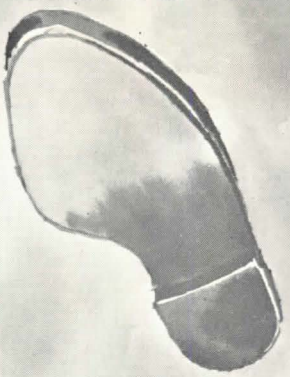
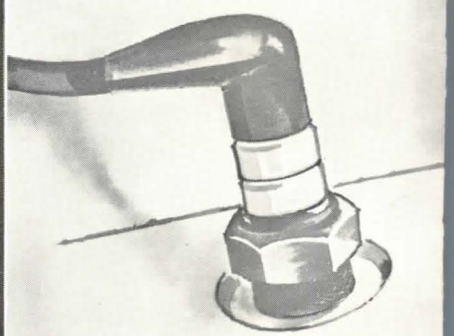
PROPERTIES OF HYPALON
ADVANTAGES OF VISTELLE



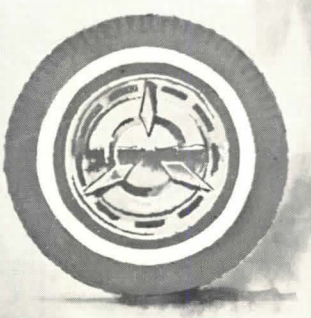
Hypalon: So tough and resilient, it's use for shoe soles and heels.

Vistelle: Long wear under heavy traffic Outstanding resilience for comfort, quiet recovery from indentation.



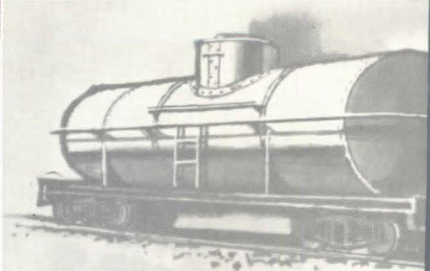
Hypalon: So resistant to heat, it's used fo spark plug boots.

Vistelle: A lighted cigarette will not ruptur its surface.



Hypalon: So colorfast it's used for whit walls . . . resists yellowing from sun a weather.

Vistelle: Extraordinary fade resistanc Richer, clearer colors.



Hypalon: So resistant to solvents, cher cals, acids, it's used to line tank ca pipes, valves.

Vistelle: Superior resistance to stain compared to vinyl and rubber tiles. S text opposite.

NEW FROM ARMSTRONG:

VISTELLE CORLON TILE, made with Du Pont Hypalon.

Read how this new floor provides an unequalled combination of physical properties and functional advantages.

These illustrations show how Armstrong has utilized the remarkable physical properties of Du Pont Hypalon to create an equally remarkable flooring product called Armstrong Vistelle Corlon Tile. Vistelle is the result of ten years of Armstrong research and field testing, a completely new kind of floor. It offers the best combination of physical properties and functional advantages ever incorporated in one flooring material.

RESISTANCE TO INDENTATION MARKS:

Most flooring materials resist indentation by virtue of their **hardness.** Vistelle's exceptional resistance to permanent indentation is a function of its extreme **resilience.** It has outstanding ability to recover from pressure. It springs back from the impact of stiletto heels, from the weight of desks and chairs, keeping the floor virtually free of permanent indentation marks, without sacrificing underfoot comfort and quiet.

COMFORT AND QUIET:

Because of its amazing resilience, Vistelle gives luxuriously underfoot. It's as comfortable as rubber tile, almost as quiet as cork tile. And unlike other resilient floors, the extraordinary resilience of Vistelle does not decrease with age.

RESISTANCE TO CIGARETTE BURNS:

Lab tests and actual installations have shown that cigarettes left burning on Vistelle tiles won't rupture or permanently scar Vistelle's surface and leave only a surface stain which can normally be removed with standard maintenance procedures.

COLOR CLARITY AND FADE RESISTANCE:

Compared to other resilient floors, the whites in Vistelle are whiter, the blacks blacker, the colors richer, the designs sharper. Test installations of Vistelle Corlon Tile have been exposed to sunlight for several years with remarkable color constancy.

RESISTANCE TO STAINING:

Tests have been made with more than 100 chemicals and a like number of common staining agents, such as lipstick, grape juice, crayon, and ink. Compared to homogeneous vinyl, rubber, and unfilled vinyl tiles, Vistelle's over-all rating in resistance to staining was dominantly superior. Vistelle is also greaseproof.

DIMENSIONAL STABILITY:

Vistelle Corlon Tile has exceptional resistance to shrinkage or expansion, exceeding the requirements of Federal Specification (homogeneous vinyl tile) Interim L-F 00450 — (COM-NBS). Seams stay tight. Tiles won't cup. (Dimensional stability will be guaranteed in writing by Armstrong.)

ABRASION RESISTANCE:

Vistelle provides excellent abrasion resistance for long wear under heavy traffic. A test installation of Vistelle on the entrance ramp of the Disneyland House of Tomorrow was abraded for 2 years by sand and gravel tracked from paths leading to the house. Even after 4 million people had used this ramp, only 20% of the tile's thickness had been worn away.

TECHNICAL DATA:

USES: Vistelle can be installed above, on, or below grade, over any kind of subfloor. Because of its versatility and good looks, Vistelle is ideal for use in hospitals, business interiors, institutional buildings, fine residential interiors. MAINTENANCE: Its tough, smooth surface makes Vistelle easy and economical to maintain. GAUGE: ⅛". SIZES: 9" x 9", 12" x 12". COLORS: 10 colorings in 5 color-coordinated pairs, which can be used in combination or separately. COST: $1.50 to $2.00 per sq. ft., depending on the size of the installation and job conditions.

For complete information on Vistelle, including performance tests, specifications, and samples, contact the Architect-Builder Consultant at your nearest Armstrong District Office. Or write direct to Armstrong, 308 Watson Street, Lancaster, Pennsylvania.

Armstrong FLOORS

Here's a complete line of Shortspan and Longspan Steel Joists

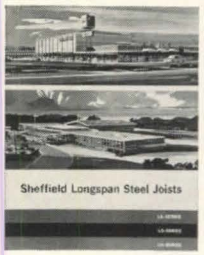
...and the data you need to use them

Now, from Sheffield Division of Armco, you can specify quality-controlled Steel Joists in an extremely wide range of sizes. Lengths range from 8′ to 144′, depths from 8″ to 72″. This selectivity permits application of Sheffield Joists to more building designs, where their high strength/weight ratio helps reduce costs.

Made on automated production lines of Sheffield Division of Armco, Sheffield Open Web Steel Joists meet the specifications of the Steel Joist Institute. Quality is controlled from the making of the steel through all forming and welding operations. Finished joists are shipped to the job site tagged, ready for use.

Complete Technical Data — Free

Physical properties, dimensions, load tables, spacing tables, specifications and other helpful data are yours for the asking. Write us, outlining your needs, or use the coupon below to order your free copy of the Catalog of Sheffield Shortspan Steel Joists (spans up to 48 feet), and Sheffield Longspan Joists (spans up to 144 feet). Also ask for data on Sheffield Steel Roof Deck. **Sheffield Division, Armco Steel Corporation, Department S-1203, 7100 Roberts Street, Kansas City 25, Missouri. Plants in Kansas City, Houston, Tulsa.**



Sheffield Division, Armco Steel Corporation,
Department S-1203, 7100 Roberts Street, Kansas City 25, Missouri

Send the following product data: ☐ Catalog of Longspan Joists ☐ Catalog of Shortspan Joists

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FIRM _____

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CITY _____ ZONE _____ STATE _____

TELEPHONE NUMBER _____

ARMCO Sheffield Division

For more information, turn to Reader Service card, circle No. 313

1065F with Oiled Teak top, one of the 1000 SERIES models being used in the new 33-story headquarters building of Tennessee Gas Transmission Company, Houston, Texas.

what you can't see is important, too...

Their superb architectural styling alone is reason enough to select **GF 1000 SERIES** *desks. But there are important hidden values, too—highest quality materials, advanced construction techniques and superior craftsmanship. No wonder the offices of so many of America's leading business firms are being furnished with these magnificent desks. Want more information? Call your nearby GF branch or dealer. Or write Dept. PA-24 for a color brochure. The General Fireproofing Company, Youngstown 1, Ohio.*

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THIS MONTH IN P/A

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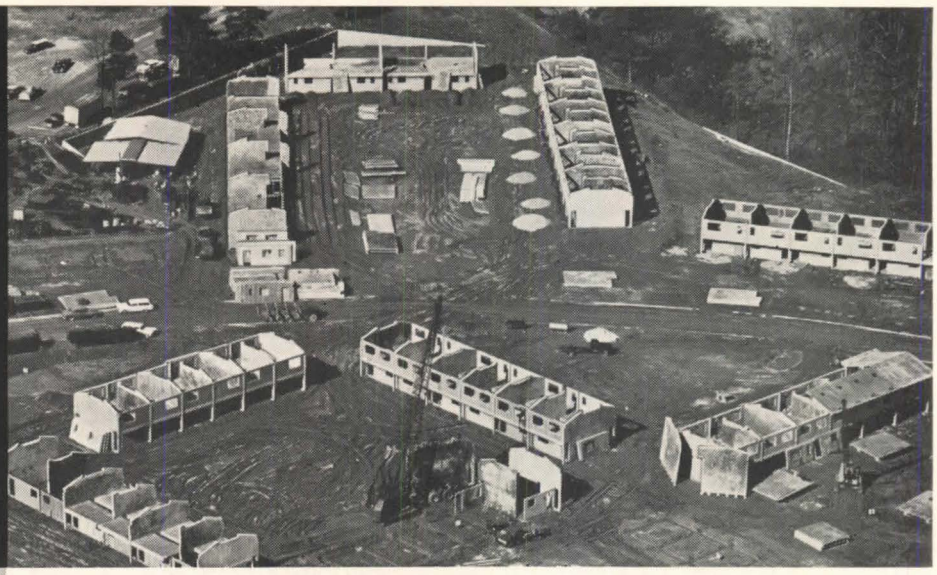
VOLUME XLIV, No. 8

Cover DULLES INTERNATIONAL AIRPORT (page 86) Photo: Baltazar Korab

Frontispiece EXTENSION OF CONCRETE FRAMES, MCFARLAND CLINIC (page 120) Photo: Julius Shulman

PRECAST UNITS
form huge all-concrete housing project



Nine of the 101 buildings in various stages of construction. Entire project covers 80 acres.

This is the concrete bed on which roof units are cast. Roof units as well as all the other precast structural units are 3,000 p.s.i. lightweight concrete.

• Atlanta's Field Road low-rent housing project will contain 3,245 rooms in 101 buildings with dwelling units for 650 families. It is being constructed almost entirely of precast concrete made with Lehigh cement.

Precast concrete was chosen for its speed and economy in construction, for durability, and for low maintenance costs. The extra fire resistance of concrete provides safety for occupants while keeping insurance costs at a minimum.

This immense project is further evidence of the advantages and adaptability of concrete for structures of any shape or size. Lehigh Portland Cement Company, Allentown, Pennsylvania.

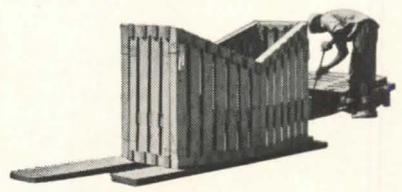
LEHIGH CEMENTS

Owner: Housing Authority of the City of Atlanta, Ga.

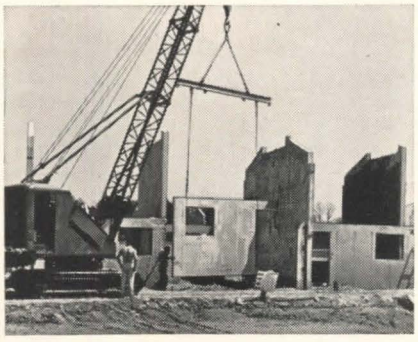
Architects: Bodin & Lamberson and Stevens & Wilkinson, Atlanta, Ga.

Structural Engineers: Chastain & Tindel, Atlanta, Ga.

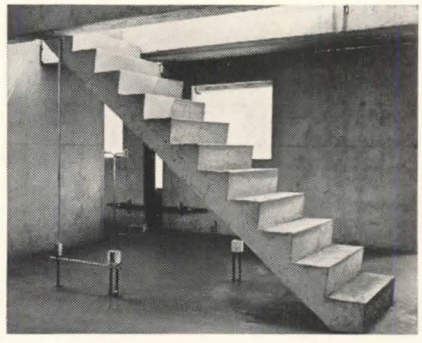
Contractors: Thompson, Street & Diversified Co., Atlanta, Ga.



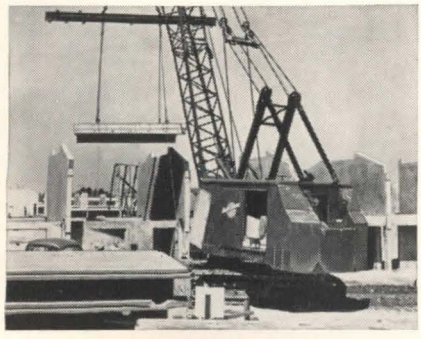
The roof vent screens are cast in four sections on the ground and are assembled at the casting site. There is a roof vent screen for each family unit.



Crane places a first floor side wall between two-story party walls. Units are moved from casting areas to building sites on flat bed trucks.



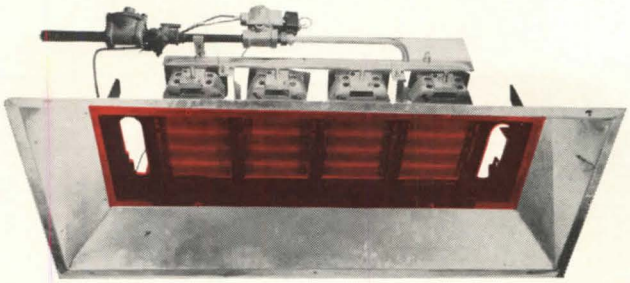
Precast stairs connect the first and second floor of each dwelling unit. Stair forms are positioned on a graded embankment and ready mix trucks dump concrete from the top.



A second floor slab being lowered into place. Supporting beams are cast as an integral part of the slab. Connections are made with weld plates cast in the units.

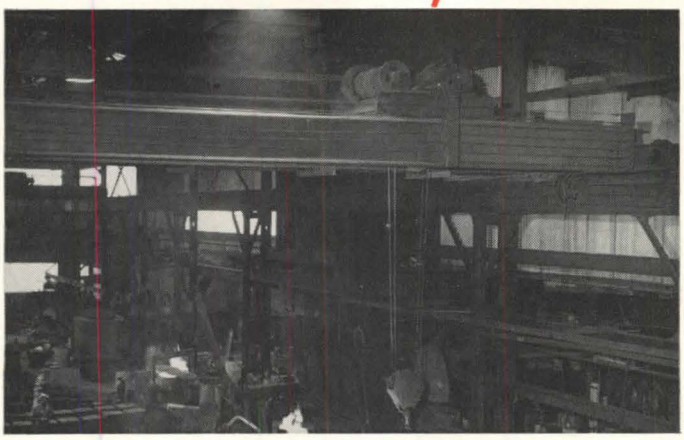
Roof units provide an overhang and built-in gutter. Roof and side wall units are 4″ thick. Party walls are 8″ thick and second floor slabs are 5″ thick.

Buildings vary in size providing from four to sixteen dwelling units each. Exterior walls have masonry veneer. Note roof vent screens atop each unit.



PERFECTION SCHWANK

GAS INFRA-RED HEATERS DURING LAST 8 WINTERS PREVENTED FREEZING OF WATER AND SAND MAINTAINED UNINTERRUPTED OPERATIONS AT COLUMBIANA FOUNDRY COLUMBIANA, OHIO



48 gas infra-red heaters, total input 1,974,000 Btu, have kept foundry operating in severest winter, also providing comfort for workers, because infra-red heats floors, people and equipment *first*. Maintenance in 8 years has been negligible.

For detailed technical information write to:

PERFECTION 1135 Ivanhoe Rd., Cleveland 10, Ohio

division of **Hupp Corporation** / licensee of **American Infra-Red Radiant Co.**

another HUPP product

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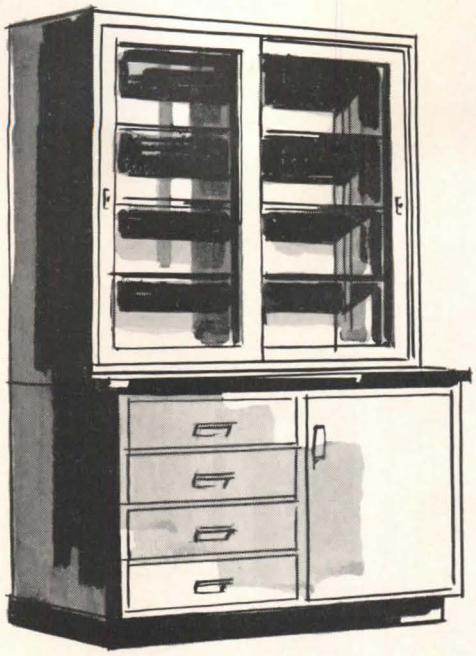

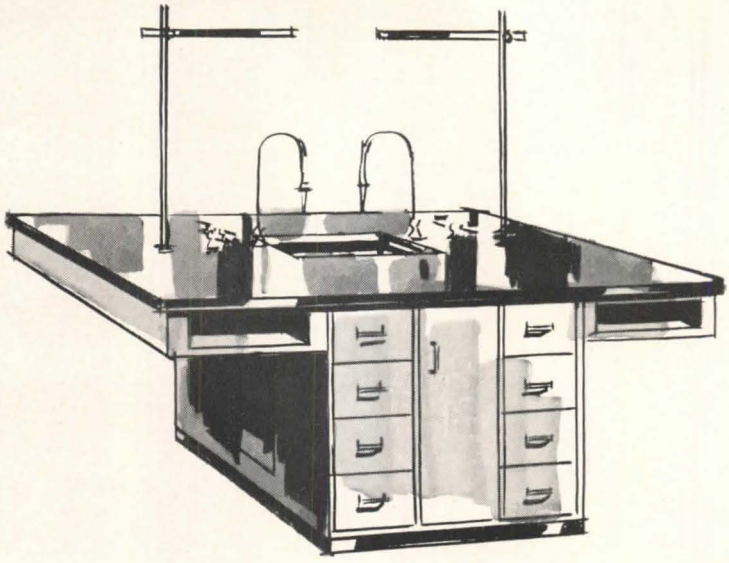

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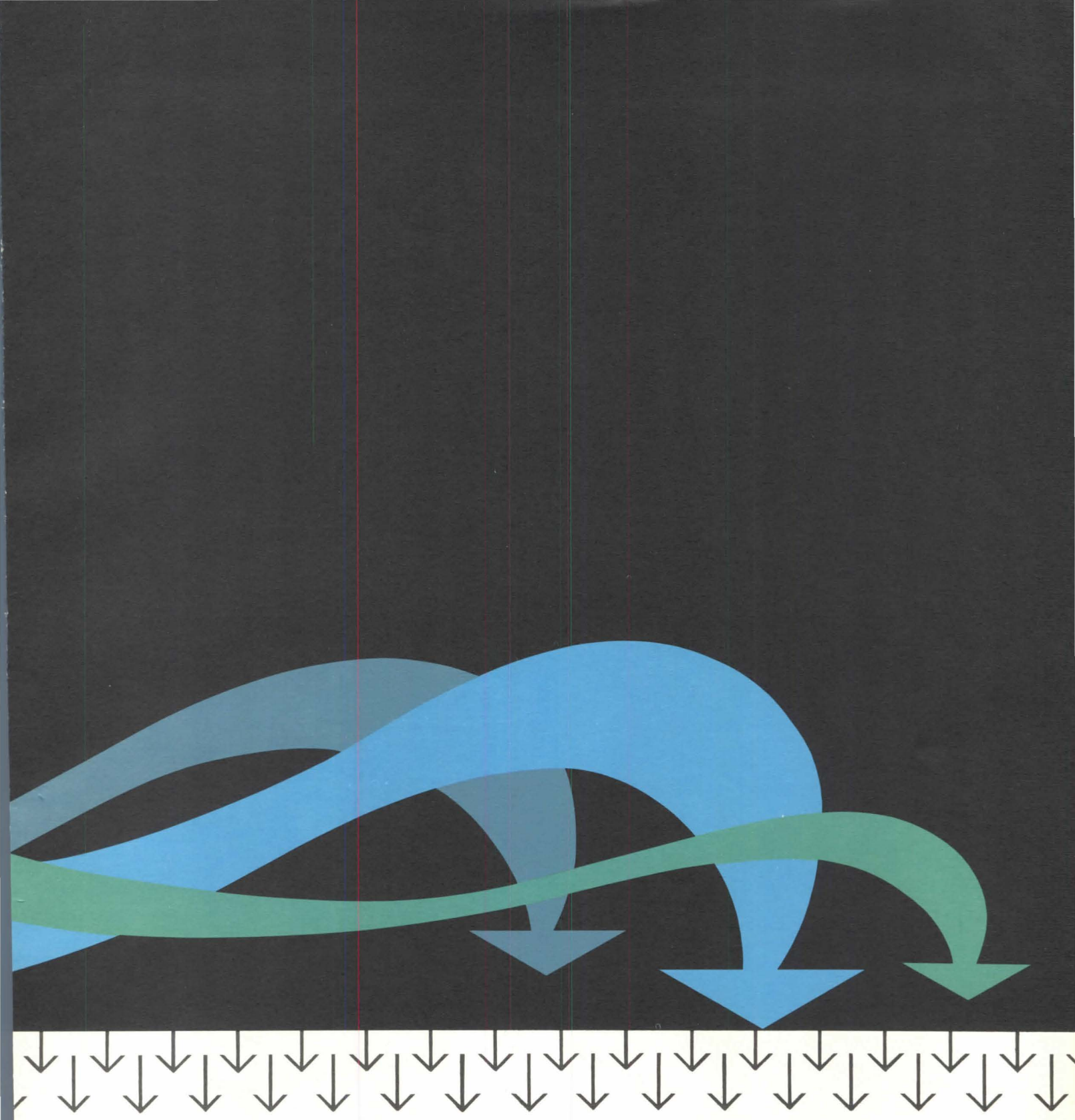
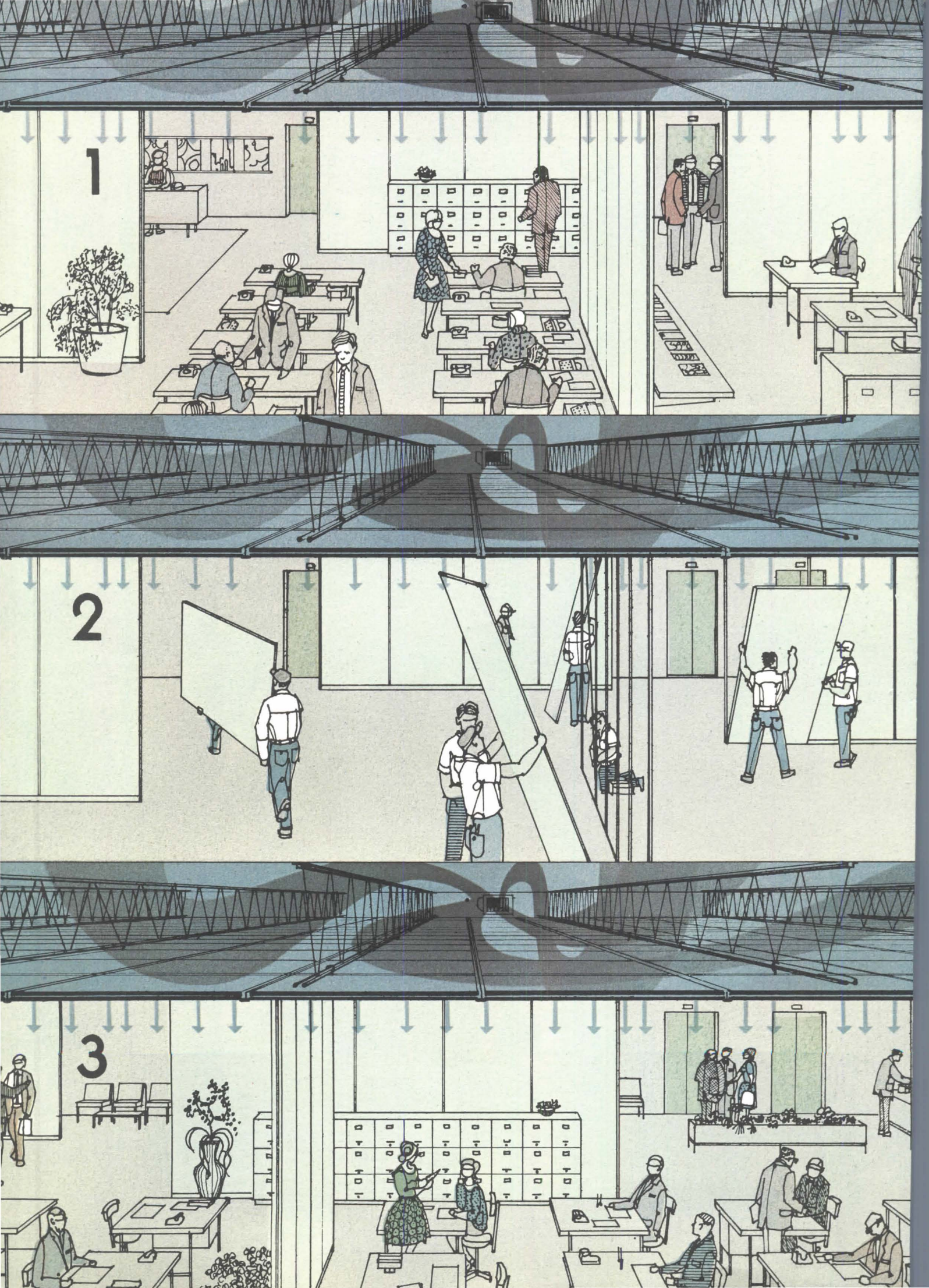


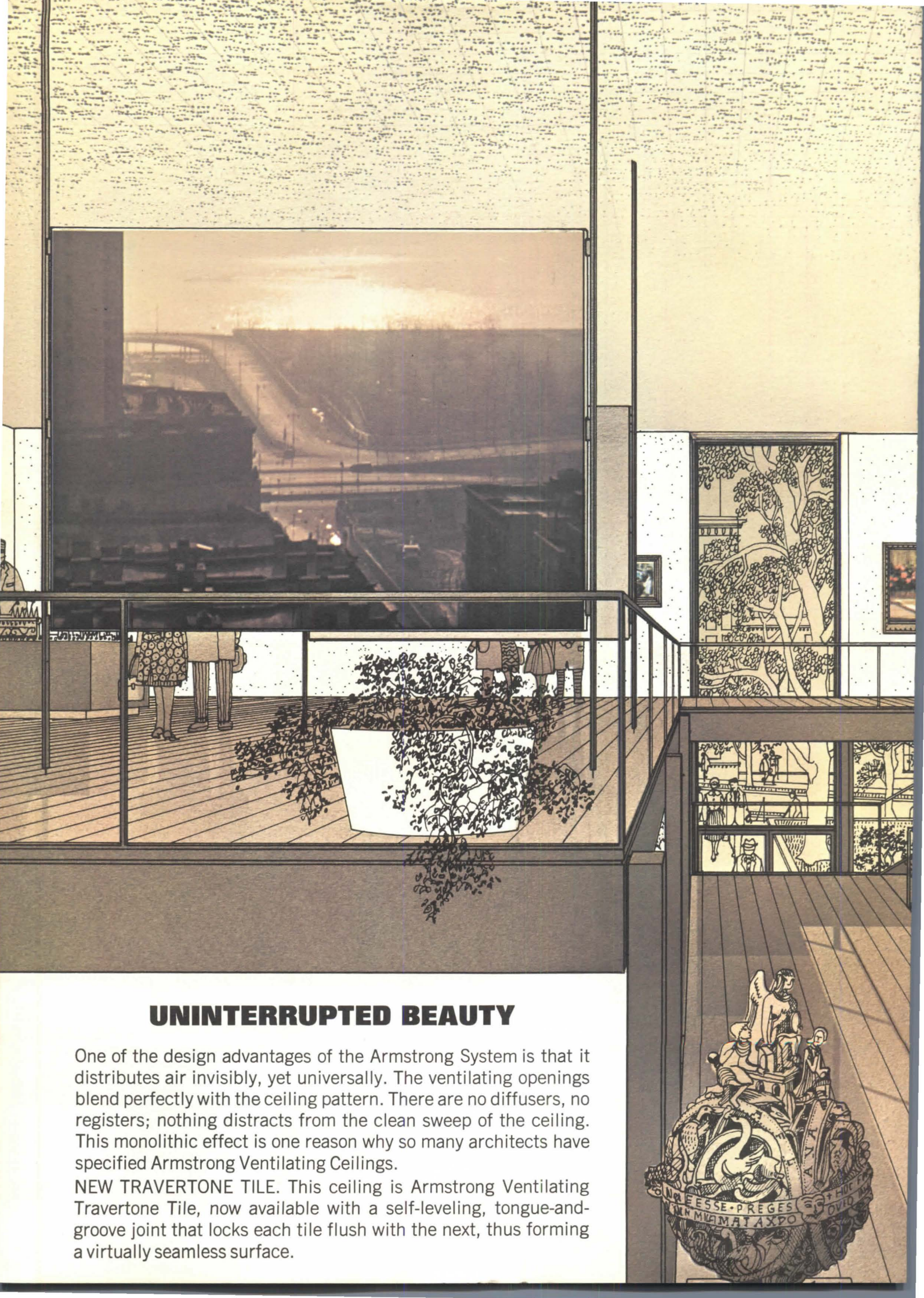
THREE CONSTRUCTIVE IDEAS

A SURVEY OF DESIGN DEVELOPMENTS WITH THE ARMSTRONG VENTILATING CEILING SYSTEM


1
2
3

FLEXIBILITY OF LAYOUT

As hundreds of working jobs have proved, partitions can run anywhere under Armstrong Ventilating Ceilings. Air from the plenum, forced down through thousands of openings in the ceiling, reaches every part of the room below. No matter how the space is divided, the uncluttered ceiling delivers conditioned air evenly and thoroughly. Room layout is no longer fettered to a network of ducts and diffusers; its flexibility involves only such components as air returns and electrical services in partitions. □ In many new buildings—even one-story structures—the air-distribution system has been installed even before the room layout is decided. When clients or clients' needs change, space can be rearranged with minimum cost and disturbance. □ The Armstrong Ceiling System can give fire protection, too. Ventilating Fire Guard provides time-design ratings of up to four hours.

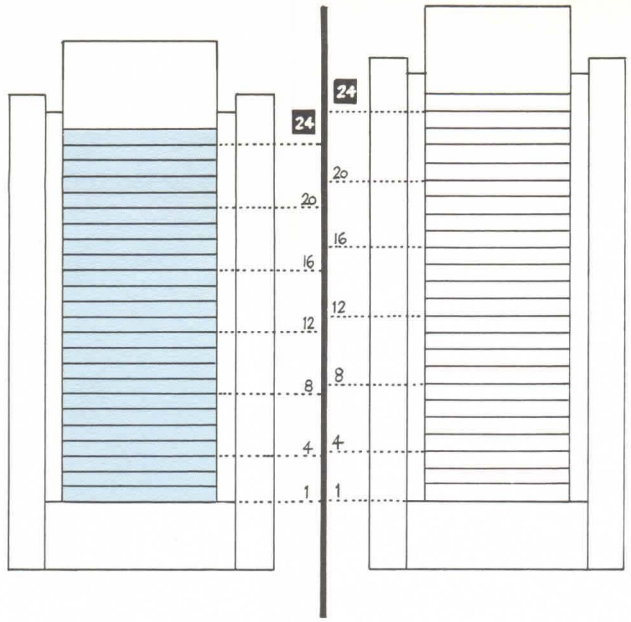


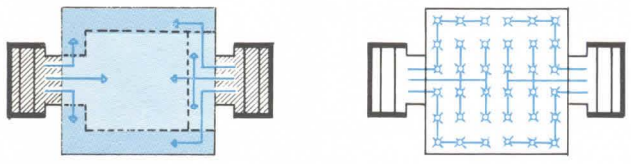
UNINTERRUPTED BEAUTY

One of the design advantages of the Armstrong System is that it distributes air invisibly, yet universally. The ventilating openings blend perfectly with the ceiling pattern. There are no diffusers, no registers; nothing distracts from the clean sweep of the ceiling. This monolithic effect is one reason why so many architects have specified Armstrong Ventilating Ceilings.

NEW TRAVERTONE TILE. This ceiling is Armstrong Ventilating Travertone Tile, now available with a self-leveling, tongue-and-groove joint that locks each tile flush with the next, thus forming a virtually seamless surface.

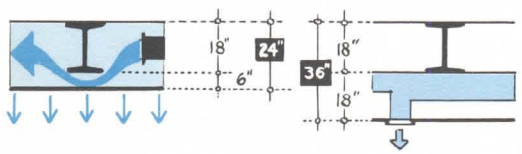
Armstrong VENTILATING CEILING SYSTEM





Armstrong System:
minimum ductwork, 24″ plenum.

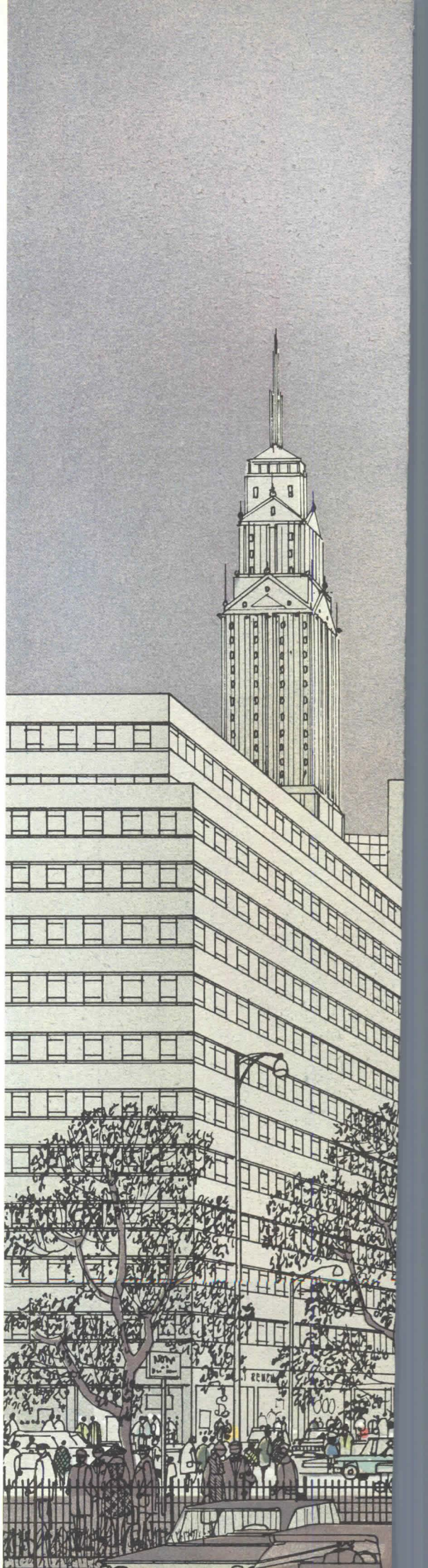
Duct-and-diffuser system:
extensive ductwork, 36″ plenum.

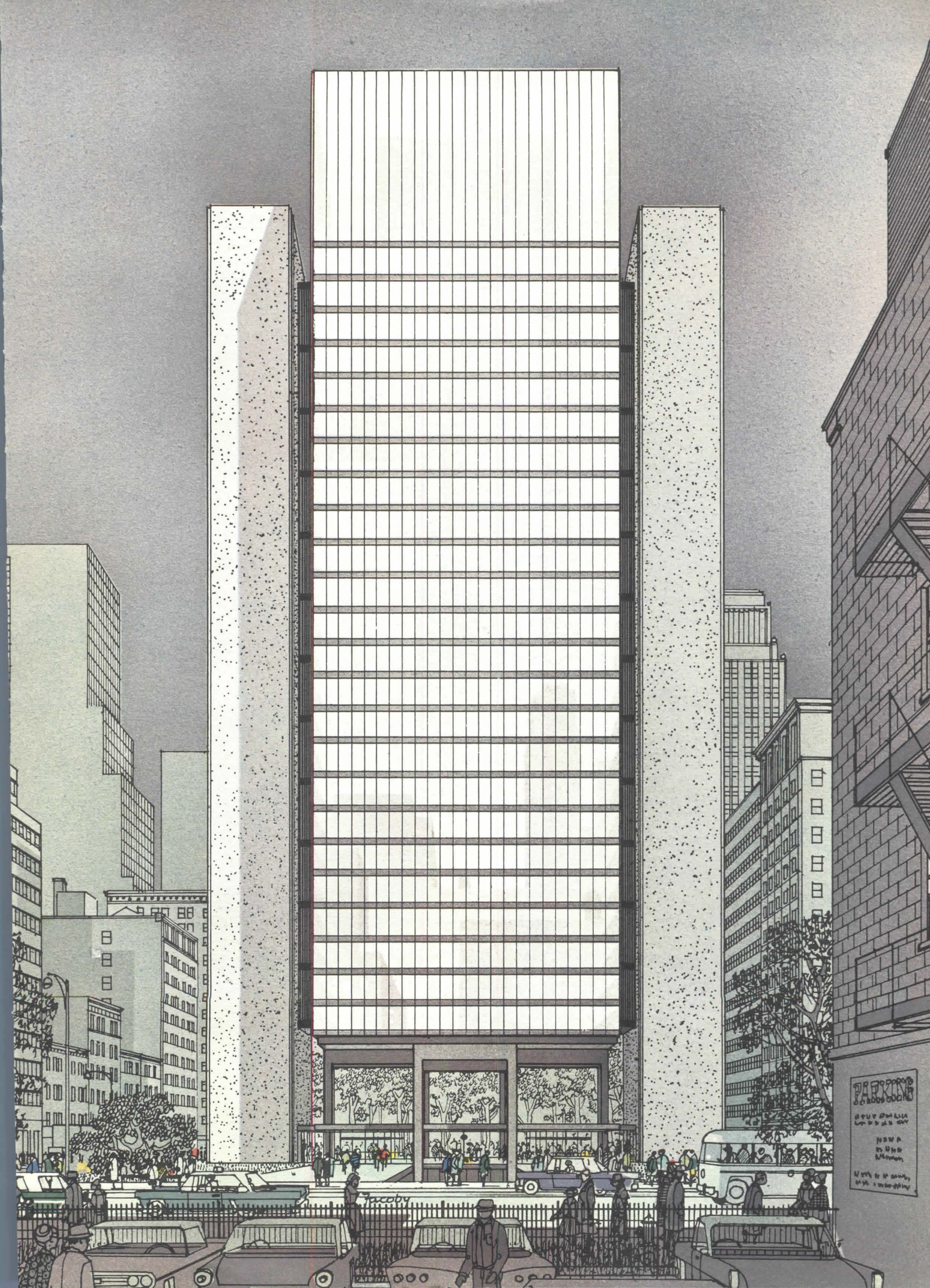


HEIGHT SAVING

The Armstrong Ventilating Ceiling System has saved building height in single- and multi-story structures throughout the country—especially when it was designed into the building from the start. In this 24-story glass and steel building, for instance, the system would save 12″ per floor. Designed according to the Armstrong Plenum Engineering Procedures, the system needs only 6″ clearance beneath 18″ beams to distribute air instead of a 36″ plenum for a typical duct-and-diffuser system. Projected over the whole building, the savings total 24 feet: enough to add two extra floors. □ Appreciable savings can also be made in buildings, such as single-story structures, where open-web joists provide structural support. In the Armstrong System, air can be projected through the open web, and the ceiling attached directly to the joist. □ Armstrong Ventilating Ceilings usually save about 30¢ a square foot by eliminating feeder ducts and diffusers. Ventilating Fire Guard, instead of sprayed-on protection, can save as much again.

Armstrong VENTILATING CEILING SYSTEM




PARKING

INQUIRE

The Armstrong Ventilating Ceiling System is widely used as a superior method of distributing air. You have seen here three ways in which it also offers valuable design advantages. One factor applies always: the earlier in the planning stage you introduce the Armstrong System, the more you can exploit its advantages. For full details, call your Armstrong representative or District Office (listed below), or your Armstrong Ceiling Systems Contractor.

INSPECT

You can find working installations of Armstrong Ventilating Ceilings throughout the country. If you would like to see one, contact your Armstrong District Office. The architectural specialist will arrange a visit and answer any questions you have. Your District Office and your Armstrong Ceiling Systems Contractor have full information on the Armstrong system, including the Plenum Engineering Procedures, and will be pleased to supply data and specifications.

REQUEST

The Helmut Jacoby designs and renderings of the museum and office building on the previous pages have been enlarged and printed on special stock. If you would like copies, please call your Armstrong representative. □ Travertone is a trademark of Armstrong Cork Co.

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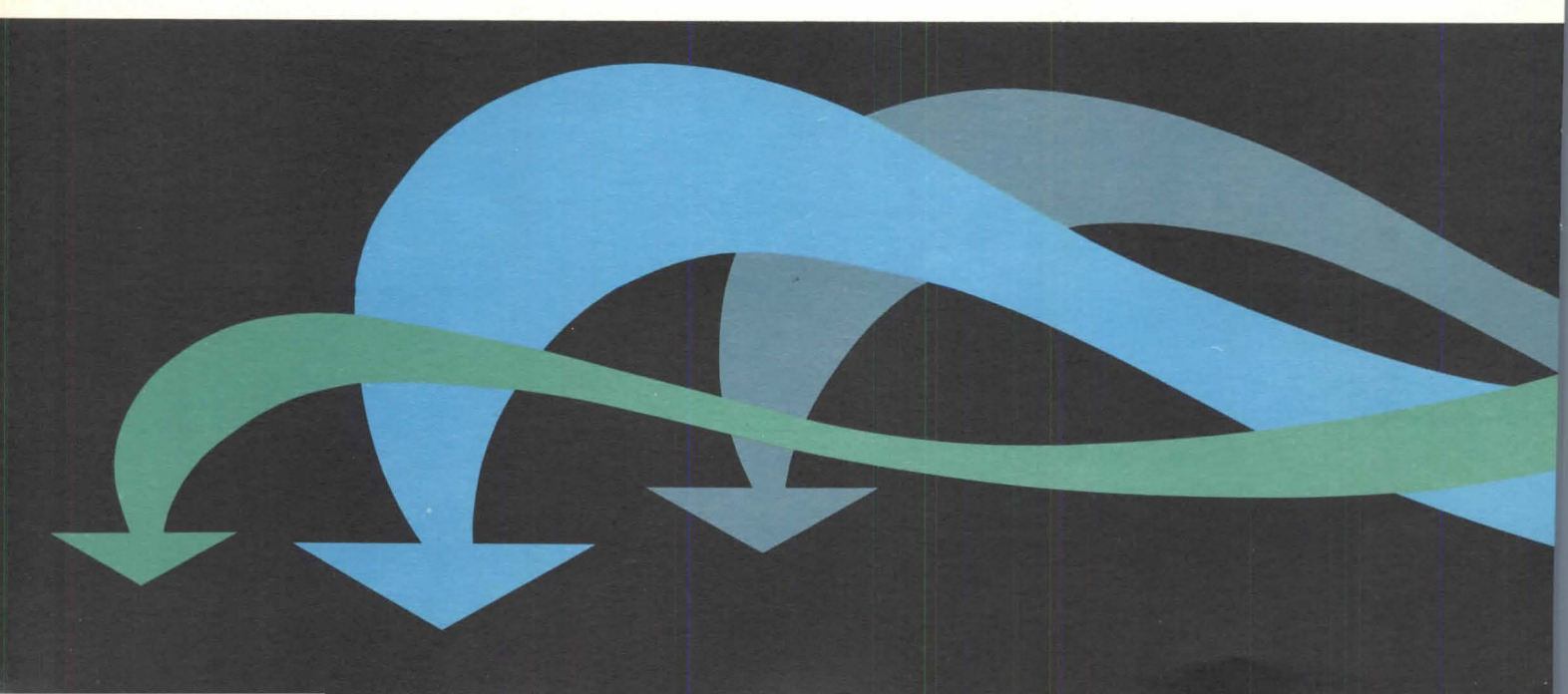
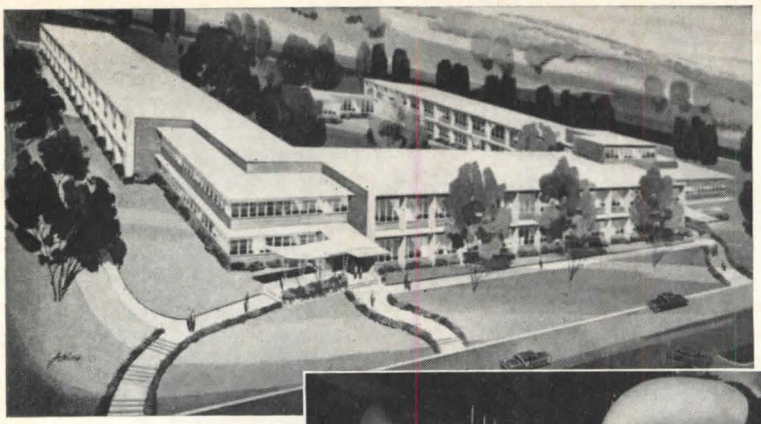
MAin 3-2772

CANADA
6911 Decarie Boulevard
Montreal 29, Quebec





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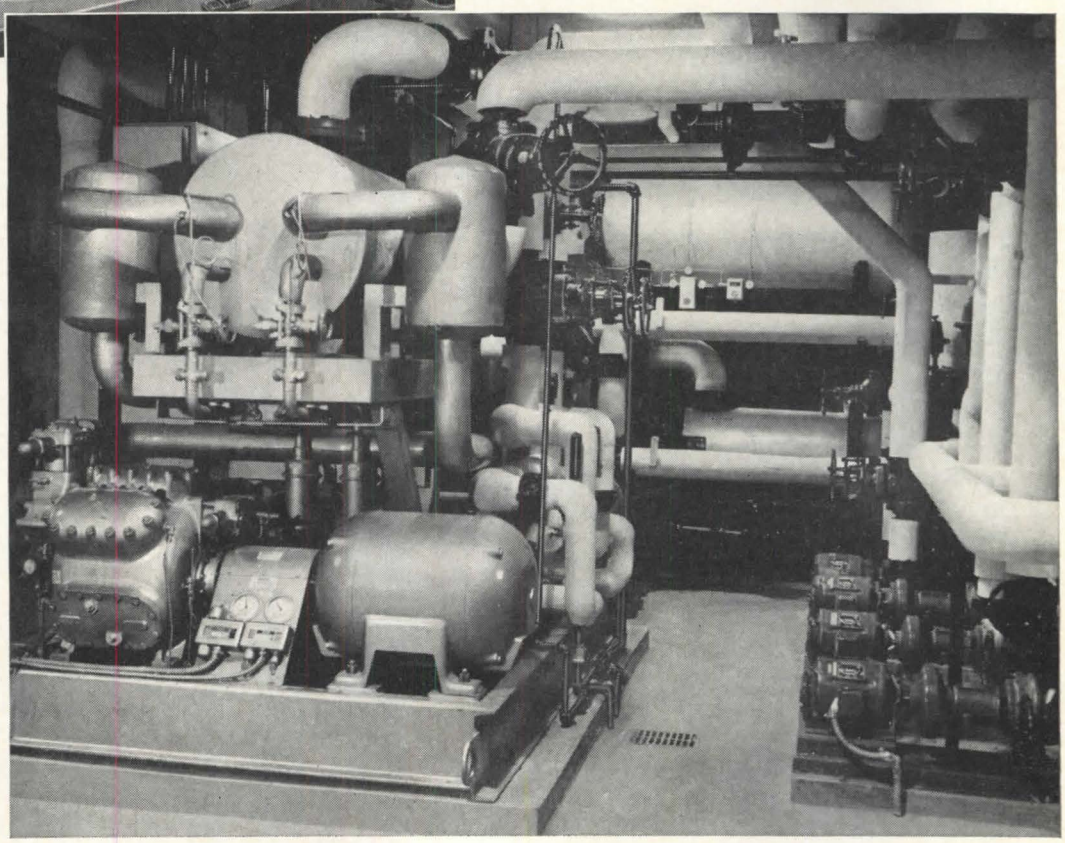

The Building:
Science Building,
Eastern Washington State
College of Education,
Cheney, Wash.

Architect:
George M. Rasque & Son,
Spokane, Wash.

Mechanical Engineer:
George C. Murray,
Spokane, Wash.

Heating Contractor:
Longview Plumbing and Heating
Co., Longview, Wash.

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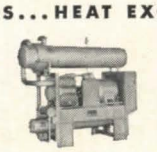
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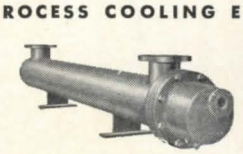
Heat Exchangers


Oil-less Air Compressors

NO. 12 exposed aggregates

a.i.a. file: 4a

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Exposed aggregate provides concrete surfaces of unusual beauty and variety. To emphasize the gleaming freshness, true colors and textures of the aggregate, architects, today, choose concrete made with white portland cement. It is also an excellent tinting base for mineral coloring pigments.

Reveal of precast concrete panels is largely determined by aggregate size. When panels are to be viewed relatively close, less reveal is needed. When panels are some distance from the main flow of pedestrian traffic, greater reveal is required for a rough textured look.

Polished panels of pastel colors tend to appear white when viewed from a distance due to the high reflectance of the surface.

Shown at right is a table which demonstrates the unlimited range of colors possible with commercial aggregates and white cement.

Write for additional free information (U.S. and Canada only.)

VISIBILITY SCALE

aggregate size	*distance at which texture is visible*
¼"—½"	20— 30 feet
½"—1"	30— 75 feet
1"—2"	75—125 feet
2"—3"	125—175 feet

First National Bank, San Angelo, Texas. Architects: Abel B. Pierce and George Pierce, A.I.A., Architect & Planning Consultants, Houston. Structural Engineer: Walter P. Moore, Houston. Contractor: Templeton & Cannon, San Angelo

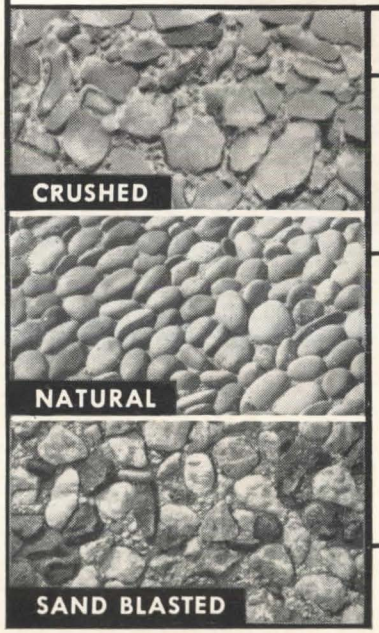

TABLE OF COMMON COMMERCIAL AGGREGATES

		SIZE	USES	SOURCE**	COLOR RANGE
GLASS*	ARTIFICIAL	¼"—1½"	stained glass, walls, panels	Mich., N.J., Texas	brilliant and almost unlimited ranges
CERAMIC	ARTIFICIAL	¼"—1½"	curtain wall panels, ornamental work	Ark., Ariz., Mich.	any color
SAND	MINERALS	fine to coarse	plain or sculptured panels	all areas	white-buff-yellow
PEBBLES	MINERALS	¼"—6"	tilt-up walls, panels, walkways	west & southeast	white-red-orange-buff-black
MARBLE	MINERALS	½"—2"	curtain wall panels	all areas	white-red-buff-yellow-black
GRANITE	MINERALS	¾"—2½"	tilt-up walls, panels, walkways	midwest & west	red-gray-buff-dark blue-black
QUARTZ	MINERALS	½"—2"	curtain wall panels	east, west, south & midwest	white-pink-gray-clear

*Reactivity: some glasses may react with alkalis in the cement to cause expansion. Consult glass manufacturer to determine if glass is reactive.

**List of manufacturers available.

PORTLAND CEMENT ASSOCIATION Dept. A8-25, 33 West Grand Ave., Chicago 10, Ill. *An organization to improve and extend the uses of concrete*

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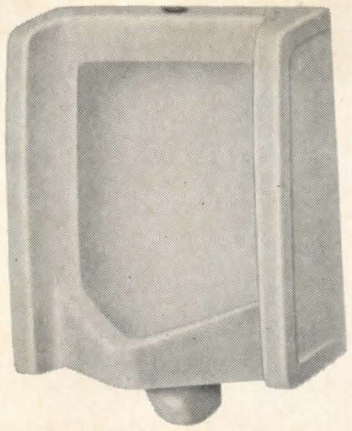

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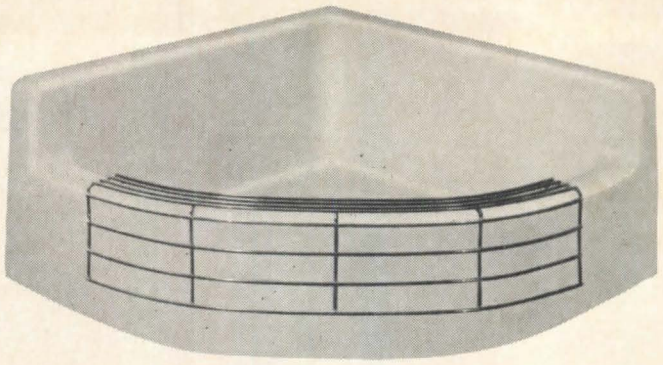

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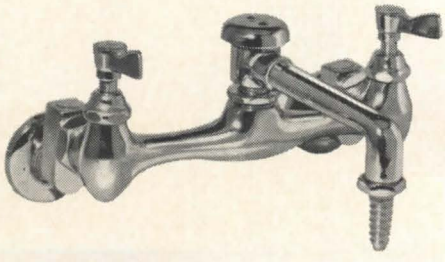

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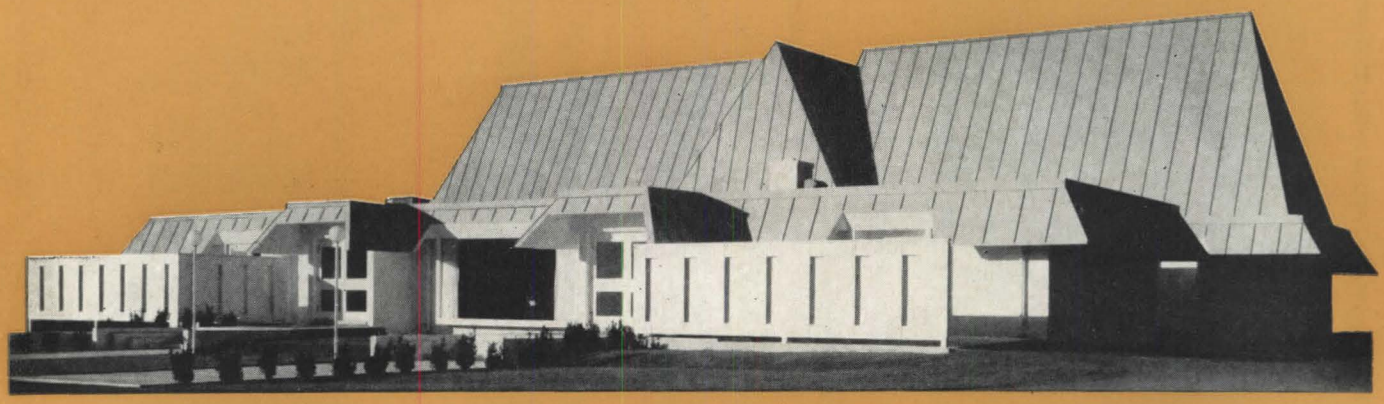
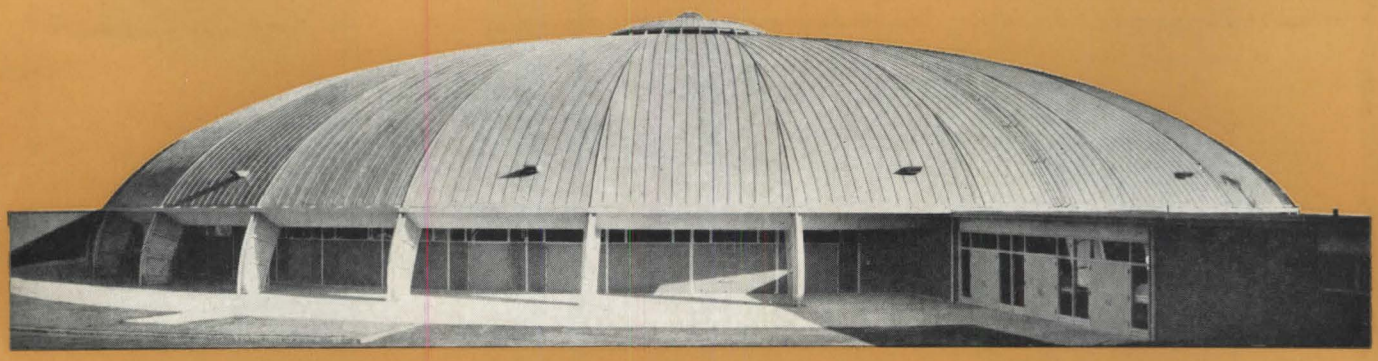
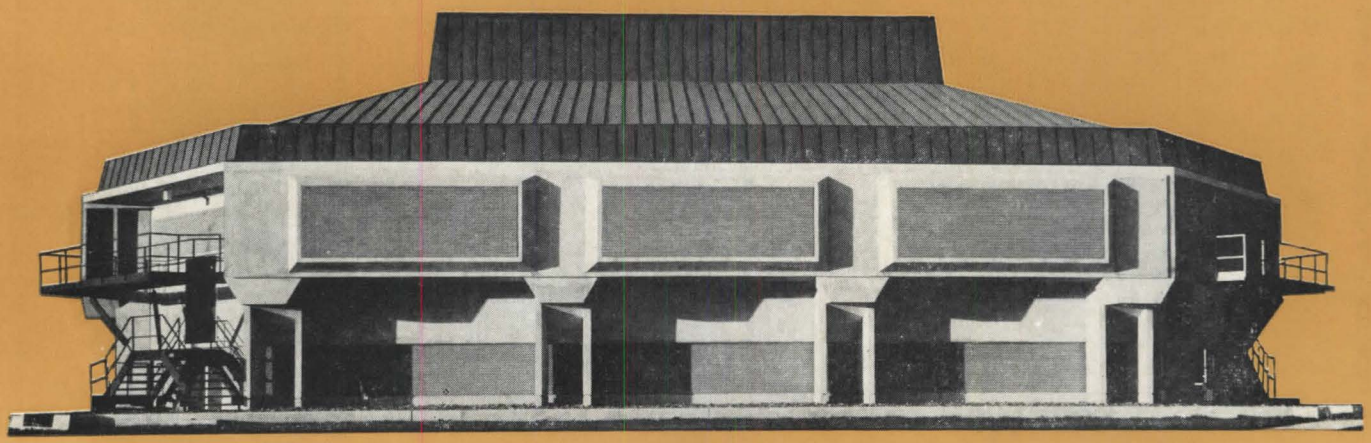


Haley Funeral Home, Highland Park, Michigan. Architects: Birkerts and Straub, Birmingham, Michigan. Contractor: J. Fred Steyer Roofing Co., Detroit, Michigan.



Alexander Memorial Arena Building, Georgia Tech. Architect: Aeck Associates, Atlanta, Ga. Contractor: R. F. Knox Company, Inc., Atlanta, Ga.



Arena Stage, Washington, D.C. Architect: Harry Weese, Chicago, Ill. Contractor: The Mathy Company, Washington, D.C.

