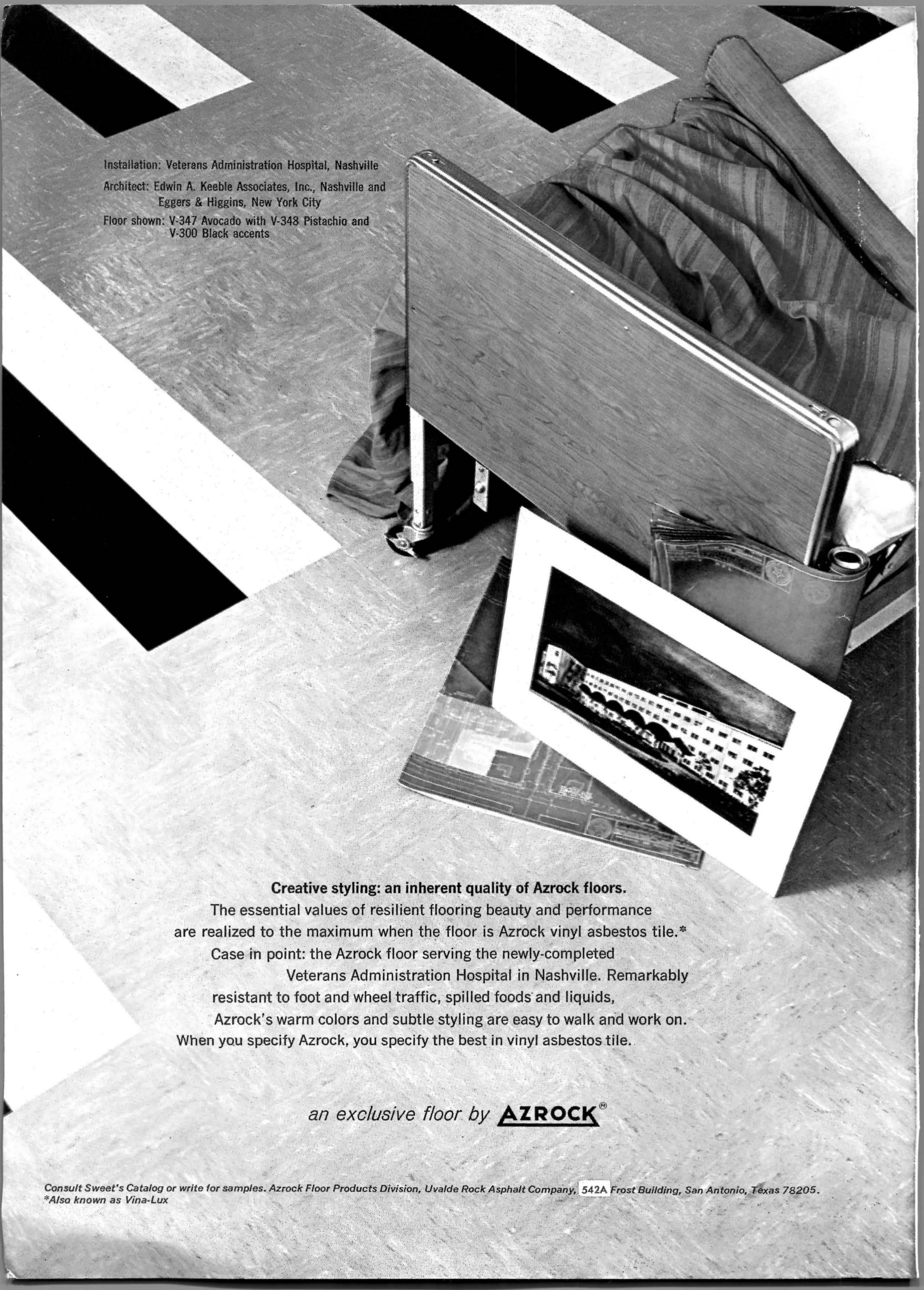
PROGRESSIVE ARCHITECTURE


Installation: Veterans Administration Hospital, Nashville
Architect: Edwin A. Keeble Associates, Inc., Nashville and Eggers & Higgins, New York City
Floor shown: V-347 Avocado with V-348 Pistachio and V-300 Black accents
Creative styling: an inherent quality of Azrock floors.
The essential values of resilient flooring beauty and performance are realized to the maximum when the floor is Azrock vinyl asbestos tile.* Case in point: the Azrock floor serving the newly-completed Veterans Administration Hospital in Nashville. Remarkably resistant to foot and wheel traffic, spilled foods and liquids, Azrock's warm colors and subtle styling are easy to walk and work on. When you specify Azrock, you specify the best in vinyl asbestos tile.
an exclusive floor by AZROCK®
Consult Sweet's Catalog or write for samples. Azrock Floor Products Division, Uvalde Rock Asphalt Company, 542A Frost Building, San Antonio, Texas 78205.
*Also known as Vina-Lux

New sheet vinyl floor

Armstrong DORELLE VINYL CORLON

designed and priced for commercial interiors

This new sheet vinyl floor offers long-term beauty and performance and costs only about 70¢ sq. ft. installed.

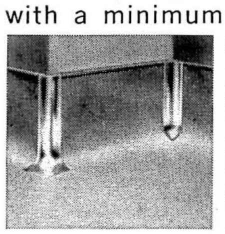
Dorelle Vinyl Corlon meets needs of modern commercial interiors where traffic is heavy but color and design are important, too. And it costs only 70¢ sq. ft. installed—far less than other commercial-weight sheet vinyl floors. This is a tough, long-wearing vinyl floor, developed to take the pounding and scuffing of millions of feet, yet stay fresh looking with normal maintenance. In most characteristics—resistance to abrasion, indentation, alkali, and staining; recovery from compression by heavy furniture and the indentation of spike heels; economy of maintenance—this new vinyl floor is superior to battleship linoleum.

SCALED FOR COMMERCIAL USE

The colors and design of Dorelle were planned specifically for commercial interiors. Its seven colors, all soft or neutral, are coordinated with Armstrong Vinyl Cove Base and Armstrong Wall Corlon. The subtly grained design is scaled to give a monolithic effect in large areas. Colors and design go uniformly through the thickness of the vinyl to the backing.

EASY TO MAINTAIN

Because Dorelle comes in 6′ rolls up to 90′ long, it can be installed with a minimum of seams and can be coved or flashed up the wall to eliminate baseboard crevices—important advantages in hospitals, "white rooms," and other interiors where cleanliness is essential. Dorelle is resistant to grease, dilute acids, and most alkalis and chemicals.



All these qualities make Dorelle easy and economical to clean and to keep clean.

INSTALLED AT ALL GRADE LEVELS

Its Hydrocord Back (available only on Armstrong floors) allows Dorelle to be installed above, on, or below grade, except where excessive alkali or hydrostatic pressure makes the installation of any resilient floor impractical.

MORE INFORMATION

For more information on Dorelle—or on any of Armstrong's wide range of commercial floors—contact your Armstrong Architect-Builder Consultant at your Armstrong District Office. Or write directly to Armstrong, 302 Watson Street, Lancaster, Pa.

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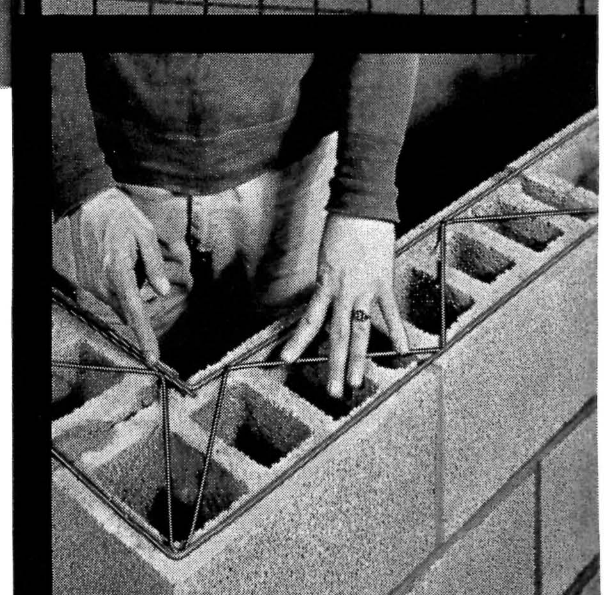
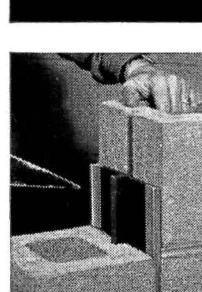
Armstrong VINYL FLOORS





THIS MONTH IN P/A

PROGRESSIVE ARCHITECTURE is a member of the Reinhold Group for BUILDING DESIGN, ENGINEERING AND CONTRACTING that also includes AMERICAN ARTISAN AND HEATING, PIPING & AIR CONDITIONING

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VOLUME XLV, No. 3

REINHOLD

Cover FACADE, WHITNEY AVENUE FIRE STATION (page 126)
Photo: David Hirsch

Frontispiece POTTED PLANT, VW SALES CENTER (page 138)
Photo: Rondal Partridge

EDITORIAL FEATURES

VIEWS

Beneath the Visiting Moon

Dear Editor: Thanks so much for the excellent and penetrating article by Dean John E. Burchard (NOVEMBER/DECEMBER 1963 P/A).

E.W. DYKES
Canton, Ohio

Dear Editor: Many kudos for John Ely Burchard's "Beneath the Visiting Moon." What a gift he would make were he to enlighten and stir us with an application of his thoughts to the design of cities.

PAUL D. SPREIREGEN
Project Head, Urban Design, AIA
Washington, D.C.

Dear Editor: My thanks to you for publishing, and to Dean Burchard for writing, "Beneath the Visiting Moon." This essay is not only brilliant and witty, it is also wise and could be useful.

ETHEL DEAN
New York, N.Y.

Fantastic Review

Dear Editor: I very much take exception to the Peter Collins review of the book *The Architecture of Fantasy* (DECEMBER 1963 P/A), and particularly object to the titling of Bruce Goff's Crystal Chapel as a "Monument to Human Aberration." *Objective* reviews by qualified persons can be of value, but such a flagrant recitation of Mr. Collins' personal tastes and limitations far exceeds the bounds of meaningful criticism. A gross bit of journalism from any angle.

BOB BOWLBY
Oklahoma City, Okla.

Dear Editor: The leading page of Peter Collins' review of *The Architecture of Fantasy* implies that the aluminum and glass church design by Bruce Goff is a monument to human aberration. I choose to believe this inference is an unhappy accident and let it go at that. After scrutinizing this book closely, I can't agree with Collins' impression that the authors' paramount interest lies with the status of the Berlin Group of 1920. Probably the large selection of their documents is included because the authors are not developing a closely worked magnum opus and realize intuitively and rightly that these "on the scene" accounts, which are largely unpublished, will be of more interest to the future than a mediocre criticism. Furthermore, the authors have some sympathy for the manifesto-infested era that harbored these ideas, whereas Collins does not. Of course, these manifestoes and ideas of the Berlin Group contain content naive and silly to us now, but I fail to see where the authors call for the adoption of such ideas. Mostly, I wonder why P/A had Collins review this book at all, since he is a "confirmed rationalist" who considers ". . . the work of the more Expressionist 'Form-Givers' of today to be eccentric and sterile deviations from the real path of architectural evolution." It is interesting that Gropius and Mendelsohn were among the early deviates. Confirmed rationalists could make a stronger case for themselves if they could only agree with one another. This observation is Alfred North Whitehead's, not mine.

In short, Collins' account gives nothing for the modification of human thought which is apparent from the slightest survey of ideas. I don't say that this book is a triumph of organization, and I do disagree with the use of the term "fantasy," which constantly calls up ancient and modern chimeras. But P/A's make-up and Peter Collins' article, in its major impression, simply indulges confirmed rationalists to say "I told you so," without so much as a sec-

ond glance at a book that contains a good deal of interesting material heretofore not seen, or at least not seen between the same covers.

The book has three references to Le Corbusier. Collins says there are none.

The analogy of the Berlin Group's importance to the remote quinquepartite vault in Lincoln Cathedral is made by the reviewer as an historical *coup de grâce*. This reminded me, in my irritation, that Roman intellectuals of the Second Century probably viewed the early Christians as a scruffy lot, idiotically motivated by the belief that the world was coming to an end.

HERB GREENE
Lexington, Ky.

[P/A regrets that any of our readers mistakenly assumed that the book review title refers to Bruce Goff's church, shown on the same page. The illustration chosen happens to be from the cover of the book. As for the title, it was taken verbatim from Peter Collins' own text (p. 164), and was selected because it suggested the essential tone and attitude of the reviewer toward the book as a whole.—ED.]

A Most Significant Contribution

Dear Editor: It is only recently that I had the opportunity to study in detail the OCTOBER 1963 P/A, devoted to "Air Conditioning and Architecture." This is without doubt one of the most significant contributions to building science literature that came out during that year.

HAROLD HAUF
Los Angeles, Calif.

Concealing Reality?

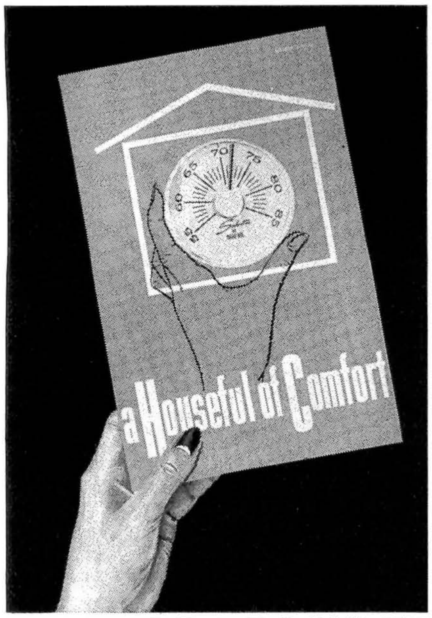
Dear Editor: It is difficult to imagine what prompted the publication of such a poor little building as the West Philadelphia restaurant by Venturi & Short (DECEMBER 1963 P/A).

I am prompted to complain on several grounds— and with this particular work in mind—because I believe it to be symptomatic of certain failures inherent in the present intellectual attack upon spatial continuity in architecture, and because it is indicative of the talent of architectural magazines to conceal reality by magnificent photography and layout, and trite, cliché-ridden text.

Why was this innocent little work published? Is it that an architect has at last designed his own signs? They are very bad signs, if that is the case, though good simply as graphics (or a better, swinging word: iconics). The major function of a sign would seem to be communication, often at several levels of meaning. When one level (the graphic coffee cup) conceals another (the verbal message), then that sign must be recognized as a failure.

Sacrificing potentials of spaces conducive to human enjoyment and comfort for the sake of an intellectual idea—that of the preservation of duality in the old buildings—seems tragic, at the very least. Are there no clues from Wright or from our structural technology? Apparently not, for the architectural conception has provided not a haven in which to relax, but an unrelieved corridor of hard benches, accentuated in its monotony by glaring light fixtures. No punctuation with a spanning of the whole, no attempt to form a variety of spaces, static or flowing, introspective or theatrical (doesn't one wish either to hide or to be on public display?)—nothing, only that deadly row.

One is finally depressed by the fact that there are only worse restaurants elsewhere in the neighborhood, because of the land-grabbing policies of the University of Pennsylvania and the resultant



Continued from page 10

favor human needs over special interests. I was therefore surprised to find, on pp. 51–53 of the DECEMBER 1963 P/A, your one-sided treatment of the controversial Litho City project.

A brief review of the genesis of Litho City will show its metamorphosis: the initial 1961 plan was for a $250-million project, featuring Chinese Wall architecture, housing 25,000 people at $26 to $36 per room rentals. The trimmings were: provisions for senior citizens' accommodations, artists' housing, and family living.

Ignored then, as well as in the subsequent plans, were the problems of excessive population density, traffic congestion, lack of mass transit facilities, and the removal of the last open space reserve in the Lincoln Center area to meet expansion needs.

In 1962, the plan changed to a $200-million project, housing 15,000 people. Its desirable middle-income family features were dropped in favor of a more aesthetic architectural façade with a basic luxury rental complex for families without children. While the sponsor still claimed that the monthly rentals would average about $38 per room, this was repudiated by an aide of the Mayor with the statement that "such housing would be possible only with a tremendous subsidy, which would provide three times as much housing elsewhere."

The senior citizen and artist housing was transformed into a $15-million international students' center, where foreign students "will be living with trade unionists." By the end of 1963, this high sounding feature, renamed "United World Center," was proclaimed "the heart of the project." No attempt was made to explain how trade unionists can afford to pay luxury rentals, and why they should subsidize 1000 foreign students to live in a luxury housing project.

The latest plan, lavishly displayed at Grand Central Station with scale models, and described and illustrated in your NEWS REPORT, goes far beyond the Litho City project. It depicts a vast redevelopment of a section of the city, from 57th to 72nd Street between Central Park West and the Hudson River, which would require enormous sums of city and private funds for its realization. Who is competent to say that the major proposed projects in this redevelopment are desirable or feasible or realizable in the foreseeable future? Should a private group take over the city's planning function? Is this huge project, created in

Continued on page 22

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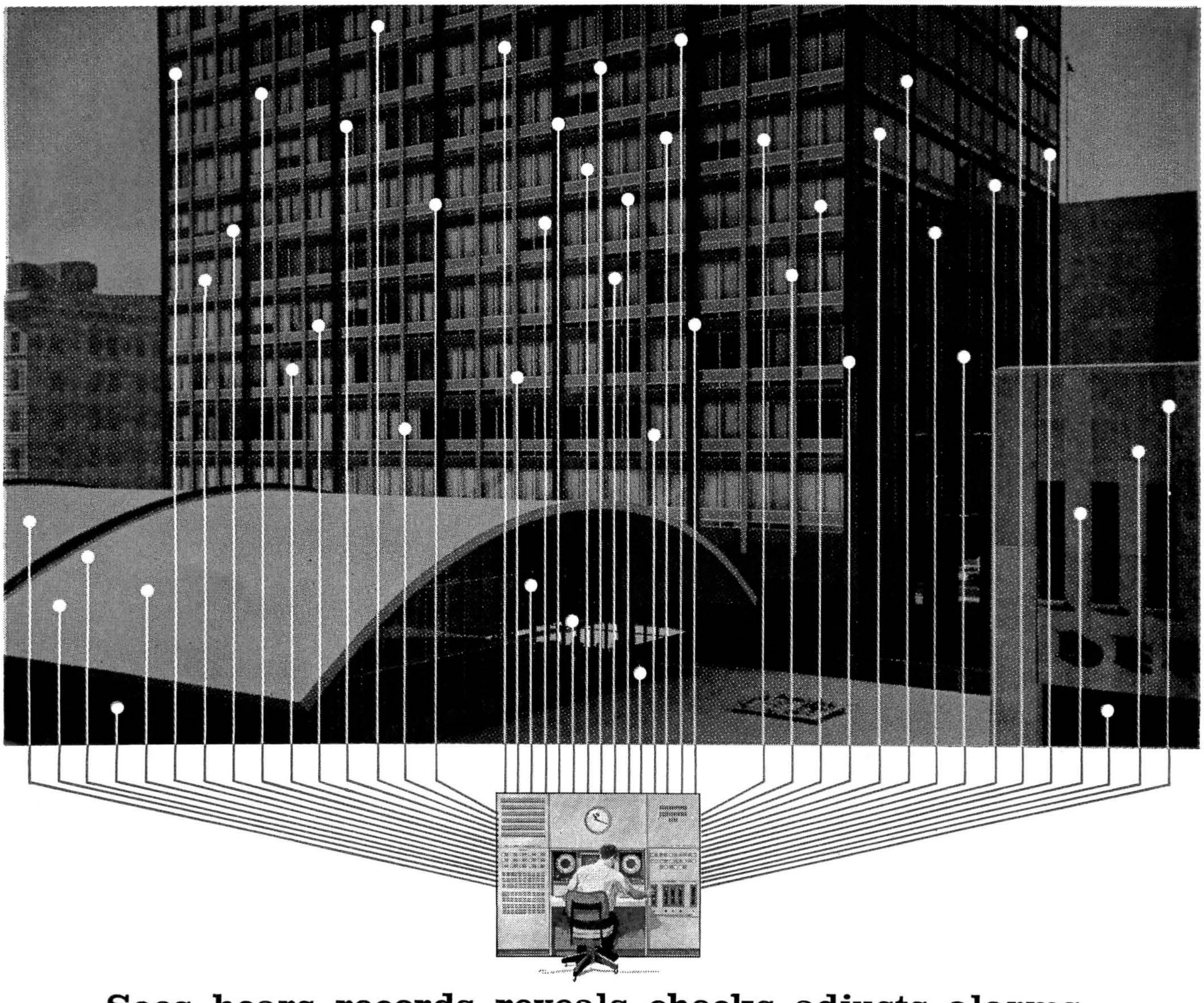

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Does any manufacturer have every major component you need to air condition <u>any</u> hospital?

