		$\overline{p}$	root-mean-square value of unsteady component of wall pressure
p	local wall pressure	p_o	reference pressure (0.0002 dynes/cm)
p_∞	ambient tunnel pressure	U_s	wake velocity (velocity at separation point)
U_∞	stream velocity	C_{ps}	$= \frac{ps - p\infty}{\frac{\rho}{2} U_\infty^2}$
ρ	mass density of air		
$\frac{\rho}{2} U_\infty^2$	dynamic pressure of flow (maximum value that $(p - p_\infty)$ can attain)	St	Strouhal number, a dimensionless frequency $= \frac{fd}{U_\infty}$
μ	viscosity of air		
Re	Reynolds number $= \frac{U_\infty d \rho}{\mu}$	f	frequency of vortex shedding
		d′	wake width



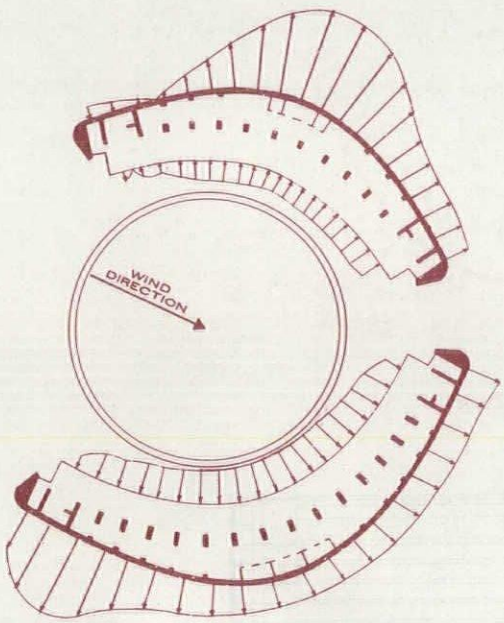
4 *Typical Floor Plan of Tower.*



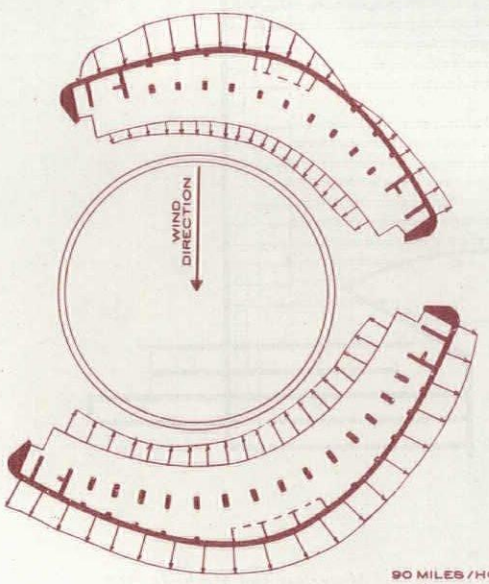
5 *Section A-A.*



6 *Chordwise pressure distribution at bottom level.*



7 *Chordwise pressure distribution at bottom level.*



8 *Chordwise pressure distribution at bottom level.*

windows, and for the location of openings such as those for ventilation ducts.

Wind Loads According to Building Code

To demonstrate the inadequacy of present-day building codes, let us consider Toronto's, which states:

"All buildings shall be designed to resist a horizontal wind pressure in any direction of 20 pounds per square foot of vertical projection except that: on all surfaces above 300 ft level, the wind pressure shall be increased by 10 per cent for each additional 100 ft or fraction thereof in height." Consider how this applies to the Toronto City Hall **(10)**. Obviously, these loads in no way resemble those obtained from model wind-tunnel tests **(6)**. The architect himself is quoted as saying: "The final results of the tests produced wind pressures as high as 31 psf and suctions as high as 72 psf. These values, together with the unusual pressure distributions found from the tests, produced torsion and bending stresses far exceding those that would be expected from standard design assumptions."[1]

Wind-Tunnel Tests As a Means of Actual Wind-Load Determination

From what was said earlier, one may conclude that wind-tunnel model tests are the perfect answer to the problem of determining wind loads on full-scale buildings. Unfortunately, this is not the case, because it is difficult to achieve what is called "dynamic similarity."

Meaning of Dynamic Similarity

Dynamic similarity means that: (a) the actual building and its wind-tunnel model are geometrically similar. This requires the model to be a true scaled-down replica of the real structure; (b) the two similarity parameters known as the (nondimensional) Reynolds number and Mach number are equal for both the model and the full-scale building; (c) the flow around the model in the tunnel is similar to the flow around the building. As natural winds increase in speed with height above ground and in general are full of gusts, the inherently uniform flow in wind tunnels would have to be modified so as to simulate the natural wind. To do this, one would have to know the natural wind-velocity profile and gustiness as a function of location, surroundings, and height of the prospective building. These unfortunately, are not known.

Geometrical similarity is no problem. Mach number equality, in general, is also not difficult. The difficulties arise because the Reynolds number for the model can in practice rarely be made equal to that of the building; and because a simulation of natural-wind profiles and gusts in wind tunnels, which in itself is a tricky problem, can only be attempted after one knows more about the characteristics of the natural wind.[5] The Reynolds number is defined as,

$$\mathrm{Re} = \frac{U_\infty d \rho}{\mu}$$

Assuming that, as in the case of the Toronto City Hall, the wind velocity U_∞, density ρ, and viscosity μ, of the model and full scale are about the same, the Reynolds number ratio,

$$\frac{\mathrm{Re_{bldg.}}}{\mathrm{Re_{model}}} = \text{model scale factor} \simeq 250$$

This means that for a $\mathrm{Re_{model}} \simeq 100{,}000$ the full scale Reynolds number $\mathrm{Re_{bldg.}} \simeq$ 25 million. This Re-range is in itself not a problem, provided that the force coefficients (the pressure coefficient C_p, or the drag coefficient C_D) do not change drastically over this Re-range. What is meant is demonstrated **(11)** for the drag coefficient of a cylinder. If, over the Re-range, the drag coefficient does not change at all, model test force coefficients could directly be applied to the full-scale building. If, however, the Re-range contains the "critical" Reynolds number $\mathrm{Re_c}$, which causes a very abrupt change in force coefficient **(11)**, application becomes rather problematic. To a lesser degre, this applies also if the force coefficient is not constant over the Re-range. In practice, one tries to keep the model Reynolds number above the critical.

The consequences of testing a model in the conventional uniform wind-turnnel flow, rather than in one which simulates the natural wind, are that the determined building loads are too conservative: i.e., the structural design will be on the safe side.

Cost of Wind-Tunnel Testing

In spite of shortcomings, wind-tunnel testing is, and will be for a long time, the only readily available source for wind-load data, at least for high buildings of unorthodox shapes, and especially if asymmetric pressure distributions and/or oscillating wind forces have to be expected. What do such tests cost?

The testing of the Toronto City Hall model required 304 man-hours in the wind-tunnel laboratory. This figure includes setting up and conducting the tests, as well as the evaluation, plotting, and presentation of the test data in a suitable form for the structural engineer. The total cost, including planning, test supervision, and a 35 per cent overhead was less than $3000. Cost of the model was approximately $500 extra.

The cost of wind-tunnel testing may be considerably higher elsewhere, depending

on factors such as size of wind tunnel, operating cost, overhead, and so on. However, whatever the costs may be, an expense of the above order as part of a multimillion-dollar project is trivial.

Conclusions

For safe and proficient structural design of high buildings of unorthodox shape, wind loads have to be incorporated. Wind-tunnel model tests for the determination of the magnitude, distribution, and fluctuation of such wind loads have been shown to be useful.

Steady pressure distributions on the full-scale building can be predicted fairly accurately from those on the wind-tunnel model, since viscous effects are negligible except in the regions of separated flow. The pressure coefficient in these regions is likely to be higher on the full-scale building than on the model.

The pressure distributions on the outside walls of the Toronto City Hall are mainly responsible for the critical torsional loads on the towers; the inside pressure distributions contribute primarily to bending loads. No definite prediction can be made concerning the amplitude and frequency of the fluctuating pressures on the City Hall due to vortex shedding, if vortex shedding should occur. In this case, buffeting of the towers with possibly large torsional amplitudes would result if their Strouhal number, at some wind speed, would coincide with their natural torsional frequency. A design remedy is to provide adequate torsional stiffness by raising the natural frequency of the towers above the frequency range of possible vortex shedding.

Acknowledgements

Work described in this paper was initiated and supported by Viljo Revell–John B. Parkin Associates, architects for the new Toronto City Hall. The wind-tunnel tests on the City Hall model were planned and directed by Professors B. Etkin and G. K. Korbacher of the Institute of Aerophysics, University of Toronto. Testing and data reduction were carried out by R. G. A. Chisholm, R. Grenda, G. Kurylowich, and K. Dau, research assistants of the Institute of Aerophysics.

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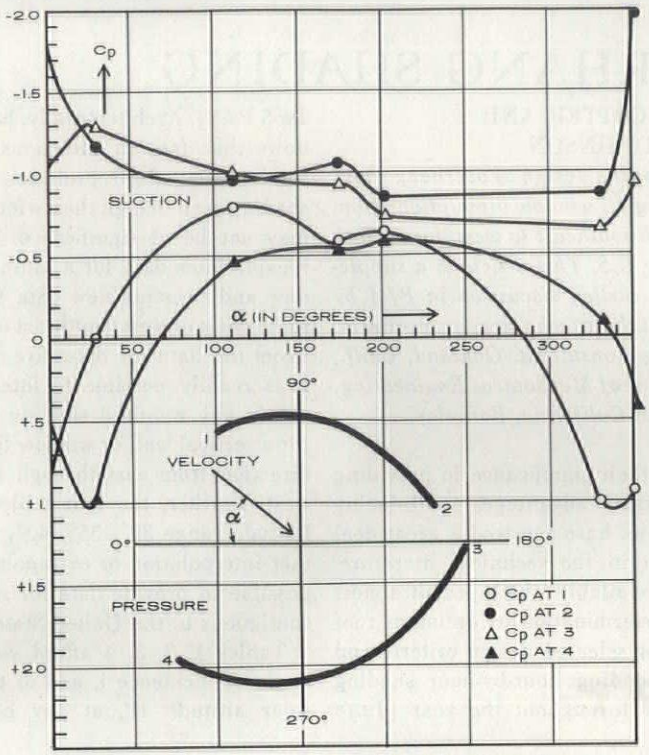
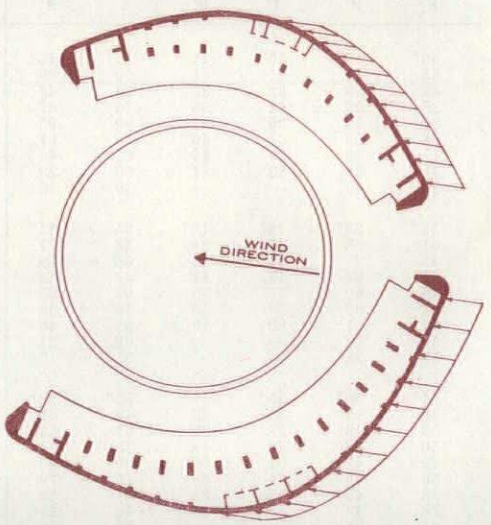
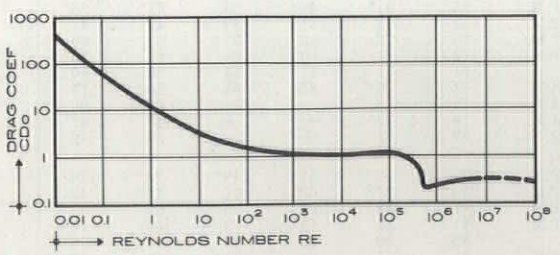
2. G. K. Korbacher, and N. Seethaler, "Wind Loads on High Buildings of Unconventional Shape." To be published.
3. A. Roshko, "On the Drag and Shedding Frequency of Two-Dimensional Bluff Bodies," *NACA TN 3169*, July 1954.
4. A. Roshko, "Flow Past a Circular Cylinder at Very High Reynolds Number," *Journal of Fluid Mechanics*, Vol. 10, Part 3, May 1961.
5. A. G. Davenport, "Wind Loads on Structures," National Research Council, Ottawa, *Paper No. 88 of Div. of Build. Research, 1960.*



9 *Variation of corner pressures with angle of attack on revised model.*



10 *Wind load according to the Toronto Building Code.*



11 *Drag coefficient for circular cylinder.*

OVERHANG SHADING

BY M. O. COTTER AND
F. W. HUTCHINSON

New data for the design of overhang shading, covering all window orientations from east through southeast to west, for all latitudes in the U.S. This article is a supplement to an earlier discussion in P/A by the same authors, who are, respectively, Engineering Consultant, Oakland, Calif., and Professor of Mechanical Engineering, University of California, Berkeley.

Because of their significance in providing winter thermal advantage, south-facing solar windows have received a great deal of attention in the technical literature. Tables are available which permit almost effortless determination of optimum roof overhang for selected design criteria and the corresponding hour-by-hour shading effectiveness throughout the year [JUNE 1955 P/A]. Architecturally, however, windows that face in directions other than south often afford problems in summer shading even though their winter heat gain may not be of significance. This article recapitulates data for a south-facing window and presents new data for windows facing east or west, southeast or southwest. From the data for these five orientations, it is readily possible to interpolate and obtain any required shading information for a vertical wall or window facing in any direction from east through southeast to west. Further, the four tables cover the latitude range 30°, 35°, 40°, and 45°, so that interpolation or extrapolation is also possible to provide data for any location contiguous to the United States.

Tables 1, 2, 3, 4 afford values of the angle of incidence i, and of the *effective* solar altitude H', at any hour on the twenty-first day of any month. (Variations between months are not large; hence, if greater precision as to day of the month is needed, linear interpolation between tabular values is possible.) The angle of incidence is useful in investigation of glare effects and in calculations of absorption or transmission of solar energy.

The fraction of window or wall area that is shaded can be calculated by determining the *effective* solar altitude and the length of roof overhang. In order to visualize the significance of effective altitude (*Fig. 1*), recall that at solar noon the horizontal projection of the sun's rays shown (*Fig. 1a*) is normal to a south-facing window. At this same time (*Fig. 1b*), the true solar altitude H will also be the effective solar altitude. At any other time, however, the horizontal projection of the sun's rays will make an angle B (*Fig. 2a*) with a south-facing window, and the true solar altitude as measured in a vertical plane through the hori-

TABLE 1: LATITUDE 30°

Facing:	South		Southeast or Southwest		East or West	
Solar Time South Southeast Southwest East West	Angle of Incidence i	Effective Solar Altitude H'	Angle of Incidence i	Effective Solar Altitude H'	Angle of Incidence i	Effective Solar Altitude H'
Dec.						
8 A.M., 4 P.M.	56°	19°	15°	11°	36°	13°
9 A.M., 3 P.M.	48	28	21	21	50	29
10 A.M., 2 P.M.	42	33	32	30	62	46
11 A.M., 1 P.M.	38	36	44	38	76	67
12 NOON	37	37	56	47	90	90
1 P.M., 11 A.M.	38	36	67	56	76	67
2 P.M., 10 A.M.	42	33	79	68	62	46
3 P.M., 9 A.M.	48	28	89	87	50	29
4 P.M., 8 A.M.	56	19	—	—	36	13
Jan. or Nov.						
8 A.M., 4 P.M.	58°	23°	18°	13°	35°	15°
9 A.M., 3 P.M.	51	33	25	24	48	31
10 A.M., 2 P.M.	45	37	34	33	63	49
11 A.M., 1 P.M.	41	39	45	41	76	68
12 NOON	40	40	57	50	90	90
1 P.M., 11 A.M.	41	39	69	60	76	68
2 P.M., 10 A.M.	45	37	80	72	63	49
3 P.M., 9 A.M.	51	33	—	—	48	31
4 P.M., 8 A.M.	58	23	—	—	35	15
Feb. or Oct.						
8 A.M., 4 P.M.	64°	36°	25°	19°	32°	20°
9 A.M., 3 P.M.	58	43	30	29	46	35
10 A.M., 2 P.M.	53	46	39	39	61	52
11 A.M., 1 P.M.	50	48	50	48	75	70
12 NOON	49	49	62	60	90	90
1 P.M., 11 A.M.	50	48	74	69	75	70
2 P.M., 10 A.M.	53	46	85	83	61	52
3 P.M., 9 A.M.	58	43	—	—	46	35
4 P.M., 8 A.M.	64	36	—	—	32	20
Mar. or Sept.						
8 A.M., 4 P.M.	76°	58°	38°	28°	30°	27°
9 A.M., 3 P.M.	70	58	41	41	46	42
10 A.M., 2 P.M.	65	59	49	49	64	56
11 A.M., 1 P.M.	60	59	58	57	75	73
12 NOON	60	59	69	69	90	90
1 P.M., 11 A.M.	60	59	81	79	75	73
2 P.M., 10 A.M.	65	59	—	—	64	56
3 P.M., 9 A.M.	70	58	—	—	46	42
4 P.M., 8 A.M.	76	58	—	—	30	27
Apr. or Aug.						
8 A.M., 4 P.M.	85°	81°	49°	39°	32°	32°
9 A.M., 3 P.M.	79	75	51	48	47	47
10 A.M., 2 P.M.	75	72	58	57	61	60
11 A.M., 1 P.M.	72	71	66	66	76	75
12 NOON	71	71	77	77	90	90
1 P.M., 11 A.M.	72	71	88	88	76	75
2 P.M., 10 A.M.	75	72	—	—	61	60
3 P.M., 9 A.M.	79	75	—	—	47	47
4 P.M., 8 A.M.	85	81	—	—	32	32
May or July						
8 A.M., 4 P.M.	—	—	58°	48°	36°	36°
9 A.M., 3 P.M.	70°	87°	60	57	48	48
10 A.M., 2 P.M.	84	83	66	65	62	62
11 A.M., 1 P.M.	81	81	73	73	76	76
12 NOON	80	80	83	83	90	90
1 P.M., 11 A.M.	81	81	—	—	76	76
2 P.M., 10 A.M.	84	83	—	—	62	62
3 P.M., 9 A.M.	70	87	—	—	48	48
4 P.M., 8 A.M.	—	—	—	—	36	36
June						
8 A.M., 4 P.M.	—	—	61°	51°	38°	37°
9 A.M., 3 P.M.	—	—	64	61	51	51
10 A.M., 2 P.M.	87°	86°	69	68	63	63
11 A.M., 1 P.M.	84	84	77	77	77	77
12 NOON	84	84	86	86	90	90
1 P.M., 11 A.M.	84	84	—	—	77	77
2 P.M., 10 A.M.	87	86	—	—	63	63
3 P.M., 9 A.M.	—	—	—	—	51	51
4 P.M., 8 A.M.	—	—	—	—	38	37