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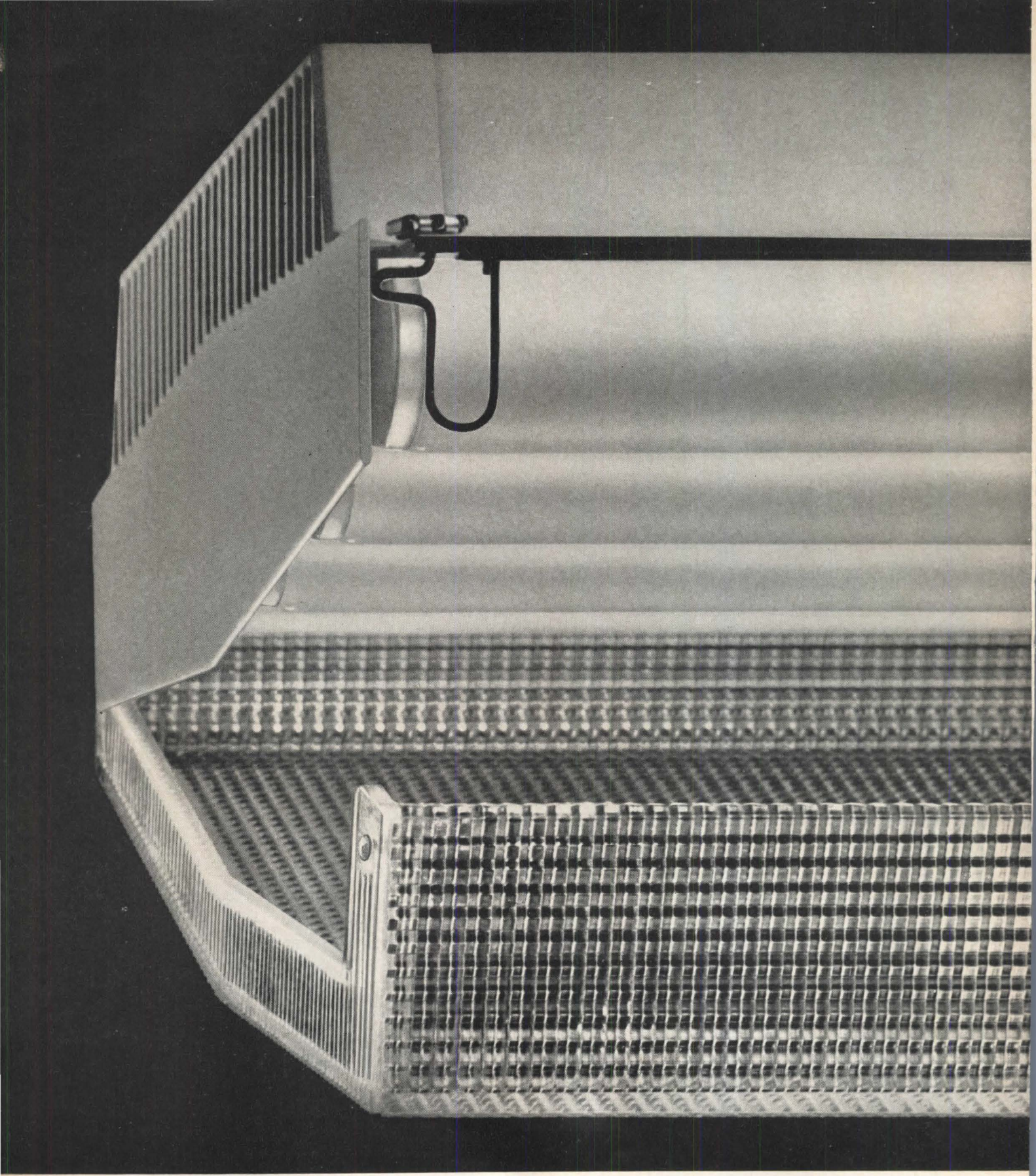

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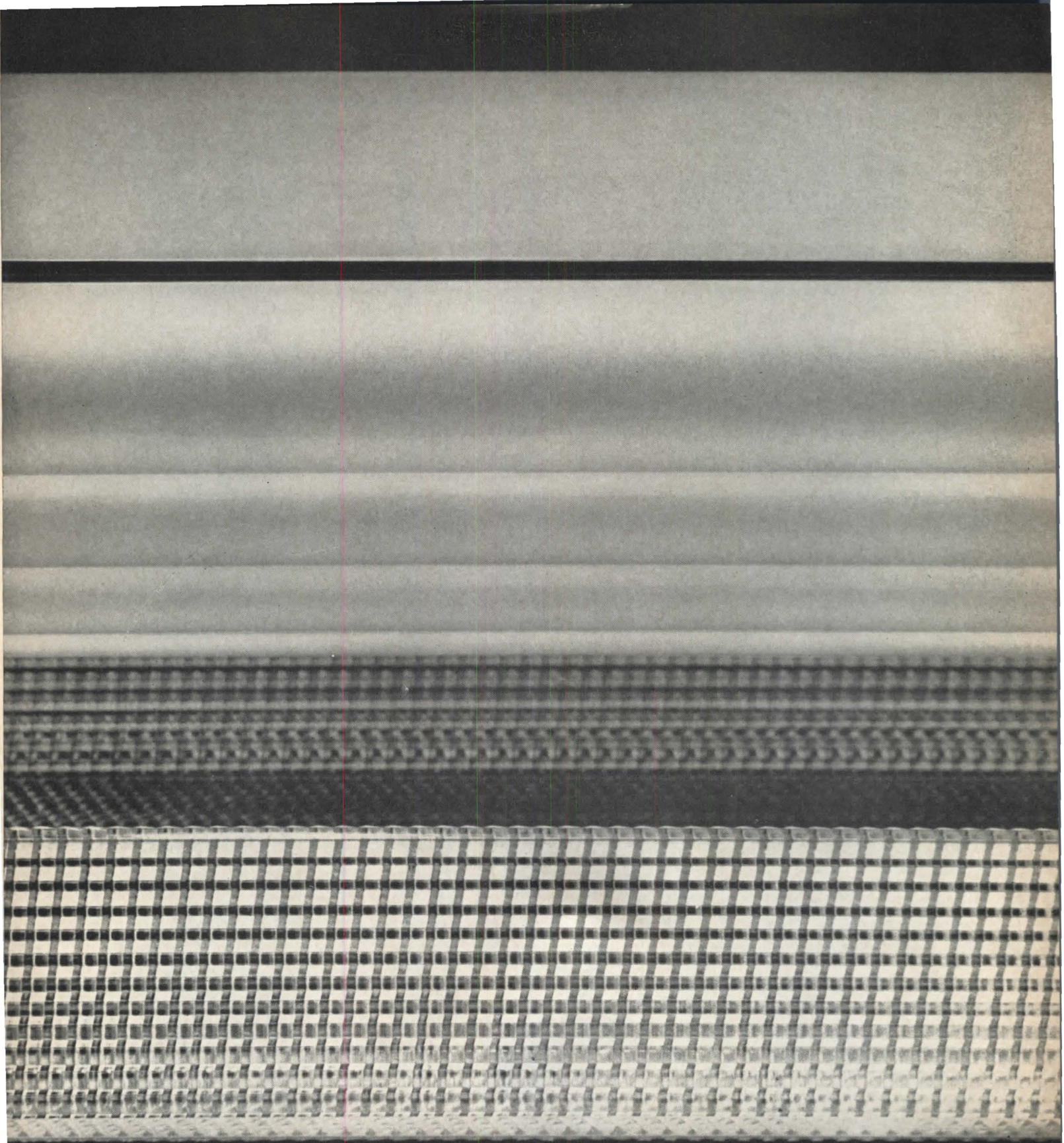

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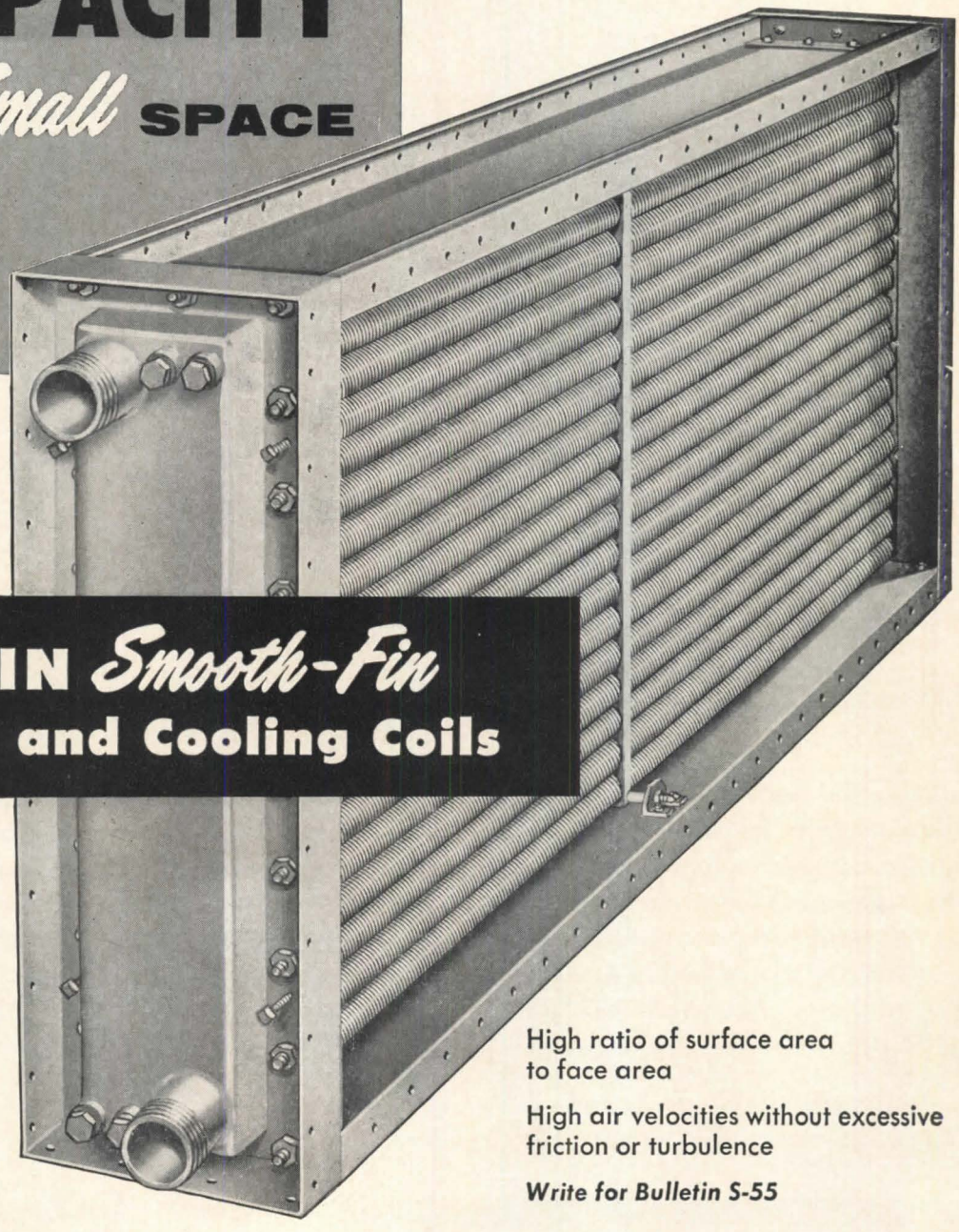

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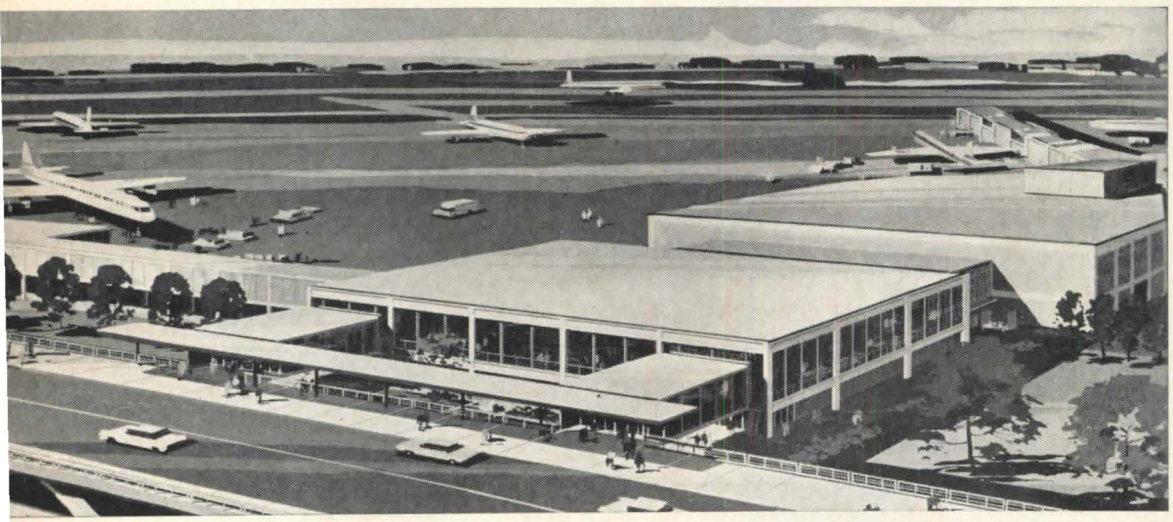

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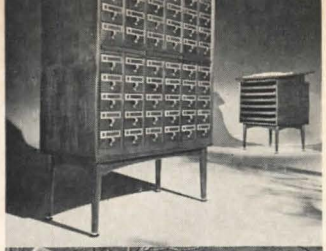

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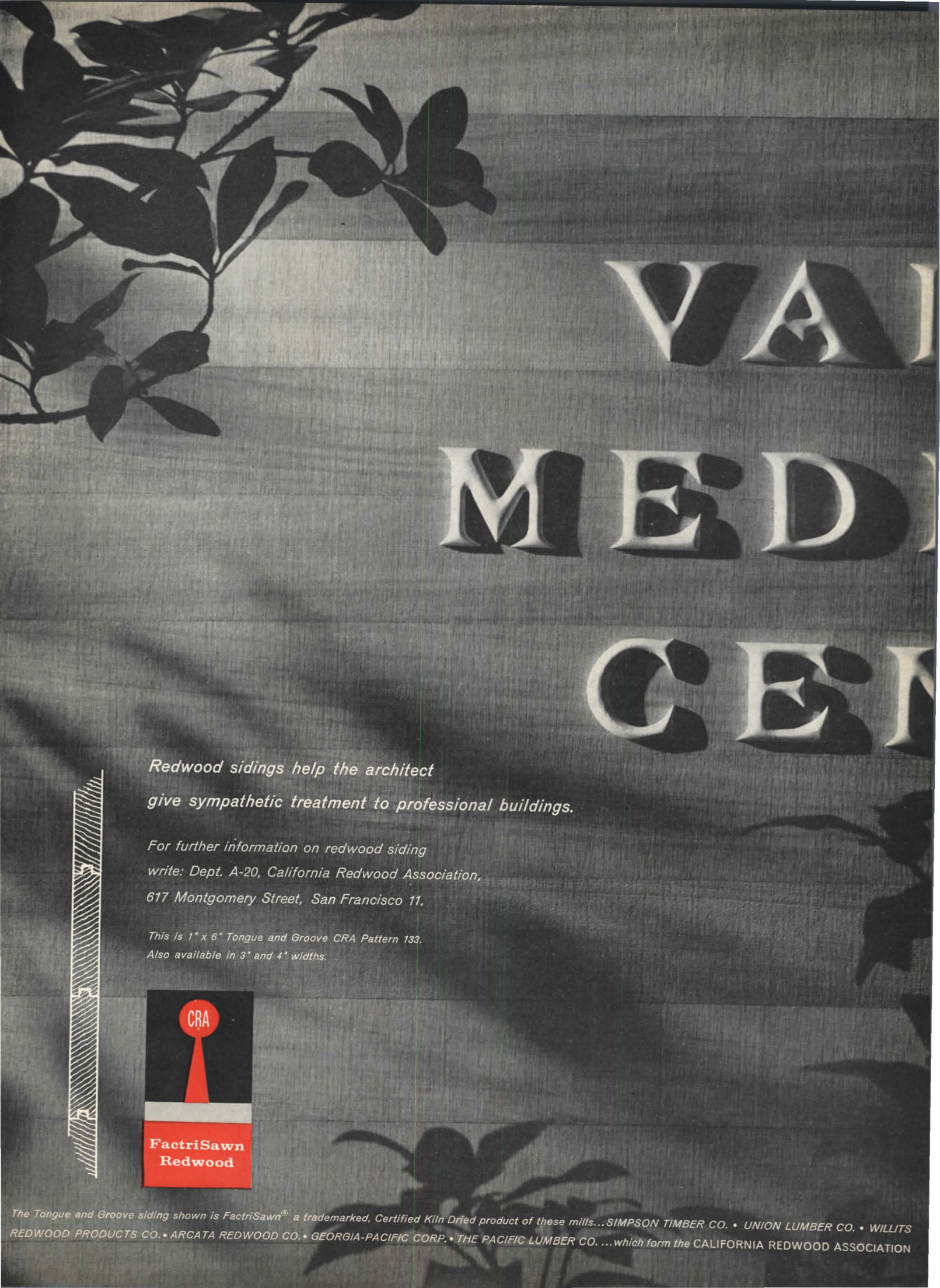

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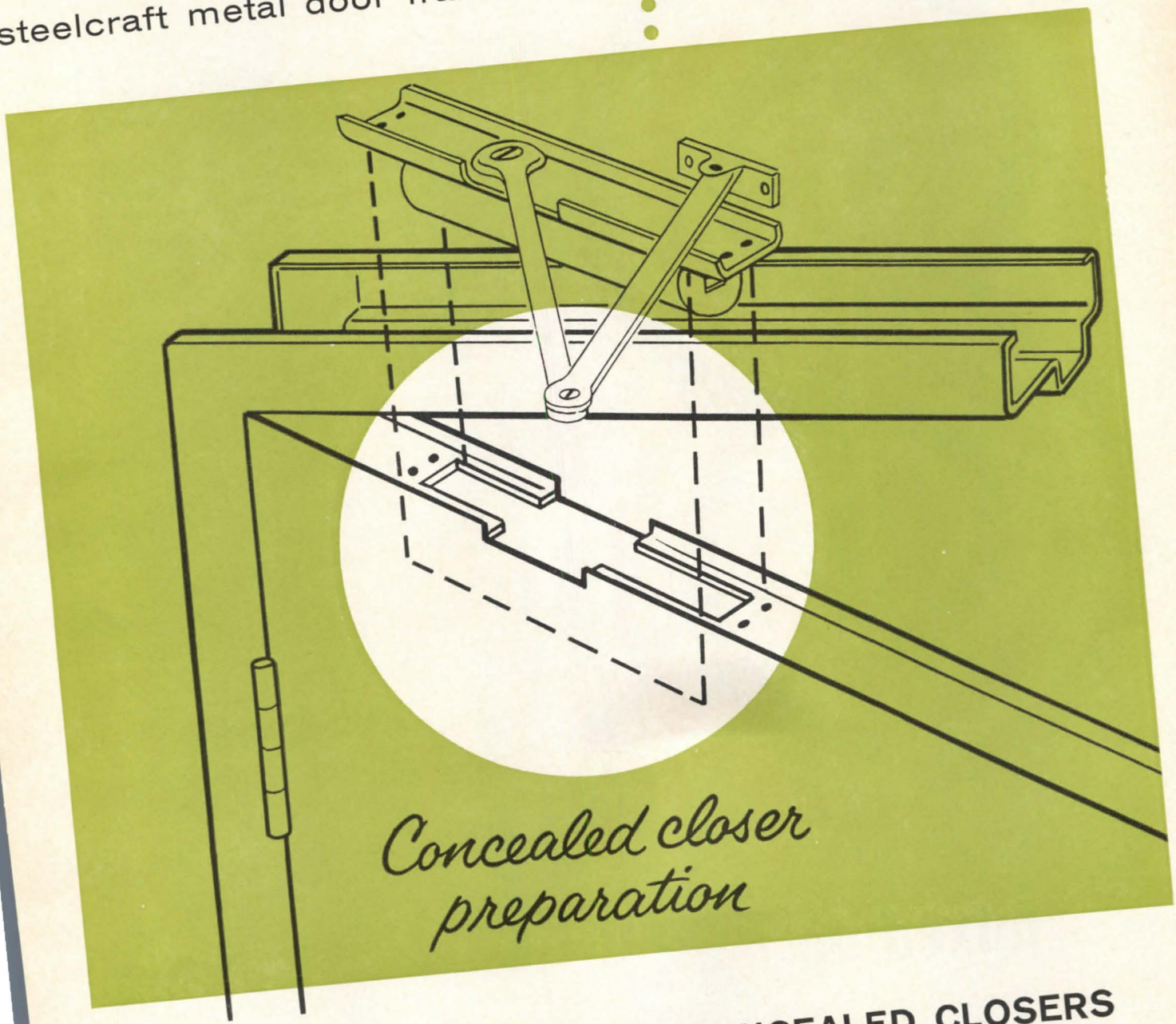

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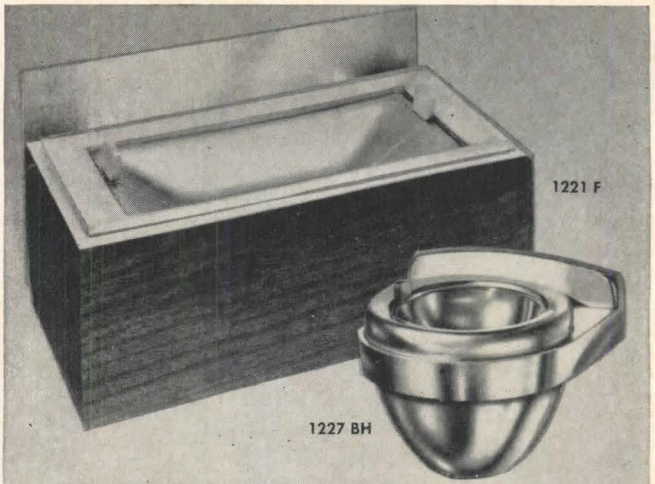

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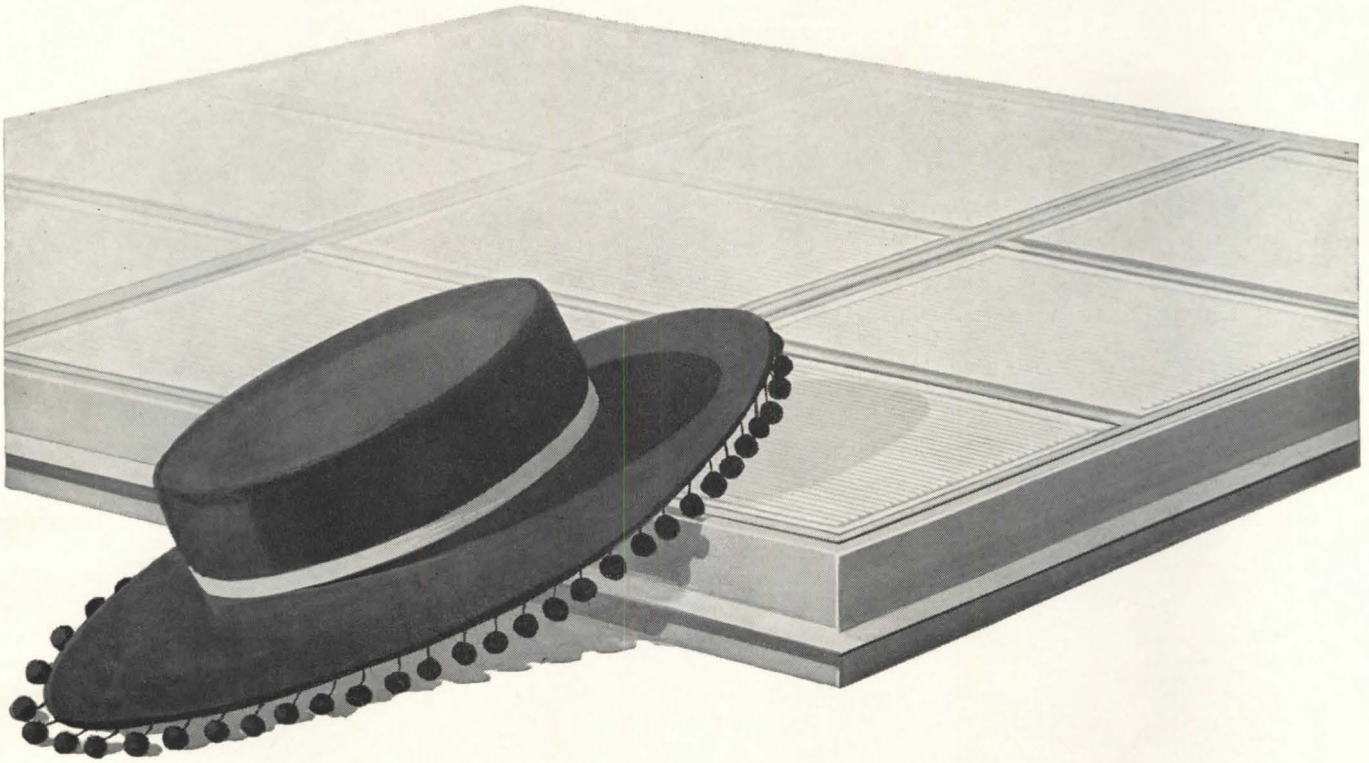

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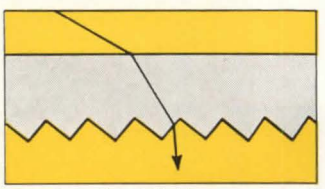

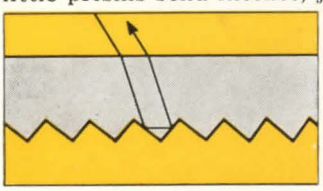

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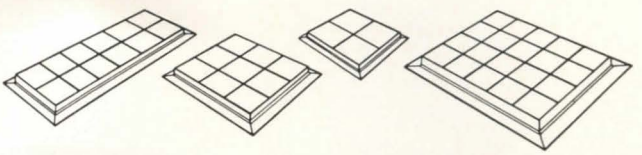

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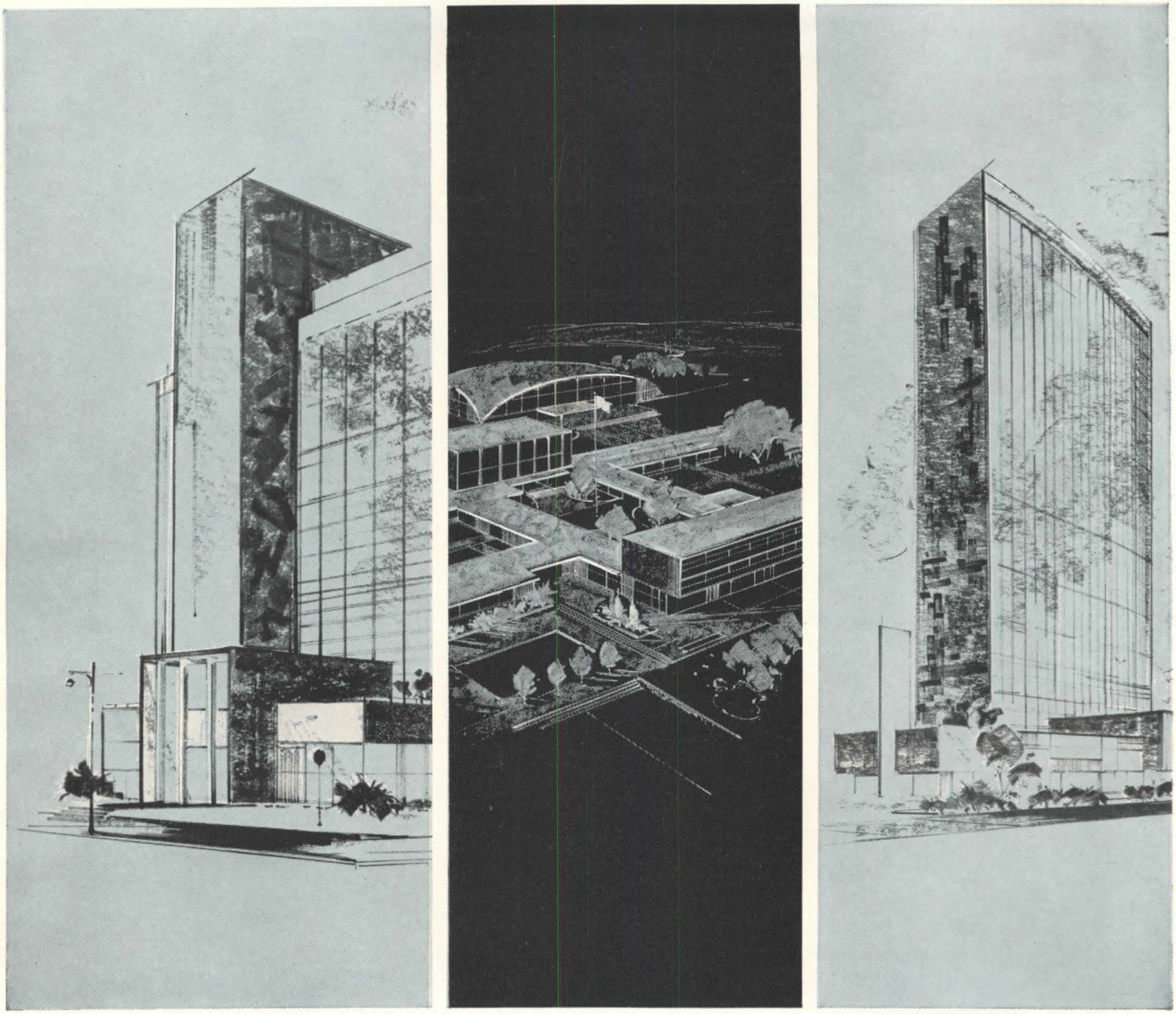

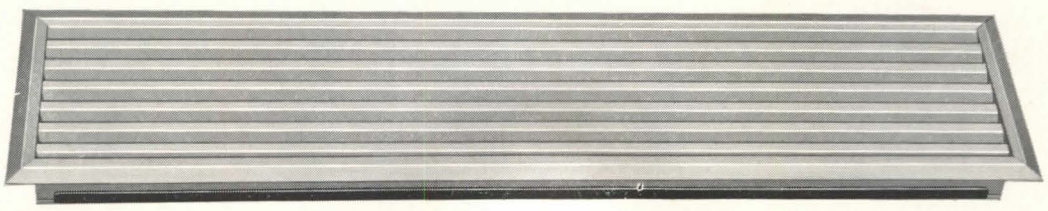

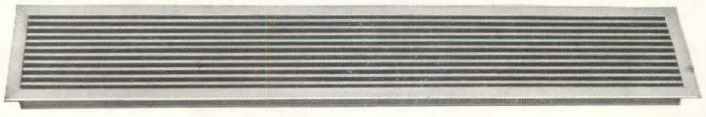

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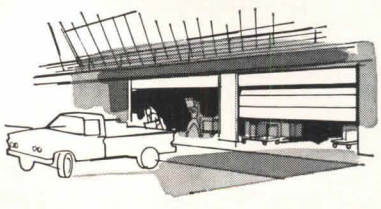
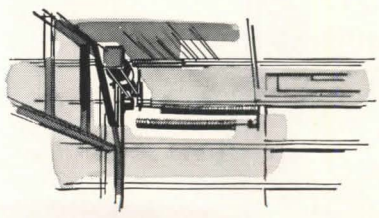
SPEED is imperative in responding to emergencies. Heavy steel "OVERHEAD DOORS" on Fire and Crash Building rise in 9 seconds *automatically,* at the touch of a button from main control tower.



RELIABILITY is key factor in all maintenance facilities required to keep the airport mobile. Special 19-ft. "OVERHEAD DOORS" deliver day-in, day-out dependability in Main Terminal Building.



AUTOMATIC CONCEPT of new "AUTO-MATE" door operators, engineered to meet jet-age requirements, provides the flexibility and control the architect sought throughout his design.

YOU'RE IN CONTROL
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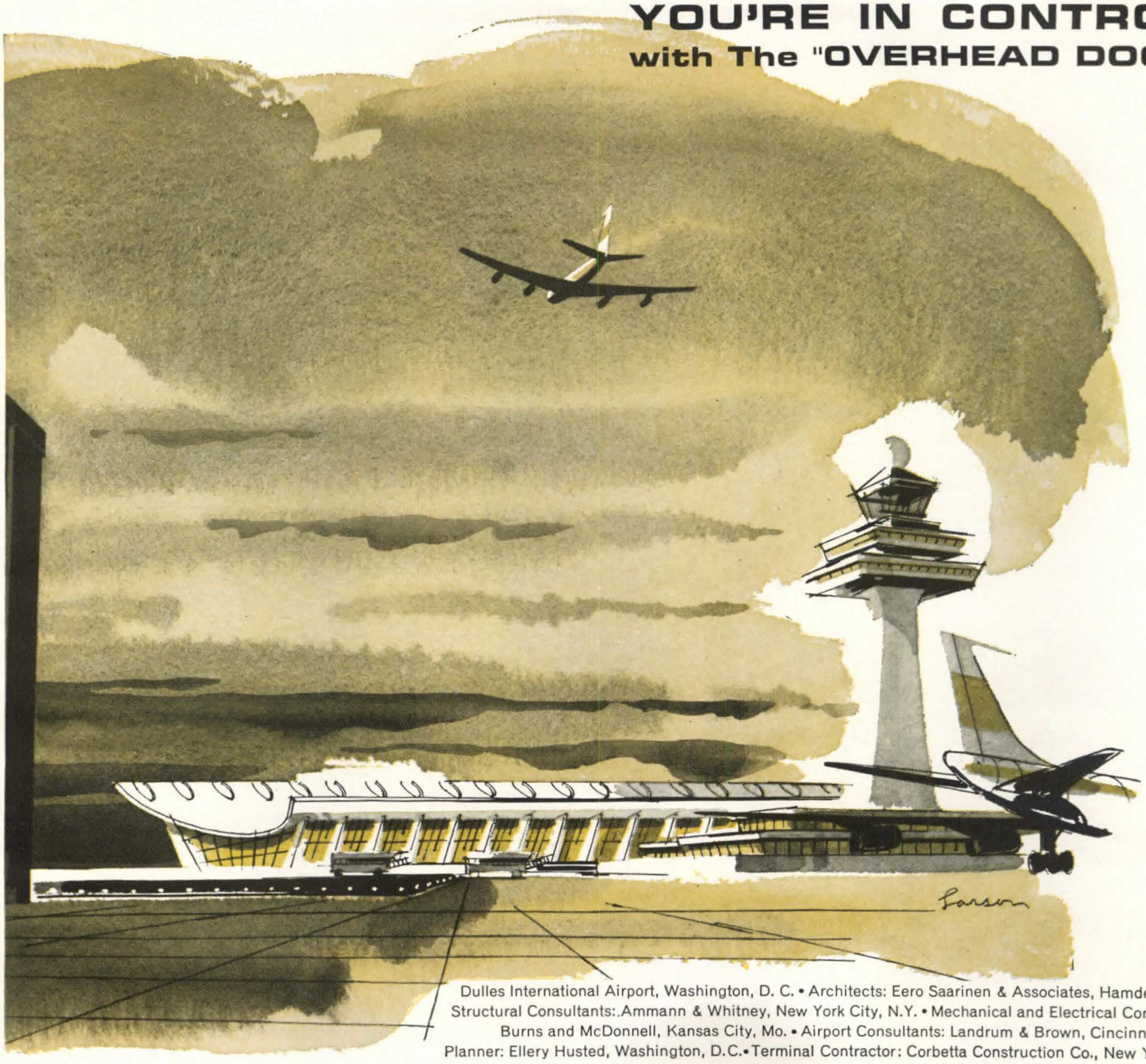

Dulles International Airport, Washington, D. C. • Architects: Eero Saarinen & Associates, Hamden, Conn. Structural Consultants: Ammann & Whitney, New York City, N.Y. • Mechanical and Electrical Consultants: Burns and McDonnell, Kansas City, Mo. • Airport Consultants: Landrum & Brown, Cincinnati, Ohio. Planner: Ellery Husted, Washington, D.C. • Terminal Contractor: Corbetta Construction Co., New York City.

FLEXIBILITY OF THE "OVERHEAD DOOR"

At Dulles Airport, "Traffic" means much more than just people and planes. Traffic means a constant flow of air cargo *and* the ground vehicles to handle it. Traffic means a sizeable task force of fire and crash equipment *and* the maintenance crews to keep it "at the ready."

To solve these and many other problems in traffic flow, the architects called on the engineering experience and production facilities of Overhead Door Corp. Their confidence was well placed, judging by results. Already installed: 115 doors, 104 of them equipped with "AUTO-MATE" automatic operators, with more on order. Now, traffic flows smoothly, quickly, flexibly, with The "OVERHEAD DOOR." Installed side-by-side, and equipped with "AUTO-MATE" automatic operators, these doors become a movable wall. Opened as a group, they can give total access to an area. Opened individually, they can direct the flow of traffic, prevent pile-ups.

No limitations on materials—The "OVERHEAD DOOR" comes in aluminum, steel, and wood. With glass panels or without. Doors of any size or style to fit any opening.

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General Office and Manufacturing Division: Hartford City, Ind. **Manufacturing Distributors:** Dallas, Texas; Portland, Oregon; Cortland, N.Y.; Hillside, New Jersey; Lewistown, Penn.; Nashua, New Hampshire. **In Canada:** Oakville, Ont.

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Steel for Strength

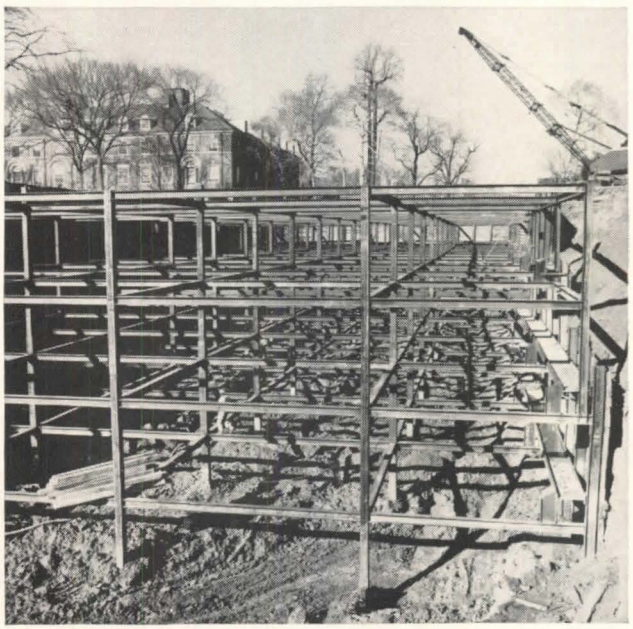
STRUCTURAL DESIGN **NEWS**

FROM BETHLEHEM STEEL NO. 3

V STEELS PROVE VALUE AND VERSATILITY. Introduced only a short 18 months ago, Bethlehem's new line of high-strength, low-cost V Steels already are hard at work in the field improving aesthetics, solving engineering problems, saving money. All five grades offer very attractive strength-to-price ratios; all five grades are weldable. Here are a few examples of how they're being used... what they're replacing...and why.

V50-V55 SHAPES REPLACE HEAT-TREATED ALLOY STEEL . . . SAVE $10,000! Four welded Vierendeel trusses spanning a street running under the second floor of Hamburgers Building in Baltimore (a men's clothing store) were redesigned in V50 and V55 (50,000 and 55,000 psi minimum yield). Savings: $10,000 in material costs, plus economies through availability of rolled shapes.

V60 ROOF GIRDERS IMPROVE AESTHETICS. Gymnasium in Paggets Corner High School, Md., features an exposed structural steel frame. Three 100-ft-long welded boxed roof girders of V60 were used in lieu of trusses to improve eye-appeal. Icing on cake: V60 (60,000 psi minimum yield) saved material and dollars.



V50 REPLACES CONCRETE . . . SAVES $100,000. Five of the six floors of the Johns Hopkins University Library are underground. They were originally designed in concrete, but the engineer switched to a welded continuous steel frame using V50 shapes to solve height problem. Higher-strength V50 allowed slimmer beams, made building possible as designed. Engineer estimates V50 steel frame cost $100,000 less than proposed concrete structure.

V50 9% CHEAPER THAN A7. One-story warehouse and office building for Decca Records, New York, was first designed in A7. V50 shapes resulted in a 19% reduction in the weight of the welded frame ...a 9% dollar savings.

NEW STEELS, NEW DESIGN CRITERIA . . . make steel framing more economical than ever before. A Bethlehem Sales Engineer can point the way to savings of time and money if you'll call him in during the early design stages. Want him? Just get in touch with the Bethlehem Sales Office nearest you.

(Names of the architectural and engineering firms responsible for the projects named above will gladly be furnished on request.)

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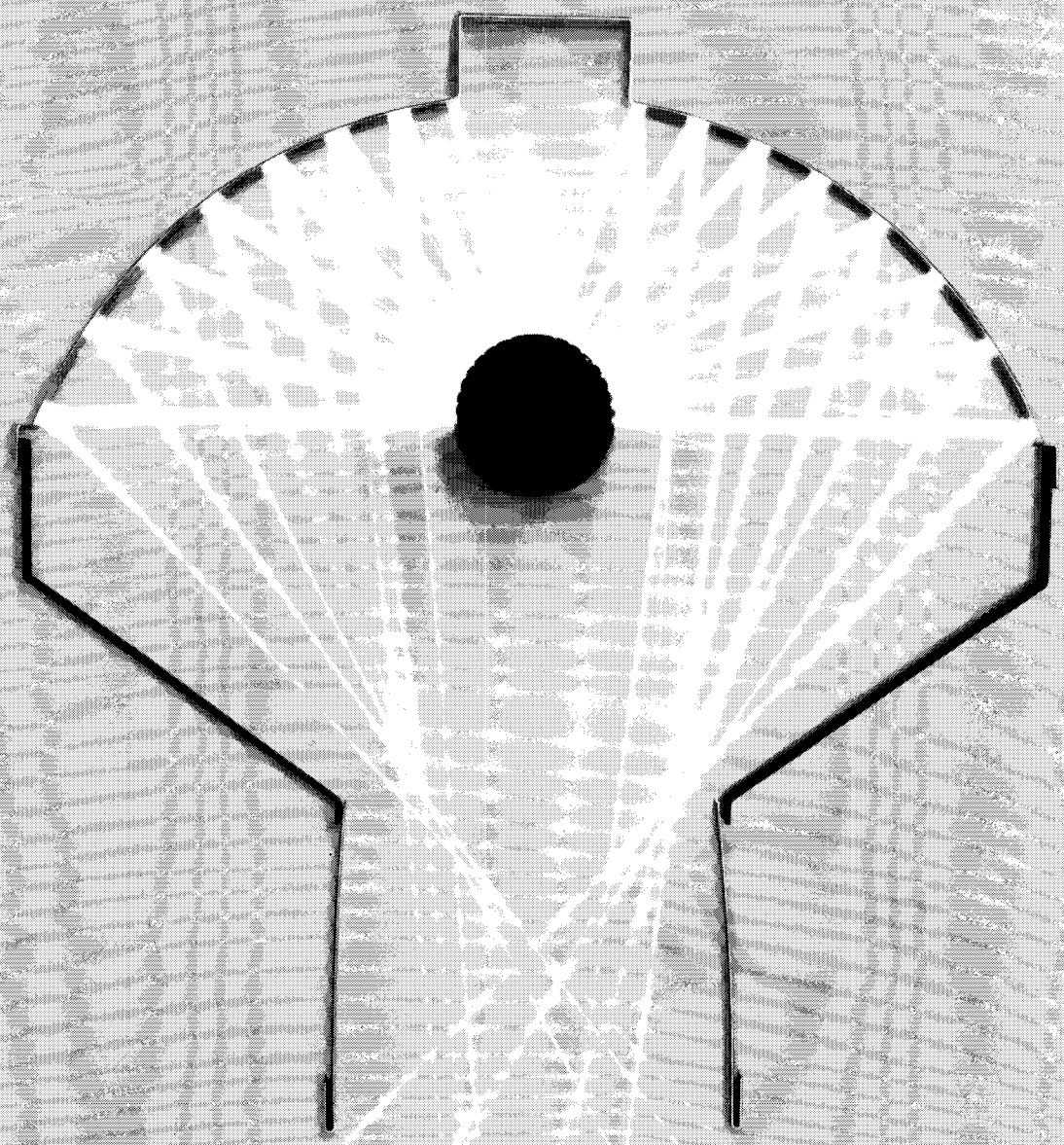
982	992	150w	5-1/2"
984	994	200w	5-1/2"
986	996	300w	6-7/8"
988	998	500w	9-1/8"



At normal viewing angles the brightness of Gotham's recessed low-brightness downlites is so low that the unit hardly seems to be lighted at all. Yet the effect is achieved without any sacrifice of efficiency. This table-top mock-up illustrates the optical principle behind the performance. A mathematically derived specular Alzak reflector gathers the light from a silvered bowl lamp and redirects it through an aperture baffle to produce a wide-angle beam. The baffle's black mirror finish virtually eliminates all brightness above 45°. For data write:* Gotham Lighting Corporation

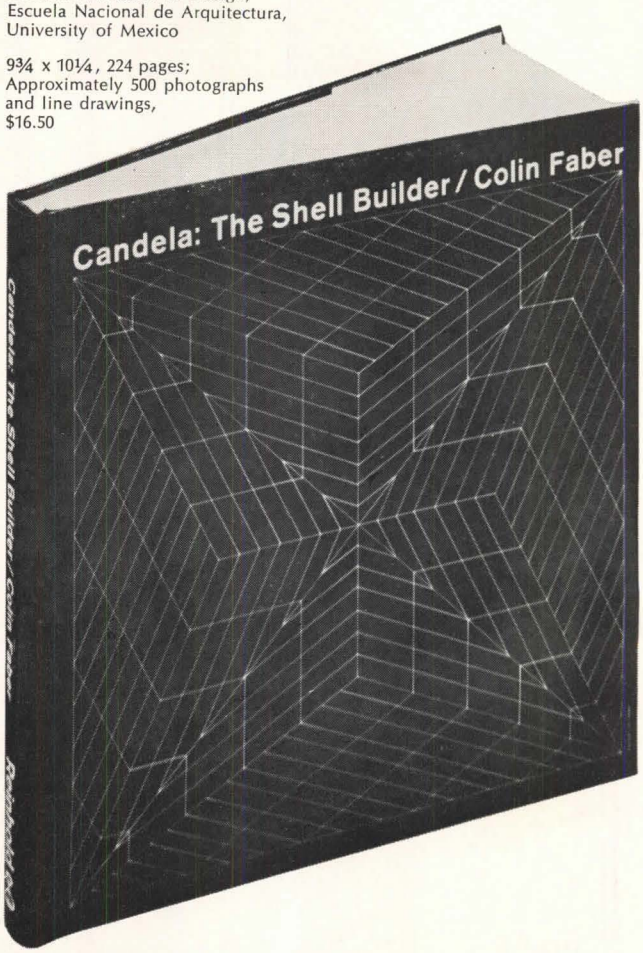
37-01 THIRTY-FIRST STREET, LONG ISLAND CITY 1, NEW YORK

Here is the biography of Candela, master-builder and construction poet, famous throughout the world of architecture and engineering as developer of the hyperbolic form. The book tells in chronological sequence the story of Candela, the man – his background and work. Contained within this fascinating story is paradoxically *the most comprehensive information on shell structures ever presented.* The technical text which covers construction procedures parallels the general text which expounds aesthetically Candela's mastery of the abstract in structure.

Candela: The Shell Builder

By Colin Faber
Assistant Professor of Design,
Escuela Nacional de Arquitectura,
University of Mexico

9¾ x 10¼, 224 pages;
Approximately 500 photographs
and line drawings,
$16.50



Along with complete tables on comprehensive stresses of concrete cylindrical vaults and lateral vaults, thorough discussions of load analyses, calculation of columns and footings, is complete analysis of the basic structures: the conoid shell, the short and long shell, the elliptical and spherical dome, the prismatic slab, the simple umbrella hyperbolic shell, the oblique paraboloid and a curved free-edge shell. The exposition demonstrates technically the procedures and methods involved in the design and construction of shell structures without an overwhelmingly mathematical approach. Showing simply Candela's method of statistical reasoning, differential equations are not introduced – but the logic of his approach provides an insight into the amazing number of these structures he has constructed in a relatively short period of time.

From simple explanation and description to technical analysis and detail, there is a complete integration of photographs and drawings with the text. The reader can either admire the beauty of these structures through the photographs, or study carefully the material related to his own course of study.

Candela's architectural philosophy implied in his constructions should appeal to layman and student alike, and all readers will enjoy the personal level on which anecdotes are told. The drama implicit in his sculptural forms will prove equally valuable to architects, engineers, draftsmen, sculptors, artists, and building contractors.

REINHOLD *books*

Shell structures are the expression of a trend in our time, seeking new creative forms. That is why the significance of shell structures exceeds the constructional by far; they are documents of present-day architecture.

Shell Architecture:
Documents of Modern Architecture

Edited by Jürgen Joedicke
9 x 11, 305 pages, $22.50

This book constitutes a successful attempt to present a comprehensive treatment of the complex problems of shell construction. It furnishes the architect and the engineer with an insight into a broad field, which is not easily accessible in the literature. The architect's typical mode of thinking is brought closer to the engineer, thus contributing to a better understanding between architect and engineer.

The plan on which "Documents of Modern Architecture" is based: not to regard each problem of detail in isolation, but rather in its interrelationship with all the factors that are important in creative representation, has guided the compilation of this volume. Not only does it contain thorough design analyses, but it also deals with the structural implications of the use of shell construction. In addition to the celebrated bold designs of Eduardo Torroja, Félix Candela, and Pier Luigi Nervi, which are presented here for the first time with sectional views, reinforcement plans, etc., "SHELL ARCHITECTURE" presents hitherto unknown structures from all over the world. All significant types of design presently known are explained in a systematic section of the book. Thus we have a work with nearly complete documentation that treats these problems with the thoroughness and methodology to which the author has accustomed us.

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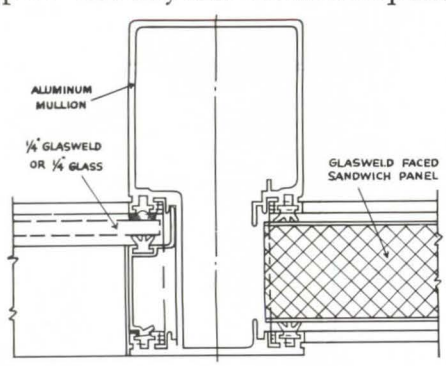
Chief Francisco Solano Junior High School, Vallejo, Calif., has an attractive facing of Glasweld in two colors—Grey Green 54A1, and Yellow Beige 62QA. **Architect:** Beland, Gianelli and Associates, AIA, Vallejo. **System:** Pacific Curtainwall Inc.

Here's a face with no complexion problems

(Just wash permanently colored Glasweld to keep it young looking)

Glasweld® colors are nonfading. The surface is a permanent all-mineral enamel. The panels form a smooth surface that remains optically flat in appearance. Glasweld is strong and dimensionally stable; will not buckle, bow, "oil can," "pillow" or "orange peel." The only care Glasweld requires is the attention you give windows—an occasional washing.



Typical detail of Pacific Curtainwall 500 Series aluminum system in which Glasweld insulated panels were installed. Single thickness facing panels are ¼" Glasweld.

IDEAL FOR CURTAIN WALLS. The attractiveness of Glasweld is more than skin deep. Glasweld is particularly well suited as a facing for sandwich panels, giving quality and durability to low-cost insulated components. It is also eminently practical as a single thickness facing panel with or without masonry back-up.

100% INCOMBUSTIBLE. Another advantage of Glasweld is its fire hazard classification—UL rating 0-0-0. This is of particular importance in schools, hospitals, apartments, hotels, motels, and commercial buildings.

HIGH QUALITY AT LOW COST. Glasweld is easy to work and apply. It can be readily cut in the shop or on the job site with ordinary tools. Installation is quick and simple, using nails, screws, mastic, or metal moldings. Glasweld's low coefficient of linear expansion simplifies sealing. The result is low installed cost.

28 PERMANENT COLORS. A broad variety of semi-matte colors gives you great freedom in creating a pleasing warmth and softness—in coordinating color surfaces with other building materials.

PROVED IN USE. Installations in service since Glasweld was introduced by United States Plywood in 1957 bear testimony. It has lived up to its promise. The panels have kept their color and inherent strength—and remain optically flat in appearance.

For full information on Glasweld, send in coupon on back of this page.

Weldwood®

GLASWELD

A product of United States Plywood

Weldwood Algoma Architectural-Grade Custom-Made plain sliced cherry paneling in lobby of Union Tank Bldg., Chicago, Ill. Top panels are 16' 3" high. The 7' panels below are end-matched with top panels. All panels are 5-ply with lumber core, were completely premachined and prefinished at our Algoma plant. **Bldg. owner:** National Properties, Inc. **Architect:** A. Epstein and Sons, Inc., Chicago, Ill. **General Contractor:** George A. Fuller Co. **Installer:** Peterson Co., Chicago.

How to get a tall wall from a short flitch

The lengths of veneer for custom-made architectural paneling depend on the way individual trees grow. Some flitches run up to 16 feet. These can be made into panels that display an impressive unbroken sweep of grain pattern. Look for them among such species as mahogany, paldao, Brazilian rosewood, Korina®, elm, teak, and zebrawood.

But not all woods can provide extra-long veneers. Take American cherry used above, for example. Its flitches are in the medium-long range, when plain- or quarter-sliced. Ash, red and white birch, butternut also have this characteristic. Walnut and English brown oak, for instance, are in the medium-length range.

Yet, these shorter flitches, too, can be made into long panels with a beautifully matched grain pattern. The veneers are carefully butt-matched on the panel as indicated in the diagram at the right. The result you see in the 16-foot panels at the top of the wall above—and the 23-foot panels facing the columns.

The simple answer is to call the United States Plywood Architects' Service representative. Tell him the dimensions of the walls you wish to panel. Then either indicate your preference of wood or simply describe the general character and color of the wood you are looking for to achieve an effect. He will assemble a variety of flitch samples for your inspection—in our showroom or in your office. He can further help you with suggestions regarding matching of veneers on the panels, the core, finishing, etc.

This service is available to you no matter what your problem is regarding architectural paneling. In case time or the budget is tight, your Architects' Service representative can tell you what's available in our stock of Weldwood® Architectural-Grade, Sequence-Matched Sets.

For further information about Weldwood Architectural Paneling, send in the coupon at the left.

Where the height of a flitch does not permit its fabrication into a panel of the desired height, the veneers may be matched vertically as well as horizontally, as shown. This *is called a vertical butt* and horizontal bookleaf match.

United States Plywood, Dept. PA8-63
55 West 44th Street, New York 36, N. Y.

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☐ 36-page portfolio of Glasweld installations

☐ 8-page Glasweld data folder

☐ "Weldwood Architectural-Grade Paneling"

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PROGRESSIVE ARCHITECTURE AUGUST 1963

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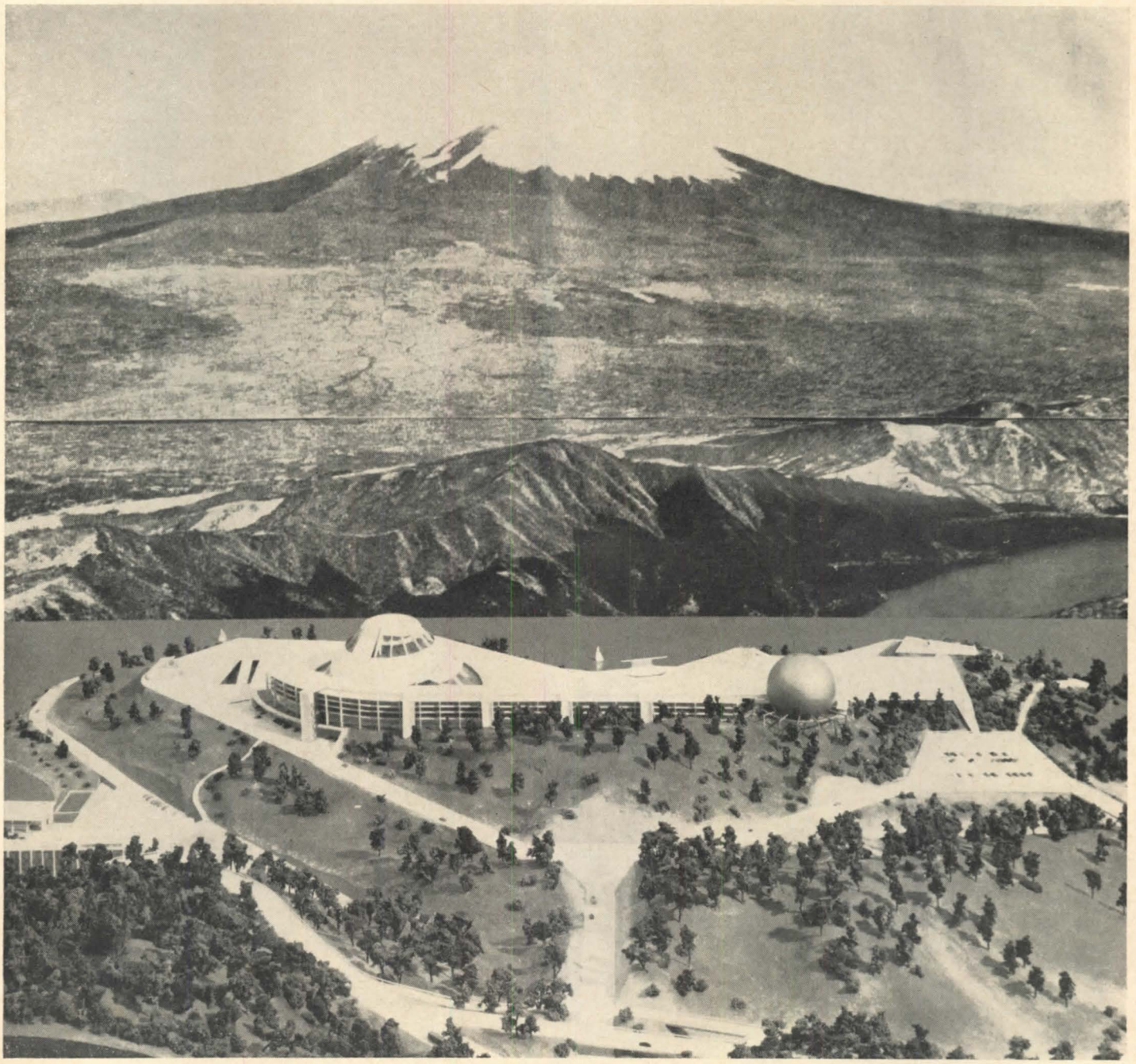
Architecture's Monthly News Digest of Buildings and Projects, Personalities, New Products



Shape of Hakone International Congress Palace by Brazilian architect Netto recalls shape of Mount Fujiyama.

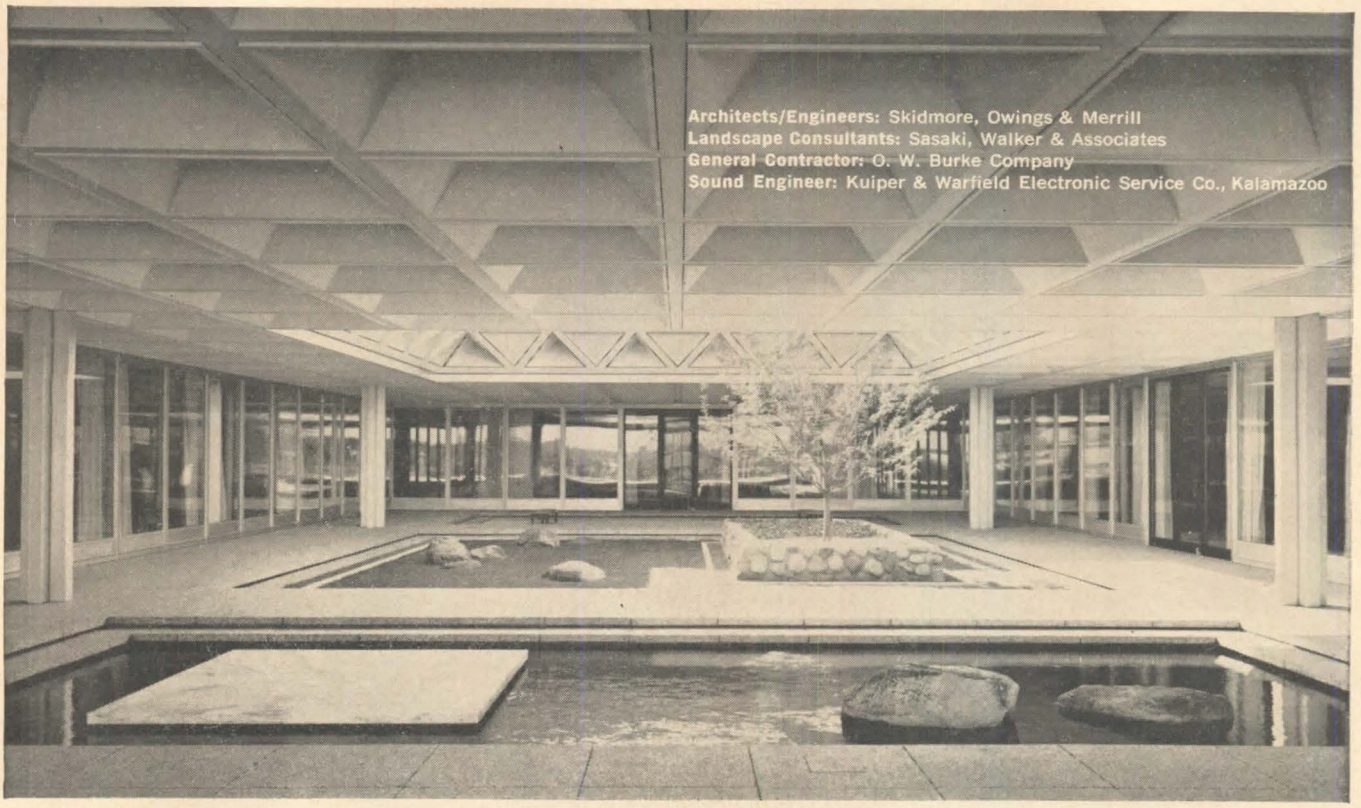


Photo: Ezra Stoller Associates

New general office for Upjohn Company

. . . sound planned with

WEBSTER ELECTRIC **Teletalk®**

The Upjohn Company's striking new administration center at Kalamazoo reflects the Michigan lake country nearby. Designed in the pavilion concept, it faces three man-made lakes and has nine interior courtyards.

And, it's *sound planned* with one of the most complete Webster Electric Teletalk intercommunication systems ever installed!

The Upjohn Teletalk system interconnects all departments with fast voice contact. Executive stations operate "hands-free" and have light annunciators to indicate calling station. Many units are built into office furniture — or electronic control panels in each office. "Total" wiring throughout the building permits executives to move to different offices and still retain complete service without need for additional wiring.

Teletalk is a self-contained intercom available in a wide variety of models to match every internal communication need. It can easily be adapted for paging, general announcements — even data gathering. See your Teletalk dealer* for details and a demonstration in your office.

** Listed in the Yellow Pages under "Intercommunicating Systems"*

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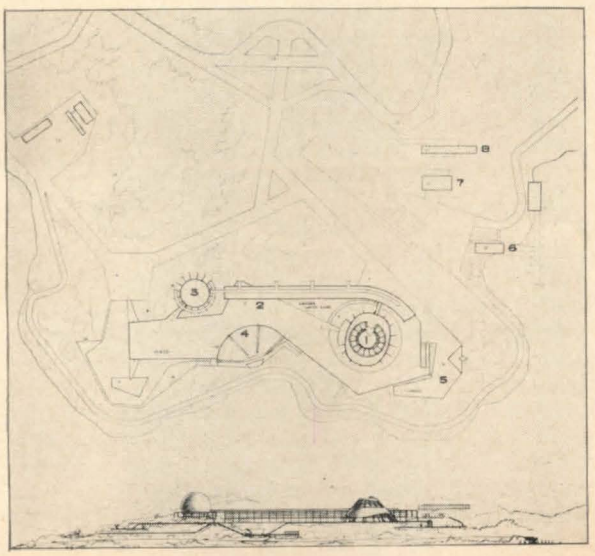
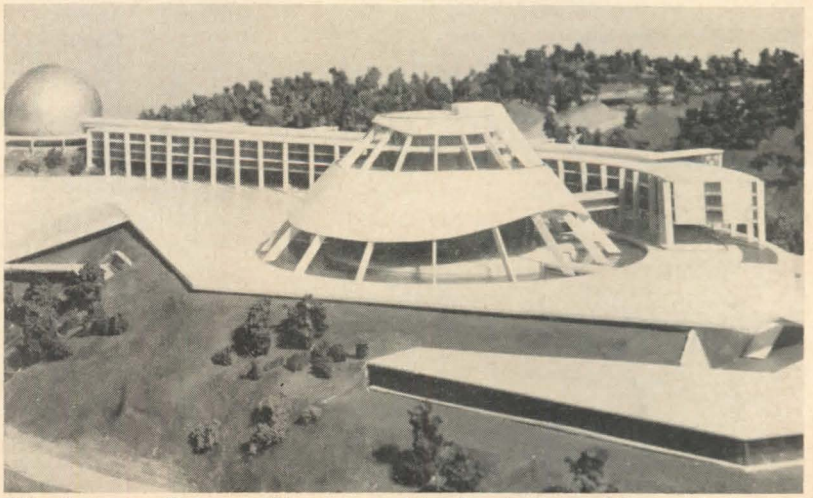
Brazilian Designs International Center for Japan

Wilson (after Woodrow) Reis Netto is a young Brazilian architect who was assistant to Oscar Niemeyer on Brasilia and who designed a noted school there on which *he* was assisted by several young Japanese architects. During a tour of Brasilia, Iwataro Uchiyama, Governor of Kanagawa Prefecture in Japan, had Netto as his guide and was impressed with the architect's talent and sincerity. The Japanese statesman began to think of Netto as the ideal designer for one of his dream projects: an international congress palace on Lake Ashi in the foothills under Mount Fujiyama. This idea came to fruition, at least in project form, when Netto journeyed to Japan and designed Hakone International Congress Palace, a complex dedicated to world peace, for the site. Governor Uchiyama reported early this year, in presenting Netto's design, that both the Japanese House of Representatives and House of Councilors have adopted the petition for the construction of the palace, and that public opinion is strongly in favor of it.

In striving not to fight the dramatic natural scenery of the area, Netto in his design uses the profile of Fuji as the shape of his congress hall. This building, and the dome of a planetarium in the complex, will be the major "exotic" forms in a scheme the architect has tried to treat with the simplicity that is traditional to Japanese design. (He has had practice in this field, having been commissioned to design a vacation house by a leading Tokyo builder.) A vast open plaza will support five major structures: the congress hall, the planetarium, an office annex, an amphitheater overlooking the lake, and a chapel and meditation terrace. Behind this ensemble, in the hilly area, will be located a sports center, youth hostel, medical building, parking areas (there will also be a garage under the annex), and wooded promenades and gardens. There will be a yacht club on the lake, and a heliport and bus station will service ground and air transportation.

The hall itself will rise from a circular reflecting pool and will be approached over a bridge. In addition to the great second-floor meeting hall, whose shape will be expressed on the exterior as an opaque band, there will also be public foyers and terraces and an exhibition hall. Uchiyama's dream may yet become Netto's realization.





(1) *Congress Palace;* (2) *annex;* (3) *planetarium;* (4) *amphitheater;* (5) *chapel;* (6) *yacht club;* (7) *sports center;* (8) *youth hostel.*

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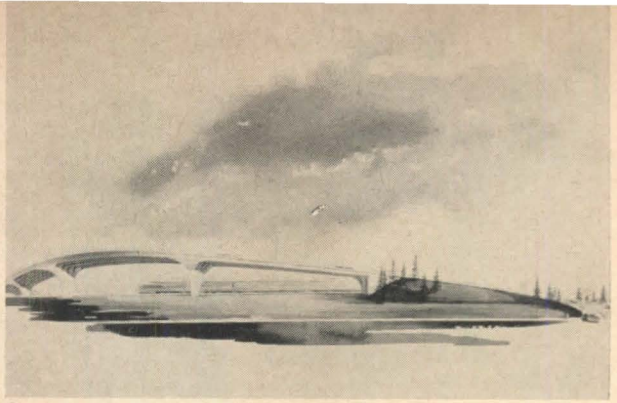

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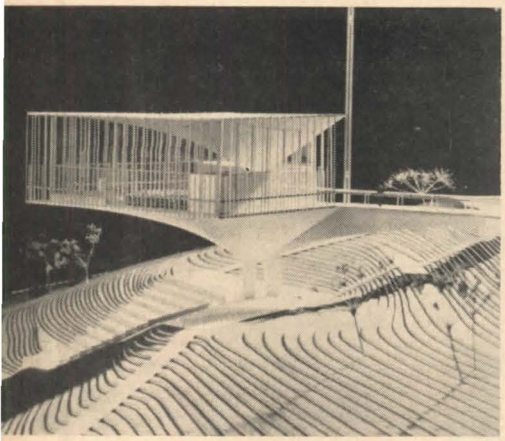

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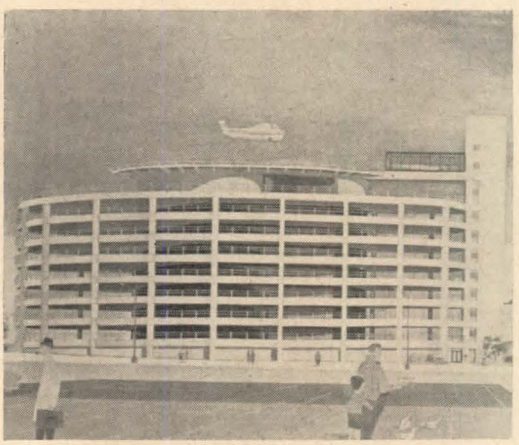

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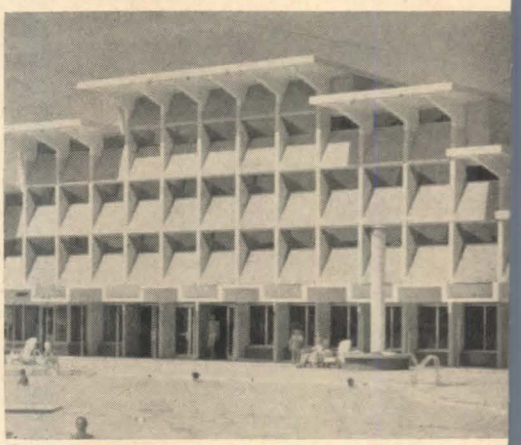


5

PRESTRESSED CONCRETE INSTITUTE HAS FIRST AWARDS PROGRAM

A little-known Canadian architect has won top honors in the first annual awards program of the Prestressed Concrete Institute. Awards of merit—for excellence of designs using prestressed concrete, of course—were also given to eight other structures by a jury consisting of Architects Harry Weese, Vincent G. Kling, and John Graham; and Engineers Fred N. Severud and Thomas C. Kavanagh.

First award went to Maurice Robillard of Beloeil, Quebec, for his St. Richards Church in Côte St.-Luc, Que. (1). Merit awards were won by John Carl Warnecke & Associates for the Oakland 23rd Avenue Bridge (2); Kirk, Wallace & McKinley for the Church of the Good Shepherd in Seattle (3); the County of Alameda, Calif., garage and heliport by Van Bourg/Nakamura and Ratcliff & Ratcliff, Associated Architects (4); Happy Valley indoor swimming pool in Calgary, Alberta, by G. R. Beatson & Associates (5); Capps Tower Motor Hotel, Minneapolis, by Ackerburg & Associates (6); Famous Barr Parking Garage in St. Louis by Engineer Kenneth Balk & Asociates (7); the American Republic Insurance Company building in Des Moines by Skidmore, Owings, & Merrill (8); and Yamasaki's U. S. Science Pavilion for Century 21, with Naramore, Bain, Brady & Johansen (9).

In an exclusive interview with the jury immediately following the judging, P/A obtained the opinions of the jurors on present trends and future possibilities in design and construction using prestressed concrete:

P/A: Practically all of the winners are of an architectural nature. What, in looking over all of the entries, is being done in the nonarchitectural field, such as bridges, roadways, etc.? Are they becoming better designed?

WEESE: We didn't have enough of those. They were outnumbered by buildings; about what ratio would you say?

KLING: At least ten to one. There were some bridges that started to use prestressing in curvilinear forms. You notice most of the awards were given for straight linear stressing. I found one that I thought was coming close, but then we examined it more carefully and it didn't seem that the architectural and engineering concepts ever got together. But I think that the expression of prestressing in the form of structures such as bridges, if they got more sweeping, could have some three-dimensional curvilinear movement. We picked one building that has nice curved form—the garage.

P/A: How about the generally successful integration of architecture and engineering throughout the competition? All the winners did this very well, presumably.

KLING: That's true. I think the winners were picked mainly because the architectural and engineering concepts were one and the same in the unfolding of the solution. There were some projects we saw in which the "in-progress" construction pictures showed some fascinating structures. But the final results, when clad with architectural closure, became so diluted that they were really not a good amalgamation of the two.

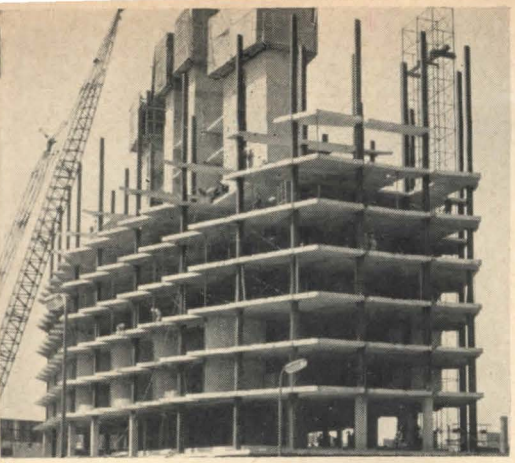
WEESE: We also saw frank examples of styling, where the architect was obviously called in and asked to dress up the situation—which he promptly ruined.