Holy Cross Hospital, Chicago, Illinois. Architect: Joseph W. Bagnuolo & Associates. Consulting Engineer: Joseph P. Bazzoni. General Contractor: A. L. Jackson Company. Mechanical Contractors: M. J. Holleran, Inc., and Steel City Ventilating Company.

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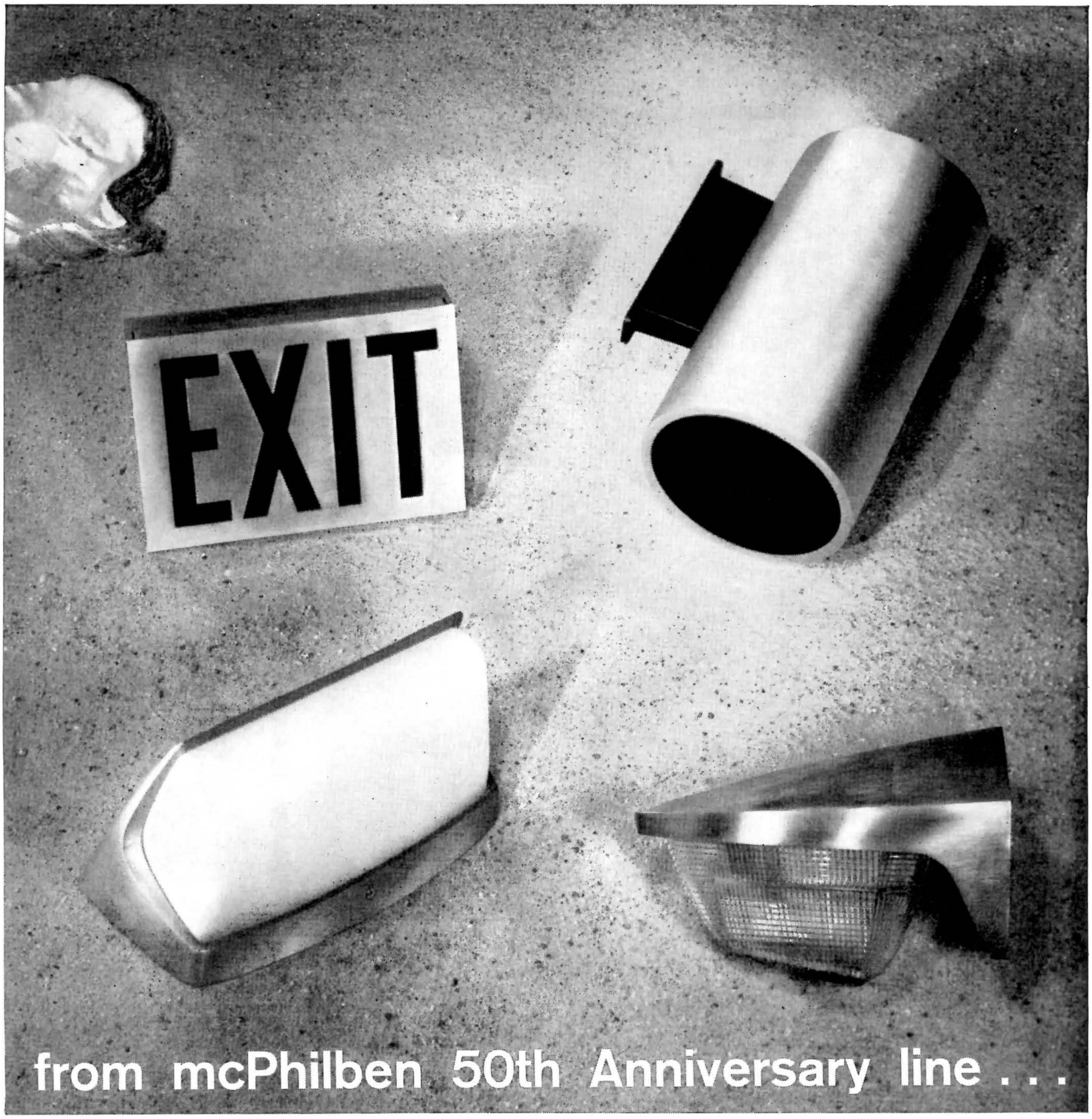

COMPACT DIRECTIONALS, 50 line . . .
provide up to 10 years of lamp life, maintenance free, with maximum available brightness using standard, off-the-shelf incandescent lamps — 50 line, beautifully inconspicuous, is precision made of cast aluminum, fine satin finish with glass panel or cast stencil face. Wall, ceiling, extending bracket and recessed mounting.

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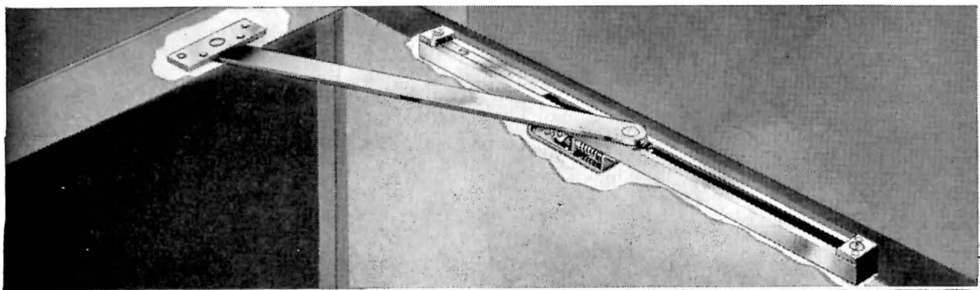

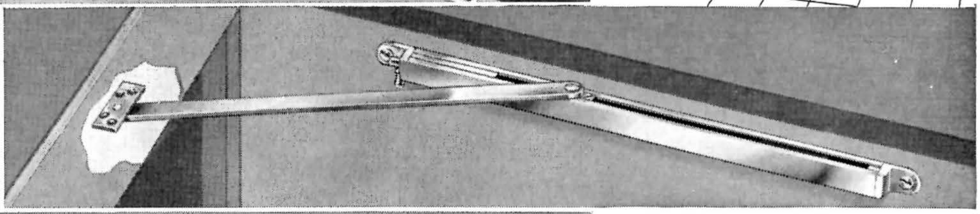

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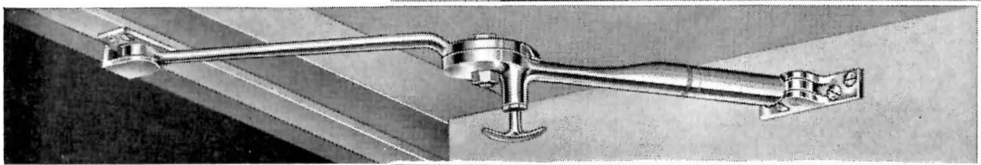

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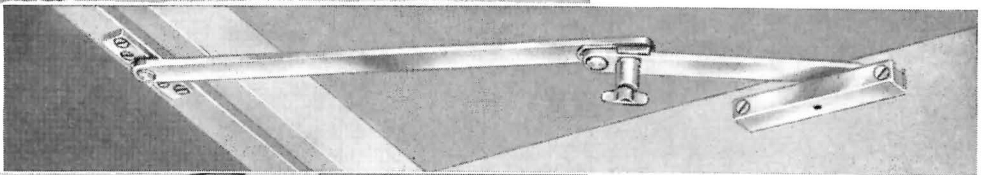
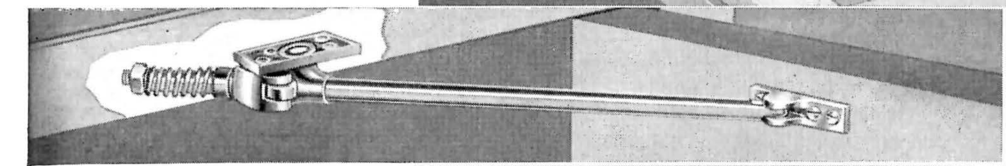
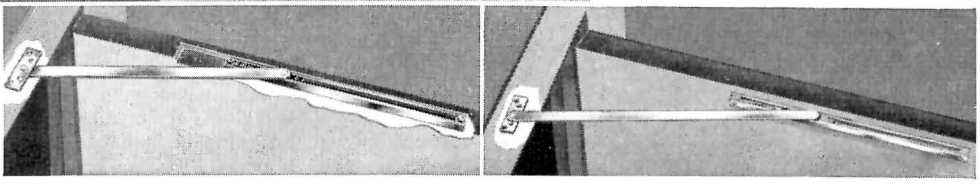


GJ 80M ▶ (handed) for single acting doors. For moderate cost installations.



◀ GJ 70 (non-handed) for single acting doors. Inexpensive for low-cost installations.



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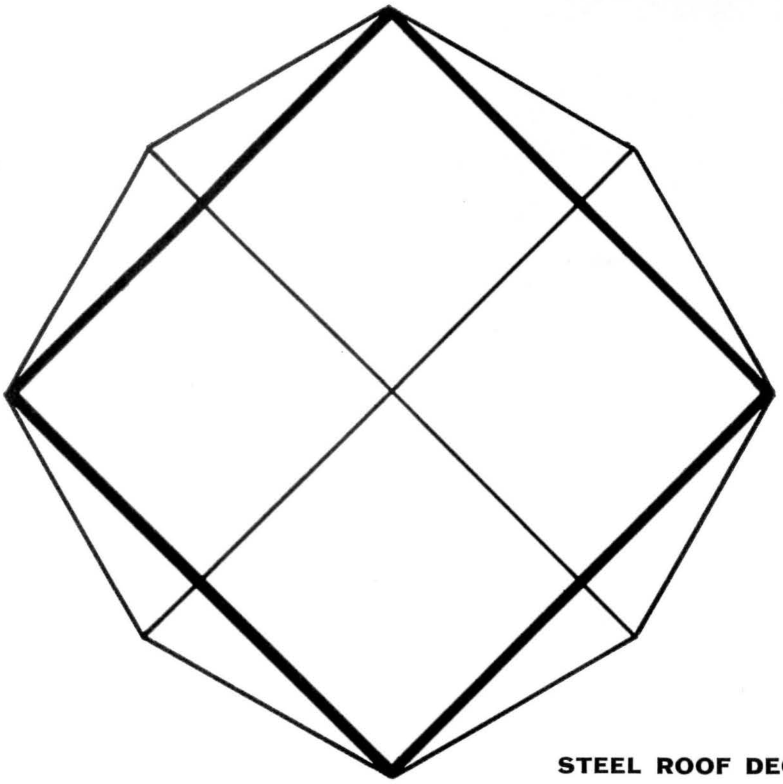
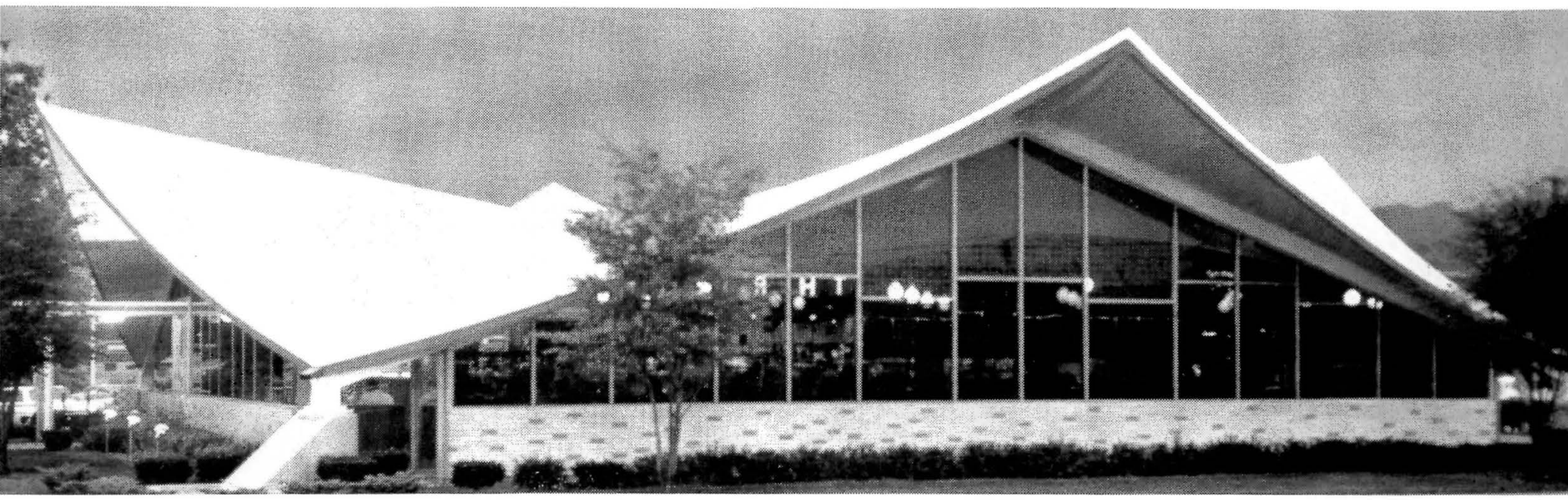
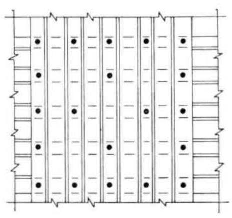


STEEL ROOF DECK FORMS HYPERBOLIC PARABOLOID

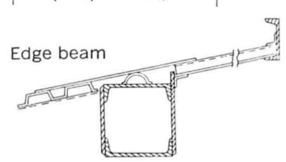


The owners of Frisch's Restaurant, Cincinnati, wanted a striking structure, a square open floor plan, and moderate cost. These requirements were fully satisfied with an economical thin-shell hyperbolic paraboloid roof of steel deck. □ Here's how it was done: two layers of steel deck were placed at right angles to each other and welded together to form a hyperbolic paraboloid quadrant. The roof structure consists of four quadrants, each 33′6″ square having a common column in the center and four corner buttresses. Each paraboloid has a tapered overhang with a maximum cantilever of 9′6″ at the peaks. □ The design load analysis considered the basic square quadrant acting alone and computed the overhang as a simple beam between the edge beam and the fascia beam. The dead load was 22 psf and the live load 25 psf. Design of the decking followed the AISI Manual on Design of Light Gage Formed Steel. □ The cost of the completed roof structure, deck, insulation and built-up marble chip roofing was slightly over \$3 per square foot. Similar structures in steel have since been built for about \$2 per square foot. □ For more information on the USS Family of Steels for design, write United States Steel, Room 6791, 525 William Penn Place, Pittsburgh, Pa. 15230. USS is a registered trademark.

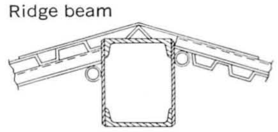
PHOTO: Frisch's Restaurant, Cincinnati, Ohio □ Architects: Woodie Garber & Associates, Cincinnati, Ohio □ Structural Engineers: Hanley and Young (now Truman P. Young & Associates), Cincinnati, Ohio □ General Contractor: William Guentter & Son, Inc., Cincinnati, Ohio □ Roof Deck Contractor: Imbus Roofing Company, Cincinnati, Ohio □ Structural Steel Fabricator: George Rehm Company, Inc., Cincinnati, Ohio □ Roof Deck: H. H. Robertson Company, Pittsburgh, Pa.



Weld pattern for decking. 18 gage lower layer, 20 gage upper layer of 1½″ steel decking, plug welded at each intersection.



Edge beam



Ridge beam

Edge members and ridge members were made of channels and plates to form box sections. The decking was connected at the beams by welding to pipe sections and angles which formed easy-to-weld seats.

What you should know about classroom unit ventilator warranties

A three-minute reading of this message could save your new school thousands of dollars

This is straight talk about a very specific subject: warranties on classroom unit ventilators.

What is the Herman Nelson five-year warranty?

It is a printed document that specifically states the conditions under which parts *and labor* will be provided at no cost if Herman Nelson unit ventilators do not perform as represented due to defects in materials and workmanship.

The important thing about this warranty is that it is *specific;* it deals with a *specific* situation in *specific* terms—no ifs, buts or maybes.

What a warranty is not

You may hear something like this, "We don't have to warrant our equipment for five years; you know we stand behind our products for the life of the building." The truth is that only a manufacturer who *does* stand behind his product *can* offer a specific five-year warranty document.

Generalized statements printed in advertisements or made by salesmen are *not* warranties. For example:

"... experienced Service Engineers are on call to assure equipment performance for the life of the school."

This is not specific. It is not a printed, dated document. It does not necessarily bind the manufacturer to do anything more than have its Service Engineers "on call." In short, it is not a warranty and it is not "the same as" a warranty.

Here's another example:

"Far above the conventional guarantee on mechanical equipment is the ________________ Company's proven policy of continuing interest and responsibility toward its product for the life of the building."

Specific? No. Documented? No. Do the words "proven policy" and "continuing interest and responsibility" provide your school with any security if something should go wrong? No.

It adds up to this: The *only* assurance you can have that the public funds spent on your school's unit ventilator equipment are protected would be a specific, bona fide warranty document.

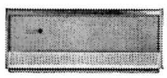
What the Herman Nelson warranty provides

Herman Nelson unit ventilators are warranted for five years from date of installation. The warranty is a nationally published document which is offered to *all purchasers* of Herman Nelson classroom unit ventilators; it is not merely a "device" used only in individual selling situations. Not only *all parts* but also the *labor* involved will be furnished at no cost to the school if there is any performance failure due to defects in material or workmanship determined after an inspection by authorized Herman Nelson representatives.

Read the Herman Nelson warranty

We'd like you to read the full and complete wording of the Herman Nelson unit ventilator warranty. If you'll drop us a request on your letterhead, we'll send you a copy (clearly marked "specimen only") so you can see for yourself the *difference* between "just talk" and documented fact. *And that difference could save your school thousands of dollars.*

Address School Products Department, American Air Filter Company, Inc., 215 Central Avenue, Louisville, Kentucky.



Herman Nelson AAF
SCHOOL PRODUCTS DEPARTMENT

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

Glass Conditioning*

(a systematic plan for controlling indoor environment with PPG glass products)

Hypothetical Assignment: A projected office building in Chicago, facing Lake Michigan per client's request. Building dimensions: 300 feet high by 100 feet by 50 feet. **Site Conditions:** Latitude subject to extremely low temperatures, severe winters with high winds, hot summers. Heating season: approximately 6300 degree days. Air conditioning season: 120 days of which 90 would have an average of 80F for a 12-hour air conditioning period. Indoor temperature to be maintained at 70F.