TABLE 2: LATITUDE 35°

Facing:	South		Southeast or Southwest		East or West	
Solar Time South Southeast Southwest East West	Angle of Incidence i	Effective Solar Altitude H'	Angle of Incidence i	Effective Solar Altitude H'	Angle of Incidence i	Effective Solar Altitude H'
Dec.						
8 A.M., 4 P.M.	55°	17°	13°	10°	37°	12°
9 A.M., 3 P.M.	46	23	18	17	49	24
10 A.M., 2 P.M.	38	27	28	25	62	41
11 A.M., 1 P.M.	33	30	40	33	76	64
12 NOON	31	31	53	42	90	90
1 P.M., 11 A.M.	33	30	65	50	76	64
2 P.M., 10 A.M.	38	27	77	61	62	41
3 P.M., 9 A.M.	46	23	88	83	49	24
4 P.M., 8 A.M.	55	17	—	—	37	12
Jan. or Nov.						
8 A.M., 4 P.M.	57°	19°	16°	11°	14°	11°
9 A.M., 3 P.M.	49	29	21	21	49	28
10 A.M., 2 P.M.	42	32	31	29	62	45
11 A.M., 1 P.M.	36	33	42	35	76	65
12 NOON	35	35	55	45	90	90
1 P.M., 11 A.M.	36	33	67	53	76	65
2 P.M., 10 A.M.	42	32	79	67	62	45
3 P.M., 9 A.M.	49	29	—	—	49	28
4 P.M., 8 A.M.	57	19	—	—	14	11
Feb. or Oct.						
8 A.M., 4 P.M.	63°	33°	24°	18°	32°	19°
9 A.M., 3 P.M.	57	40	28	27	45	33
10 A.M., 2 P.M.	50	42	37	36	61	50
11 A.M., 1 P.M.	45	43	47	44	75	69
12 NOON	44	44	58	45	90	90
1 P.M., 11 A.M.	45	43	71	64	75	69
2 P.M., 10 A.M.	50	42	84	79	61	50
3 P.M., 9 A.M.	57	40	—	—	45	33
4 P.M., 8 A.M.	63	33	—	—	32	19
Mar. or Sept.						
8 A.M., 4 P.M.	74°	53°	36°	27°	31°	27°
9 A.M., 3 P.M.	66	54	38	36	47	43
10 A.M., 2 P.M.	61	54	45	45	61	57
11 A.M., 1 P.M.	56	54	55	54	75	73
12 NOON	56	55	67	66	90	90
1 P.M., 11 A.M.	56	54	78	72	75	73
2 P.M., 10 A.M.	61	54	—	—	61	57
3 P.M., 9 A.M.	66	54	—	—	47	43
4 P.M., 8 A.M.	74	53	—	—	31	27
Apr. or Aug.						
8 A.M., 4 P.M.	83°	77°	47°	37°	32°	32°
9 A.M., 3 P.M.	77	71	49	45	47	45
10 A.M., 2 P.M.	72	69	55	55	62	61
11 A.M., 1 P.M.	67	66	63	62	75	74
12 NOON	66	66	73	74	90	90
1 P.M., 11 A.M.	67	66	85	84	75	74
2 P.M., 10 A.M.	72	69	—	—	62	61
3 P.M., 9 A.M.	77	71	—	—	47	45
4 P.M., 8 A.M.	83	77	—	—	32	32
May or July						
8 A.M., 4 P.M.	—	—	56°	47°	36°	36°
9 A.M., 3 P.M.	84°	82°	58	55	50	49
10 A.M., 2 P.M.	79	78	63	62	62	62
11 A.M., 1 P.M.	76	76	69	70	76	76
12 NOON	75	75	79	79	90	90
1 P.M., 11 A.M.	76	76	—	—	76	76
2 P.M., 10 A.M.	79	78	—	—	62	62
3 P.M., 9 A.M.	84	82	—	—	50	49
4 P.M., 8 A.M.	—	—	—	—	36	36
June						
8 A.M., 4 P.M.	—	—	59°	50°	38°	38°
9 A.M., 3 P.M.	87°	86°	61	58	51	51
10 A.M., 2 P.M.	82	81	66	66	64	65
11 A.M., 1 P.M.	79	79	73	73	77	77
12 NOON	78	78	82	81	90	90
1 P.M., 11 A.M.	79	79	—	—	77	77
2 P.M., 10 A.M.	82	81	—	—	64	65
3 P.M., 9 A.M.	87	86	—	—	51	51
4 P.M., 8 A.M.	—	—	—	—	38	38

zontal projection (*Fig. 2b*) will no longer equal the effective altitude. Thus, the *effective* solar altitude (*Fig. 2c*), as measured in a vertical plan normal to the window would be the angle whose tangent is z/x. For windows facing in *any* direction, the effective solar altitude would likewise be obtained from a knowledge of the projected horizontal angle B (*Fig. 2a*) and the corresponding true solar altitude.

Examination shows (*Fig. 2*) that the effective altitude exceeds the true altitude at all times except when angle B is zero. It is evident that, with H′ known, the position of the shading line on the wall or window is directly determinable as a function of overhang (*Fig. 3*).

Example: A 5-ft high window is positioned in a 9-ft wall so that the distance from the bottom of the window to the floor is 3 ft. The wall faces southwest and the latitude is 35°. Overhang (*Fig. 3*) is 24 in. Determine the fraction of window area that will be shaded at 3 P.M. in August.

Solution: For 35° latitude, Table 2 applies. The left column of this table gives solar time and the heading indicates that for a southwest-facing wall the right-hand time scale (running down from 4 P.M. to 8 A.M.) applies. Thus, entering the right-hand scale at 3 P.M. in the month of August and moving right to the fifth column, the value of the effective solar angle is read as 45°. Drawing a line at this angle through the overhang edge on a scale drawing (*Fig. 3*) immediately establishes the location of the shadow line on the window. In this particular case, the upper 1 ft of the window is shaded; hence 20 per cent of window area is shaded (assuming the window is square or rectangular) and the remaining 80 per cent is irradiated.

For a nonrectangular window, the shadow line would be determined as above, but the area above it would then be determined by measurement or calculation.

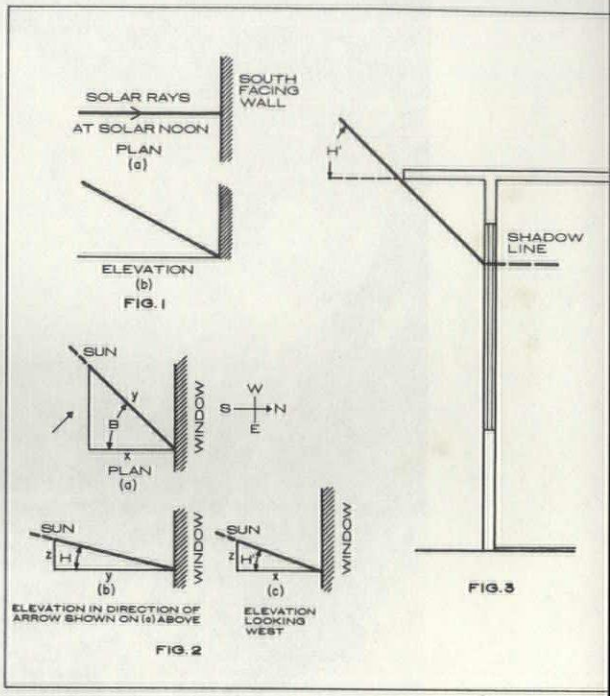
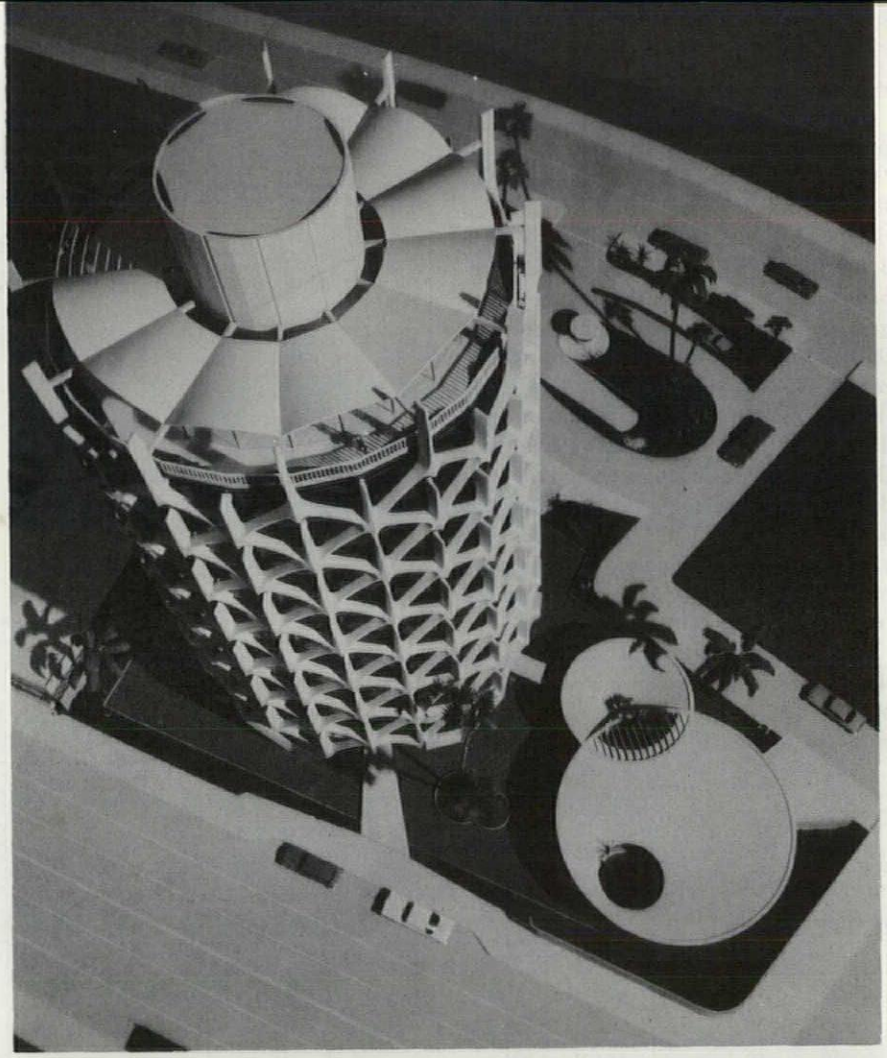


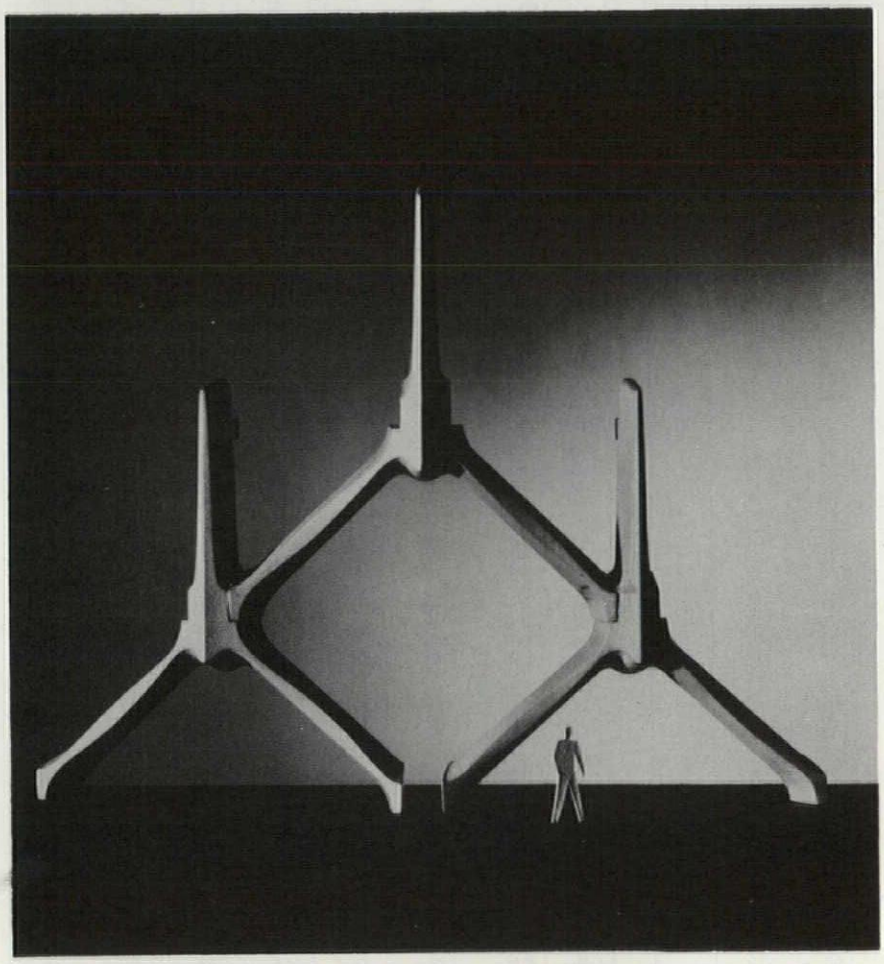
TABLE 3: LATITUDE 40°

Facing:	South		Southeast or Southwest		East or West	
Solar Time South Southeast Southwest East West	Angle of Incidence i	Effective Solar Altitude H′	Angle of Incidence i	Effective Solar Altitude H′	Angle of Incidence i	Effective Solar Altitude H′
Dec.						
8 A.M., 4 P.M.	55°	15°	13°	9°	37°	11°
9 A.M., 3 P.M.	44	19	14	14	50	20
10 A.M., 2 P.M.	35	23	25	20	63	37
11 A.M., 1 P.M.	28	25	38	27	76	60
12 NOON	25	25	50	33	90	90
1 P.M., 11 A.M.	28	25	63	48	76	60
2 P.M., 10 A.M.	35	23	75	53	63	37
3 P.M., 9 A.M.	44	19	87	78	50	20
4 P.M., 8 A.M.	55	15	—	—	37	11
Jan. or Nov.						
8 A.M., 4 P.M.	56°	16°	14°	9°	35°	11°
9 A.M., 3 P.M.	46	22	16	16	48	22
10 A.M., 2 P.M.	38	27	28	25	62	41
11 A.M., 1 P.M.	32	29	39	31	75	61
12 NOON	29	29	52	38	90	90
1 P.M., 11 A.M.	32	29	66	53	75	61
2 P.M., 10 A.M.	38	27	77	61	62	41
3 P.M., 9 A.M.	46	22	89	86	48	22
4 P.M., 8 A.M.	56	16	—	—	35	11
Feb. or Oct.						
8 A.M., 4 P.M.	63°	30°	23°	16°	31°	17°
9 A.M., 3 P.M.	53	34	24	24	46	31
10 A.M., 2 P.M.	46	37	33	32	61	47
11 A.M., 1 P.M.	41	38	45	40	76	68
12 NOON	39	39	57	49	90	90
1 P.M., 11 A.M.	41	38	69	59	76	68
2 P.M., 10 A.M.	46	37	82	75	61	47
3 P.M., 9 A.M.	53	34	—	—	46	31
4 P.M., 8 A.M.	63	30	—	—	31	17
Mar. or Sept.						
8 A.M., 4 P.M.	72°	48°	33°	24°	23°	25°
9 A.M., 3 P.M.	63	48	34	33	45	38
10 A.M., 2 P.M.	57	49	41	41	60	53
11 A.M., 1 P.M.	51	50	51	49	75	71
12 NOON	50	50	63	59	90	90
1 P.M., 11 A.M.	51	50	75	71	75	71
2 P.M., 10 A.M.	57	49	89	88	60	53
3 P.M., 9 A.M.	63	48	—	—	45	38
4 P.M., 8 A.M.	72	48	—	—	23	25
Apr. or Aug.						
8 A.M., 4 P.M.	80°	72°	44°	35°	32°	31°
9 A.M., 3 P.M.	74	67	46	43	46	44
10 A.M., 2 P.M.	67	64	51	51	61	60
11 A.M., 1 P.M.	63	62	60	58	76	74
12 NOON	61	61	70	69	90	90
1 P.M., 11 A.M.	63	62	81	81	76	74
2 P.M., 10 A.M.	67	64	—	—	61	60
3 P.M., 9 A.M.	74	67	—	—	46	44
4 P.M., 8 A.M.	80	72	—	—	32	31
May or July						
8 A.M., 4 P.M.	88°	86°	53°	43°	35°	35°
9 A.M., 3 P.M.	81	77	54	51	50	48
10 A.M., 2 P.M.	75	73	58	58	62	60
11 A.M., 1 P.M.	72	70	66	66	76	75
12 NOON	70	70	76	76	90	90
1 P.M., 11 A.M.	72	70	—	86	76	75
2 P.M., 10 A.M.	75	73	—	—	62	60
3 P.M., 9 A.M.	81	77	—	—	50	48
4 P.M., 8 A.M.	88	86	—	—	35	35
June						
8 A.M., 4 P.M.	—	—	56°	48°	38°	38°
9 A.M., 3 P.M.	84°	82°	58	55	50	50
10 A.M., 2 P.M.	78	77	63	63	63	63
11 A.M., 1 P.M.	74	74	69	69	76	76
12 NOON	74	73	79	78	90	90
1 P.M., 11 A.M.	74	74	—	88	76	76
2 P.M., 10 A.M.	78	77	—	—	63	63
3 P.M., 9 A.M.	84	82	—	—	50	50
4 P.M., 8 A.M.	—	—	—	—	38	38

TABLE 4: LATITUDE 45°

Facing:	South		Southeast or Southwest		East or West	
Solar Time South Southeast Southwest East West	Angle of Incidence i	Effective Solar Altitude H′	Angle of Incidence i	Effective Solar Altitude H′	Angle of Incidence i	Effective Solar Altitude H′
Dec.						
8 A.M., 4 P.M.	54°	5°	12°	9°	38°	11°
9 A.M., 3 P.M.	42	14	12	11	50	17
10 A.M., 2 P.M.	31	15	21	14	63	26
11 A.M., 1 P.M.	23	19	35	21	76	51
12 NOON	22	22	49	29	90	90
1 P.M., 11 A.M.	23	19	62	33	76	51
2 P.M., 10 A.M.	31	15	73	38	63	26
3 P.M., 9 A.M.	42	14	86	70	50	17
4 P.M., 8 A.M.	54	5	—	—	38	11
Jan. or Nov.						
8 A.M., 4 P.M.	55°	10°	13°	8°	36°	10°
9 A.M., 3 P.M.	45	18	13	13	48	19
10 A.M., 2 P.M.	34	19	23	18	61	31
11 A.M., 1 P.M.	27	23	36	25	75	56
12 NOON	24	24	50	33	90	90
1 P.M., 11 A.M.	27	23	63	40	75	56
2 P.M., 10 A.M.	34	19	76	50	61	31
3 P.M., 9 A.M.	45	18	88	89	48	19
4 P.M., 8 A.M.	55	10	—	—	36	10
Feb. or Oct.						
8 A.M., 4 P.M.	62°	25°	21°	14°	32°	15°
9 A.M., 3 P.M.	52	31	22	22	46	29
10 A.M., 2 P.M.	42	32	29	27	60	42
11 A.M., 1 P.M.	36	33	42	35	76	65
12 NOON	34	34	54	45	90	90
1 P.M., 11 A.M.	36	33	67	53	76	65
2 P.M., 10 A.M.	42	32	80	70	60	42
3 P.M., 9 A.M.	52	31	—	—	46	29
4 P.M., 8 A.M.	62	25	—	—	32	15
Mar. or Sept.						
8 A.M., 4 P.M.	70°	44°	31°	22°	31°	24°
9 A.M., 3 P.M.	61	44	31	30	45	36
10 A.M., 2 P.M.	53	44	38	38	60	51
11 A.M., 1 P.M.	47	44	49	47	75	70
12 NOON	45	45	60	56	90	90
1 P.M., 11 A.M.	47	44	72	69	75	70
2 P.M., 10 A.M.	53	44	86	88	60	51
3 P.M., 9 A.M.	61	44	—	—	45	36
4 P.M., 8 A.M.	70	44	—	—	31	24
Apr. or Aug.						
8 A.M., 4 P.M.	79°	69°	43°	34°	32°	31°
9 A.M., 3 P.M.	69	61	42	46	46	43
10 A.M., 2 P.M.	62	58	47	47	61	58
11 A.M., 1 P.M.	58	57	56	55	77	73
12 NOON	56	56	67	64	90	90
1 P.M., 11 A.M.	58	57	79	78	77	73
2 P.M., 10 A.M.	62	58	—	—	61	58
3 P.M., 9 A.M.	69	61	—	—	46	43
4 P.M., 8 A.M.	79	69	—	—	32	31
May or July						
8 A.M., 4 P.M.	85°	82°	50°	42°	35°	35°
9 A.M., 3 P.M.	77	72	51	48	50	47
10 A.M., 2 P.M.	71	68	56	55	62	60
11 A.M., 1 P.M.	66	62	63	63	76	75
12 NOON	65	61	73	72	90	90
1 P.M., 11 A.M.	66	62	—	82	76	75
2 P.M., 10 A.M.	71	68	—	—	62	60
3 P.M., 9 A.M.	77	72	—	—	50	47
4 P.M., 8 A.M.	85	82	—	—	35	35
June						
8 A.M., 4 P.M.	87°	85°	58°	46°	38°	38°
9 A.M., 3 P.M.	79	76	54	52	50	49
10 A.M., 2 P.M.	74	71	59	59	63	62
11 A.M., 1 P.M.	70	69	66	65	76	75
12 NOON	69	69	75	75	90	90
1 P.M., 11 A.M.	70	69	—	85	76	75
2 P.M., 10 A.M.	74	71	—	—	63	62
3 P.M., 9 A.M.	79	76	—	—	50	49
4 P.M., 8 A.M.	87	85	—	—	38	38

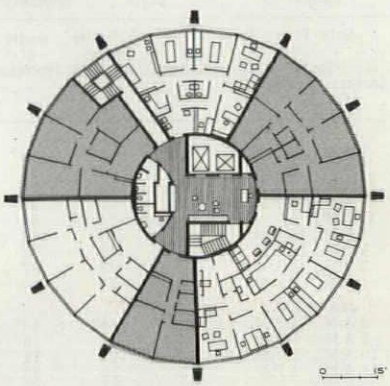




Circular Load-Bearing Wall

Precast-concrete wall elèments create column-free circular floors around central core of new medical building.