P/A: What about the tricky, clever roof architecture of a couple of years ago? Do you find that it is declining and that there is a return to stronger basic forms using prestressed concrete?

KLING: Obviously.

P/A: Do you think the folded plate era is on the wane?

SEVERUD: I think it is on the wane insofar as the straightforward covering of a roof is concerned. But I certainly think that it still has many possibilities that are unexplored in larger scale. One of the things that I'm disappointed about is that we did not have a submission of a large folded plate covering a large area, which would lend itself beautifully to post-tensioning. Because in these large areas, where you have considerable temperature variations and shrinkage, is where post-tensioning is admirably suited. I know of some designs where that is taken advantage of and I'm absolutely certain that in the future we will get many more, not only folded plates, but double-curvature shells and many other sections that are going to be readily analyzed by computers. Previously, some of those forms were possibly attractive,



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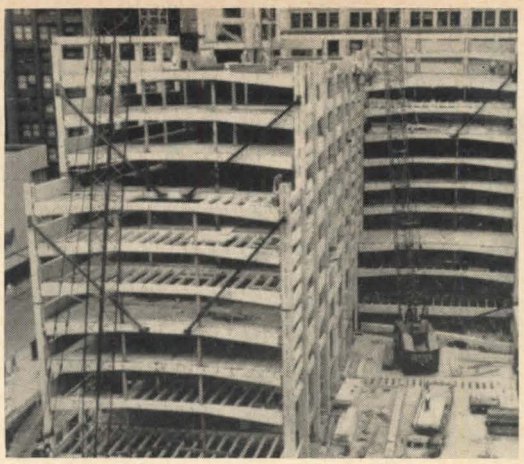

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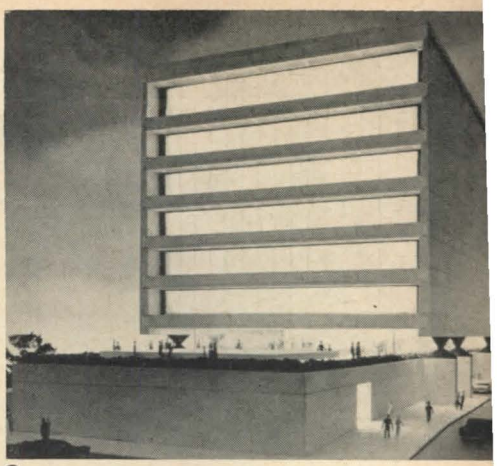

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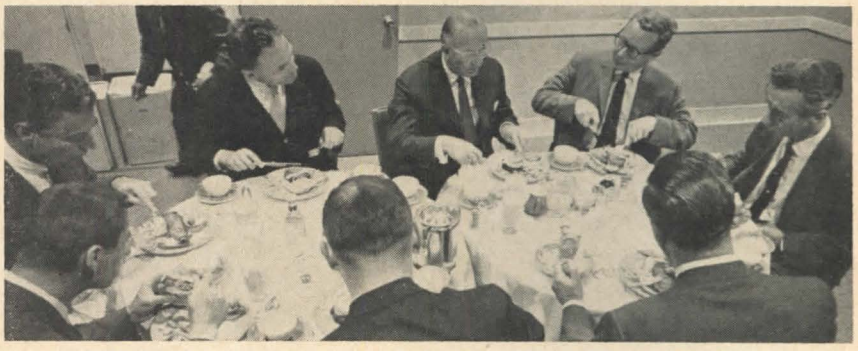


PCI luncheon conference: clockwise: Kling, Weese, Graham, P/A's Burns, Severud, Kavanagh, PCI's D'Arcy and Scott.

but they were almost impossible to analyze. But nowadays, you could take practically any shape, and I think that when that becomes more generally realized by architects, we'll see a great upswing into folded plates and shells of larger dimensions. But the technique of just getting saw-toothed roofs on a smaller scale has given way to simpler forms, I think.

KLING: You have a hard time roofing a small-scale corrugated deformed roof. How do you keep the water off? How do you keep it from breaking up, freezing and thawing, and also the basic proposition that the expression of the roof on some buildings is an important part of the architecture. It gets too gingerbready, and it overtakes the main point of the design.

P/A: In the last go-around of judging, you eventually discarded the only small building. Do you think that prestressed concrete construction and design is mostly amenable to, say, the larger, more Brutalist type of structure or not?

SEVERUD: I would say that the only reason this was discarded was that advantage had not been taken of the handsome technique of building a large, square, good, flat surface on four columns. If the designer had followed through, taking full advantage of it, that would have been one of the entries near the top of the list.

P/A: Looking over the whole submission list, do you think there now are new unknown firms contributing just as much, more, or less, than the more famous firms?

KLING: The good firms are maturing and still doing good things. But there's an equally encouraging assemblage of unknowns in this group of entries. The firm that took the first award is someone we never heard of before. And one of the runners-up, another Canadian, is an unknown as far as we in the States are concerned.

P/A: What do you think about the quality of the entries on the whole? Do you think this would have been possible, say, four or five years ago?

SEVERUD: No, certainly not four or five years ago. I think there has been considerable progress, but I believe it is somewhat disappointing to see that the advantage has not been taken in other fields. I can think of several examples where prestressing is a very useful technique, but none of these were among the entries.

WEESE: Four or five years ago, what was it like? At that time, Skidmore, Owings & Merrill were doing steel architecture. Now they are in hot pursuit of the precast and the prestressed. Their young designers are all hepped up about it and are more knowledgeable, and this allows them to break new ground.

KLING: Every design that has received an award indicated a very special talent in structural *sense*. One award was given to a prestressed foundation, which is rather rare these days. The one we found noteworthy in bridges is a curved bridge, which is also a rarity—particularly in prestressing. This application to curved structures is going to come forward in the future a great deal. It will be an advance, in bridge architecture, when you fit your crossings to a curvilinear arrangement. One award that impressed me was a lift-slab technique that modifies the lift-slab idea by using a crane to lift the segments and then post-tension them in position. In other words, we can do a lift-slab without using the lift-slab method. This is quite an advance in the techniques of design.

KAVANAGH: I found it interesting in connection with the multistory type of design that many of the designs seem to use a block type of construction without taking full advantage of the continuity. They seem to apply this block idea—putting a beam on top of a column—without taking through moments. In the future, you're going to see many multistory buildings in which the moments are carried around the ends. In other words, the field of frame analysis in prestressed work is still highly undeveloped at the present time, but the evidences we have here are an indication of progress. Also, I don't think we've seen the end of folded plates. We're just starting on that. A structure could be done by means of folded plates as floor slabs. There's nothing lighter than a folded plate. It could also be tees on a really long span. But every one of these winners has structural significance. Four years ago you would not have seen this type of advancement.

GRAHAM: We're opening our vocabulary to the point where the folded plate is used in its proper place, and each of the other techniques are used in their proper order, at the same time allowing a greater freedom.

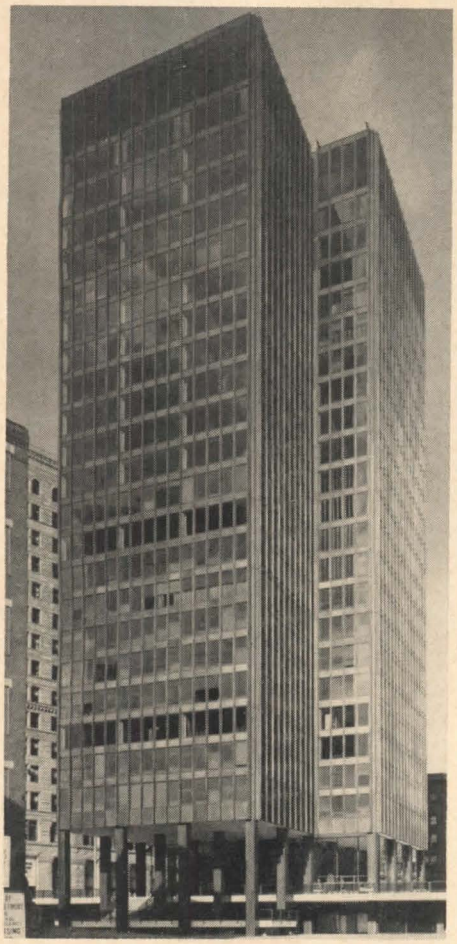


Photo: Norman R. C. McGrath

Two Buildings Ready in Charles Center

BALTIMORE, MD. Two of the most important high-rise buildings in Charles Center, Baltimore's 22-acre downtown redevelopment area, have been completed. They are One Charles Center (*left*) by Mies van der Rohe, and the Blaustein Building (*right*) by Vincent G. Kling. Mies's aluminum-and-glass tower rises from a one-story plaza base reached by stairs from the street. The elevator lobby is glazed floor-to-ceiling in the manner of the Seagram Building. Stores, banks, etc. will occupy the off-the-street spaces under the plaza.

Kling's Blaustein Building, at One North Charles, features slim windows and continuous mullions to emphasize the unbroken verticality of the façade. At ground level, the building is set back from Charles Street to create a 3100′, landscaped plaza covering 20 per cent of the site. Sepia, porcelain-enameled steel spandrels are recessed to contrast with the mullions and give variety to the building as the sun plays over it. Typical floor plan of the steel-framed building is open to permit maximum flexibility for varying tenant needs.

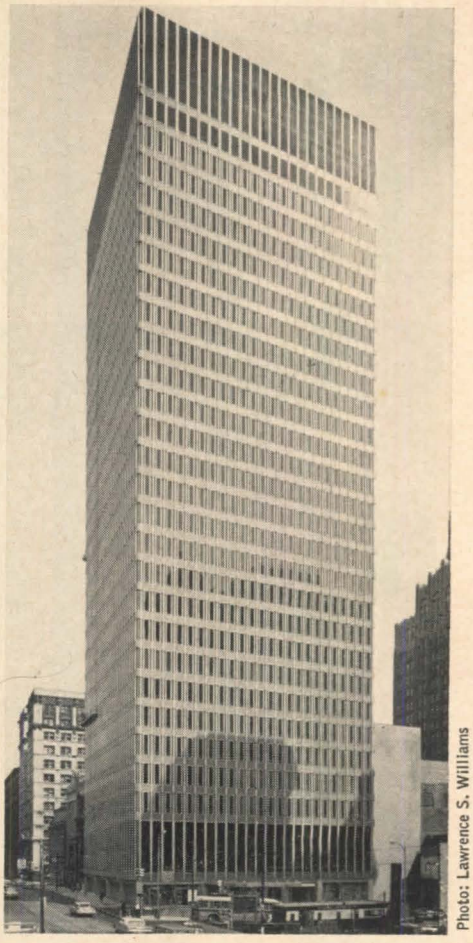


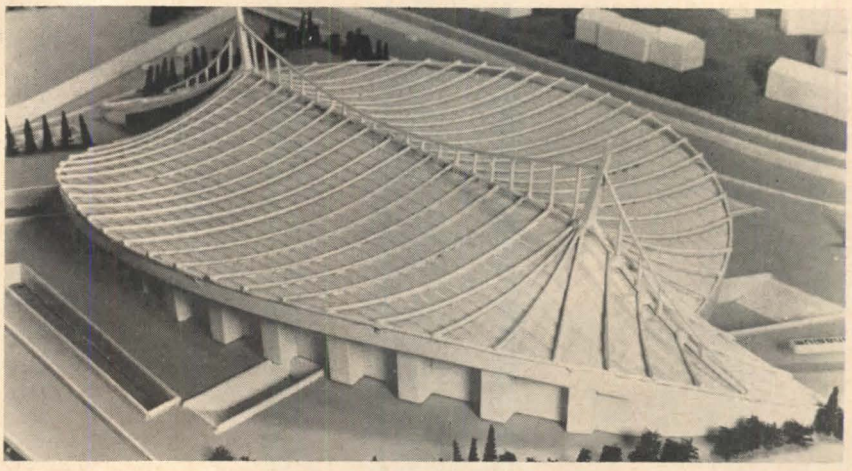
Photo: Lawrence S. Williams

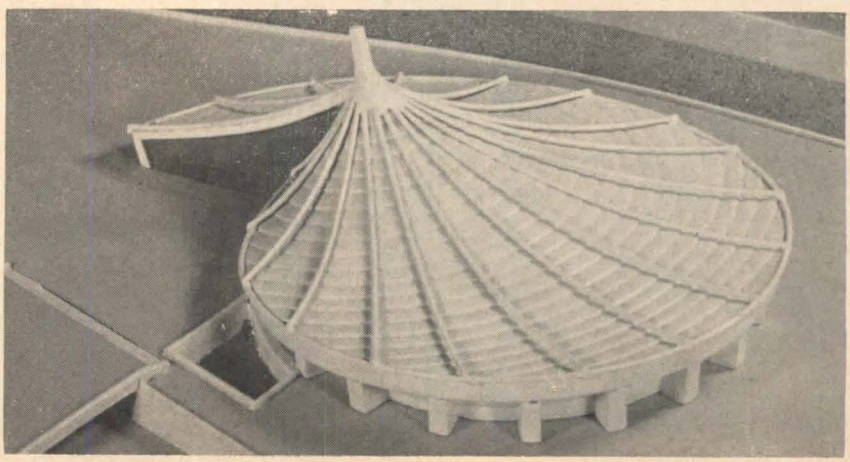
Tange Designs Cable-Hung Structures for Olympics

TOKYO, JAPAN Architectural winners of Japan's 1964 Olympics are bound to be two structures designed by Kenzo Tange. Slated to be the only permanent buildings on the Olympics grounds, they have been designed to be complementary forms both to each other and to the Meji Shrine nearby.

The 16,246-capacity swimming arena (*right, above*) will have a roof of steel plates over cables hung from two masts. The two halves of the roof will be offset and light will be permitted to enter through louvers between the exposed support cables. For judo and other sports, the pool will be covered. Measures will be taken to make the shells moisture-resistant, sound-absorbent, and heat-resistant.

The smaller structure (*right, below*), which will seat 3931 for basketball and 5351 for boxing, will also have a cable-hung roof, employing in this instance a single mast. The suspended roof will describe a conch-like orbit around the mast. Both structures, with their exposed-end masts and swooping, upcurving lines, have an eminently "Japanese" feeling.





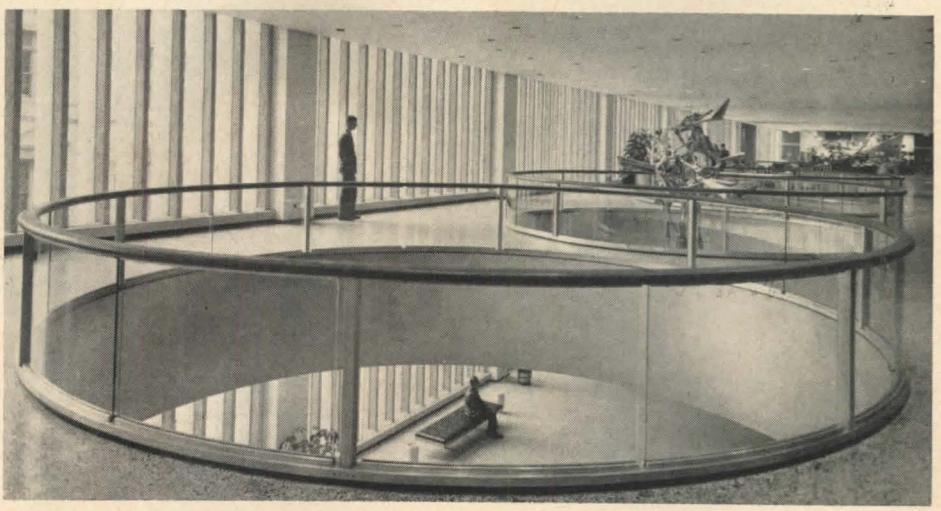
Photos: Orion Press, Tokyo

APPROPRIATE HOTEL FOR NEW YORK

NEW YORK, N. Y. The most recent, and most important, new hotel in New York's current hotel-motel-motor inn boom has opened, and the architects (William B. Tabler, with Harrison & Abramovitz) can pride themselves on having furnished a building that is eminently *à propos* to its urban setting. The New York Hilton—The New York Hilton at Rockefeller Center, as the owners insist on calling it (the Center is about a block and a half away)—succeeds on many scores, all of them architectural. The entrances under the four-story base structure recall the *portes-cochères* of the grand hotel days (*right, below*), making it a dramatic experience to arrive at or leave the building. The lobby promenades on the second and third floors, made into one flowing space by the circles that pierce the floor separating them (*right, above*), create something lacking in almost every other newly constructed hotel: a noble "waste" space simply for idling or waiting. The guest rooms, 2153 of them, are more spacious and higher-ceilinged than those in other recent hotels; and the pointed, tinted glass bay windows formed by heating-cooling counters give nicely faceted views of the city.

Where the hotel fails, often seriously, is on the work of interior designers and decorators (eight were employed on various projects in the building). Ranging from occasionally amusing *kitsch* in the "Rue des Gourmets" restaurants (French, Italian, New Orleans, etc.), to bland Hilton-modern in most lobby and public areas, to "decoratory" in the guest rooms, to third-rate Jean Harlow style in the gigantic ballroom, the interiors all represent high hopes for prestigious display dissipated in unimaginative commercial-type interior design. As Ada Louise Huxtable pointed out in her *New York Times* review of the hotel, the tragedy here lies in the client's taking the total responsibility for *all* the building from the architect, and consequently winding up with a too-many-cooks broth. This is all the more disappointing since Hilton obviously meant this hotel to be some kind of monument. Very little expense was spared, the almost $500,000 spent on art being one case in point. All guest rooms have original works (lithographs, woodcuts, etc.) by modern artists, and the public areas sport works by Lassaw, Pavia, Metcalf, and Dong Kingman. Perhaps in the next Hilton, the architect can take his proper lead.

Photos: Louis Reens



SERVICEABILITY STUDY ALUMINIZED STEEL TYPE 2

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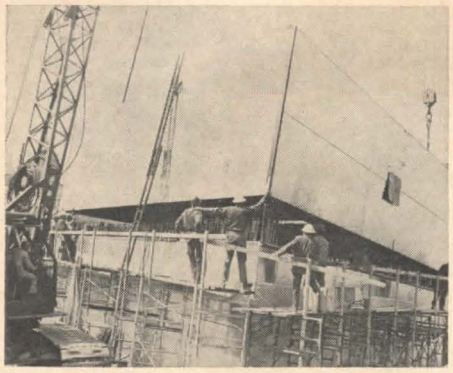


Saarinen Arch Grows

Saarinen's stainless-steel Gateway Arch in St. Louis is out of the ground over an impressively sized subterranean exhibition center, and, hopefully, will be ready for the 1964 AIA convention in that city. The arch is being put together in immense fabricated sections, as shown, eventually to be joined at the top by use of a great spreader arch that will insure proper jointure of the two meeting halves.

Corrosive-Resistant Stainless Steel

Recently, the Union Carbide Metals Company conducted a survey that revealed a definite lack of knowledge among architects, industrial designers, design engineers and even metallurgists, concerning various grades of stainless steels. Specific questions were asked about the 200-, 300-, and 400-Series of stainless steels and their particular properties. Surprisingly, the results indicated that only 37 per cent knew the 200-Series existed, and, in many instances, an even smaller percentage were familiar with the relative properties of the various other stainless steels.

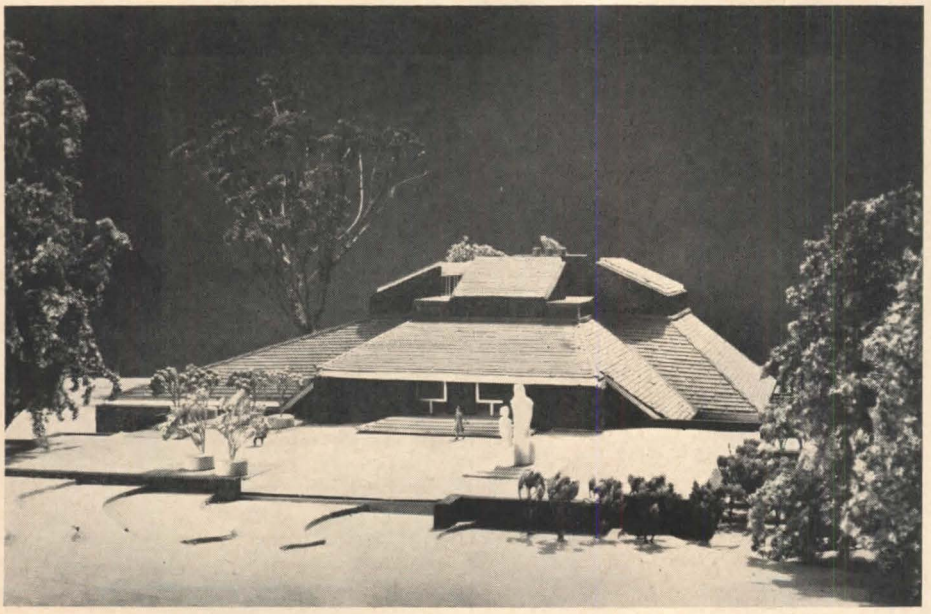
The 200-Series are austenitic corrosion-resistant stainless steels alloyed largely with chromium, nickel, manganese, and nitrogen. They have the same lifetime resistance to atmospheric corrosion as the 300-Series. Specific heat and thermal expansion coefficients of the 200-Series are comparable to those of the 300-Series. Thermal conductivity of the 200's is essentially the same as the 300's.

Because the 200's have a higher annealed yield strength and the same modules of elasticity in tension as the 300's, they can effect savings through weight reduction by being utilized in thinner sections. Although the 200-Series is greater in strength and in hardness, it still contains the same degree of ductility as the slightly softer, lower-strength stainless steels. Therefore, formability is nearly identical in most fabricating operations. At high temperatures, the 200's are stronger.

In the fabrication process, the 200-Series can be turned, milled, drilled, tapped, sawed, sheared, and machined and cut similar to the 300-series. Every welding method is applicable to the 200's. Finishing is accomplished by abrasive grit polishing, buffing, and flash plating. Because the 200's are slightly harder than the 300's, polishing to the same degree of brightness is easier and less expensive. The color of the 200-Series is also more silvery than the 300-Series.

The 200's are available in sheets, strip, plates, bars, wire, tubing, and forging billets. Either Type 201 or 202 is readily adapted to foil, cloth and screening, perforated, expanded, textured, color-coated, corrugated, and other variations.

If the designers' specifications were to call for more applications requiring the 200-Series, then the steel companies, which have traditionally produced larger tonnages of the 300's, should be more than willing to accommodate increased orders for this type of stainless steel.



DINING AROUND THE MIDDLE

The design for the new 600-seat dining hall for Swarthmore College by the office of Vincent G. Kling provides for three large dining rooms around a communal lounge center. In addition, there will be two 16-person and one 32-person dining rooms located toward the center of the structure. Siting of the structure on a slope will permit location of the entrance on the second level and a stairway descending into the main lounge. Exterior walls will be native stone; roof will be clay tile; interiors will feature stone and wood beams.

RAPSON THEATER OPENS

The Tyrone Guthrie Theater, home base of the Minnesota Theater Company, opened to acclaim both for Ralph Rapson's architecture and the playing of the resident troupe in May. Another Rapson contribution occurred when, alarmed by poster display plans, he created a witty cartoon showing how *not* to deface the façade. Guthrie was convinced. The auditorium (pp. 146-150, JANUARY 1961 P/A, p. 662 and pp. 104-105 FEBRUARY 1962 P/A) proved itself admirable, according to reports; it will be published in detail by PROGRESSIVE ARCHITECTURE at a later date.

NEW FROM JOHNS-MANVILLE:
INVERTED COFFER

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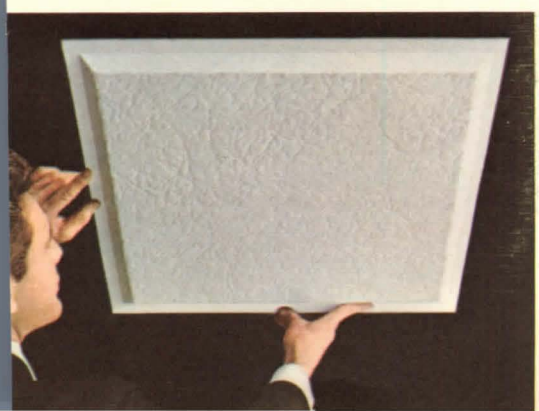
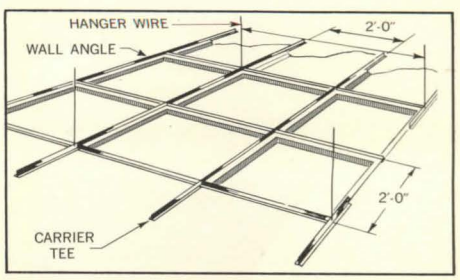
This new Johns-Manville all-fiber-glass ceiling panel offers a combination of practicality and style . . . at moderate cost. Square lay-in panels are moulded in inverted coffer shape, projecting 1" downward into the room. As shown above, the visible surface has an attractive, low-relief, rippled texture. Panels are factory-painted white, but can, of course, be repainted to suit any decorative scheme. Measuring 24" x 24" x 1" deep and acoustically effective (NRC of .75) . . . Inverted Coffer Panels suggest interesting applications in supermarkets and other broad-expanse areas.





Lay-in Inverted Coffer Panels are quickly installed in an exposed grid-type suspension system.

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SEE NEXT PAGE

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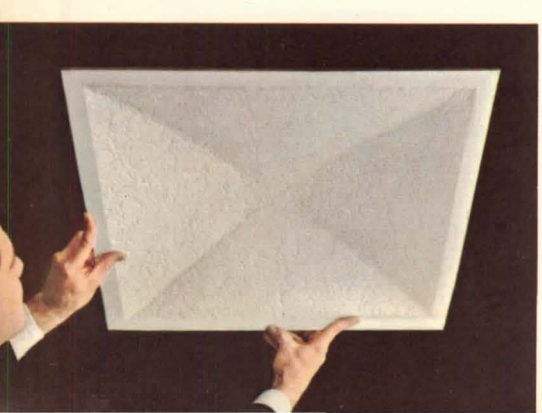

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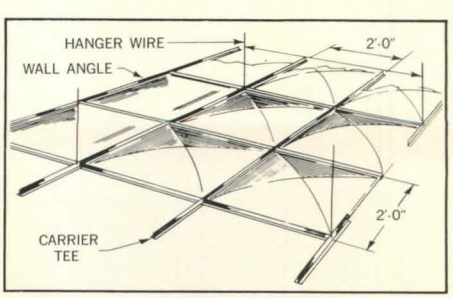

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For rules, see p. 65, July 1963 P/A.

Entries will be judged by
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Ernest J. Kump
Harry Weese
Peter Collins
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P/A will arrange publicity in news media for all winners

Address entries to Awards Editor
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Hue and Cry After Stewart

by E. E. Halmos, Jr.

Washington's most famous architect-who-is-not-an-architect was in the midst of an almost annual go-round with his Congressional and press critics, as the capital moved into its hot, steamy summertime in an atmosphere of somewhat unusual legislative lethargy.

The debate didn't seem to perturb 73-year-old J. George Stewart, a graduate civil engineer and holder, since 1954, of his present title of Architect of the Capitol. It has seemed to be an annual sport for many years, and a particular form of relaxation for Senators such as Illinois' Douglas and Wisconsin's Proxmire. Proxmire made his criticisms even more pointed this year by introducing a bill (S. 1806) that would deny the architect the right to pass judgment on any construction or other work on the Capitol grounds.

Two things aroused Congressional (and local newspaper) ire this time: the admittedly monstrous-looking Rayburn (or new-new) House Office Building—now five years in the building and likely to cost more (at $110 million or so) than all other buildings on Capitol Hill combined. Described in local press articles as having "a style deriving from Middle Mussolini, Early Rameses, and late Nieman-Marcus," the building's interior has been so poorly designed that Congressmen's private offices cannot be reached by staff members without crossing through public reception rooms.

As if this wasn't enough—atop the outcry a couple of years ago when the new Senate Office Building was completed and loudly criticized—Mr. Stewart has just put in a bill for some $20 million to reconstruct the west front of the Capitol building (facing downtown Washington), partly because of deterioration of the old sandstone facing and partly because the $11.3 million restoration of the east front provided comparatively little added usable space.

That was enough for the Senators and the local newspapers, who took off on their annual chase of Mr. Stewart and his minions and millions.

Amid the hue and cry a couple of facts didn't get mentioned: (1) designs are prepared by registered architects, usually after design competitions; (2) all construction is supervised by Congressional committees, who often dictate such details as the huge and expensive private swimming pool in the Rayburn building (not included in original programs).

Anyway, it provided summer diversion for a capital not doing very much else.

New Fine Arts Commission Members

There was another item of major interest to architects—even though it concerned the capital itself most directly:

The President named five new members to the Fine Arts Commission—a heavy majority of the seven-member group. Still to be named—a chairman, to replace retiring, 72-year-old David E. Finley.

What made the appointments doubly interesting was that they followed closely on severe criticisms of the capital's architecture by the AIA and other professional and amateur critics, and directly on a lengthy report to the President by August Hecksher, who resigned his post as special consultant to the President for the arts. In his report, Hecksher had called for appointment of some sort of an advisory committee or panel to advise on architectural matters.

Not surprising was the appointment of John Carl Warnecke, of San Francisco, who designed the Hawaii state capitol and the approved plan for refurbishing Lafayette Square in Washington; and Hideo Sasaki, Lexington, Mass., Landscape Architect. Others appointed were William Walton, Washington artist; Mrs. Aline B. Saarinen, widow of famed Eero Saarinen and an art critic in her own right; Theodore Roszak, a New York sculptor; and Burnham Kelly, dean of Cornell University College of Architecture.

Do-Nothing Congress

It was hot and humid—in fact typical Washington weather—when Congress took its traditional break early in July to go home for some fence-mending and speechmaking.

But Congress had little to be proud of: it had passed exactly nothing in the way of major legislation in six months of being in session. Not even the important bills providing money for Federal departments had gotten through, though the House had passed its share of them, carrying a $3 billion reduction in Presidential requests for funds. (No department, however, will run out of money: Congress did pass the usual "continuing resolution," which permits the Government to keep on spending at 1963 rates until new appropriations are approved.)

The rate of spending was still a major worry for many Congressmen. So staunch a Democrat as Representative Clarence Cannon of Missouri took the House floor to warn his colleagues that the 1963 fiscal year had closed with a deficit of more than $8 billion, with an even bigger deficit in prospect; that the Treasury's supply of gold had dwindled to $15.7 billion; that the average U.S. family must pay about $114 every month just to meet appropriations for defense, Federal salaries, and payments on the $309 billion public debt.

FINANCIAL

Big news for businessmen in July was publication of the final regulations of Internal Revenue Service on travel and entertainments tax deductions.

IRS retreated a little from the first harsh set of proposals that frightened the business community, and caused a sudden drop in restaurant and entertainment business. But requirements for documentation of expenses are still stiff. (You can get a copy from IRS directly, or by sending for the June 25 issue of the "Federal Register," (25¢) from the U.S. Government Printing Office. Ask for "Title 26, Chapter 1, subchapter A, Part 1."

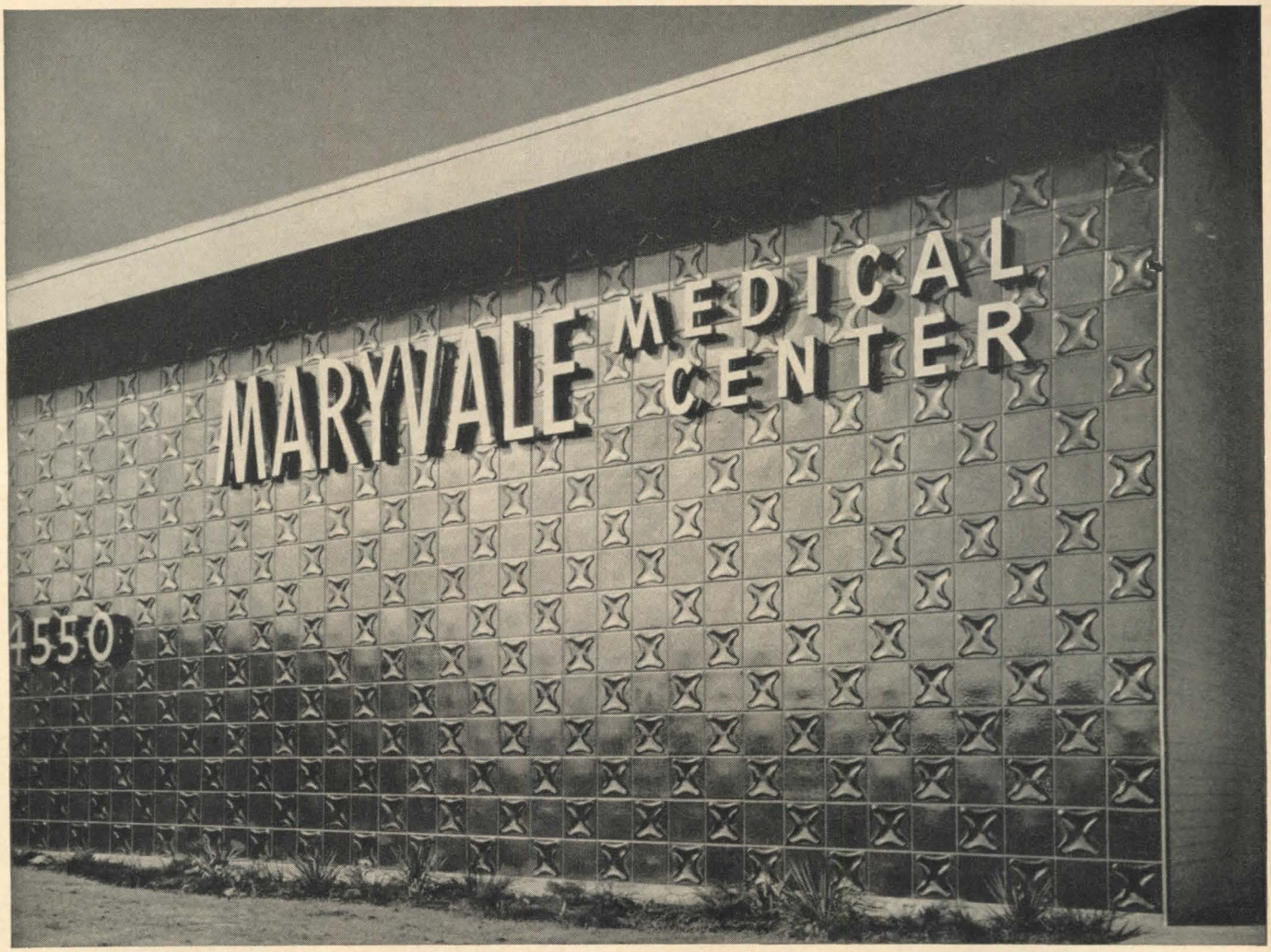
One bit of news though: You can continue to take employees and associates out to lunch, as well as prospective partners. A "business associate" is defined as ". . . customer, client, supplier, employee, agent, partner, or professional adviser, whether established or prospective . . ."

Business indicators remained good for the construction industry, but there were some signs of a slowing rise, as if investors were pausing to see what course Congress will take over the next few months.

April approvals of municipal bonds, for example, showed voters okaying $199.3 million worth, turning down $146.7 million—with an almost even division between approvals and turndowns of educational building bonds.

Value of new construction put in place, said the Commerce Department, was $5.5 billion in May—up only about 3 per cent over May of 1962.

And average secondary market prices for FHA-insured new home mortgages held steady for the first time in several months—an indicator of a slight easing of money markets.

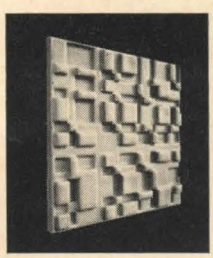


Creating Interesting Texture at Low Cost

You now can subtly vary the interplay of light and shadow on exterior walls, to achieve unusual beauty and textural interest. This architectural distinction is attained with *Contours CV*, a new, lightweight ceramic facing with incised and bas-relief pattern. That shown in the photo is "Sculptured Shadows." For this Phoenix, Arizona, medical center, Architect G. Collum combined flat and sculptured units.

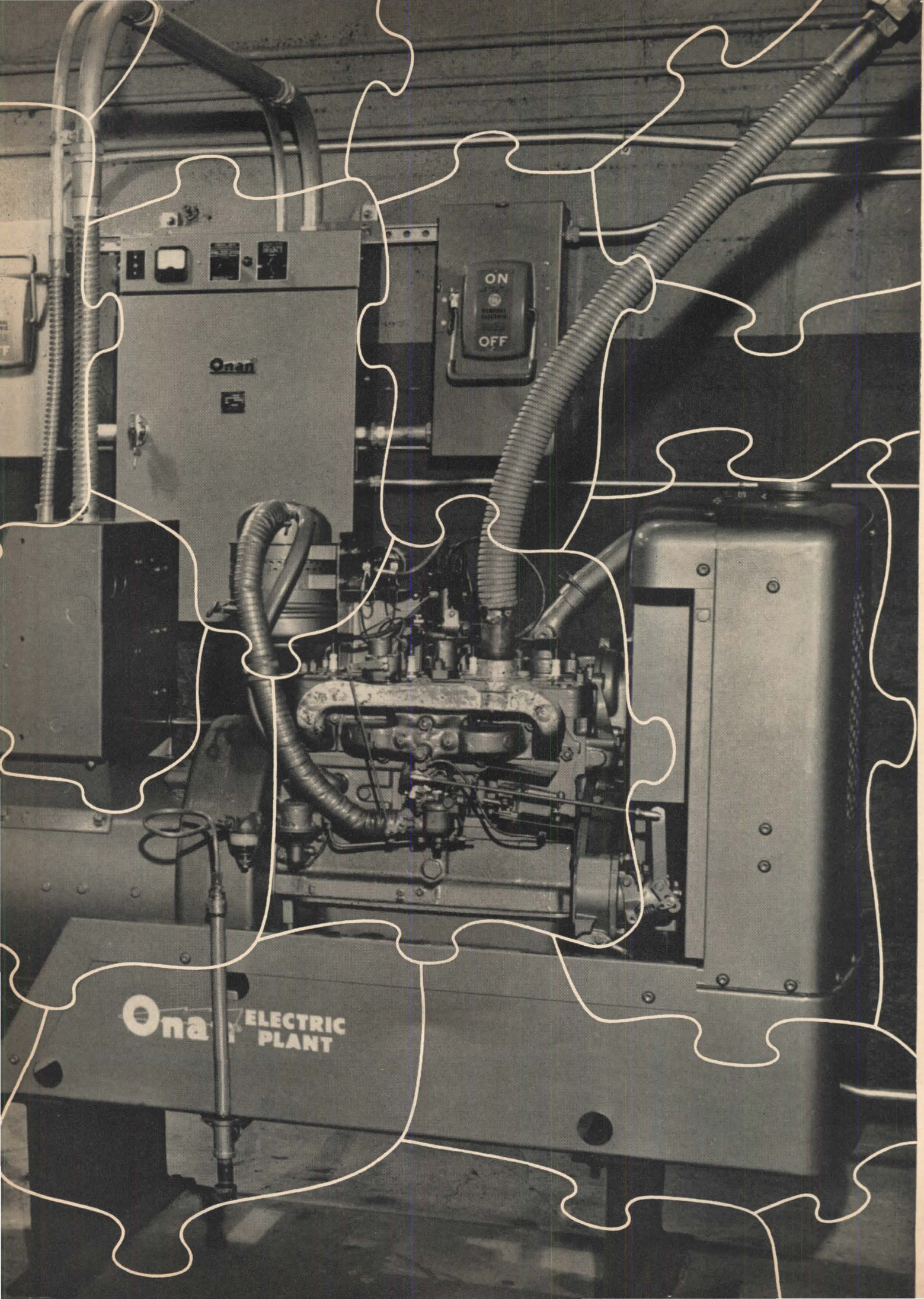
Contours CV is characteristically inert, never effloresces, cleans easily, retains its beauty through the years with minimum maintenance. Units are 11¾" x 11¾". They may be applied in the same way as glazed wall tile or as regular adhesion-type CV. Nineteen colors, ranging from pale pastels to rich tones, are available in semi-matte or mottled glaze. Over a dozen patterns now are standard.

Contours CV gives you the construction economy of lightweight, easy to handle, modular pieces of a high-fired ceramic, with a frost-proof body and a glaze impervious to weather. Its distinctive patterns and extraordinary beauty provide new opportunities for award-winning design. Yet it is priced to permit use in a wide variety of commercial, industrial and institutional construction, and will fit the budgets of most jobs. Write for literature showing patterns and specs. Better, visit one of our salesrooms where you can see and feel the beauty of *Contours CV* itself.



CONTOURS CV®
A Gladding, McBean building product by
INTERPACE
INTERNATIONAL PIPE & CERAMICS CORPORATION
LOS ANGELES/SAN FRANCISCO/PORTLAND
SEATTLE/SPOKANE/SALT LAKE CITY/PHOENIX

Distributed east of the Rocky Mountains by
CERAMIC TILE
American Olean
American Olean Tile Co., Landsdale, Pennsylvania—a subsidiary of National Gypsum Company


ON
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Why buy bits and pieces?

Onan provides a complete package for your standby power installation

Why buy standby power piecemeal? Even if you get all components together on schedule and properly assembled, which supplier do you call for service?

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.

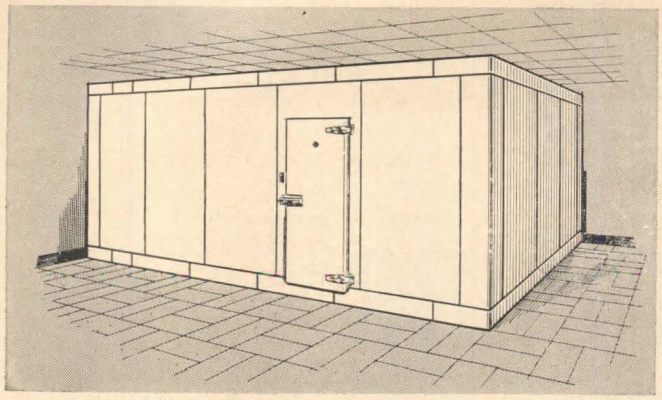
You'll find your local Onan distributor listed in the Yellow Pages. Thomas' Register, Sweet's. Ask him to send you a copy of Bulletin F-170 "Unit Responsibility." Or, write the factory, 2515 University Ave. S.E., Minneapolis 14.

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.



Combination normal and low temperature Walk-In installed at **Manhattan State Hospital,** Wards Island, N.Y.

Specifications prepared by the **State of New York, Department of Public Works,** Division of Architecture, Albany, N.Y. for the **Department of Mental Hygiene.**

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.

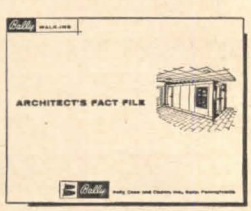
Urethane 4″ thick (foamed-in-place) has insulating value equal to 8½″ fibreglass. Standard models can be used as freezers with temperatures as low as minus 40° F. Urethane has 97% closed cells . . . cannot absorb moisture . . . ideal for outdoor use.

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. 314

Planning a school? Get this free

Language Laboratory Planning Kit

Complete details on space requirements for language booths, teacher's console, language lab office and tape preparation room, illumination, acoustics, wiring requirements. Kit includes specifications of "Monitor" language lab equipment and furniture—used in hundreds of schools in the U.S. and more than 65 nations around the world. Write to

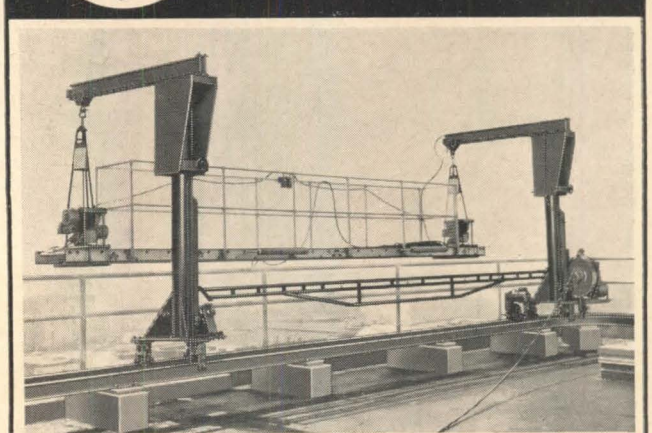
ELECTRONIC TEACHING LABORATORIES
5034 Wisconsin Avenue, N.W. • Washington 16, D.C.
"Language Laboratory Standard of the World"

SEE SWEET'S CATALOG — SECTION 36A

For more information, turn to Reader Service card, circle No 369

ALBINA ®

POWERED WINDOW WASHING SYSTEMS



FEATURES: Carriage — Swing Platform runs on narrow gauge continuous track around perimeter. Track switches for roof storage.

WRITE FOR POWER SCAFFOLDING and ROOF CARRIAGES brochures, engineering data and installations.

ALBINA ENGINE & MACHINE WKS.
2100 N. Albina Ave., Portland, 17 Oregon

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

Metal Lath Forms and Reinforces Thin Shell

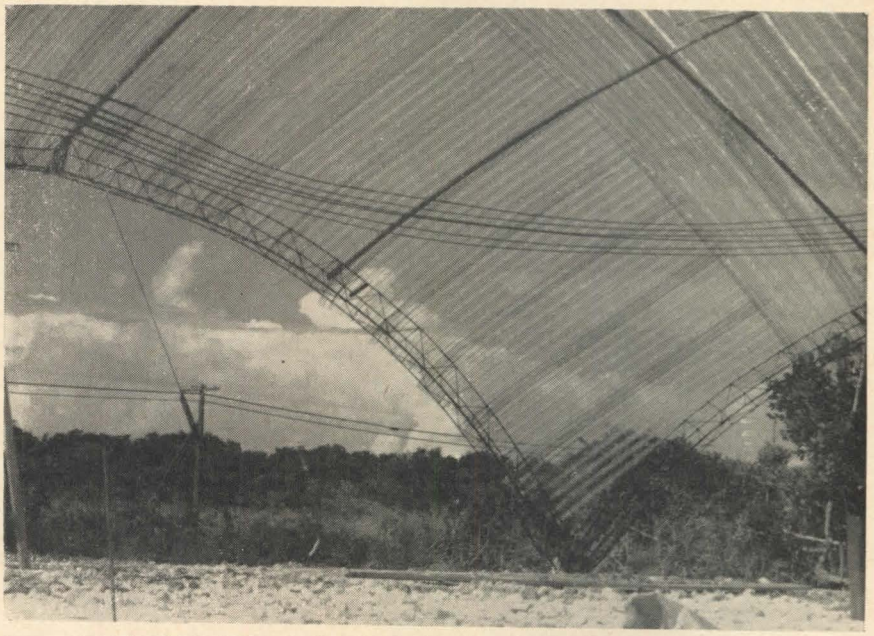
Architect Richard A. Rose, of Miami, and Consulting Engineer Bertram S. Warshaw, of Coral Gables, have developed a paraboloid structure for low-cost housing as well as for banks, restaurants, shopping centers, and office buildings. The structure has rigidity, durability, low-cost maintenance, and high fire resistance made possible by spraying portland-cement plaster over metal lath, which serves as both forming and reinforcement.

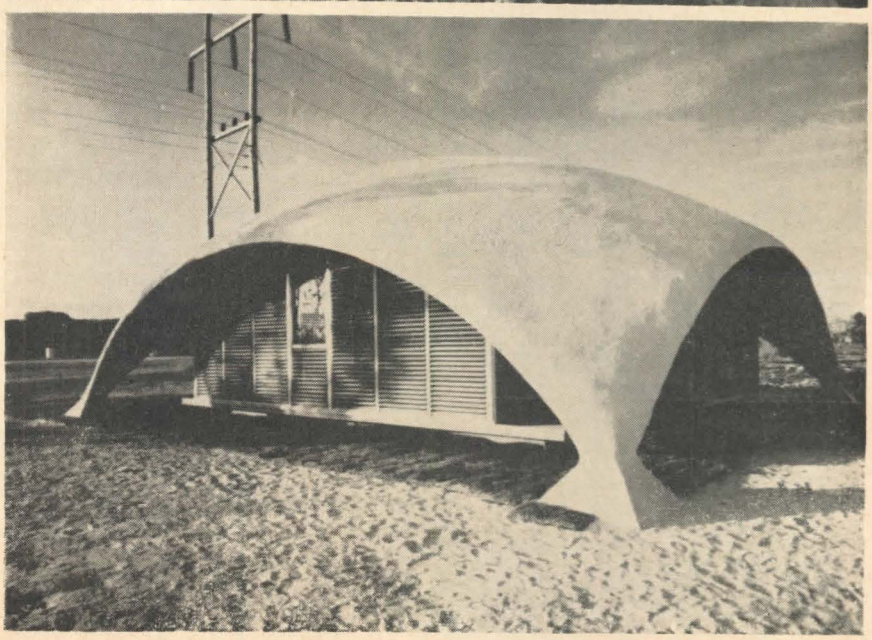
Pyramidal piers are anchored to a concrete floor slab to resist the thrust of the dome. Designed according to local conditions, these piers support steel-bar space trusses to which 1″ square steel-tube arches are attached. Surrounding the dome horizontally and closely spaced above the arched openings are six complete circles of reinforcing bars. Wired to the trusses and square steel-tube arches is ⅜″ ribbed metal lath. The portland cement, with waterproofing added, is machine-applied to the metal lath from both below and above to produce a thickness of 2½″. The finished paraboloid design will provide a living space of 729 sq ft; ceiling heights range from 5′-6″ in the four corners to 13′-4″ at the center of the dome. Enclosing walls will vary according to local conditions and individual taste. After a 28-day curing period, the cement plaster achieved a strength of 4000 psi. The shell has a k-factor of 9.0, but this can be reduced to as low as 5.0 by employing a lightweight aggregate. With the exception of minor flexural stresses at the heavily reinforced boundaries, the shell is in membrane compression created by gravity loads. Even though temperature changes will alter the intensity of the compressive stresses, there is practically no stress reversal.

The erection cost of the dome and slab, based on 729 sq ft of useable floor space, is $2.32 per sq ft. This figure may be reduced to $1.50 per sq ft if the total 34 ft sq area under the dome is considered. If the shell is placed on taller pyramids or columns, this would increase the useable floor area and reduce the $2.32 figure to $1.50. Further reduction in the per sq ft cost of useable floor space can be achieved by extending the slab to the full rectangular dimensions of the foundation columns, which would provide useable floor space beneath the arches and storage space at the corners beneath the legs of the dome. Metal Lath Association, Engineers Bldg., Cleveland 14, Ohio.

On Free Data Card, Circle **100**

Photos: Courtesy Metal Lath Association





A New Standard of Protection On Pipe and Duct-Work

Pyro-Kure vapor barriers cannot contribute to fire because it extinguishes itself if it is ignited. Thus, vapor barriers which once were a potential fire hazard are now adding to total fire safety.

This new product line is U/L listed with flame spread ratings of "25 and below." The flame resistant property is permanent! MVT ratings go down to 0.02 perms. Attractive embossed grades are available for exposed applications such as in commercial metal buildings.

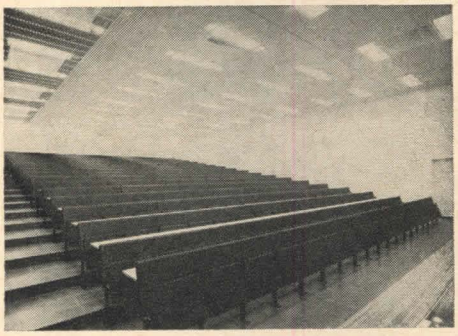
Make sure your jobs have Pyro-Kure vapor barrier protection. Leading insulation manufacturers offer Pyro-Kure facing and jacketing on their insulation materials . . . or Pyro-Kure may be applied by the insulation contractor right on the job. A data kit is available without cost or obligation. This kit includes samples of various grades, perm ratings, etc. Write American Sisalkraft Company, 56 Starkey Avenue, Attleboro, Mass., Division of St. Regis Paper Company.

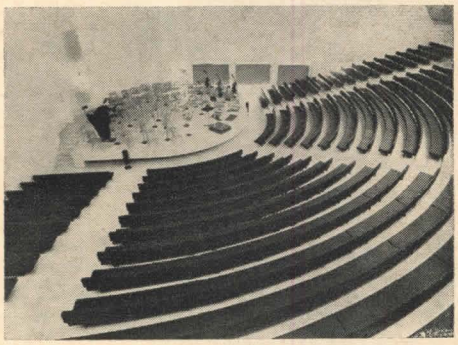
PYRO-KURE® NON-COMBUSTIBLE VAPOR BARRIERS FOR INSULATION FACING AND JACKETING

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

Central Source for Interior Furnishings

International Contract Furnishings, Inc., provides a new source for contract interiors and a single source of supply for the best furnishings from Finland. Six Finnish firms are represented; among their renowned design-





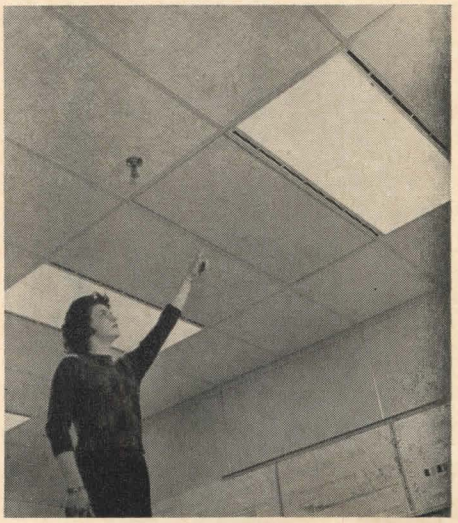
ers are Alvar Aalto and Ilmari Tapiovaara. Furniture from Denmark, Sweden, Switzerland, and the U.S. is also in the collection, the aim of which is to provide a central source of good contemporary furnishings for architects. Seating with wood and metal bases, desks, tables, case pieces, children's furniture, area rugs, lighting and textiles are offered in profusion. Two types of auditorium and lecture-hall seating designed by Toivo Korhonen and Esko Pajamies (*shown*) are offered. Folding seats have nylon bearings; seats and backs are foam-padded; behind each seat is a writing board finished in plastic laminate. International Contract Furnishings, Inc., 145 E. 57 St., New York 22, N.Y.

On Free Data Card, Circle **101**

Constant Light Assured

"Ev-R-Lert" by Mainco provides instantaneous lighting upon failure of the regular light and/or power. The low beam remains constant for approximately 5 hours—enabling escape, emergency activities, or orientation in trapped areas such as elevators. This emergency lighting unit is maintenance-free. Deterioration of the unit has been prevented by eliminating moving parts; nickel-cadmium-cell batteries (similar to those powering Telstar) are unaffected by atmospheric conditions. During normal lighting, the units are charged through wires from the electrical system; cessation of wire current actuates Ev-R-Lert. Recharging resumes with restored lighting, and within a few hours another emergency can be met. The unit, which can be held in one hand, may be inconspicuously installed in the center of regular lighting, air-conditioning, and similar fixtures or in separate key areas. The Maintenance Co., Inc., 10-40 45th Ave., Long Island City 1, N.Y.

On Free Data Card, Circle **102**



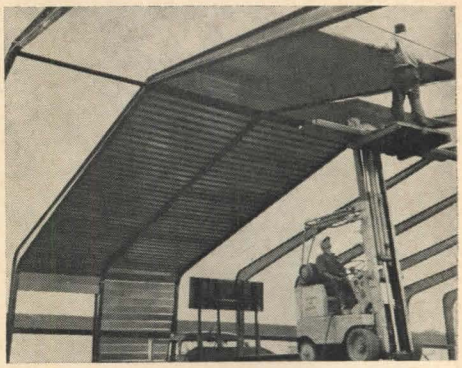
Radiant Ceiling Heat

Glass radiant ceiling heaters for grid suspension have been designed for 2'x4' modular ceiling system. Heaters, which can also be suspended from high or irregular ceilings, or surface mounted to ceilings, can be used as supplemental heat or as the sole source of heat in a building. They are made of Pyrex glass panel into which a thin metallic oxide film has been fired to conduct electricity. Panel, strengthened with glass fibers, emits long-wave infrared radiation that heats objects rather than air. Heaters contain no moving parts that cause noise or require maintenance. Rated at 500-w, they are available for 120-, 208-, and 240-v electrical systems. Corning Glass Works, Corning, N.Y.

On Free Data Card, Circle **103**

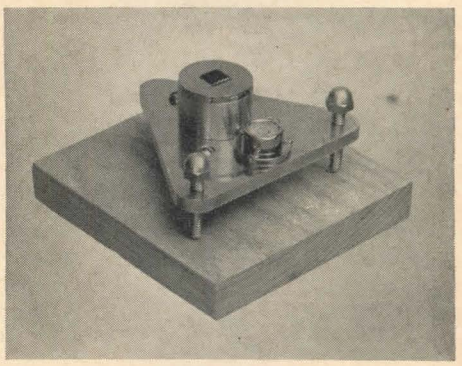
Snap-In Beams/Panels

Snap-in panel and beam construction method for many types of structures has been announced. Buildings, with clear-span widths from 20 ft. to 80 ft. and lengths from 20 ft. up are



possible. Exposed-beam design has bolt-free decking and walls that provide leak-resistant construction. Beams designed with box sections have built-in electrical raceways. Buildings can expand to 60 ft., 100 ft., or 1000 ft. by adding necessary footings and installing required beams and panels for expansion lengths. Existing end wall then would be unsnapped and relocated in its new position. Other features are standardized panels and windows, and steel foundation flashing placed on concrete foundations for protection against moisture, rodents, etc. Further features include snap-on insulation and finished interior combinations, bolt-free panels, and variety of color schemes for both beams and panels. Lundell Mfg. Co., Inc., Cherokee, Iowa.

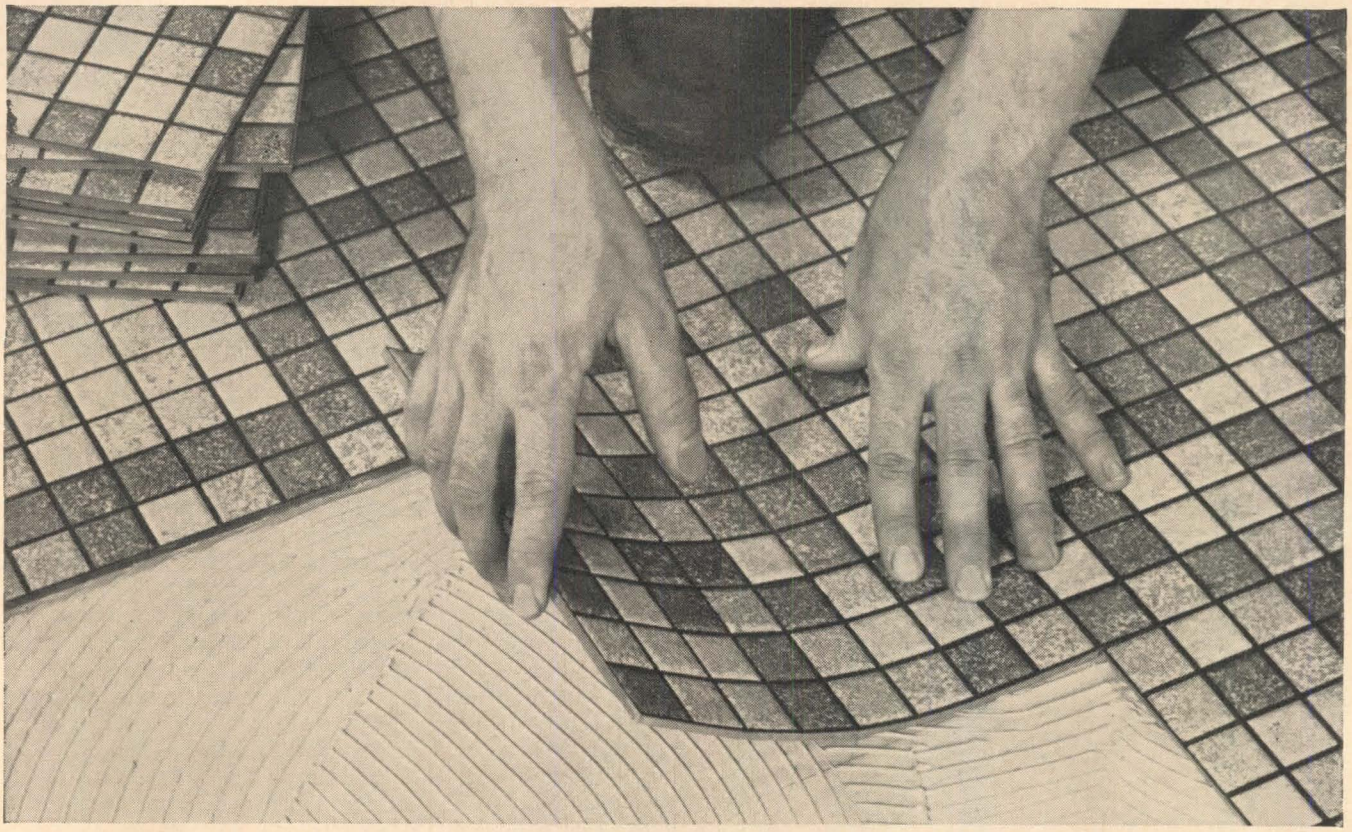
On Free Data Card, Circle **104**



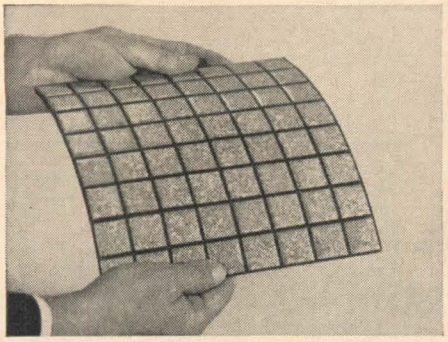
Measuring Radiation

Solar radiometer that uses silicon photovoltaic cells, called "Sol-A-Meter," has been developed. It measures solar radiation by generating a short-circuit proportional to the intensity of the sunlight falling on the cells. Sol-A-Meters are simple, rugged, versatile, and reliable. They are insensitive to position or orientation. Other features include extreme rapidity of response, built-in temperature compensation, and accuracy of ± 3 per cent. Sol-A-Meter is available at a cost of $75.00. Yellott Solar Energy Laboratory, 9051 North Seventh Ave., Phoenix 21, Ariz.

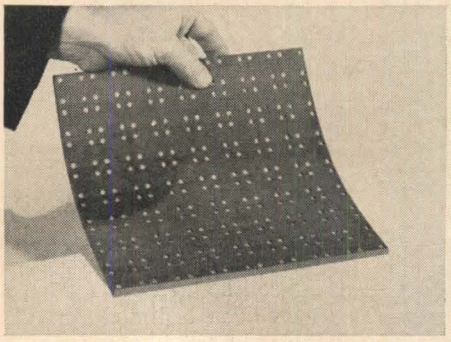
On Free Data Card, Circle **105**



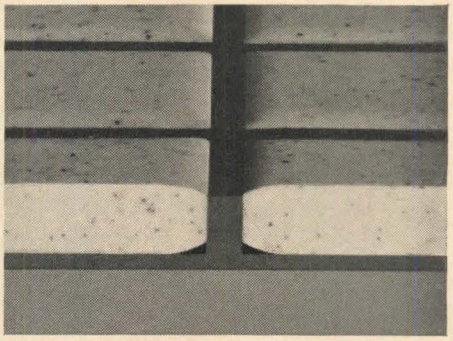
Each 9"x 9"x 3/32" Ceramaflex tile is made up of 64 one-inch square ceramic tiles securely bonded in a pre-formed flexible rubber grid. It's quickly and inexpensively installed on, above or below grade. And it's ready for use the instant it's laid.



This is the "working" surface of Ceramaflex—genuine dent-proof ceramic tile in one-inch squares, joined by impervious rubber to eliminate grout failures.



Now let's look at the back. This cushion of live rubber remains permanently flexible—guarantees a lifetime of comfort and quiet underfoot.



This enlarged cross-section of Ceramaflex shows the relationship of the rubber grid to both back and sides of each individual tile. Notice how the joint surface is flush with the edge of the tile.

There's only one resilient ceramic flooring...

CERAMAFLEX* by Romany·Spartan

Where resilience, permanence and minimum maintenance are required, there's only one answer—Ceramaflex. Choose from a handsome variety of plain colors and buckshot patterns to create any desired decorative effect. Use unglazed in areas where foot traffic is heavy and either glazed or unglazed where light service is anticipated. Your nearby Romany·Spartan distributor will provide samples and additional information. Or write United States Ceramic Tile Company, Department PA-32, Canton 2, Ohio.

ROMANY SPARTAN®

CERAMIC TILE

Ceramaflex® is the exclusive product of United States Ceramic Tile Company

MEMBER

UNITED STATES CERAMIC TILE COMPANY

AIR/TEMPERATURE

Ventilators

Catalog, 28-pages, shows ceiling and wall ventilators, range and oven hoods, exhaust and attic fans, heat lights, and radiant wall heaters. Specifications, accessories, dimensions, diagrams of wiring, and typical installations are given. Fasco Industries, Inc., North Union at Augusta, Rochester 2, N.Y.

On Free Data Card, Circle **200**

Fintube Boiler

Package boiler available in various sizes for industrial, commercial, and service use is presented in 4-page booklet. Employing internal fintube concept of heat transfer, boiler is efficient, compact, and has a high capacity. "Powerfin Boiler" is at least 25 per cent smaller than any other competitive boiler of equal horsepower. Other advantages include less floor and head space for installation of boiler; quick-opening, no-bolt rear door; more effective refractory and insulation; and two-pass construction to reduce all thermal strain. Booklet includes illustrations and charts. Brown Fintube Co., Commercial Heating Division, 300 Huron St., Elyria, Ohio.

On Free Data Card, Circle **201**

Hot-Water Heating Unit

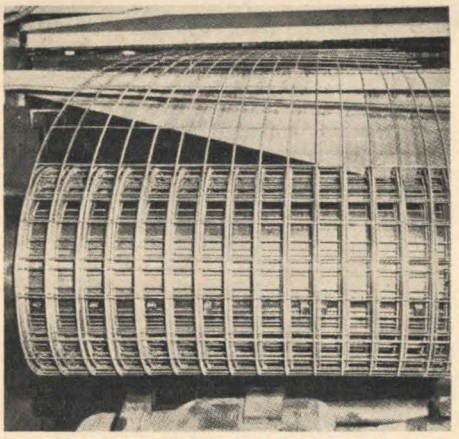
Pamphlet, 4-pages, discusses complete hot-water circulating electric heating system. Baseboard system contains no mechanical moving parts. Electric heating elements remain constantly in water to operate at low temperatures and provide lifetime maintenance-free service. Antifreeze solvents protect unit when not in use. There is no chimney hazard and no chance for flame combustion. Pamphlet contains charts depicting system's features, installation procedures, and specifications. International, Electric Heating Division, 3800 Park Ave., St. Louis 10, Mo.