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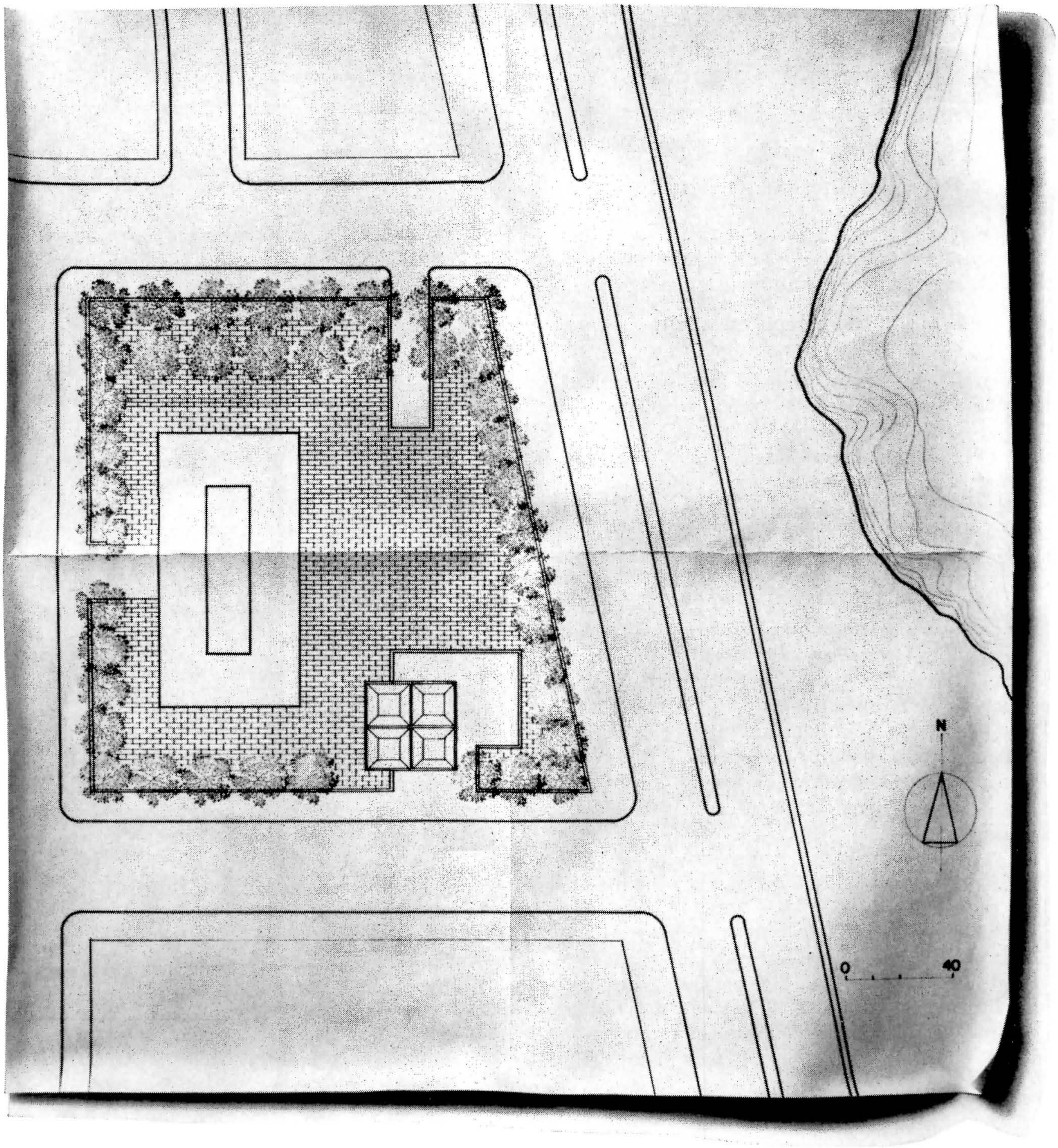

Eastern Exposure Site Conditions: Direct morning sunlight, intensified by reflection from lake. Low winter temperatures combined with lack of sun, aggravating afternoon heat loss.

Glass Conditioning Recommendation: SOLARGRAY® TWINDOW® —TWINDOW Insulating Glass to reduce heat loss to a "U" factor of 0.6, *significantly* reduce downdrafts and cold areas near windows. ¼-inch SOLARGRAY Plate Glass transmits 42% of visible light (37% when combined with clear glass in a TWINDOW unit), to give natural daylight with substantial softening of sun and lake brightness.

Western Exposure Site Conditions: Strong afternoon sunlight in all seasons, with substantial indoor heat gain.

Glass Conditioning Recommendation: LHR(TM) 140 SOLARGRAY TWINDOW—LHR (Light and Heat Reflective) coating on air space side of the outdoor glass of TWINDOW will reduce heat gain to 90 BTU/sq.ft./hr. maximum, transmit 22% of the light. Winter heat loss is also reduced substantially by use of TWINDOW Insulating Glass.

Net effect is reduced solar heat gain and improved visual comfort year round, providing more even temperatures and usable space near windows.

Northern Exposure Site Conditions: Little sun exposure.

Glass Conditioning Recommendation: TWINDOW—to reduce heat loss and heat gain through conduction. Result: More even indoor temperatures, increased occupant satisfaction, and lower comfort maintenance costs.

Southern Exposure Site Conditions: Extensive sunlight, summer and winter, introducing solar heat gain as a factor which will be welcome in winter, but will significantly increase air conditioning requirements in summer.

Glass Conditioning Recommendation: SOLARGRAY Plate Glass—to reduce heat gain substantially during summer, and soften brightness in all seasons, while providing better control of indoor temperature and environment.

Human Factors: Personal comfort is, after all, the main goal of environmental control. To this end, Glass Conditioning produces pleasant working conditions by improving visual comfort and lessening seasonal extremes of solar heat and severe cold. Glass Conditioning, then, by providing both operating economies and a more attractive working atmosphere, will stimulate rentals and reduce turnover.

For more complete information on PPG Products for Glass Conditioning, consult the PPG Architectural Representative nearest you. Pittsburgh Plate Glass Company, Pittsburgh, Pennsylvania 15222.

LIGHT TRANSMITTANCE AND THERMAL CONDUCTIVITY DATA

		Visible Transmittance %	Thermal* Conductivity U	MAXIMUM** Heat Gain BTU/hr/sq ft
(PLATE GLASS)				
Regular	¼	88	1	200
Solex	¼	75	1	150
Solargray	¼	42	1	150
Solarbronze	¼	51	1	150
(SHEET GLASS)				
Clear	7/32	89	1	205
Graylite "31"	⅛	31	1	170
Graylite "61"	3/16	61	1	195
Graylite "56"	7/32	56	1	190
Graylite "14"	7/32	14	1	150
Graylite "52"	¼	52	1	185
(INSULATING GLASS—1" Metal Edge Twindow—½" air space)				
Clear ¼" Glass, both sides		77	0.6	170
with ¼" Solex, 1 side		65	0.6	115
with ¼" Solargray, 1 side		37	0.6	115
with ¼" Solarbronze, 1 side		45	0.6	115
with ¼" LHR Solargray, 1 side		22	0.6	90
with ¼" LHR Solarbronze, 1 side		25	0.6	90

*BTU/hr/sq ft/ degree F indoor-outdoor temperature difference.
**BTU/hr/sq ft/ for July 21 Design Day 40° N. 4 P.M. West Elevation.

PPG®

PPG makes the glass that makes the difference

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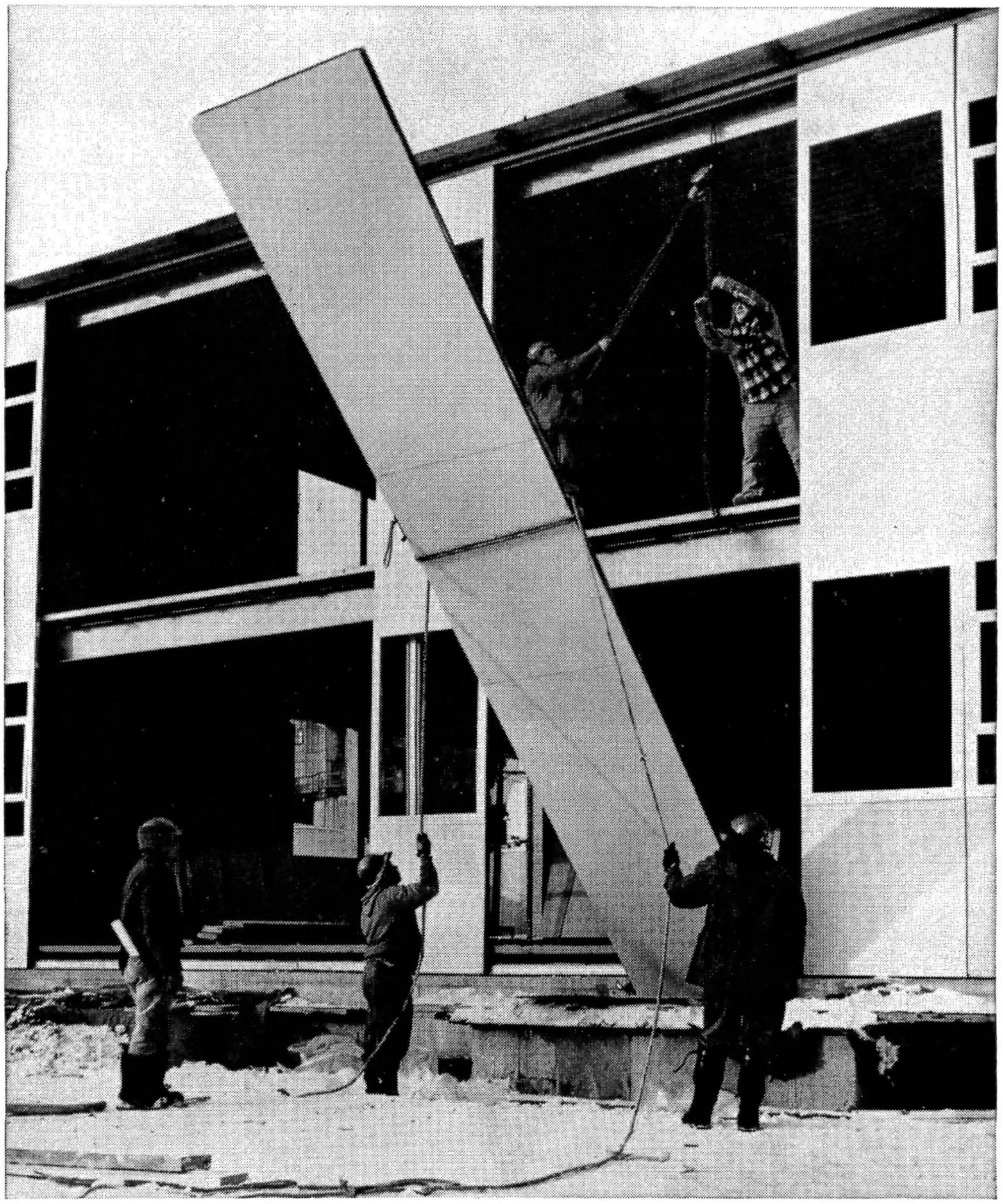

Fabricator: American Bridge Division of U. S. Steel Corporation

HOW LONG SHOULD IT TAKE TO ENCLOSE A BUILDING?

The five men putting up these panels weren't out to set a record.

They worked at normal pace. Yet, in just under four working days they erected the 50 sturdy panels needed to completely enclose three open sides of this building addition.

The 24′x4′ panels go up fast. Big and strong as they are, they are also lightweight and easy to handle.

They're made of Hetrofoam®-based polyurethane foam 2⅝″ thick poured in place between steel skins by American Bridge Division, United States Steel Corporation.

The Hetrofoam-based foam adds rigidity and dimensional stability to the panel and has an insulation value double that of ordinary insulating materials. Its k factor, initially as low as .11 at 75° F, stays remarkably stable. **Won't support combustion.** Fire retardance is inherent in the chemistry of Hetrofoam systems. It adds nothing to the cost. They are rated nonburning on ASTM D-1692-59T.

For more information on Hetrofoam and its architectural applications, please write Durez® Plastics Division, Hooker Chemical Corporation, 7703 Walck Road, North Tonawanda, N. Y., 14121.

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DUREZ PLASTICS DIVISION

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For more information, turn to Reader Service card, circle No. 361

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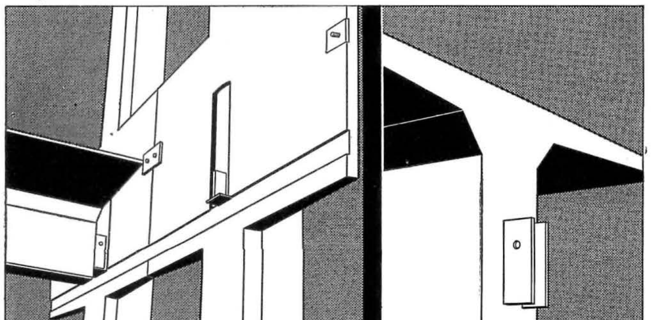
Precast, prestressed columns form the beautiful facade of the Pascack Hills High School. Steel plates, already cast in columns, are welded together for column to column connection as shown in sketch below. Slots, similar to ones at top of each column pictured above, will receive the roof tee beams. Architects: Sherwood, Mills and Smith, Stamford, Conn. Engineers: Seelye Stevenson Value and Knecht, New York City. Contractor: Edmund H. Cheval, Inc., Fair Lawn, N. J. **Prestressed Concrete work by Blakeslee Prestress, a division of C. W. Blakeslee and Sons, Inc., New Haven, Conn.**

Easy way to frame a building

There are numerous, simple approaches to assembling precast, prestressed concrete members into attractive structures, all meeting architects' requirements for aesthetics. One easy way, detailed here, is being used at the Pascack Hills High School. It incorporates the use of precast wall, floor and roof members, welded together after placement in the structure. Formwork is eliminated, cast-in-place concrete is reduced to a minimum, erection proceeds in any kind of weather.



Left: Detail of floor-framing system to columns. The plate in center of drawing is typical connection, column to column. *Right:* End of precast, prestressed single-tee floor member. The two steel plates projecting from end slide over and are welded to steel tee, shown at left.

Located at Montvale, New Jersey, in the Pascack Valley Regional High School District, the structure will contain 114,000 sq. ft. of prestressed floor and roof tees plus 36,000 sq. ft. of prestressed wall panels. Roof tee beams are up to 88′ long, column tees up to 37′, floor tees up to 58′; all are 6′ wide. Precast, prestressed columns form an attractive exterior and the entire structure is functional and clean-lined. Needed flexibility for future additions is another inherent dividend of this advanced design approach.

CF&I-Roebling, pioneer manufacturer of prestressing wire and strand and most experienced in the application of this modern construction method, is prepared to supply you with practical data and the names of prestressing fabricators in your area. Please tell us what type of structure you are contemplating. The Colorado Fuel and Iron Corporation, Denver 2, Colorado, Trenton 2, New Jersey. Sales offices in principal cities.

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PRESTRESSING WIRE AND STRAND

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For more information, Circle No. 422

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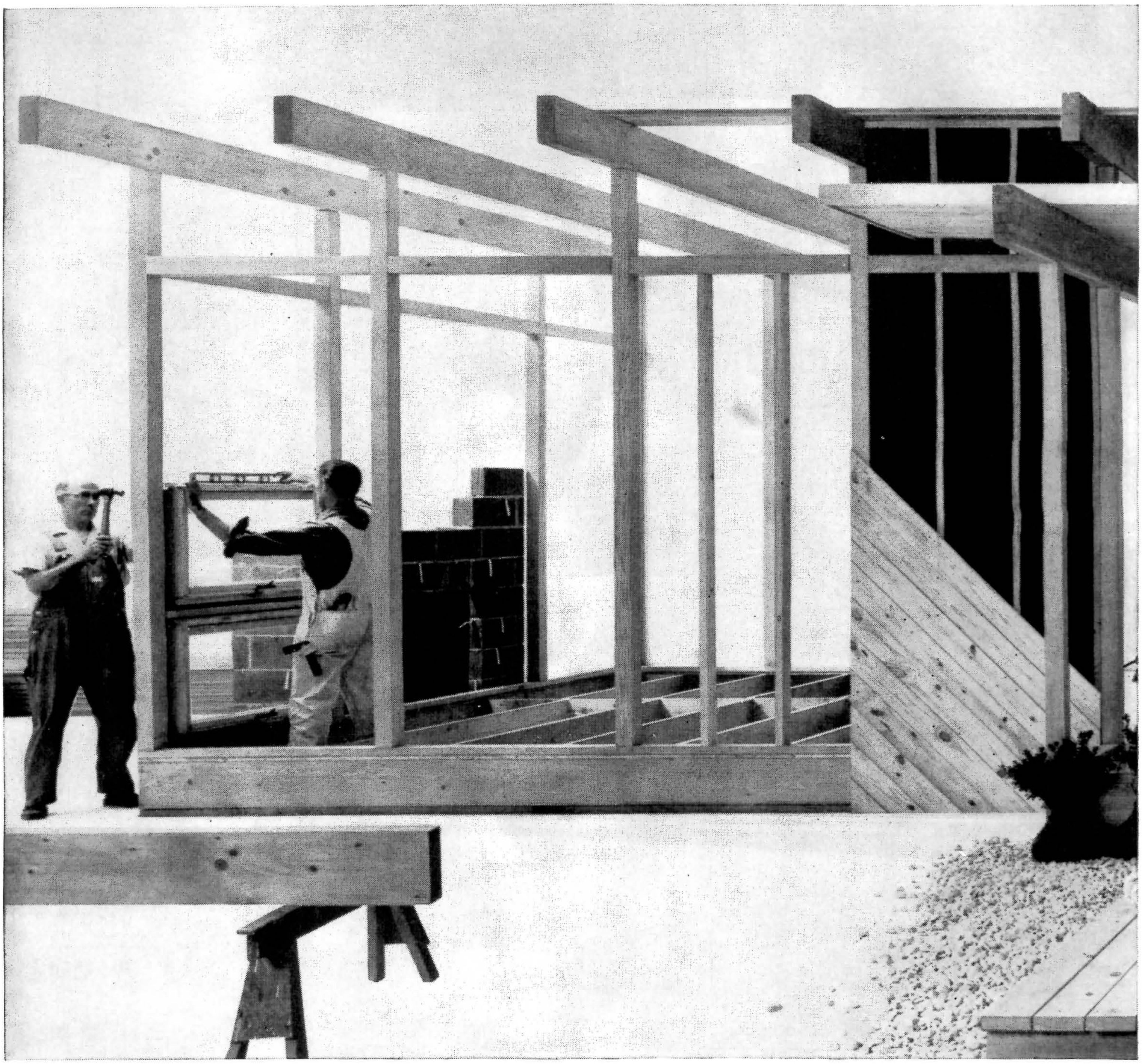


This is the house that WOOD built

In 1964, the National Wood Promotion Program is selling more than the virtues of wood. It's selling the values of home ownership . . . to millions of LIFE-reading families. And millions of them can afford to build *now.*

In this panoramic photograph, appearing in full color in the first LIFE spread, wood builds a house before the readers' eyes. From left to right, the ad shows the construction of a modern wood home and the kind of living it offers. From start to finish, it says this is the time and this is the way to build.

The new campaign, by promoting home building, can stimulate more building in the entire community . . . provide you greater opportunity to design the most compatible new structures of wood for living and learning, work and play.

The worth of wood for strength and comfort is proved by generations of use. The warmth of wood is always understood. And, what's more important, the flexibility and economy of wood extend to every dimension of your planning, in any building you design to give individuals,

. . . to build demand for your plans

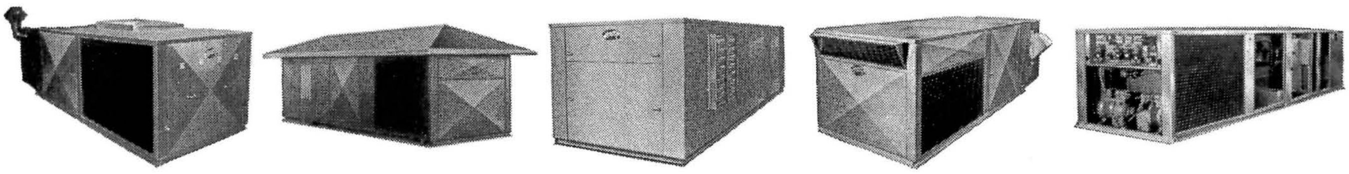
companies, and communities the most for their money. For more information on designing with wood, write:

NATIONAL LUMBER MANUFACTURERS ASSOCIATION
Wood Information Center, 1619 Massachusetts Avenue, N. W., Washington 6, D. C.

UNICOM MANUALS 1 & 2: "Design Principles" (122 pages) and "Fabrication of Components" (248 pages), graphically detailing the Unicom method of house construction. Single copies of either or both are available at nominal cost to those associated with or supplying the home building industry. Your request should be made under professional letterhead, and sent to UNICOM, National Lumber Manufacturers Association, 1619 Massachusetts Ave., N.W., Washington 6, D.C.

For more information, turn to Reader Service card, circle No. 362

ATMOS-PAK PREFABRICATED ONE-PIECE ROOF-MOUNTED HEATING AND/OR COOLING SYSTEMS



Name the fuel and name the power, describe the building and the load. We'll show you an Atmos-Pak pre-fabricated, roof-mounted unit that will do the heating and/or cooling better. Every Atmos-Pak system is specifically designed and constructed for roof-mounting; one-piece, ready-to-hook-up. Avoid the improvised on-the-roof assembly!

Low-silhouette, weatherproof, Atmos-Pak is handsomely at home atop the roof of any one-story building. The unit system makes for astounding flexibility and expandability. Atmos-Pak minimizes maintenance, delivers efficient, consistent, dependable performance, offers space saving, ease of zone control.

Ask about Atmos-Pak, especially the new RGE models—"Atmos-Pak is cooling with gas!" For an efficient solution of the heating and/or cooling of large one-story buildings, using gas, electricity, steam, hot water, oil, please write. Demonstrations easy to arrange.