Preliminary studies have been completed for the new Westside Medical Center, in Los Angeles, by the Daniel, Mann, Johnson & Mendenhall Office of Planning, Architecture, and Engineering. Its architectural-structural scheme is a logical development of the diagonal system that the same designers pioneered in the American Cement Building [JULY 1961 P/A]. Here, however, imaginative use of load-bearing precast-concrete wall elements



will create column-free circular floors around a central core for efficient medical use.

Using this system, it is easier to build a peripheral diagonal bearing grid for a circular structure than for a rectangular one. Some of its advantages are: only one typical element is necessary, since the continuity of the circle eliminates end conditions; elements are equidistant from the central crane so that maximum lifting capacity can be utilized, and by increasing size of elements erection is speeded accordingly; circular core lends itself to slip-form construction, one of the most rapid systems; uniformity of dimensions in spans between core and outer grid naturally suggests precast floor elements; extreme rigidity is provided by the two concentric cylinders tied regularly together.

Each sculptural element, which is about 25-ft wide and two stories in height, would replace five of the type found in the American Cement Building.

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FLEXIBLE HEXAGONS FOR EDUCATION

Although intended specifically for a college program, this building can serve as an example for the design of flexible educational facilities at any level. Three critical program requirements are reflected in the design: the need for flexible use of teaching space; the need for identity among the all-commuter student body; and the need to provide for independent expansion of the various subject areas and facilities. The client was aware from the beginning of the potential value of buildings as "instruments of education" and as expressions of "the importance attached to the career of school teaching."

The design incorporates facilities of many different types under one continuous roof. The extensive one-story wings define a series of landscaped courts.

In order to give the school maximum unity and permit flexible reorganization of the curriculum, all departmental divisions in the allocation of space have been eliminated. Two classroom wings, used for all subjects, flank the central six-story faculty office building that serves as the symbol for the college.

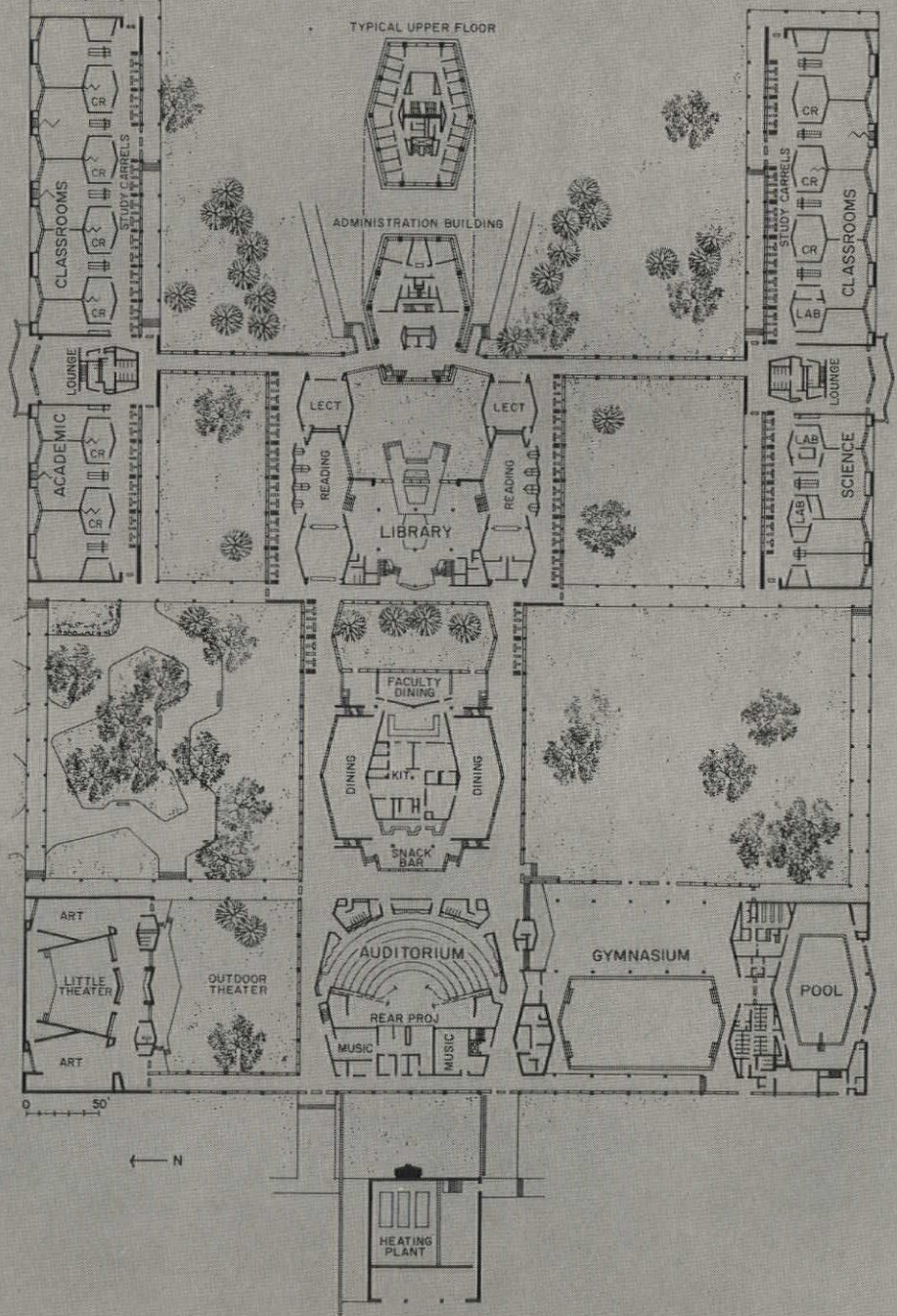
The building contains 48 two-man faculty offices. Lounge areas on each floor encourage contact between members of various departments and also provide space for faculty meetings and informal student-faculty sessions.

Recreation facilities are designed to meet the needs of individuals, with a de-emphasis of team sports. The gymnasium bears little resemblance to the conventional enclosed box. It is a readily accessible, open space, with no equipment for competitive sports such as basketball. A sunken hexagonal area, defined by two large steps for seating, can be used for organized games. The adjoining pool is hexagonal in shape to carry out the dominant design motif and to emphasize its recreational function. It opens out to a completely fenced-in sun-bathing area.

The cafeteria has four different dining spaces of differing scale and function. A mezzanine above the central kitchen/serving block includes lounges, offices, and meeting rooms for student organizations.

Both the cafeteria and the recreation center are open after school hours, so that the student can stay on for swimming or games, an evening meal, meetings, group study, bull-sessions, or late evening snacks.

The library is at the very center of the



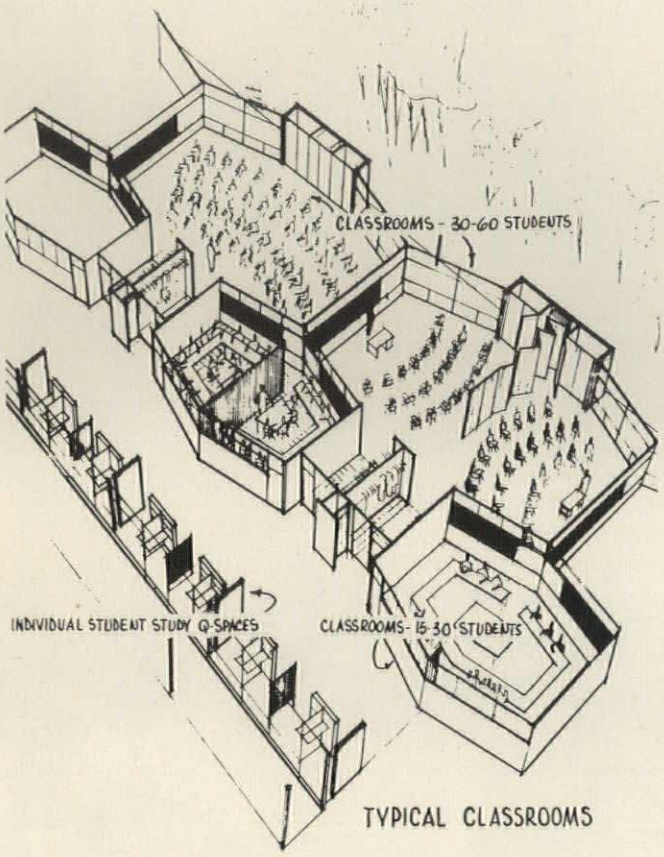
PHOTOS: SUTER, HEDRICH-BLESSING

complex, with paved or landscaped courts on all four sides. The reading rooms, which flank the sunken central space, open without any sharp division into the corridors, which are lined with study carrels.

The hexagonal teaching spaces of the classroom wings can accommodate groups of any size from 15 to 60. Except for the few classrooms equipped for science teaching, all of the rooms can be divided by folding walls and are suitable for any subject. The same plan could be applied in elementary or high schools, using the smaller hexagonal rooms as team offices.

The hexagonal shape of the classrooms is reflected in the angled inner walls of the corridor, which are covered with colorful tackboards. The angled plan provides additional width at the classroom entrances. The study carrels along the glass exterior walls provide individual study spaces for 200 students. Each classroom wing has a utility core, housing toilet facilities, and an adjoining lounge and outdoor terrace.

Lecture halls near the base of the faculty tower can accommodate groups of from 90 to 150 each. The auditorium, which seats 750, includes the latest audio-visual instruction equipment. Space for electronic equipment and the preparation of teaching aids has been provided at an upper level behind the stage. The communications system provides for integrated use of slides, motion pictures, large screen television, audio



TYPICAL CLASSROOMS

The classroom wings contain hexagonal spaces of two different sizes, all of which can be subdivided by movable walls (below left), *so that groups from 15 to 60 in number can be accommodated. Placed along the entire length of the corridor* (below) *are individual study carrels.*

The hexagonal design motif is maintained throughout the building, in both plan and details. The faculty office tower (facing page, top) *has aluminum windows and panels of blue-gray opaque glass behind a honeycomb of white sunshades. The library* (facing page, bottom) *faces the tower across a landscaped court.*

The 750-seat auditorium has been designed as a "teaching device" incorporating the most advanced audio-visual equipment and controls. Curtains and lighting permit the platform to be used for theatrical performances.

tape, and other devices at the control of the lecturer. Provisions have been made for installation of a "classroom responder" system, which will permit instant polling of the students to determine their understanding or opinions on any point.

The lecturer may either tape his talk, using punched cue cards to control visual aids, or speak from the lectern, using a control panel built into it. A one-way mirror device gives the speaker an enlarged image of his prepared text, visible from either side of the lectern.

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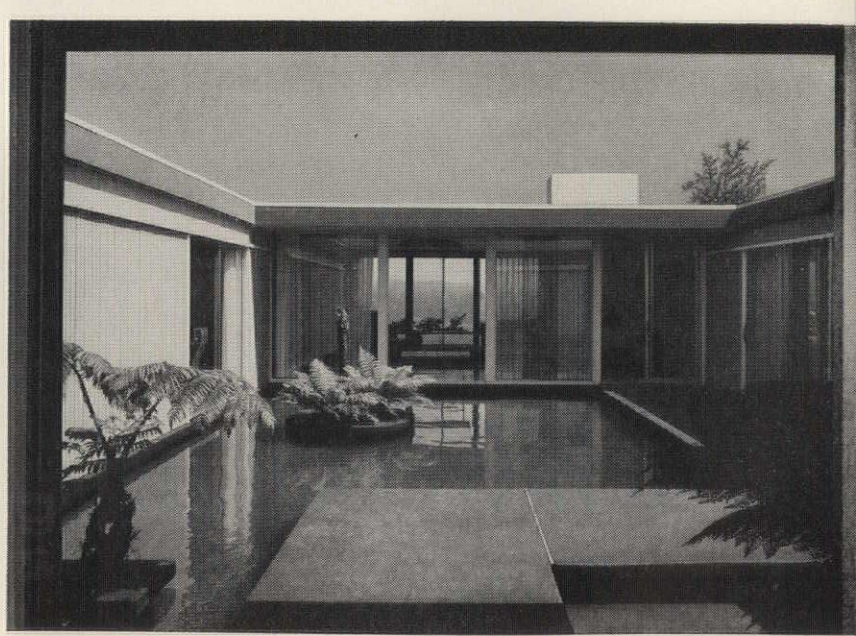

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For more information, turn to Reader Service card, circle No. 307

Extruding Steel

BY HAROLD J. ROSEN

Although there are several limitations in the production of extruded steel shapes, due to the comparatively new state of the art, numerous advantages exist that are of value to the architectural designer. These are discussed by the Chief Specifications Writer of Kelly & Gruzen, Architects-Engineers.

Metal-working techniques available for fabricating steels, steel alloys, and stainless steel have not included extrusions until recently. We have been able to roll, forge, cast, cut, weld, and machine steel, but never to extrude it. Now, there is available to the architect or engineer a new metal-working process for steel which opens up new vistas for the use of steel that heretofore may have been economically prohibitive.

The French-developed Ugine-Sejournet process permits steel, stainless steel and steel alloys to be extruded in solid shapes that challenge the imagination. These extruded shapes become a reality when the molten metal is produced in an electric-arc furnace, processed into a billet, and then lubricated with glass before being fed into a hydraulic extrusion press. The molten glass on the hot billet serves both as lubricant and heat insulator, making it possible to extrude unusual shapes of long length at a phenomenal rate (1000 fpm).

Advantages claimed for this technical advance are that tolerances are maintained, mill production requirements are modest, and die costs are low in comparison to other methods of shape production. A tooling charge for a special die design costs only about $200.

There are limitations, and these are undoubtedly due to the comparatively new state of the art. These are some of the present design limitations.

1. Circumscribed circle, which determines the largest-shape cross section possible to extrude, is now limited to 4⅜″ **(A)**.
2. Minimum production thickness is 0.180″.
3. Corner radii are .062″.
4. Fillet radii are .025″.

Other advantages of extruded sections lie in their cost-saving over present-day metal-working techniques. Welding steel to achieve a particular shape can be costly, if the design is not a standard section.

Shape 1**(B)** consists of an equal-leg section that is not standard. Rolling of small quantities is prohibitive, since special rolls are required. Welding two pieces of flat strip is not neat and requires grinding the weld to obtain a satisfactory part. Shape 2**(B)** shows an extruded element obtained at one-half the cost of Shape 1.

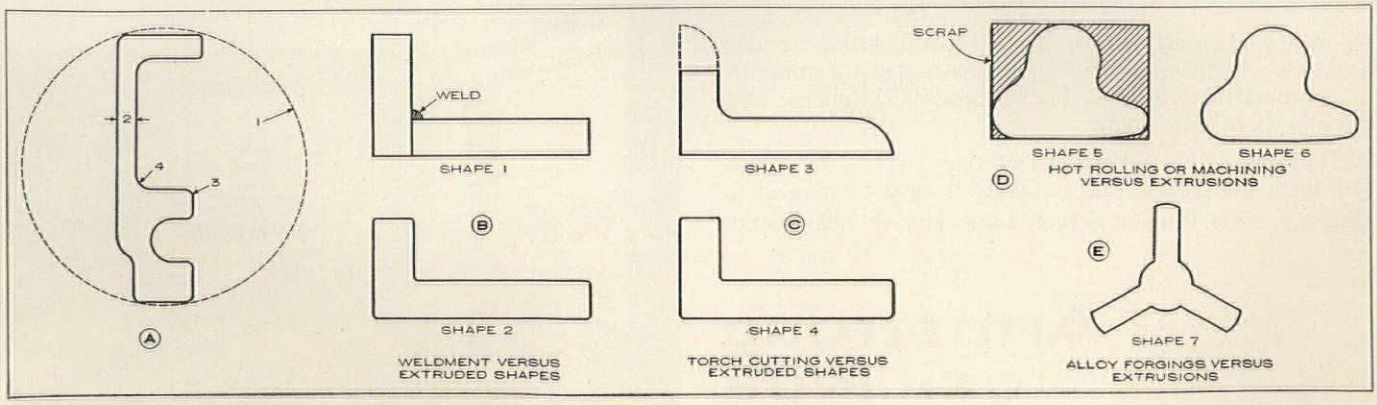
Shape 3**(C)** indicates a standard-steel angle that was cut with an acetylene torch to obtain the required shape. This metal-working technique required machining of the rough, burned edge to obtain a satisfactory surface. Again, Shape 4**(C)** illustrates an extruded section obtained at a substantial savings.

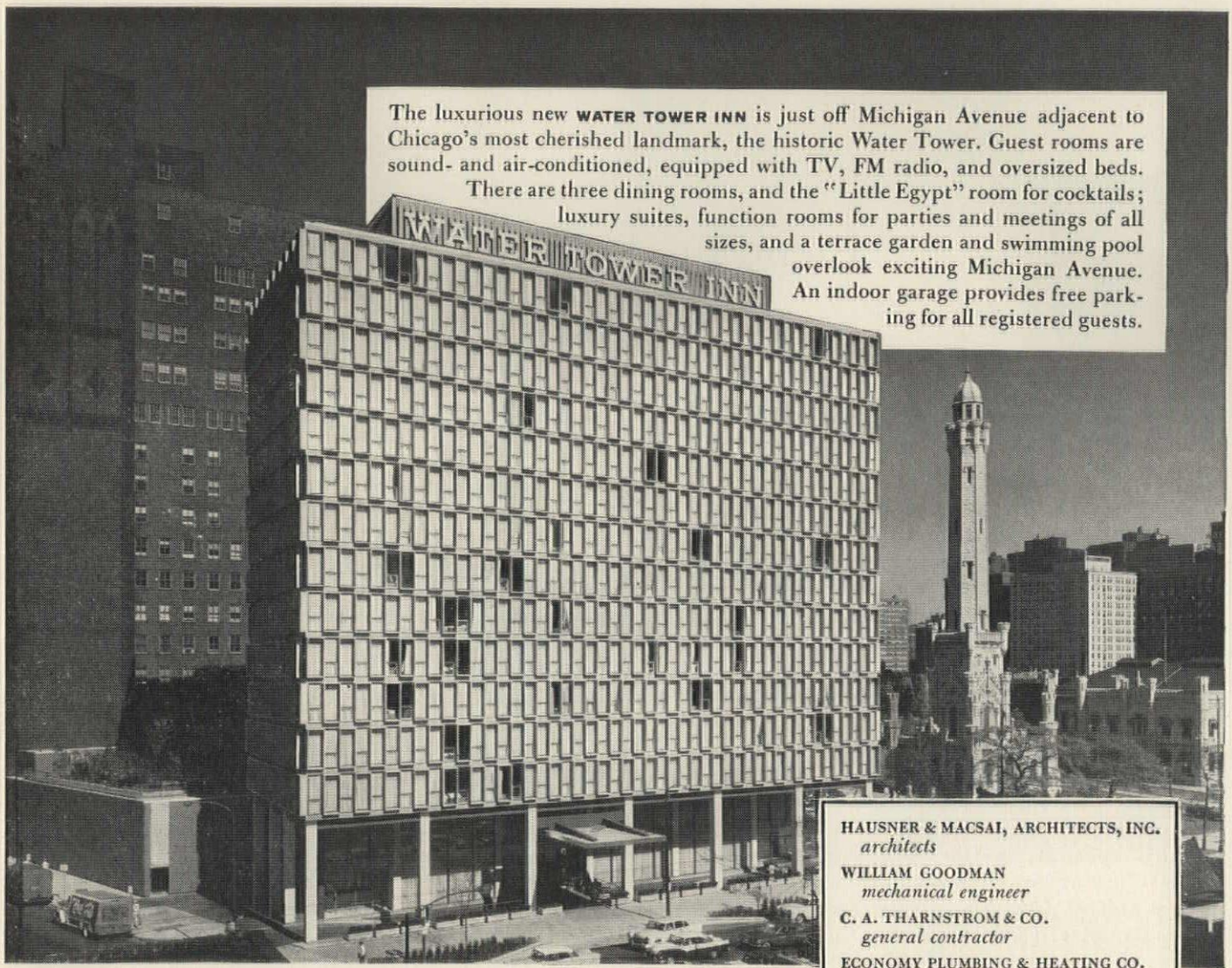
Shapes 5 and 6**(D)** illustrate two different metal-working techniques. This configuration is difficult to obtain by a hot-rolling process. Hot rolling can compete with extrusions, except when quantities are limited, and then rolling costs start to climb. Here, the extruded shape again becomes more economical. When Shape 5 is obtained by a milling operation from a bar, there is considerable cost not only due to metal scrap, but also to the cost of machine and man time to mill the item. Once more, extrusion of odd shapes provides considerable savings over the techniques of rolling and milling.