On Free Data Card, Circle **202**

CONSTRUCTION

Reinforcing Wire

Brochure, 8-pages, introduces high strength, deformed reinforcing wire. Convex, protruding deformations retained in the wire after cold drawing, provide maximum continuous anchorage and more efficient crack control along entire length of wire. Uniform



perimeter of 70,000 psi yield strength wire permits welding at any angle for varied distribution of planes of anchorage within concrete. Wire is available straight, coiled, or welded into sheets or rolls. Brochure includes details on design and construction of wire, anchorage tests results, typical arrangements for continuous pavement, floor slab and beam reinforcement, and table on dimensional requirements. Laclede Steel Co., Arcade Building, St. Louis 1, Mo.

On Free Data Card, Circle **203**

Wood Fiber Ceiling Tile

Deep-etched, wood fiber ceiling tile is described in 4-page brochure. The tile's fissured and multifibered construction absorbs up to 70 per cent of all sound, and reduces transmission of sound through ceiling. Brochure contains information on sizes, thickness, joints, and finishes, and illustrates various patterns. Simpson Timber Co., 2000S Washington Bldg., Seattle 1, Wash.

On Free Data Card, Circle **204**

Metal Building Manual

Technical Committee of Metal Building Manufacturers Association has just revised its 28-page "Recommended Design Practices Manual." Sections include examination of roof dead and live loads, seismic forces, deflection limitation, minimum standard for thickness, aluminum and plastic panels in metal buildings. Details and charts are included. Metal Building Manufacturers Assn., 2130 Keith Bldg., Cleveland 15, Ohio.

On Free Data Card, Circle **205**

Ventilating Ceilings

Data file contains information on ventilating, fire-retardant, membrane-faced, mineral-fiber, wood, asbestos, and metal ceilings. File also gives specifications, research data, and job information relating to various installations. Armstrong Cork Co., Liberty & Mary Sts., Lancaster, Pa.

On Free Data Card, Circle **206**

Elastomeric Roofs

Elastomeric roofing system called "Gacoflex" is introduced in 4-page brochure. Neoprene and Hypalon (a product of DuPont) elastomers offer lightness of weight, versatility, weatherability, and ease of application. Folder includes liquid system material specifications and applications, sheet system material specifications and applications, and flashing procedures. Gates Engineering Co., Wilmington 99, Del.

On Free Data Card, Circle **207**

Solar Shielding Glass

Solar shielding glass is introduced in 4-page brochure. Glass excludes 59 per cent of total solar energy, controls glare to 35 per cent luminous transmittance, and is made of a special

heat-resistant glass. Glass also improves utilization of floor space, eliminates hot-wall effects, and lowers air-conditioning costs. Brochure includes chart that compares solar glass to typical heat-absorbing glass as well as to other materials in adjoining chart. Corning Glass Works, Technical Products Division, Corning, N. Y.

On Free Data Card, Circle **208**

Raised Floors

Manual for raised floors has been published. "Infinite Access Floor" consists of 2′ x 2′ modular panels supported on all sides by rigid understructure consisting of adjustable pedestal assemblies supporting removable stringers. Manual gives general requirements, design requirements, and details. Tate Engineering, Inc., Architectural Products Division, 516 South Eutaw St., Baltimore 1, Md.

On Free Data Card, Circle **209**

Truss Clips

Booklet, 15-pages, discusses truss clips. Only a hammer is required to make trusses with "Truss Clips," thereby permitting job-site assembly. Clips are made of 18-gage, high-strength steel, and no nails are used other than those that are part of the clip. Booklet also discusses component and panel clips. Included are truss designs for spans and pitches, installation procedures, sizes of truss clips, jig designs, and code information. Details of trusses are also given. The Panel-Clip Co., P. O. Box 423, Farmington, Mich.

On Free Data Card, Circle **210**

DOORS/WINDOWS

Sound Control For Folding Doors

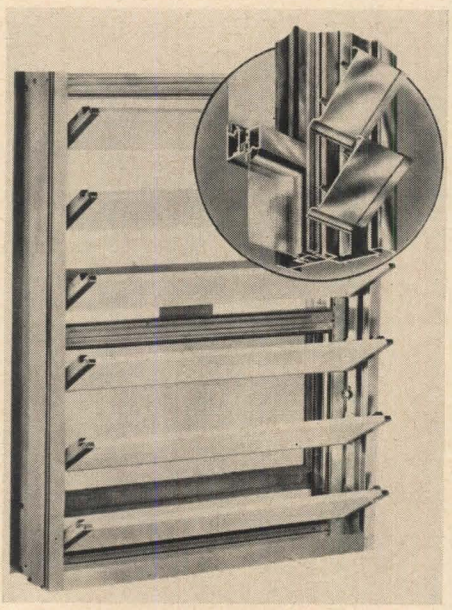
Booklet, 8-pages, presents report on selecting folding partitions where sound control is required. It offers information on how to specify for sound retardance, describes problems frequently encountered, and emphasizes role of desired results. Sketches, graphs, and charts illustrate structural sound-retardance factors and point out common errors in construction with respect to sound control. Clopay Corp., Commercial Products Division, 14 Academy Ave., Detroit 20, Mich.

On Free Data Card, Circle **211**

Metal Doors/Frames

Metal doors and frames for use in i dustrial, institutional, commercial, a residential architecture are contain in 28-page booklet. Door types inclu flush stile and panel steel doors, st

and rail steel doors, full flush steel doors, aluminum doors, stainless-steel doors, porcelain enamel steel doors, and label doors and frames. Booklet also contains details, illustrations, and specifications of all doors and parts. The Steelcraft Manufacturing Co., 9017 Blue Ash Rd., Cincinnati 42, Ohio.
On Free Data Card, Circle 212



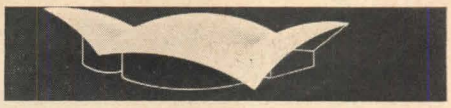
Solar-Shade Window

Folder, 4-pages, introduces solar-shade windows that can also be used as window walls. Each unit combines in one assembly a snap-out double-hung window, screen, aluminum louvers, and over-all frame 5½" deep. Windows eliminate overhangs, awnings, venetian blinds, and window guards. They also reduce inside temperatures up to 25 degrees without air conditioning; and they reduce air-conditioning loads and noise up to 50 per cent. Units are available with 5½" outside aluminum louvers in mill or baked-enamel finish or redwood. Details and specifications are given. Clearview Corp., 2625 Elm St., Dallas, Texas.
On Free Data Card, Circle 213

FINISHERS/PROTECTORS

Membrane Waterproofing

"Nerva-Clad," a membrane waterproofing for roofs, is outlined in a 2-page folder. Made of duPont Neoprene and Hypalon synthetic rubber, it can be applied to most surfaces by spraying, rolling, or brushing. Nerva-Clad is available in black base coat with aluminum, white, tan, and gray topcoats, and in custom-blended colors. Membrane requires fewer coats than most systems, does not support combustion, and bridges slight cracks. Rubber & Plastics Compound Co., Time & Life Building, Rockefeller Center, New York 20, N. Y.
On Free Data Card, Circle 214



Elastomeric Coatings

Booklet, 12-pages, covers properties and typical uses of elastomeric adhesives, coatings, and sealers. Illustrates how coatings are employed in general and electrical manufacturing, transportation, and construction trades. Minnesota Mining and Manufacturing Co., Adhesives, Coatings, and Sealers Division, 900 Bush Ave., St. Paul 6, Minn.
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Plastic Waterstops

Publication describes "Durajoint" plastic waterstops, masonry control joint units, and expansion joint flashings. Also discussed are "Rodofoam" closed-cell plastic premolded joint fillers and "Rodofix" thiokol base 2-component polysulfide sealing compounds. Booklet includes details, specifications, charts, and installation procedures. Electrovert Inc., 240 Madison Ave., New York 16, N.Y.
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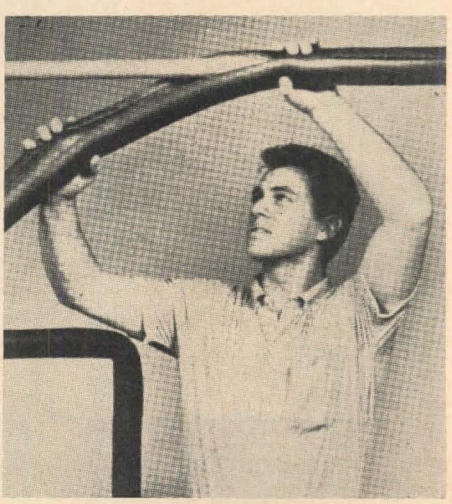

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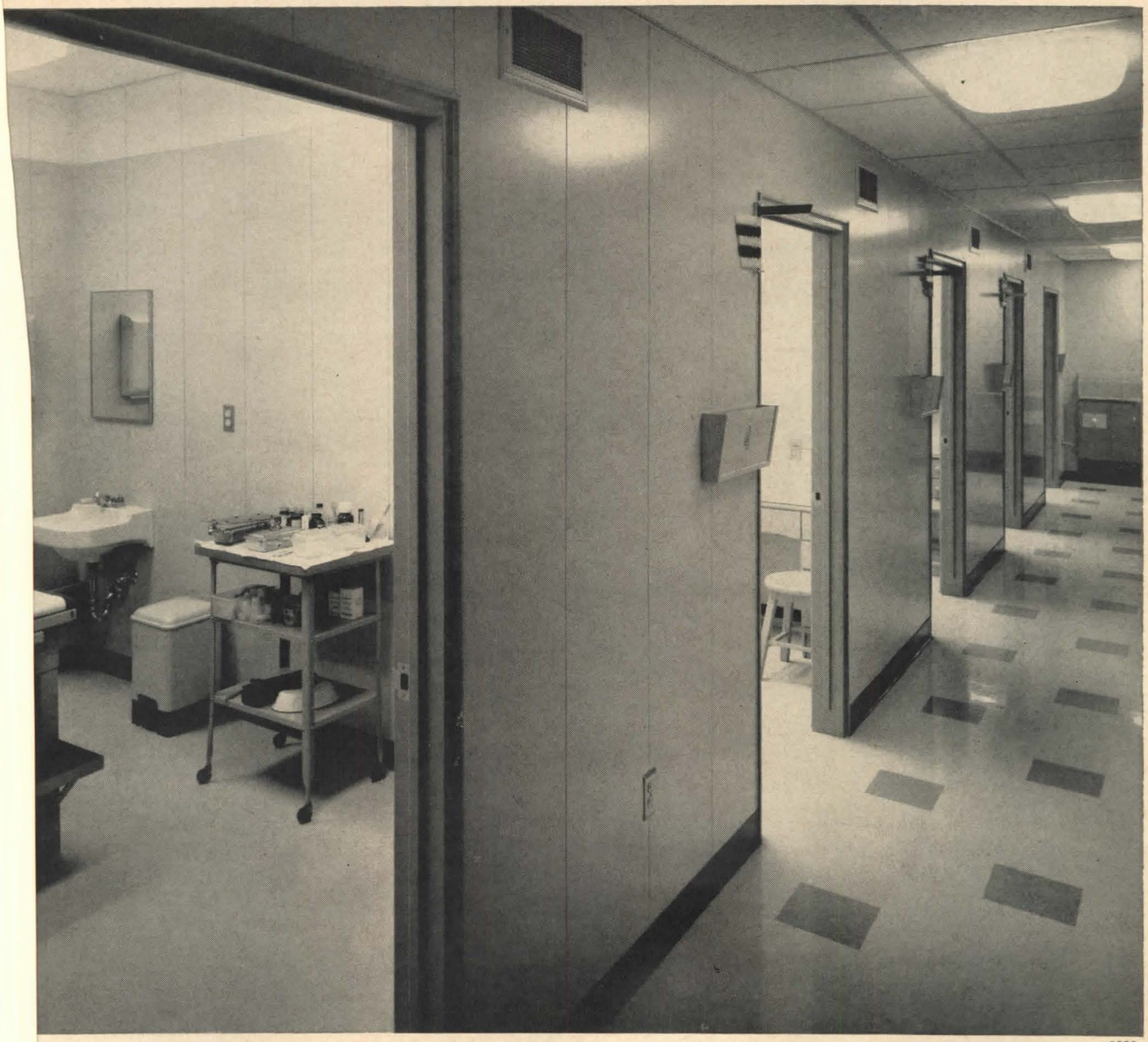
Folder, 4-pages, covers tubing and piping insulation. Insulation is a lightweight, extremely flexible, closed-



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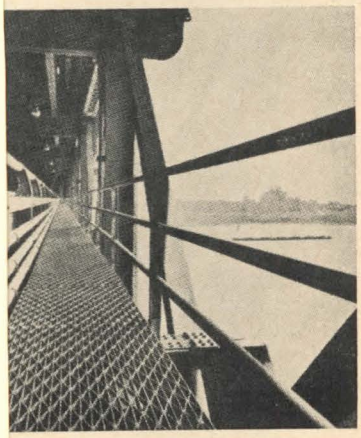

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26-pages, discusses aluminum
nduits. Comparative proper-
s, dimensions, code require-
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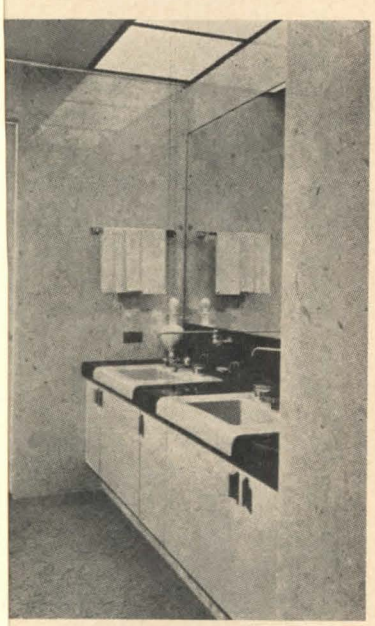

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es, countertops, and washroom
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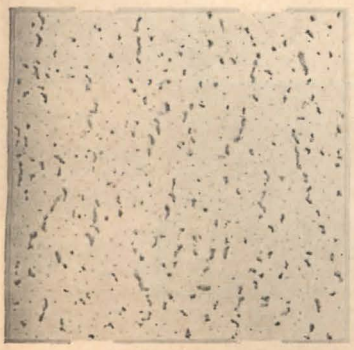

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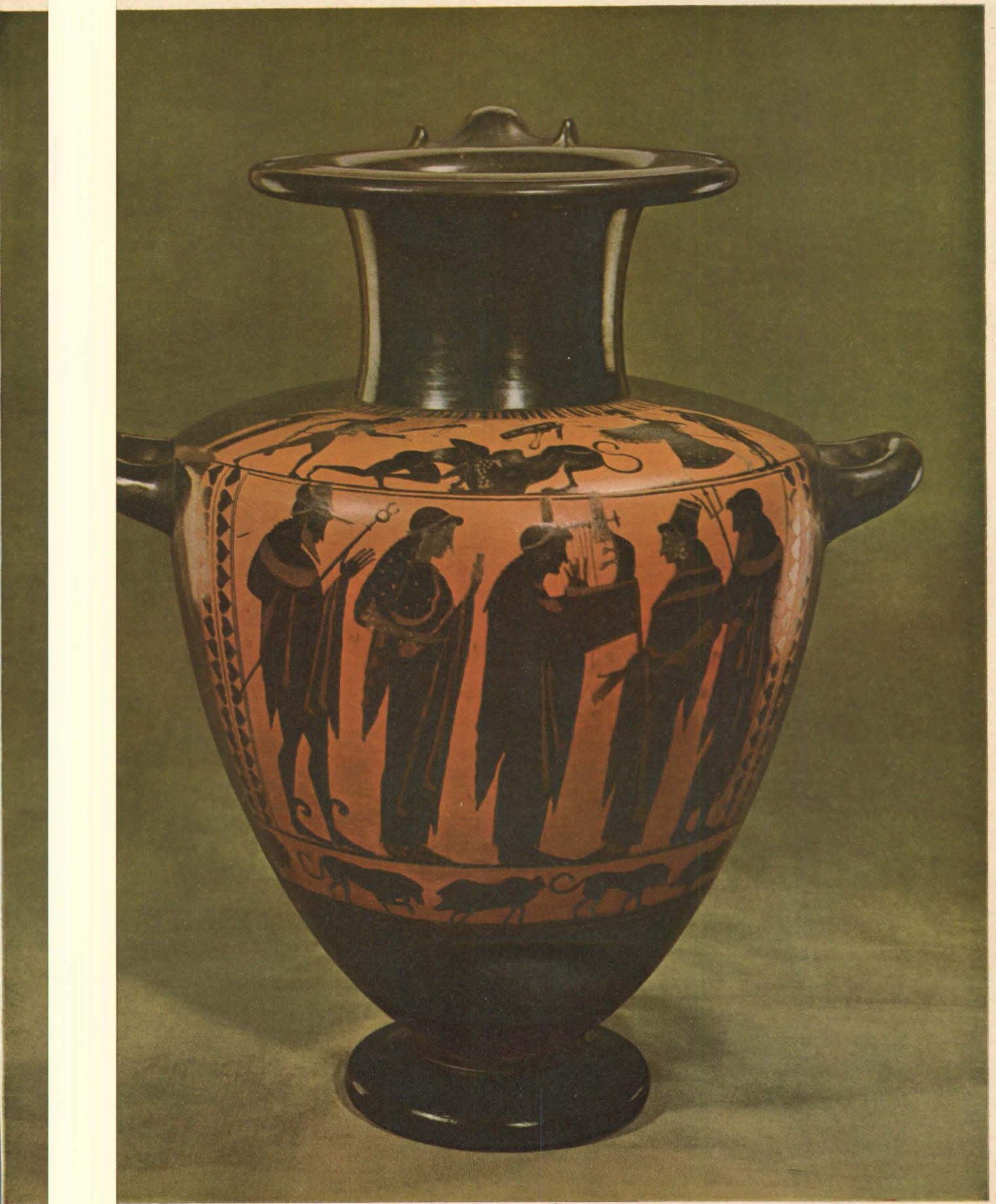

ydria. Attributed to the Antimenes Painter. Black-figure ware. About 525 B.C. The Toledo Museum of Art.

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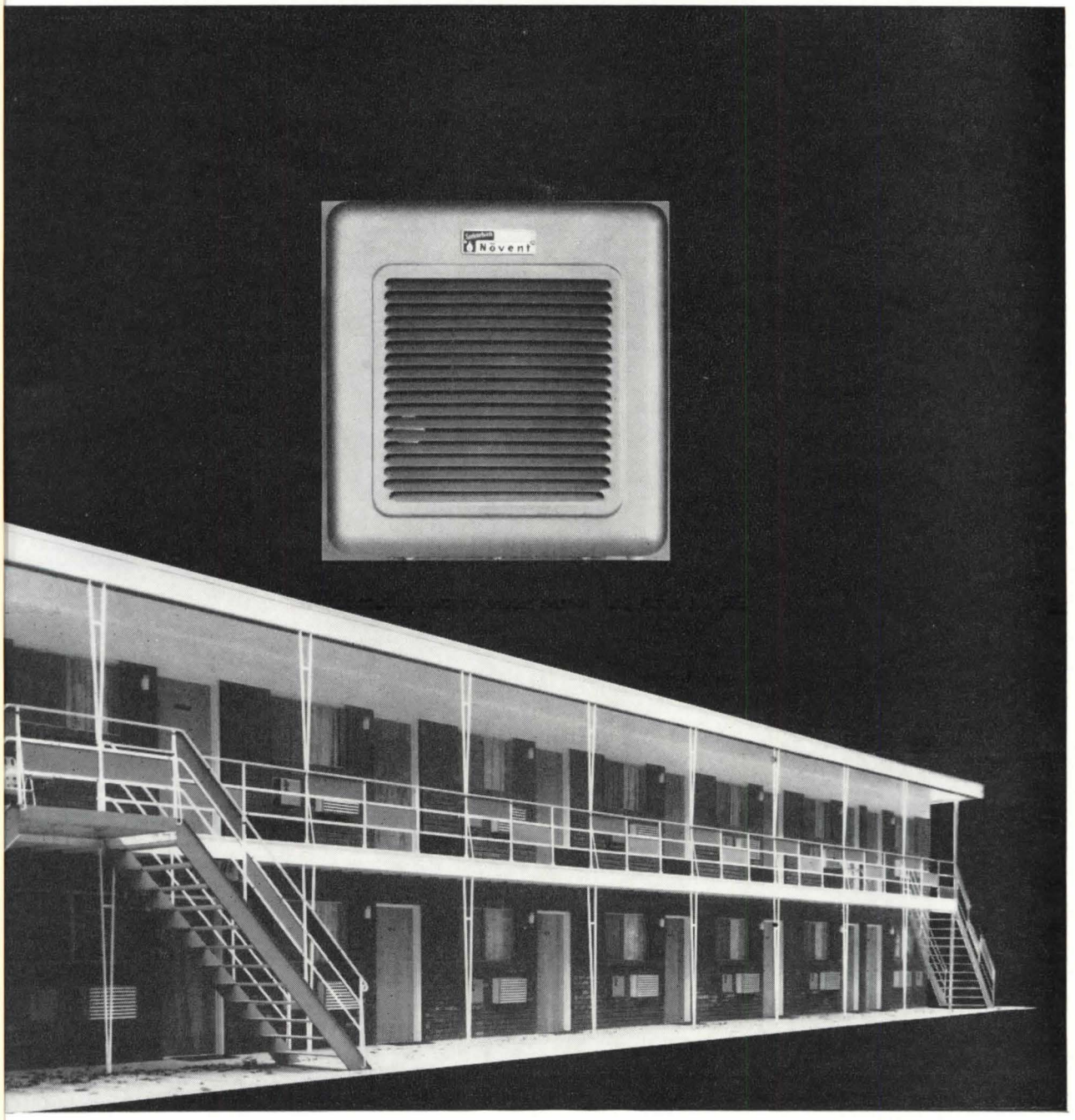

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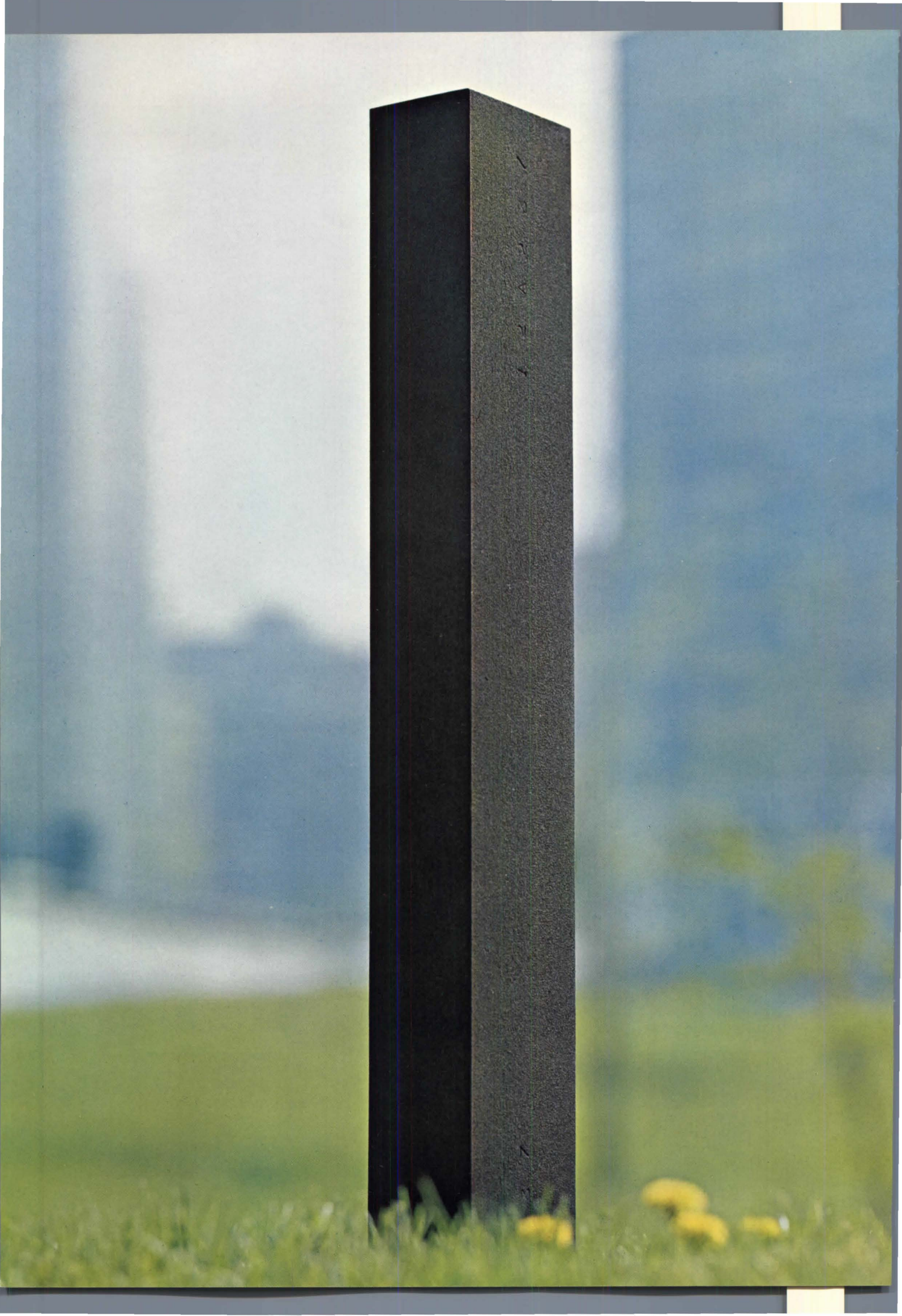

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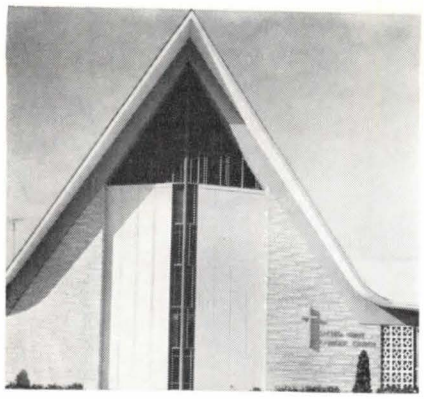

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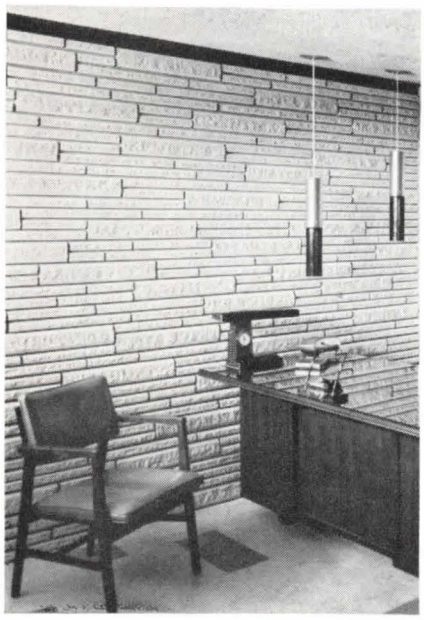

Split Concrete Veneer
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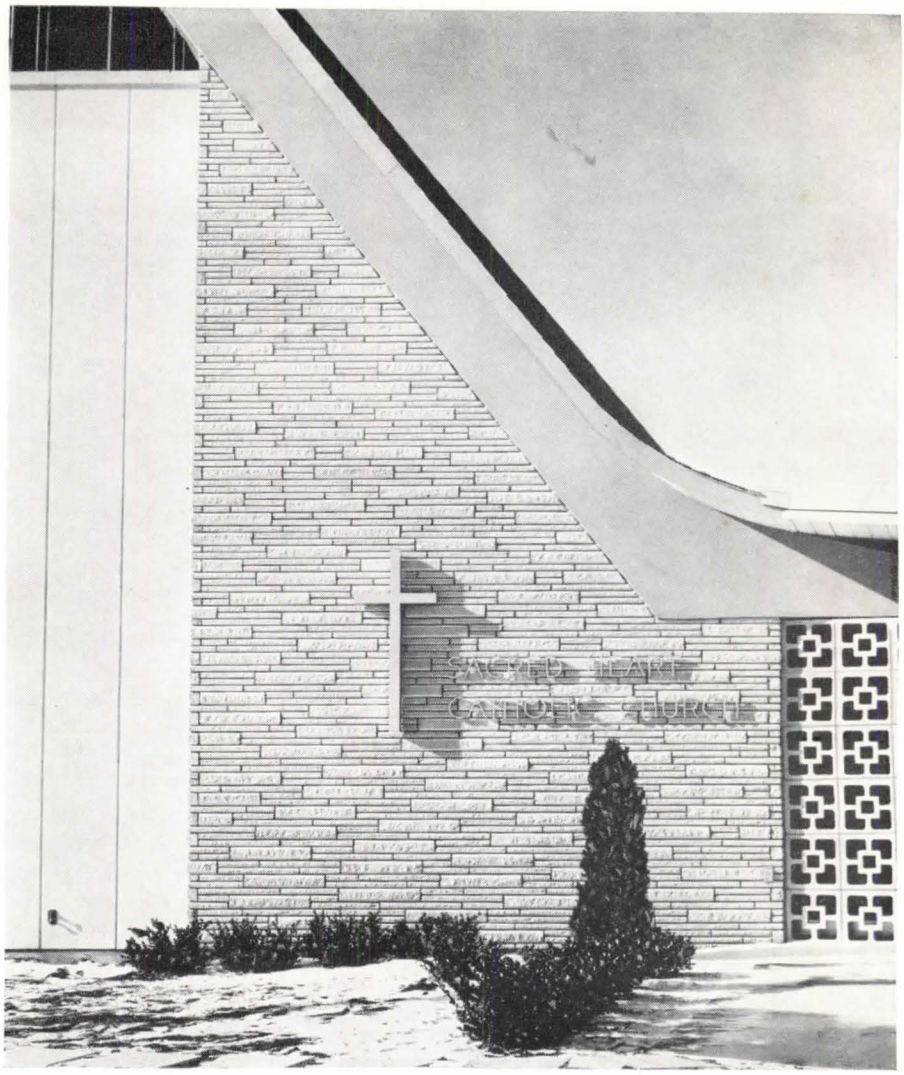

Sacred Heart Catholic Church, Miami, Oklahoma
Architect: Jack Mann, Miami, Oklahoma

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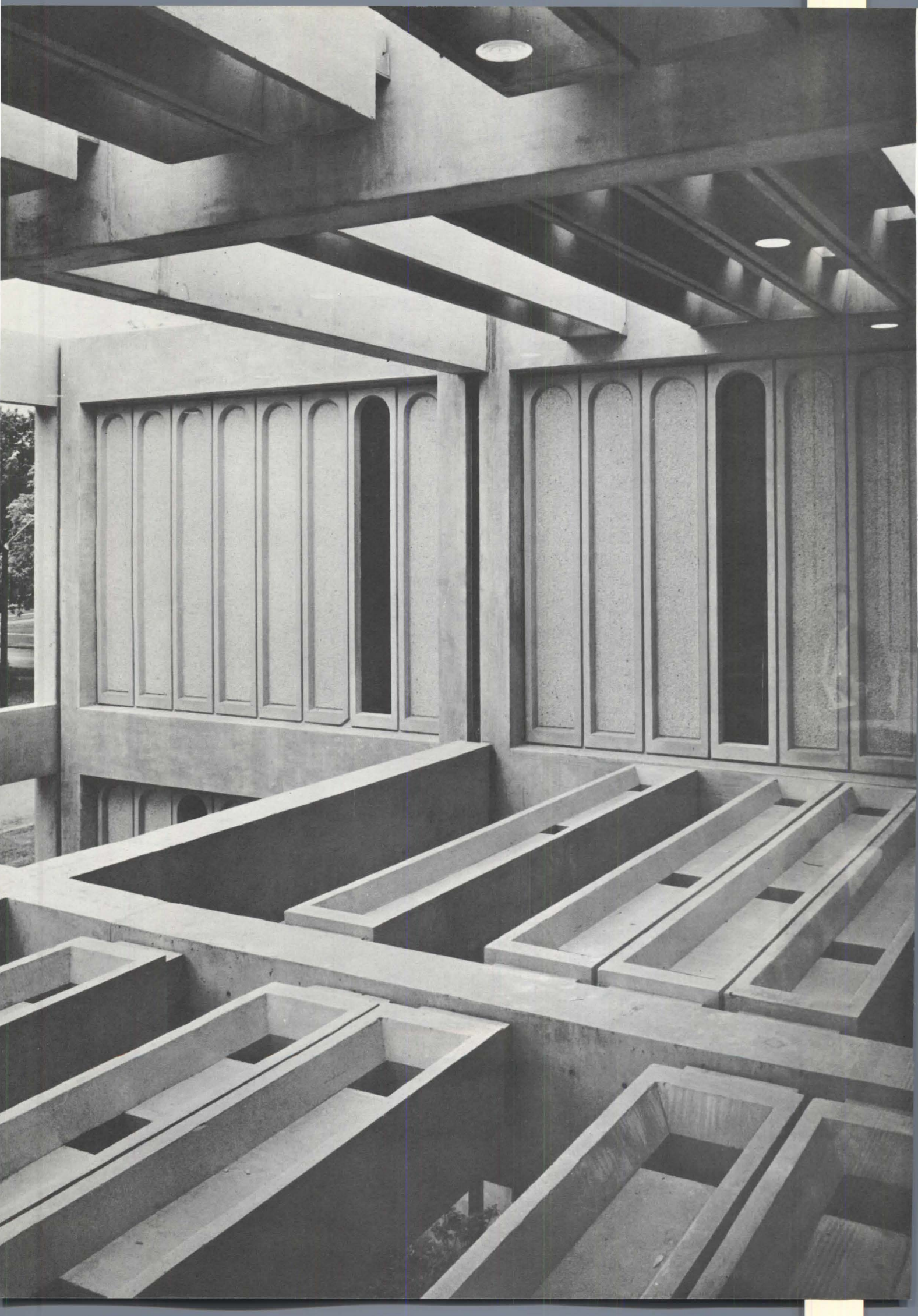


EDITORIAL

Intraprofessional disputes are common within all professions. The architectural profession is no exception, which can be attested by the recent fight concerning civic architecture in the City of New York.

The dispute arose from a competition organized by the City Club of New York, a civic organization devoted to the improvement of the local municipal government. The aim of the competition was to honor excellence in municipally commissioned buildings. This year, the first that the competition was held, the jury (of which I happened to have been a member) found no excellence among the buildings submitted for its consideration and therefore gave no award. This was not surprising, since New York is well known for the mediocrity of its civic buildings.

The Club then described the results of the competition and made its recommendations in a widely circulated brochure. These included such obvious items as improved methods of selecting architects, more equitable fee structures, streamlining of the reviewing processes, plea for cultural leadership from City Hall, and suggestions for architectural guidance within the various city departments. The report made headlines in the local papers and caused considerable stir, not only among city officials but also the public at large.

Most New York architects, frustrated by the local situation, were happy at this turn of events. But the Executive Committee of the Local AIA Chapter felt differently. For the second act of this story consists of an attack on the City Club by the Executive Committee which attempted to exonerate the city practices, to paint architects who played ball with the city officials as earnest idealists and the mediocre buildings they produced as sincere efforts at civic excellence, and to discount the whole competition as a wicked hoax.

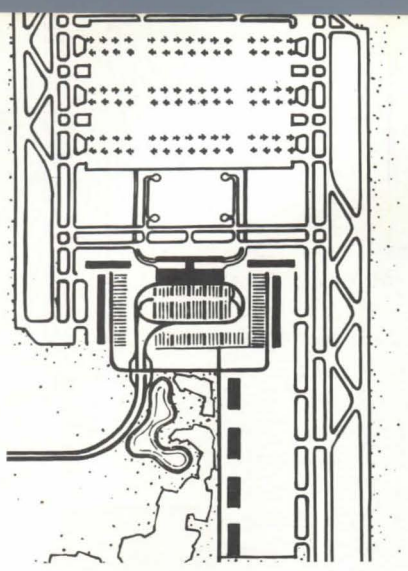
The third act resulted from the inevitable break within the membership ranks. A quickly circulated statement that refuted the Executive Committee's stand was signed within a few hours by 42 corporate members of the Chapter. Since both statements received considerable attention in the press, New York's architecture and its architects made headlines three times within the period of a few days.

I think this all for the good. Public apathy is the worst enemy of good architecture. The interest that was stirred up by these events can do no harm except to those who thrive in a climate of turpitudinous indifference. But there is also another aspect to the controversy, and that is the problem of ambivalent actions of the AIA officialdom.

The American Institute of Architects presently performs several functions. These can be roughly grouped into three categories: protecting the interests of the profession, improving the standards of the profession, and promoting good architecture. In other words, the Institute is attempting to perform the functions of a trade union, of a professional society, and of an idealistic association. This three-pronged approach is commendable in that it covers what ought to be the whole range of an architect's interest: the income from his work, the competence of his work, and the contribution his work makes to the society in which he lives. The question arises, however, whether a single organization can fulfill satisfactorily such multifarious and at times conflicting aims.

This schizoid nature of the Institute explains why only about half of U.S. architects belong to it, and why other architectural groups are active in some areas of the country. The New York Society of Architects, for instance, which is interested predominantly in the practice and business of architecture, and The Action Group for Better Architecture in New York, a highly idealistic association of younger architects, are good examples of this.

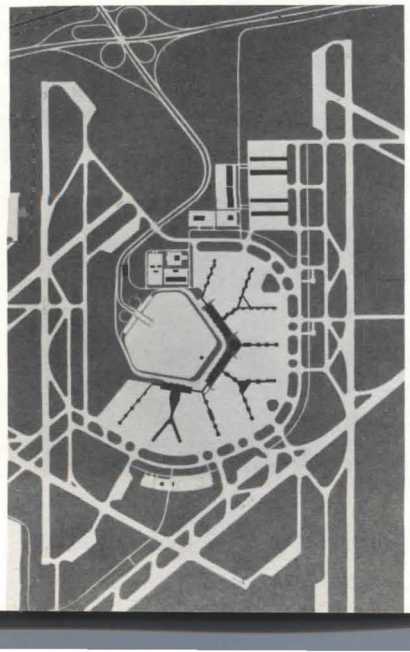
Whether the Institute should attempt to represent all the diverse interests of the profession is certainly open to debate. One could easily argue that there should be two or perhaps even three separate organizations whose roles would differ. It seems to me, however, that, as long as the Institute purports to be a champion of better design, it should support vehemently all actions that have better design as their aim. And it should do so on all levels—local as well as regional and national. ■



OUR TWO LARGEST AIRPORTS

New passenger terminals have recently been opened at two major airports, either of which might be considered the largest in the country. O'Hare International Airport in Chicago has already attained the highest passenger volume of any U.S. airport, even though the final terminal building is still under construction. Dulles International Airport, near Washington, D.C., which is now handling relatively little traffic, has the largest land area and the largest potential capacity of any U.S. airport.

There are distinct differences in both program and design between the two projects. O'Hare (**plan below**) is an enlarged version of the conventional finger plan — a scheme adopted and partially constructed before the buildings shown in this issue were commissioned. Dulles (**plan above and photo right**) is a revolutionary design, made possible by the vision of an extraordinary architect and the authority and independence of his client.



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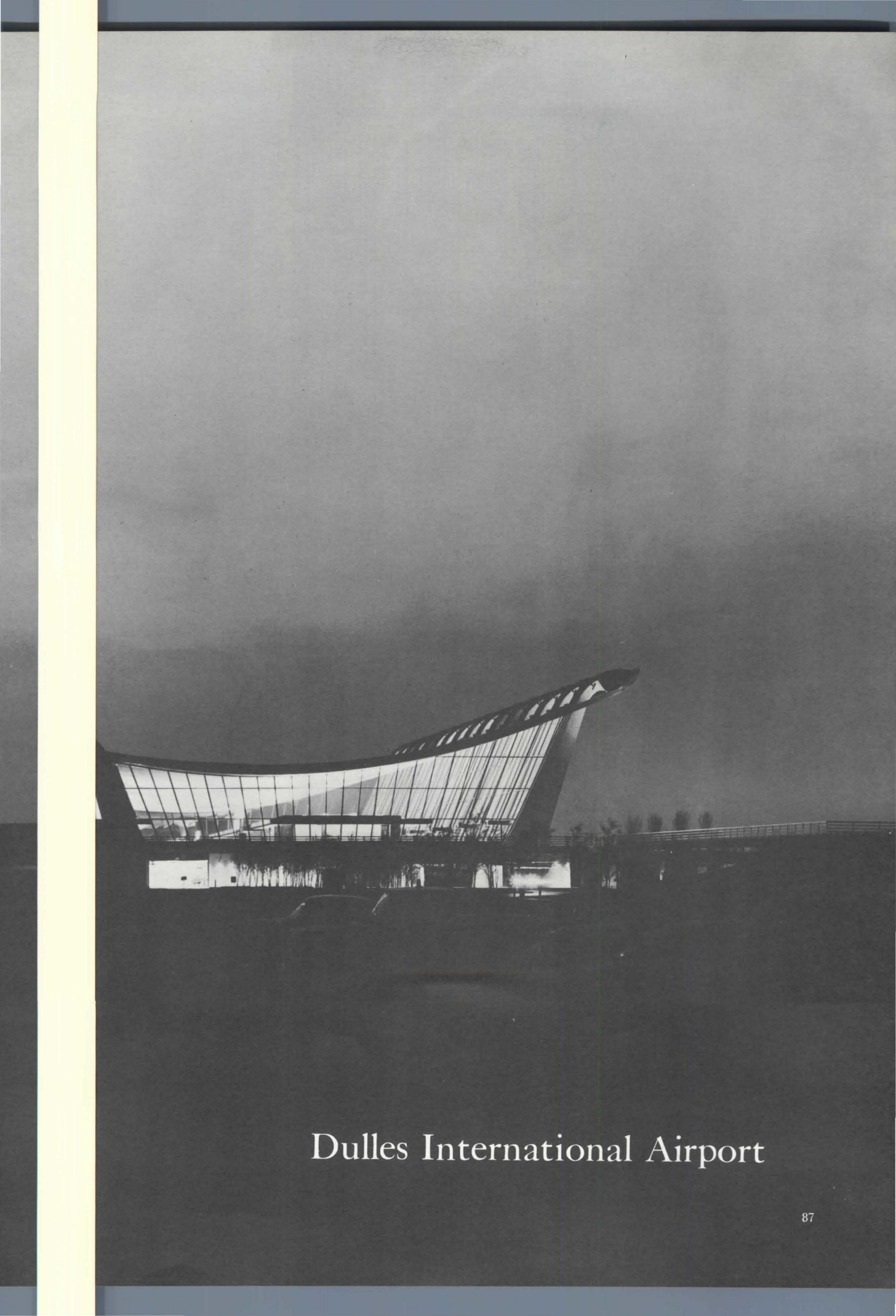


Dulles International Airport

The vast acreage of the airport is dominated by the symmetrical composition of terminal and tower, which recalls the monumentality of official Washington. The approach road, however, runs across the axis rather than along it (above), *and the axial view from the field* (below) *is rarely seen.*

DULLES INTERNATIONAL AIRPORT TERMINAL • CHANTILLY, VIRGINIA • EERO SAARINEN & ASSOCIATES, ARCHITECTS • AMMANN & WHITNEY, STRUCTURAL ENGINEERS • BURNS & MCDONNELL, MECHANICAL ENGINEERS • CHARLES LANDRUM, AIRPORT CONSULTANT • DAN KILEY, LANDSCAPE ARCHITECT

The late Eero Saarinen, speaking of this commission, said, "No one asked us to grapple with the problem of a jet-age terminal beyond the question of pure architecture. But I believe the architect has to assume that kind of responsibility. Therefore, together with the team of engineers and consultants, we decided to make a fundamental analysis of the whole problem of the large terminal for jet airplanes. It was a hard-boiled problem and we wanted to solve it in a hard-boiled way."

The solution they found is likely to influence all future airport design. They developed a system of "mobile lounges," which serve as part of the terminal until flight time, then roll away to an aircraft parking area near the runways; the passenger's long walk to the boarding gate is eliminated, and the noise and fumes of the planes are kept away from the terminal.

The addition of a new item of expense aroused some misgivings, especially among the airlines. Studies by the architects and engineers indicated, however, that the mobile lounges cost less than the finger structures and adjustable loading ramps they replace, and that their operating costs (plus the increased costs of transporting baggage and plane crews) will be offset by savings on the taxiing and servicing of planes. Adoption of the system depended, nevertheless, on the ability of the client, the Federal Aviation Agency, to overcome opposition.

Once this "hard-boiled" solution had been accepted, Saarinen went on to consider the "pure architecture" of the terminal. He was able to extend the scope of his work to include all public spaces, but only by competing with other firms for interior design commissions.

Saarinen was not content to limit his responsibility to the terminal building alone. He convinced the client of the need for a master plan to control the location, dimensions, and materials of all future buildings at the airport. The plan, drawn up by the architects and engineers of the terminal, *in collaboration* with consultants Ellery Husted and Burnham Kelly, also included the design of all signs, lighting, and landscaping [NOVEMBER 1961 P/A].

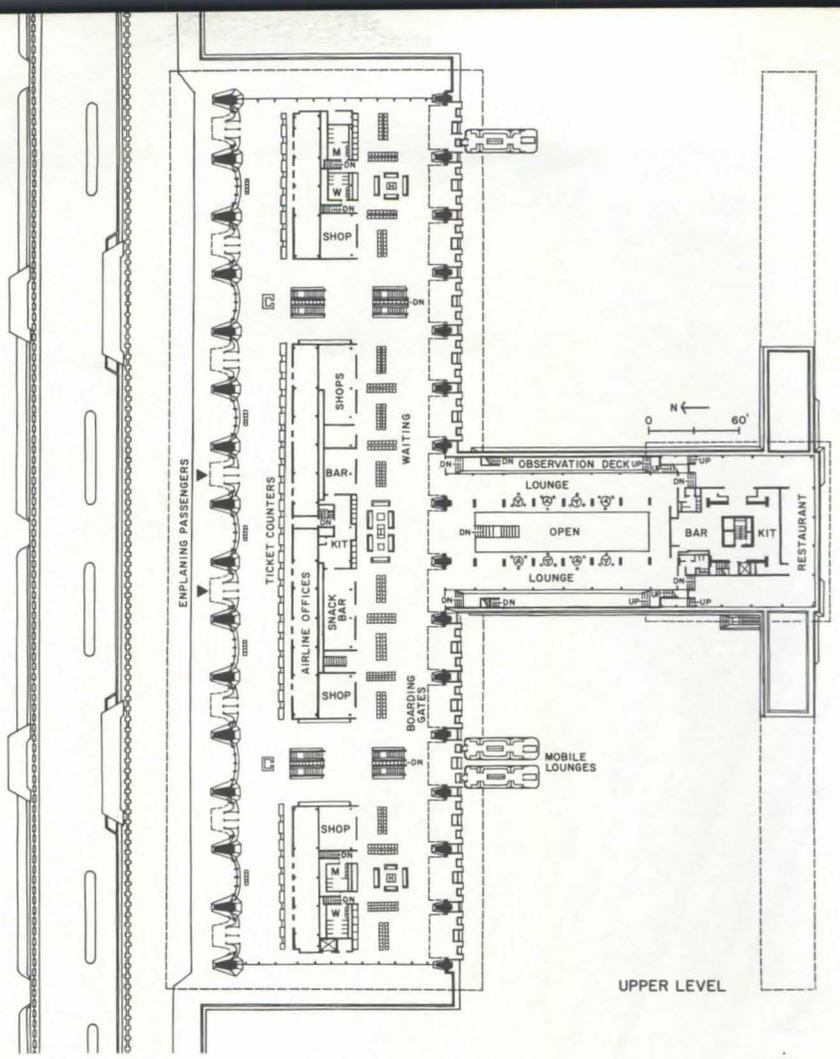
Summarizing the contribution of his firm, Saarinen has said: "We tried to give a completely logical, imaginative, and responsible answer to the problem. I hope we did a good job."

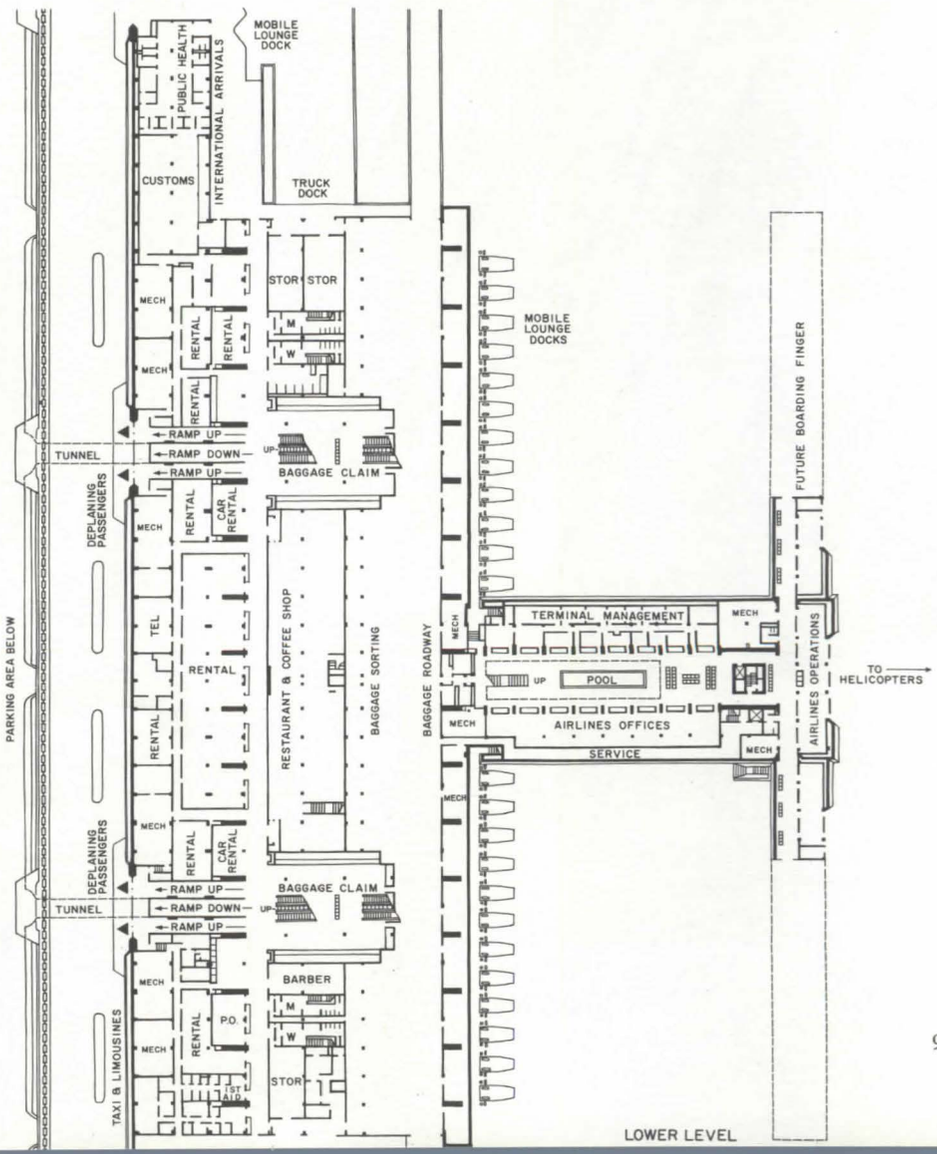
nobile-lounge scheme possible a compact two-ructure, with no sprawl-endages. The building is d for 100 per cent ex-by extending the main re at both ends sym-lly. The concrete walls two-level approach road-acing page) have already onstructed to their final Future entrances from er roadway and sunken g area now serve as ar underpasses.

ities on the lower level rearranged as the ter-expands. The present facilities are temporary ll be relocated as inter-l traffic increases.

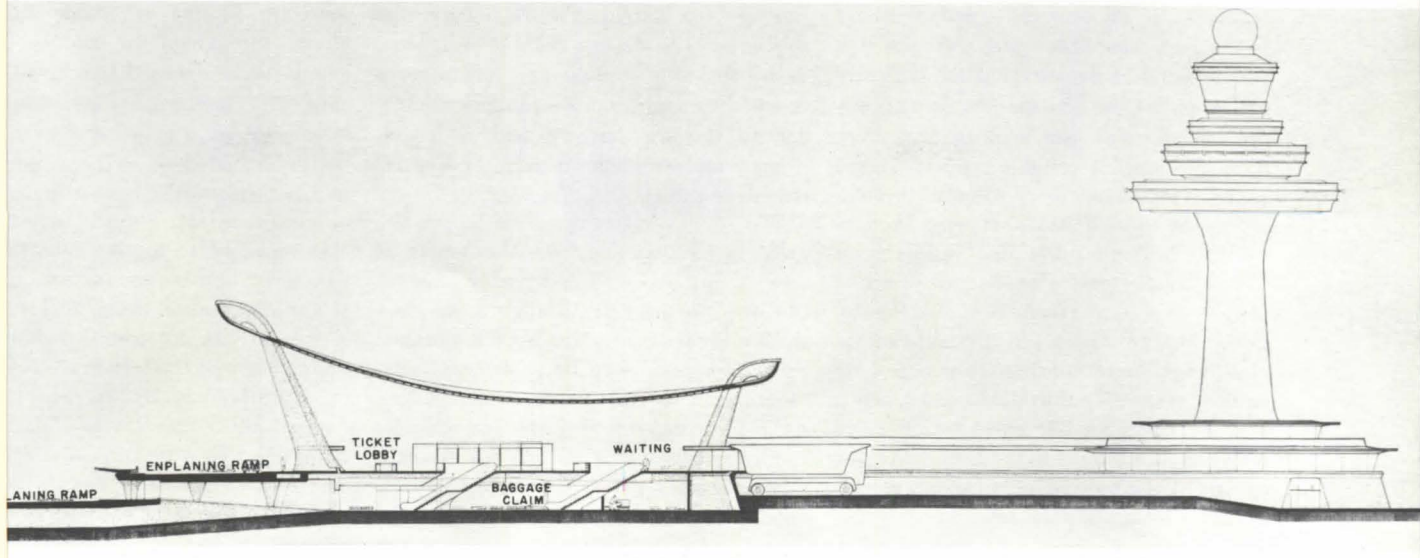
e extensions at either the south wing will ac-late small planes that are aptable to service by lounge.

ingenuity of the interior is demonstrated in the g of the toilet rooms. ies required for peak oads on either level are between the two floors nected by internal stairs, voiding duplication of s and saving valuable ea.





Within the main hall of the terminal, the ticket lobby (facing page) *is separated from the waiting area* (right) *by a row of structures housing ticket counters and concessions. The free-standing, rectangular forms of these structures allow for rearrangement as the building is expanded. The counters used throughout the terminal have continuous surfaces of gray plastic laminate, with rounded corners and almost invisible joints. The waiting areas is furnished with seating designed by Charles Eames* (p. 140, NOVEMBER 1962 P/A).



CRITIQUE
BY EDGAR KAUFMANN, JR.

Dulles International Airport is a landmark of modern architecture because it celebrates, simply, the fulfillment of simple needs. Gone from sight are technological acrobatics, amazing ingenuities, interesting experiments. In their place, Saarinen has set serenity and mobility at human scale; he has used elementary spaces defined by smooth forms regularly repeated, and, to supplement them, a small plain package of transportation that amply links his architecture to its *raisons d'être*—planes. His new Washington airport is the first full-sized statement of a new attitude, long awaited: here the resources of modern life are treated as servants of man. The extended era of thrill and awe induced by the miracles of applied science is over; the magic of humanity has set in. Dulles thus is a point of reference, and, if we are lucky, it will be a turning point in architecture, too.

Dulles, in fact, is not simple; that is its victory—to give serene form to a complex situation. And Dulles is far from perfect, either in detail or in execution; but its sane, smiling grandeur absorbs flaws quite easily. Our cussin' cousins, the English critics, will have a field day analyzing the faults and falsities of its expression, and we may learn something from their reprimands. What will not be learned from them, however, is how to dream and build greatly, how to accept some bad elements within a good whole, how to be big without strain, and delightful without perfectionism. These may be learned at Dulles.

The banality of the Virginia countryside is emphasized by the speedway to the new Washington airport. Lost in a sea of characterless curves and overpasses, it seems as if no escape existed, when at last a very modest airport entrance sign promises relief. Its lettering and structure are no indication of what lies ahead; they are too effortful. But in a moment there it is—a supple, freighted tower and a spare, elegantly lifted canopy through which the space of travel appears in ideal clarity. Nothing quite like it has been built, though brief after-images occur of chinoiseries, of quasi-classical colonnades, even (at the tower) of Second-Empire ebullience. No one of these shimmers lasts as the perspective shifts, the road relaxes, and there, on its two extended, concave podia, rises a temple to the friendly power of flight. Canopied entrances emerge abruptly from alternate bays and, beyond, lies the main floor. Daylight pours in all around through clear, untinted glass framed by balanced slopes and curves of concrete and metal, gentled by a tentlike roof above. The roof, remarkable in its asymmetric curve, is not less so in function. It is an efficient sunshade, obviating tints, baffles, and blinds. It is an almost perfect sound reflector: announcements are clear and (all in one voice) pleasant.

From end to end, the enclosed space is easily identified and available. There are no mysteries in these forms, only exhilaration. Facing the entrances, and just as high, ticketing booths are rowed up in a small, straight building of their own **(1)**, all dark metal and wood within the light cocoon of the terminal. The frank play of low, boxy forms against the big, irregular ones is Saarinen's daring and successful gambit here. The inner building, so regular as to appear continuous, is in fact conveniently segmented to allow passage to the wider waiting lobby fronting the gates. There, long rows of black and silver Eames tandem seating are pleasantly grouped. Backed-up to the ticket booths, under the same canopies and framed in the same warm dark materials, are the concessions **(2)**. This deep palette and the canopy height are repeated at the gates, across the lobby **(3)**.

Thus, simply, the small, busy elements are grouped in continuous, low, rectangular, dark blocks, identified by lighted, uniform lettering. The high, canted structure of the terminal provides circumambient space within which these nodes of interest are ordered. What small variety there is, is used to clarify, to guide the travelers. Enrichment comes not from the few materials or the limited colors, but from the play of active and static forms, the certainty of scale, the ample rhythm. For all the height, the regularity, the sobriety of this design, there is evident no desire to impress observers, but to serve them with ease. (Even washrooms, double-decked, include stairways without loss of privacy and avoid the usual pseudosecretive dead-end.)

The south wing, a two-story link to the great tower, extends from the center of the waiting lobby. Comfortable lounges **(4)** open to the field through clear glass walls and face each other across a sunken court **(5)** dominated by a long pool and fountain, memorial to John Foster Dulles. At pool level, beneath the lounges, lie small, overdecorated parlors for eminent travelers, segregated by carrier. Fortunately these rooms are concealed behind large vitrines in which will be displayed the plums of American production for consumer taste. Above, after traversing the open lobbies, one arrives at a U-shaped restaurant and bar that encircle the tower base. Here, various special effects are displayed that need pre-empt little attention. As with the prevailing lettering, these spaces are trophies of the architect's victorious campaign to control the main interiors. As such, they guarantee a general congruence much to be desired, and almost always lacking, between architecture, built-in details, and furniture. That Saarinen's office and their consultants have, in these details of décor and lettering and some other, lagged behind the architectural pace he set is not surprising. The entire commission was conditioned by the tempting opportunities (viz., the architect's degree of control already mentioned) and Gordian trammels of bureaucratic control; moreover, it had to be carried out largely after the death of the inspiriting architect. This was done with admirable fidelity, as a comparison of sketches and building makes clear.

Observation decks **(6)** lie outside the lounges and above the restaurant, giving close-up views of the tower, its curved and sturdy shaft, and its widely cantilevering, overlapping service floors high above. These are eloquently clad in profiled, sombre sheet metal—suspended treasure caskets of electronic control and human alertness. The massive, dense, rich forms of the tower complement the candid, airy framework of the terminal in a most satisfying counterpoint. Preliminary models show that this relationship of the two central structures was Saarinen's main formal concern, once he was placed in charge of the area determined by the vast, symmetrical H of the runways. The structure of the terminal was hardly altered throughout the studies; the tower changed a lot. Here, the architect's experience with industrial water towers must have provided a point of departure. That the tower ended so well was not unusual in Saarinen's work; he was that rare man, an originator who knew better than to stay enslaved to his inventions, and one who loved improvements.

The observation decks survey the field. The orderly layout seen—as simple as the architecture of the terminal—is the result of careful study by the Saarinen staff. Around the edges lie low, dark service buildings **(7)** with uniform detailing and controlled alignment and height. Once again, the architect secured control over

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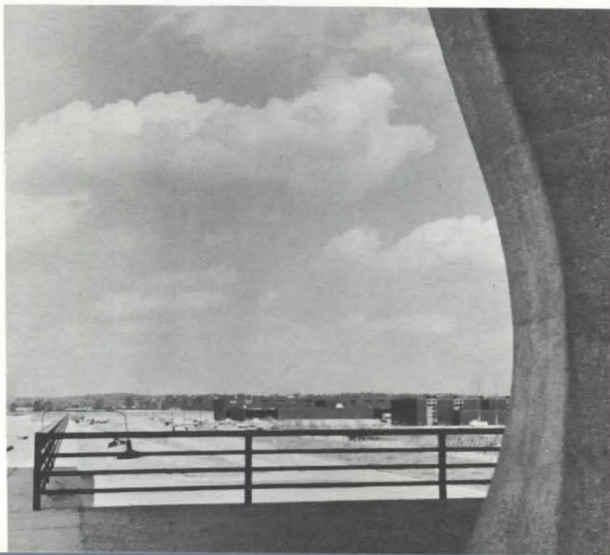
Canopies of uniform height and consistent design relate the entrances and ticket counters ***(1)*** *to the concessions* ***(2)*** *and boarding gates* ***(3)****. The dark gray of the enameled steel fascias matches the porcelain-enameled aluminum exterior metalwork. Concession spaces can be closed off with teak screens* ***(2)****.*

The lounges in the south wing ***(4)*** *have circular banquettes and Ward Bennett chairs upholstered in black leather; they overlook the field on the exterior and the lower-level pool* ***(5)*** *on the interior.*

Observation decks surround the south wing. The deck outside the lounges ***(6)*** *is a few steps below them, so that it does not impair the view. The deck at the end of the wing is one story higher.*

The design of auxiliary buildings ***(7)*** *has been regulated to make them inconspicuous* (p. 158, NOVEMBER 1961 P/A)*. Walls are of black corrugated metal, windows are grouped in vertical panels, and signs are minimized. Seen from the terminal, the low forms of these buildings do not interrupt the silhouette of the terrain.*

7



The mobile lounges ***(8)*** *were originally proposed by Saarinen, but designed by the manufacturers. After the prototype lounge had been completed (and after Saarinen's death), his firm was called in as design consultants for the interiors* ***(9)****. They introduced the cove and pole lighting fixtures, which give low general illumination and concentrated light for reading, and selected the white walls, black vinyl upholstery, and red carpet.*

The capacity of the lounges was established after careful study of statistics on aircraft capacities and passenger traffic patterns. The lounges seat 72 and can carry an additional 26 standees. As a departure lounge, the mobile lounge has some disadvantages compared to its fixed counterpart: it offers hardly any view, except into the next lounge, until it leaves the terminal; and it prevents communication with visitors, causing some passengers to delay entering until the last minute.

The time spent in the lounge is balanced by a reduction in passenger walking time and aircraft taxiing time. Each plane stopping at Dulles is met by two lounges, one to pick up arriving passengers and one to deliver departing passengers; hence the lounge always travels empty in one direction. Each lounge has two ramps that connect it to the plane; only one is used at a time, but two are needed to meet the clearance conditions of various plane doors; the intricacy of the ramps is also due to variations in plane design.

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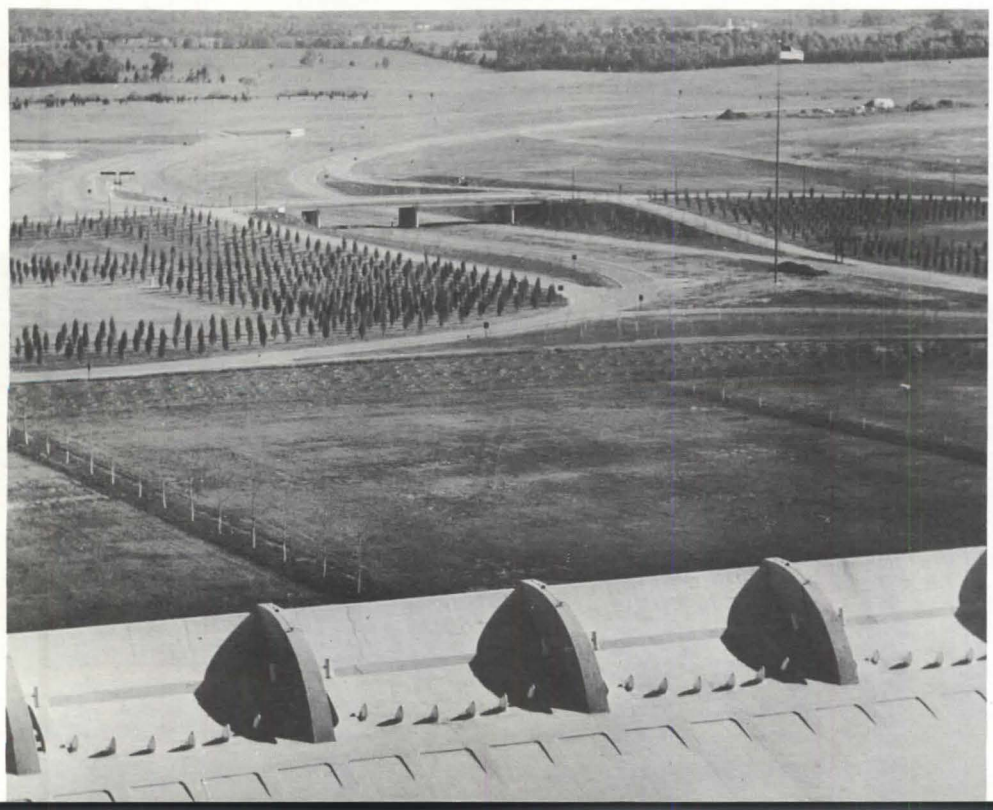
Deplaning passengers descend to the lower-level baggage-claim area ***(10)*** *by escalator. Ramps* ***(11)*** *lead from there down to the parking area or up to the taxi and limousine platform. Tapered concrete columns support the upper-level automobile ramps.*

A view from the tower ***(12)*** *shows the arrangement of lighting fixtures at the edge of the roof, as well as the approach roads and the new planting around them.*



12

those annexed elements that, carelessly proliferated, could wreck the character and value of his work. The victory remains largely negative, but not therefore less essential to the positive achievement that was and is paramount. Due to the mute, humble state of these outbuildings, the central airport seems set in an endless park of small, folded hills, far gentler than the motley mob of hangars usual elsewhere.