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THERE'S ALWAYS ROOM ON TOP FOR THE ORIGINAL LOW SILHOUETTE

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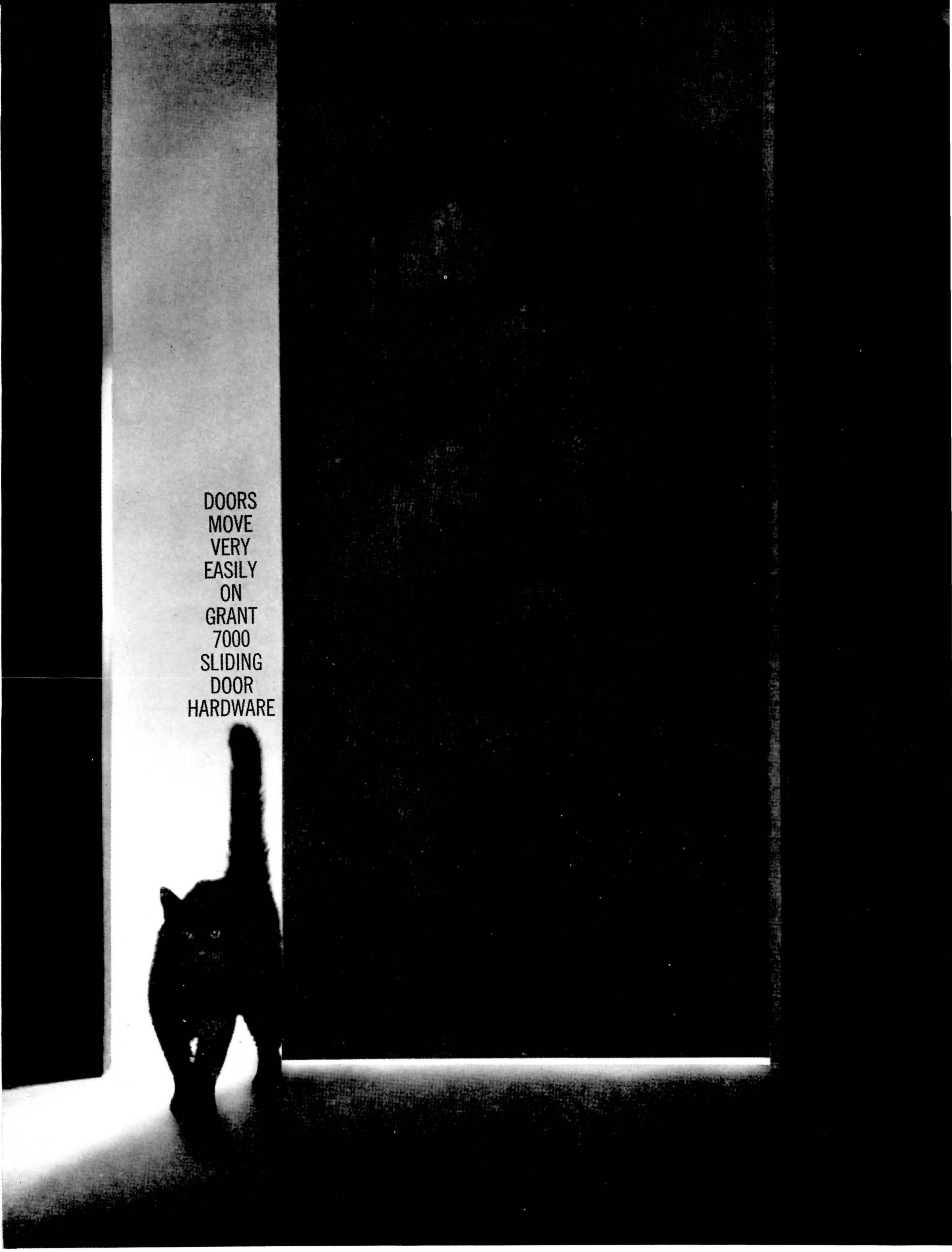
DOORS
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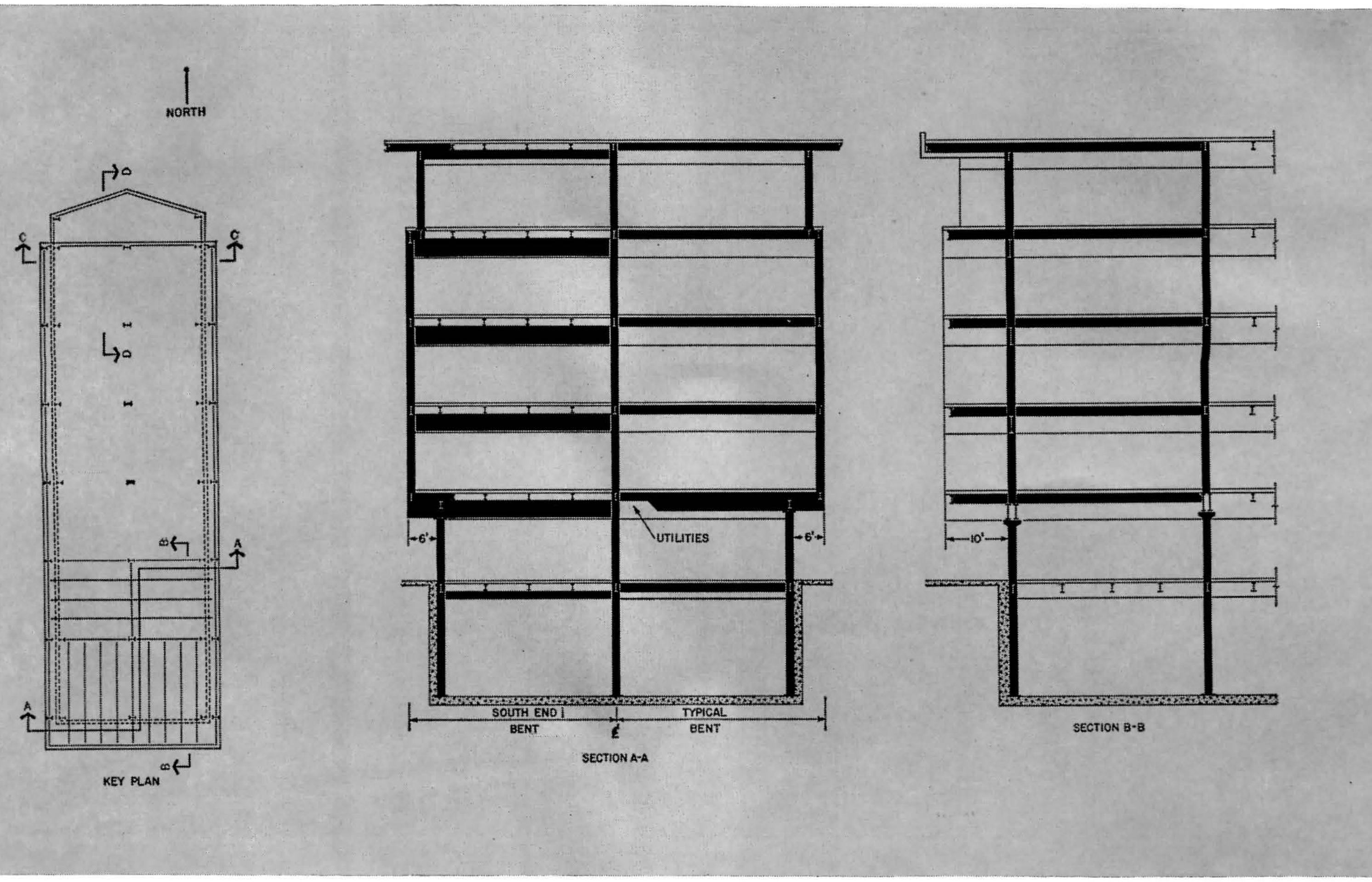
The architect wanted two-way Steel made them easy...



In the unique design of the Allentown City Hall and Police Building, the main tower is cantilevered at the second floor on three sides—6 feet on the east and west, and 10 feet on the south.

At first, these cantilevers looked like a natural for reinforced concrete in a waffle-slab system. But thorough study of both concrete and structural steel proved exactly the opposite.

6-ft cantilevers on east and west . . . solved by steel

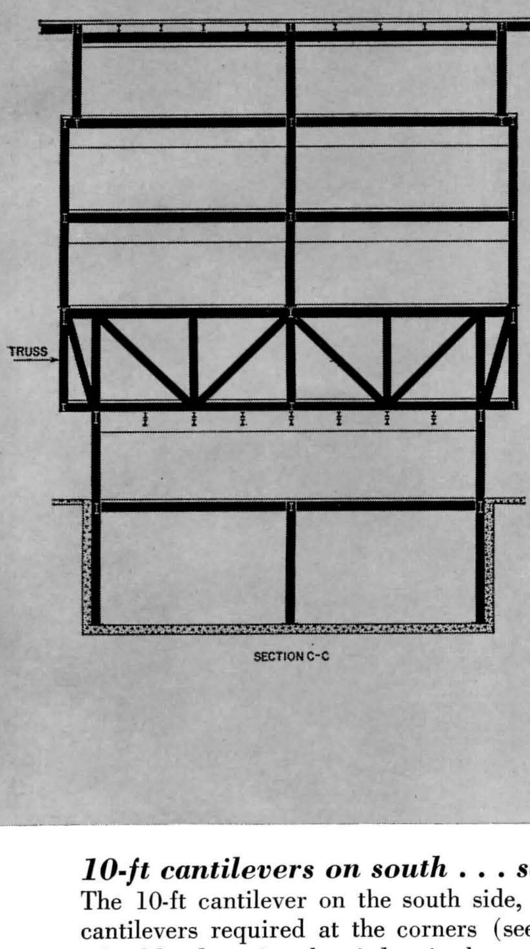
In the concrete design, columns were located in the set-back exterior wall at the first floor, and carried up through the four floors above. This resulted in columns occurring in the middle of certain rooms—an undesirable feature of the concrete design.

The steel solution is shown on the key plan and Section A-A. Two parallel 30-in. wide-flange steel beams cantilever 6 ft beyond the first floor columns, and carry the exterior columns for the upper floors. This feature allows the exterior line of columns to be moved into the wall, where a line of columns rightfully belongs. In addition, to allow passage of utilities near the interior support of the cantilevered beam, the beam depth was reduced by coping the lower flange and welding on a tapered flange to replace it.

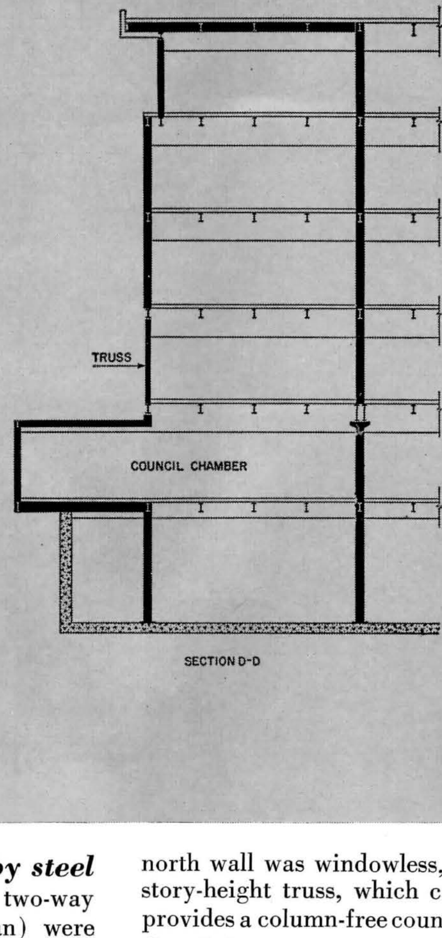
Steel for Strength

cantilevers.

and saved money, too!



SECTION C-C



SECTION D-D

Architect-Engineer:
Everett Associates.

General Contractor:
E. C. Machin, Inc.

Steel Fabricator and Erector:
Lehigh Structural Steel Company.

All are Allentown, Pa., firms.

Bethlehem supplied 1,770 tons of structural steel for the project.

10-ft cantilevers on south . . . solved by steel

The 10-ft cantilever on the south side, and the two-way cantilevers required at the corners (see key plan) were solved by dropping the girders in the southernmost frame, thereby allowing the filler beams to pass over the girders and develop the cantilevers rather simply at each floor. (See Section B-B.)

North wall problem . . . solved by steel

The architectural concept dictated that the north wall be carried from the second to the fifth floors on a column-free support over the center of the council chamber located on the first floor at the north end of the building. Since the north wall was windowless, this problem was solved by a story-height truss, which carries the columns above, and provides a column-free council chamber at the ground floor.

Steel frame cost less than concrete

Steel framing not only proved more adaptable to this unusual architectural concept, but also cost considerably *less* than the proposed concrete frame, according to the architect.

We'd like to prove to you that structural steel, *with very few exceptions,* can do anything any other structural material can do—and do it *better.* If you are planning to build or design a new structure, the Bethlehem sales office nearest you will be pleased to discuss the project with you.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
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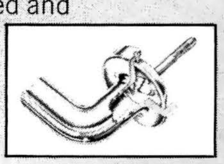
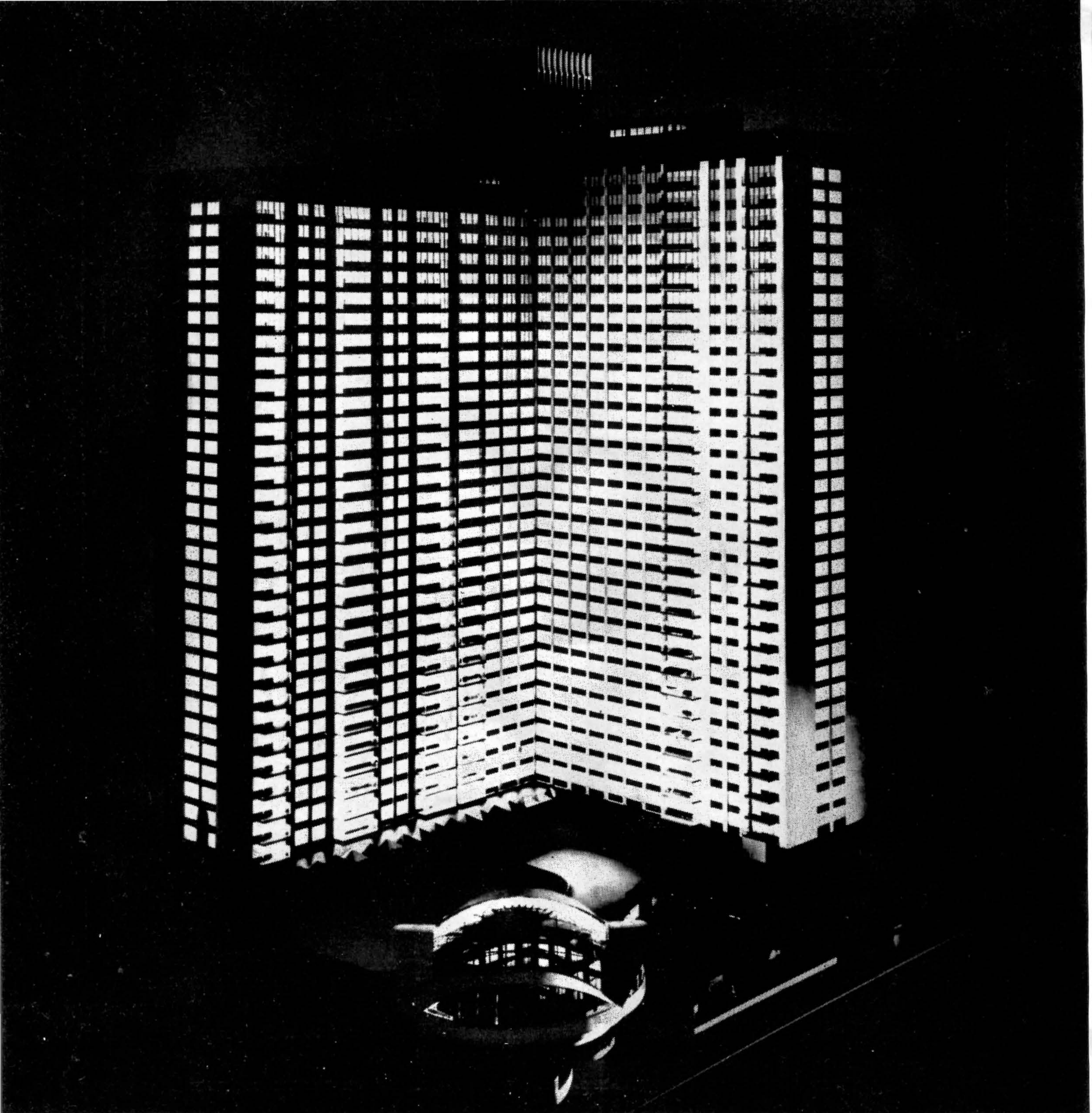


For more information, turn to Reader Service card, circle No. 424



DEVELOPER: THE JUPITER CORPORATION • ARCHITECTS: HIRSCHFELD, PAWLAN AND REINHEIMER • CONSULTING ENGINEERS: NACHMAN, VRAGEL & ASSOCIATES • MECHANICAL CONTRACTOR: ECONOMY PLUMBING & HEATING CO.

Would you expect to find Carrier Gas-powered air conditioning in the world's largest apartment house, Chicago's Outer Drive East?

If your answer is yes, you've been peeking into the books of some of America's most successful buildings. And you've seen the savings Carrier and Gas give in black and white...the lower installation costs because the system uses the same boilers that heat the building...the lower operating costs because Gas is the service-free, economical fuel. You know that it all adds up to the best choice possible for Outer Drive East. And probably for you as well. Call your local Gas Company, or write Carrier Air Conditioning Company, Syracuse 1, New York. AMERICAN GAS ASSOCIATION, INC.