Shape 7**(E)** is a shape that is usually achieved by forging operations. Extrusion dies, however, are claimed to be less expensive than forging dies, and the configuration shown in Shape 7 can be made much more easily and accurately by extrusion processes than by forging. This is especially true in the range of workability among the alloy steels.

Extruded shapes offer these advantages over the previous manufacturing processes: better grain structure, better uniformity, and better appearance.

Additional information on the architectural possibilities with this new method can be obtained from the H.M. Harper Co., Morton Grove, Ill. Harper, a steel company, is a licensee.





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Blending Building Components

BY WILLIAM J. McGUINNESS

A different method of providing flexible office space and environmental control, through the blending of structural and mechanical components, is reviewed by a practicing mechanical engineer.

In the Volkswagen of America National Headquarters at Englewood Cliffs, N.J., Design Consultant Leon Safrata and Architects Ballou, Daly & Levy have made an important contribution to the art of blending structural components and mechanical equipment. This is especially apparent in the composite acoustic/lighting/air-conditioning ceiling located below long-span precast/prestressed-concrete double tees.

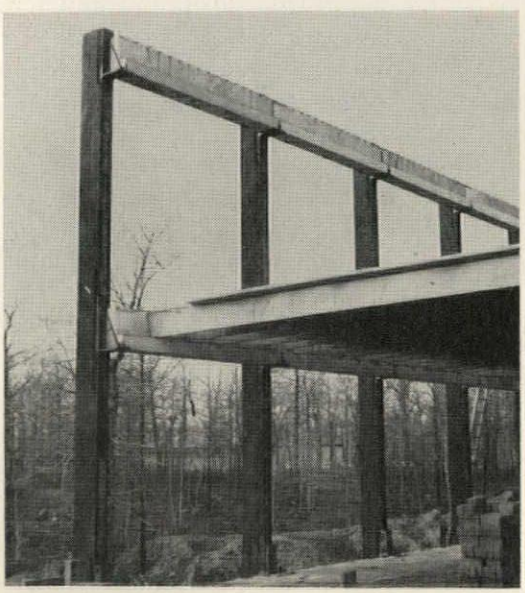
General arrangement of this $2½-million administration-office building on an 18-acre site comprises a three-wing building complex. The drawing shows two upper stories that are characteristic of two of these wings. The ground floor of one office wing contains company-personnel public rooms, cafeteria, and lounge. The ground floor of the second office wing provides space for mechanical equipment and storage. The third (one-story) wing is for public reception, conferences, and the executive staff.

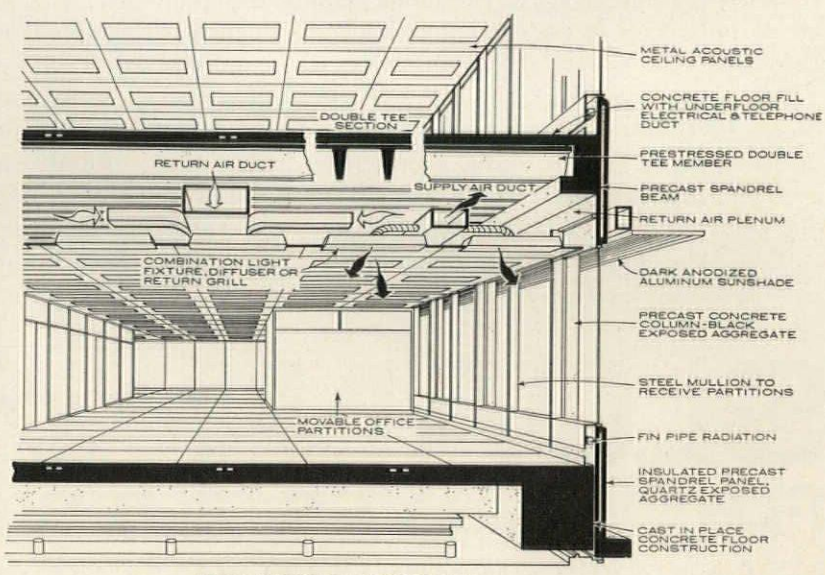
Precast L-shaped edge-girders bear on brackets of the exterior precast-concrete columns that enclose the upper levels. (These columns in turn are bracketed from a cast-in-place system between ground and first story.) The edge-girders support the standard double-tee floor structure. Undisturbed by interior columns, flush on the inside of exterior walls, and having an unbroken plane of ceiling above, each of the four major office areas affords 42′ x 157′ of flexible space. Toilets and other facilities are in the connecting links. Black columns, white-aggregate spandrel panels, gray glass, and aluminum sunshades compose the exterior façade.

Exterior columns are 11-ft on centers making the ceiling modules 5′-6″ x 5′-6″. In each module, acoustical absorption is provided, as well as a lighting fixture that permits either delivery or evacuation of air. Offices may be multiples of this module and air can be supplied through selected luminaires and exhausted to the above-ceiling plenum through others. A general return duct picks up this vitiated air through open-end stub ducts to return it for reconditioning. Lighting intensity is 70 ft-c.

In distinct contrast, the ceiling of the reception wing presents a uniform but diffuse pattern of free-hanging leaves. In plan they show a 3″ x 6″ staggered pattern; their depth of 6-in. occludes direct vision of the lighting, acoustic, and conditioning facilities above.

Credit has been accorded to contractor Joseph L. Muscarelle, Inc., whose familiarity with this relatively new type of construction contributed to the efficiency of the work. The mechanical engineer was Melvin Gelber; structural engineers were Severud-Elstad-Krueger Associates.





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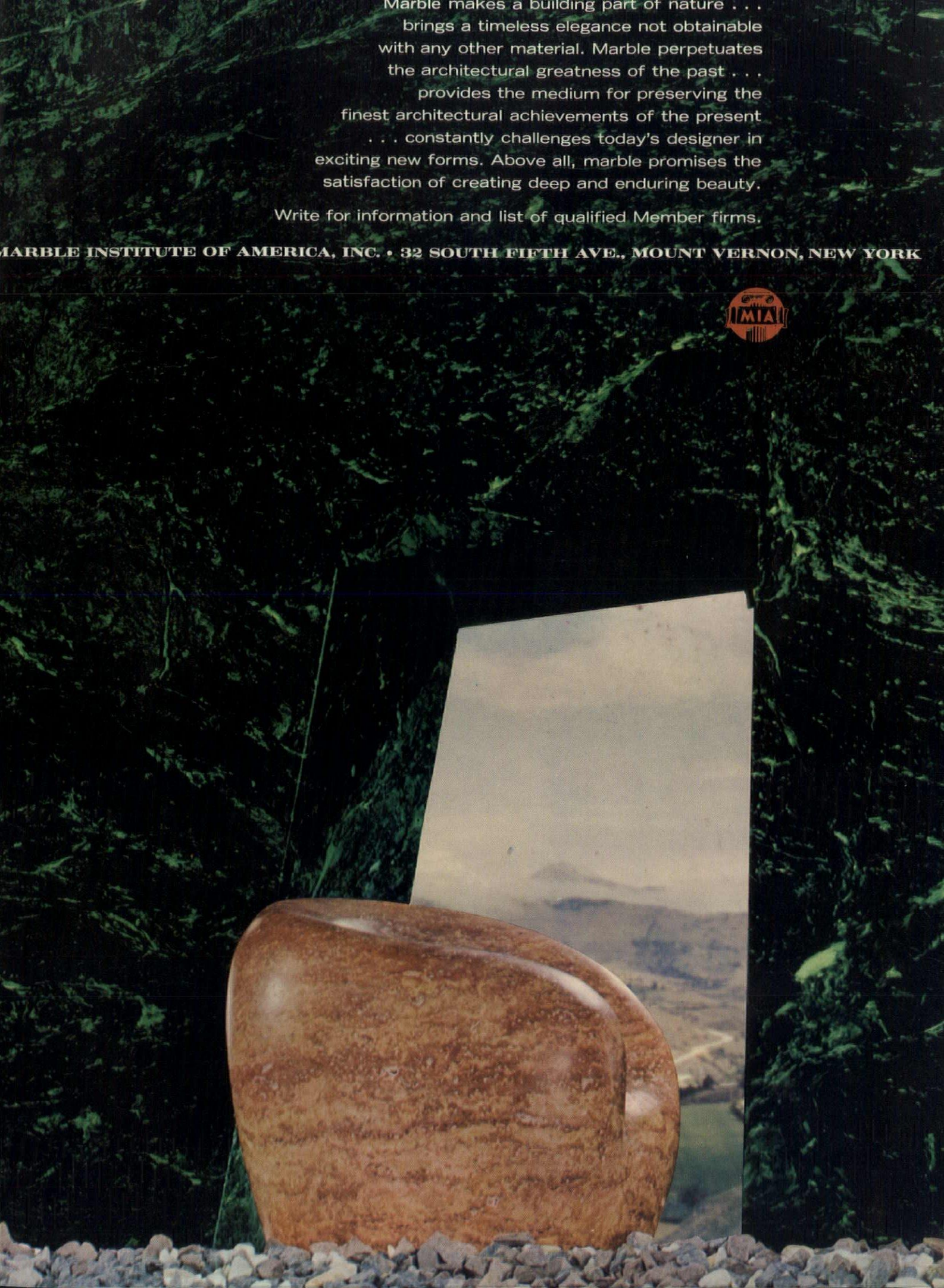


Failure to Define Architecture

BY JUDGE BERNARD TOMSON AND NORMAN COPLAN

P/A's legal team discusses a recent decision in which failure of a state to define architecture prevented the State Board of Examiners from barring a corporation from practice.

A recent Ohio decision is of particular interest since it deals with the relationship of an architect and a corporation practicing architecture in Ohio (*Burchard* v. *State Board of Examiners of Architects*). There, a licensed architect was charged with fraud and deceit in his professional practice by the Board of Examiners of Architects of that state. The Board then conducted an administrative hearing and the architect's license was revoked. Upon appeal to the Court of Common Pleas, the court reversed and vacated the order of the Board on the ground that it was not supported by substantial evidence and the architect had not been furnished due process.

The defendant was a nationally known and highly respected architect who for many years had been connected with Harvard University as a professor and lecturer. He practiced architecture as a partner in the firm of A.M. Kinney Associates, which performed the engineering and architectural work on many public buildings. In the language of the Court, the record was entirely devoid of any evidence that the services performed by the partnership "were not performed according to the contracts and to the complete satisfaction of the clients."

In 1959, the State Board of Examiners of Architects charged the defendant with fraud and deceit, based upon his alleged conduct of "permitting an Ohio corporation, to wit, A.M. Kinney, Inc., of Cincinnati, Ohio, to unlawfully practice architecture by acting as an agent of said corporation and as such performing services constituting the practice of architecture, well knowing that such practice of architecture by a corporation . . . was unlawful." The Board further charged that the defendant fraudulently and deceitfully represented that "he was engaging in the practice of architecture as a partner in a fictitious, non-existent partnership known as A.M. Kinney Associates, knowing full well [he was] in fact an agent of, and performing such services as an agent of A.M. Kinney, Inc."

At the very same time that the hearing to revoke the defendant's license was being held, there was a companion case pending in the Courts of Ohio to void the corporate franchise of A.M. Kinney, Inc., on the ground that it was practicing engineering illegally. The premise of this suit was that a corporation could not lawfully engage in the practice of any profession. The Court in that case (*State ex rel McElroy* v. *A.M. Kinney, Inc., 171 O. S. 193*) ruled that the corporation did have a right, under Ohio law, to practice engineering. This decision was handed down prior to the decision of the Board revoking the defendant's license.

At the administrative hearing before the Court, the defendant moved to dismiss the complaint on the ground that the Board was acting as the accuser, the prosecutor and judge of both law and fact in violation of the appellant's constitutional rights. This motion was overruled. The Court, on appeal in this connection, commented as follows:

"Following that established rule this Court will not pass on the question of whether or not this appellant was denied due process of law but feels compelled to say that if it was necessary to pass on that question the Court would have no hesitancy in holding that under the Constitution of Ohio, as well as under the Fourteenth Amendment of the Constitution of the United States, no court or administrative agency may undertake to act as accuser, prosecutor and judge in the same case."

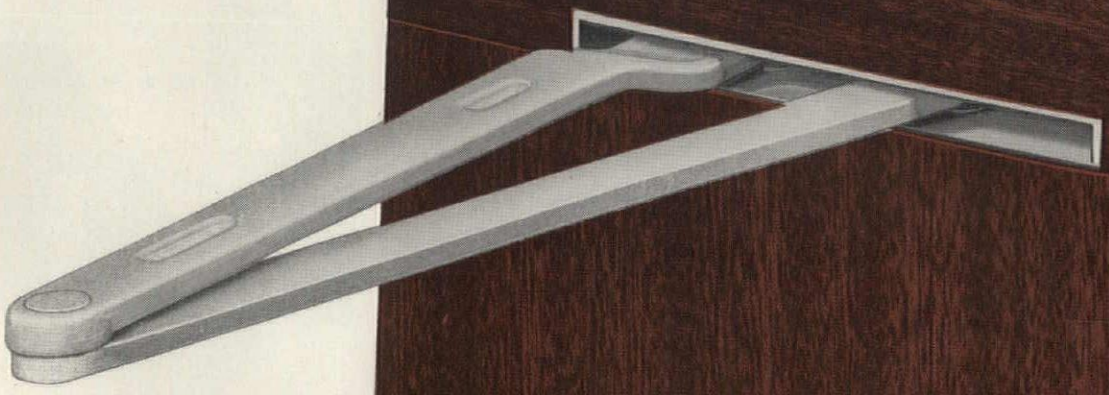
The Court also pointed out that the record disclosed that one of the members of the Board was a competitor of the defendant and that "his rulings during the hearing clearly disclose the appellant was not awarded the impartial trial to which he was entitled."

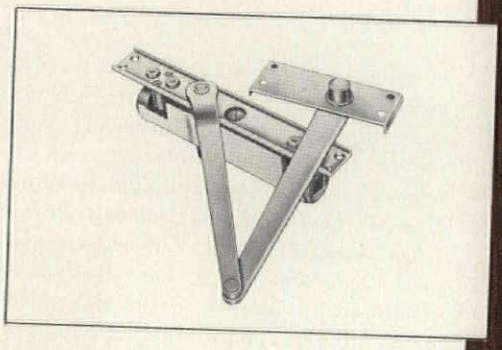
In dealing with the merits of the charge, the Court concluded that there was no Ohio statute or any decision which prohibited the practice of architecture by a corporation. The Court said:

"The Court is at a loss to understand how the Board who is going to sit in judgment, or the appellant, could know that the practice of architecture by a corporation was unlawful. There is no statute nor any decision of a court of last resort so far as the court's research discloses that so holds; hence, that charge, which is the gist of this proceeding is based upon pure conjecture on the part of the Board and the Court's conclusion is fortified by a provision of the statutes which says, in effect, that one engaged in the building business may engage in engineering and architectural work incidental to that business."

The Court went on to point out that the Board and its legal counsel could not point out any evidence that any member of the public was either defrauded or deceived by the defendant's conduct as a licensed architect in the state of Ohio, and that there was nothing in the testimony establishing that any member of the public or any client of the defendant had been defrauded or deceived by his statements or conduct. The Court said it was clear that the Board did not approve of the manner in which the partnership conducted its business and that the attorney general did not approve of the manner in which the corporation conducted its business, but such disapproval or dislike did not constitute a ground for a revocation proceeding based upon fraud or deceit.

The Court's reluctance to accept the determination of the administrative body is fully consistent with our historical concept of "due process." However, the failure of Ohio law to define architecture as a profession, thereby prohibiting its practice by corporations, underscores the necessity for co-operation among all architectural organizations to achieve the appropriate status for the architectural profession.





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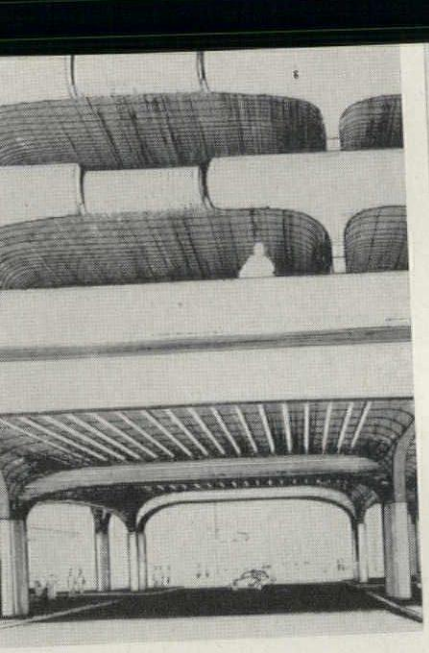

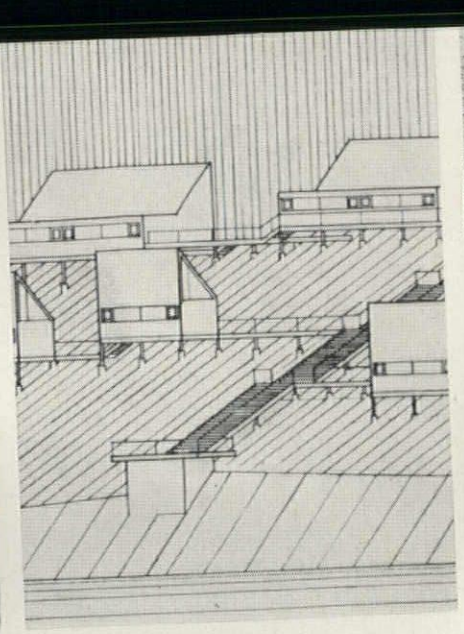

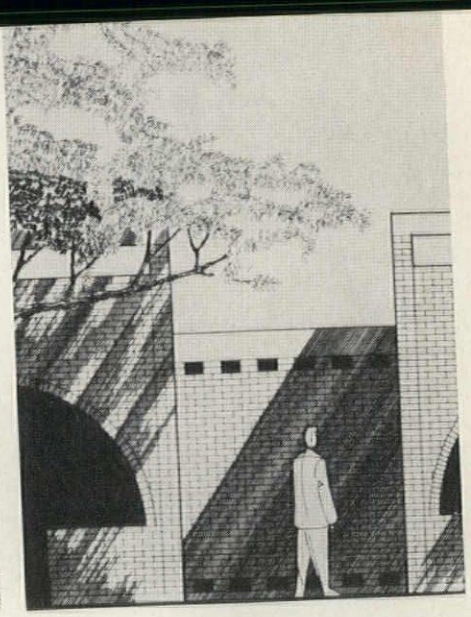

Forecast of Diversity

BY HENRY L. KAMPHOEFNER

Architectural Design Preview, U.S.A. by John Dixon. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y. (1962, 224 pp., illus. $15). Reviewer is Dean of the School of Design, North Carolina State College.

Architectural Design Preview, U.S.A. by John Dixon, Associate Editor of P/A, is a critical examination and analysis of what American architects were designing in the year prior to publication of the book. It examines 144 projects by 111 architects or firms, representing many of the nation's leading architects and including several talented newcomers and younger men.