Arriving by air at Dulles in the evening, one sees the field of colored lights lying like a formal parterre spread out before the bright pavilion and its now dematerialized, almost transparent-looking tower crowned by an airy sphere. As the plane taxis to a stop, the cabin door opens, and a narrow, black tongue of gangplank enters as insidiously as a serpent. Over this, and well shielded by handrails, the passengers enter the mobile lounge that makes Dulles unique, that frees it from those narrow Kafkian corridors that stretch in tarsocidal foreverness across acres of paved blankness throughout the world. Outside, the mobile lounges are agreeably ungainly and naively detailed **(8)**. Within the lounge **(9)**, a new experience is gained of ample space, wide glass walls, good lighting, and sober detailing around comfortable seats. The garish, crowded, regimented squawk-voiced cabin of any jet is put to shame. The only decorative elements are red carpets against white coach walls and dark gray seats, and lighting from pole lamps as well as from peripheral coves. These Chrysler-styled interiors were modified by suggestions from the Saarinen staff. Thus liberated and decently ensconced, one rolls across the field, not in a bus, but in a true lounge. After being turned sharply into a dock, the lounge is opened through gates to the main lobby. On emerging, travelers face descending escalators and stairs that lead to luggage and city-bound transportation **(10)**. The sensation of descending the escalator and seeing one's luggage all ready and waiting, is not to be believed. Future deplaners, taking this for granted, will never know how the suddenly unhammered thumb can feel.

At the lower level, a long corridor extends across the building, with various services opening on it, all faced with the controlled detailing and lettering we noted above. Crossing the corridor, one reaches a split-level exit **(11)** that leads gently up to busses and taxis, or gently down to a parking lot, amply planned and with remarkably good lamp standards. All around stretches the careful planting and well-

drives **(12)** that make this one of
n's best park-engirdled palaces,
with General Motors Technical
and the Bell Laboratories.

special features of the building
deserve mention. First, the marked
ce between structural fact and
al expression in the Dulles termi-
at appear to be the long edges of
are parts of the supporting struc-
m which the roof is hung **(13)**.
of and its supports are entirely
e elements, but the break (or joint)
the roof and support is not in fact
t is expressed. Form and function
oincide. *Honi soit qui mal y pense!*
Saarinen may have deserted the
and narrow, but his choice of
es seems first class.

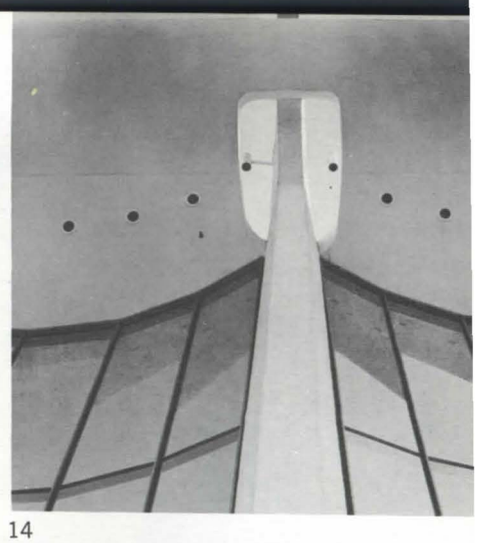
her curious and delicate detail is
pressive juncture of support and
2, 14). Outside the window line,
pports appear to rise freely
openings to hook over to the
of the roof (which we know is not
hat). But inside the window line,
e supports butt solidly into a solid
his half-engaged, half-free hori-
uncture is conceptually disturbing,
ally it seems almost unnoticeable.
y, if ever a similar structure is
a more elegant solution may be

glazed ends of the concourse are,
he glazed bays between supports,
t and vertical **(15)**. Bays may be
o the terminal at either end, or
his is acknowledged in the design
nd walls, yet a good relationship
tained to the other glazing. The
y curve of the ceiling, evident in
ne, and the outward diagonal of
ports meet happily, and even the
al window dividers are success-
aced to leave good shapes between
ious dominant diagonals. Rein-
trusses applied to these end walls
very noticeable, but when noticed
t of place in a building not other-
ren to structural frankness.

slanting supports themselves are
shaped, if rather roughly cast like
concrete, and reveal pleasant vari-
f detail, particularly at the bases,
quisitive eye, changing from inside
and from the high entrance side
) to the lower side facing the field
). In each framed bay, the curved,
walls of glass are strong enough,
aped, to require no trussing; they
nopies and doorways to meet them
al, generally neat and handsome
f sheet metal. These formal pas-

PHOTO: COURTESY EERO SAARINEN & ASSOCIATES

13



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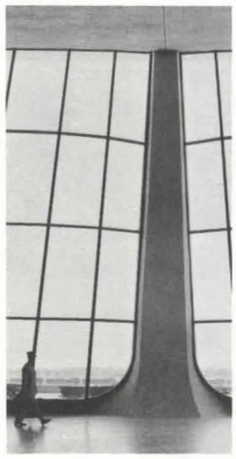

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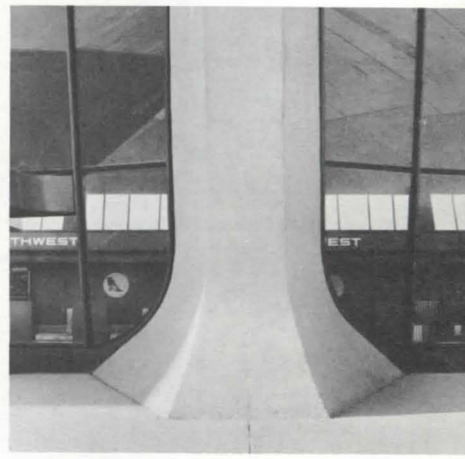
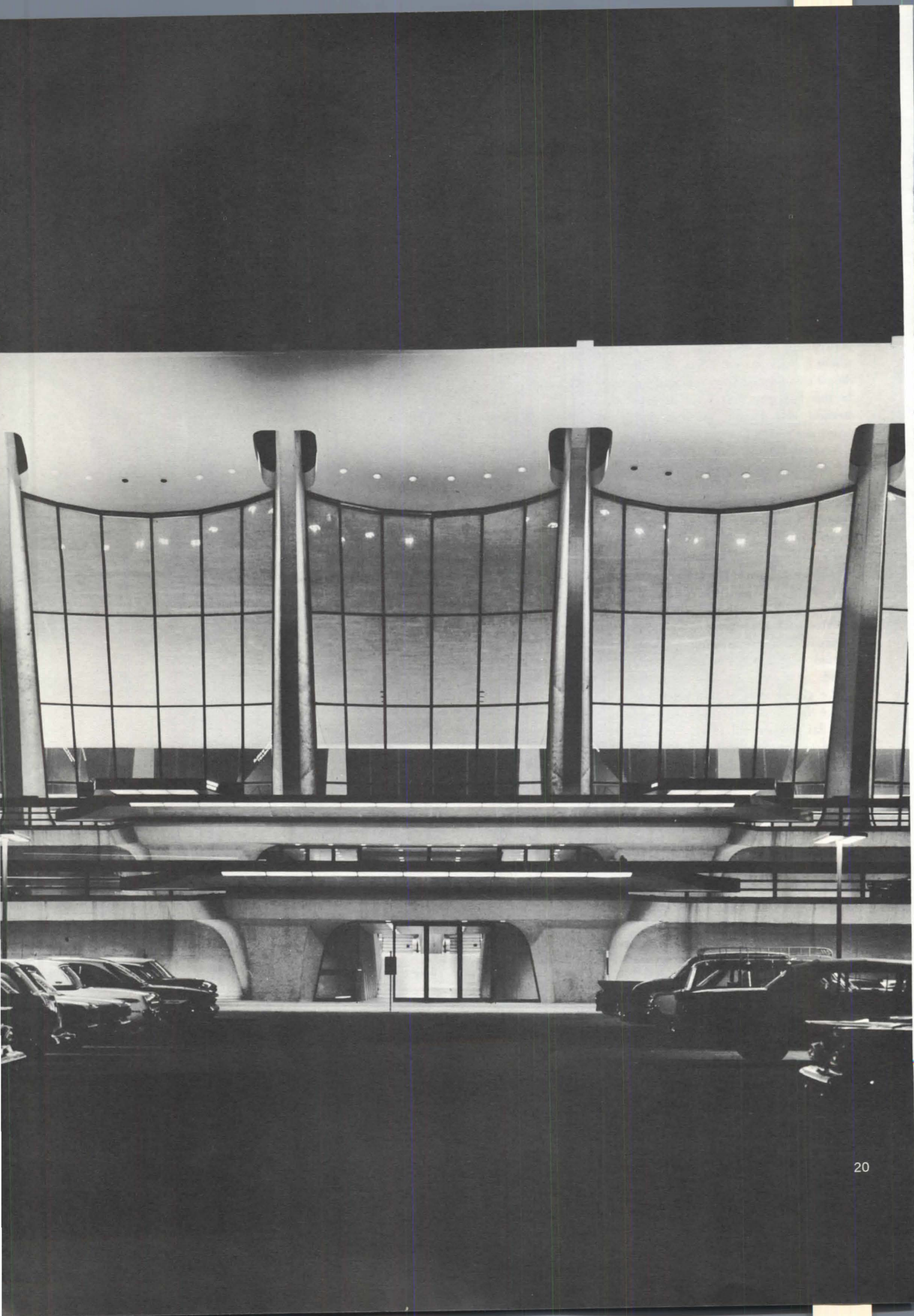


18

The roof appears to be suspended from the hooklike tops of the columns, but a construction photo ***(13)*** *shows the poured framework of columns and "overhang" to which it is fastened. The openings through which the columns appear to pass surround only their exterior portions* ***(14)***.

The end walls ***(15)*** *required stronger mullions than the short, curved segments of the long walls; trussed members were used to minimize weight and visual bulk.*

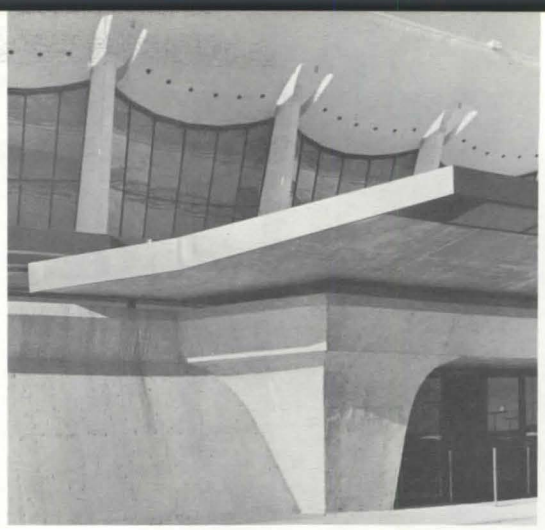
The bases of the main column vary in form depending on conditions; shown here are the inner faces at the front ***(16)*** *and rear* ***(17)*** *of the terminal and the outer faces, front* ***(18)*** *and rear* ***(19)***.



ke some in the concrete supports,
recall the morphological bac-
of the TWA Idlewild terminal,
hly chastened here. The Dulles
y is carried outside in the incurv-
ment walls **(20, 21)**, in their very
ved doorways, and also in the two
but congruent railings **(22, 23)**
dsomely edge each level of drive
rminal. These rails house outside
for both road and building—an
w that makes the shape and scale
es as clear by night as by day.
erminus is lit by a few downlights
roof (a necklace of these lies out-
h window bay **(20)**, echoed loosely
eflected image of up-lights from
istrade). A more direct brilliance
lown from the lighted ceilings of
et and concession structures and
canopies, properly serving areas
ed activity. Up from the roofs of
et and concession structures, a
light is spread over the center of
ging roof, which thus is lit at each
d in the center, leaving in semi-
the areas where curved glass walls
urved roof plane—a sensible,
ct.

een hanging roof and ceiling can-
booths and shops, there extends
he truly strange sights at Dulles,
n from the low point of the roof
n form, color, and texture, as in
location, entirely unlike anything
und, this not too small obstruction
o far to spoil most spaces in archi-
Yet it is only awkward, not cata-
. Someday, if the terminal is ex-
it may have one or more like
o echo it; this may be helpful.
is only just better than the under-
g at Mies's Farnsworth house.
uch for details that need to be
od in relation to their architec-
ole.

, in the light of all this, can be
Dulles as the chief gateway to the
capital? What has Saarinen said
erica? That here is scope, open-
d human concern. That here the
is *tamed and serviceable.* That
nity is not too cold, our skill not
oo far by pride. That we know the
tion of beautiful forms and elo-
paces, and know these need only
embodiments. Such architectural
s will not often reach our visitors
ey cross the Potomac. We may be
re grateful that Saarinen has
ed them for us so well.



21

The entrances through the concrete walls of the podium are of similar design on both levels ***(20)****, but the upper ones are wider to allow for the loading of buses. The canopies* ***(21)*** *are simple trapezoids in plan but a change in the pitch of the soffit makes them appear deceptively complex from most angles.*

The roadway railings ***(22, 23)*** *house lighting fixtures that shine down on the roadways; between these fixtures, where the lower railing narrows, the upper railing widens to accommodate floodlights that illuminate the overhang above* ***(20)****.*

A roof drain shaped like an ocarina ***(24)*** *is an unexpected element at the very center of the terminal.*

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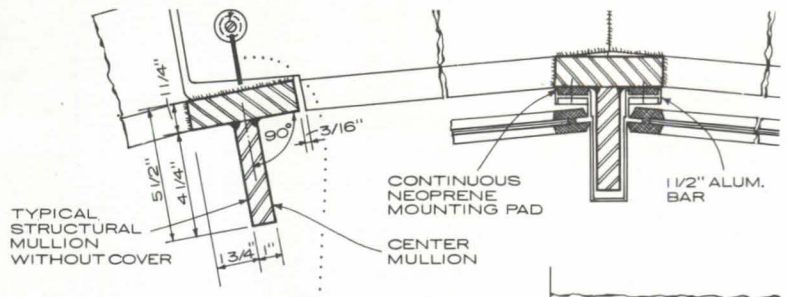
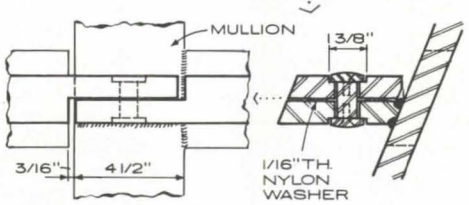
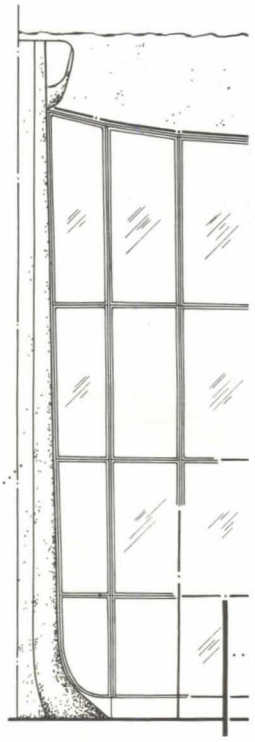
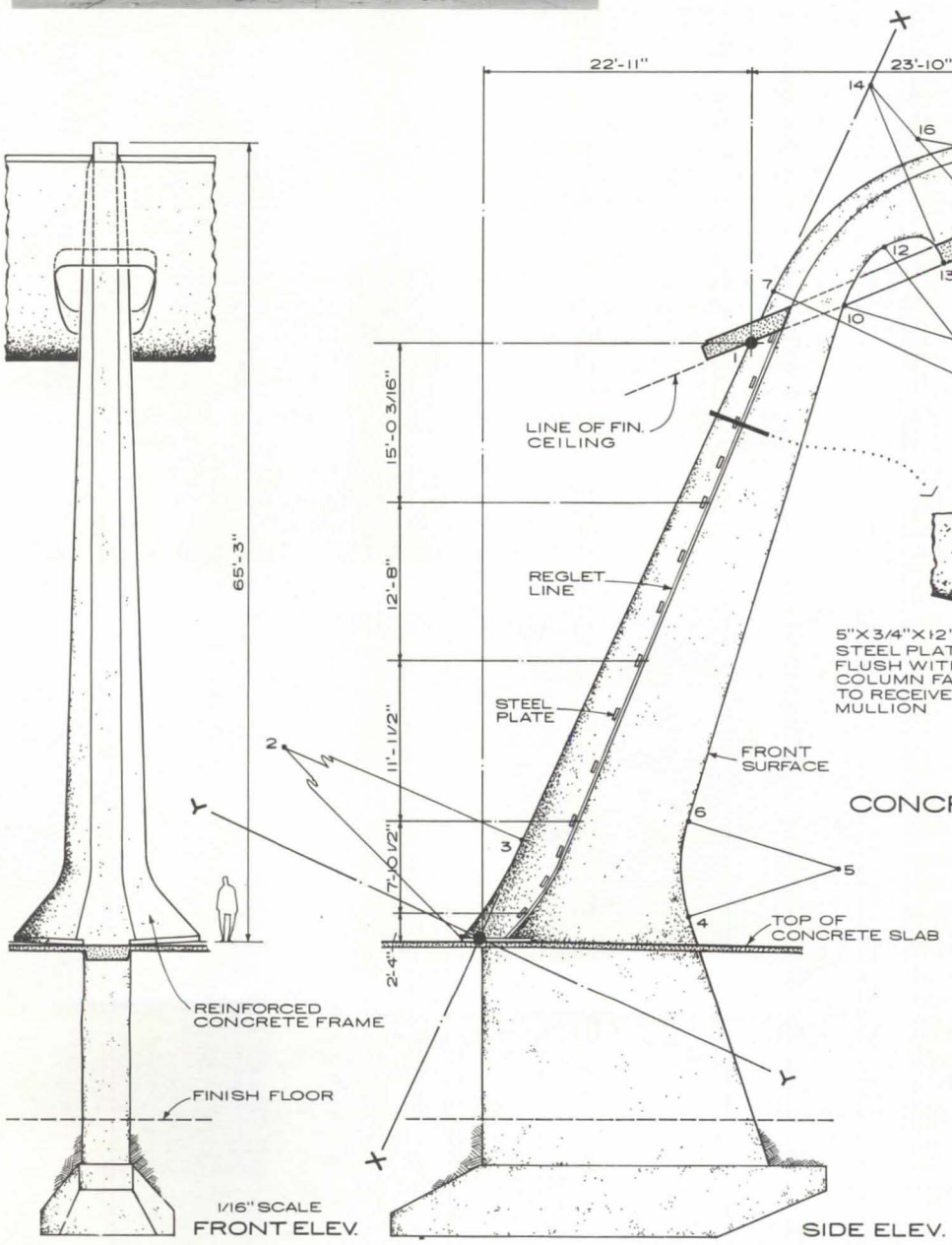


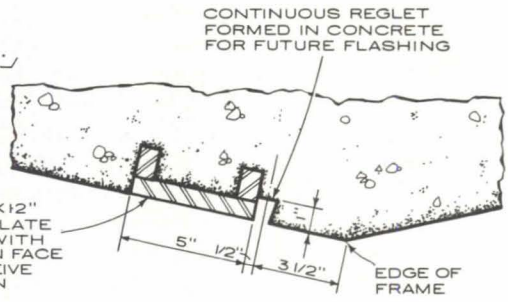
PLAN SECTION THROUGH CURTAIN WALL 1 1/2" SCALE



FRONT VIEW



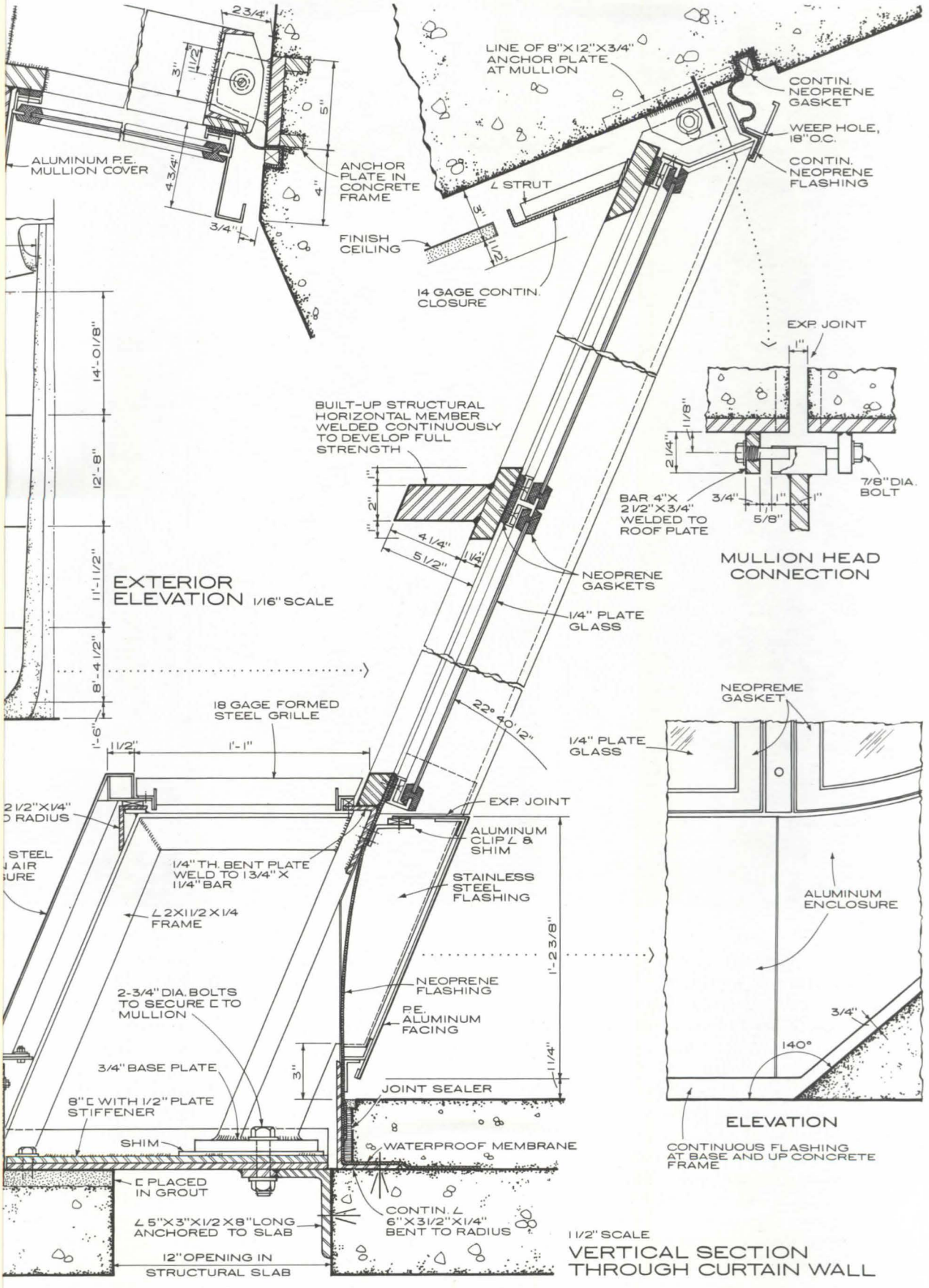




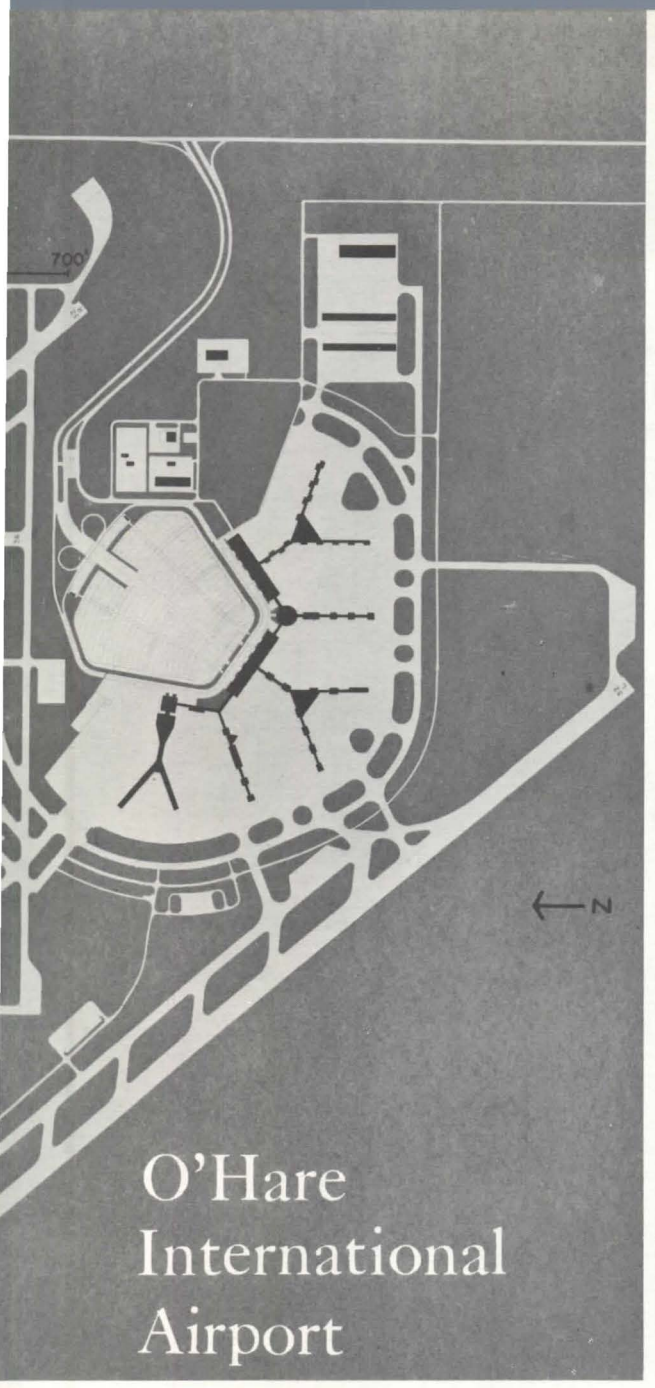
CONCRETE FRAME DETAILS

PT.	X	Y	RAD.
1	53'-10 1/4"	0	
2	8'-10 1/16"	33'-9 9/32"	33'-9 9/32"
3	8'-10 1/16"	0	
4	9'-0"	15'-0 1/16"	
5	17'-9 13/16"	24'-8 1/16"	13'-0 1/16"
6	16'-0 1/32	11'-9 1/32"	
7	58'-7 3/8"	0	
8	58'-7 3/8"	21'-3"	21'-3"
9	77'-10 1/8"	12'-2 1/2"	
10	59'-11 7/16"	5'-7 27/32"	
11	61'-3 1/32"	15'-0"	9'-5 1/4"
12	65'-9 5/8"	6'-8 13/16"	
13	66'-6 3/4"	1'-9 5/16"	
14	77'-5 11/16"	0	16'-0 1/16"
15	70'-10 15/16"	14'-7 13/16"	
16	74'-11 7/8"	5'-6 5/8"	10'-0"

FRAME COORDINATES OF POINTS



S INTERNATIONAL AIRPORT: Chantilly, Va. SAARINEN & ASSOCIATES, Architects	SELECTED DETAIL CURTAIN WALL



O'Hare International Airport

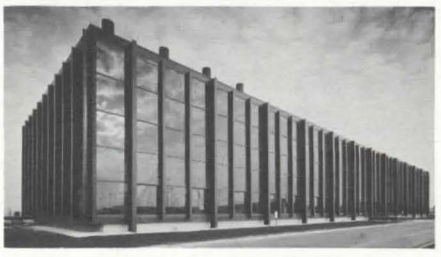
C. F. MURPHY ASSOCIATES, ARCHITECTS-ENGINEERS • CARTER H. MANNY, JR., PARTNER IN CHARGE • STANISLAW GLADYCH, CHIEF DESIGNER • OTTO STARK, GERTRUDE KERBIS, HARVEY STUBSJOEN, BOTHO SCHNEIDER, SENIOR DESIGNERS

Total passenger movements in and out of Chicago's International Airport last year exceeded 13,000,000, of which approximately 6,000,000 were interconnecting. To O'Hare's designers, the implications of this traffic pattern were obvious: "Terminal facilities in Chicago should not only be large; they should also be as compact as possible to facilitate interconnections." Compared to terminating airports such as New York and Los Angeles, where separate terminals were permissible, Chicago required a much denser building complex. Several highly interesting schemes evolved in the course of the design studies, but unfortunately a number of circumstances hampered the free development of the over-all plan. Unlike the designers of Dulles airport, who were given a comparatively free hand and an unencumbered site, the Chicago designers inherited an earlier plan, already partially executed, which had been established in 1948, before the arrival of the jet airplane. Although several of the updated schemes were considered eminently suitable, they were ruled out for failing to recognize an already existing runway, the control tower, and a partly finished terminal structure. Also, whereas the designers of the Washington airport worked with a single Federal agency, the Chicago designers had to negotiate with 13 individual airlines—a factor that from the start implied compromise. Individual airline requirements differed widely, of course: some desired highly automated techniques, whereas others were content with manual methods. Some, for instance, wanted to use nose loaders, others telescoping bridges, still others conventional stairs. None were receptive to a mobile lounge scheme, similar to the Dulles plan, which was rejected because of the time factor involved in transferring passengers, but which would have permitted a still more compact scheme. An interesting straight-finger scheme of four unit terminals, linked together by moving sidewalks under a multilevel parking garage, came close to being accepted, but was abandoned largely at the insistence of one airline, which strongly favored the old split-Y concourse of the 1948 plan as the best way to accommodate airline operations offices. Seen in this light, it is understandable that

PHOTO: CHICAGO AERIAL SURVEY

's over-all plan lacks the brilliance riginality of Dulles. O'Hare's n lies, rather, in its details: in the ous care with which the individual gs were designed; in the expert ion of structural and mechanical ; in the orderly and craftsman- cution of the interiors, which have armony in spite of the diverse re- nts of 13 different airlines; and in ll-designed adjunct service struc- uch as the fire station, the heating frigeration plant, and the central ne exchange shown (*right, top to* .

final airport scheme, though it s a modified version of the 1948 ric scheme, differs in many re- Unlike the earlier tangential run- stem, the new plan, for reasons of has three sets of parallel runways.



PHOTOS ABOVE: HEDRICH BLESSING

The parking area has been increased to four times its former size. And, reflecting the change brought about by jet planes, the runways have been lengthened and gate spacings increased. The much larger terminal buildings are the result of added revenue-producing concessions, and increases in frontage of airline ticket counters and curb space for unloading of automobiles.

The various terminals and passenger facilities are arranged in horseshoe fashion around the parking area. Two rectangular structures with Y-shaped concourses serve the domestic airlines. Between these, a circular restaurant with its own concourse forms the link. At the west end (*foreground, aerial photo above*), the original terminal building is being remodeled and refurbished to accommodate overseas air traffic. All of the buildings

are interconnected by enclosed passageways at the second level. Enplaning passengers arrive via an elevated roadway, and pass through bridge connections (*right, below*) into the upper level of the domestic terminals, where ticket counters and concessions are concentrated. From there, passengers are directed to the waiting lounge in the main building or through one of the concourses (*right, top*) to fieldside departure lounges. Deplaning passengers use the same concourses but descend to the lower level of the terminal building via escalators to the baggage-claim area, car rental desks, and city-bound buses and taxis, which depart on the lower roadway.

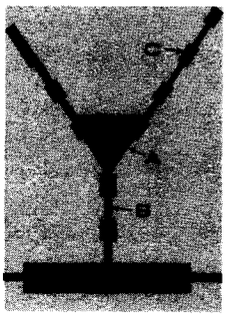
The elevated roadway is a concrete structure, fabricated of long-span, prestressed, I-shaped members, framed into cast-in-place girders. Steel-formed inclined columns support the roadbed. Coordination between structure, floor elevations of the buildings, and the road pattern requirements has been unusually effective.

Nick Le Bar was consulted on the preliminary structural concept of the elevated roadway; Alfred Benesch Associates were the consultants on the elevated road's structural design. Others who served as consultants in the design and construction of the airport were: Landrum & Brown, airport planning; James P. O'Donnell, fueling system; Richard Kelly, lighting consultant for restaurant building; Hayward R. Blake, graphics, signs.

PHOTOS, EXCEPT AS NOTED: BALTAZAR KORAB

PHOTO: HEDRICH BLESSING

Eventually, the existing control tower (partial view in photo at left) *is to be replaced by a taller and more up-to-date structure. Present plans are for a tower in which the glass line is to be recessed, leaving the plastic form of the concrete frame exposed to provide a visual link with the elevated road supports. Erection of the new control tower in the parking area, on axis with the central terminal building* (left), *will also give the airport complex the focus it now lacks.*

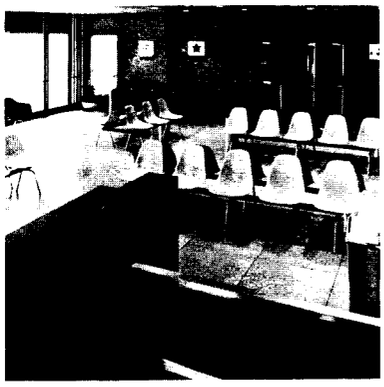


The Y-shaped concourses, appended to each of the main terminal buildings (diagram left), *are three-level structures which, below ground, provide tunnels for the necessary mechanical and electrical lines; at apron level allow for open and enclosed spaces for airline operations; and at the upper level serve to convey passengers from the main terminal buildings to the gate positions. Protrusions along the public passageways* ***(B)*** *are fieldside passenger departure rooms* ***(C)****. The triangular space at the intersection of the three corridors* ***(A)*** *is devoted to airline operations offices.*

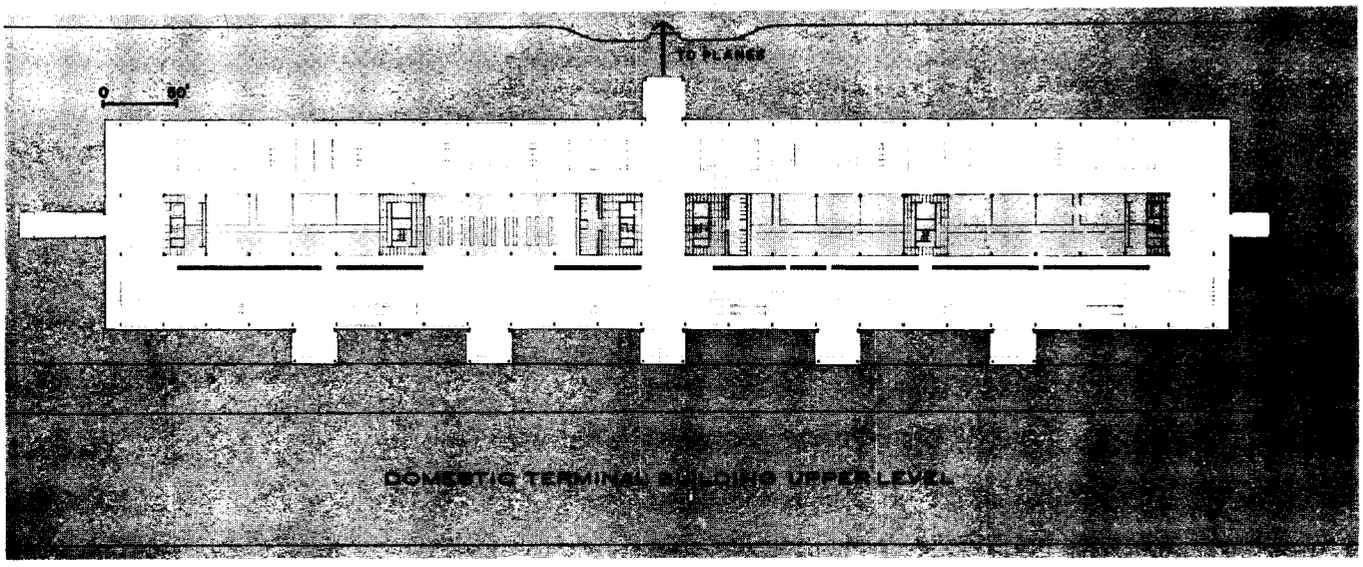
The problem of maintaining constant depth for floor and roof construction, in spite of varying span and load conditions, was resolved by a modified one-way pan and joist construction, using hardboard boxes to form voids in the floor and roof construction. This method resulted in the desired flat ceiling surfaces, in ribs of constant depth, and in an economic and lightweight structural system.

A

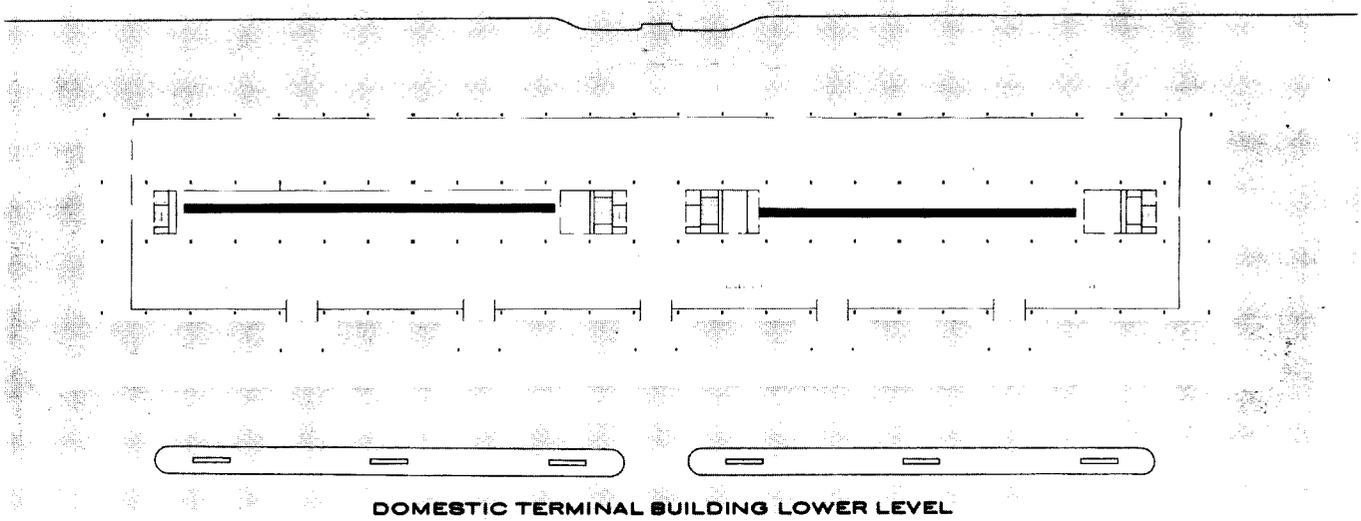
B



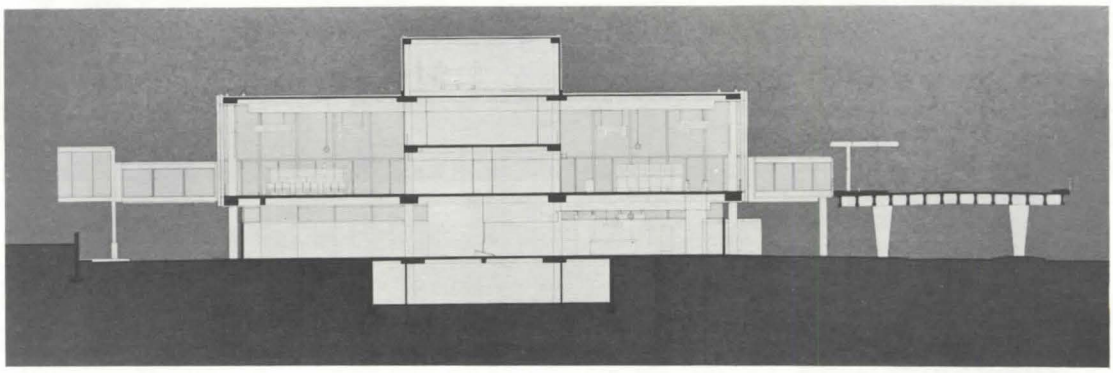
C



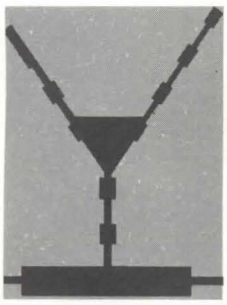
DOMESTIC TERMINAL BUILDING UPPER LEVEL



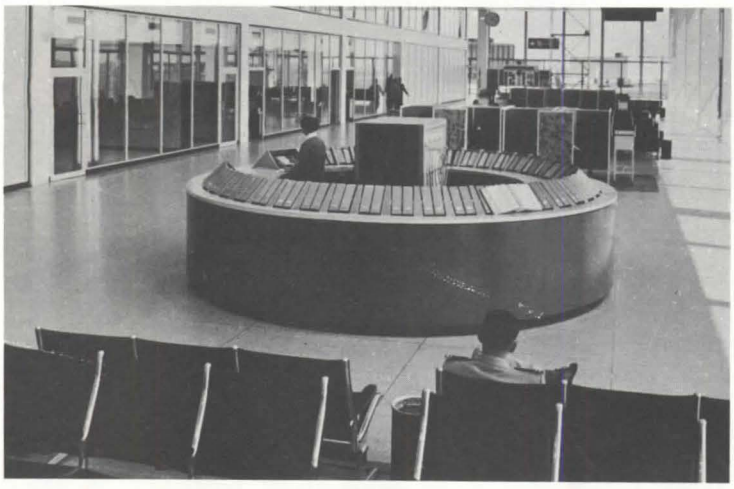
DOMESTIC TERMINAL BUILDING LOWER LEVEL

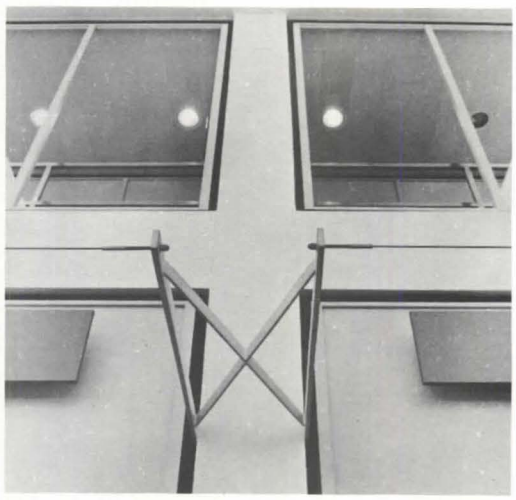


The two domestic terminal buildings are identical in plan and construction except for minor variations due to individual airline requests. Note, for example, the interruption of counter space on the upper level (plan, facing page), *in order to accommodate United Airlines' express check-in system. At this level, a central core divides the plan longitudinally into a lobby for ticketing* (above), *and a lobby for waiting* (left). *Most of the concessions, offices, services, and mechanical equipment are confined to this central core* (endview and section above).

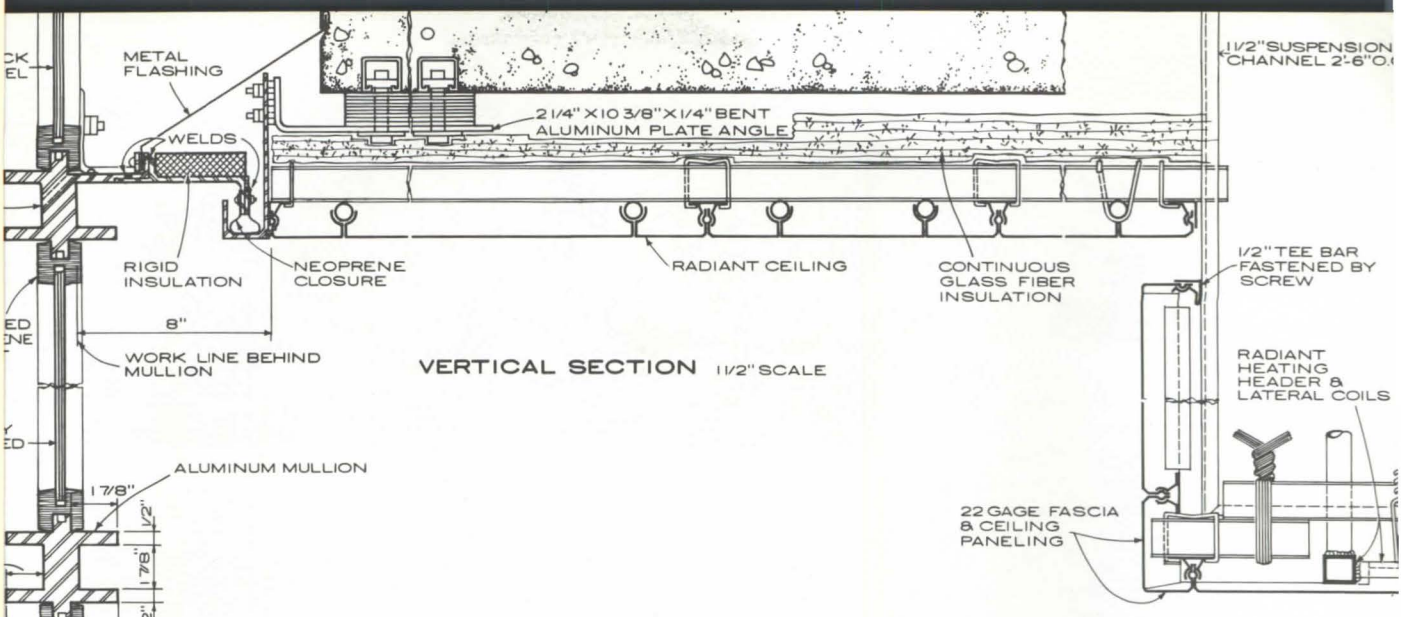


Architectural details and furnishings within the domestic terminals are particularly noteworthy. In the main waiting lounges (right), *the seating was specifically designed for this airport by the architects in collaboration with Charles Eames* [NOVEMBER 1962 P/A]. *Open, sit-down telephone booths, drinking fountains, and storage of fire-fighting equipment have been combined into an orderly and handsome island unit* (foreground, photo right). *The round telephone centrals* (below), *and the steel-framed glass cages for newspapers and gifts* (bottom), *are serviceable additions to the lobbies, yet remain unobtrusive within the main space. Signs and graphics have also been closely co-ordinated with the architecture. Cross-bracket* (below right) *was designed to hold temporary signs above the airline check-in counters.*

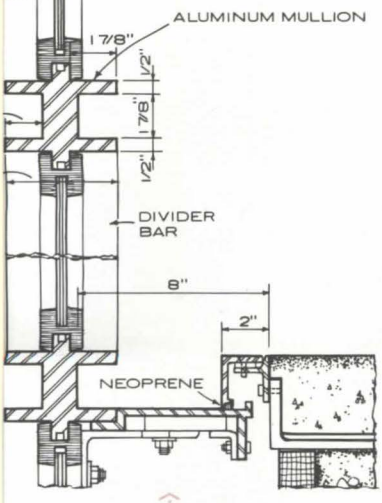


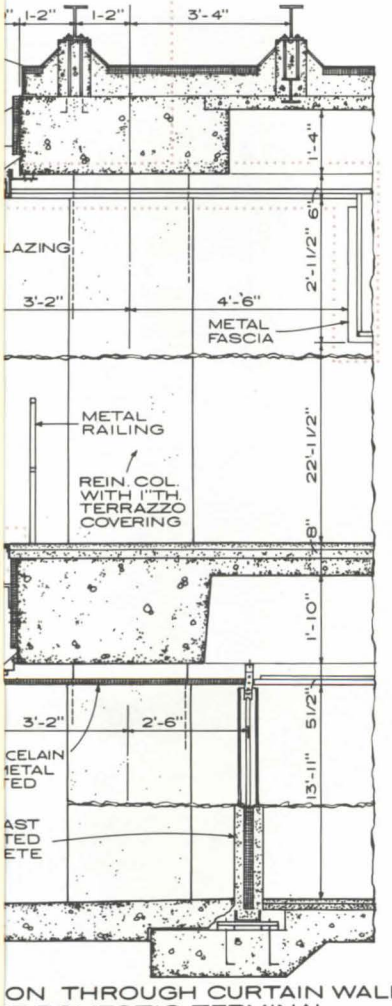


Section through the curtain wall of the domestic terminal (facing page) *explains the radiant method of heating and cooling the large lobbies. Coils are spaced closely together, near the glass walls, and taper off toward the interior. The reinforced concrete structure makes use of pan and joist construction at the main floor; precast, prestressed double-T members framed into cast-in-place girders at the roof.*

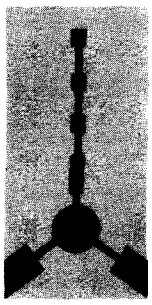


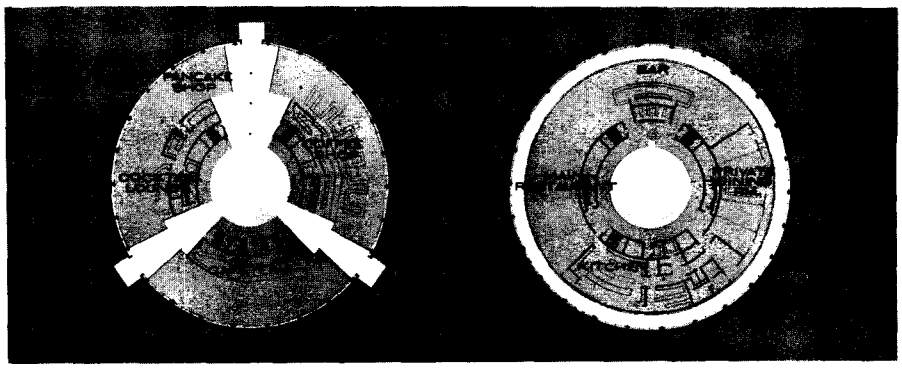
VERTICAL SECTION 1 1/2" SCALE



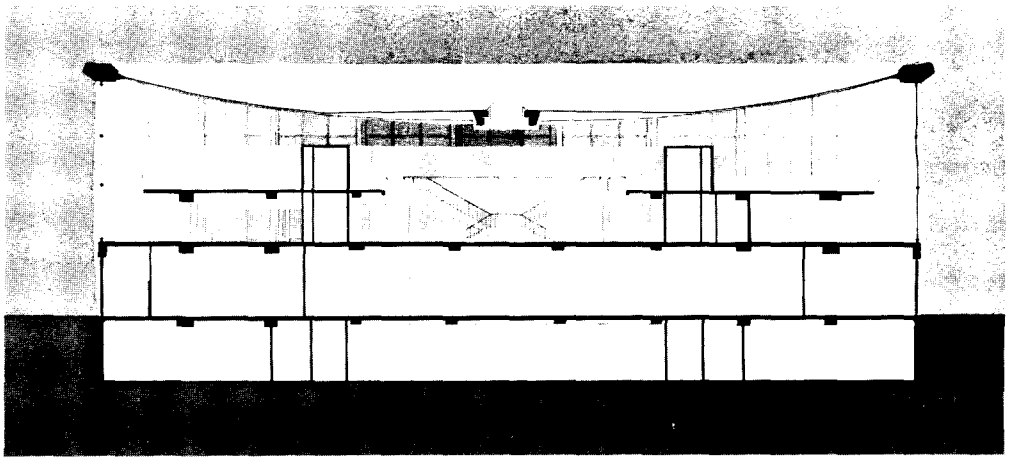


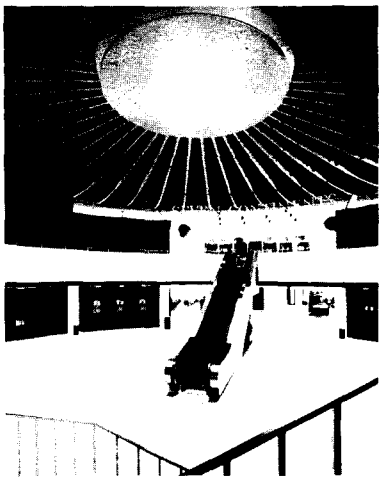
ON THROUGH CURTAIN WALL
OF DOMESTIC TERMINAL

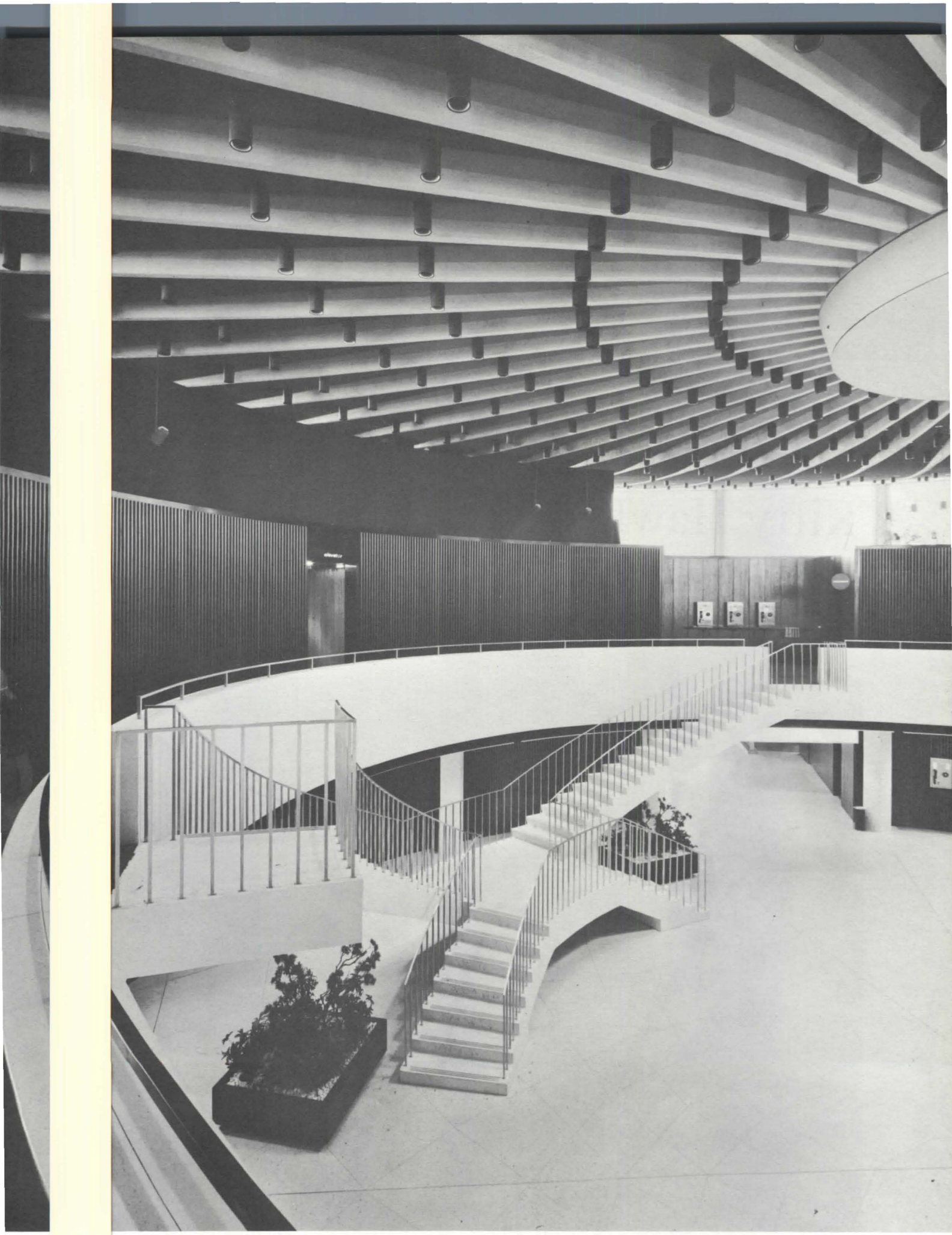


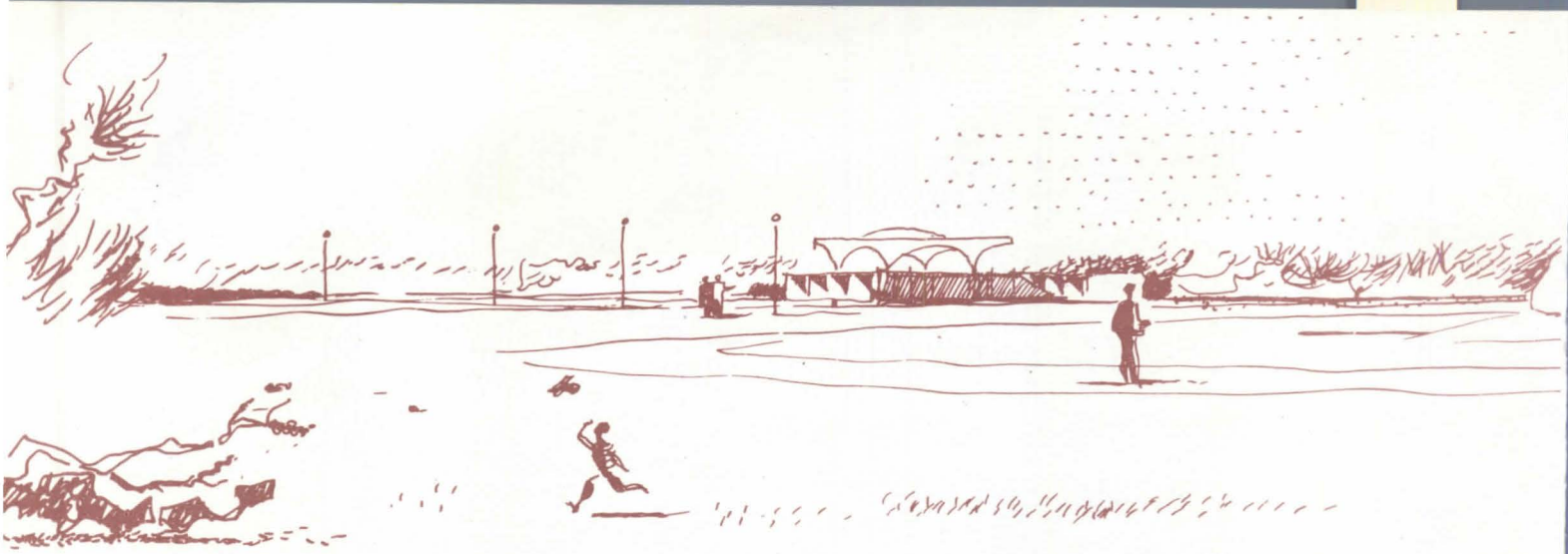


The circular restaurant building with its skylighted central hall (facing page) *provides the logical juncture between three elements: the two domestic terminals and a concourse. The building is supported by concrete columns and its floors are one-way slabs, spanning between beams that form a circle. The roof is cable-hung between a compression ring at the perimeter, and a tension ring at the center. Wedge-shaped concrete panels form the roof. The perimeter wall at the concourse level is of 3/8" gray glass; at the ground level, where kitchens, a cafeteria for airport employees, police, and first-aid facilities are located, the perimeter wall is made up of precast, insulated concrete panels with exposed aggregate. Food facilities provided within the building range from an elegant restaurant with private dining rooms on the mezzanine level, to more modest food services on the main concourse level.*









Kitty Hawk Museum

VISITOR CENTER, WRIGHT BROTHERS NATIONAL MEMORIAL • KILL DEVIL HILLS, NORTH CAROLINA • MITCHELL/GIURGOLA, ASSOCIATES, ARCHITECT

It is a long way from Kitty Hawk to Dulles Airport—not in jet time, but in progress. Sixty years ago this year, the Wright Brothers made their pioneer experiments in powered flight between Kitty Hawk and Kill Devil Hills. The site, preserved by the National Park Service, displays markers of the first point of lift-off, which occurred at 10:35 A.M., December 17, 1903, and of the successive landings of that day—120 ft, 195 ft, 200 ft, and 852 ft away. On the fourth flight, which lasted 59 seconds, a speed of 30 mph was reached. Reproductions of the two hangars used by Orville and Wilbur Wright are also on the site. Now, the Department of the Interior has added an information and instruction center, which, like Dulles, demonstrates the Government's laudable progress as a client of architecture.

The Visitor Center exhibits a keen sympathy with its site. The treeless, ocean-front terrain is flat, except for a memorial shaft that was erected in the 30's on Kill Devil Hill, a dune quarter of a mile to

PHOTOS, EXCEPT AS NOTED: ALEXANDRE GEORGES

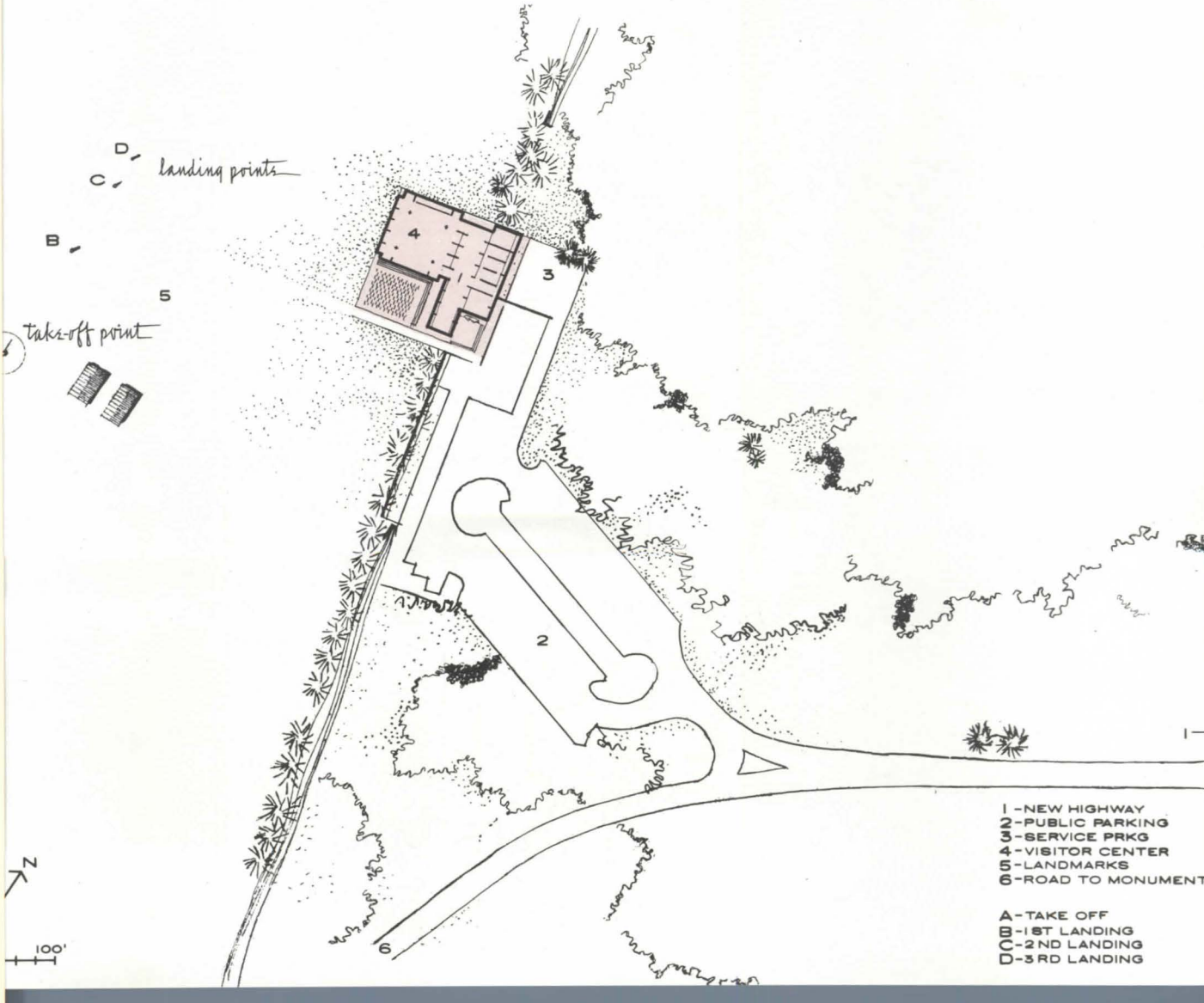
SKETCH BY ROMALDO GIURGOLA

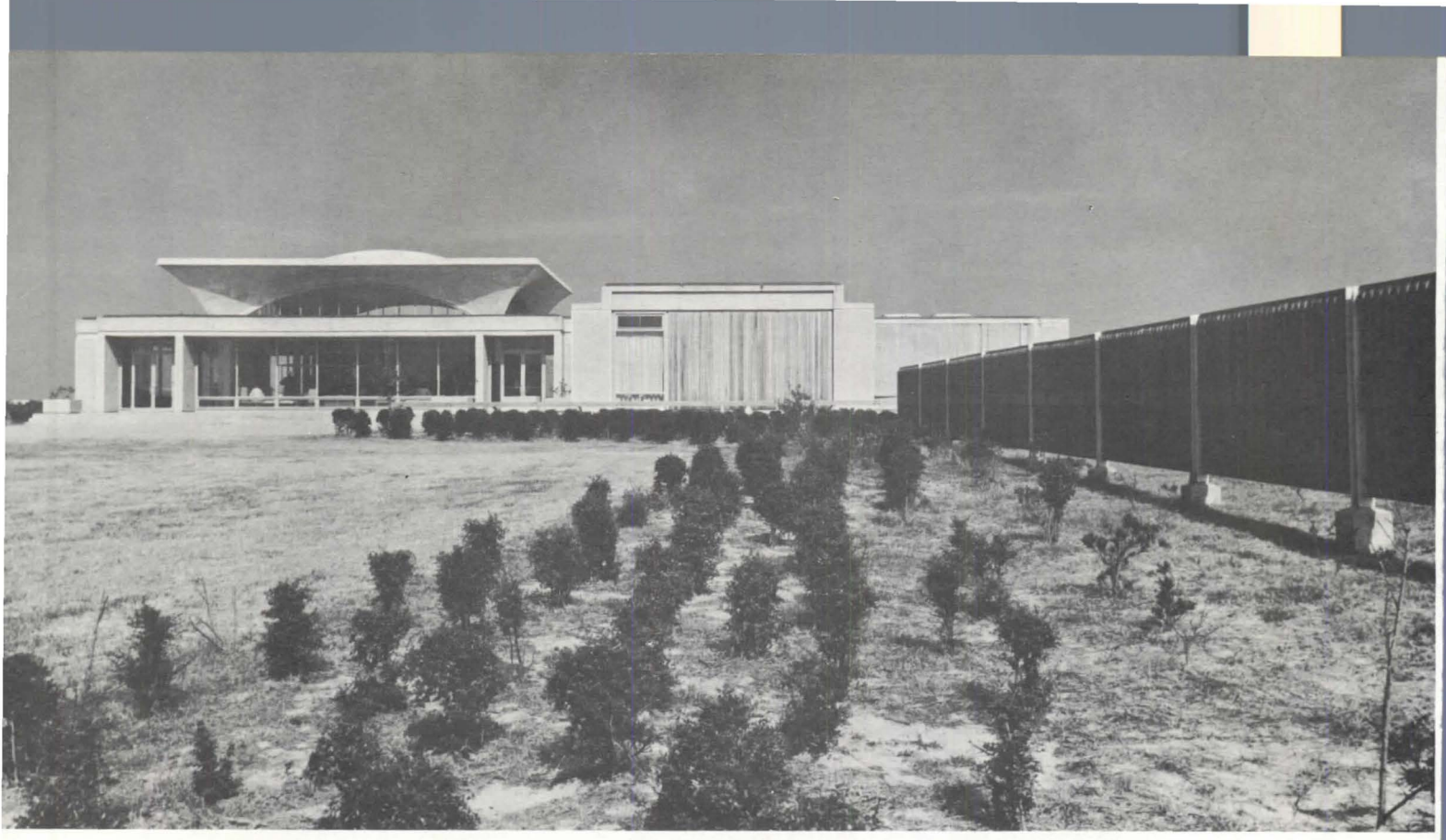
n. The building is elevated on a uare platform "so as to make a statement on the environment." ng with the terrain, most of the space is roofed by flat concrete cept for the assembly room, de- house a replica of the first air- hich is roofed by a reinforced dome serving as a landmark that an pick out from afar. Even this vever, is made to look horizontal s of a "perimetral extension" of into an overhang.

ientation of the building and the of its interior spaces help to make visiting this national park an aesthetic as well as an instructive experience.