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

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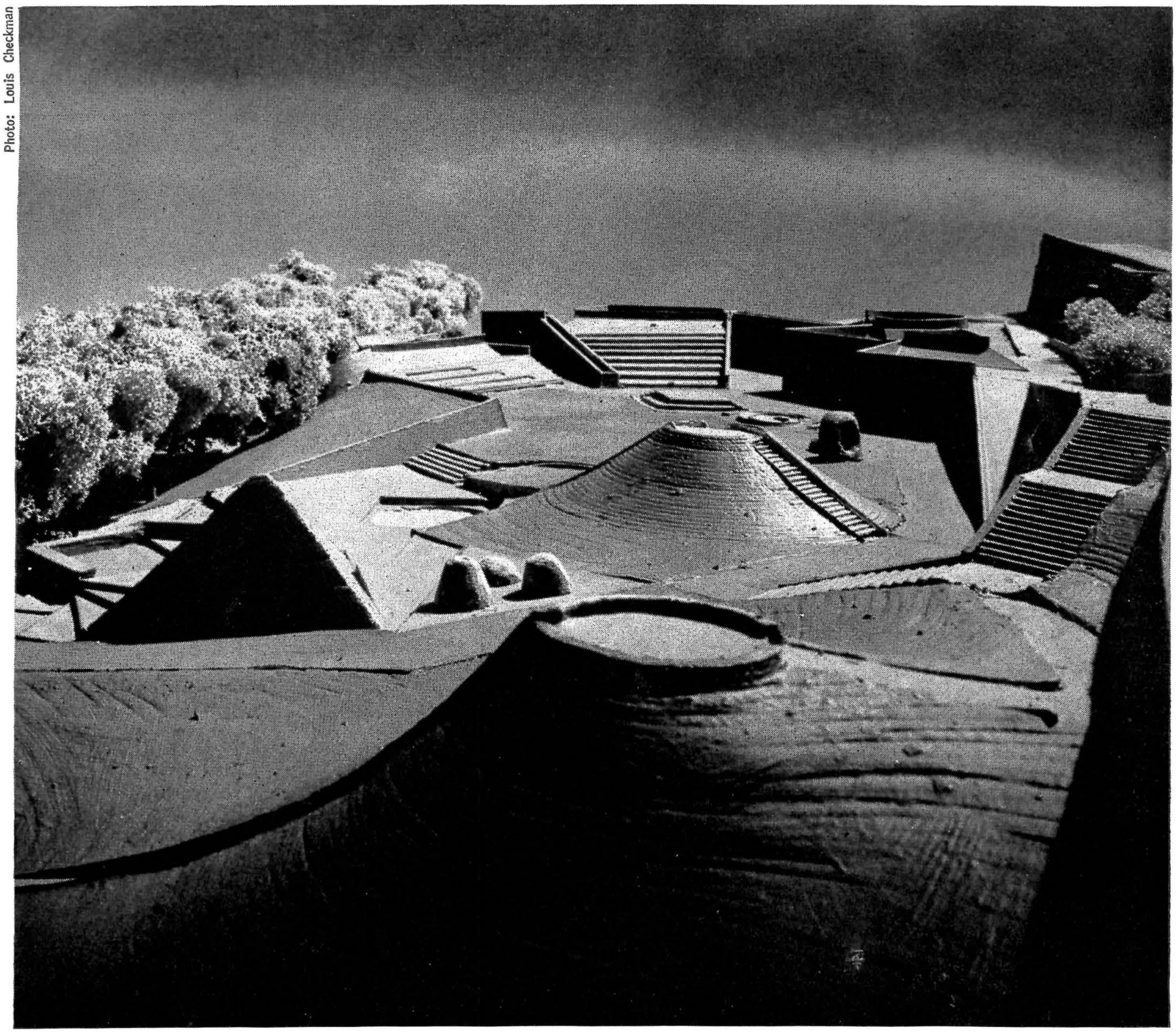
For more information, Circle No. 350 ➤

NEWS REPORT

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

Photo: Louis Checkman

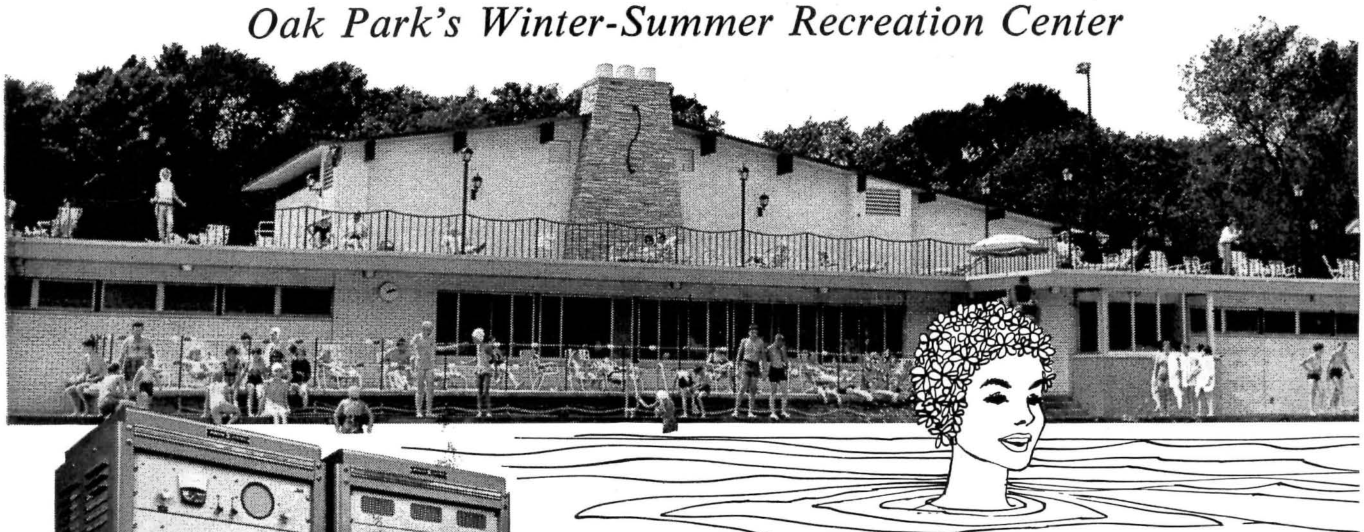


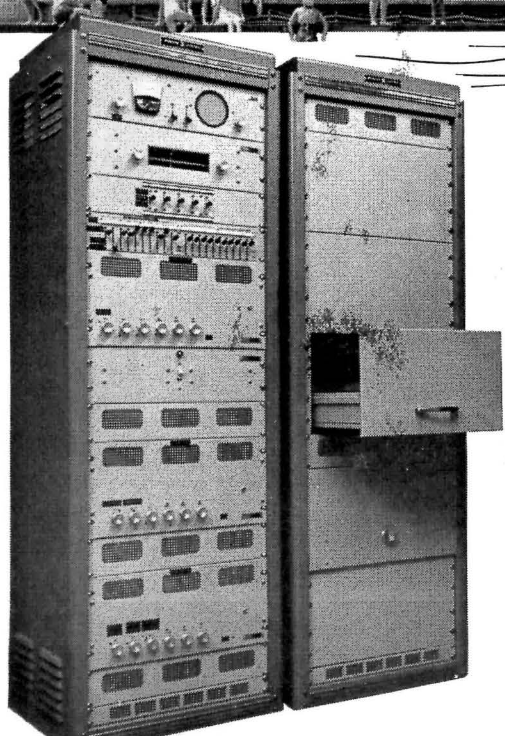
Design of neighborhood park by Kahn and Noguchi utilizes natural earth forms to create dramatic landscape for children.

Architect & Engineer — Jack E. Barclay, Jr. and Associates Oak Park, Ill.
Sound Engineer — Triangle Sound Systems, Chicago, Ill.
Supt. of Park District — Hans A. Nelson
Gen. Mgr. of Center — Webbs Norman

sounds like fun . . .

Oak Park's Winter-Summer Recreation Center





CENTRAL CONTROL UNIT
contains power source for entire sound system. It also has three self-contained program sources — AM/FM tuner, record changer and a Webster Ekotape® recorder-reproducer.

They're ice skating now on a rink built to professional ice hockey standards. But, come summer, they'll be roller skating on a special, paper-thin plastic base now underneath the ice. They'll be swimming, too, in an Olympic-size pool containing 400,000 gallons of water. Or relaxing in a huge service building that contains locker rooms, recreation area, lounge and solarium.

And the complete facility is sound planned with a Webster Electric music distribution and paging system!

Webster sound reaches all areas with voice paging or programs (3 programs can be projected to different areas simultaneously). Public address is used as a safety feature to control crowds at the entrance to the pool (over 40,000 people used this facility in the first 5 weeks). The Webster system is designed to serve every sound function with complete simplicity of operation. Sound components are contained in 2 equipment racks. Each Webster unit assures crisp, clear voice transmission and/or high fidelity music.

See your Webster Electric dealer* for details and a personally conducted tour of a recent Webster Electric sound installation.

** See Yellow Pages — "Intercommunication Systems"*

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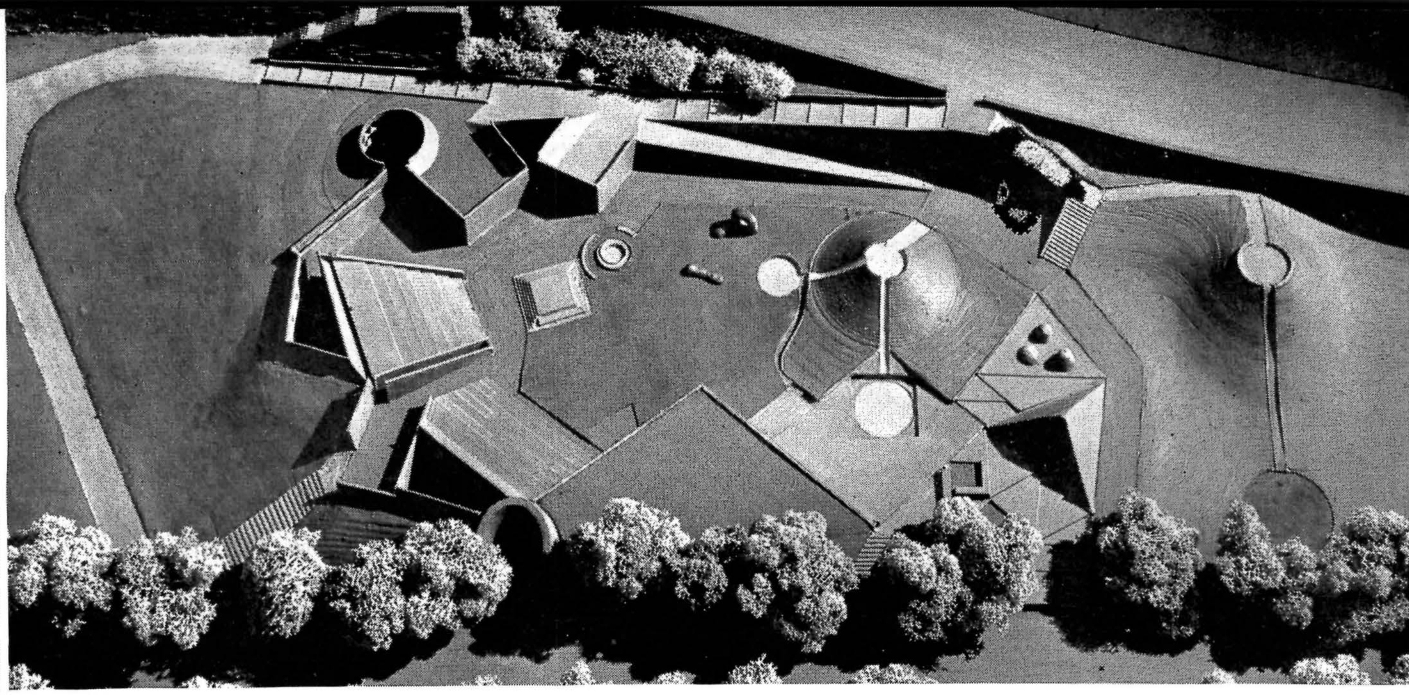
Photos: Louis Checkman

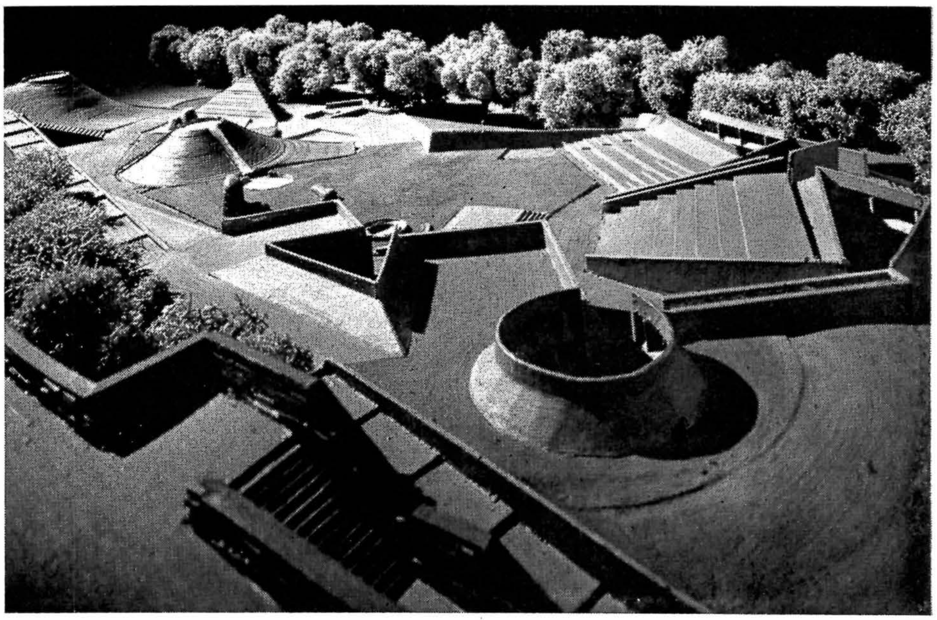


Kahn-Noguchi Playground Proposed for New York

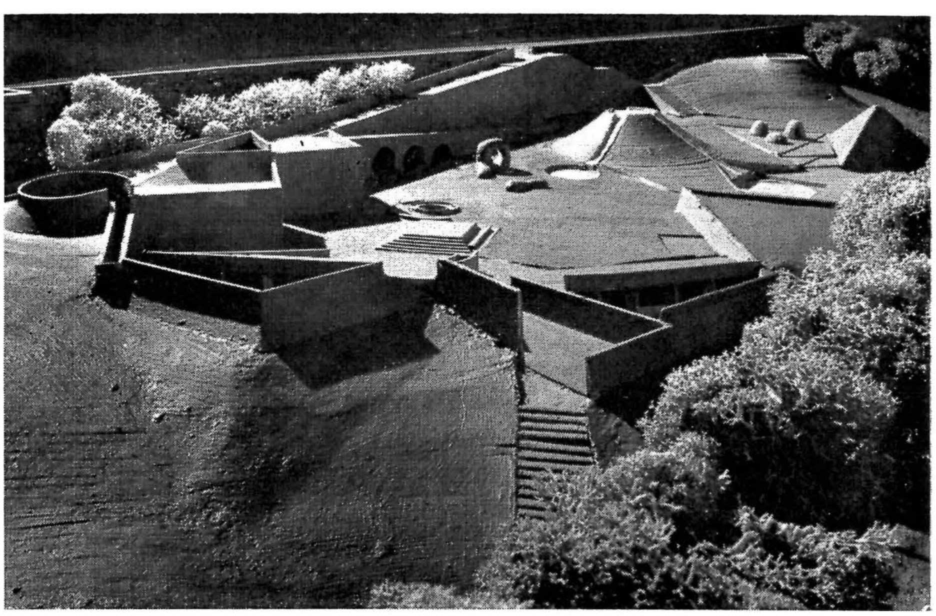
NEW YORK, N.Y. Riverside Park, a notable civic amenity that extends from 72nd Street up past Grant's Tomb, was created in accordance with plans by Frederick Law Olmstead and Calvert Vaux, designers of New York's Central Park. If a group of interested citizens has its way, the park will receive a playground created by no less distinguished a team than Architect Louis I. Kahn and Sculptor Isamu Noguchi.

Site of the proposed playground would be a shrubbery-covered slope at the lower level of the park between 101st and 103rd Streets. Kahn stated that the design respects, and was even influenced by, the site. "It was inspired by the contours of the land," he said. Instead of the asphalt-and-iron-swing-type playground usually provided by New York's Department of Parks, this one would be a lively landscape from which a child's imagination might create thrilling dream countries. Two mounds and a pyramid for climbing will dot the site, together with a shallow pool, stairways, and large-scale Noguchi scupltures. An amphitheater at one end would overlook the whole playground. The only actual building would be embedded in the slopes at the rear of the site. It would contain playrooms and be lighted through four light wells. Its roof would be grass-covered so that, when seen from above, it would "disappear" into the park.

Critics of the project feel that it is another intrusion into the city's valuable parkland. Adherents of the scheme, however, point out that it is designed for a *legitimate* park use, and that it successfully respects the feeling of Riverside Park as a grassy, green area. At the unveiling of the model, Kahn commented, "There is nothing here that doesn't say park."



Model from west (above) *and south* (below) *shows light wells.*



ANTA Repertory Theater Opens Temporary Quarters

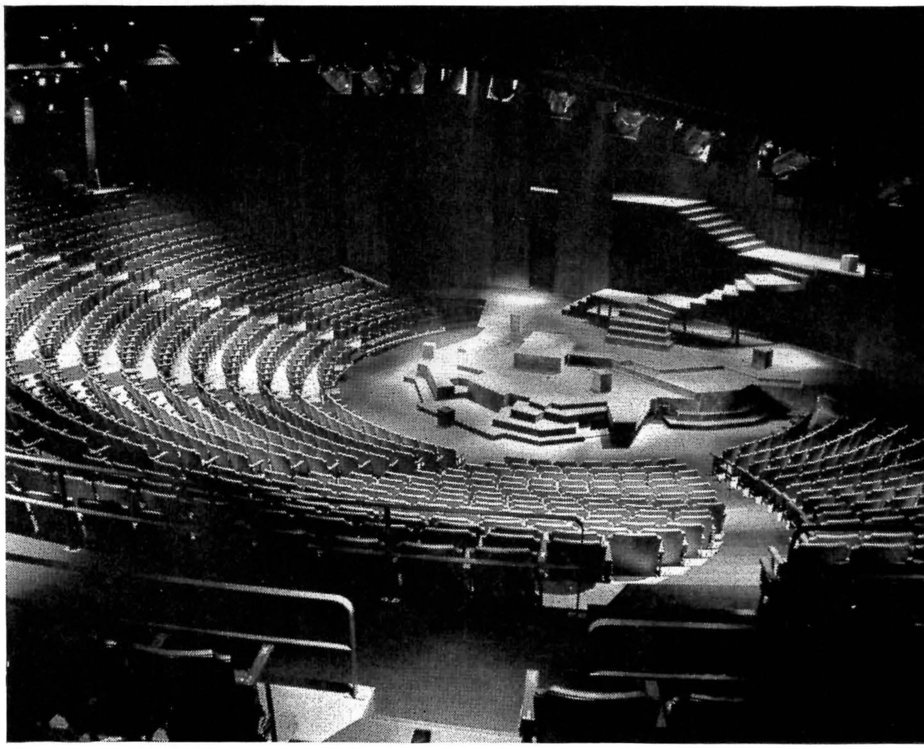
NEW YORK, N.Y. The opening of a new theater in New York is as scarce as the preservation of a notable building there, and the opening of a *good* theater even scarcer. There was cause for rejoicing, therefore, when the ANTA-Washington Square Theater made its debut last month with Arthur Miller's "After the Fall."

The theater was built as a temporary home for the Repertory Company of Lincoln Center when the Vivian Beaumont Repertory Theater fell considerably behind schedule. Site, budget, and time restrictions caused the designers (Eero Saarinen Associates and Jo Mielziner) to flaunt "many of the canons of good design as set forth by the Board of Standards and Planning for the Living Theater." Presumably this refers to the quite Spartan exterior and circulation areas, for the auditorium and stage provisions are most impressively accomplished within the range of the program.

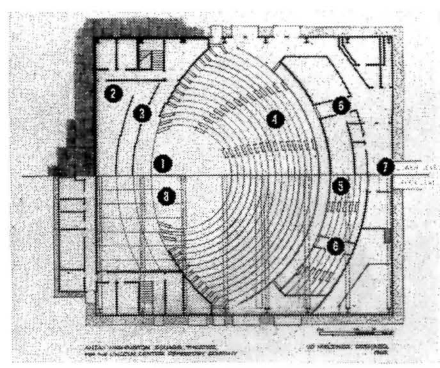
The entrance to the auditorium, via the vomitories under the loge, is a dramatic experience in itself: the space is a pit dug 15 ft into the earth, so that a theatergoer enters the orchestra at the top, perceives seating and stage spread out before him, and proceeds downward to his seat. The seating plan of the future Beaumont theater has been duplicated, with the exceptions that there the loge will be a five-row balcony and the designers will not be restricted to the thrust stage. In line with the policy of austerity, the seats are blue-fabric-recovered second-hand ones.

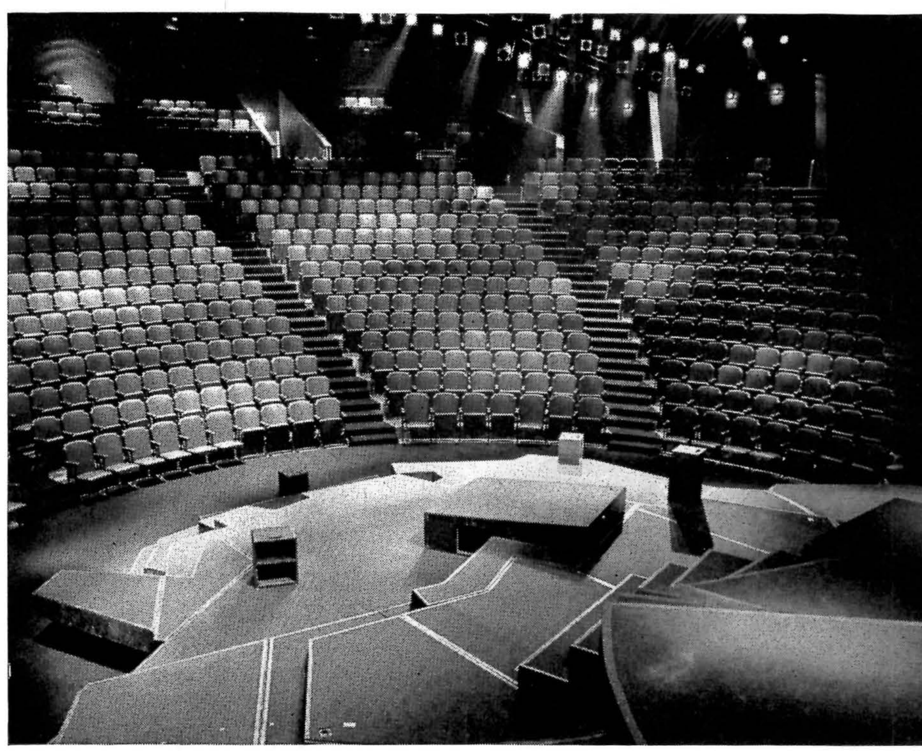
The stage consists basically of a central circular concrete platform bounded on three sides by seating, and backed up by a rectangular space that can be altered in many ways by use of screens. In addition to flexible use of screens, the platform can be placed at three different levels. All these various elements make for a stage alive with vitality and movement. Since there is no proscenium, all changes of scene, mood, as well as intermissions, are taken care of by the effective lighting system. Six fixtures per area are used in the thrust stage area (three in each of two colors), and four instruments per area (two in each of two colors) upstage of the end seats. There are also two groups of downlights, 60 "specials."