The book is devoted to what architects call "projects" (work still in the design stage and not yet built) as contrasted with "buildings" (the finished structure). Frank Lloyd Wright stated shortly before his death that he had just completed Opus 770; when he had finished working drawings for a building, he assigned it an opus number and considered it complete. Wright's attitude toward his own creations is consistent with the prevalent aesthetic theory that a work of art is accomplished when the creator has fully conceived it as an image in his mind. The works shown in this book were all designed for actual clients on already selected sites; they resulted from the consummation of contracts between architects and clients, and are in every sense true commissions.

The method used by the author is probably the most revealing way to examine the current status of design in the United States and provides a valid crystal ball to probe the nature of its future course. When a book waits to examine only those works that are already built, landscaped, and can be photographed, a long period elapses—sometimes as much as five to ten years—between the architect's original conception of the design and its presentation to the public in book form. This is particularly true at the present moment in our building culture, when the time span between conception of the design and its realization as a completed structure is as much as three to five years.

Some of the projects presented in John Dixon's book were Award and Citation winners in the most recent P/A Design Awards Program. A second group was not selected by the jury, but seemed to the author to be worthy of inclusion. A third group of projects were either not submitted or were submitted too late for jury consideration.

Before commenting on the book, it seems pertinent to discuss award programs in general and the P/A program in particular. In 1949, at the Houston convention of the AIA, the Institute directors established an honor award program to recognize distinguished work in design by American architects. The success of the first program was widely recognized, and it was soon decided to make the awards an annual Institute affair. In the intervening years, the honor award program has become an increasingly important part of the annual convention and has since been taken up on regional and chapter levels. The Institute directors have taken meticulous pains to select jurors of talent, competence, and good judgment. This has assured a validity to the awards, a true distinction to the winners, and a significant public image to the architects who are rewarding and recognizing the excellence of their colleagues.

After a few years of the AIA's national honor award program, it became evident that there was an unnecessary duplication between the Institute program and a similar award program conducted for many more years by PROGRESSIVE ARCHITECTURE. At this point, the editors and publishers of P/A graciously and properly decided to withdraw their own program and gave unchallenged support to that of the Institute. Then, ten years ago, P/A began its present Design Awards Program for work in the *project* stage. Like the AIA, P/A has been able to attract juries of unusual competence and distinction, with the result that its awards program has been widely accepted and its awards coveted even by the most distinguished architects. Another important effect of this program has been that it has frequently changed a client's original skepticism about an advanced or unfamiliar design to an attitude of support and acceptance

Continued on page 178

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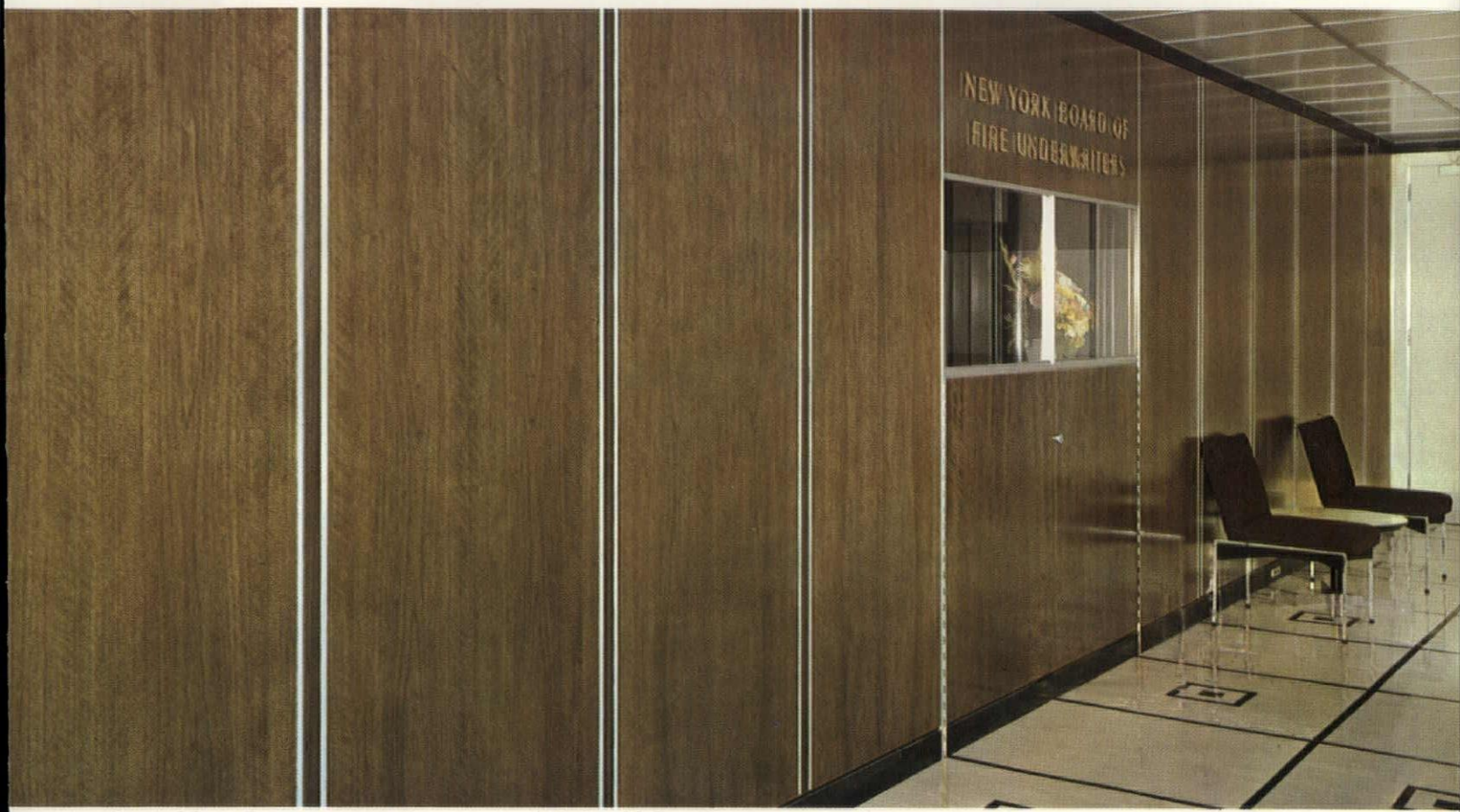

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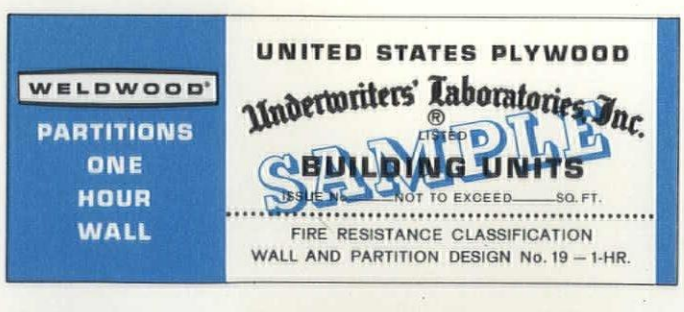

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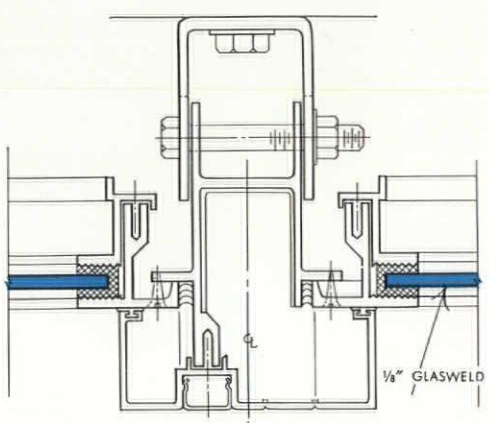

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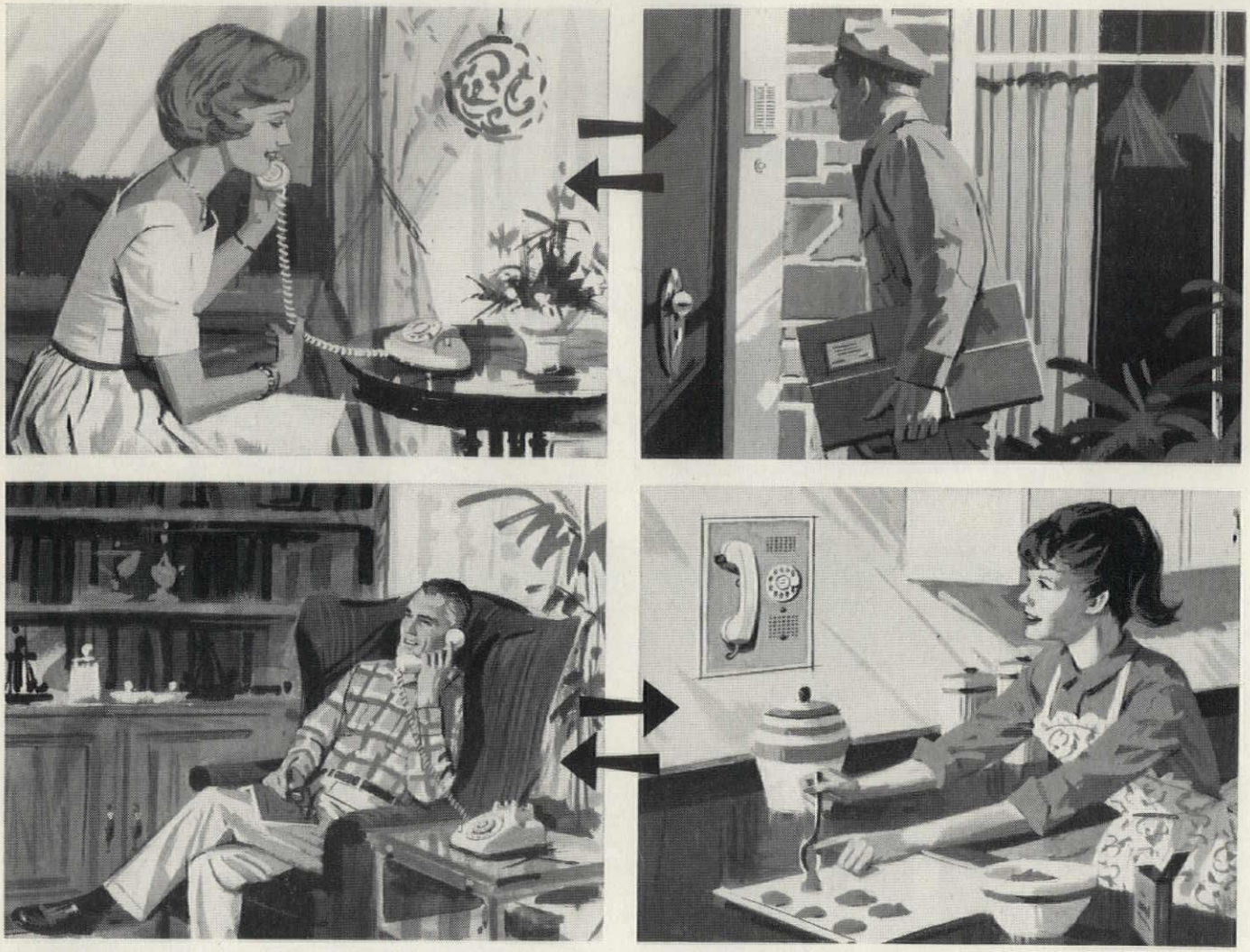

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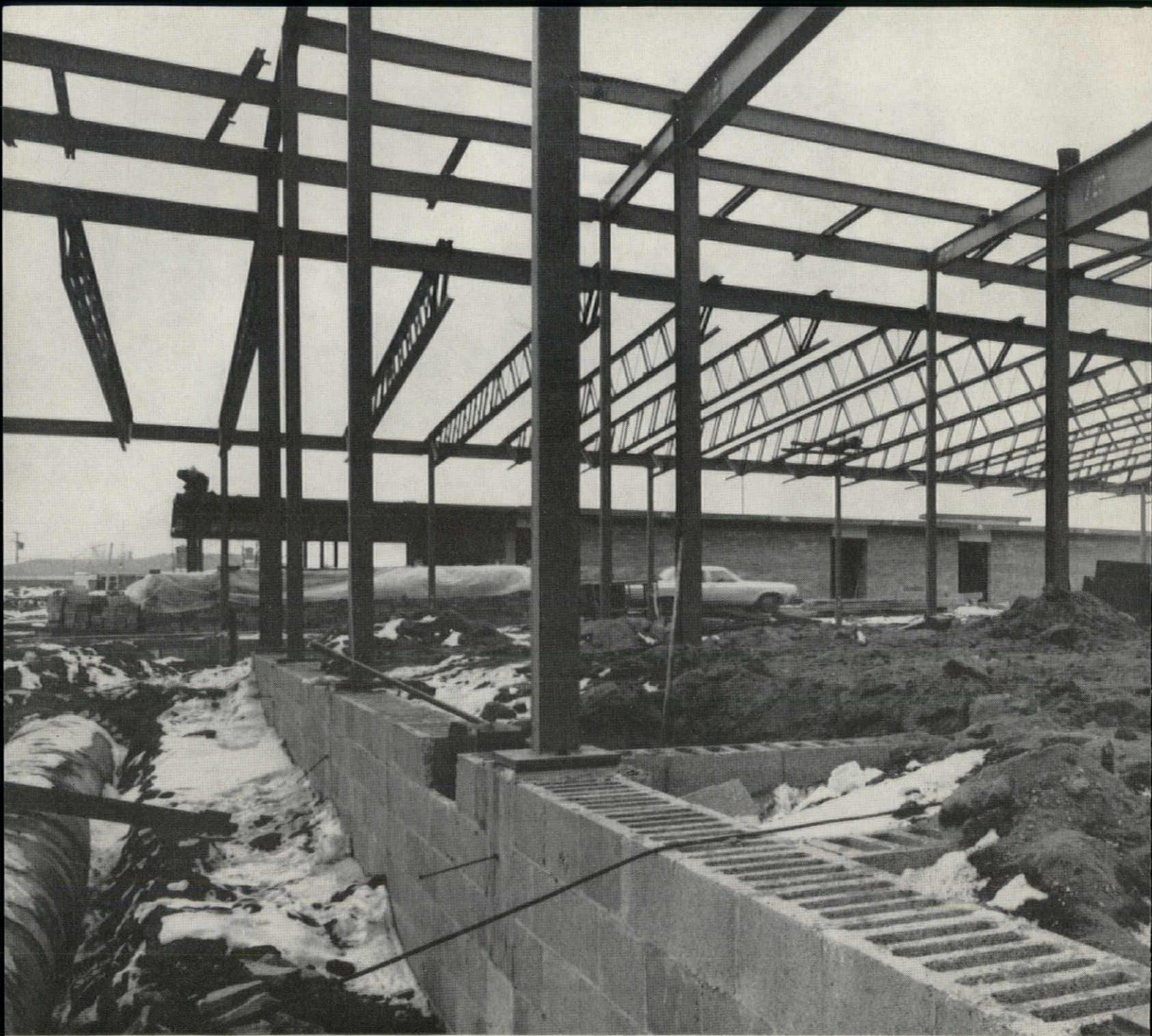

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Continued from page 170

when the project has won an award. Such projects could therefore reach completion without client interference and modification, which might otherwise have resulted in mediocrity.

The 144 projects presented in the book have something in them for everyone: nearly every traditional and contemporary influence is evident, as well as every dominant contemporary philosophical expression, such as humanism, romanticism, classicism, functionalism, constructivism. Nevertheless, Thomas Creighton, Editorial Director of P/A, sums it all up in a clearly and cogently written foreword as "a hopeful, even an exciting picture."

Philip Johnson stated recently that in current American architecture we can be certain of only one thing—that there are no longer any rules. (It is this reviewer's opinion, however, that much of Mr. Johnson's earlier work indicated greater architectural distinction when he, as much as any good designer, followed the rules—sometimes with reverence—in contrast to his more recent "fun things.") It might be said of this book that many of the projects cannot be judged by any of the known rules of design, traditional or modern; but a lack of orthodoxy brings with it an interesting experimentalism, and the book should therefore become a standard reference work in the library of every architect and every school of architecture.

Architectural criticism in the book is limited to the general introduction and the prefaces to each section (there are eight sections of building types—public use, education, residential, and so forth). It might have been more helpful if the criticism were more specific and less general. Factual information adjacent to photographs of the individual buildings is often obvious, sometimes almost trite.

The P/A Design Awards Program is making a major contribution to American building culture, and Dixon's book is an important documentation of much of the significant current thought and creative talent in American architecture. The book should become the first in an annual series that places a hard-cover archive in the hands of architects, librarians, and the general building public.

An Art or a Craft?

PHOTOGRAPHY AND ARCHITECTURE, *by Eric de Maré. Published by Frederick A. Praeger, 64 University Place, New York 3, N.Y. (1961, 208 pp., illus. $13.50)*

Eric de Maré's *Photography and Architecture* is a glorified "how-to" book: "how-to" because he specifically directs it toward amateur photographers, and glorified because he augments the purely technical discussion with numerous chapters reflecting his enthusiasm for Art, for Architecture, and for Photography as an Art Form.

He calls his book *Photography and Architecture*, and he does *not* mean the photography *of* architecture. An architect himself, architecture interests him; but what interests him more is attempting "to create a visual work of art in its own right." I've no quarrel with this idea; photography has finally won acceptance as art in many museums. But a photograph, to stand alone as a work of art, must reveal a significant aspect of its subject. Photography's unique quality is the conveying of undeniable realism, through textured tangibility of materials, or a frozen moment in time.

Applied to architectural photography, this could mean a detail, isolated and clarified; the rhythm of an architectural

Continued on page 182

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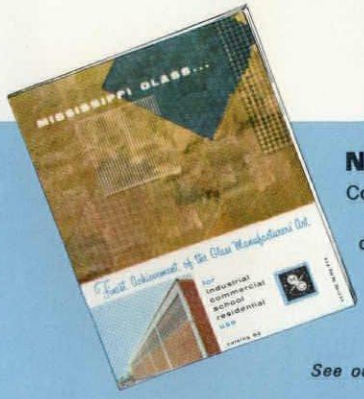

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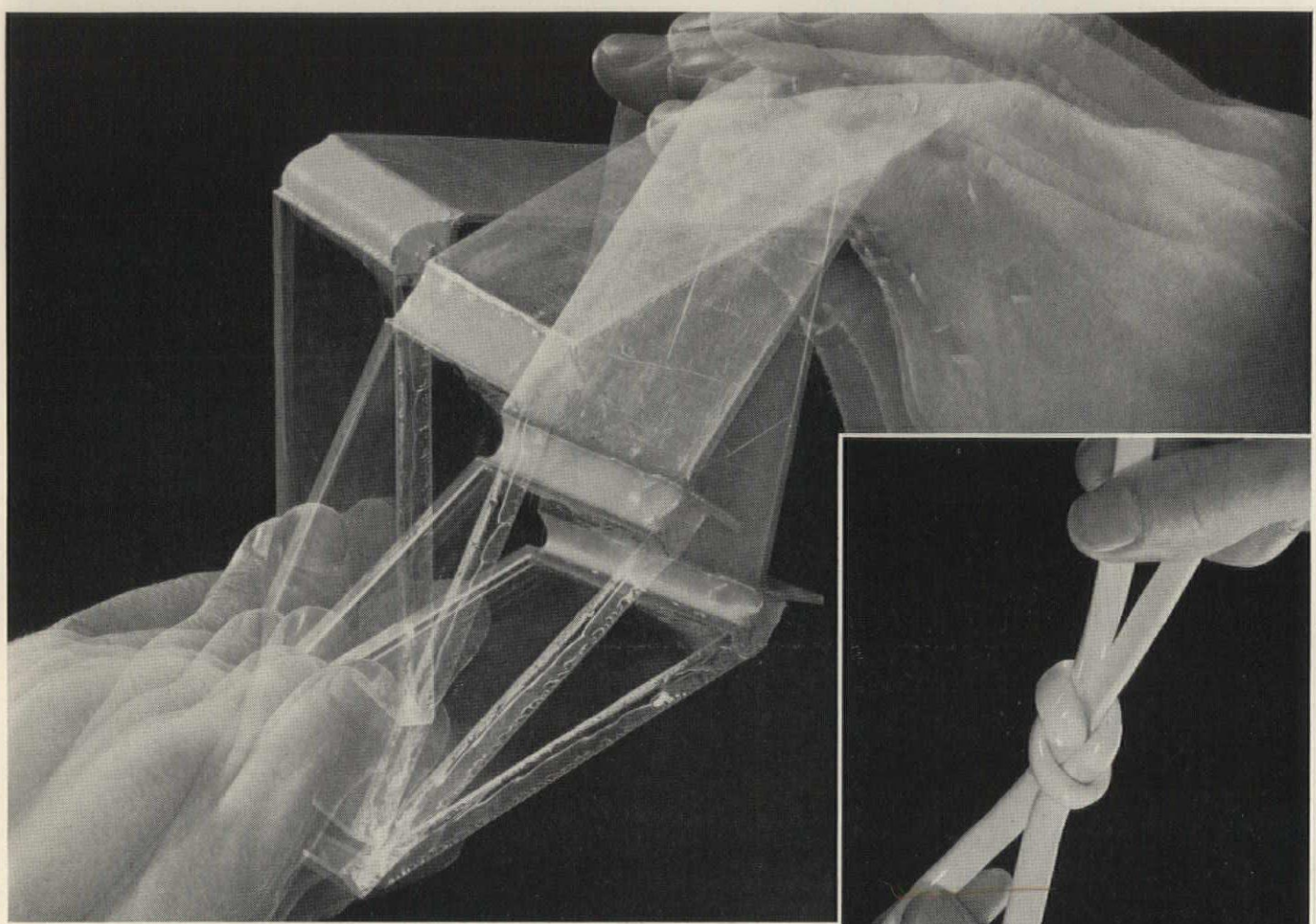

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Continued from page 178

scheme; the demonstrated relationship of architectural members to the whole; the building's situation in the townscape; the symbolizing of architectural space. Any one of these themes could be embodied in a telling architectural photograph, which might lay claim to being a work of art.