From the parking lot, wood fences funnel the visitor to an open entry court on the southeast corner of the platform, while screening the historical marks beyond. As one approaches the building, the dome of the assembly room beckons from the corner that is diagonally opposite the entry court. On the right of the entry is a rectangular block of administrative offices, which have parking places adjacent, and rest rooms, which have been planned so they may be reached directly from the outside. Parallel and adjacent to this unit is a longer rectangular block, which houses a lobby-waiting area and a museum, where documents and panels illustrating the events connected with the first flights are displayed. Its concrete slab roof is slightly higher than that over the office group, so that the definition of these units, is apparent from the exterior. The south end of the lobby wing is walled with a rather plain cypress panel; the administrative block has a more imposing, sculptured-concrete wall, which provides a directional guide to the lobby entrance.

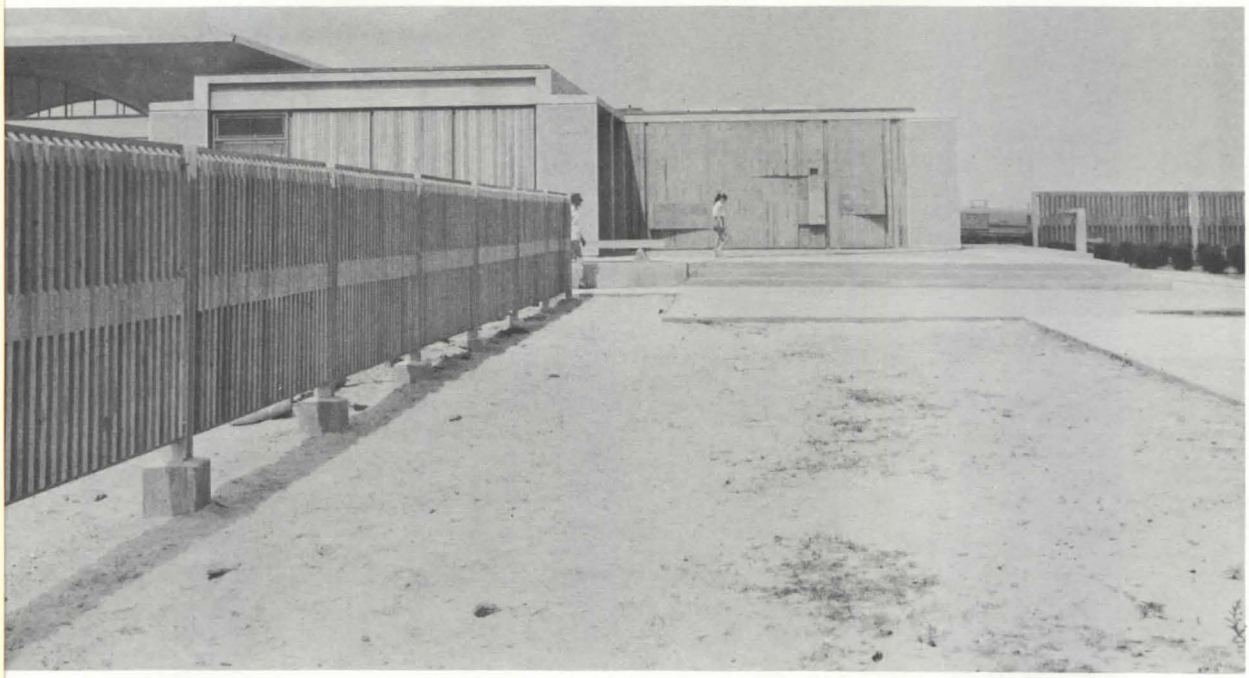
Inside the lobby, a glass wall opposite the entry reveals a sunken terrace used





The domed assembly room (above) *faces a memorial column atop a stabilized sand dune, which is often reflected in the glass walls.*

PHOTO: ROMALDO GIURGOLA

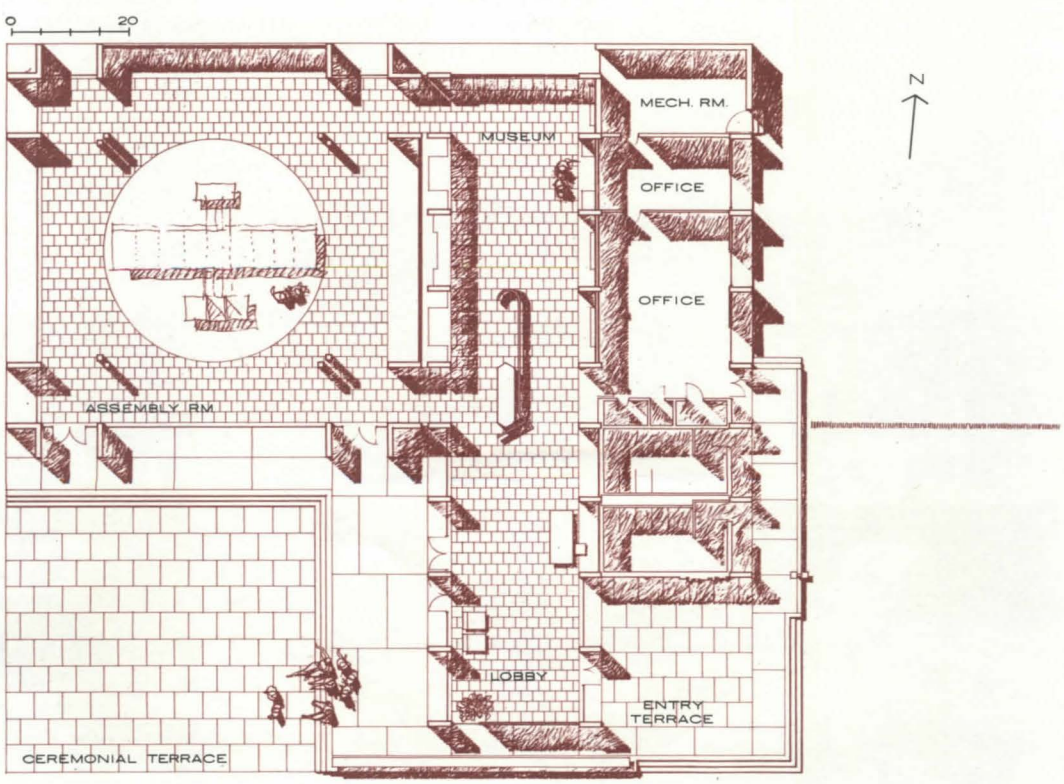


approaches the building on the diagonal (facing page, below), *guided by fences* (above) *that screen the monuments beyond.*

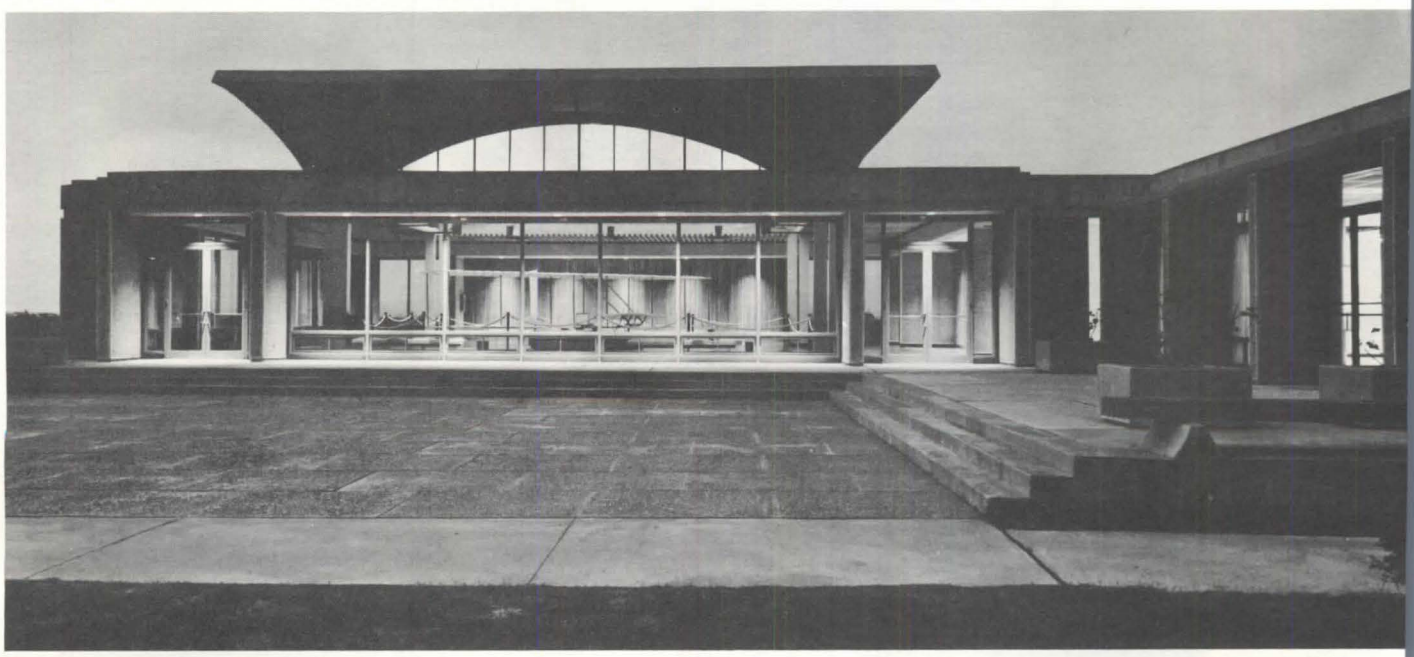
es and ceremonies connected
ion and, beyond, a glimpse of
bly room. The visitor winds
e museum, directed by a cypress
rtition, till he comes to the
. There, to the left, is the
oom, where, after being with-
view till this point, the first
s revealed. Outside, exposed through glass walls, are the historical marks and the hangars, and, in the distance, the memorial column atop Kill Devil Hill. Here, the rationale of the dome, whose configuration echoes the memorial dune, is ultimately explained.

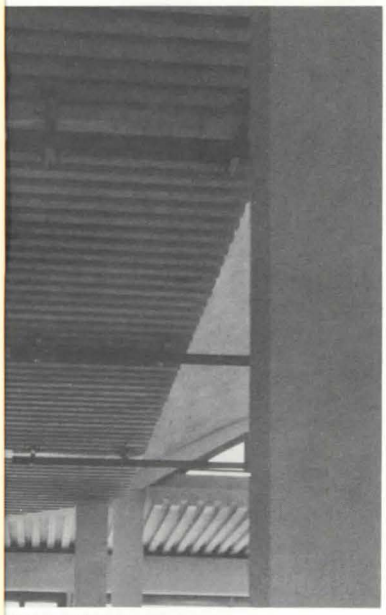
The structure, all poured-in-place reinforced concrete, is primarily a system of deep piers and flat slabs, which are designed to provide sun control to the glass walls that expose views of the site. The pier faces are bush-hammered.

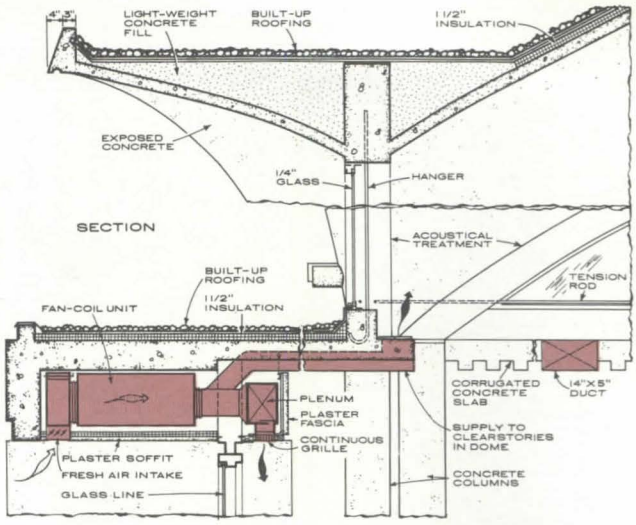
The Eastern Office, Design and Construction Division of the National Park Service, U.S. Department of the Interior, was the co-ordinating agency for the project, another distinguished credit to the Government's sponsorship of good building.

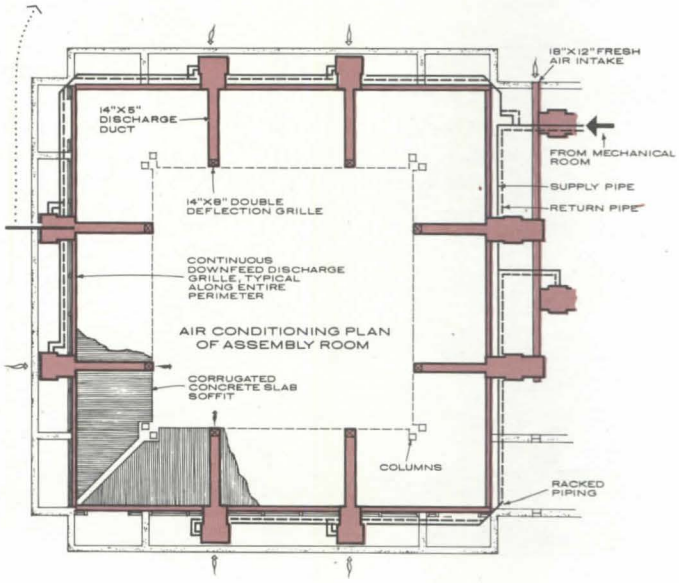


The dome of the assembly room (above) *is tied at its 40-ft-square base by four tension rods and rests on four coupled columns. The square-plan overhanging extension of the dome, which gives the building its most dramatic form* (below), *is designed to protect the clerestories from the sun.*



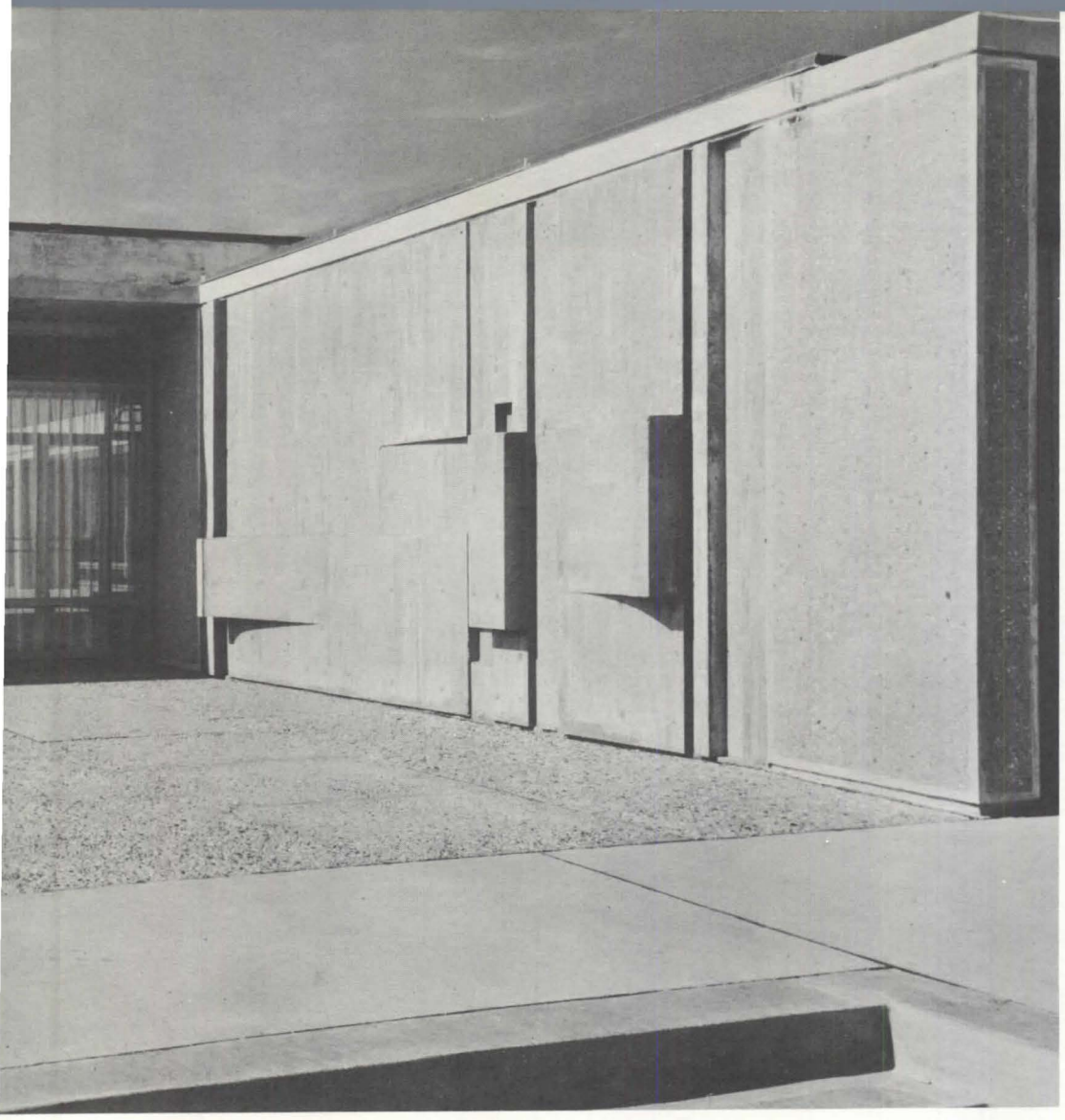


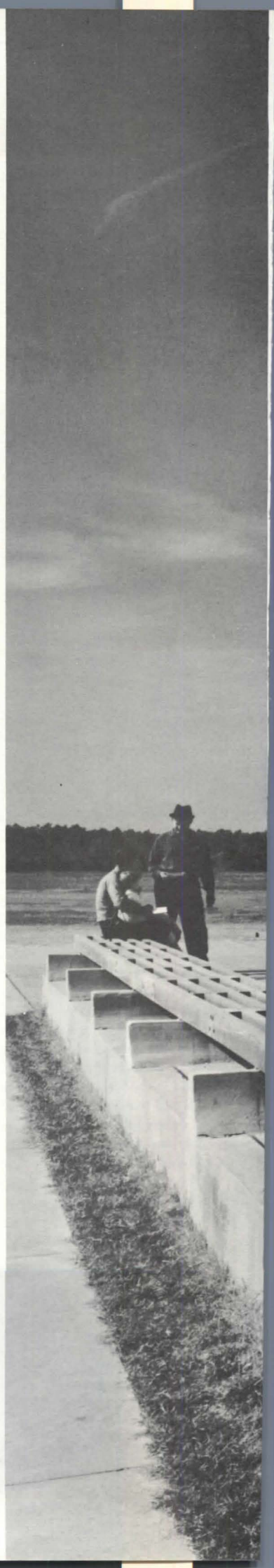




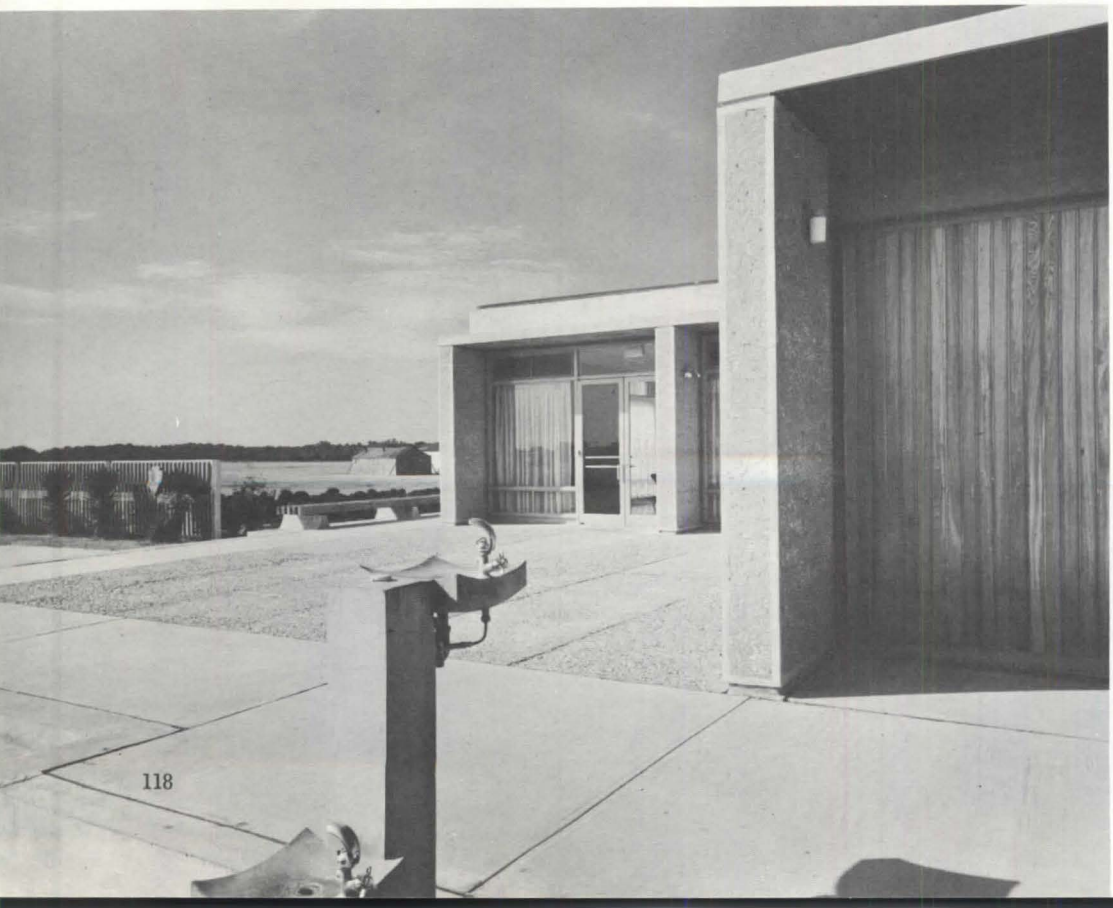
PH OMALDO GIURGOLA

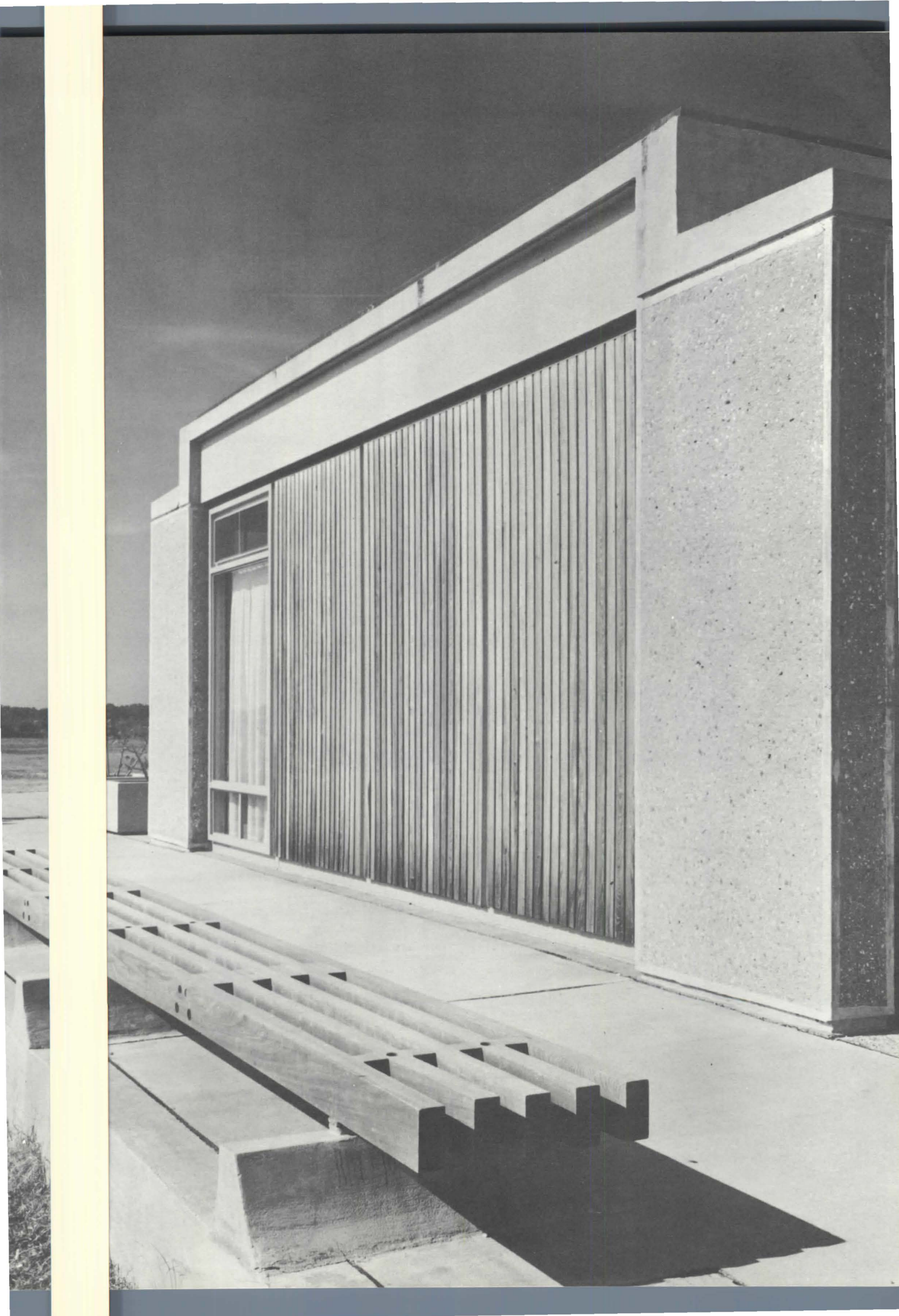
M equipment has been
i usly incorporated in-
t ure. A water-to-water
h makes use of the
o site and precludes
p s vast horizontality
u ical stack. Fan-coil
u continuous distribu-
t are located in the
s nding the assembly
r tional ducts are re-
c corrugated concrete
s t exposed as part of
t photos above). *In the*
l useum (photos right
a , units are above a
s eiling. *Frederick W.*
S as the mechanical
e chulcz and Padlasky
u tructural engineers.

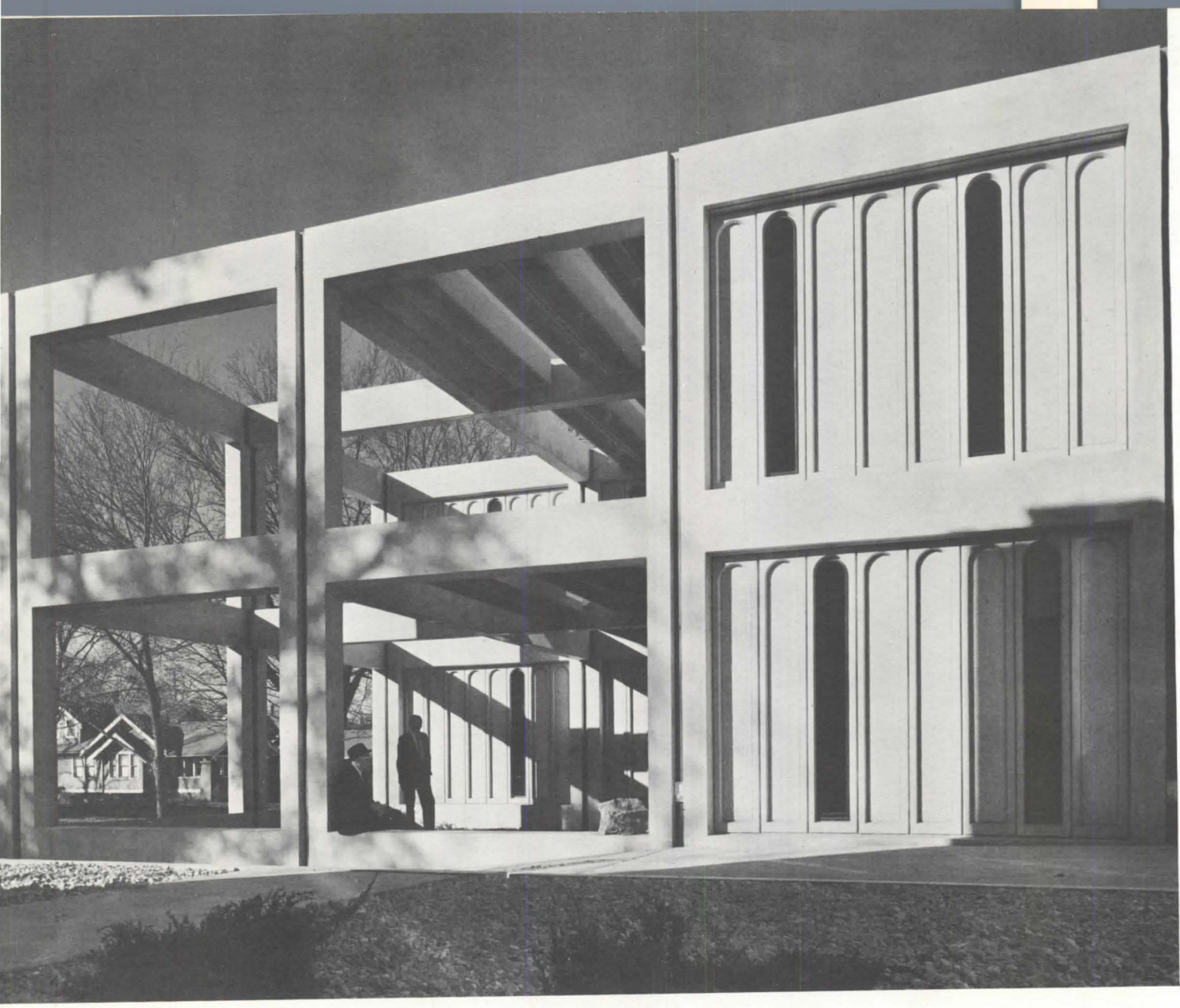


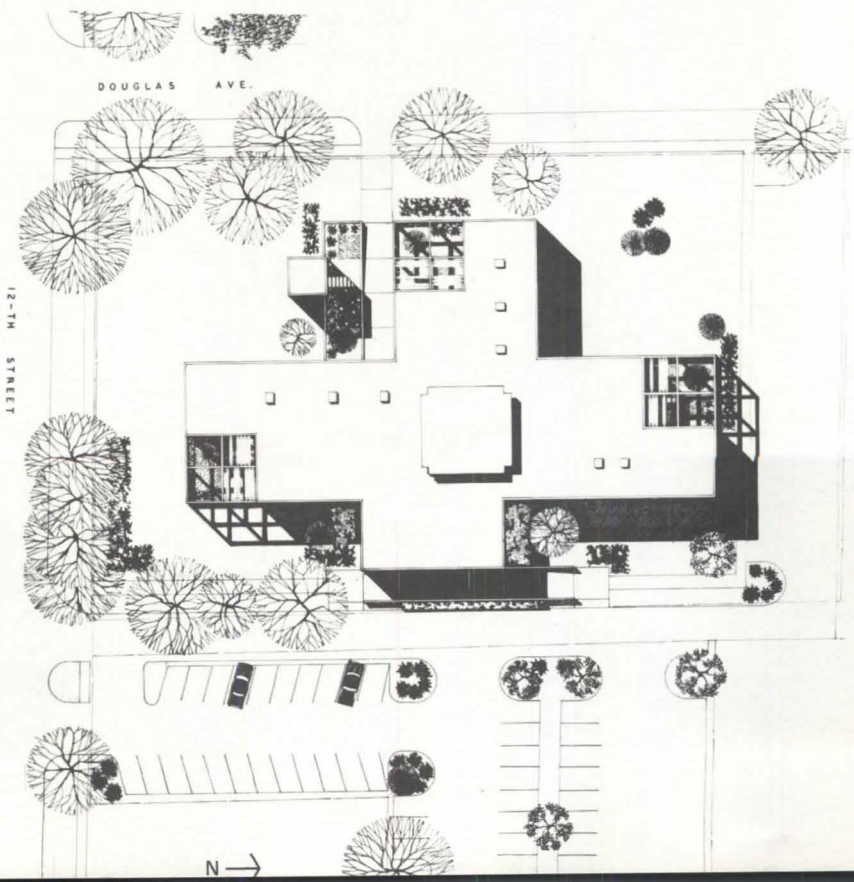


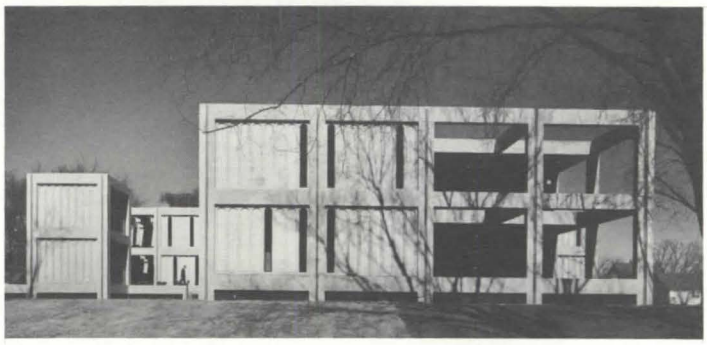
A sculptured concrete wall (above) *designates the entry court* (below), *from which there is a glimpse of the historical marks beyond the screens. Non-bearing walls* (right) *are prefabricated panels of silver-gray cypress boards in orange-baked-enamel metal frames fastened to the piers. The sculptured wall, drinking fountain, and bench echo the principal design motifs.*








DOUGLAS AVE.
12-TH STREET
N



octors Departmentalized

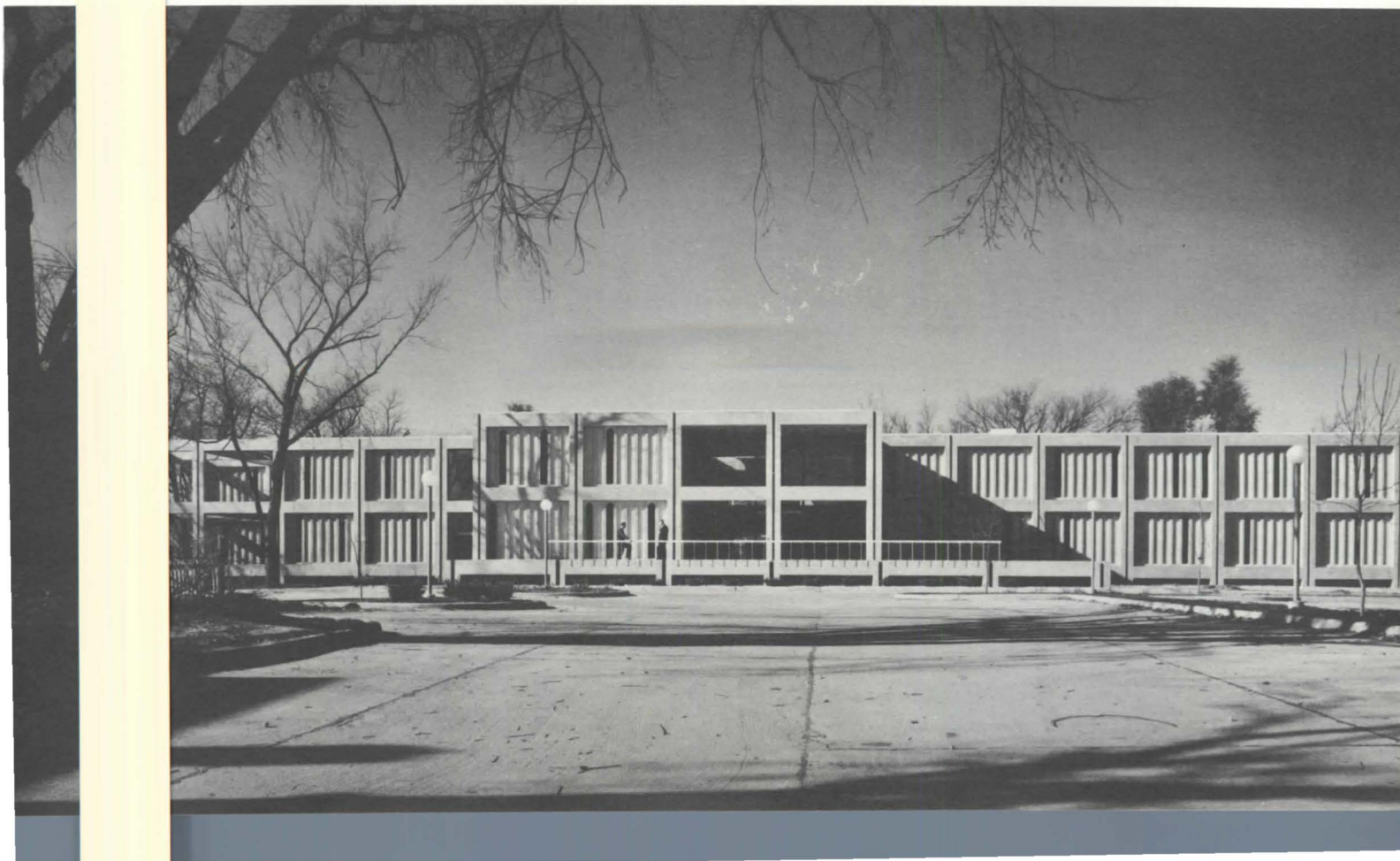
ND CLINIC • AMES, IOWA • CRITES NNELL, ARCHITECTS • MOORE & ECHANICAL ENGINEERS • DAVID R. INTERIOR DESIGN CONSULTANT

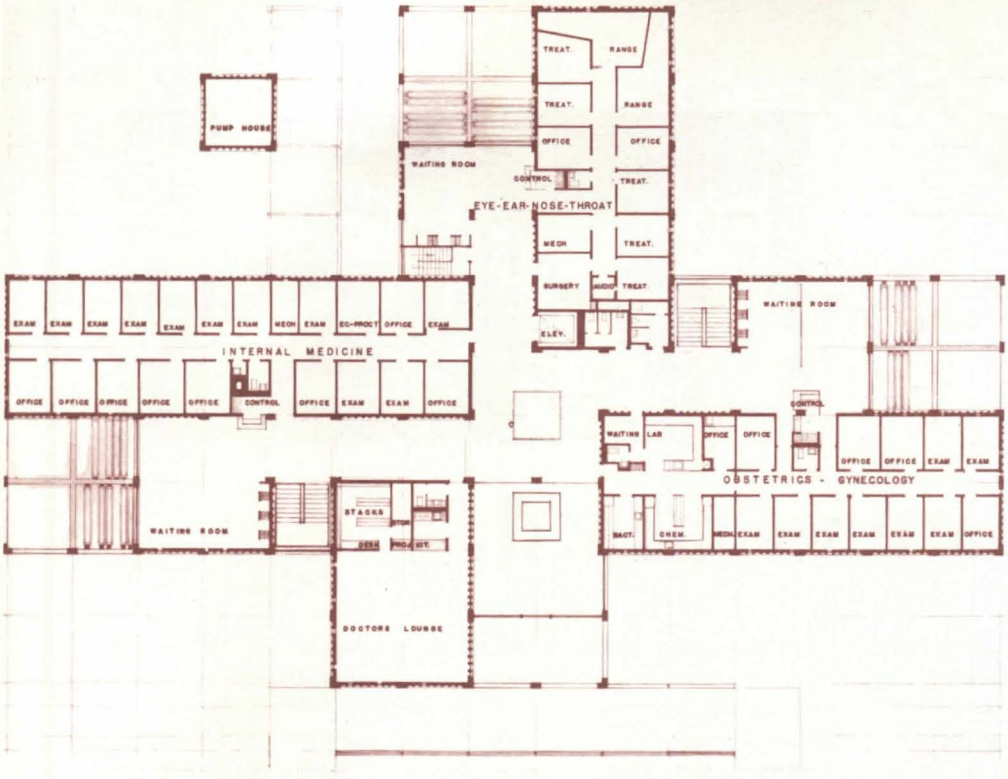
in scale between the nearby pub- al of Ames and the surrounding a quiet residential neighborhood w McFarland Clinic. With facil- an initial group of 20 doctors (an l 10 can be accommodated with- er construction), the clinic is a building of pin-wheel plan—one rative wing and three depart- ings on each floor. Departments in use are surgery-urology, radi- diatrics, internal medicine, eye- throat, and obstetrics-gynecology. also a medical laboratory and a pharmacy, a business office and a doctors' lounge. Since future growth of the practice cannot be predicted, there are various possibilities for expansion (all involving minimal disturbance to present facilities) —either outward at each wing or upward to a third floor.

The structural system of the building *is* the building, consisting of two-story precast-concrete bents that form the supporting horizontals and verticals, interior and exterior. The architects mention that the rationale for this system was the strong visual impact and ease of construction in winter, and it seems a particularly appropriate choice for a medical building: the parts are as logical and clearly differentiated as the complex parts of the human body itself.

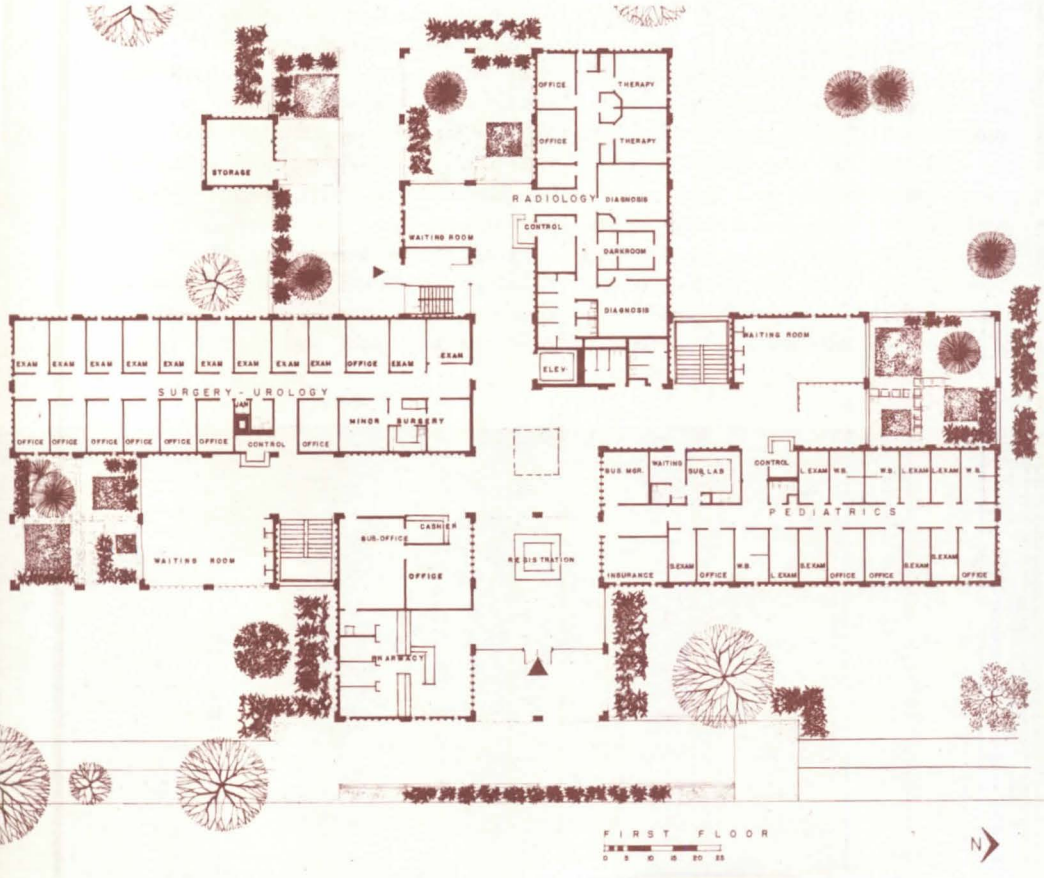
Major surfacing material, interior and exterior, is exposed quartz aggregate in a tracery of precast concrete. These slender modular panels were developed as a common denominator to the needs of a building with many small rooms of varying sizes. The panel makes it possible to provide fenestration in an almost random manner, depending on interior requirements or restrictions. Floor and roof are precast slabs, the cores used for air distribution. The heating and air-conditioning system has centralized equipment supplying air-handling units in the various departments.

Except for the special requirements of radiology and other departments, each specialty has essentially the same facilities: waiting room and control desk,





SECOND FLOOR



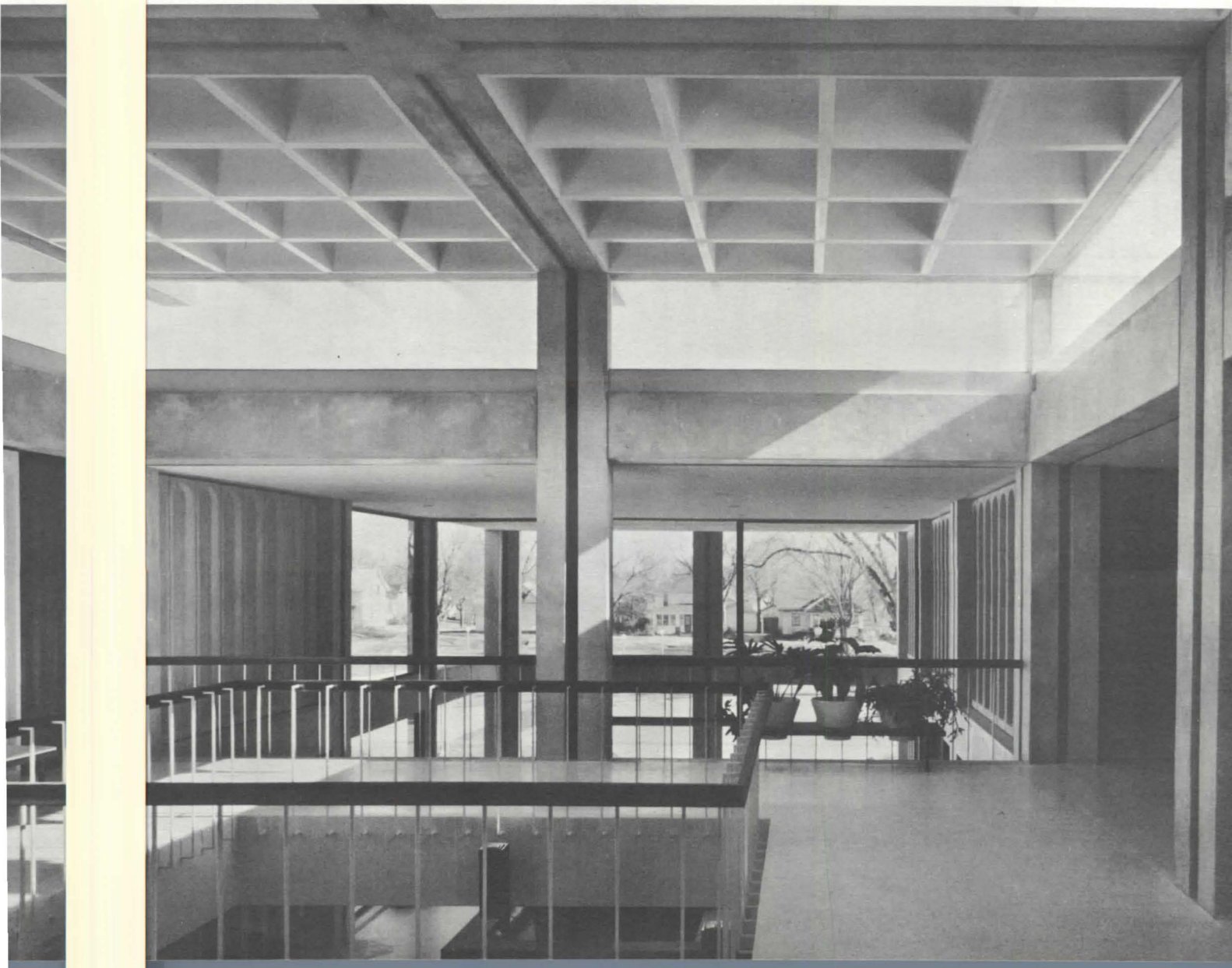
FIRST FLOOR

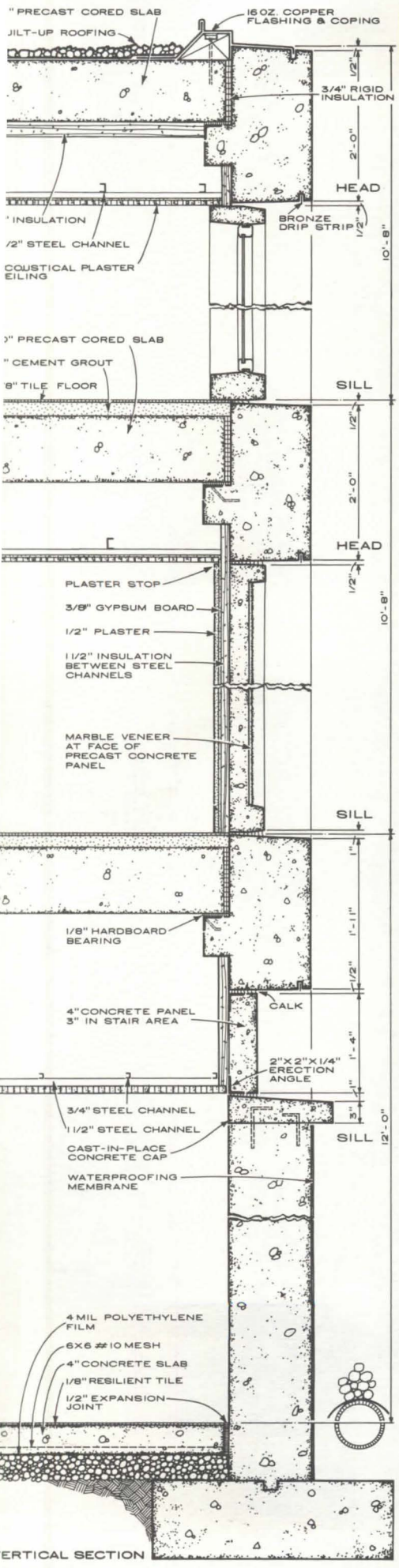
The plan has a "no-nonsense" directness to it. Patients enter either from parking lot or street, and are directed from the main desk (photos below) *to one of the six departments. The structure, too, has a straightforward clarity. The two-story bents and slender panels are read from both interior and exterior; without abruptness, interior and exterior merge* (acrosspage, top left). *Interiors are colorful and cheerful, in contrast to the subdued appearance of the natural concrete; bright furnishings and a familiar view beckon patients toward the waiting rooms* (acrosspage, top right).

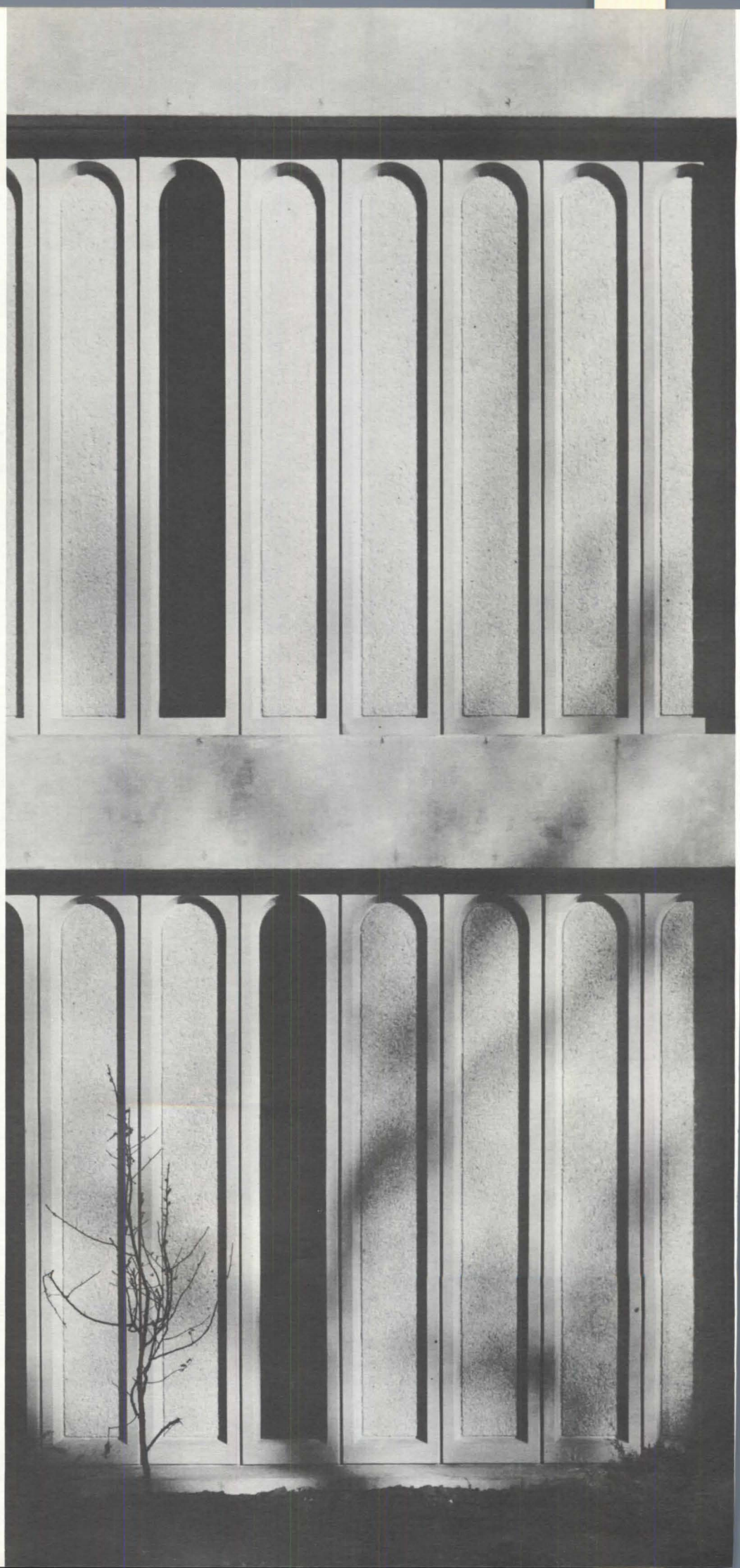
consulting and examining rooms. The pinwheel plan was adopted not only in response to these demands of departmentalization, but also because it suited the mood the architects wanted to establish. The doctors had voiced concern about the emotional reaction of patients, recognizing that most of them would be worried about themselves. The architects thus felt it important to avoid a closed-in environment. They keep all patients constantly oriented to familiar surroundings. Each waiting room, with its strong colors and large windows, is visible from the central corridor (this central circulation area, itself, is brightly lighted by a clerestory); and from the waiting rooms, the eye is drawn outward to the street beyond.

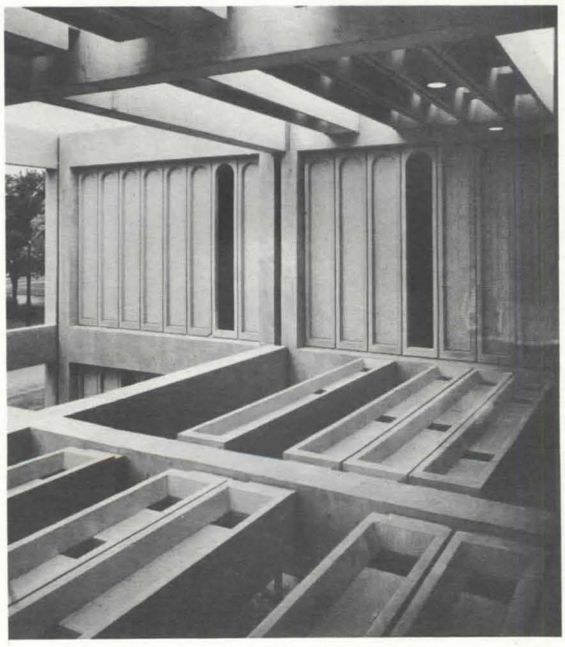
The *architects report* that the building has been favorably received by doctors and public alike—"better than we would have predicted." They attribute the public reaction at least partly to the good will created in the community by the doctors themselves.

Total costs, excluding land and fee, were $975,000, or $23.30 per sq ft.



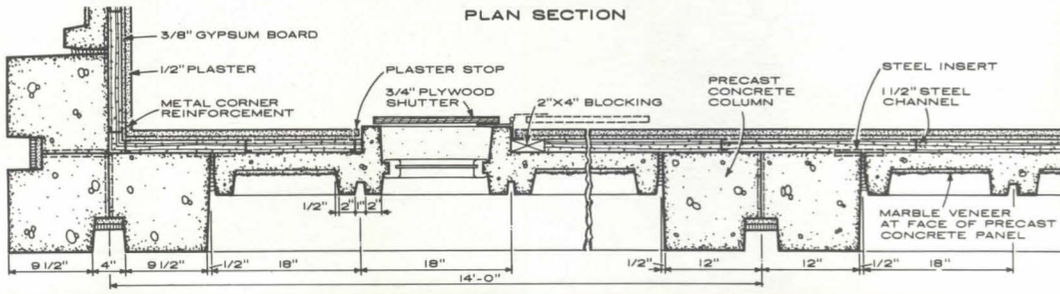

" PRECAST CORED SLAB
16 OZ. COPPER FLASHING & COPING
JILT-UP ROOFING
1/2"
3/4" RIGID INSULATION
2'-0"
HEAD
' INSULATION
BRONZE DRIP STRIP
1/2"
/2" STEEL CHANNEL
COUSTICAL PLASTER EILING
10'-8"
)" PRECAST CORED SLAB
" CEMENT GROUT
'8" TILE FLOOR
SILL
1/2"
2'-0"
HEAD
1/2"
PLASTER STOP
3/8" GYPSUM BOARD
1/2" PLASTER
1 1/2" INSULATION BETWEEN STEEL CHANNELS
10'-8"
MARBLE VENEER AT FACE OF PRECAST CONCRETE PANEL
SILL
1"
1'-1"
1/8" HARDBOARD BEARING
1/2"
CALK
4" CONCRETE PANEL 3" IN STAIR AREA
2" X 2" X 1/4" ERECTION ANGLE
1'-4"
1"
3/4" STEEL CHANNEL
1 1/2" STEEL CHANNEL
3"
SILL
12'-0"
CAST-IN-PLACE CONCRETE CAP
WATERPROOFING MEMBRANE
4 MIL POLYETHYLENE FILM
6X6 #10 MESH
4" CONCRETE SLAB
1/8" RESILIENT TILE
1/2" EXPANSION JOINT
ERTICAL SECTION

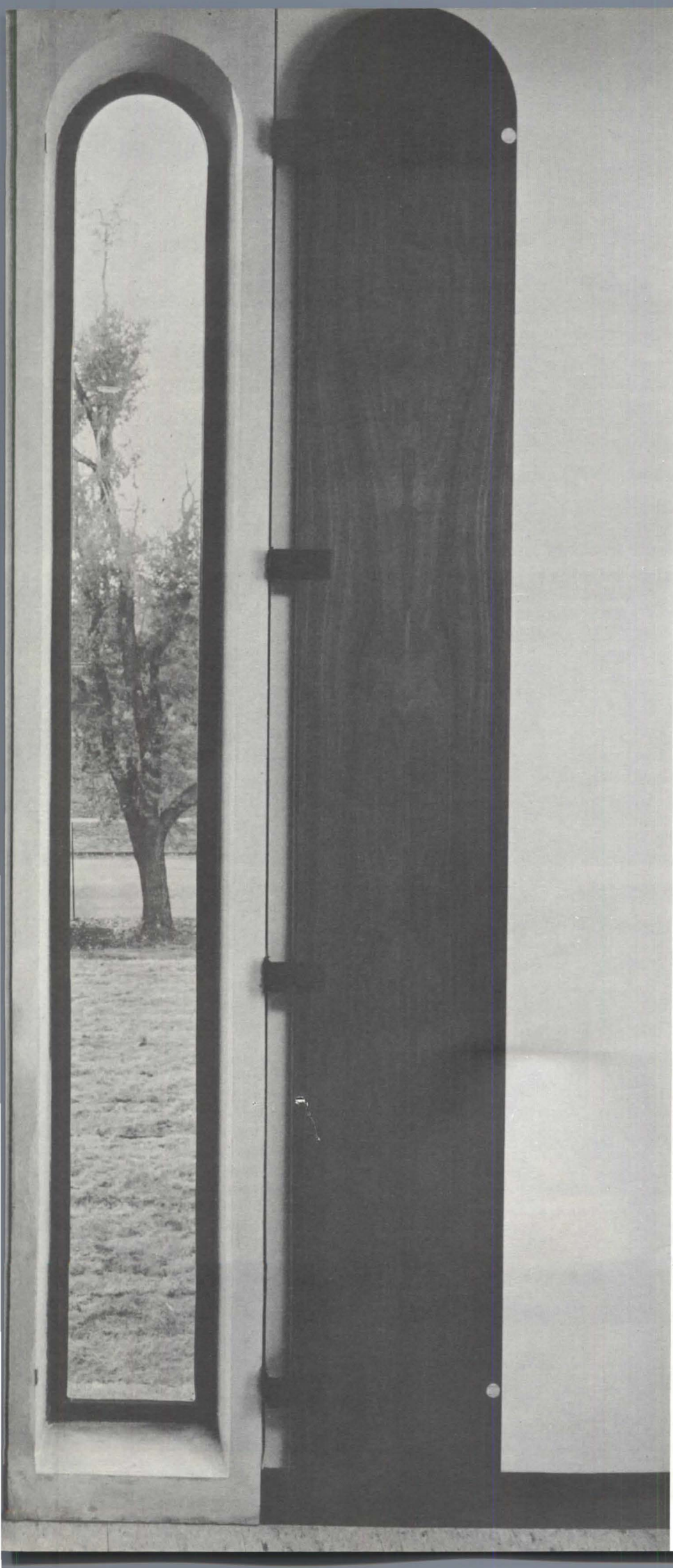


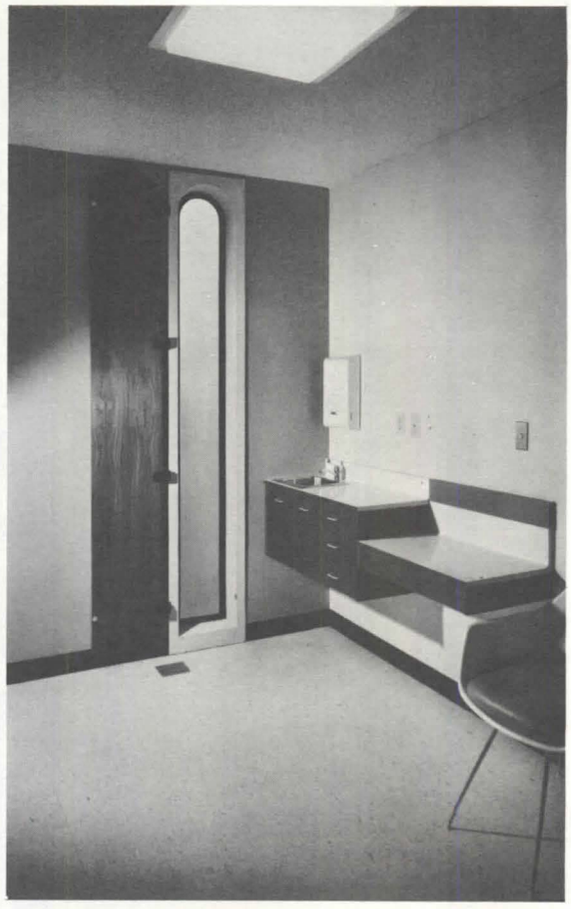


The slender arched panel, sometimes glazed, sometimes solid, makes a graceful rhythm within the larger rhythm of the structure. It is only in the waiting rooms that the smaller module is dispensed with, and windows are broad and undivided (top). *In the doctors' lounge above the pharmacy—the fourth part of the pin-wheel plan—fenestration changes back, for reasons of privacy, to the small rounded windows* (above right). *Directly outside the waiting rooms, and over the main entrance, the architects have extended the precast-concrete frames to form two-story courtyards, "to provide a visual definition between the waiting areas and the surrounding community." These diverting courtyards are colorfully planted (during winter there are bird feeders), and provide intriguing patterns at the intermediate level* (above left; and left bottom).