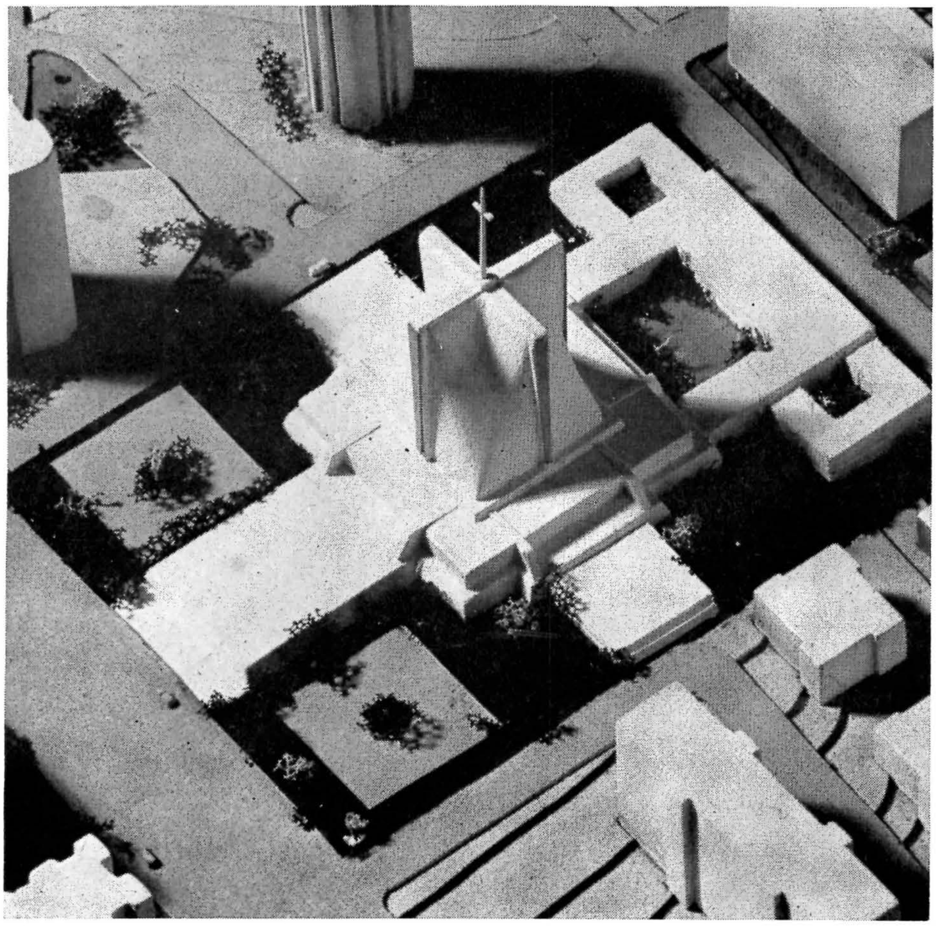
Although, as noted, this is a temporary facility, it can stand on its own as one of the finest new playhouse interiors around. It would be commendable if New York University, on whose land it stands, were to preserve it for future use.



(1) stage area; (2) backstage; (3) movable panels; (4) orchestra; (5) loge; (6) vomitories; (7) entrance; (8) grid for lighting, catwalks, and movable panel tracks.

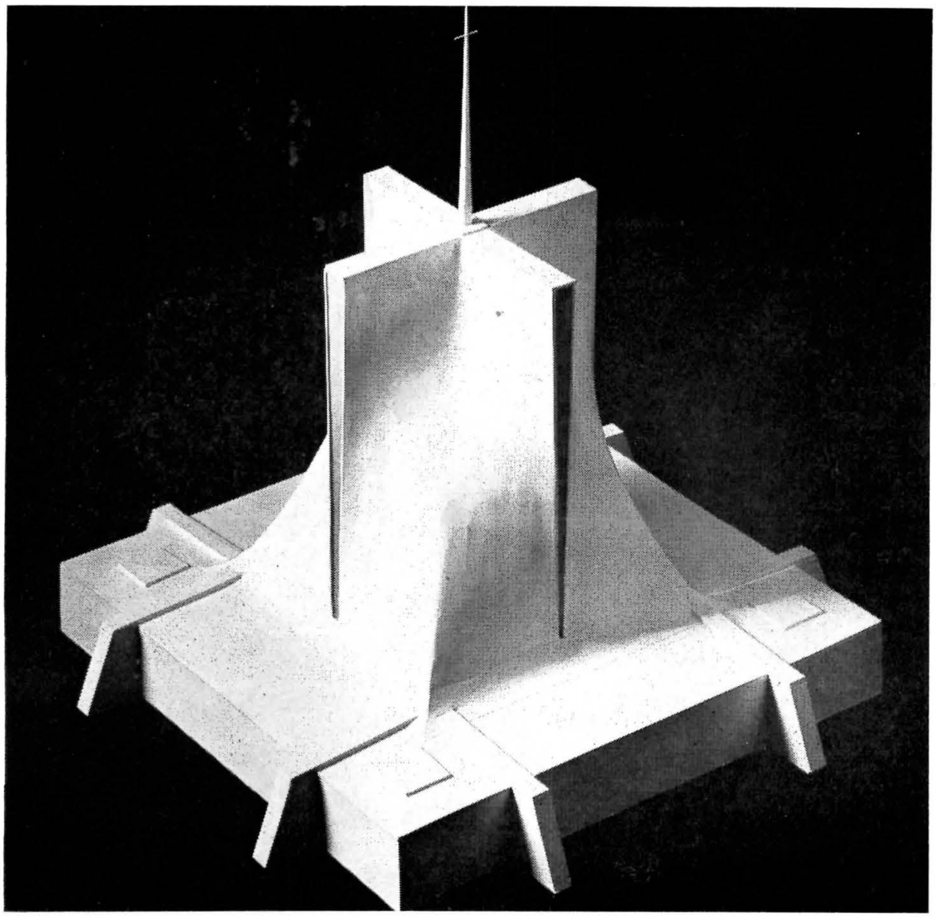






Photos: Stone & Steccati

St. Mary's Cathedral will sit among other new buildings in Western Addition.

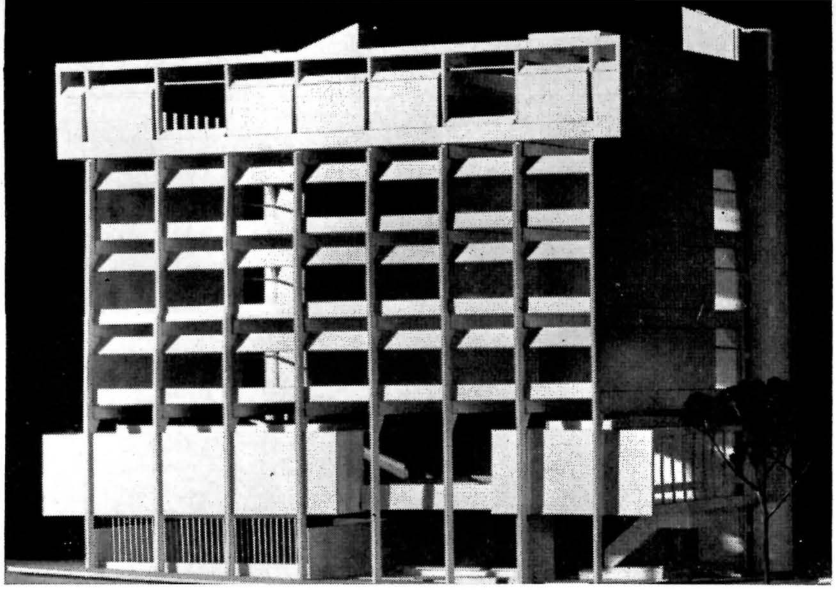


POWERFUL CATHEDRAL FOR SAN FRANCISCO

SAN FRANCISCO, CALIF. San Francisco, a city that takes its architecture seriously, has been waiting impatiently to see the designs of its new Roman Catholic archdiocesan cathedral. To take the place of 71-year-old St. Mary's Cathedral, which was destroyed by fire in September 1962, the new church will form the focus of the city's first redevelopment in the Western Addition area. As such, its design was open to review and approval by the San Francisco Redevelopment Agency, which, since 1959, has had a policy of granting the sale of land in redevelopment areas only after approval of the design of structures and their landscaping proposed for those sections. Agency executive director M. Justin Herman states that, in the case of the new cathedral, "both the problem and the magnificent opportunity were beyond our ordinary staff resources and we arranged with Archbishop Joseph T. McGucken for the appointment of an advisory panel to consult with and advise the church's architects as well as the agency." Named to the panel were Architect Thomas H. Creighton, Landscape Architect Thomas D. Church, and Art Professor Richard O'Hanlon. Subsequently, Pietro Belluschi and Pier Luigi Nervi were named as consultants on design and structure to the original architects, McSweeney, Ryan & Lee.

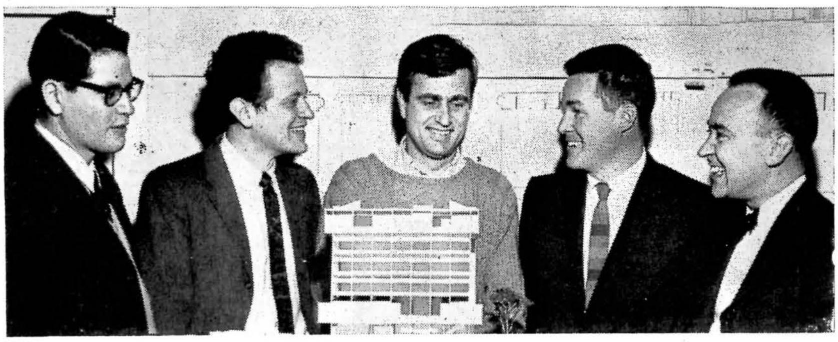
When public demand to see the new cathedral precipitated what Belluschi considers a premature showing of the design last month, the design unveiled was a dramatic form consisting of four upended hyperbolic paraboloids rising from a massive base structure. Colored light will wash downward on the interior through the immense overhead cross of glass formed by the junction of the paraboloids. Studies are underway to consider the feasibility of covering the concrete forms with white marble. The pedestal structure, which Belluschi says needs restudy and refinement, will contain several chapels, the sacristy, and atrium. At the rear will be a high school and quarters for the cathedral clerics and their pastor. Capacity of the 180-ft-high sanctuary will be 2600.

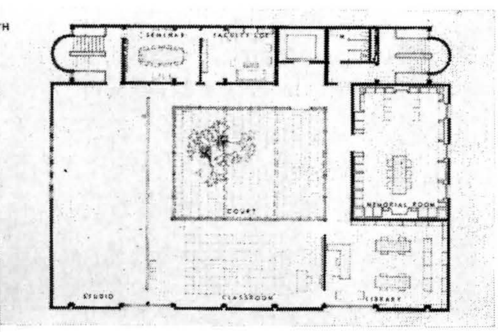
"When I heard a new cathedral was to be built in San Francisco, I said 'I pity the architect.' And then I was asked to take part in it," said Belluschi at the unveiling. "What we have now for a cathedral is a concept. It is an idea and a strong idea, and we are all terribly excited—but the fear of God hasn't left us."

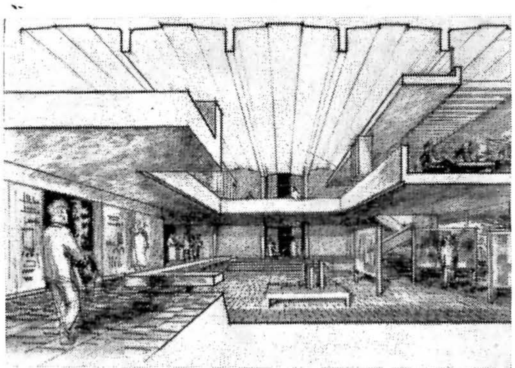


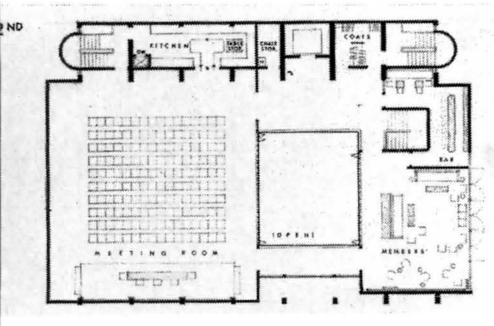
Photos: Phokion Karas

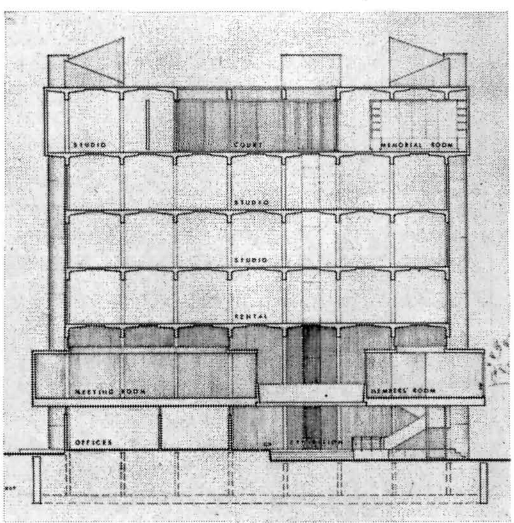
FIRST PRIZE (illustrations this page): *Krauss, Goodman, Myer, Ashley, O'Nell* (below, left to right). *Jury Comment: "Best worked-out plan. Structural solution offers logical system, using prefabricated elements. Jury admired simplicity by which natural light was brought into studios. Party wall logical location for all services. Plan frees the rest of building area for variety of uses demanded by program. Meeting, exhibition, and members' rooms in attractive two-story relationship."*

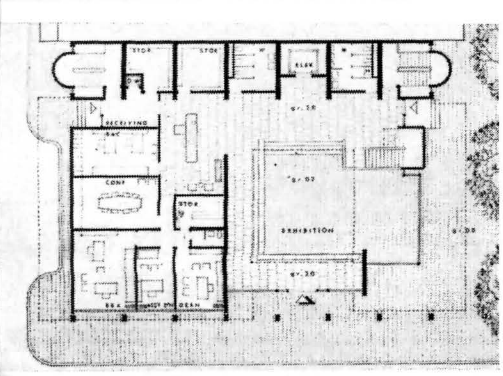












BAC to Enter New Phase with New Building

BOSTON, MASS. With the announcement of the winning scheme in a design competition for its new building, the Boston Architectural Center has given notice that it plans to erect a new structure on the site of its present quarters at 320 Newbury Street in Back Bay. According to H. Morse Payne, President of BAC, "The new building is not only intended to serve as a center for the education of persons employed in architects' offices, but also as the center of activities for the entire architectural profession of Greater Boston. In the new building, besides design studios, classrooms and library, and other educational spaces, there will be meeting rooms, offices, and social areas for the Boston Society of Architects (the local chapter of the American Institute of Architects) and other professional organizations devoted to building."

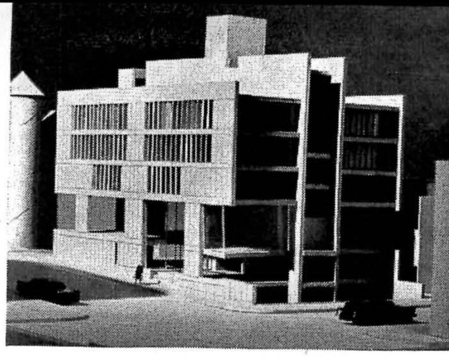
The greater part of the new structure will be devoted to the evening school program, instituted in 1889 by the Boston Architectural Club under the leadership of Harvard Professor Longford Warren and Architect Clarence Blackall. Since Harvard University and MIT have not provided evening school facilities for architectural students, BAC will continue to fill this need, supplementing, rather than competing with, its big, Ivy-league brothers. Much of the teaching staff is drawn from the Harvard and MIT graduate schools, serving them, in effect, as a teaching laboratory.

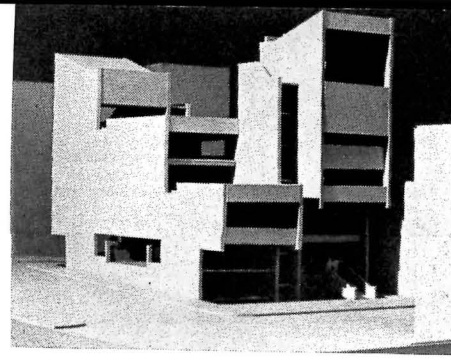
The decision to erect a new building was made on completion of a three-year study of BAC's long-range building requirements and a major fund-raising campaign, when it became apparent that, due to unforeseen weaknesses, the cost of remodeling the existing structure was comparable to the erection of a new building. Following these findings, the Board of

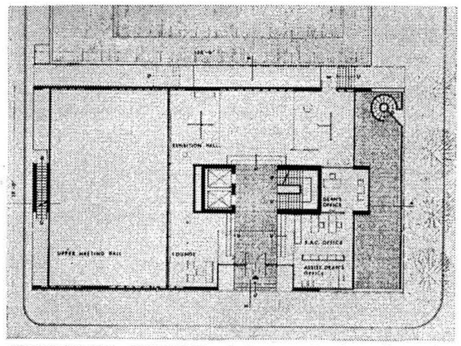
Directors voted on Oct. 30, 1963, to hold a design competition. Professor Walter F. Bogner of the School of Design of Harvard University was selected to serve as Professional Advisor. He prepared the detailed competition program by Dec. 2, 1963, and on Feb. 2 announced the following winners: First Prize ($5000 and Architect's Contract): Fletcher Ashley & John Myer, with associates Robert O'Nell, Richard Krauss, Robert Goodman, William Hall. Second Prize ($3000): Alan Chapman & Harold Goyette, with associates Fumihiko Maki and John Bennetts. Third Prize ($1000): Robert Herman with Peter Woytuk for Progressive Design Associates. Honorable Mention #1: Joseph J. Schiffer, Erwin Y. Galantay, Henry A. Millon. Honorable Mention #2: Dale Johnson, Leonard Notkin and Wayne Welke.

Competition entries were restricted to members of the Boston Architectural Center, present or former students or faculty of BAC, members of the Boston Society of Architects and Massachusetts State Association of Architects, and all architects registered in Massachusetts.