But de Maré's approach is far different. He prefers to see buildings used as jigsaw-puzzle parts in the game of "composing." The architecture is incidental to the photography, incidental to the creativity he feels. If architecture is used in this way, I think it is reasonable to expect photographs that have some other strong theme, that are more than flat pattern, that are more than random views of pieces of buildings without context, more than atmospheric shots taken in haze or fogged in the darkroom. The aim of the image is blurred.

The blurriness is perhaps in de Maré's thinking about photography. For instance, he is particularly interested in helping the amateur photographer with composition. But his examples are not of much help. Nor is his chapter on "Composing," where he plunges in listing "principles" and explaining "parts in the right relationship to each other," abandons this in favor of intuition, and then catalogs the old jargon words—balance, cohesion, unity, romanticism, and so on.

Genuinely concerned about his reader's understanding of art, his chapter on it merely probes the subject with many quotes. Then, in step with the times, he recommends art for the "easing of psychophysical tensions," and, finally, equates it with occupational therapy.

But when he comes to architecture, something else happens. For here, the author, making a concise catalog to aid recognition, evokes, in brief descriptive passages, powerful images of architecture. Would that he had used this knowledge, clarity, and directness in his photographic statements, instead of preferring a diffuse genre style. The chapter, called "Styles and Periods," is unfortunately confined to English architecture. It could, however, be copied into an architect's notebook for an English visit, since it specifically names and locates photogenic buildings.

As for "how-to" information, evidently the book was not revised for its U.S. publication. Along with much of the sincere but naive artistic discussion, the technical sections are largely inapplicable to American amateur photographers. De Maré recognizes that rapid technical advances may render obsolete any book on photography almost before it is published, but he fails to take into account American know-how and affluence. Most amateur photographers here are ahead of him. They can afford well-equipped darkrooms, rather than converting bathrooms; they have access to plenty of books on photographic technique; they may belong to camera clubs, organized groups of so-called Salon Photographers. The latter are interested, as is de Maré, in the manipulation of black-and-white photography, for which they have their own rigid rules and standards.

But it is for the photographer-architects, architectural students, and professors of architecture that de Maré says he is writing. In the United States, these people have neither time nor inclination for painstaking creativity in black-and-white. They prefer to rely happily on the quick, lab-processed 35-mm color slide, deemed best and most convenient for trip records, lectures, and slide collections. Color data in this book being scant, there is little of value for these

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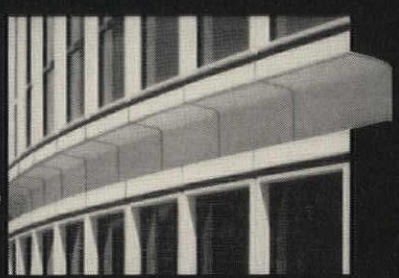

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nite is more so. Specific
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by someone concerned
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the Museum of Modern
shed work of Adams,

Stetchen, Strand, and Weston, and even *Life* photographs—these examples will seem old-hat salon pictorialism. It is a collection of curiosities, vignettes, bits of pattern, all loosely tied to architecture.

Almost no examples by top professional photographers, European or American, are used. De Maré may have done this purposely in a book meant for the amateur, but even Eastman Kodak Company knows that the best professional photographs should be used when luring the public to buy Brownies!

graphs, along with voluminous captions containing technical data, as well as aesthetic and sociophilosophical commentary—diffuse, but better too much than too little.

A good "how-to" book should be just that. If it is concerned with the photography of architecture, why not make the most of all possible ways to photograph it—color and black-and-white, professional and amateur? If a book is meant to further an artistic cause, why burden it with technical instructions?

PHYLLIS DEARBORN MASSAR
Dearborn-Massar, Architectural Photographers
New York, N.Y.

Comprehensive Treatise

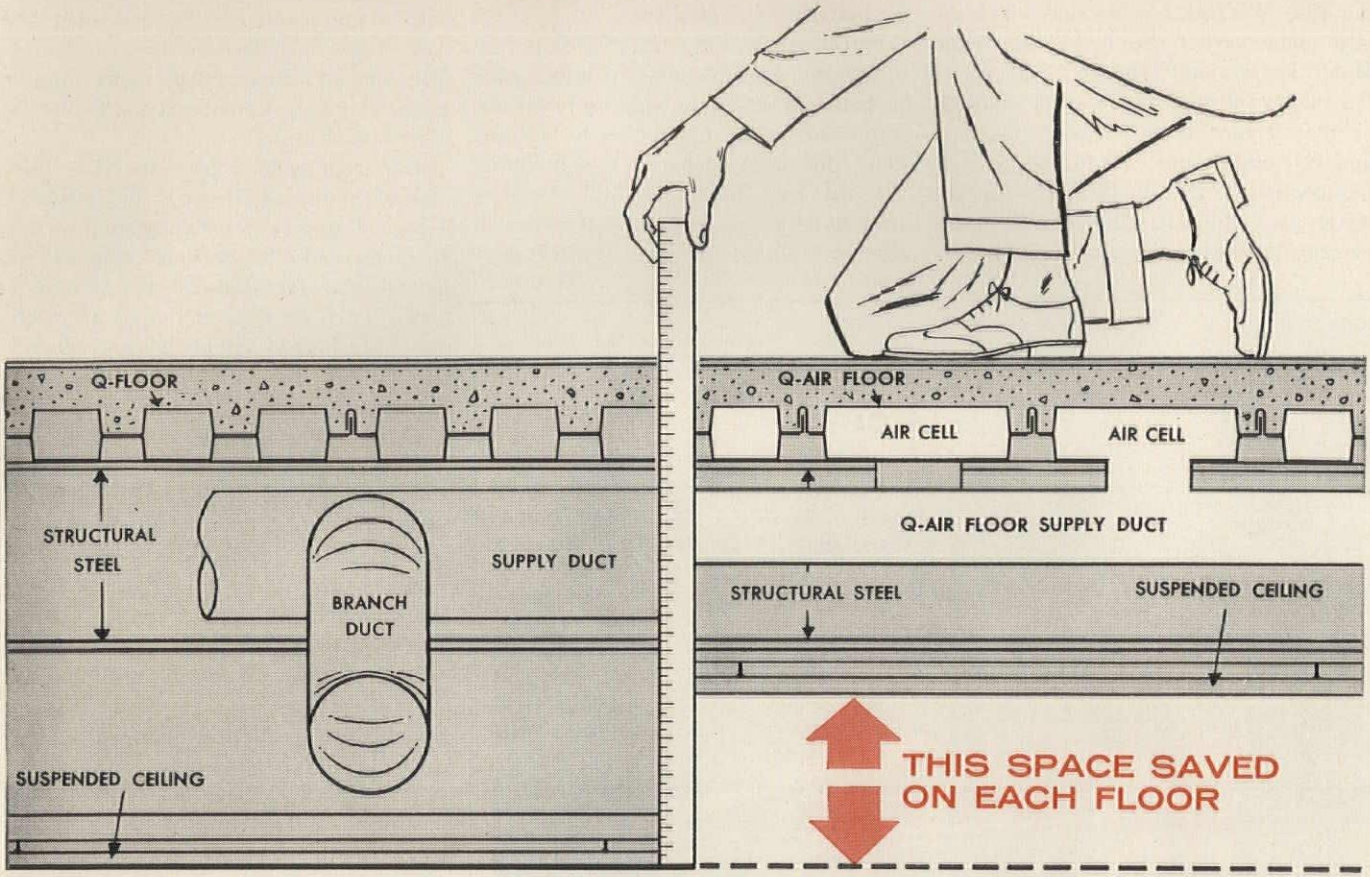
BUILDING OR BUYING THE HIGH-QUALITY HOUSE AT THE LOWEST COST *by A. M. Watkins. Published by Doubleday & Co., Inc., 575 Madison Ave., New York 22, N.Y. (1962, 270 pp., illus. $4.95)*

The broad title of this book shows its intent to cover the very complex subject of single-family houses. Author Arthur Watkins further complicates his task by writing for the layman in readable, semi-technical terms. It is hard for an author to do all things for all people, but Watkins makes a commendable effort to create a short-form encyclopedia for home building or home buying. No single book, however, can safely deal with this broad and varied subject matter; also, the nebulous matter of design judgment can never be fully evaluated through the pages of a book. But much of the technical material is covered well enough to offer a useful reference to the professional as well as the layman.

Watkins attempts a dual role of author and "editor," and on the whole his editorializing is valid and purposeful. He does, however, take the liberty of passing on, in inspired tones, comments which should be qualified as his personal judgment. He takes several candid pokes at building institutions (and builders in general) which are limiting the basic improvement of residential design and construction. He also points out the fallacies in the teachings of national promotional movements designed to influence the consumer.

Significant also is the author's ability to combine detailed information with the broader comparisons of basic elements of value. For example, in a $20,000 house, the difference in cost between the cheapest materials and the highest price materials is less than $1500. The increased monthly mortgage costs are then compared with the decreased mainte-

compaction*



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nance costs. This form of comparison takes the emphasis off square footage and puts it on other, little-discussed points of evaluation.

Starting with the neighborhood and the site, Watkins has divided his book into eight parts. The first asks "How Much House and Where?" and starts the reader off with a good stiff analysis of the "colder facts of life," i.e., his financial ability and how to use it.

Second is "House Design"—an attempt at a difficult subject. The basic nomenclature given is accurate, although some of the evaluation is debatable.

The third section discusses upkeep and repair. It is a practical compilation of important maintenance and operating costs, with advice on safeguarding against potential problems.

"Structure and Special Building Features" is a good blending of information on both old and new building materials, equipment, and construction techniques. The fifth part debates the question, "Should You Buy or Build?" As page after page unfolds with "what to watch out for," "what to be sure and get," etc., the would-be builder or buyer (if he were a first-timer) might be overwhelmed with the responsibility of judgment and decisions, and might quickly arrive at the feeling that he could never satisfy the standards recommended for each basic specification for the house. The tone of concern over many pitfalls might at this point convert the reader to a confirmed renter.

The sixth portion presents "The Process of Shopping, Buying, and Paying"—a good step-by-step explanation of the complex and "mysterious" procedures that legally transform a house into a home. Part of this section deals with the old-fashioned art of "horse-trading," brought up to date under the term "home-buying."

"What's Wrong with American Houses?" is a good editorial of interest to everyone involved in the construction of houses. Watkins' point of criticism will prompt many professionals to agree heartily (and some to point out they said it first). In some respects, this is the best part of the book.

Lastly, "A Check List for Building or Buying a House" is presented. This is probably not written by the author because the purpose of some of the questions is vague, leaving no way for the answer to be interpreted as good or bad, right or wrong.

Fundamentally, Art Watkins has written a comprehensive treatise. All in all, the information covered should give the needed reference for making fewer mistakes and better decisions. He makes the reader acutely aware of the complexity of the entire subject of house building, and, in so doing, draws attention to the professionals and the service they can offer. If an enlightened customer is a better customer, then Art Watkins' book will help create better customers (and clients).

ROBERT MARTIN ENGELBRECHT
Architect and Consultant
New York, N.Y.

Still Debating the Private Bath

HOTELS, RESTAURANTS, AND BARS, *by W. S. Hattrell & Partners. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. (1962, 146 pp., illus. $16)*

The book starts with a very lofty and commendable introduction that states: "The aim has been to define the problems . . . [to make it possible for the architect] . . . to produce a hotel, a restaurant or bar, efficient in operation and to which the customers will want to return, for this

Continued on page 191

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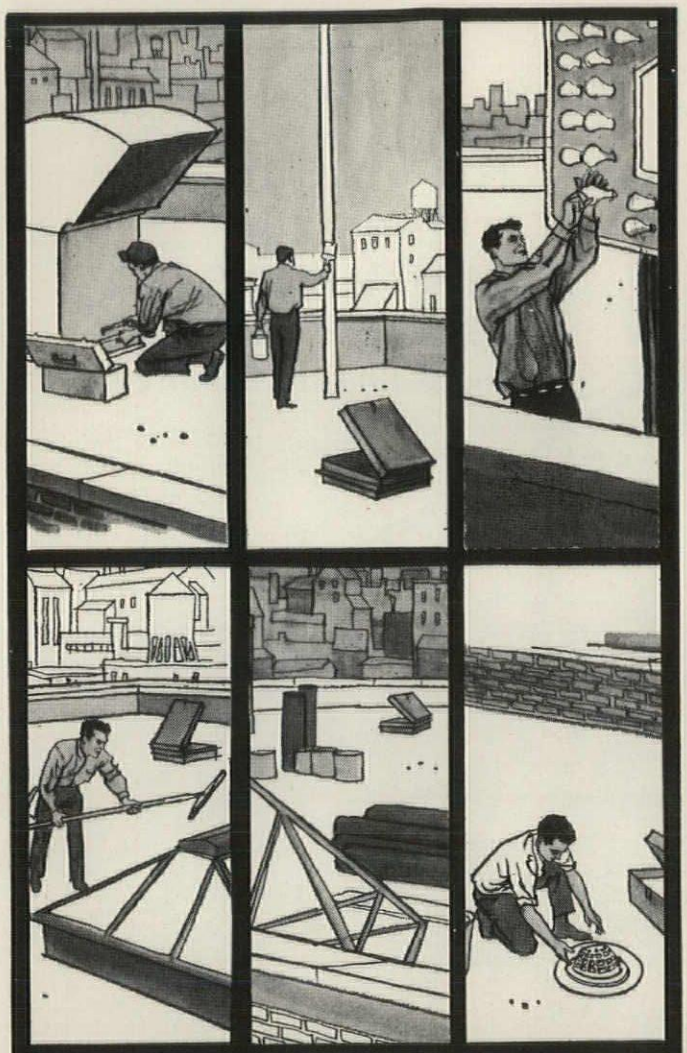

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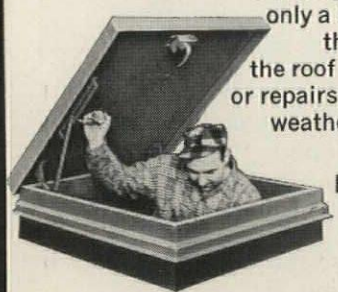

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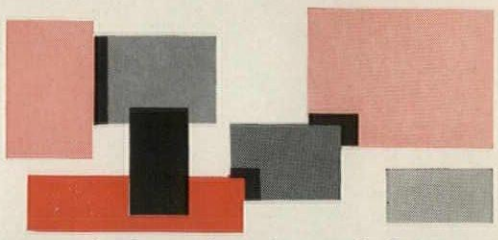

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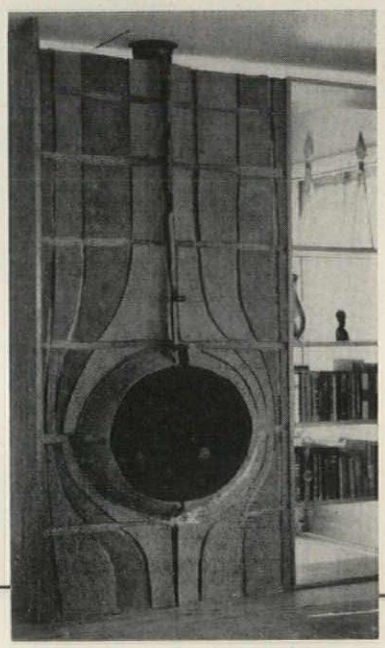

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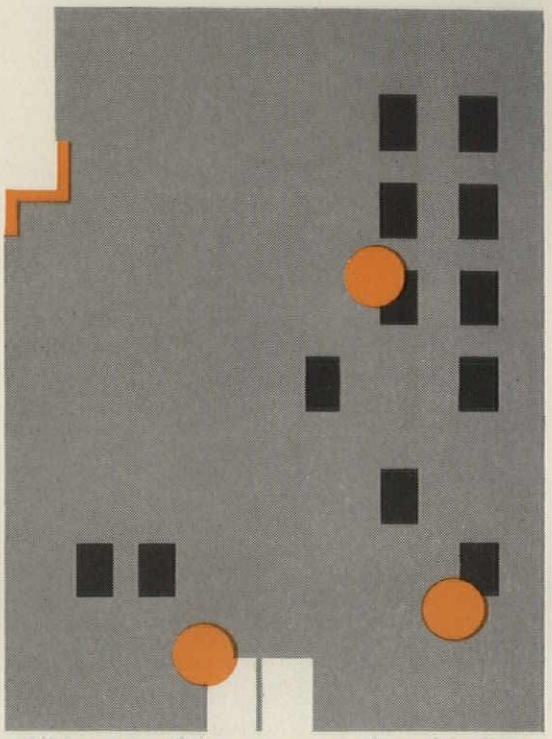

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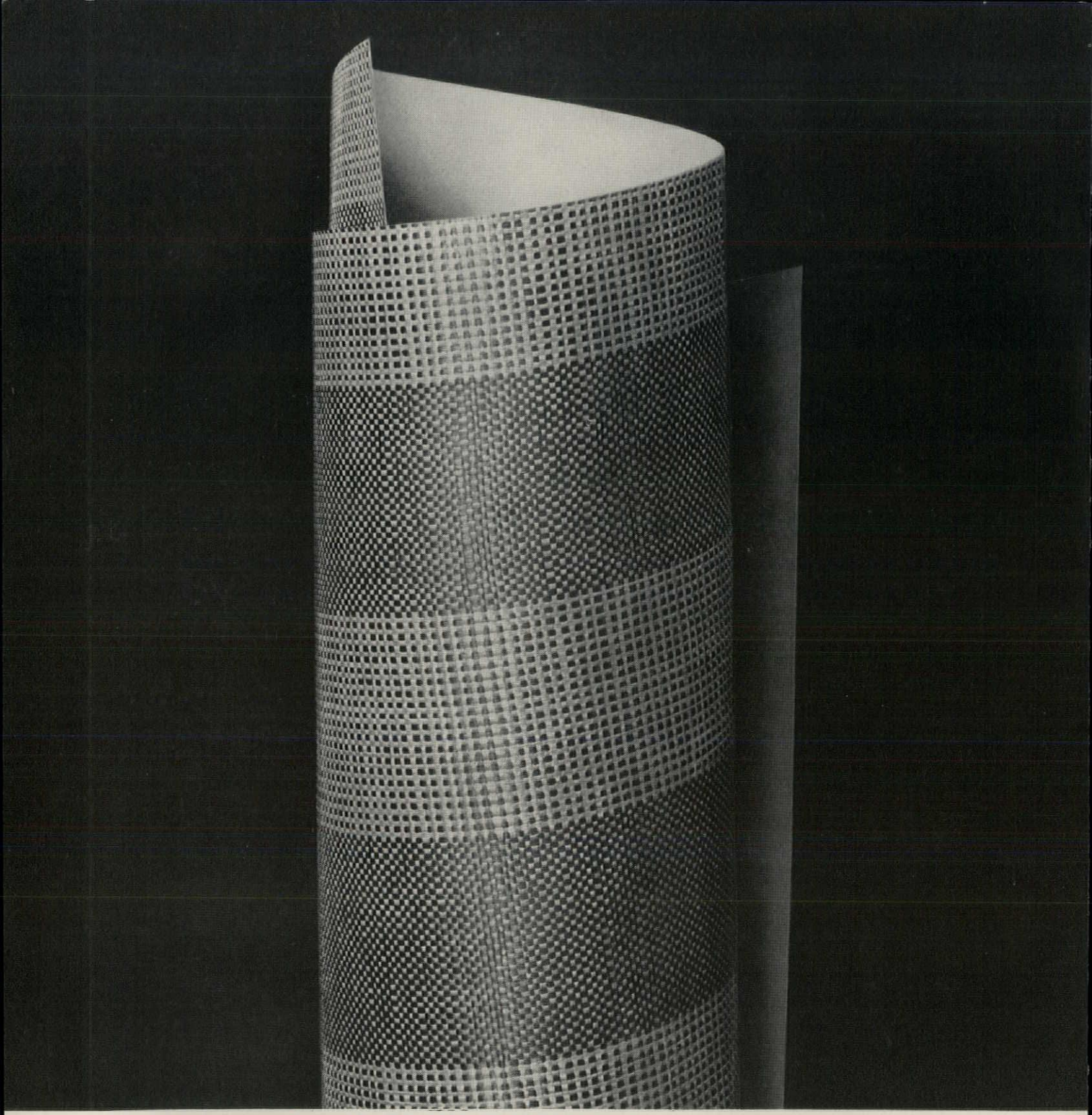

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Continued from page 186

will be the measure of his success." Before discussing the book, I would like to recount an incident which occurred over 30 years ago when, as a young architect, I was asked by my employer to design a small city hotel. With all the drive of youth given his first opportunity to design a building, I drew what I considered at that time a masterpiece of hotel design. My employer (patient and sympathetic soul) carefully reviewed my plans, commended me on my drafting and concept, but whispered to me in confidence that hotels should be designed with individual bathrooms. The only bathrooms I had on the guest floors were those at the end of a corridor; there were none in any of the guest rooms! Through the ensuing years I have executed plans for many hotels which I am happy to say have a private bathroom for each guest room.