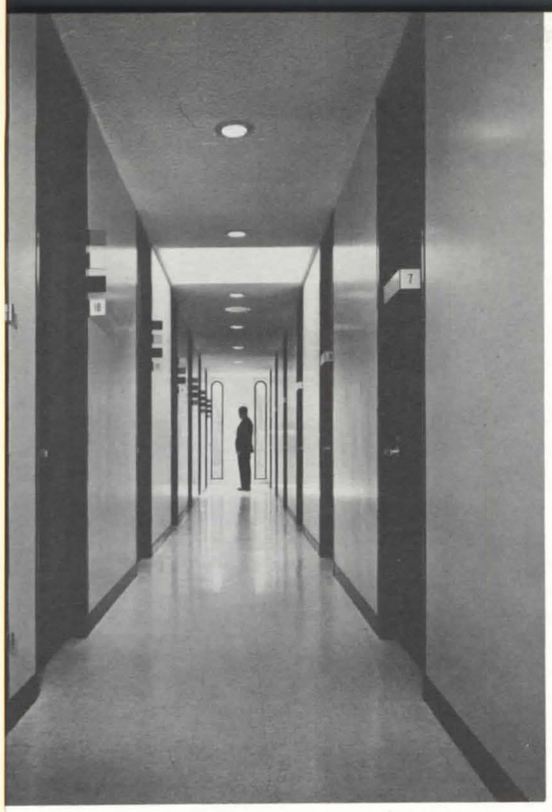
PLAN SECTION

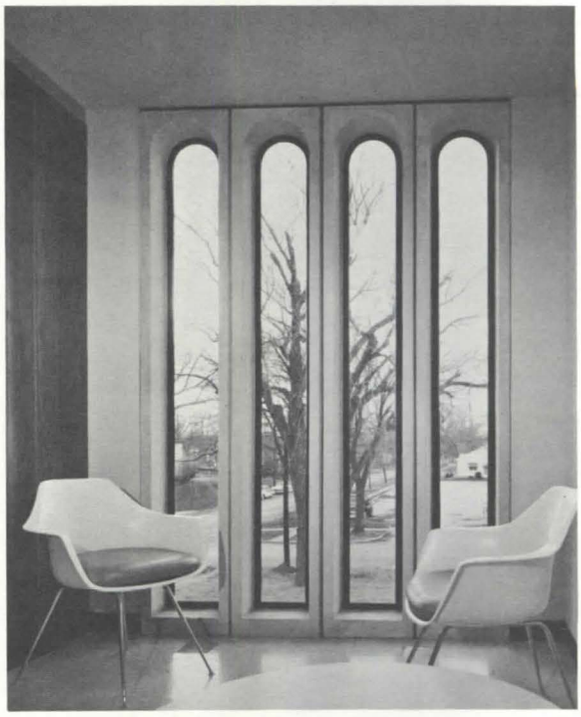


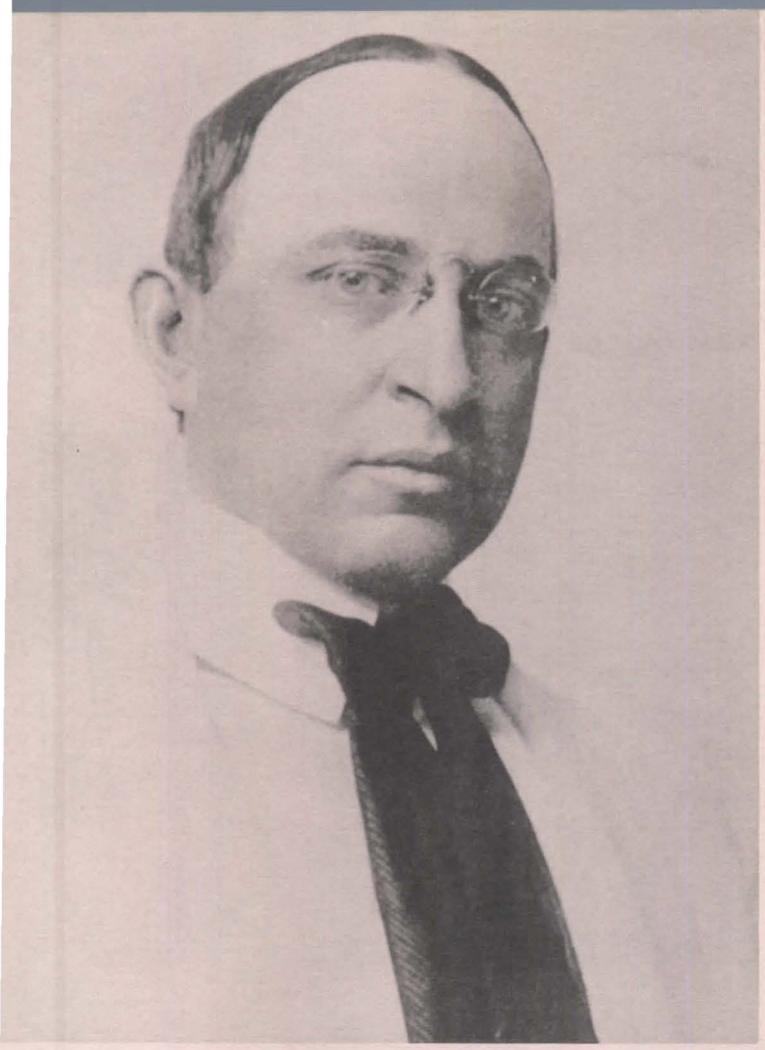




Once the patient gets into the doctor's office, his case is largely in the hands of the healing arts. But the art of architecture can go a long way toward the effective practice of medicine, as it does here at McFarland Clinic: the architects have created a building that emanates a brisk efficiency, a bright warmth, and a thoroughgoing acceptance of newest methods. One example of the excellent detailing is the arched modular panel: it is transparent for department corridors and offices (acrosspage, top left and right) ; *translucent for examining rooms* (above) ; *and fitted with a hinged walnut panel for occasions when natural light must be excluded* (left). *The shape works equally well from within and without.*







LOUIS CURTISS OF KANSAS CITY

BY FRED T. COMEE

The life of an enigmatic architect, who lived and practiced at the turn of the century, has been returned from oblivion. Although he is almost completely unknown today, buildings of this individualist are progenitors of some of our present-day structural and aesthetic concepts.

On the walls of a third-floor storeroom in an old building in Kansas City, Missouri, these words are inscribed:

> —"Our doubts are traitors and make us lose the good we oft might win by fearing to attempt."
> —"I will go into the desert and dwell among ruins. I will interrogate ancient monuments amid the waste places of vanished empires."

These were the maxims by which an enigmatic architect named Louis Curtiss lived. This room was once a part of his luxurious apartment in the building he designed and built for himself in 1908. Here, at 1118 McGee Street, his office was located **(1)**, and here his life ended nearly 40 years ago.

Louis Curtiss is vaguely remembered as a strange and eccentric man of exceptional talent, one who combined unusual originality with a strong feeling for traditional styles. An early proponent of simplicity in design and the straightforward expression of structure, he belonged to the avant-garde of his time and was opposed to the prevailing current of neo-classicism. His works range from cottages to railroad stations, theaters, hotels, and a World's Fair building. He designed the first metal-and-glass curtain-wall building, which was also probably the first to use rolled-steel sections instead of built-up ones for the columns of its structural frame **(2, 15)**. He pioneered in the development of reinforced-concrete construction and delved deeply into the principles that govern its use. Many of his buildings are progenitors of some of today's structural and aesthetic concepts, significant contributions to the evolution of "modern architecture," and some bear the mark of distinction. Yet even his best works, like the man himself, are almost completely unknown.

Louis Curtiss was an individualist. Strong willed, independent, and uncompromising, he was a man of strong convictions, which he rarely hesitated to express. His voice was authoritative, his vocabulary unusually large, and his personality dynamic. Though always polite, his attitude was often unsympathetic to the aesthetic notions of prospective clients. About 5′-6″ tall and of medium build, he strove constantly for self-expression and was inclined to be dramatic in both manner and attire. He dressed well, as befit the gentleman he was, always wearing an ascot tie, and frequently a "rough-rider"-type fedora, white suits and shoes. Although he never drank, he smoked cigarettes incessantly; and while he paid his rent in gold coin, rather than by check, he cut his own hair. Inevitably, he was always regarded as being somewhat less than conventional.

Primarily intellectual in his interests apart from architecture, Curtiss was an avid reader, and a student of philosophy and religion as well as archaeology. His conversation was full of profound observations and quotations from his books. One of his favorite reflections on life, drawn from the Chinese philosopher Lao-Tse, was that, to a man lying on his back, a column assumes the aspects of a beam. He was also zealously devoted to the Ouija board, made his own planchette, and often sought the counsel of "Romeo," his fancied guide in the spirit world.

Throughout his life he rarely talked about his origin or family background, dismissing such inquiries by saying he was an orphan who had run away. Although at first he mingled in the social life of Kansas City, he was not a good mixer, and

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rs passed he increasingly isolated himself. At the
s solitary death in 1924, he had been professionally
r several years and was a virtual recluse.

fe

ngleton Curtiss was born in Belleville, Ontario, on
5, the fourth of six children, and the second son of
lvira and Don Carlos Curtiss. His father was a
dry goods merchant of Canadian origin, with stern
forehead, piercing blue eyes, and an unruly red
mother was of French ancestry and had come to
rom the Norwalk (Ohio) area 10 years earlier, after
of her first husband. She supported herself and her
ghter by teaching painting and the harp in a ladies'
t was apparently from her that Louis inherited his
lent. She may also have been an inspiration for the
at embellish some of his buildings, for the surviving
of her art depict fruits and vegetables, vines and
th remarkable realism.

ouis was almost 17, his father died. Fifteen months
ne, 1884, his mother also died and the family was
Information about this period and the several years
ed is scant. It is known, however, that one of the
girls (Agnes Lillian) and the youngest child (Julia
lyn) went to live with their married half-sister,
ght Crowell Fairbairn, and ultimately moved with
eiser, Idaho. Presumably, Louis also went to live with relatives for an unknown period of time.

If he was not already in college at the time of his mother's death, young Louis probably enrolled at the University of Toronto in the fall of 1884. Whether he graduated or left prematurely is not known, but from Toronto he went to Paris, reportedly on a scholarship, to study architecture at the École des Beaux Arts. There is no information about his length of attendance there, nor of his record of accomplishment. Packets of picture postcards that he sent his half-sister suggest that he traveled abroad for a time upon completion of his studies. Apparently he was a poor correspondent, for none of the cards bear messages and no letters from him at any time in his life have been found. It may have been during this period that Mrs. Fairbairn complained about not hearing from him and asked for a picture to assure her that he was well. He sent a small tintype of himself, which shows him in profile, wearing a derby and smoking a big cigar.

Chooses Kansas City

How it happened that Louis Curtiss chose Kansas City as the place to launch his career is a matter of speculation. Well established there were the Corrigan brothers, who had migrated from tiny St. Chrysostome, Quebec, shortly before the Civil War. Tom, the elder, had become prosperous as owner of the Corrigan Horse Car Railway Company, which he had founded about 1870. When the several independent streetcar lines in the city were consolidated under one ownership, he became

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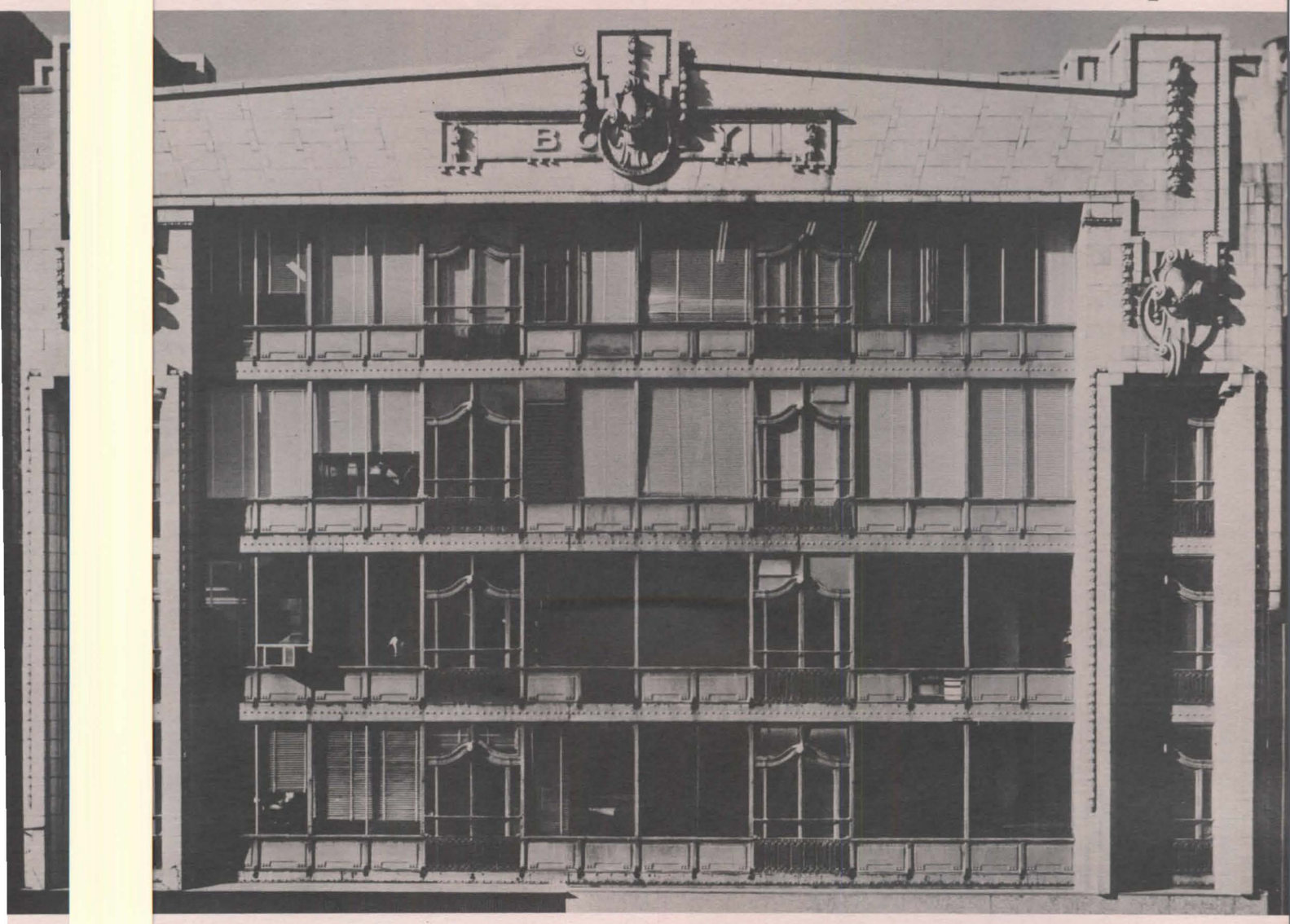

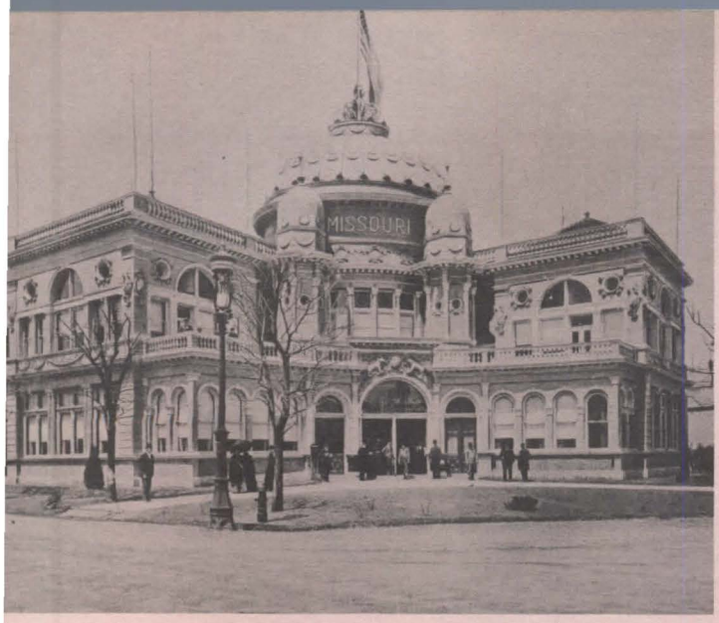

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president of the Metropolitan Street Railway Company. He also had numerous real estate holdings. His younger brother Bernard was a successful builder. It is reasonable to assume that Curtiss knew of their success and had some contact with these former countrymen. He also must have known that the great commercial prosperity in the Southwest in the 1870's and 1880's had given rise to a building boom in Kansas City, beginning about 1885. Widespread architectural attention had been attracted by a competition held in 1886 for the design of a new Board of Trade Building. All but one of the competing architects were from outside Kansas City, and the commission was won by Chicago's Burnham & Root. During this period, a number of prominent architects forsook established practices in the East to open new offices in Kansas City, hoping to share in its growth and in the building of the expanding West. Foremost among these were Henry Van Brunt, a Fellow of the AIA and its national secretary in 1861, and his partner Frank Maynard Howe, from Boston. Holding such promise both for seasoned architects and for his fellow Canadians, Kansas City was an easy choice for a self-confident and eager beginner like Louis Curtiss. Yet the possibility of his having worked for at least a short time in another city, perhaps Chicago, cannot be ignored, although no confirming evidence has yet been found.

Only Partnership

Louis Curtiss must have arrived in Kansas City about 1890, and soon thereafter joined a young contemporary, Frederick C. Gunn (1865–1959), as partner in the firm of Gunn & Curtiss. Their earliest building was the Missouri State Building, which they designed for the 1893 World's Columbian Exposition in Chicago **(3)**. For two young men in their twenties, winning such a commission must have been a most exciting accomplishment. The only other Missouri firm represented in this great world's fair was the venerable Van Brunt & Howe, members of the Architectural Commission which conceived the entire investiture for the exposition, and were architects for the Electricity Building in the Court of Honor.

In the course of their association, Gunn & Curtiss also designed the Church at the Soldiers Home in Leavenworth, Kansas **(4)**; the Progress Club House **(5)**; and a number of residences in Kansas City and Liberty, Missouri. In association with F. E. Hill, they designed "Oak Hall," the sprawling and frequently enlarged residence of Colonel William Rockhill Nelson, founder of the *Kansas City Star*. Located at 45th and Rockhill Road in Kansas City, it was demolished after the Colonel's death to make way for the construction of the Western Gallery of Art. However long this partnership with Gunn endured, it was the only time that Curtiss practiced in collaboration with another architect.

Establishes Own Firm

During these initial years of his residence in Kansas City, Curtiss lived in an apartment near 13th and Cherry Streets, and as his practice grew so did his affluence and his individuality. He was one of the first men in the city to own and drive an automobile, and was one of the founders of the local auto club. In his high-seated *Winton runabout*, he became a familiar sight speeding along the boulevards, often in the company of some comely young lady. Later, in the era of "any color car so long as it is black," he characteristically drove a white Maxwell. When cars became quite common, he owned the first European car in Kansas City.

The Baltimore Hotel

The decade or so that followed his partnership with Gunn was a time of great accomplishment for Curtiss. In 1898, he was

ioned by the Corrigan Brothers Realty Company to is first large project, the Baltimore Hotel **(6)**. Located ormer site of The Merrill Lumber Company, some of t valuable property in town, this building became a sed project, the first of which was a six-story, 160-room on the corner of 11th and Baltimore Streets. Although rigan brothers owned the land, Curtiss was actually as architect by Ewins and Dean, operators of four ı Kansas and Missouri, who who persuaded the Cor- build for them on this property. As part of the cost project, Louis Curtiss was sent to Europe for three for research.

nitial portion of the Baltimore Hotel (140′ x 117′) was bearing masonry construction with interior framing of l wrought iron. Both the concrete floor slabs and the partitions were "of expanded-metal construction," an on at that time, and the building was one of the first ity to be considered fireproof. Its brick exterior walls thick at grade, tapering to 18″ at the top, and the for the mortar with which they were laid had come from y as ballast in sailing ships. In 1901, two stories were ncreasing the number of rooms to 225, and in 1904 the ries of wall-bearing construction were extended south- '. In the fall of 1907, a 10-story, U-shaped, steel-framed was built on the remaining 75′ lot, and the main of the hotel was moved to 12th Street. It now totaled 5 rooms. This addition was framed with steel girders t-up box columns having 16″ wide-flange core sections nnels and flange plates. Column spacing was approxi- 25′ on centers in both directions.

lly opened on June 10, 1899, the Baltimore Hotel l to the era when luxury was measured in terms of red plush, and plenty of space. It was one of the most ent hotels in the West, and, like the Palmer House in and the Brown Palace in Denver, it was intended to lm the spectator. Its Peacock Alley dwarfed a similar cut through the Willard Hotel in Washington, and all blic areas were finished in fine "vert antique" scagliola work. There was a Pompeian Room with a great im- arble fountain; a James the First Room with colorful a columned Doric Room; and a Heidelberg Room for ly—all with intricate cast-plaster ornamentation and olored stenciled painting. The twin bedrooms could commodate four additional beds and the suites would best of Manhattan apartments. For nearly 40 years, nost flamboyant days of Kansas City, the Baltimore ıs the center of all that was big and important—fashion uto shows, festive parties, and banquets. But these s passed, and in 1939 it was torn down to make way l stores and a parking garage.

illis Wood Theater

lis Wood Theater was built in about 1902 at the inter- f 11th and Baltimore Streets, diagonally across the om the Baltimore Hotel **(7)**. Writing in 1904, Frank l Howe ranked this "among the most important of the ildings . . . designed by Mr. Louis Curtiss after the French school, its front entirely in gray terra cotta." l to have been inspired by L'Opera in Paris, and Joe , the English actor who played Rip van Winkle for ars, considered it the finest and most beautiful theater nited States. Running under the street from The Willis the Baltimore's Heidelberg Room was a white-tiled known as Highball Alley, for between-the-acts con- of thirsty gentlemen.

l has it that during construction of The Willis Wood,

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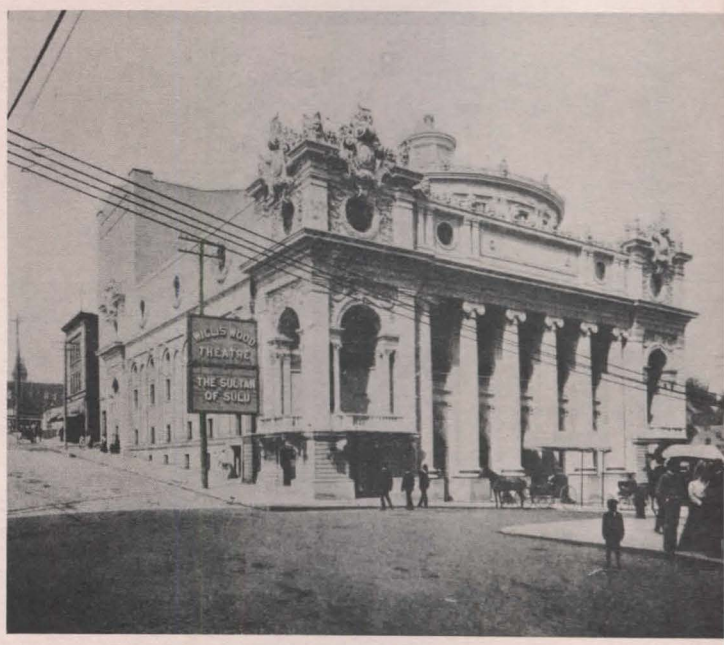

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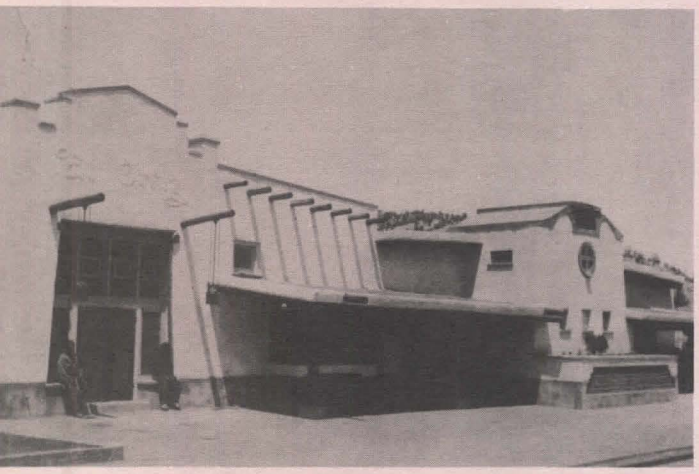

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Louis Curtiss suddenly decided to give a dinner party in the theater. A temporary ramp was built up to the stage, and, on the appointed night, the invited guests picked their way through construction debris to ascend to the banquet table. Waiters from the Baltimore Hotel served the dinner through Highball Alley. Later, while "The Merry Widow" was playing, there was a Christmas banquet for the cast, similarly served in the upstairs foyer. With the advent of Prohibition, Highball Alley lived up to its name by becoming the repository for the Baltimore Hotel's stock of wines and spirits, and from it private parties were supplied for several years.

Other Commissions

Commissions came in abundance in the following years, including stores, offices, apartments, residences, churches, theaters, banks, and warehouses, with only one major interruption to their execution. About 1905, there was a spectacular fire in a stockyard building in "The Bottoms" area of Kansas City near the river. With hordes of others, Curtiss went to watch, and in the crowd he was apparently exposed to smallpox, which meant he had to be isolated for the next three months.

In the early years of this century, the West was still a wilderness. Foremost among those who helped to civilize it were the people of the Santa Fe Railroad and the Fred Harvey System, and in 1905 Curtiss began to do work for both. In 1906, the famous El Bisonte Hotel **(8)** was built from his plans in Hutchinson, Kansas, followed in 1907 by Harvey Houses and depots in Emporia, Syracuse **(9)**, and Wellington **(10)**, Kansas. In 1909, the little El Ortiz Hotel **(11)** was built in Lamy, New Mexico. He also designed an addition to the El Tovar in Grand Canyon, Arizona, and a hotel and restaurant in Sweetwater, Texas. In 1911, the Joplin, Missouri, Union Terminal **(12)** was built, and in 1912 The Union Terminal in Wichita **(13)**, his largest up to that time. The Bernard Corrigan House **(14)** was completed in 1913.

His growing reputation in this field attracted other clients. For the Rock Island Railroad he designed a depot in Moline, Illinois. For the St. Louis, Brownsville and Mexico Railway he designed an office building, a hotel, help's quarters, and a depot in Kingsville, Texas. The hotel, at least, was completed. For the S. L. and S. F. Railway, he planned depots, restaurants, and other structures in Victoria, Vanderbilt, and Harlingen, Texas, and Hugo, Oklahoma; for the G. C. and S. F. Railway, a hotel and restaurant addition in Temple, Texas; and for the R. & N. T. Railway, depots in Sweetwater, Snyder, Post, and Lubbock, Texas. Two renderings made in 1910 for large terminals suggest that Louis Curtiss also entered the railroad-sponsored competition for the design of the Union Station in Kansas City, which was ultimately won by Jarvis Hunt, nephew of the first president of the AIA.

A Lovely Kansas City Lady

These were the years of prosperity and prominence for Louis Curtiss, probably the busiest and happiest of his life, and sometime early in their course his one great romance developed. She was a lovely young Kansas City lady twelve years his junior, and although her father disapproved of their friendship because of the difference in their ages, they were together as frequently as possible. Each year on Christmas Eve, they would roam through the stores with a vast supply of money, and he would impulsively buy gifts for her, for her two young nieces, and for his few close friends. One winter's night, when she was convalescing from an illness, he arrived at her door in a carriage specially heated by braziers. After warming several flowing scarves by her fireside, he wrapped them about her and whisked her out to the carriage for a drive. With one or both of her nieces, she often visited his apartment and at these times he always had small surprise packages hidden about the place for the little girls to find. Unwrapping the gifts was usually an anticlimax, but on one occasion he gave the older girl a beautiful unset cameo. Louis told her he had found it while

g through old ruins in Italy and that someday it would shed. She remembers him as a strange, dramatic man l fascinating stories.

in 1907 or early in 1908, the romance ended with the ady's marriage to another man. Curtiss was close to ple and this was a great blow to him. It may well have cause of his increasing withdrawal. He never married, ly because he felt that marriage encroached too greatly work of an investigator, and exacted vows that were honored. But he did not become a misogynist, for he ned that women should be given every possible ad- in education, since the duties of a home usually cut f from the daily learning that man acquires as he the world.

Metal-Glass Curtain Wall

r 1908 was one of great achievement as well as great intment for Curtiss, for in April construction was n a six-story building for The Boley Clothing Company, orthwest corner of 12th and Walnut Streets in Kansas , 15). More of a detriment than an asset to his pro- l reputation at the time, this was a building of revolu- design for its day, and it may well reflect his attitude ake of his shattered romance. Man makes his greatest in times of adversity, and this is the masterpiece of urtiss. Pointing the way for the future, and departing ely from established tradition, it is enclosed in flat f glass and steel and is conspicuously lacking in the tation and overhanging cornices then so popular. It sidered stark and barren, even ugly, but in reality it ted by more than 40 years the entire range of metal- s curtain-wall construction that became the architec- iom beginning in the 1950's. Not until Willis Polk's Building, begun in 1915 in San Francisco, was there ior of comparable importance. Still in use today, the uilding is a steel-framed structure, possibly the first in olled wide-flange sections were used in lieu of built-up s for the columns of a building. Its floors are canti- beyond the columns about 5 ft; spandrel plates of steel express the presence of these floors, while sheets exclude the weather.

r-story derivative of The Boley Building was built at e Street in St. Louis in the spring of 1910, for William nd the occupancy of the Ideal Clothing Company (16). till stands in good condition.

wo-story store that was built at 1105 McGee Street May, 1906, was undoubtedly a prototype of The Boley . In one respect it was of even greater significance, nticipated the buildings of today in which the floors ended from rooftop trusses. Not only its façade of ass, sheet copper, and terra cotta, but also the entire ucture for the bays directly behind the façade were ed by 1½"-square steel hangers from a 42" plate girder of line. The three-story store at 3240 Main Street, built e same time, appears to be of similar construction, but is known Curtiss had no further opportunity to explore ed building structures.

s Own Office Building

summer of 1908, with the Baltimore Hotel additions completed and The Boley Building and various rail- jects well in progress, Louis Curtiss was well estab- inancially affluent, and spending freely. Fearing that l squander all his recent gains, his friend and mentor Corrigan encouraged him to build for his own security years. Accordingly, in December, 1908, Curtiss onstruction of a three-story concrete-framed building 5') for himself on land leased for 99 years at 1118 Street in downtown Kansas City (18). This also was ronted building, with mullions and spandrels of cypress with painted galvanized steel sheet, a type of construc-

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tion common early in this century. Casement windows were of wood, and mosaic tile bands in red, blue, and yellow accented the spandrel areas. On the ground floor were stores, on the second floor his office and drafting room, and on the third his living quarters.

Louis Curtiss apparently always had only a small office staff consisting of himself, an assistant architect, a chief draftsman, and a teen-aged apprentice as "tracer" and messenger. So far as is known, he did all his own structural design work. Biographical notes on architect Frederick E. McIlvaine (1873–1927) indicate that he began his architectural training under Curtiss while still in his teens, and remained in his office for a number of years, ultimately becoming the assistant architect. Before leaving to open his own office, he worked on a number of the important Curtiss buildings, including the Baltimore Hotel and the Willis Wood Theater. The only other person whom it has been possible to identify as having worked in the office is an F. S. Wilson, who later worked for the city.

Neither pictures nor drawings of the Curtiss apartment at 1118 McGee Street have been found. Although it has long since been demolished, a description does exist and reveals it to have been an unusual place quite in keeping with the character of its occupant. Both living room and bedroom flanked a rooftop courtyard and surveyed the city through walls of floor-to-ceiling glass. Among the major features of the living room were a wall of inset bookshelves faced with sliding plate glass; a central ceiling recess from which hung light globes on black cords of different lengths; a battery-powered clock whose decorative face was flush-mounted in the wall; a huge black crystal-topped table; numerous niches for *objects d'art* and flowers; an illuminated glass drawing board hinged to the wall; and a phonograph in a cabinet of his own design beside which stood an electrified tower of translucent ivory for a solitary light source when listening to music.

On one side of the living room was a dining alcove and on its widest wall a painting with simple narrow black frame. On the table stood a bronze lamp with a figurine standing in the cup of a lotus flower. In the base of the lamp, a horizontal electric fan was mounted to blow the air upwards. Opposite this alcove was a recessed lounge or day bed on a dais, and concealed behind it a ventilator to admit night air.

Period of Meditation

Although for a time he continued to be reasonably busy, the Curtiss fortunes began to wane in 1913, when his greatest patron, Bernard Corrigan, suddenly died. Residential work at this time included the A. M. Riegelman House **(19)** built in 1914 for Curtiss' friends, the Norman Tromanhousers; the Wookey House **(20)**, Toronto, Canada, built about 1915, was the last house he designed. With the outbreak of World War I, his practice came to a virtual standstill. Hopefully, he often said that when the "Big Money" began to spend again his practice would resume, but it never did.

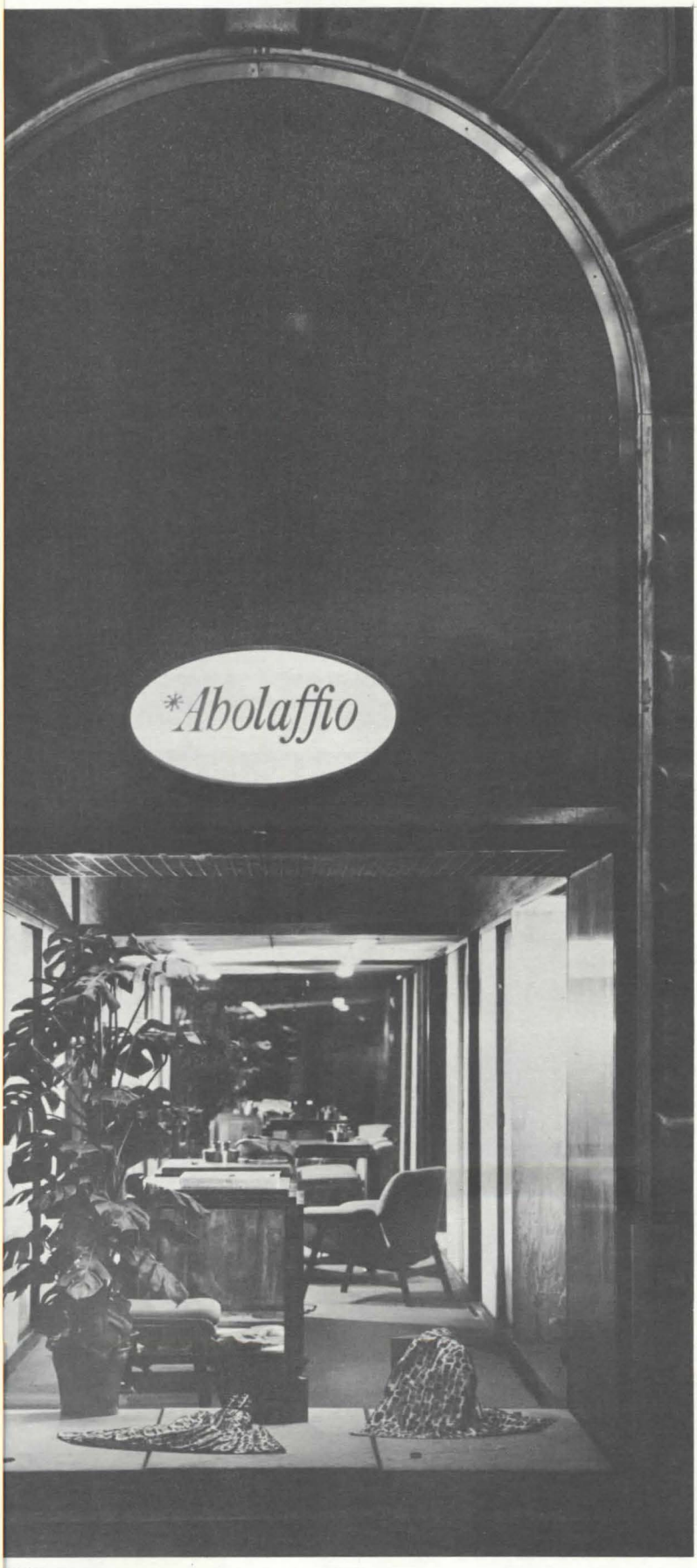
Naturally incapable of idleness, Curtiss became completely engrossed in what he called "Graphic Statics," experiments in the relationship of the principles of solid geometry to the art of building, particularly in reinforced concrete. His office became cluttered with celluloid models of all shapes and sizes with which he could visually demonstrate, at scale, the workings of stresses in structural members as loads were applied. In connection with this work, he is said to have carried on an extensive correspondence with a professor in Cambridge, England. Lost in intense concentration, Curtiss would sit for hours before these models, oblivious to chance visitors. Few people understood what he was doing, and most of those who were aware of it believed he had completely lost his mind. Since his inherent eccentricities did little to dispell this impression, he became increasingly withdrawn and alone. Now having little use for the upper floors of his building, he built several small office suites and apartments and rented them to a doctor, a dentist, and some struggling young artists. These tenants, as well as a tall, lanky, and devoted Negro servant named Walter, who cooked and kept house for him, became his principal contacts with society.

About 9 o'clock on the evening of June 24, 1924, while working at the drawing board in his apartment, Curtiss was siezed with a violent coughing spell. Alone and unable to summon aid, he died of a ruptured aortic aneurysm. Probably at his own direction, he was buried in an unmarked grave in Mt. Washington Cemetery, Kansas City.

Though he left a certain imprint on our architectural heritage, the spark of greatness in Louis Curtiss was neither fully realized nor widely recognized. Little remains now to recall his life, except for a few old buildings and two noble inscriptions on a storeroom wall. ■

About the Author

Mr. Comee first became aware of Louis Curtiss in 1957 when he saw The Boley Building during a visit to Kansas City. His curiosity aroused by the total lack of information about its architect, he began a spare-time search for Louis Curtiss in the course of his nationwide travels for the Construction Market Development Division, United States Steel Corporation. Many architects and laymen around the country provided information, photographs, and assistance, and Mr. Comee wishes to acknowledge in particular the kind interest and help of the following: Mr. Angus McCallum, AIA; Mr. Gerre Jones, Executive Secretary of the Kansas City Chapter, AIA; Mr. James Jackson, retired Real Estate Editor, Kansas City Star; *Mr. Loomis E. Phillips, Division of Buildings and Inspections, Kansas City; Mr. Tom Menaugh, The Fred Harvey System, Chicago, Illinois; Mr. Charles O. Coverley, The Atchison, Topeka and Santa Fe Railway System, Chicago, Illinois; Mr. Alex C. Rindskopf, Wilmette, Illinois; and Mrs. Robert L. Shorey, Long Beach, California.*



VAULTED BOUTIQUE

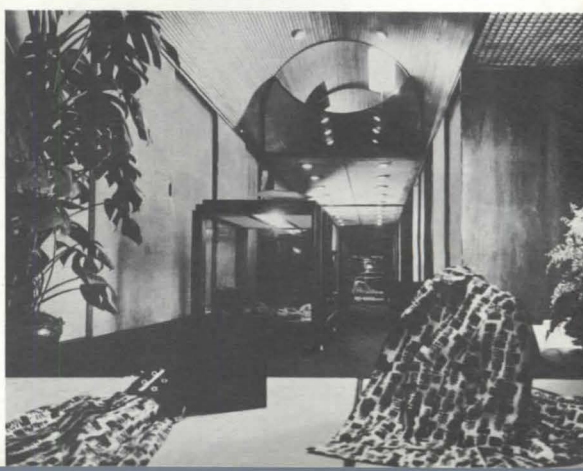
SHOP FOR ABOLAFFIO • GENOA, ITALY • GIANFRANCO FRATTINI AND FRANCO BETTONICA, ASSOCIATED ARCHITECTS

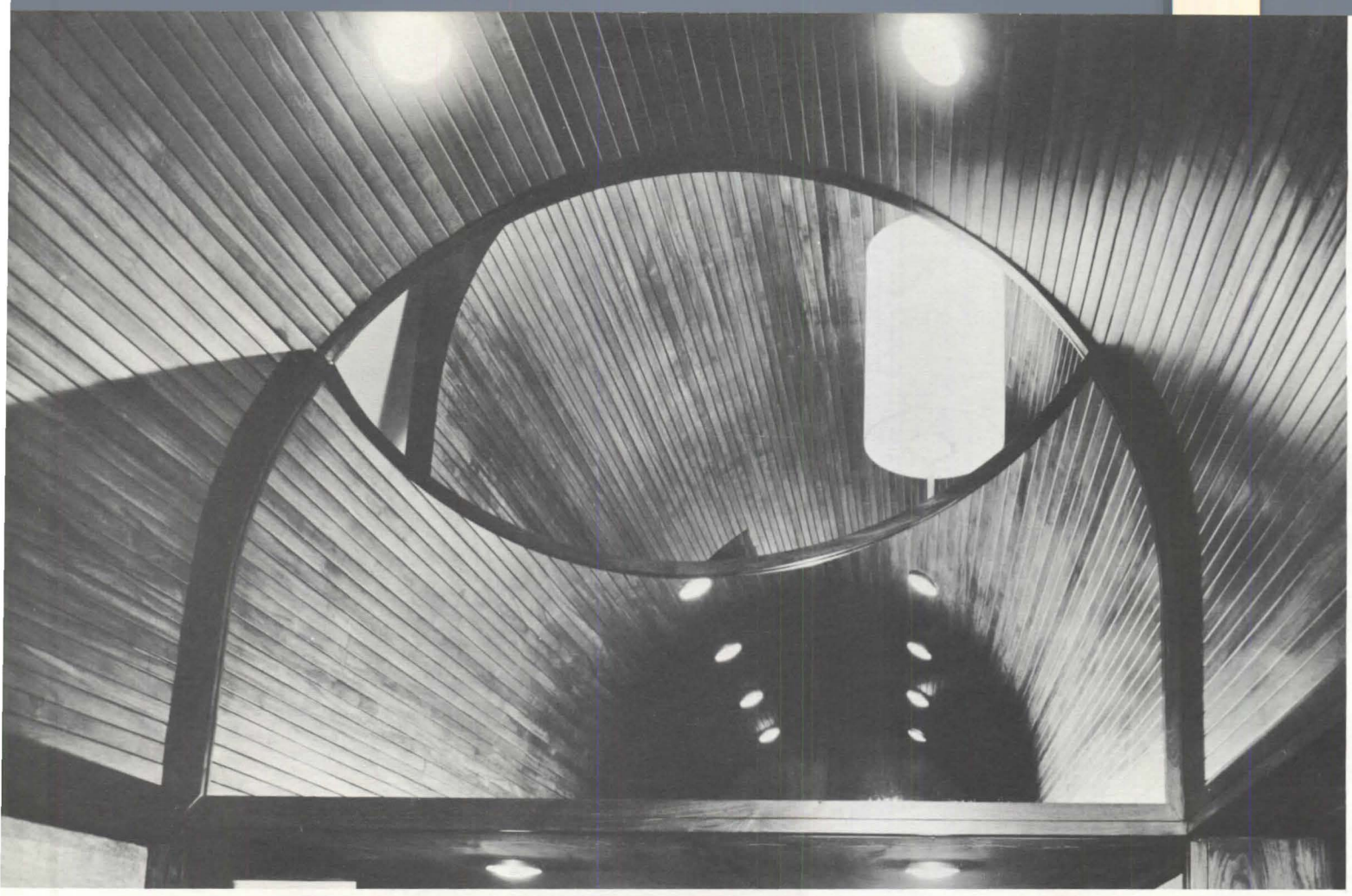
Of all the interior spaces that receive careful design consideration in this country, our restaurants, bars, and shops are least often strong statements. One cause of this must be that the required "corporate image" is usually based on only the faintest ephemera. Resulting designs therefore seem thin and brittle—merely meretricious technical flourishes that have no relation to reality and seem detached from everything but the strained desire to be sensational. The Italian shop shown on these pages has panache, but despite its surrealistic effects it also has design reality. This is due to the architects' strict adherence to the program and to their using the building exterior as the point of departure for the design.

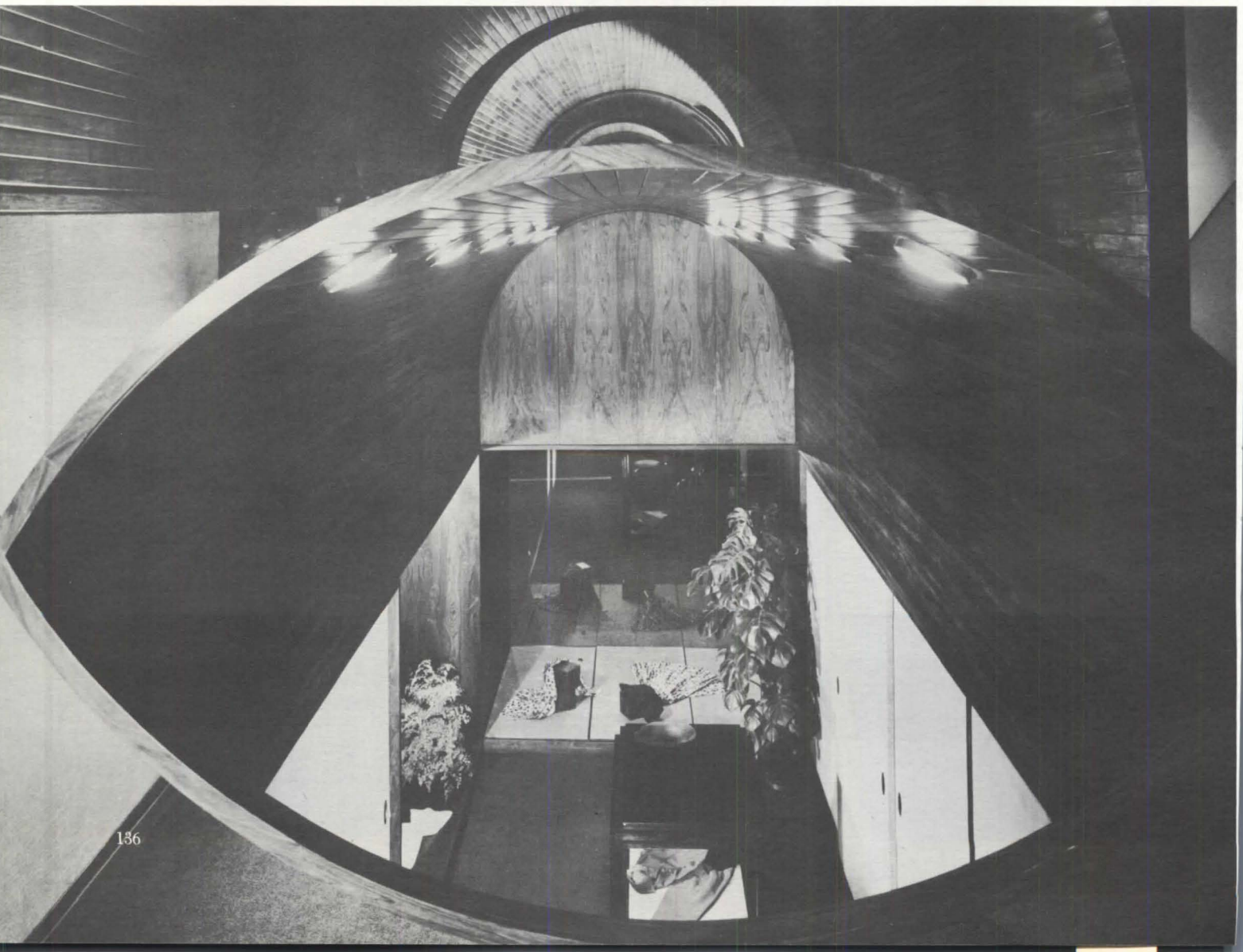
When the clients planned to expand the range of their de luxe womens' merchandise, a radical remodeling of their space was necessary to accommodate the new items.

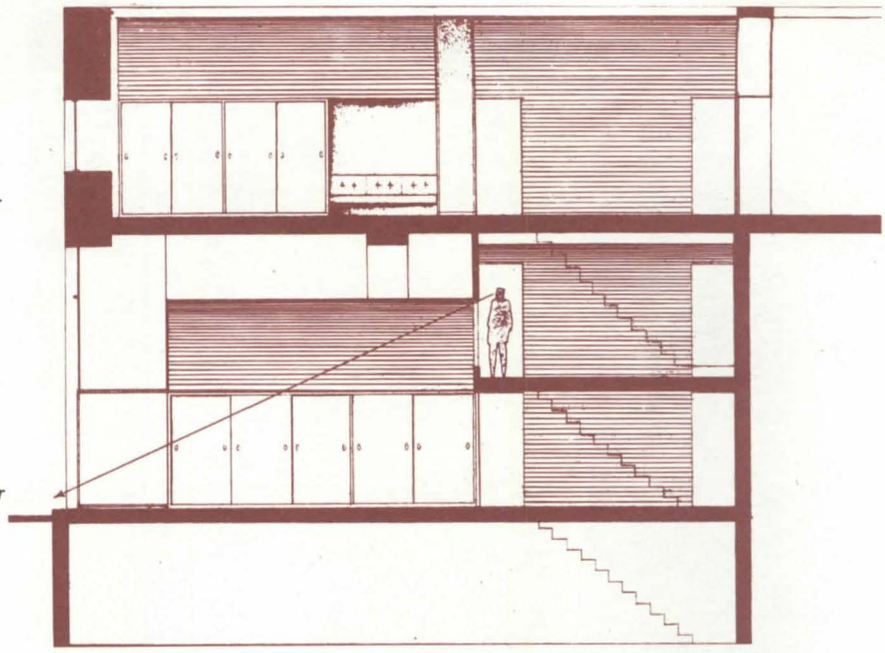
Before remodeling, the selling area was limited to the ground floor. The architects moved the second-floor workshop to the basement and created a new sales area in its place. They replaced a circular stair by straight flights along the inside wall and exploited the high ceiling of the main floor to create a mezzanine over the rear half of the space at the stair landing. This provides an additional sales area.

When it came to design details, the architects capitalized on the masonry arches of the building and restated them on the interior in vaulted ceilings of palisander, which are the dominant motif of the design. On the main floor, the barrel vault over the new mezzanine was left at nearly the height of the original space;







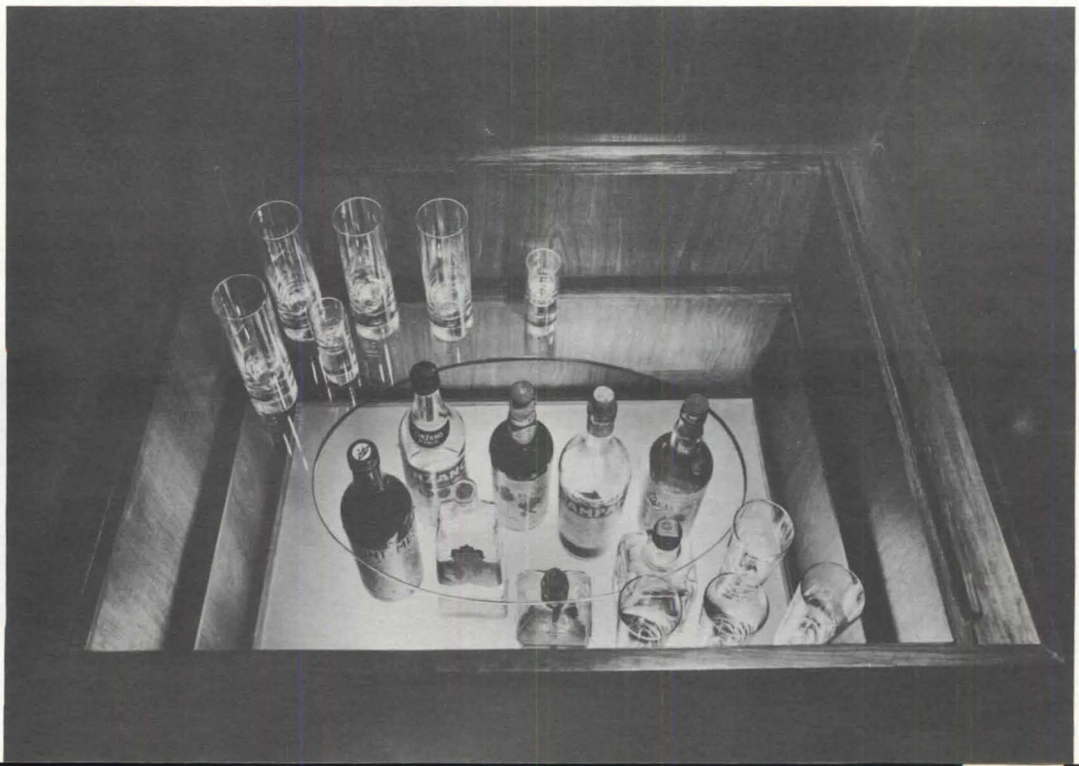


raph at top of facing a detail of that at n which a woman mezzanine is seen' he main floor. In ews, a lamp is vis- rough the elliptic . Below the opening irror that reflects wer, front vault. the woman turn her view through pening onto the oor would approxi- hat at bottom of page; surrounding liptic opening are that reflect the f the mezzanine.

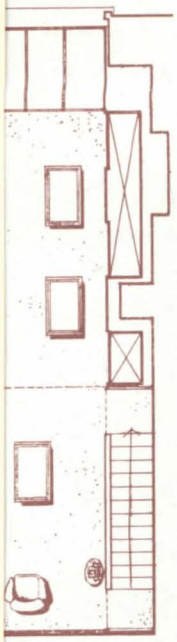
front of the shop, however, the lowered to give the narrow space portions.

the two unequal vaults meet at nine, an elliptic opening has ied by continuing the circle of nine vault downward into the railing. The divertimento of es and semicircles is reflected in n both sides of the mezzanine id, on the mezzanine side, above ig in the space between the two aults. Whether the mirrors here ie rear of each level actually he apparent size of the space, as claimed, or whether they de- by filling the planes with re- iear pattern could be debated. ition and the vault motif never- ake a strong statement of what tedly the most imaginative shop r.

The semicircle and the elliptic shape recur throughout, as in the new stair (above), *a bar* (below), *and drawer pulls* (facing page, left).

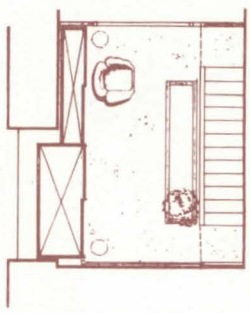


The second floor, formerly a workshop, has been made into a sales space (above and facing page, right). *A vaulted ceiling is interrupted in the middle by a floor-to-ceiling showcase; a narrow, vaulted passageway through the showcase restates the theme of vaults set at different heights. A small dressing room has been formed with a drapery on a semicircular track* (above).

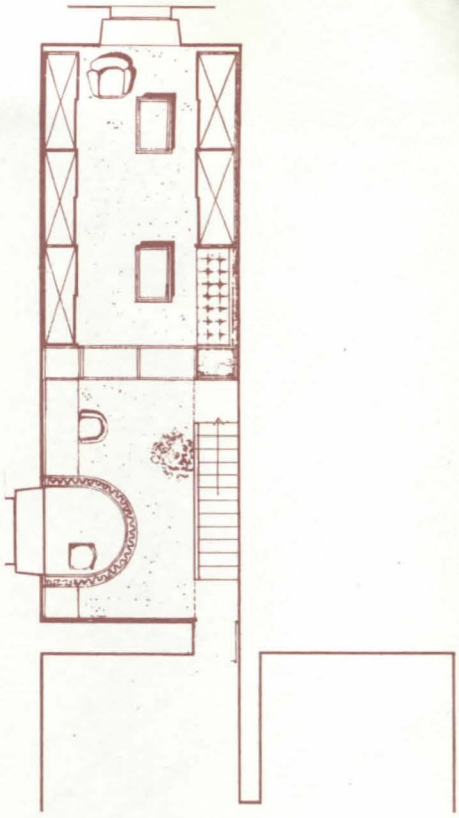


nd floor

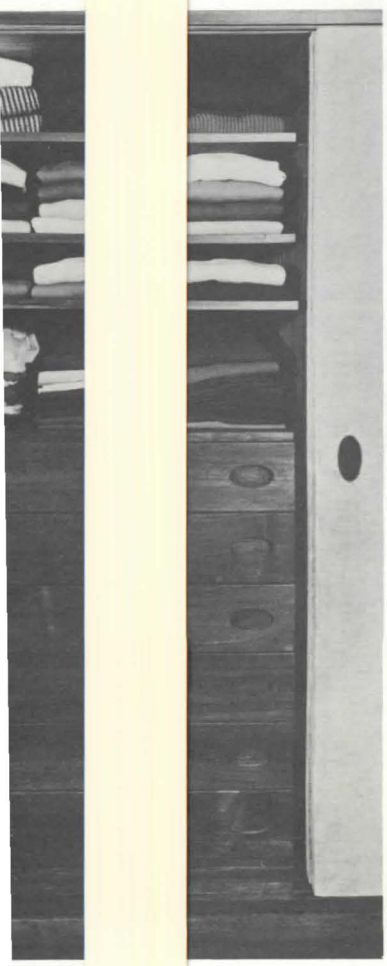
One enters the shop on the long side of the main floor, between two show windows (plan left). *The space is made to seem large by the show window on the narrow side and by a mirrored panel at the opposite end of the floor. Mirrors are repeated on the rear wall of the mezzanine* (plan below) *and on the rear wall of the second floor* (plan right), *behind the curtained dressing room. The new stairway has been located toward the back of the shop on the inside long wall. Storage cabinets are lined up on the long sides, their doors flush with the spring of the vaults.*



mezzanine



second floor



The labyrinthine impression created by reflections to infinity is at its most surreal in this view of the mezzanine. The elliptic opening is behind the flowers.

ide for a Preconstruction Survey

RT H. HALFF

to specifying a preconstruction udes a checklist of the informa- y required, plus notes that will n the proper data at minimum uthor, principal of the firm of Halff Associates, Engineers, exas, compiled the checklist own experiences indicated that ution between architects and engineers could be improved.

every project, the architect e important decisions on the preconstruction survey. A survey full and accurate information ential. An adequate survey at cost can only be obtained by tructions: first, on the informa- hould be obtained; and, second, curacy with which the work done.

The essential information gen- ired has been assembled in the ing checklist. This list can be nsmit the order and at the same nt the omission of some vital item ordered will increase the with the boundary survey in- usually the most costly, par- n a downtown area. A careful determine whether this work done will avoid unnecessary

of Accuracy. The architect ficult task in expressing the ac- h which objects will be located, izontally or vertically. Map emselves enter into lengthy, arguments on this point, mak- cult for an outsider to find a basis for comparison.

iculty arises because the engi- not occupy every point on a e. These lines are interpolated, n by stereoptical methods, from ints or points that actually have pied. Complete specifications de one standard for the control another for the contour lines. ations for these control points e classification of first-, second-, ourth-order surveying, as speci- Federal Board of Surveys and y 1925. First-order traversing closing error of position not to in 25,000; second order not to in 10,000; third order not to in 5000. (See Hodgson, C. V., *Second and Third Order Tri-angulation and Traverse*, U.S. Coast and Geodetic Survey, Washington 25, D.C.) Most preconstruction surveys will be adequate with third-order accuracy. With present equipment, second-order costs only slightly more and is comparatively easy to obtain. First order is used only in exceptional circumstances.

Specifications for the contour lines must take into account that the elevation of any point on a contour line, mapped either by ground or photogrammetric process, may be in error. Therefore, an allowable tolerance should be specified, separate and different from the control points. By properly including such a specification, the architect is then in the position of having to obtain a survey to check the map, which must be done by the higher order of surveying. Such a measure would

CHECKLIST FOR A PRECONSTRUCTION SURVEY

Boundary Information:
- P1. Street and Number ___
- P2. Lot and Block Number ___
- P3. City, County, and State ___
- P4. Legal Description ___
- P5. Names of Adjacent Owners ___
- P6. North Arrow ___
- P7. Engineer's Certificate, Signature, and Seal ___
- P8. Identification of Corner Markers ___
- P9. Encroachments or Protrusions ___
- P10. Boundary Fences and Ties to Actual Boundary Lines ___
- P11. Distance and Bearing of Each Boundary Line ___
- P12. Radius and Length of Each Curve ___
- P13. Tie to a Block Corner or Other Suitable Survey Marker ___
- P14. Easements with Their Purposes ___
- P15. Set-Back Restrictions — Front ___ Sides ___ Rear ___ Governmental Agency Having Jurisdiction ___
- P16. Zoning Classification ___ Governmental Agency Having Jurisdiction ___

Topographic Information:
- T1. Bench Mark, Including Elevation ___
- T2. Description of Bench Mark ___
- T3. Datum Used ___
- T4. Elevations — Distance between Grid Lines (If Required) ___
- T5. Elevations Adjacent to Existing Building ___
- T6. Elevations on Adjacent Property Where Drainage May Require Information ___
- T7. Location and Elevation of: Sidewalks ___ Adjacent Road Centers ___ Alleys ___ Dividing Islands ___ Curbs ___ Gutters ___ Storm Water Inlets ___
- T8. Type of Sidewalk ___
- T9. Type of Curb ___
- T10. Type of Gutter ___
- T11. Type of Paving ___
- T12. If Paving Is to Be Revised Adjacent to Property: Proposed Grades ___ Type of Pavement ___ Thickness of Pavement ___ Cross-Section of Proposed Street ___ Cross-Section of Curb and Gutter ___ Cross-Section of Sidewalk ___
- T13. Width of Curb Cut Allowed Department Having Jurisdiction ___
- T14. Standard Municipal Driveway Construction ___
- T15. If No Standard Driveway Plan, Indicate Standard Practice with Sketch ___
- T16. Open Ditches or Natural Water Courses: Width ___
- T17. Depth ___
- T18. Direction of Flow ___
- T19. Drainage Area ___
- T20. Department Having Drainage Jurisdiction ___
- T21. Gas Mains: Location ___ Manhole Location ___ Depth to Top ___ Size ___ Pressure ___ Existing Connection for This Property ___
- T22. Water Mains: Location ___ Depth to Top ___ Size ___ Existing Connection for This Property ___
- T23. Storm Sewers: Location ___ Manhole Location ___ Size ___ Invert Elevation ___ Grade ___ Capacity ___ Existing Connection for This Property ___
- T24. Sanitary Sewers: Location ___ Manhole Location ___ Size ___ Invert Elevation ___ Grade ___ Capacity ___ Existing Connection for This Property ___
- T25. If Sanitary Sewer Not Available, Include Standard Percolation Test In Accordance with U.S. Public Health Service Publication No. 526 ___
- T26. Buried Power Line: Location ___ Depth to Top ___ Size ___
- T27. Location and First Floor Elevation of: Existing Structures ___ Billboards ___ Trees over 4 in. ___ Poles ___ Other Structures ___
- T28. Subsurface Conditions (Cesspools, Septic Tanks, Foundations, Basements, Oil or Gas Storage Tanks, Walls, etc.) ___
- T29. Adjacent Buildings, Description as to Material, Construction, Height, Use. ___

Drawings:
- D1. Size (Use Multiples of 8½ x 11) ___
- D2. Hard Copy — Number ___ Reproducible — Number ___ Direct Prints — Number ___
- D3. Scale ___
- D4. Title Block: Name of Client ___ Name of Architect ___ Name of Engineer and Address ___ Scale ___ Date ___ File Number ___ Place for Revisions ___

be warranted only on a large, comprehensive project.

The best reference from which the architect can draw a specification is the *National Map Accuracy Standards.* Simply requiring the map to meet the latest edition of these standards will assure a minimum accuracy. (See "Symposium on National Map Accuracy Standards," *Surveying and Mapping,* Vol. XX, No. 4, Dec., 1960. American Congress on Surveying and Mapping, Washington, D.C.)

National Map Accuracy Standards provides for maps on publication scale of 1 in. equals 1667 ft, or larger, that not more than 10 per cent of well-defined points shall be in error by 1/30 in., and that vertically not more than 10 per cent of the elevations tested shall be in error by more than one-half contour interval. In other words, a building could be located on a map with a scale of 1 in. equals 220 ft and be off 6.67 ft, and still meet the specifications. Top of curb could be off 1 ft on a 2-ft contour interval map and meet the specifications.

Fixed objects on a building site require an accuracy in excess of *National Map Accuracy Standards.* A simple modification of the specs will be satisfactory, if it requires that all well-defined objects be located with the same accuracy as that required for the control points. By reference to these two standards, a short paragraph can cover the accuracy requirements. For example:

> "The accuracy of the control points, and all fixed objects, shall meet the requirements of third-order surveying of Federal Board of Surveys and Maps, 1925 edition. The topography shall meet the requirements of the National Map Accuracy Standards."

Aerial Versus Ground. Modern practice requires consideration of aerial versus ground methods for preconstruction surveys. The decision is nearly always dependent on whether the required accuracy can be obtained by aerial methods. After this decision, relative costs and delivery time can be used as criteria.

Photogrammetry as a profession has made rapid strides over the last few years and many experienced firms are now available. Regardless of skill of execution, however, certain limitations are inherent in the method. For instance, the location of existing buildings to within $\pm$ 0.2 ft has to be ground work. Determination of elevations to $\pm$ 0.25 ft has to be done by field measurement. Heavy foliage prevents determination of accurate ground elevations. Underground utilities must be accurately probed on the ground.

Generally speaking, if accuracy can be sacrificed somewhat, then aerial methods become possible, sometimes at a considerable savings in cost. Aerial topographic maps for tracts of 200 acres and up can be obtained for about $2.50 per acre.

Horizontal Control Points. If an on-the-ground method is used, then a control is usually a grid system or a closed traverse. Additional points are located either from the grid lines or by an angle and distance from a traverse point. The angle may be from a true or assumed azimuth, and the usual instruments are transit or alidade. Sometimes a combination of both methods is used. If asked for a preference, the architect may properly defer in favor of the engineer, except as it affects the future work. On a site where extensive work is to be performed over a long period of time, the grid system is recommended. On the other hand, if the site is completely occupied with this one project, then much can be saved, particularly on a rough site, with the transit-stadia or plane table method. One important item, in either case, is that permanent points of reference should be set and clearly shown on the drawings, so that the contractor can place actual construction on the ground in the correct position.

Elevations. It may be desirable to specify the contour interval, depending not only on the type of project, but also on the slope of the ground. A larger interval should be allowed for steeper slopes. On level ground, a 1-ft interval is customary, and 1/5- and 1/2-ft intervals have been used in exceptional cases. On sloping ground, a rule of thumb is that the contour interval can be equal to the ground slope in per cent.

The architect is often asked if elevations should be based on a true sea level or an assumed datum. The sea-level datum is mandatory on extensive, long-range projects because it allows co-ordination with off-site projects. On a project to be completed in one phase, the expense of obtaining sea-level datum may not be warranted. In all cases, if a bench mark is reasonably close, sea-level datum should be used, and whatever bench mark is used should be clearly indicated.

The specifications should be clear as to: (1) whether the actual elevations are to be plotted; and (2) contours are to be drawn from plotted elevations on a hard copy and then traced; or (3) both elevations and contours are to be shown. Plotting the elevations will be the least costly and may be all that is necessary, particularly on flat ground. On the other hand, contours are such a useful device that the savings in cost does not justify the reduction in efficiency.

Trees. One of the most difficult specifications to write is that concerning the size and number of trees to be located. Frequently, the architect can furnish a sketch that will completely eliminate the necessity of locating trees in a certain area; for instance, in areas to be covered by buildings or to be used for playgrounds. Another cost-saving measure is to locate clumps of small trees and tie in only the larger trees. The engineer may often use his discretion, provided he is given a general description of the project. A difference in diameter of the tree to be located can make a larger difference in cost.

Utilities. The checklist contains all of the utilities generally required for building service. The private or Governmental authority contacted for each utility should be listed, as much time will be saved the architect's staff if additional contacts with these departments are required. In many cases, if the utilities are in place, the information listed will allow completion of the project without further engineering.

Underground pipes that may have to be avoided or moved should be located if any surface clues or records indicate their presence. Large construction expense is sometimes involved in this item.

Conclusion. The engineer or surveyor making the topographic map should not be asked to take the position of a technician who can only obtain the information specified. The engineer necessarily spends much time on the site, and, if the architect cautions him, may obtain interesting side information, either on or adjacent to the site.

Pictures of adjacent buildings and the observation of a view in a certain direction, even conversation with neighbors, may be helpful in utilization of the land.

The architect will find the engineer a useful partner by specifying the exact information required from a preconstruction survey, but, at the same time, encouraging the engineer to use imagination in supplying supplementary data.

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A Curriculum for Specs Writing

BY HAROLD J. ROSEN

Answers to the controversial Question No. 7, in P/A's recent survey of the teaching of specifications writing in architectural schools, are reviewed by the Chief Specifications Writer of Kelly & Gruzen, Architects-Engineers. The reader's attention is called to the final sentence of this critique.