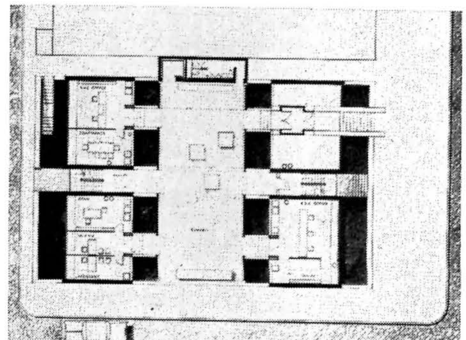
The jury consisted of: Pietro Belluschi, Dean of the Massachusetts Institute of Technology School of Architecture and Planning: José Luis Sert, Dean of the Harvard Graduate School of Design; Ralph R. Rapson, Dean of the School of Architecture, University of Minnesota; Arcangelo Cascieri, Dean of the Boston Architectural Center School; James Lawrence Jr., recent President of the Boston Society of Architects; Lawrence B. Anderson, Chairman, Department of Architecture, MIT School of Architecture and Planning; Benjamin Thompson, Chairman, Harvard Graduate School of Design; William J. Le Messurier, Consulting Engineer, Technical Advisor. —*I.M.R.*



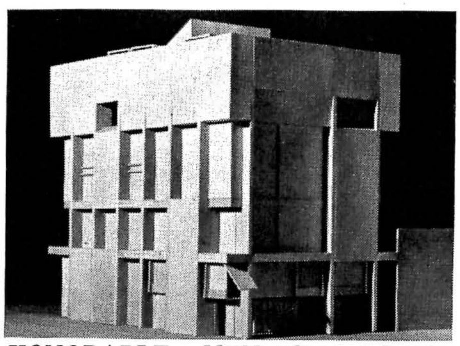




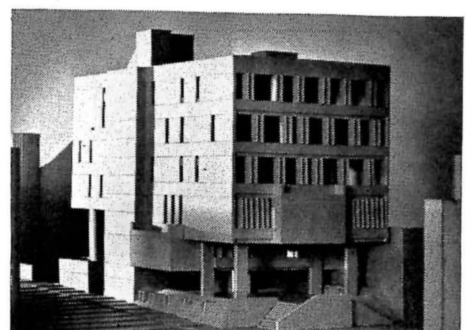
SECOND PRIZE (plan, photo above): *Chapman, Goyette, Maki, and Bennetts. Jury Comment: "Scheme has great merit, clean plan, dignified and simple exterior. Central service core, key to sound structural system, unfortunately weakens flexibility of the plan."*



THIRD PRIZE (plan, photo above): *Herman and Woytuk. Jury Comment: "Brilliance of concept and presentation. One of the most interesting of all entries. However, features played against each other at expense of sound space use."*

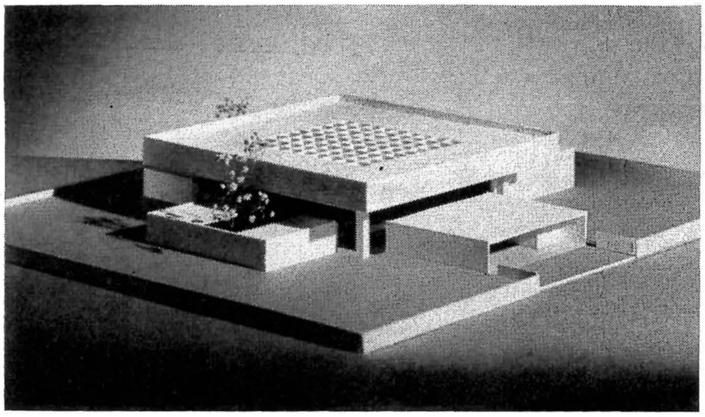


HONORABLE MENTION (above): *Schiffer, Galantay, Millon. Jury Comment: "Logical structure, skillful use of existing foundations, appealing section. But design suffers from fragmentation of functions."*



HONORABLE MENTION (above): *Johnson, Notkin, Welke. Jury Comment: "Design followed interesting approach, covered entrance terrace too monumental, outside had too many complications and features for small size of building."*

Jurors and advisors in session (below, left to right): *Sert, Le Messurier* (rear), *Belluschi, Rapson* (rear), *Lawrence, Thompson, Bogner.*



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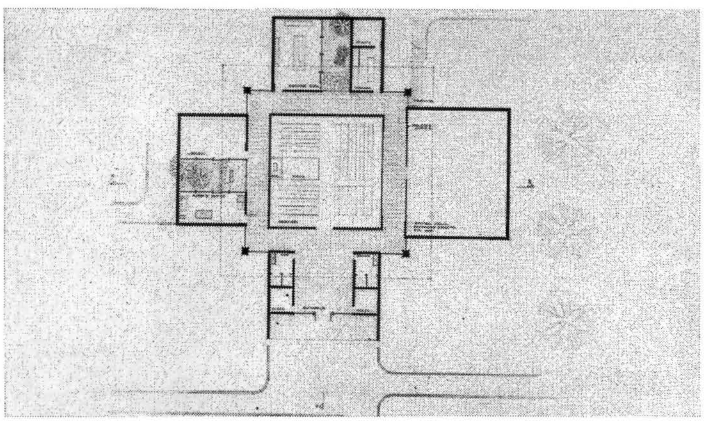

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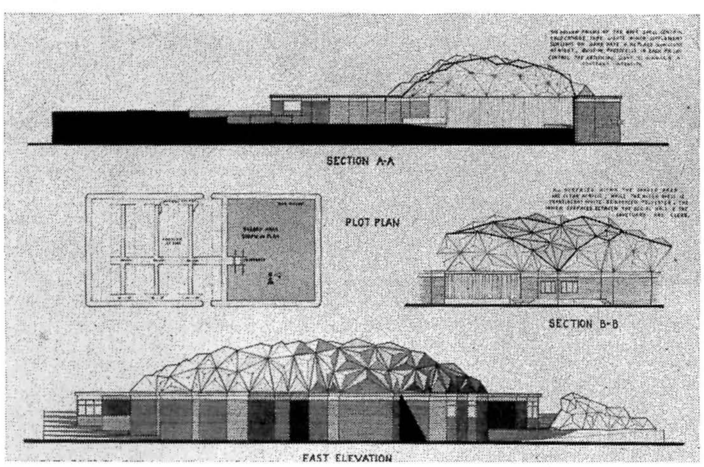

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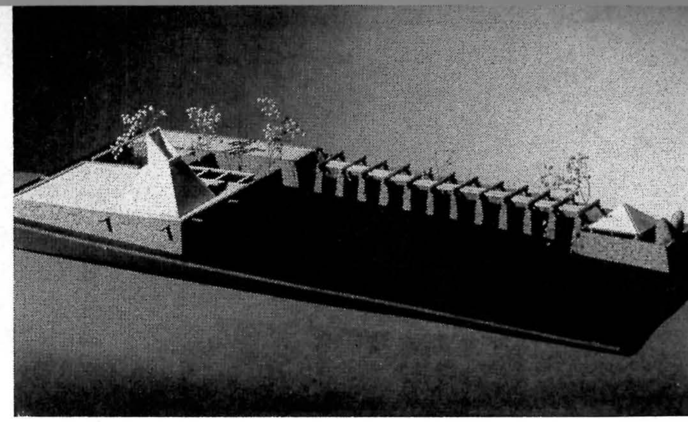

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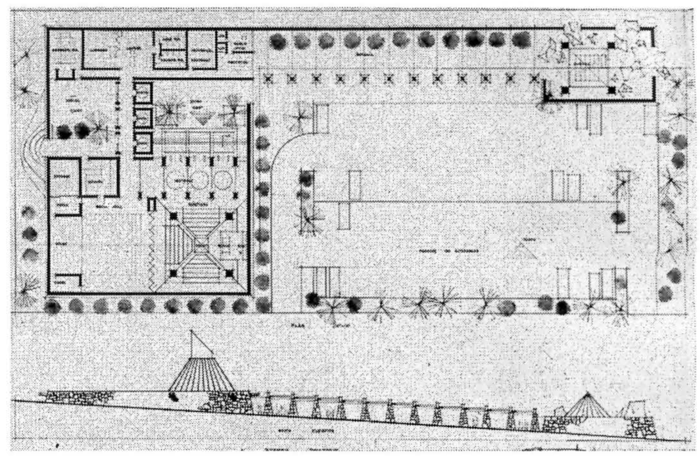

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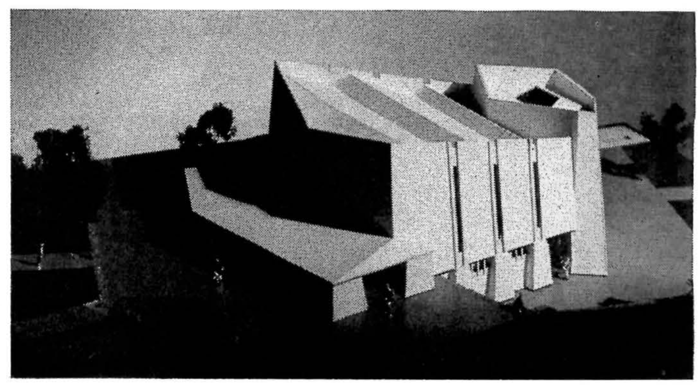

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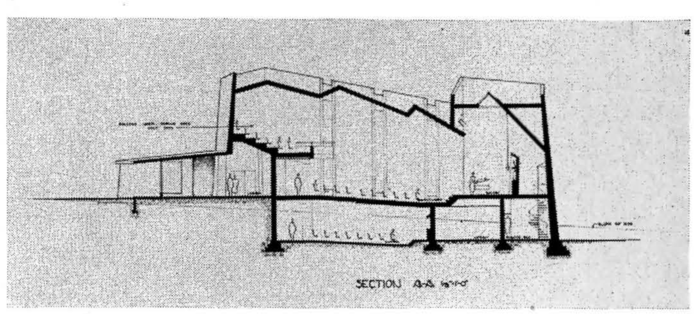

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VARIED DESIGNS FROM SYNAGOGUE PROBLEM

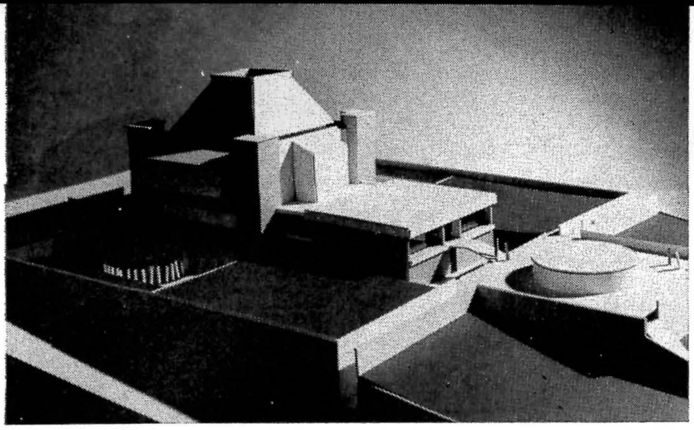
BROOKLYN, N.Y. A number of interesting designs emerged from a second-year student design project at Pratt Institute semester before last.

The problem was to design a synagogue for a congregation of 500 in a suburban residential area of New York. Students were required to submit a site plan for the entire 450′ x 200′ site, which had a 10′-high rock outcropping at its northeast corner. The synagogue could be reformed, conservative, or orthodox.

The reformed temple by Michael Callori (1, 2) sheltered all elements under a dominant roof pierced to admit daylight over the central sanctuary.

A roof of hollow translucent plastic prisms was proposed by Edward Herbst for his reformed congregation (3), echoing the forms of the rock outcropping nearby.

Frederick Lee placed the strong roof form of his reformed sanctuary (4, 5) at the highest point of the site, and connected the main compound to



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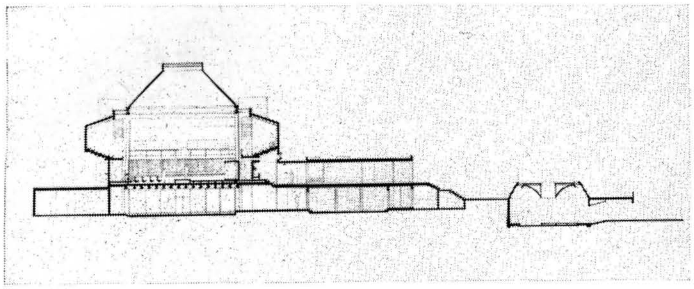

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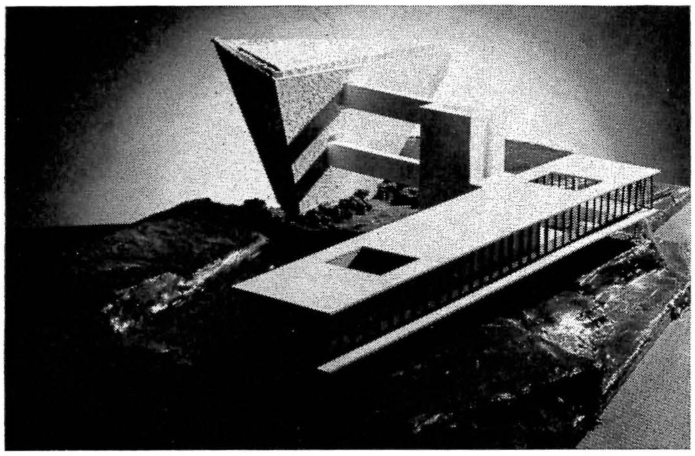

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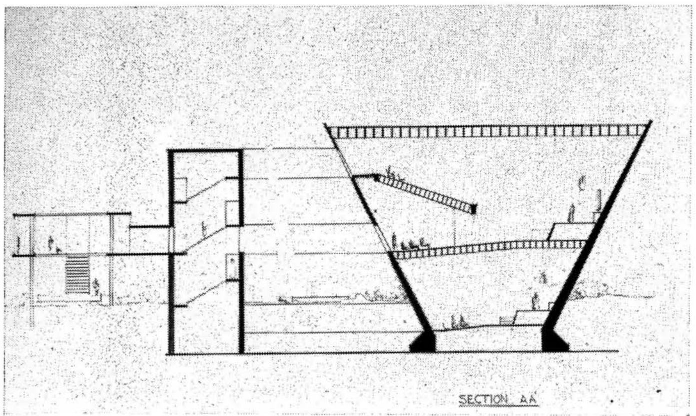

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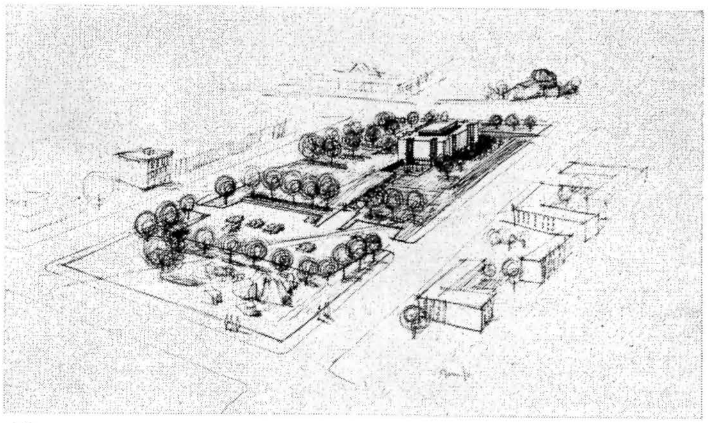

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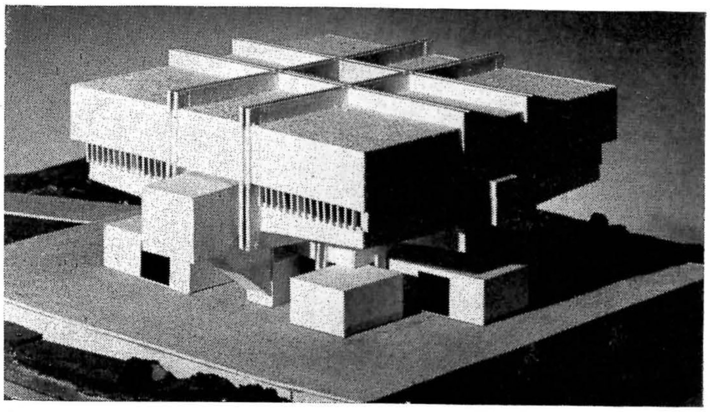

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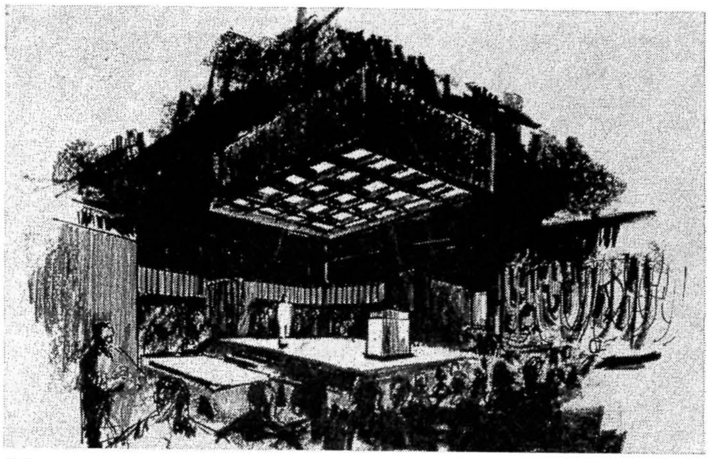

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a chapel amidst the rocks with a rustic arcade.

Edwin Taylor's design for a conservative synagogue (6, 7) massed the major elements in order of importance and progression: entrance, congregation, Bimah. Terraces lead to temple.

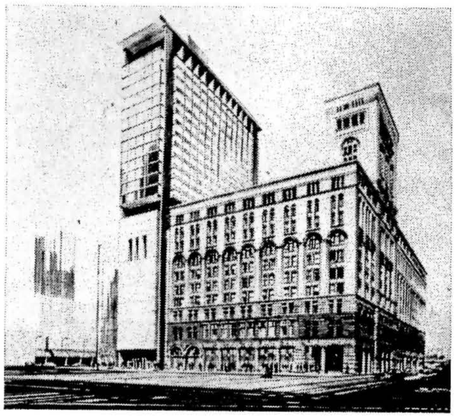
For an orthodox synagogue (8, 9), Gerald Dunn emphasized the closed, centralized nature of the worship by designing an opaque sanctuary inturned toward the centrally-placed reading lectern.

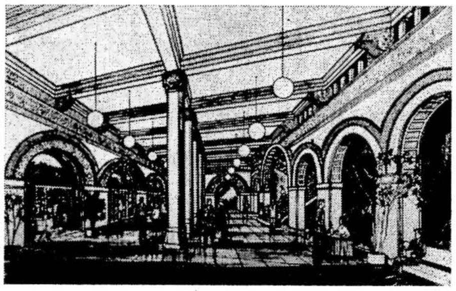
Opposing forms marked the design by Robert McMahon for an orthodox synagogue (10, 11). The rectangular block contains offices and social spaces, while the inverted pyramid contains the sanctuary.

An orthodox temple by Carmen Garufo (12) emphasized formality and symmetry in a quiet design. Parking occurs at the lower part of the site.

The spiritual element was given dominance in the orthodox synagogue designed by Julius Varosy (13, 14) by having a strong form loom over the other elements of the building. The strong center-orientation of the plan can be seen in the rendering of the sanctuary.

Faculty members in charge were Olindo Grossi, Dean, and Joseph Bahri, John Callendar, Raniero Corbelletti, Hans Egli, Rolf Myller, and Edward Shiffer, Design Critics.





Perkins & Will To Update Sullivan

Louis Sullivan's famous auditorium-hotel building, which now houses Roosevelt University, will be joined by a 20-story building designed by Perkins & Will. The top 10 stories of the addition will be used for dormitories, the lower 10 for classrooms, science laboratories, and a library. According to a news release, "the 10-floor base of the building will be closely related to the 10 floors of the existing university structure." Evidently no violence is planned to the Sullivan work, according to word from Thomas Stauffer, President of the Chicago Heritage Committee, who reports that Perkins & Will is determined in its design (*see interior rendering*) that the Sullivan masterwork will not be desecrated.

PPG Competition, Fellowship

The Pittsburgh Plate Glass Company has announced two programs in architecture and planning for universities.

A competition, titled "An Underwater Restaurant," will have as participants some 77 schools of architecture throughout the U.S., Canada, and Mexico. Elmer A. Lundberg, Director of Architectural Liaison for PPG, feels that such a problem will be a significant one for the students in exploring the uses and potentialities of glass. Instructors and schools will select their best entries and forward them before May 1 for judging by a jury selected by the National Institute for Architectural Education. PPG is furnishing student aids in the form of a film on glass and product demonstration units consisting of actual mechanical operating exhibits.

In the second program, the Pittsburgh Plate Glass Foundation is offering up to $15,000 to selected universities offering graduate degrees in urban planning for the best answer to the question: "How would your university use a grant of up to $15,000 to extend knowledge and understanding of the problems of physical development of tomorrow's cities, contributing toward solutions thereto—within the framework of goals and procedures consistent with the ideals of a free society?" The Foundation has also established an annual fellowship of approximately $5000 in graduate studies in, or related to, urban design.

World's Fairs

Get set for a plague of world's fairs. The infection has spread to California, Canada, and Illinois. The California extravaganza, scheduled to open April 1967, recently received a vote of confidence from the Board of Harbor Commissioners of Long Beach, its future home town, after a shake-up of the management.

Also set for a 1967 opening is the Canadian World Exhibition in Montreal. Eleven Canadian architects recently were named as an advisory committee to "begin with the original conception and carry through to ultimately adopted design." The architects are John C. Parkin (chairman), Douglas Shadbolt, Walter M. deSilva, Guy Desbarats, Etienne J. Gaboury, Claude Beaulieu, John Bland, Gilles Cote, James E. Secord, K. Izumi, and Geoffrey Massey.

Meanwhile, in Chicago, past AIA president Philip Will, Jr., of Perkins & Will, was named to a citizen's commission to arrange the *1976* Chicago World's Fair. Also appointed by Governor Otto Kerner were Thomas H. Coulter, head of the Chicago Association of Commerce, and John E. Stipp, president of the city's Federal Home Loan Bank. There will be six members named from the state legislature, no doubt to insure confusion.