I tell this story because, after reading the book by Hattrell & Partners, I was strongly reminded of that early phase in my architectural training. The book repeats practically the same basic information imparted by my employer 30 years ago: to wit, that each guest room should have its own bathroom. In fact, the statement is actually made—"assuming that most bedrooms will have private bathrooms"—an outdated assumption, to say the least, in talking about today's hotels. The entire book, unfortunately, abounds in statements so elementary as to be almost boring to any architectural student, certainly tedious to any hotelier.

The paragraphs devoted to the mechanical systems of hotels are unbelievably naïve, with such tidbits as: "Usually central heating will be found more efficient and cheaper"; "Mechanical ventilation is also usually required"; "It is a common practice of people to wash their hands under a running tap and this can lead to an excessive use of hot water which can be avoided if the temperature is high enough to make the practice unpleasant." The data on heating, air conditioning, and ventilating is the kind given in most architectural schools. A reference to telephones suggests that the operator be near the front desk, which might be advisable in a small motel but certainly not in a hotel. A choice admonition says: "Bells are required at the entrance for the use of guests arriving after the doors have been closed for the night." And so on, through a long list of elementary and obvious observations.

The description of public rooms is patently written by an English architect familiar with English hotels, which in themselves are quite an anachronism.

Although the concession is made that the lounge (the English equivalent of our lobby) should be large and open because "most people like to see other people moving about," the authors state that "it should not be a non-productive space." And in the true tradition of England, they suggest that it be used for the service of coffee and tea and drinks, and further suggest that there be a writing room or a separate room somewhat like a sitting room, although this would be for the smaller hotels rather than the larger ones.

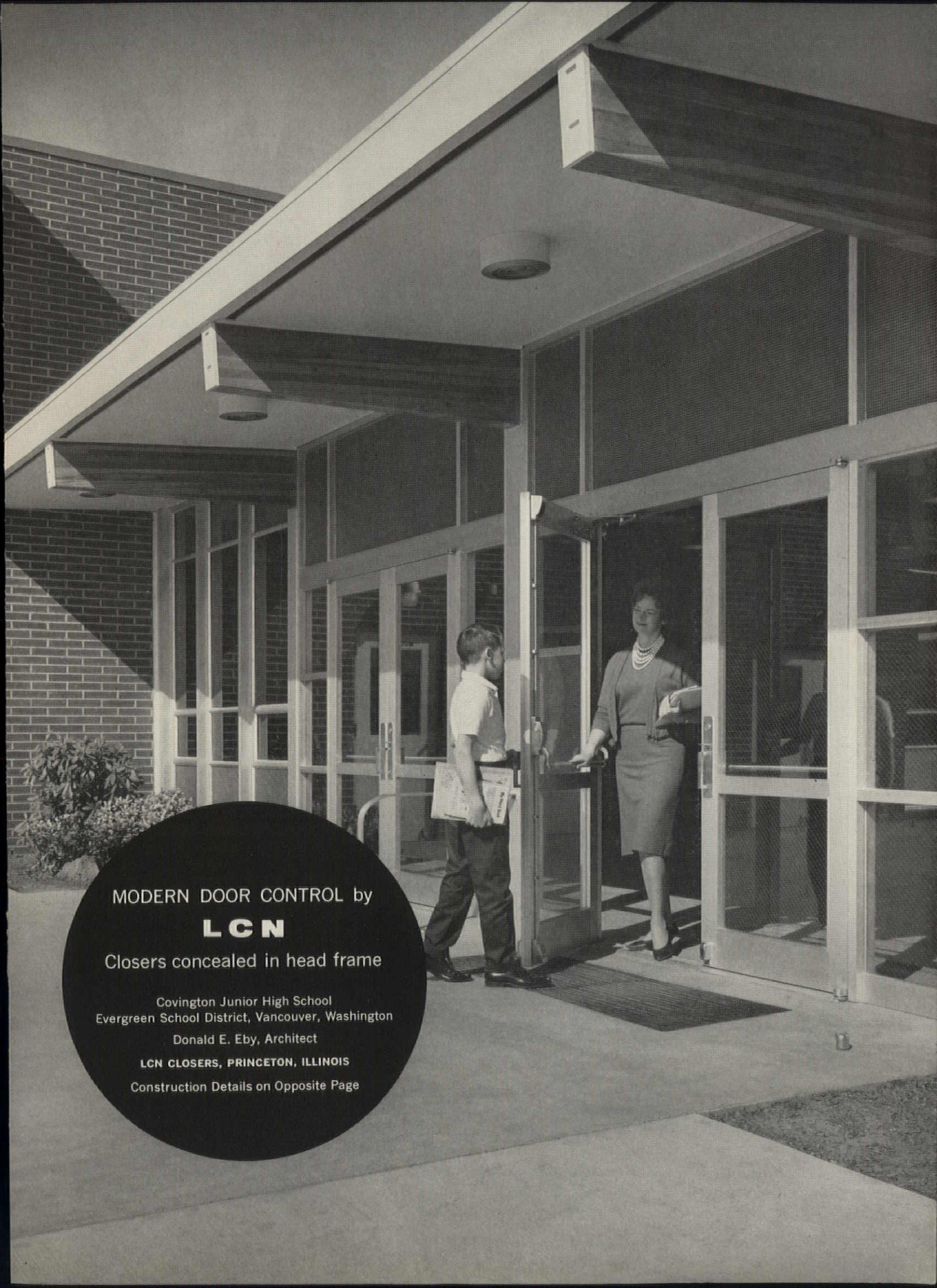
One of the features of European hotels that I have always admired is discussed in this book: namely, a heated towel rail in the bathroom. The authors have finally dispelled the mystery of why European hotels have this wonderful comfort while American hotels do not. The reason has been borne out by my own observations—many bathrooms do not have any form of heating other than the heated towel rail, so that a guest stepping out of his tub or shower in a cold bathroom can quickly find the comfort of a warm towel to keep from catching cold. I'm sure that our custom of heating each bathroom is preferable.

One last observation, which sums up the naïveté of the entire book: "There is a fascination about engineering equipment and just as ships' passengers like to see the engines, hotel guests are interested in the machinery which drives the hotel, so some consideration might be given to fitting in the heating chamber where glimpses into the works can be obtained."

Aside from the text, which by now you may gather is hardly worth reading, I find that the selection of hotels in the section of the book devoted to illustrations is made on the basis of a purely personal preference on the part of the writers. This is a dangerous precedent for anyone attempting to write an authoritative and informative book on any architectural subject. The writer should not be critic as well as author, but an observer who is willing to show a cross-section of architecture rather than a selection based on his own subjective likes and dislikes. The exteriors shown are for the most part austere International modern, with a few pleasant exceptions. The interiors, too, reflect the cold Spartan quality which the authors seem to prefer. Their selections show interiors that at first glance seem to have been culled from a book devoted to prison interiors. Most of the rooms are monastic and cell-like, while again, from my observation on travels around the world, I would judge these to be the exception rather than the rule. The dining rooms illustrated are a somewhat happier choice, but, here also, the authors' devotion to the so-called International school of modern design is most apparent.

If an authoritative source book on hotels, restaurants, and bars is needed, it should be written by an architect who has had a great amount of experience in those fields and is therefore in a position to present material that can be useful and informative to practitioners who have had less experience. The choice of an English architect rather than an American as author for such a book is most unfortunate, because England has very few new hotels and those I have seen are primarily copies of American hotels. Lest I be accused of flag-waving, let me state that the United States has probably had more hotels built in the last ten years than any other country in the world, and probably as many as all the new hotels in the world combined.

I began with a personal anecdote and I would like to end with one. Some years ago, I was called in as a consultant for a hotel in the West Indies being designed by a firm of British architects. I refused to serve as a consultant, because



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Construction Details on Opposite Page

the basic concept of the hotel was so badly outmoded and would require such a tremendous staff in its operation that no amount of effort on my part would have been of any assistance. I got to know the architects eventually, because I was asked to become the architect, with the British architects serving as consultants. I must say that they were delightful people, with a thorough knowledge of construction and architecture, albeit a very elementary knowledge of hotels. I learned that this firm had originally been selected because of their extensive knowledge of hotels. Further inquiry indicated that the last of many hotels designed by them had been one in India, 30 years ago. No reflection on the authors of this book is intended.

Lest this review seem too harsh, the conclusion of the authors is noteworthy, for it does show that a great deal of study went into this book. It concludes with this commendable statement: "Already there is a universality in architecture unknown 20 years ago. There is a sameness about hotels built in England or America or Turkey which reflects the fact that although they are subject to different climatic conditions, although they may be built of local materials and by local craftsmen, there is a uniformity of use which imposes a recognizable pattern. There may well develop, therefore, hotels which are vaguely similar all over the world, quite different perhaps from the indigenous architecture, but familiar to the traveler and having within them facilities for the guests to adjust the conditions of temperature, humidity, and possibly even lighting to accord with the conditions with which he is familiar. . . . New forms of transport may dictate different siting and layout, but the principles of design will not change whilst men still need to eat, drink, and sleep."

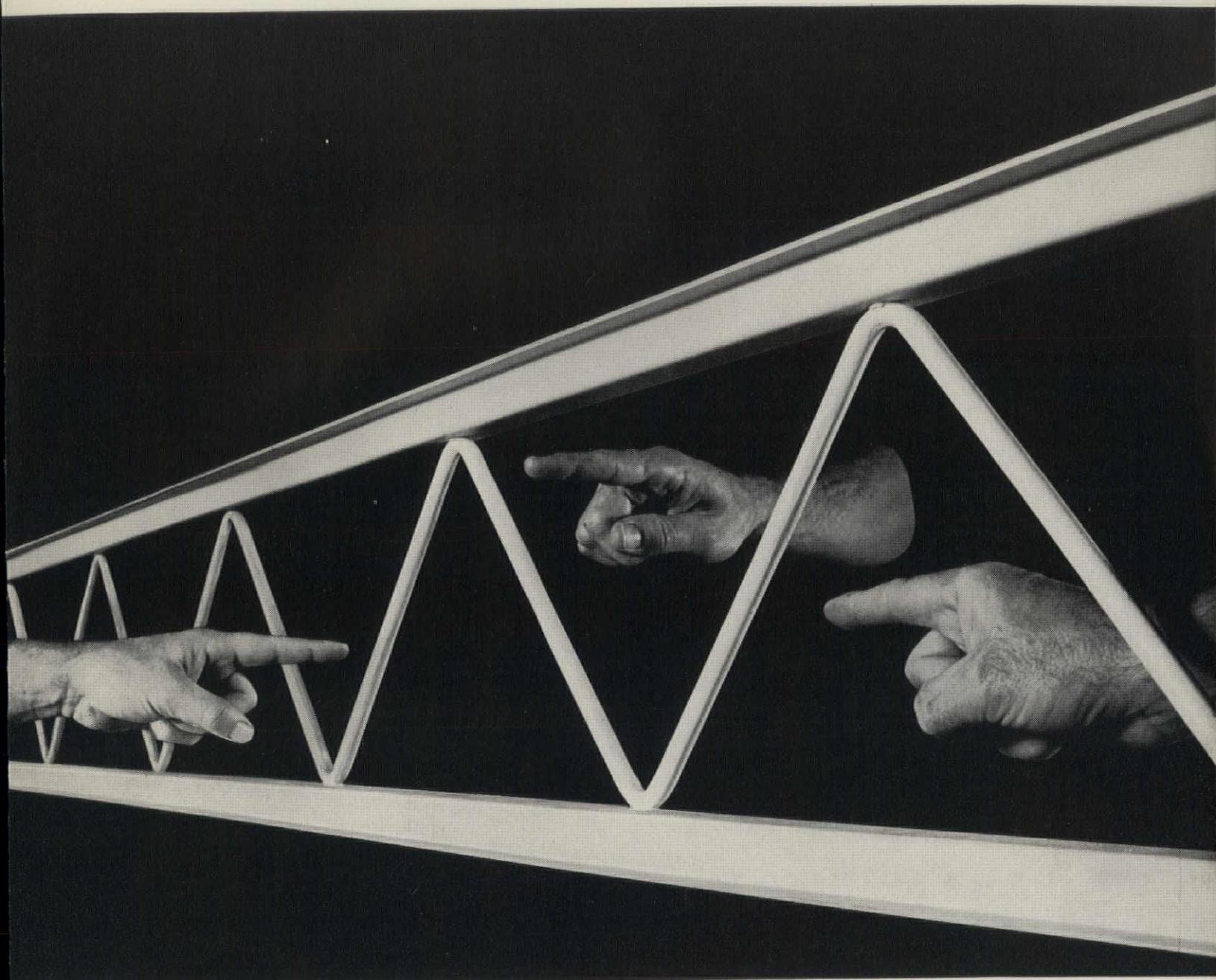
MORRIS LAPIDUS
Morris Lapidus, Harle & Liebman, Architects
New York, N.Y.

The Functional Tradition

INTERNATIONAL SYMPOSIUM ON HOSPITAL AND MEDICAL SCHOOL DESIGN, DUNDEE 1961. *Edited by George H. Bell. Published by E. & S. Livingstone Ltd., London, 1962. Distributed by The Williams & Wilkins Co., Balitmore 2, Md. (2 vols., 263 pp., illus. $16)*

This book is the record of an international symposium held in Scotland last year on the subject of teaching hospitals. Six medical centers are presented. The United States is represented by the Uni-

Continued on page 199



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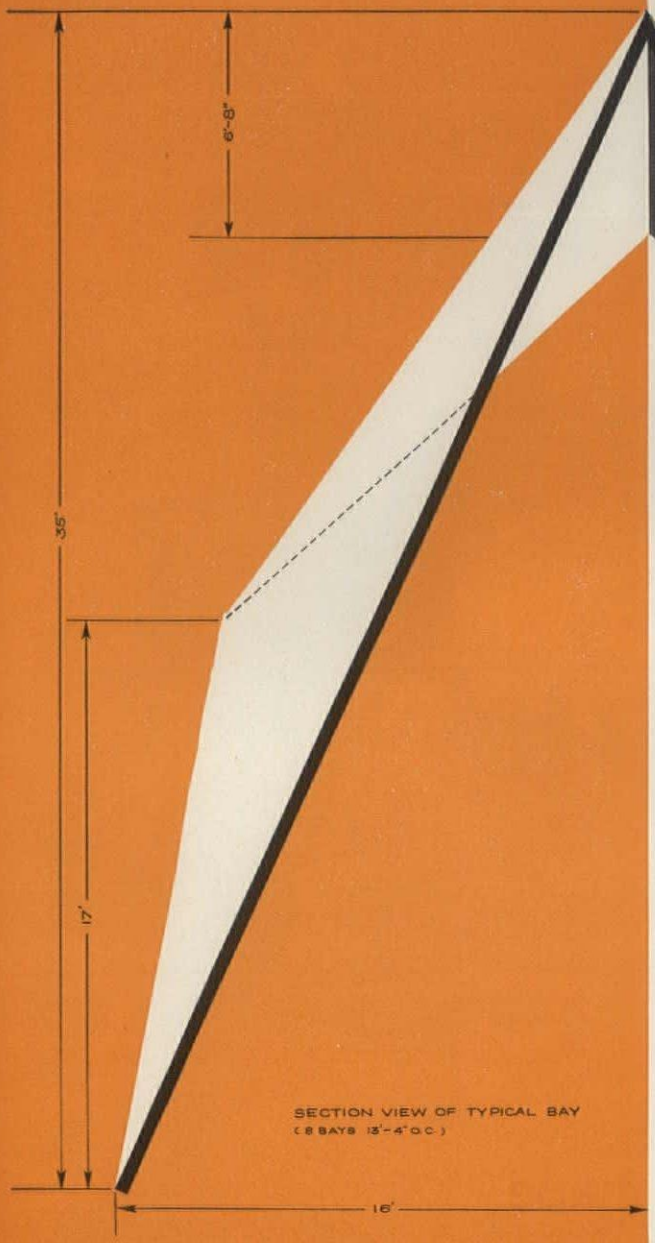

SECTION VIEW OF TYPICAL BAY
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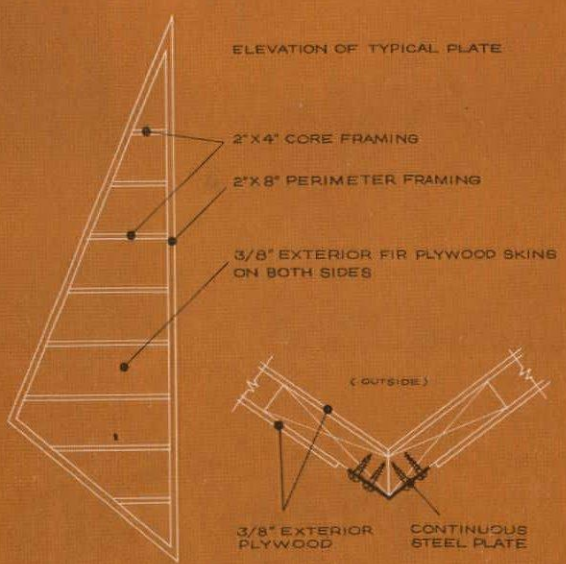