Last month, we listed in this column the results of a P/A survey of architectural schools concerning courses of study in specifications writing, the science of building materials, and laboratory testing courses. Provoking considerable comment from the educators was Question No. 7: "Do you believe that the field of specifications writing is so complex that it warrants a curriculum of its own, including courses in chemistry, metallurgy, properties of building materials, materials testing, business law, and estimating?" A breakdown of replies indicates that 16 answered *Yes;* 45 answered *No;* and 1 answered *Maybe.*

In the belief that answers to this question will be of interest to our readers, we summarize representative replies below.

In the Affirmative

ERNEST PICKERING, University of Cincinnati:

"Perhaps at the graduate level, but with a background in architecture, if preparing architectural specifications writers."

BRUNO LEON, University of Detroit:

"Should be special branch of cohesive curriculum."

L. B. ANDERSON, M.I.T.:

"Yes, but call it 'construction materials engineer.' Specifications are merely the instrument for making knowledge effective."

VERNER N. MEYERS, Nebraska University:

"I have found it totally impossible to cover the field of materials in a two-hour course."

JOSEPH N. BOAZ, North Carolina State College:

"If specifications writing should warrant a curriculum of its own, I don't believe it follows that it should be emphasized any less in schools of architecture; rather, it should be emphasized even more in architectural curricula."

D. KENNETH SARGENT, Syracuse University:

"I should like to suggest that in this day of increasing complexity of building construction, which unquestionably requires specialization, in the design team within an architect's office, that those who desire to become the specifications specialist take graduate work to further broaden their specific knowledge, and then only after a general foundation in architecture. I believe we need highly skilled people, but they must have a breadth of understanding of total architecture."

PHILIP F. HALLOCK, Penn State University:

"I doubt if such a curriculum would attract sufficient applicants. Regardless of the instigation of such a specialty, architectural education should continue to include materials and specifications in the curriculum."

THOMAS HOWARTH, University of Toronto:

"If the architect has been properly educated and has had reasonable practical experience, this should come within his competence, although he may well need to have the specifications writer at his elbow, along with the many other consultants that the complexities of modern technology seem to render indispensable."

ALBERT D. POE, Washington State University:

"Yes, *but* it must be in addition to regular architectural curriculum. 'Spec writers,' in my opinion, *must* also be good designers or know enough about design to appreciate it. This might well be on a *masters* level or on emphasis in an architectural curriculum, but not instead of it."

ROBERT H. DIETZ, University of Washington:

"I doubt whether a student at the undergraduate level knows whether he wants to be a specifications writer, an architect, a structural engineer, or a material salesman, and to be as specific as to say that a course should be offered for such specific purposes would be highly doubtful. We . . . have been discussing whether or not courses in the area of postgraduate work, or in the form of continuing education, would be the place where the proper kind of education could be accomplished."

JOSEPH R. PASSENNEAU, Washington University:

"I believe your recommendations are sound, and I am going to investigate the possibility of some of our students taking a series of advanced courses that will particularly prepare them for spec writing."

PAUL RUDOLPH, Yale University:

"We believe that specifications writing is a specialty which should not be taught in a school of architecture. It has been our experience that the student can be overburdened with such a complex of specialties that he loses sight of the real issues."

JEAN PAULIN, École D'Architecture de Montreal:

"Specifications writing should remain in the hands of the architect as an important part of his duties, and not become a profession of its own."

JOSEPH D'AMELIO, Cooper Union:

"Yes. Then possibly with such a specialist on the staff, the architect can begin to exploit these many new materials and methods. As it is now, very few firms have competent ('specification engineer' caliber) spec writers and very few are trying new materials and new methods."

In the Negative

JAMES W. ELMORE, Arizona State University:

"In a school of architecture, the study of specifications should not be divorced from the study of materials, since the science of specifications itself is meaningless to the architect. The architect is rather intimately involved with the materials, and the specifications are to him a means of control."

JOSEPH WELLS, Auburn University:

"I believe specifications writing is complex, but it should not be taken out of the hands of the architect."

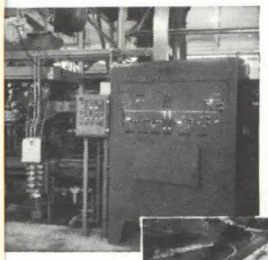
JOHN G. WILLIAMS, University of Arkansas:

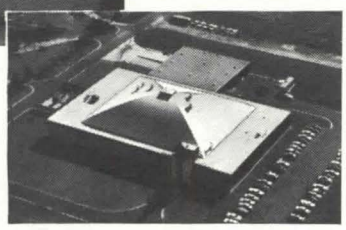
"The more segmented the various phases of architecture become, the less likely we are to have a unified architecture."

JAMES T. LENDRUM, University of Florida:

"It may be desirable if options are offered that one in specifications writing could be included along with one in design, architectural

Continued on page 174





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Cost of School Ventilation

BY WILLIAM J. McGUINNESS

Recent research revealing that the ventilation rate in a school may be reduced, is discussed by the Chairman, Department of Structural Design, School of Architecture, Pratt Institute.

There are at least four criteria used to fix the rate of fresh outdoor air to be supplied to the classrooms of elementary schools in order to reduce odors:

(1) The inescapable miniumum demanded by the local building code or school board when such regulations apply.

(2) The rate based upon the experience and recommendations of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (*see graph below*).

(3) The rate that effectively creates a satisfactory condition of freshness in the judgment of the architect, as guided by school officials.

(4) Considerations of economy in the purchase of fuel to heat this air during the winter months.

The first two are, so to speak, "out of the book." It is the purpose of this discussion to focus more attention on item (3), in order to justify, if possible, a maximum reduction of the cost mentioned in item (4).

One engineering firm's recent studies of two similar schools, in the same school district of Mentor, Ohio, have shown that the ventilation rate can be materially reduced with great savings in fuel costs, and without impairment to the effectiveness of the ventilation. These studies were made by D. R. Harper & Associates, Cleveland Consulting Engineers, and the two elementary schools were the Hopkins School and the Reynolds School.

Those who are constantly engaged in thermal planning and heat-loss calculations realize the large and variable value presented by ventilation and its effect on fuel cost (*Table IV*). This phenomenon is not as well known to school officials who should be drawn into discussions concerning the relationship between air freshness in school rooms and the cost of supplying it.

The approximate index of the ratio of classroom volume to students is often about 300 cu ft of space per pupil (the ratio used here). Reference to the ASHRAE graph (*below*) reveals that the recommended average ventilation rate for this index (fixed by the arrow) is 12 cfm per person (curve C). For greater activity and odor concentration (curve D), 18 cfm per person is suggested.

It may be noted (*Table V*) that the rate for the Hopkins School (8.75) is somewhat lower than the minimum recommendation (12), and that the rate for the Reynolds School (25.8) is considerably higher than the recommended maximum of 18 cfm per person.

It is of prime importance, however, that ventilation be effective. It was reliably reported that there were no detectable classroom odors or stuffy atmospheres in either school. Considering that the conduction loss in both schools was almost identical (*Table IV*), the excess fuel cost (*Table II*) of 35 per cent for the Reynolds School building and 62 per cent *per classroom* for the Reynolds School over fuel costs for the Hopkins School (*Table II*), can be related directly to extra, and perhaps unnecessary, ventilation provided.

There is reason to believe that in modern schools, including these two, the use of high rates of ventilation in *mild* weather (25 cfm per student at Hopkins and 56 at Reynolds) carry away the long-clinging odors that were common in unventilated schools when some codes were first written.

In their report, D. R. Harper & Associates also pointed out that the lower *conduction* rate in the slightly larger Hopkins School was due largely to a smaller amount of glass (*Table IV*), and better controls to curtail higher temperatures (*Table III*).

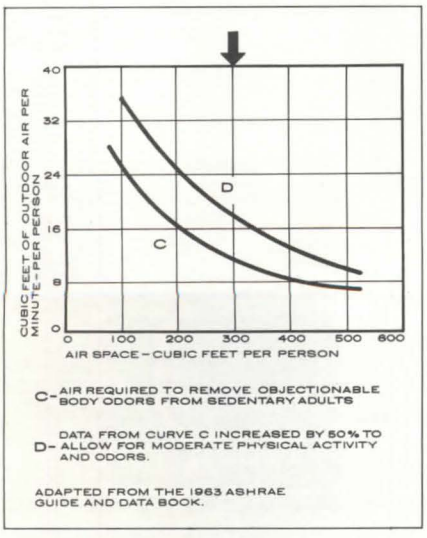

Table	Subject	Item	Hopkins School		Reynolds School	
I	Building Data	AIA sq ft, Building Area	29,472		27,578	
		No. of Classrooms	18		14	
II	Fuel Costs (Gas)	Yearly Cost (12 Months)	$2,044.99		$2,586.80	
		Yearly Cost/sq ft Bldg. Area	.0695		.0938	
		Comparison	100%		135%	
		Yearly Cost/Classroom	113.60		184.77	
		Comparison	100%		162%	
III	Classroom Temperatures	All Rooms	74.16 F		76.16 F	
		Warmest Room	76.50 F		78.00 F	
		Coldest Room	73.00 F		73.00 F	
IV	Heat Loss (Btuh)	Glass	2,804 sq ft	222,000	3,262 sq ft	258,200
		Wall	8,489 sq ft	201,800	5,960 sq ft	145,500
		Roof	28,150 sq ft	307,000	26,520 sq ft	340,000
		Edge & Floor	1,018 lin ft	45,700	897 lin ft	53,500
		Total Conduction Loss		776,500		797,200
		Ventilation (Outdoor Air)	4,750 cfm	361,000	10,850 cfm	824,700
		Total Hourly Heat Loss, Btuh		1,137,500		1,621,900
V	Ventilation Rate (Outdoor Air)	cfm/Student	8.75		25.8	

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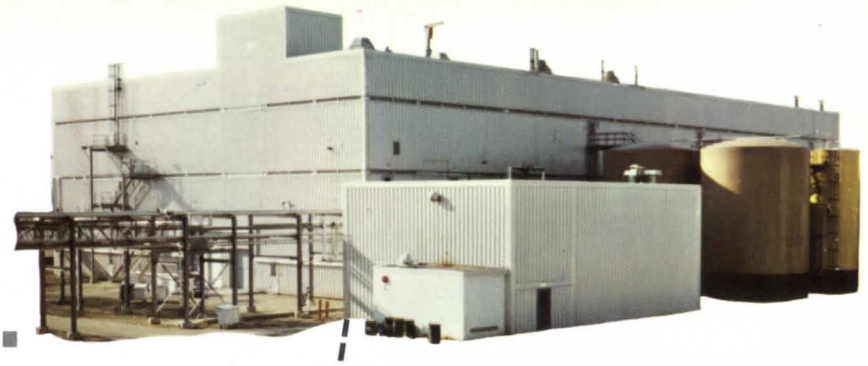

Archer Daniels Midland Company Plant, Mapleton, Illinois
Designed and Constructed by Girdler Corporation, Louisville, Kentucky

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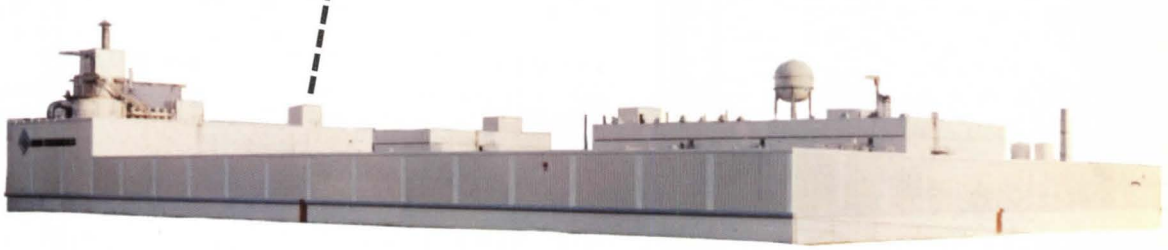

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The Construction Contract

BY JUDGE BERNARD TOMSON AND NORMAN COPLAN

Nassau County District Judge and a New York attorney discuss a case illustrating the principle that rights of either party to a construction contract may be lost if its terms are not scrupulously followed.

A construction contract that is properly drawn will define the procedure to be followed to establish the right of the contractor to additional compensation for an "extra." Many construction contracts provide, in substance, that a contractor must obtain the authorization of the owner, in writing, approving compensation for a claimed "extra" prior to performing the work. When such a provision is litigated, the question is often raised as to whether this requirement was waived by the owner. Illustrative of the issues raised in this type of dispute is a recent New York case (*Joseph F. Egan, Inc.* v. *City of New York*) determined by the Appellate Division of the New York Supreme Court.

In this case, the plaintiff was a plumbing contractor for the construction of a hospital for the City of New York. The contractor had made claim against the city for extra work in the sum of approximately $24,000, and for damages due to delay in the amount of $140,000. After a trial by jury, a verdict was rendered in the approximate sum of $120,000 in favor of the plumbing contractor, and an appeal was taken.

The plumbing contract required that if the contractor deemed "that any order of the engineer calls for work not provided in the contract, he must, before complying with such order or proceeding with the work, notify the Commissioner of Public Works in writing and request a final determination." The contract further provided that, in the event of a failure to apply for such determination, any claim for extra compensation would thereby be waived.

The plumbing contractor's claim for an "extra" arose from the fact that a change in the contract plans necessitated further plans to co-ordinate the work of various contractors. The owner's engineer directed the plumbing contractor to retain an engineer to do this work. Plaintiff complied with this direction and his claim for an "extra" represented the salary of the engineer he employed. The plumbing contractor, however, made no request in writing to the Commissioner of Public Works for authorization for the "extra." The contractor contended that the requirement of the contract in this respect had been waived by the owner in that: (1) 82 change orders had been issued and payment made upon them without the necessity of a request for a determination by the Commissioner of Public Works; (2) the owner's engineer had stated to the contractor that the matter of the extra expense would be determined in the future; and (3) the salary of the engineer employed by the contractor appeared upon the daily report submitted by the plaintiff on the job.

The Court concluded that the jury was in error in awarding the extra compensation, since the appropriate authorization had not been secured by the contractor and there was no waiver on the part of the owner. The Court, in referring to the three facts relied upon by the contractor as establishing a waiver, stated:

"No one, nor the totality of these facts, shows a waiver. . . . The payment of the other claims for extra work could and did not result in lulling plaintiff into a feeling of security. Such claims were settled long after the work was done and were the result of negotiation with city officials on different levels. That the city later chose to adopt an equitable standard in regard to these claims is no indication that it would waive any rights in connection with this claim. . . .

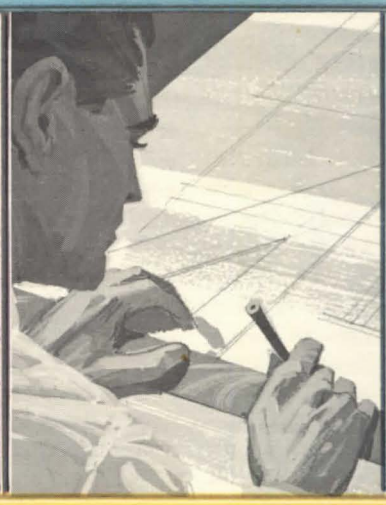
". . . . The clause could be waived but not in the manner which the contract provides against. Clearly the contract provides against oral waivers by the persons most likely to be involved in such transactions, namely, the city's field representatives on the job. Such an oral waiver is unavailing. That is not to say that there may never be a waiver but that the proof did not raise an issue of waiver in this instance."

In a dissenting opinion, one justice of the Court disagreed with the majority's opinion in respect to the claim for extra compensation. He stated that the jury certainly could have concluded that the Commissioner of Public Works was well aware of the necessity for and the rendition of the particular extra services, since they were necessitated in the first instance by faulty design. The dissenting judge further stated:

"The city, having received the benefit of such services and having acquiesced in the procedures followed, it may and should be stopped from insisting upon strict compliance with the contract requirements which were expressly waived by its representative and chief engineer on the job."

The Appellate Court also rejected the jury's verdict insofar as it awarded damages to the contractor for delay. The city, in respect to this claim, asserted that the contractor had expressly waived any claim for damages for delay at the time he had applied for a substantial compensation payment. The contractor, on the other hand, contended that the purported waiver of any claim for damages due to delay resulted from financial duress arising from his need for the payment, and because of his fear of reprisals in respect to several other contracts he had with the city. The Court, however, concluded that legal duress had not been established, stating that "taking advantage of a distressed financial condition is not, in itself, duress." The Court further pointed out that an agreement made under duress must be disaffirmed promptly and that this issue had not been raised by the plumbing contractor until the trial.

The foregoing case illustrates the significant principle that the rights of either party to a construction contract may be lost if its terms are not scrupulously followed or if actions are taken which constitute a waiver of rights.



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EP-29A

Late Comments on Pan Am

Dear Editor: In the last stage of forest growth, the beeches take over from the oaks, steal their light, sterilize the undergrowth below them. And what is more grand and spacious than a beech forest?

I see in your aerial view of the Pan Am Building, dwarfing its neighbors, a "beech building." Ecological change may appear ruthless, yet it is both inevitable and natural. It is necessary to try to view, in the mind's eye, the development of Manhattan over 300 years, in "stop-motion"—like the unfolding of a plant. Stockades to brick dwellings to slender prestige towers to "Pan Ams."

When Le Corbusier first landed in the United States, he created headlines by a sincere comment that was sensational only to the naive: "Your skyscrapers are too small."

Now, 30 years later, two towers, of *grandeur conforme*—Chase Manhattan and Pan Am—have "built themselves" from the pressure of incident forces: the aesthetic qualities of both buildings are insignificant. As you observe, even the brutal skin of the Pan Am façade becomes flat on the scale of the building. To appreciate how such a structure should be handled, see Le Corbusier's original plan for Algiers, by which Pan Am is obviously inspired.

The new building code, consciously or unconsciously, will tend to foster the emergence of a "fine beech forest"—clear of undergrowth. In the meantime, there will be some uncomfortable "boiling of the ant hill" which will certainly be accepted stoically, like our impossible weather, by the most urbane citizens of our planet.

Discussion of the aesthetic incidence of this particular structure on the skyline of Park Avenue, surely the least distinguished thoroughfare of the great cities of the world, seems redundant. However, the signing of the building is a commercial gesture of inexcusably bad taste—and obviously unnecessary.

CLIVE ENTWHISTLE
New York, N.Y.

Dear Editor: I thought your article on the Pan Am Building a superlative job of architectural criticism. I commend you for it. The profession has a great need for such succinct, insightful analyses. It becomes meaningless to see everything that is published—whether inept, competent, or excellent—lauded without critical comment or evaluation. Keep up the good work.

Being a full continent away, it is somewhat difficult for me to discuss this building in its finer details; but I am in full agreement with you that this project is a failure.

The Pan Am Building poses some conceptual and philosophic questions which, I feel, need analysis. It seems apparent that this project was doomed to failure at the very moment when it was conceived of as situated on that site, at that great scale, and in that more or less standard office building form. From this point on, I feel, *only* a complete rethinking of the program or a radical rehandling of the building mass could have saved it.

Abstractly considered, the tower is not, I believe, a failure. When thought of by itself in model or sketch form, it is a subtle and pleasant mass. When placed in its actual environment, however, it seems to become a great scaleless, hulking, omnipresent colossus.

The obvious impressions and answers are that an edifice of this size should have a site and foreground that are commensurate in scale and importance, and that, emotionally and aesthetically, we cannot afford to continue to design buildings without considering their relationship to and effect upon adjacent properties and structures. More indirectly, perhaps, we can learn from this example that there is a point in building size and scale where subtle changes of form and refinements of details become ineffective and inadequate. Perhaps we have here reached a point where a bolder modulation or breaking-up of a building's mass (Wright's Mile High Building) may be almost mandatory and tantamount to the retention of human identification.

Also, perhaps limits should be placed on the economic exploitation of a limited site, of which the Pan Am Building seems to be the consummate and, I hope, ultimate example.

CARL A. BYSTROM
Seattle, Wash.

More on the New Boston City Hall

Dear Editor: Congratulations on your article on the Boston City Hall Competition. I think that both schemes are a significant contribution to architecture, mainly because they show how a varied juxtaposition of both internal and external spaces and masses are possible vertically and horizontally *within* a highly organized and *integrated* system of construction and mechanical services.

Sculptural freedom in systematized order—and "Brutal" honesty. I must say it warms my heart, after all the sleek, superficial, and flashy architecture that is the foreigner's "image" of *America*.

GLEN J.B. GALLAGHER
Architect
Johannesburg
South Africa

Dear Editor: Congratulations on your presentation of the "New Boston City Hall" (APRIL 1963 P/A). It is a credit to winners, runners-up, and your magazine that such a fine article was put together. I was cheered to see that such a thoughtful design was given a thoughtful coverage.

ROBERT M. BECKLEY
Cincinnati, Ohio

Dear Editor: Why are you surprised that the eight finalists of the Boston City Hall Competition were all teams of relatively young and unknown architects? The recent graduates are much more highly motivated to give their best in competitions; they have also had a much better training, and have benefited from the mistakes of the first two generations of "modern" architects.

R.M. TITUS
Boston, Mass.

Congratulations

Dear Editor: I would like to congratulate you on the consistency of quality of your magazine. Unlike many architectural publications, PROGRESSIVE ARCHITECTURE does not fluctuate from one standard to another. If I may say so, your May cover —from the aesthetic point of view, at least—is "bang on," as some Australians would put it.

CHARLES F. CAMERON
Melbourne, Australia

Beautifully Expressed

Dear Editor: Your editorial in the JUNE 1963 P/A expresses beautifully what ails the noble profession of architecture.

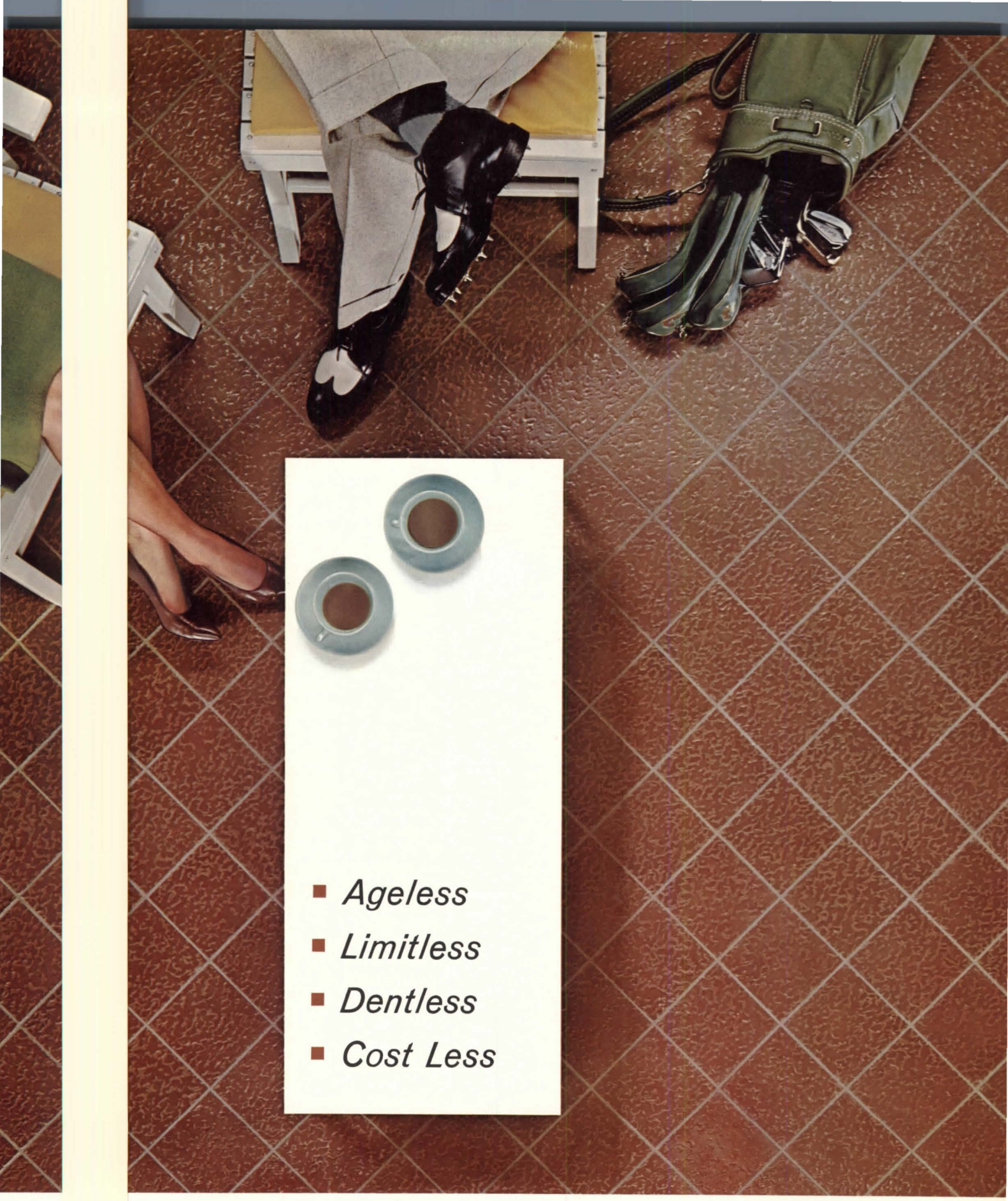
I have never read a critique more expressive of what has happened to the Mother of the Arts.

GUNNAR PETERSON
Woods Hole, Mass.

Gratified

Dear Editor: We have already devoured the JUNE 1963 P/A and were extremely pleased with it. Your editors did a superior job of researching the subject, and we are gratified to have had a hand in the preparation of the material.

A. M. HATTAL
National Lumber Manufacturers Association
Washington, D.C.



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BY JAMES C. ROSE

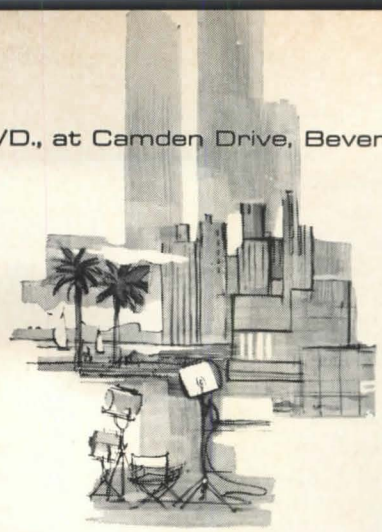
THE EARTH, THE TEMPLE AND THE GODS: GREEK SACRED ARCHITECTURE *by Vincent Scully, Published by Yale University Press, New Haven, Conn. (1962, 257 pp., plus plates. $15). Reviewer is a landscape architect.*

Robert Frost once admitted that when people read into his poems a meaning he had not intended, he accepted it as a gratuity, and in the same spirit I like to think that the Greek gods have accepted all the interpretations of Greek architecture since the beginning of the romantic movement, although it seems like a lot to ask even of the gods. In my own academic exposure to Greek architecture, the students were told that there had been no "landscape architecture" in it, and I shall never forget my amazement on first visiting the Greek Islands to discover that the architecture had hardly been anything else—except, of course, for the temples and the gods, which, as Vincent Scully points out, are indistinguishable from the landscape.

What makes *The Earth, The Temple, and The Gods* startling and impressive is that, with all the scholarship and study lavished on Greek architecture during the past several hundred years, Scully is one of the few historians who has attempted to see the Greek environment from the point of view of its creators. This may seem like the obvious thing for a historian to do, but more generally the original motivation and the historical view have the same kind of difference as is found between the poet and the connoisseur. This is sometimes wide indeed. But I think that Robert Frost is quite serious (up to a point) in admitting that he himself may not understand all the implications of what he is saying —both he and the connoisseur may find more meaning to it as time goes on. The difficulty arises when the poet's motivation is so entirely lost that the connoisseur can indulge in his own point of view, until a spinning wheel becomes a grindstone or Greek architecture a system of cornices.

I am sure that few architects today think of Greek architecture as the isolated entities it once appeared to be in the history books—a solid, rather than a fluid event, which made its perfection the static model for all architecture, whether a bank or a library or a government building. This is definitely passé. But what about the current enthusiasm for Japanese architecture as seen through Western eyes? Is this a new "perfection" in which we can see meanings and uses that it does not have, rather than attempt

UNI ALIFORNIA BANK BUILDING, WILSHIRE BLVD., at Camden Drive, Beverly Hills, California



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to understand the ones it does have? This is the area of rediscovery in which *The Earth, The Temple, and The Gods* is an important book, and in that respect, a first-rate method of examining the work of other civilizations, ancient or modern.

On the surface, at least, Scully has not written a book for architects—certainly not a drafting-table "idea" book. He has written a scholarly history in which he explores the "calculated interaction" between the man-made sculpture (architecture) and the natural landscape of Greece. He accomplishes the phenomenal task of letting us see it through the eyes of its creators with the tools of scholarship in our own time. Many architects will be impatient with the quality of his photographs—numbering some four hundred—which seem naïve at first glance but which, in toto, ring true to the subject and make his points better than more glamorous pictures may have done. Also, from most architects' point of view, the author seems to fret too much about scholarly documentation, and, from a literary point of view, all this gets in the way of a fascinating story; he seems afraid that some professorial Paris will find his Achilles heel, so to speak, but now that he has so painstakingly protected himself, I can't help wishing he would sit down and just write the story —without notes of other impedimenta, even pictures. Nevertheless, I think the gods are winking at Scully for having seen their point of view.

A Fresh Approach Needed

LABORATORY PLANNING FOR CHEMISTRY AND CHEMICAL ENGINEERING, *edited by Harry F. Lewis. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y. (1962, 522 pp., illus. $20)*

This book is must reading for all persons engaged in the design of a new laboratory, large or small. Management, laboratory directors, chemists, et al, are given an insight into the many facets and sequences that go into the planning and operation of a successful laboratory. Architects and engineers, both neophytes complex field, would do well to review it chapter by chapter.

If the book contained nothing else and those of long experience in this but Chapter VII, "Occupational Health and Safety," that alone would be worth the purchase price. This phase of laboratory design is all too often overlooked, resulting in ill-planned and unsafe laboratories. Another outstanding feature is the tabulation of reference literature at the end of each chapter. And the listing of laboratories built between 1951–1961 is a Cook's Tour guide for those planning visits to existing facilities.

For all the book's wonderful value in laboratory planning, the fact emerges that there is a real need for a fresh approach to laboratory design. With few exceptions, we are continuing to repeat the solutions of our predecessors, with refinements as our only contribution.

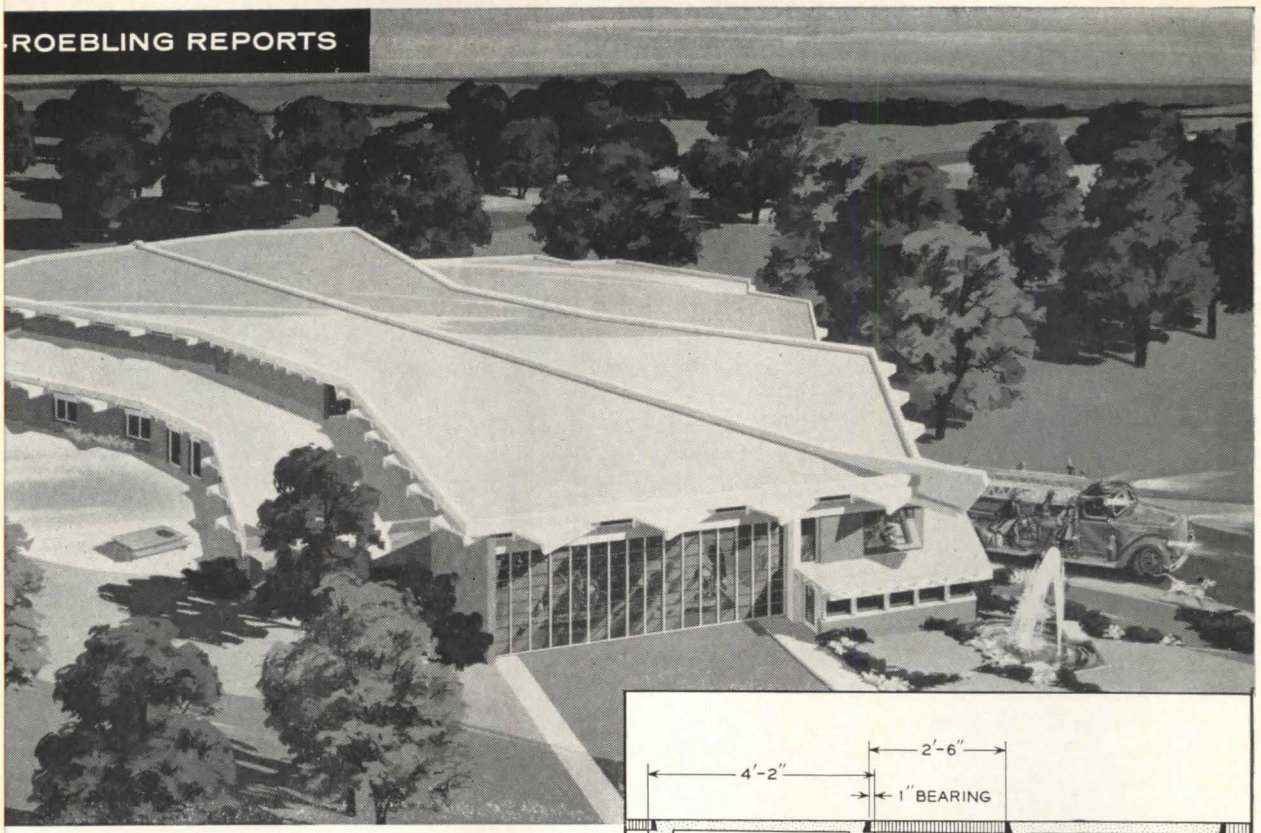
W. ALLEN CLENEAY
Staff Architect, Monsanto Chemical Co.
St. Louis, Mo.

Diminished Achievement

NEW ARCHITECTURE IN SWEDEN: A DECADE OF SWEDISH BUILDING *by Erik Thelaus. The National Association of Swedish Architects, Stockholm, 1962. John Wiley & Sons, Inc., 440 Park Avenue South, New York 16, N. Y. (346 pp., illus. $14.50)*

The cultural "rhythm theory," which by its seemingly inevitable undulations conveniently explains many of the historical ups and downs of a nation's achievements and lapses in all fields, is well borne out by modern building in Sweden. No architectural oscilloscope is needed to emphasize the fact that Sweden's brilliant in-

-ROEBLING REPORTS



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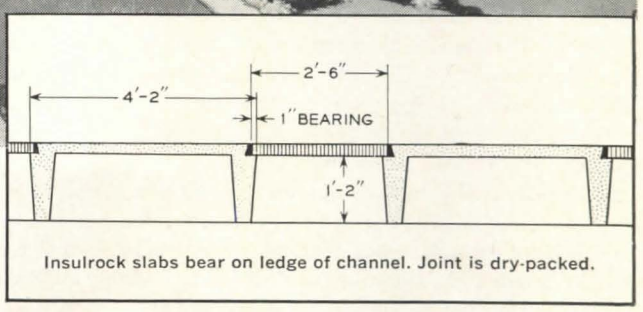

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ternational contribution to the modern movement in the 30's and 40's finds diminished parallel in the 50's. For one thing, and this certainly carries no reflection on Sweden, most of her neighbors have caught up (except in large-scale land usage) with the pioneer that ignited all Scandinavia in 1930 with Gunnar Asplund's famous "Expo." For another, Sweden's own achievement, which, like the Dutch, promised so much from its initial progress in the evolving modern movement, failed—again like the Dutch—in what we all hoped would be a postwar flowering. With the glorious exception of Vällingby (still the world's finest sizeable "new town" development), Sweden built relatively little of international note until the very end of the 50's and the beginning of the 60's. Vällingby itself, and Nyrén's church there, several splendid water towers, housing such as that in Orebro, and Anders Tengbom's Industrial Training Center just about sum up the major attainment of the 1950's—this "Decade of Swedish Building," as the book is subtitled.

The Swedes themselves, in successive issues of *Arkitektur*, the Swedish Architectural Review, have this to say of the situation (#7, 1962): "The demand for buildings in Sweden today is enormous. Thus, the material conditions for the creation of architecture are more than favorable, but the spiritual climate is not particularly inspiring. . . . If we look at town planning, the conditions there are discouraging and confusing." And briefly (#8, 1962): "This issue is a protest against the form which is being given to our towns and their outlying areas." Thus even the Swedes are dismayed by what many consider the failure of the country's most important single contribution to architecture—urban and suburban land usage. With an unequalled background of success, and unmatched legislative means, it seems particularly unfortunate that the 50's in Sweden should have hatched several highly dubious urban exercises of major scope. There is, perhaps, only one consolation: no one else has done much better.

The general scene for this decade is, then, not the roseate one that has obtained in the past. Fortunately, the nadir seems to have been reached—in architecture if not in planning—and a surprising number of buildings completed after the 1950's squeeze into this book, much to its betterment. Markelius' *Folkets Hus*, the Geisendorf's Technical High School, and several absolutely wonderful churches (particularly Engström, Landberg, Larsson and Törnemann's in Gävle, and Lewerentz's in Stockholm) comprise very high company in any league, and give hope that Sweden's great architectural and planning potential will blossom again. It is pertinent in this regard to note a corresponding slump in contemporary Italian architecture.

The chief problem of *New Architecture in Sweden*, then, stems from the fact that it has little meat to chew on. Even this masticating produces scant satisfaction, for there is no description, no program, no analysis given for any building—simply an over-all introduction followed by routine photographs and drawings of individual buildings indifferently laid out. Moreover, the task was made no easier by the fact that the book was published under the imprimateur of the Royal Institute of Swedish Architects (SAR), hence had to represent broadly its constituency. If the buildings had been distilled by 50 per cent and their coverage doubled, the book would have been far finer. The 24-page introduction (in both English and Swedish) by Erik Thelaus, the former editor of *Arkitektur*, presents a good general evaluation, with a noteworthy emphasis on planning, legislation, and sociology—subjects conspicuously absent from appraisals of contempo-

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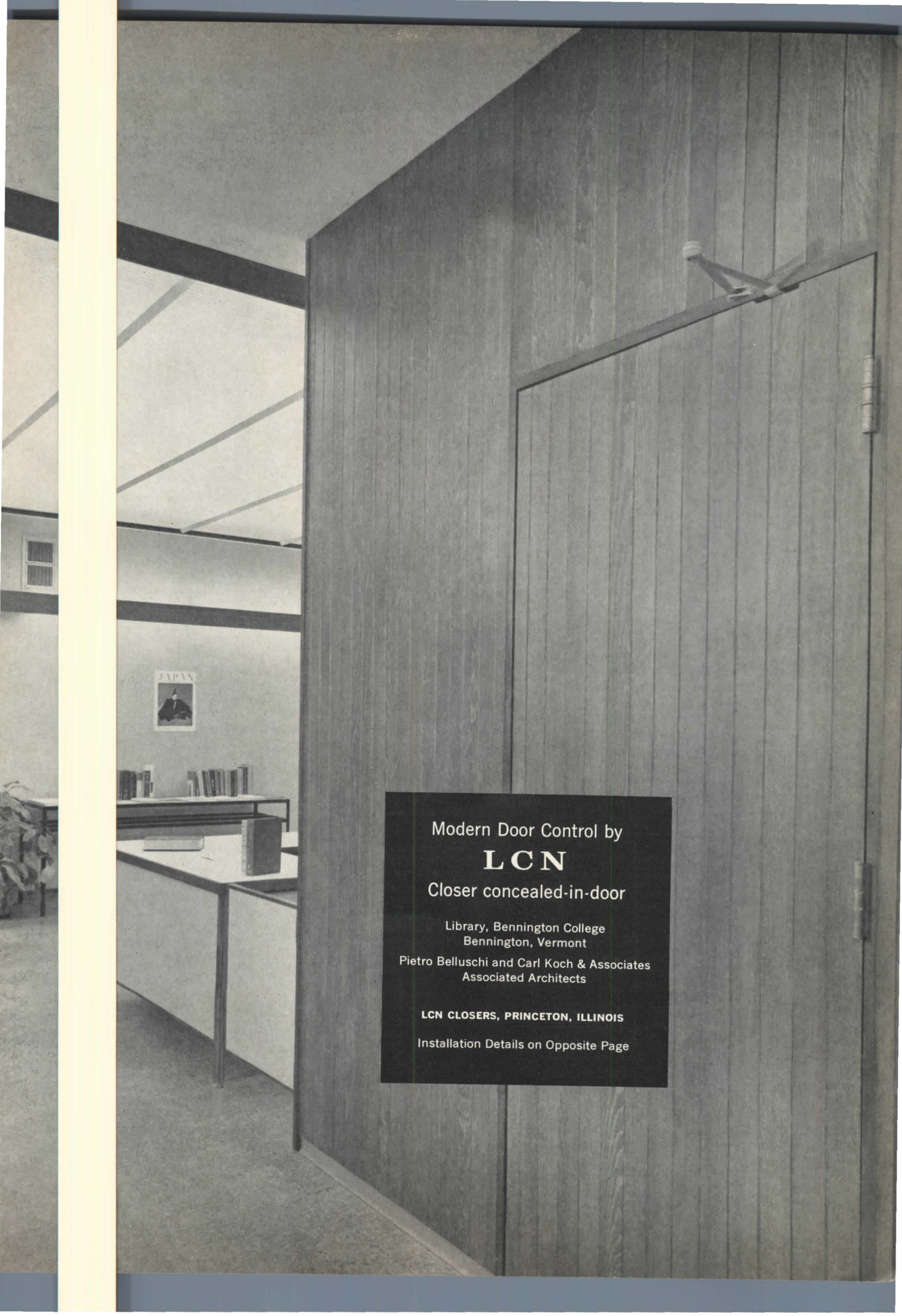

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Continued from page 156

rary architecture in the USA, and, indeed, from its schools of architecture.

In sum, while useful to the specialist, the *New Architecture in Sweden* should not cause a stampede to the nearest shop. We must wait for the Swedish architectural achievement of the 60's—it gives promise of being substantial.

G. E. KIDDER SMITH
Architect and Author
New York, N. Y.

Limited Discussion

HIGH GOTHIC: THE CLASSIC CATHEDRALS OF CHARTRES, REIMS, AND AMIENS *by Hans Jantzen. Published by Pantheon Books Inc., 22 E. 51 St., New York 22, N.Y. (1962, 181 pp., illus. $4.50)*

One of man's highest achievements is his ability to communicate his ideas to others by means of the spoken or written word. No idea or analysis is better than the extent to which it can be put across. In *High Gothic* we have a book that is replete with information, but which falls far short, unfortunately, in its ability to transmit its contents.

Professor Jantzen enjoys a wide reputation for his knowledge of medieval art. His book shows a tremendous awareness of the period, ranging from the material and engineering aspects of Gothic architecture to the spiritual values of the times, and includes chapters on the light in Gothic cathedrals, the symbolism of the sculpture, and the special design characteristics of the High Gothic. Sad to say, all this is served up in a manner that is uniformly heavy and pedantic. Professor Jantzen seems to feel it necessary to lecture in print, assuming a rather condescending attitude to his readers. Often as not, this takes the form of a stylistic question-and-answer game, with the professor posing the question and then proceeding to answer it.

Aside from style, this little volume leaves a few other points to be desired. As indicated in the title, the subject matter is limited to what the author considers the peak of the High Gothic—namely the "classic cathedrals" of Chartres, Reims, and Amiens. The discussion is broadened to include various other cathedrals such as Notre Dame, Beauvais, and Bourges, but it still remains highly limited. It does not present a full picture of either the period or its architecture. And what it does present is highly unbalanced. A great deal of space is devoted to the nave, the choir, and the transepts, which take up the first three chapters of the book—67 pages out of a total of 181. The discussion of the spiritual significance of the church edifice—incidentally, one of the more interesting and readable parts of the book—is disposed of in 12 pages, stained glass in 9 pages.

To a degree, much of the weakness of the book seems to stem from the fact that it was originally written as part of a series entitled *Rowohlts Deutsche Enzyklopaedie*. It is likely that in its original version, the book was regarded as an extended article on the subject and that Jantzen had to work to rather strict limits. Seen from this viewpoint, the book gains a definite place. There are numerous studies that capture far more truly the spirit and mood and achievements of the Gothic, but a reasonably priced introductory volume is always welcome.

The chief asset of this book, aside from its modest price, is a series of 67 excellent photographs and 50-odd black-and-white sketches. These range from

Co., 60 Fifth Ave., New York 11, N. Y. *(1962, 201 pp., illus. $5)*

The audience for the Whites' book could be said to be the college junior majoring in American literature; for the Gutkind book, the baffled philosopher of metropolitanism seeking a sympathetic soul.

It is probably not fair to make these nasty capsule statements. But a reviewer is only human, and this one gets cantankerous as he plows through the files of urban-oriented literature on his desk these days. This reviewer, who has never met the Whites or Dr. Gutkind, has had respect for them for several years and knows that they are capable of much more than these two books provide. In fact, there is little in either book to reveal the genius they have previously demonstrated. Maybe they hurried too much, or maybe they forced themselves into production when they had almost nothing to say. It is all very puzzling.

Dr. Gutkind has a disarming and friendly way of writing. He is scholarly without being pedantic, a bit bumbling, prolix, cultivated, and gentle. *The Twilight of Cities* is not a "Götterdammerung" of cities as one might surmise from the title. There is in fact nothing Wagnerian about it at all. Offenbach perhaps. Anyway, it is hardly more than a series of notes to the author by himself about all the puzzles of urban growth that he and everyone else are wrestling with. The author acknowledges in his preface that he is writing for the gen-

Continued on page 168

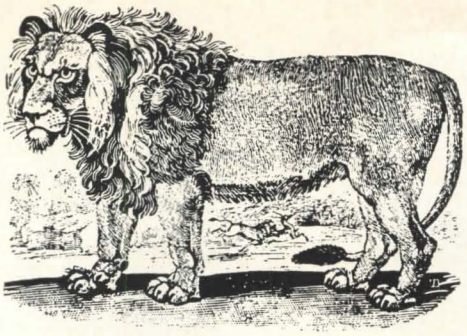
reproductions of Villard de Honnecourt's sketchbook to plates of Viollet-le-Duc—these alone are well worth the price. Lastly, one must mention the fact that this book is notably deficient in the usual scholarly accessories. There are some footnotes, referring primarily to German sources, but there is no bibliography; even more irritating, there is no index.

FREDERICK HERMAN
Architect
Norfolk, Va.

Cities Past and Future

THE INTELLECTUAL VERSUS THE CITY: FROM THOMAS JEFFERSON TO FRANK LLOYD WRIGHT *by Morton and Lucia White. A publication of the Joint Center for Urban Studies. Harvard University Press and the MIT Press. Distributed by the Harvard University Press, 79 Garden St., Cambridge 38, Mass. (1962, 270 pp. $5.50)*

THE TWILIGHT OF CITIES *by E. A. Gutkind. Published by The Free Press of Glencoe, A Division of The Macmillan*



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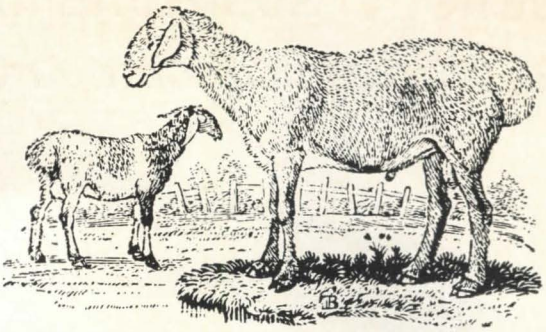

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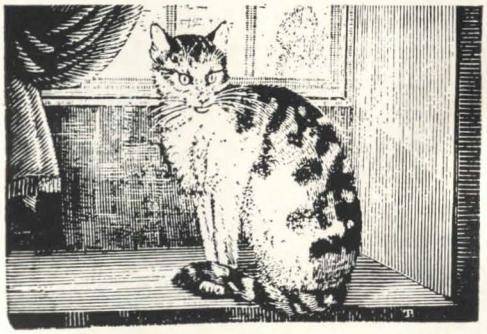

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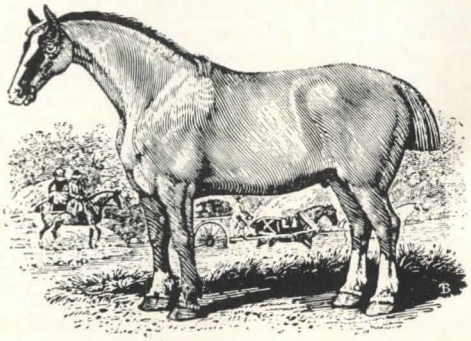

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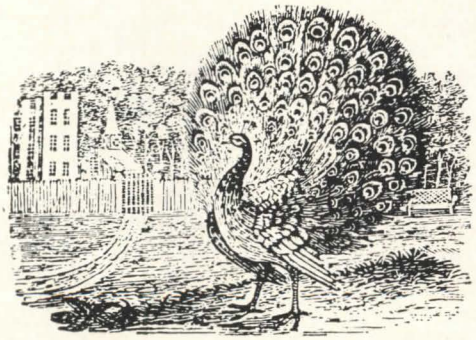

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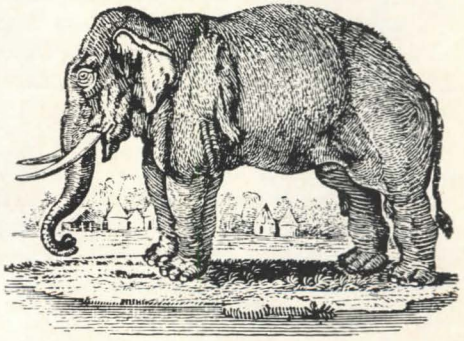

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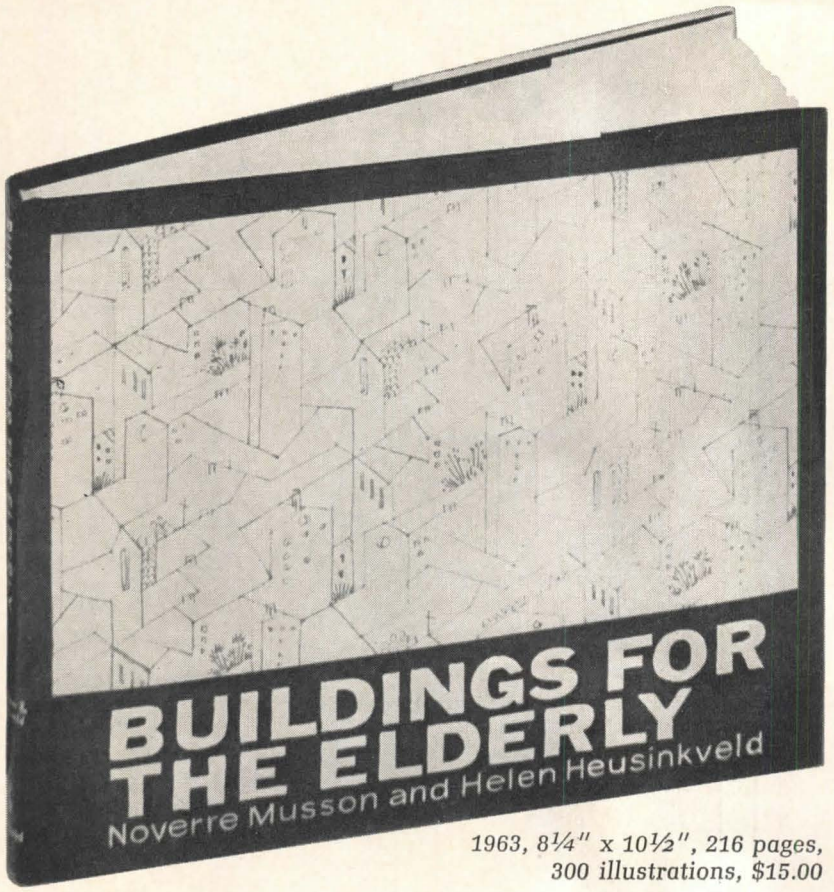

1963, 8¼" x 10½", 216 pages, 300 illustrations, $15.00

BUILDINGS FOR THE ELDERLY

by Noverre Musson, A.I.A. and Helen Heusinkveld

Important to designers, architects, builders

A NEW AWARENESS of the increasing number of elderly people in this country has created the need for this authoritative survey of the housing requirements of a group which now constitutes almost 10% of the total U.S. Population. *Buildings for the Elderly* cuts across lines of economic status, and examines the many and varied shelter problems of the growing numbers of elderly people.

The book is designed to inform, and to stimulate fresh ideas among architects and builders. It shows how factors which are primarily architectural grow out of the financial, sociological, and philosophic problems which confront the potential builder of housing for advanced age groups. This study examines such questions as who should build, what should be built and where, and how much the proposed project will cost to build and run. Careful treatment is given such considerations as group size and size of the proposed unit, programs, integration with the community, inclusion and amount of nursing facilities, and the handling of psychiatric problems. About half the book is composed of photographs, plans and drawings of existing and projected homes in all parts of the country with complete data on each including costs, facilities and services provided, materials of construction, site development and other pertinent specific information. *Buildings for the Elderly* is the first major attempt to probe into the architectural aspect of a serious sociological problem which has become a matter for more than cursory concern.

ABOUT THE AUTHORS

NOVERRE MUSSON has practiced architecture for 17 years as a member of the firm Tibbals-Crumley-Musson in Columbus, Ohio. He is a one time member of the Frank Lloyd Wright Taliesin Fellowship. Mr. Musson has a unique background as a journalist as well. He has lectured and been author of many articles which have prompted the public to take greater interest in architectural projects of many kinds.

HELEN HEUSINKVELD is a member of The National Council on Aging, and was a participant in the 1960 White House Conference on Aging. She did extensive research for this book in Norway, Sweden, Denmark, Finland, Holland and England as well as in this country.

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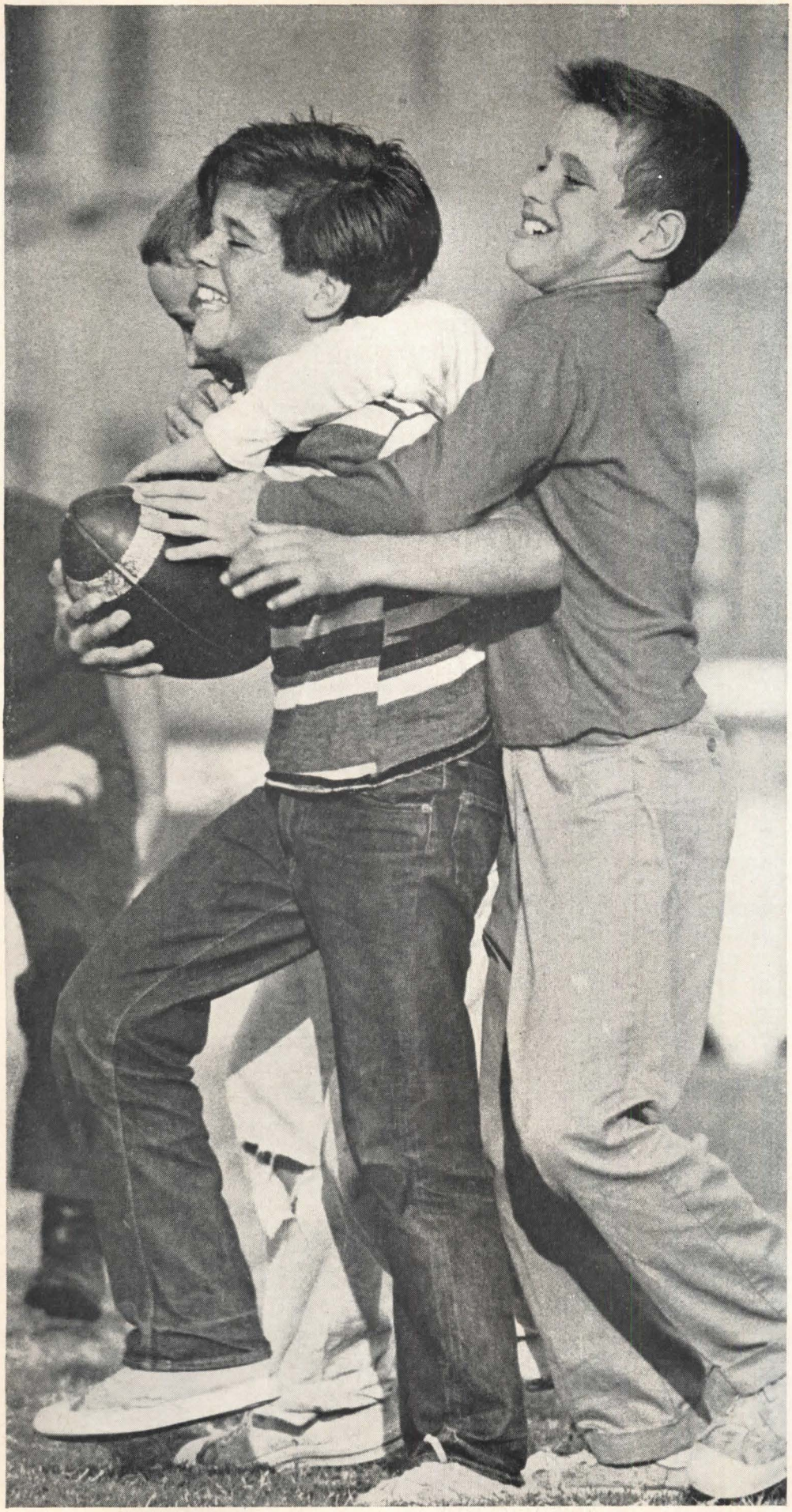

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PHOTO BY PHIL BATH

—the architectural metal

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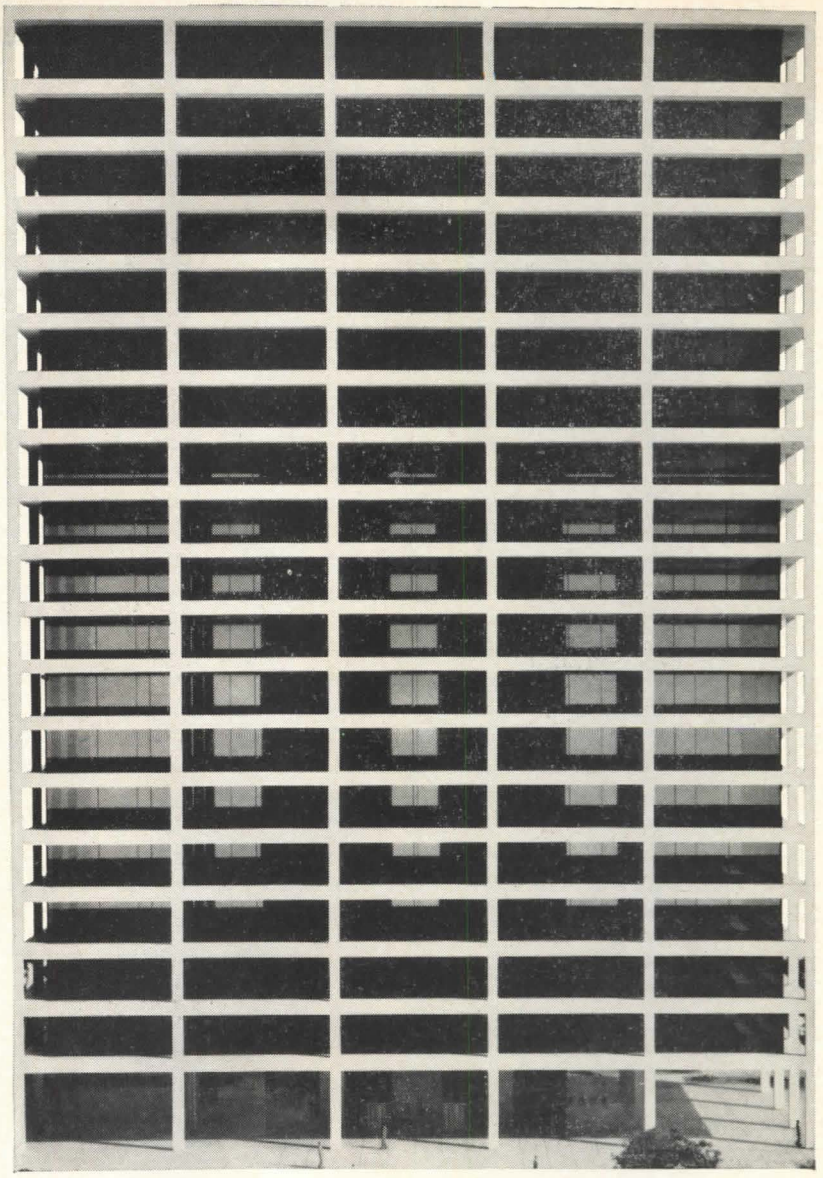

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Continued from page 162

eral reader—it certainly is not a technical book. The author prophesies about the future of cities. He doesn't particularly like garden cities and new towns but seems to propose them. He urges the wonderful idea that all cleared slums remain open for parks and open spaces. He quotes ad lib from Anatole France, Malinowski, Eddington, Gide, and many others. But at no time does one feel that the good doctor is name-dropping; his quotes seem to fit the paragraph of the moment, although it would be false to attribute an intellectual counterpoint to the quotes.

The Whites have much less to say than Gutkind. Their theme, proved over and over, is that Jefferson, Thoreau, Emerson, Henry Adams, Henry James, William Dean Howells, Dreiser, Jane Addams, and John Dewey just didn't like cities and what cities do to people. Hawthorne, Melville, Mumford, and Frank Lloyd Wright are included. Practically anybody who could be called an intellectual is quoted. There is no mention of O. Henry, but of course he wasn't an intellectual. Anyway, the thesis is sustained, demonstrated, and proven. Nobody of any consequence in American literature liked cities and presumably ever would. But, fatalistically, the Whites, in their very last line, sigh "All the world's a city now and there is no escaping urbanization, not even in outer space." Alas, they have succumbed to the overwhelming evidence of their archaeology in the Harvard library!

In this curious choice of "Intellectuals" the Whites' theme falls apart in inserting Jane Addams and Robert Park. Jane Addams is out of context. (Yet the section of Chapter 9 on Jane Addams is excellent and informative, as is the part of Chapter 10 that concerns sociologist Robert Park.) But where is Jacob Riis? Where are the other great sisters and brothers of the poor? Where is the host of other settlement-house reformers? Maybe they are part of another book about the great American urban reformers which the Whites ought to write. It is badly needed and the Whites could do it.

Perhaps the most puzzling consideration for the Whites is that somehow the city, whatever "the city" personifies, continues to exist even though it has been thoroughly disliked by the very best American writers. Let me quote from page 225:

> "The American City has been criticized by writers who doubted or despised the values of civilization, as well as by writers who were intensely dedicated to civilized life. In short, the American City has been caught in the crossfire of two powerful antagonists—primitivists and sophisticates."

It occurs to me that there may be more serious crossfires than these.

I suppose that what the Whites have done is valuable as an exercise in literary extraction. I recently read an excellent thesis on the "asides" in *Hamlet* that almost proved the play could be successfully produced by the "asides" only. What the Whites have done is to compile innumerable "asides" from well-known sources and thus prove to their own satisfaction that something important philosophically has been found. It never occurred to me that Thoreau or Frank Lloyd Wright liked cities — they frequently said they did not and acted accordingly. As for the rest, in the century between, with the exception of Addams and Park (and possibly Dewey), if there was or is a personification of the American City, it has received the insults of intellectuals with indifference.

Dr. Gutkind struggles hard to create a new context for urban people. He fails

—as many of us in planning and architecture have failed. No one can possibly blame him for this. His puzzled search is honest and unpretentious. The result is not convincing, but I give Dr. Gutkind an "A" for effort. The Whites' book is totally different. As a literary curiosity it may have merit, but I am troubled. Was it worth the effort? I will withhold the "A" until the authors' next try, which would be justified by their proven capacity to dig deep into real issues.

CARL FEISS
Planning and Urban Renewal Consultant
Washington, D.C.

An Illuminating Survey

HOMES OF THE AMERICAN PRESIDENTS, *by Cranston Jones. Photographer and picture editor, William H. Schleisner. Published by McGraw-Hill Book Co., Inc., New York 36, N. Y. (1962, 232 pp., illus. $13.95)*

At first glance, this would seem to be mainly a picture book, for it is richly illustrated with photographs of the existing houses in which U. S. Presidents once lived. The architectural illustrations—interiors and exteriors, color and black-and-white—are supplemented by reproductions of old prints and photographs and portraits of all the Presidents and their wives.

But this is a book that must be read to be appreciated. The text by Cranston Jones consists of 35 short biographical essays which, through apt quotation and admirable condensation, evoke the life and character of each President. The accounts of lesser-known Presidents, such as Millard Filmore, Franklin Pierce, and the two Harrisons, are particularly interesting. Choice of the word "homes" instead of "houses" in the title explains the orientation of this most engrossing volume: it is not concerned with architectural history in any way, but with the personalities and families of the Presidents, and so, in passing, with their "homes."

One sociological fact apparent from the book is that no President died in the house where he was born. Most of them bought or built grander houses than those belonging to their fathers, with the exception of F.D.R., who deeded Hyde Park to the nation as a National Historic Site in 1939 (his father had bought the house in 1867).

The late William H. Schleisner did a fine job with the illustrations and with the informative paragraphs that accompany them. Altogether, it is an illuminating survey of the changing styles in American architecture and interior furnishing.

AGNES ADDISON GILCHRIST
Past President, Society of Architectural Historians
Mount Vernon, N. Y.

OTHER BOOKS TO BE NOTED

The Ancient Engineers. L. Sprague de Camp. Doubleday & Co., Inc., 575 Madison Ave., New York 22, N.Y., 1963. 408 pp., illus. $4.95
To be reviewed.

The Architecture of Fantasy: Utopian Building and Planning in Modern Times. Ulrich Conrads and Hans G. Sperlich. Translated, edited, and expanded by Christiane Crasemann Collins and George R. Collins. Frederick A. Praeger, 64 University Place, New York 3, N.Y., 1963. 187 pp., illus. $16
To be reviewed.

The Art of the West. Henri Focillon. Trans. by Donald King. Phaidon Art Books. Distributed by New York Graphic Society, Greenwich, Conn., 1963. Vol. I: **Romanesque.** 176 pp., Vol. II: **Gothic.** 240 pp. both illus. $7.95 each.
The development of artistic style in the West during the Romanesque and Gothic periods. This is the first English presentation of Focillon's theories on this subject.

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EDITED BY KONRAD GATZ

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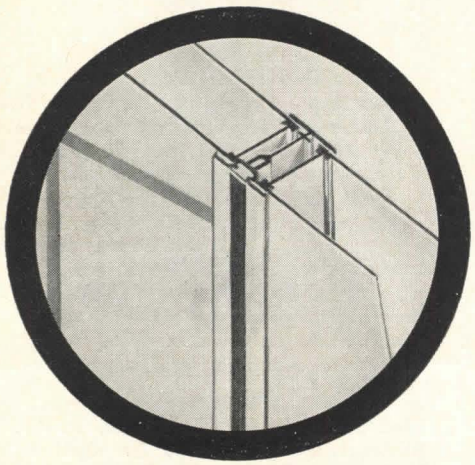

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