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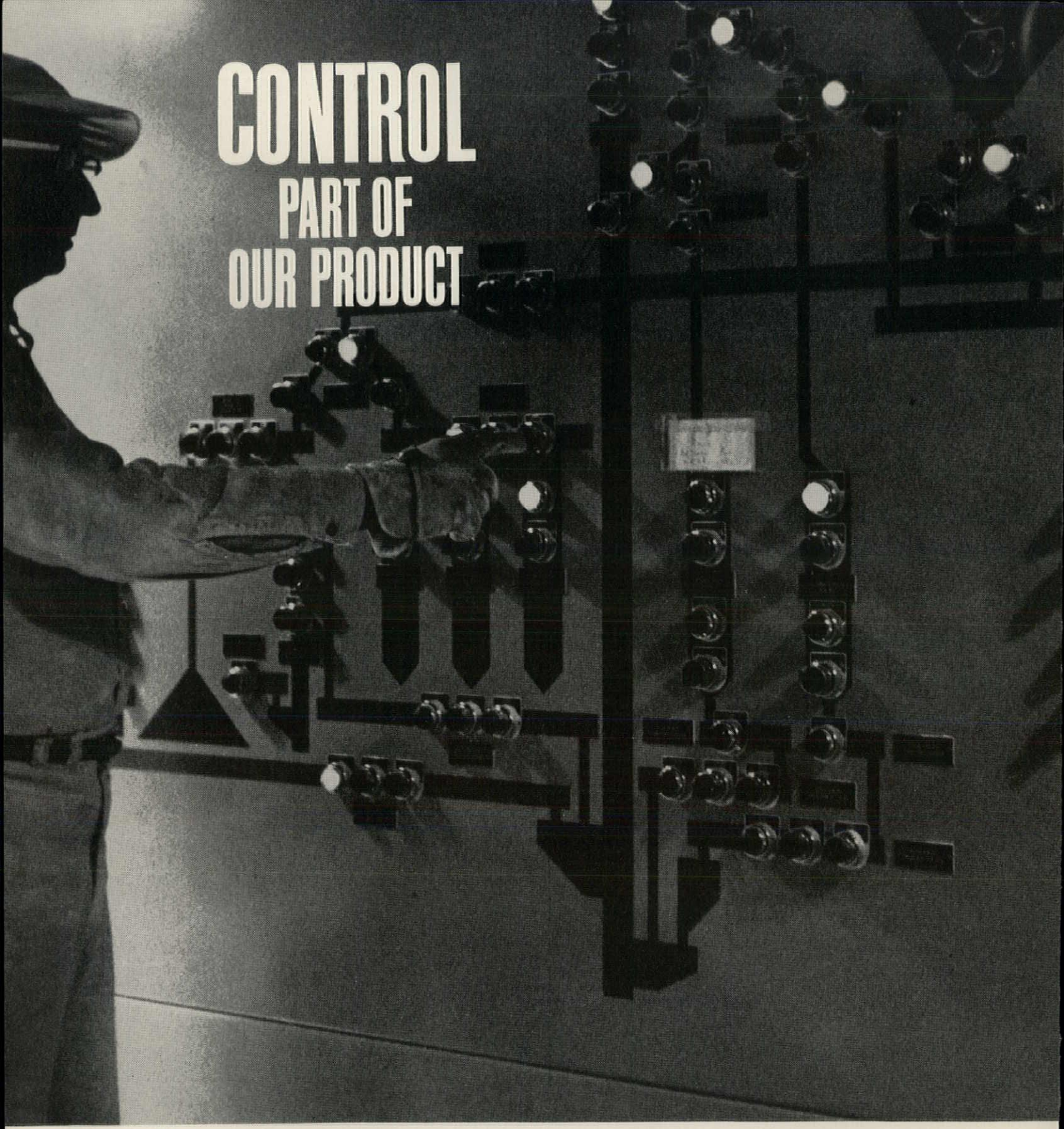

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Continued from page 194

versity of Washington Medical Center at Seattle, the Stanford Medical Center, and the N.I.H. Clinical Center at Bethesda, Maryland. These centers are all in operation, and while the reports are brief, they have the virtue of being presented by the men who run them. The frank remarks of Jack Masur on his experiences with the N.I.H. Clinical center are particularly refreshing.

Britain is represented by St. Thomas' Hospital in London, the University Hospital of Wales, and the Ninewells Hospital of Dundee, Scotland. These centers are in an advanced stage of planning, and the bulk of the symposium is devoted to them. Separate papers outline, for each, the historical background of the project, the struggles to develop the program, the architects' presentation of the preliminary designs, as well as presentations of the student teaching facilities, the nursing units, and the outpatient facilities. The special preoperative facilities planned for Ninewells are of particular interest. All of this is buttressed, on the one hand, by papers on the philosophy of medical education and the organization of complex planning programs, and, on the other hand, by a variety of special pieces on research laboratories, animal quarters, heating and ventilating, operating-room design, and hospital supply systems. The last is a most satisfactory presentation of the work of Gordon Friesen.

As might be expected, the material ranges from the graceful dinner remarks of public officials to highly technical presentations. Generally speaking, however, the quality of the material is extraordinarily high. Most welcome is the lavish collection of readable plans, drawings, and photographs that occupy one of the two volumes. The editors, however, have taken the easy way out with the volume of text by apparently printing the papers in the order in which they were presented at the symposium. This is hardly a meaningful sequence. To read the material on just one hospital, for instance, one must consult five or six separate articles, scattered through the volume. The reader is advised to consult the contents carefully before proceeding.

This deficiency should not be overemphasized. Hospital architects will, in any case, study these pages with a real intensity of interest—and will find the experience rewarding. What is unfortunate is that architects with less incentive will undoubtedly ignore them. This is not architecture as an end in itself but an architecture that derives its qualities from the needs of the life that goes on within it. This book is a reminder that the functional tradition in architecture is not dead, but in this field is progressing and will be available when the narcissistic phase through which the profession is now passing has run its course.

ROBERT HYDE JACOBS, JR.
Architect
Director, Office of Hospital Research
of New York Chapter, AIA

Architectural "Who's Who"

AMERICAN ARCHITECTS DIRECTORY (SECOND EDITION), *edited by George S. Koyl. Published under the sponsorship of the AIA by R. R. Bowker Co., 62 W. 45 St., New York 36, N.Y. (1962, 919 pp., $25; $15 to AIA members)*

The "Who's Who" of the architectural profession has been reissued after a six-year interval, replacing for 1962 the *Membership List* issued by the AIA. This encyclopedic *American Architects Directory* is much more than a "membership list," however. It has current (and in some cases extensive) information on a total of 15,400 architects—the full membership of the AIA plus selected nonmembers. In coverage alone, this represents a 40 per cent increase over the earlier volume.

For some 11,000 of these architects, there is a comprehensive biography—schools attended, previous positions held, states where registered, major works completed, awards won, books published, and building types predominating in current practices. (New specialities that have come of age since the first edition are landscape design, interior design, and restorations.)

For those who did not respond to questionnaires or who are newly elected to the Institute, there is a two-line entry giving firm name, address, date of joining the AIA, and chapter affiliation.

A number of new features distinguish this edition from the earlier volume. A listing of 6400 architectural firms gives names of all partners or principals. A chart of AIA officers and conventions from its founding in 1857 calls to mind some of the earliest luminaries of the AIA: Richard Upjohn (who was its first president, serving a term of almost 20 years), Richard Morris Hunt, Henry Van Brunt, Daniel Burnham, Charles Follen McKim.

Other features of note are a geographical section with names and addresses arranged by state *and* cities; also, lists of honorary members, fellows, honorary fellows and recipients of AIA Honor Awards. In the appendix are

membership lists (with addresses) of the NCARB, the ACSA, and the Producer's Council.

In a monumental work of this sort there are bound to be a few errors, for which the editor charmingly asks our understanding indulgence. However, we ask *his* understanding indulgence for passing along two that caught our eye —perhaps the only two in the volume. Ladislav *Radio* is listed among the fellows, and the speciality of José Luis Sert turns out (from the legend at the bottom of each page) to be *mortuary* structures!

E. P.

Carving Out a Valuable Niche

THE GREAT AGES OF WORLD ARCHITECTURE: GREEK ARCHITECTURE *by Robert L. Scranton.* EARLY CHRISTIAN AND BYZANTINE ARCHITECTURE *by William MacDonald.* MEDIEVAL ARCHITECTURE *by Howard Saalman.* RENAISSANCE ARCHITECTURE *by Bates Lowry. Published by George Braziller, Inc., 215 Park Avenue South, New York 3, N.Y. (1961, 128 pp. each, illus., $4.95 each.)*

These new volumes continue the admirable precedent set by the first four in this series and previously reported on by this reviewer [p. 168, JUNE 1962 P/A]. They have the same format—an essay of some 15,000 words followed by about 100 illustrations—and they have the same minor drawback of separation of text from illustrations. Here again, however, a group of distinguished scholars has converted what might have seemed severe limitations into sparkling assets. Each of them was required to cover a large field, in the nontechnical language of the layman. There is, of course, a large and specialized literature in each of these fields. But none of it is accessible to the layman, and, even for the specialist, these Braziller studies constitute valuable summaries of present-day knowledge—concise, informed, and perceptive.

Scranton's book on the Greeks is a clear and cogent summary of their experience from early Helladic times up to Augustus. Using the Hephaisteion as an examplar of the "classic" (not because it is the finest but because it is the most completely intact), he measures each of the great periods against it. Wisely selected illustrations supplement this text and a good bibliography completes it.

MacDonald's study of Early Christian and Byzantine architecture meshes nicely with Saalman's on European medieval architecture after 600 A.D. The "dark

ages" will seem considerably better lit to anyone who reads these two books together; and, when considered in conjunction with Branner's already published study on the Gothic, we have a coherent account of Western architecture from the eclipse of Imperial Rome to its rediscovery a thousand years later by the Italian Renaissance. To this reviewer, at least, Saalman's book seems the more interesting of the two, perhaps because it represents a masterly summary of recent work in less familiar territory. Such work, Saalman says, has led to "the increasing recognition of the over-all artistic unity of the Late Antique-Early Christian world. The occasionally stimulating and always controversial conception of Late Antique art as a product of the interaction between 'Rome' and a never wholly defined 'Orient' has not withstood the test of further study." His text and plates make this unity quite convincingly apparent.

Dr. MacDonald admittedly has a vaster canvas to cover—the Byzantine Empire was almost as extensive in space and more extensive in time than the Roman. He has done an admirable job in tracing the spread of the Byzantine idiom from Sicily to Armenia and from Jerusalem to Kiev. The basic unity of all these far-flung churches is astonishing. This reviewer's only regret is that, with all this canvas to cover, MacDonald could not devote more space to the 1000-year development of the center of all this activity—the Byzantine capitol and palace in Constantinople. Perhaps the sheer enormity of the subject precludes this; and, as the author points out, all reconstructions of the palace itself are extremely conjectural. Nevertheless, it would have been interesting to get some glimpse of the architecture in which the majestic mosaic floors now on view below the terrace of the Blue Mosque might once have appeared.

Bates Lowry's study on the Renaissance is the most candidly literary of the four. He is a master of the felicitous phrase, as when he describes the transition from Renaissance to Baroque thus: "The illusionistic devices that had hitherto been the servants of making apparent what was real were now to become the masters of making real what was only apparent." In general, this is an entertaining account of what happened between Brunelleschi and Palladio. It seems to this reviewer that Michelangelo emerges from this study as a less pivotal figure than he actually was. (Since Millon, in the already-published study on

Continued on page 204

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Continued from page 201

the Baroque, seems to regard him as completely a Renaissance figure, it looks as if Buonarroti is destined, in this series at least, to fall between two stools.) And there is one error of sizeable proportions: Lowry gives the diameter of Brunelleschi's dome in Florence as 350 ft; it actually measures 138 ft 6 in.

With five more titles to go, this series is carving out for itself a valuable niche in architectural literature, hitherto not filled.

JAMES MARSTON FITCH
Professor, School of Architecture
Columbia University
New York, N.Y.

OTHER BOOKS TO BE NOTED

Cities in the Suburbs. Humphrey Carver. University of Toronto Press, Toronto 5, Ont., 1962. 120 pp., illus. $4.95
To be reviewed.

The Court-Garden House. Norbert Schoenauer and Stanley Seeman. McGill University Press, 3458 Redpath St., Montreal 25, Que., 1962. 204 pp., illus. $8
To be reviewed.

Drawings by Architects: From the 9th Century to the Present Day. Claudius Coulin. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y., 1962. 144 pp., illus. $12.75
To be reviewed.

The Evolution of an Architect. Edward Durell Stone. Horizon Press, Inc., 156 Fifth Ave., New York 10, N.Y., 1962. 288 pp., illus. $15
To be reviewed.

A Guide to Old American Houses (1700-1900). Henry Lionel Williams and Ottalie K. Williams. A. S. Barnes & Co., Inc., 11 E. 36 St., New York 16, N.Y., 1962. 168 pp., illus. $10
To be reviewed.

The Intellectual Versus the City: From Thomas Jefferson to Frank Lloyd Wright. Morton and Lucia White. A Publication of the Joint Center for Urban Studies. Harvard University Press and the MIT Press, 1962. Distributed by the Harvard University Press, 79 Garden St., Cambridge 38, Mass. 270 pp. $5.50
To be reviewed.

Les Pavillons: French Pavilions of the 18th Century. Cyril Connolly. Photographs by Jerome Zerbe. The Macmillan Co., 60 Fifth Ave., New York 11, N.Y., 1962. 212 pp., illus. $15
To be reviewed.

Man-Made America: Chaos or Control? Christopher Tunnard and Boris Pushkarev. Yale University Press, 149 York St., New Haven 11, Conn., 1963. 479 pp., illus. $15
To be reviewed.

The Shape of Time: Remarks on the History of Things. George Kubler. Yale University Press, 92A Yale Station, New Haven, Conn., 1962. 136 pp., $3.75
To be reviewed.

Stores and Shopping Centers. Edited by James S. Hornbeck. McGraw-Hill Book Co., Inc., 330 W. 42 St., New York 36, N.Y., 1962. 178 pp., illus. $10.75

A compilation of material originally published in Architectural Record *over the past few years. The portfolio includes both urban and suburban examples; in addition, there are introductory articles by retailers and architects responsible for the new thinking in this field.*

Louis Sullivan: An Architect in American Thought. Sherman Paul. A Spectrum Book. Prentice-Hall, Inc., Englewood Cliffs, N.J., 1962. 176 pp., illus. $4.50 ($1.95 paperbound)

To be reviewed.

Symposium on Methods of Testing Building Constructions (STP 312). American Society for Testing and Materials, 1916 Race St., Philadelphia 3, Pa., 1962. 84 pp., illus. $3.75 ($3 to ASTM members)

A cross-section of current work that lies behind the formulation of standard test methods. Four papers discuss latest research in evaluating metal curtain walls, clay masonry curtain walls, flat-roof construction, and snow loads on house roofs.

This Is Japan, 1963. Asahi Shimbun Publishing Co., Yuraku-cho, Tokyo, 1962. 464 pp., including advertisements, illus. $7.95 ($9.95 in synthetic-leather case)

Tenth anniversary issue of this lavishly illustrated annual, devoted largely to the subject of Western impact on Japan during the Meiji Era (1868–1912). Articles of special interest include a sketch of the development of Japanese architecture over the past century, by Allen Bernholtz; "An Architect's Memories," by Antonin Raymond; a generously illustrated study of Western-style buildings of the Meiji Era, by Eizo Inagaki; and an article on early Western-style buildings in Kobe, by Katsuhiko Sakamoto. There is also an album of major works of the past two years, with many color illustrations. A classified index of all ten issues of the annual is included as a supplement.

Towards a Church Architecture. Edited by Peter Hammond. The Architectural Press, 9-13 Queen Anne's Gate, London, S.W. 1, 1962. 262 pp., illus. 30s

To be reviewed.

The Twilight of Cities. E. A. Gutkind. The Free Press of Glencoe, A Division of The Macmillan Co., 60 Fifth Ave., New York 11, N.Y., 1962. 201 pp., illus. $5

To be reviewed.

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(2) Museum of Modern Art, New York, "Art Nouveau" Exhibition, 1960
(3) *Deutsche Kunst und Dekoration*
(4) Dr. Franz Stoedtner, Dusseldorf
(5, 6) Peter Collins
(7) Vacquier, J.: *Les Vieux Hotels de Paris*, Vol. II, plate 23

PAGE 124

(8) *Encyclopedia of World Art*, McGraw-Hill Book Co., Inc., (New York, 1960), Vol. II, plate 142
(9) Wittkower, Rudolf: *Art and Architecture in Italy 1600–1750* (Penguin Books), plate 68A
(10) Lenning, Henry F.: *The Art Nouveau* (The Hague, 1951), p. 40
(11) *Ibid*, p. 37
(12) Madsen, *op. cit.*, p. 327
(13) *Art Nouveau*, (Museum of Modern Art,, New York, 1960)
(14) Drexler, Arthur, and Daniel, Greta: *Introduction to Twentieth Century Design* (Museum of Modern Art, New York)
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NO. 8 | folded plates

a.i.a. file: 4-a

Prepared as a service to architects by Portland Cement Association

clip along dotted line

Tremendous span and load-carrying abilities characterize concrete shell roofs in the form of folded plates—also known as F/P's. In industrial construction folded plates are being used more and more to provide great areas of column-free space for manufacturing or storage.

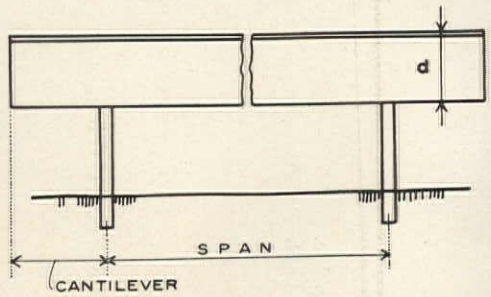
The ability of folded plates to cantilever can be applied advantageously in the design of schools, stores and hangars.

There are three basic types (two shown below) of folded plate shells—V-shaped, Z-shaped and a modified W-shape. The economy of F/P's is increased with form re-usage.

Typical span data for V- and W-shaped plates are shown in the tables below.

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

CROSS SECTION



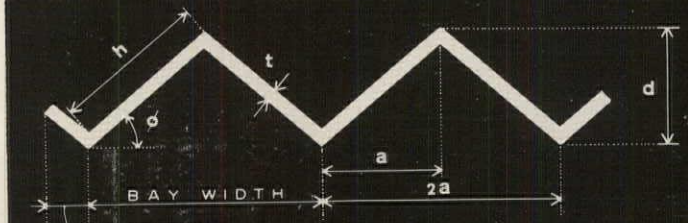
Sufficient cantilever can help to counterbalance the span. The usual span-to-depth ratio varies from 1:10 to 1:15. Example: If span is 40′ long, the usual minimum depth is about $\frac{40}{10}$ or 4′.

Formula:

$$\text{VOLUME OF CONCRETE IN } \frac{\text{CU. YARDS}}{\text{SQ. FEET}} = \frac{th}{324a}$$

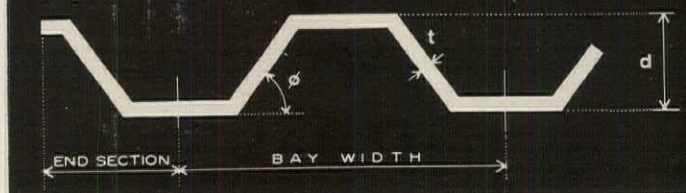
h = ft.
t = in.
a = ft.

TWO SEGMENT F/P



SPAN	ø* max.	ø* min.	d max.	d min.	2a (1)	t (2)	reinforcing (3)
40′	45°	25°	4′-0″	2′-9″	15′	4″	1.2-1.6
60′	45°	25°	6′-0″	4′-0″	20′	4″ 6″	1.9-2.7
75′	45°	25°	7′-6″	5′-0″	25′	4″ 6″	2.6-3.7
100′	45°	25°	10′-0″	6′-9″	30′	5″ 6″	4.0-5.2

FOUR SEGMENT F/P



SPAN	ø* max.	ø* min.	d max.	d min.	2a (1)	t (2)	reinforcing (3)
40′	45°	30°	5′	2′-6″	20′	3″	1.5-2.0
60′	45°	30°	6′	4′	25′	3″ 3½″	2.0-3.0
75′	45°	30°	7′-6″	5′	30′	3″ 4″	2.5-4.0
100′	45°	30°	10′	6′-6″	40′	4″ 5″	4.0-6.0

* max. recommended slope is 45°
(1) values shown may vary with architectural design
(2) average thickness in inches
(3) pounds per square foot of projected area

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