AIA Slate Set

Nominations for AIA's national officers, to be acted upon at the 1964 convention in St. Louis, are as follows: Morris Ketchum, Jr., New York, First Vice-President and President-Designate; for Vice-President (three out of four): William S. Allen, San Francisco; Clinton Gamble, Fort Lauderdale; Julius Sandstedt, Oshkosh, and Hugh A. Stubbins, Jr., Cambridge; for Secretary: William J. Bachman, Hammond, Ind. The present First Vice-President, Arthur G. Odell, Charlotte, N.C., will automatically become President.

FHA Awards Begin

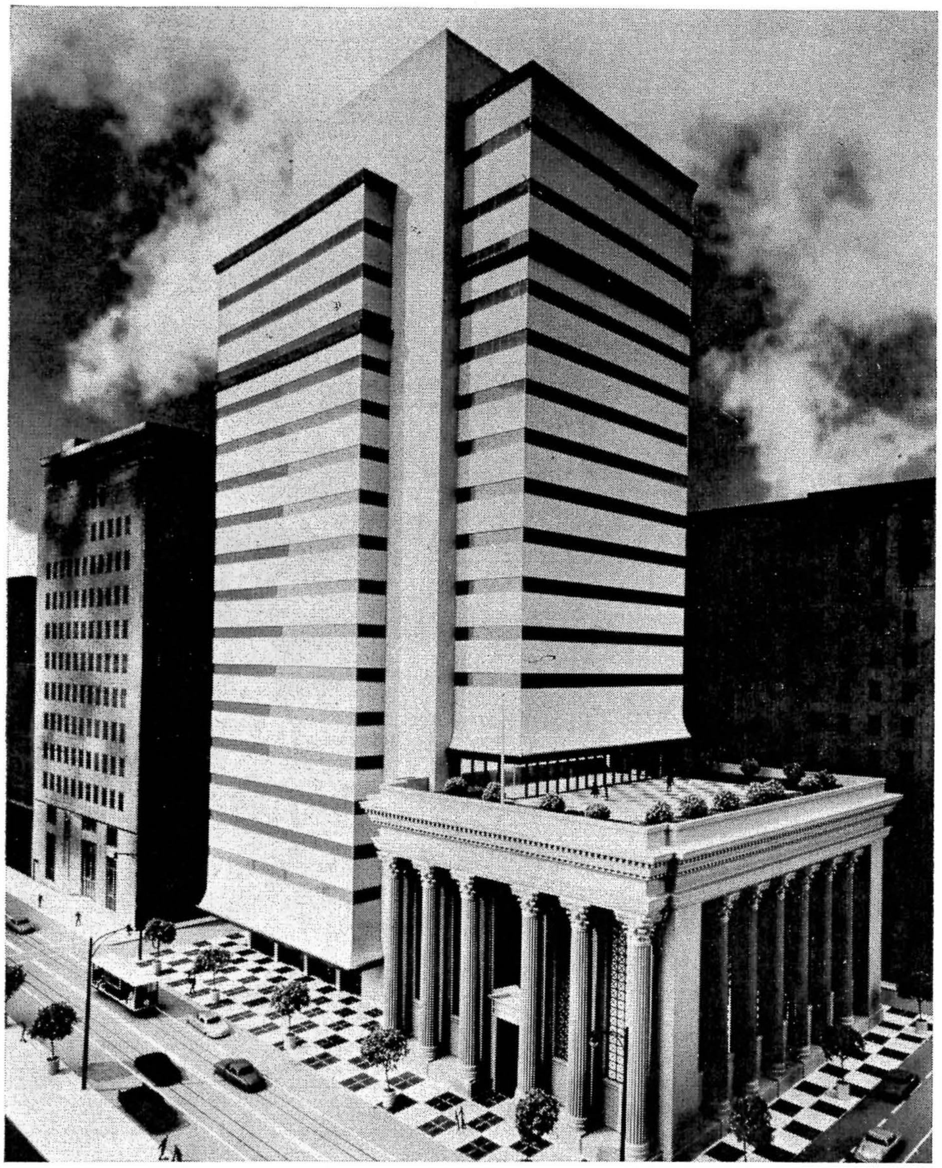
A new awards program of which the late President John F. Kennedy said, "I hope the awards will be a spur to the realization of housing communities which provide all Americans with a better environment and a better life" gave its first encomiums recently in a nationwide program to honor superior residential design. This was the Honor Awards for Residential Design of the Federal Housing Administration, a program to cite good residential design in several categories, and, one suspects, to emphasize the emergence of FHA as another Governmental body bent on encouraging better architecture and planning rather than the mere promulgation of rules and curbs for architects, planners, and builders. Winners were:

Multifamily Housing. First Honor Awards: The Premier, New York City, by Mayer, Whittlesey & Glass; Horizon House, Fort Lee, N. J., by Kelly & Gruzen; Riverview Apartments, Cambridge, Mass., by Harris & Freeman, Inc., Milton Schwartz & Associates, Associate; Town Center Plaza, Washington, D. C., by I. M. Pei & Associates; The Capitol Park, Section 2, Washington, D. C., by Cloethiel Woodard Smith & Associates; 800 South Fourth Street, Inc., Louisville, Ky., by Loewenberg & Loewenberg, W. S. Arrasmith, Associate; El Monte, Hato Rey, San Juan, P. R., by Edward L. Barnes and Reed, Basora & Menendez; Nelson Towers, Jackson, Mich., by King & Lewis, Architects, Inc. *Awards of Merit:* 101 Monmouth Street, Brookline, Mass., by John Hans Graham & Associates; The Capitol Park, Section 3, Washington, D, C., Chloethiel Woodard Smith & Associates; Brickell Town House, Miami, Fla., by Steward-Skinner Associates; 4800 South Shore Drive, Chicago, Ill., by Loewenberg & Loewenberg; La Palma Apartments, Santa Clara, Calif., by Fred Marburg, and William A. Churchill; St. Francis Square Community Apartments, San Francisco, Calif., by Marquis & Stoller.

Single-Family Houses. First Honor Awards: Residential Development, McClellan Air Force Base, Calif., by Jones & Emmons; Residence at 26 Mt. Whitney Drive, San Rafael, Calif., by

Jones & Emmons; Residence at 16633 Southeast 26th Street, Bellevue, Wash., by L. S. Higgins & Associates. *Awards of Merit:* Residential Development, Kirtland Air Force Base, Albuquerque, N. M., by Flatow, Moore, Bryan & Fairburn; Greenhaven, Sacramento, Calif., by David B. Whittet; Residence at Ketron Island, Tacoma, Wash., by Harris, Reed & Wilson.

Elderly - Nursing. First Honor Awards: Pilgrim Manor Home for Senior Citizens, Grand Rapids, Mich., by Wold & Bowers, Architects, Inc.; Presbyterian Manor, Boulder, Colo., by Hobart D. Wagener; Orangewood, Phoenix, Ariz., by Allan & Olsson. *Awards of Merit:* House in the Pines, Inc., Easton, Md., by Edward H. Noakes & Associates; Barrington Terrace Nursing Home, Orlando, Fla., by Turoff Associates and Broleman & Rapp; Crestview of Ohio, Inc., Sylvania, Ohio, by Samborn, Steketee, Otis & Evans; Mt. San Antonio Gardens, Pomona, Calif., by Kenneth Lind Associates; Hillcrest Homes, Bozeman, Mont., by O. Berg, Jr. & Associates.



New Banking Building Preserves Older Structure

The present headquarters of The Bank of California, N.A., in San Francisco are housed in a neo-Corinthian temple that was one of the first buildings built after the 1906 earthquake. Faced with the usual present-day need for additional space, the bank's management turned to Anshen & Allen to design a $12.5 million, 20-story head-office building providing an additional 282,824 sq ft. An interesting factor of the design is that it preserves the older building, which occupies an impressive blockfront in downtown San Francisco, and even utilizes its roof as a terrace-garden over which a section of the new structure will cantilever 30 ft. An additional blending with the original building will be through use of the same gray granite on the exterior of the core area of the new structure. The main floors of the new tower will be faced with a horizontal banding of precast Mosai panels. Additional amenities will include landscaped areas on the top two floors and a setback entrance plaza on California Street.

Competitions

Opportunity to design the new AIA Headquarters Building has been provided in a two-stage competition open to all AIA members and their firms. Jury will consist of Edward Larrabee Barnes, J. Roy Carroll, Jr., O'Neil Ford, Hugh Stubbins, and John Carl Warnecke. Deadline for submission of registration forms is now past. Schedule of competition is as follows: on May 18, each of six competitors will receive a $5000 award on the basis of drawings submitted. Final award, based on drawings plus a model, will be announced Nov. 2. Building, to be on a portion of the existing headquarters property in Washington, will provide for tenant as well as Institute occupancy with approximately 50,000 sq ft gross floor area . . . Second annual Prestressed Concrete Institute Awards Program is open to any structure utilizing prestressed concrete completed within three years prior to March 31, 1964. Deadline for entries is May 1, 1964; rules are available from PCI Headquarters, 205 W. Wacker Dr., Chicago, Ill. . . . Two fellowships for graduate study in hospital design are jointly sponsored each year by the American Institute of Architects and the American Hospital Association; applications may be obtained through the schools participating in the program: U. of California, Columbia University, Cornell University, and U. of Michigan . . . Members of the Royal Architectural Institute of Canada may submit building designs for one of 20 Massey Medals for Architecture. Deadline is June 1; information is available from RAIC, 88 Metcalfe St., Ottawa 4, Ont. . . . "Kitchen Concepts Competition," sponsored by General Electric Co., is open to architects, designers, and other firms actively engaged in design and construction of residential kitchens. Deadline for registration is April 1, 1964; information and entry blanks can be obtained from "Kitchen Concepts Competition," P. O. Box 383, New York 46, N. Y.

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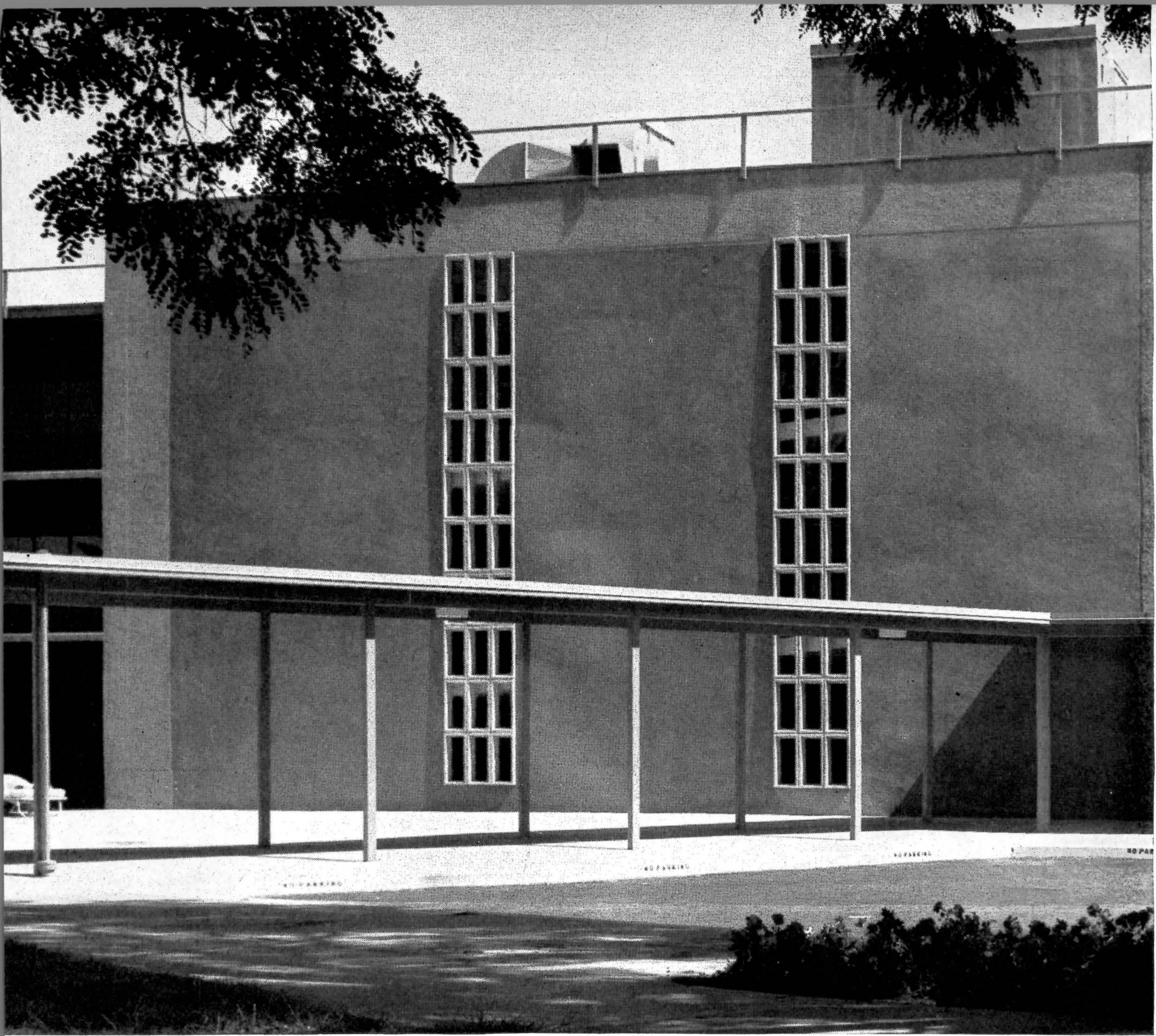


Columbia Park State Home, The Dalles, Oregon ARCHITECTS: *Mockford & Rudd, Oregon City, Ore.*

$2.00

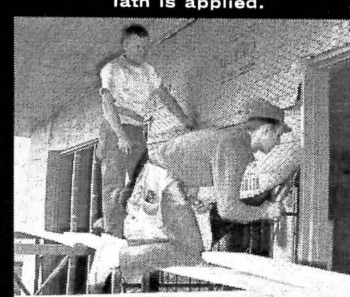
PER SQUARE FOOT

Cost of hospital wall system of new Keystone Spraywall

GENERAL CONTRACTOR: *Paul B. Emerick Co., Portland, Ore.* PLASTERING CONTRACTOR: *Ivan Sletta, Portland, Ore.*

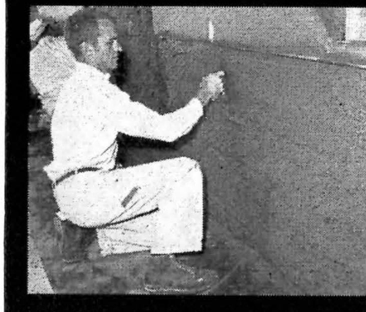
Steel studs go up first.

Then Keymesh Paperbacked lath is applied.



Portland Cement is sprayed on.

Cement trowelled prior to application of finish coat.



This new construction method utilizes a simple system of metal studs, Keymesh® Paperbacked Lath and spray-on exterior wall.

It is the most meaningful breakthrough in curtain wall construction since glass and metal.

Keystone Spraywall is low cost, of course. (This hospital addition was done for $2.00 a square foot, from the plastering on the inside to the Botticini Marblecrete finish on the outside.)

Its hourly fire ratings are excellent. (The rating on this building is 2 hours.)

But more than that, Spraywall's design possibilities are endless, because of its plasticity. Using Keystone Spraywall, you can *sculpt* the walls; curve them, create hyperbolic paraboloids, shape them in any way you can imagine. Then finish them to meet your design requirement in any color, any texture, with or without embedding stones.

Keystone's new Keymesh Paperbacked Lath is the product that makes Spraywall possible.

For complete information about applying this simple system to your next job, call your Keystone Representative, or write us.

KEYSTONE STEEL & WIRE COMPANY, Peoria, Illinois

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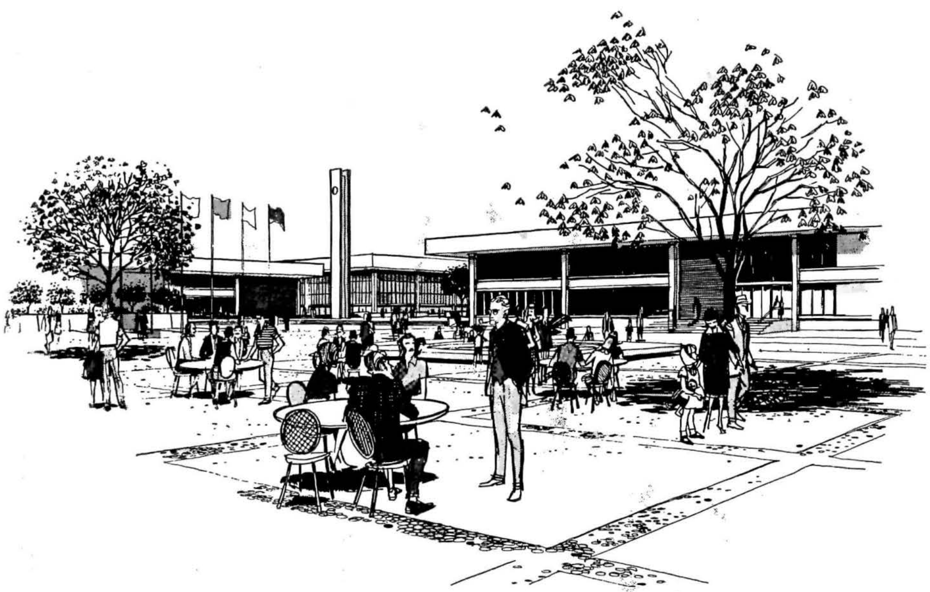
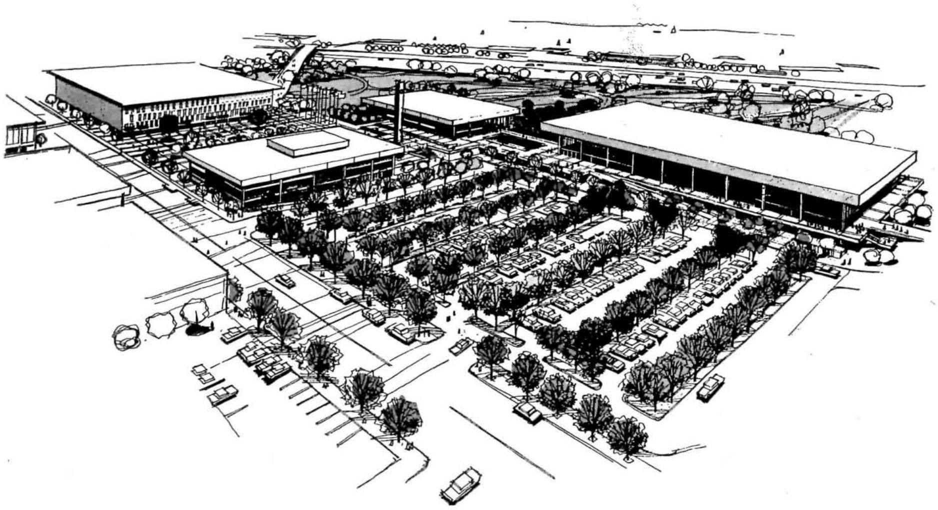
For more information, turn to Reader Service card, circle No. 340

Continued from page 75

Calendar

"Campus Design" will be the theme of a conference at the Banff School of Fine Arts, Banff, Alberta, Canada; the session, to be held March 23–26, will be sponsored by the Dept. of Extension of the U. of Alberta and The Alberta Association of Architects . . . U.S. Institute for Theatre Technology will hold its annual conference in New York, April 25–26, at the Barbizon Plaza. Major topic within the theme, "Today's Theatre—Yesterday's or Tomorrow's?" will be the relation of theater consultants to architects. Programs available from USITT, P. O. Box 866, Radio City Station, New York, N.Y. . . . An up-to-date view of changing New York City will be available at the "Exhibit of New York City Area Developments" at the Union Carbide Building Gallery, New York City, April 6 through May 11. Sponsored by the Municipal Art Society of New York, exhibit will present large-scale projects currently under construction or in the planning stage . . . Annual meeting of the National Fire Protection Association will be held in Dallas, May 18–22 . . . ASTM Committee on Acoustical Materials will meet at ASTM Headquarters, Philadelphia, on April 13 through 15 . . . On April 18–25, the Garden Club of Virginia will display historic buildings throughout the state in joint celebration of Historic Garden Week and the 50th anniversary of Virginia Chapter–AIA . . . A course in Swedish Design and Architecture will be given in English in Stockholm, August 17-29, 1964. It will include lectures, workshops, and excursions. Those interested should immediately contact Miss Eva Benedicks, Kungsgatan 42, Stockholm 3, Sweden . . . Annual Convention of the National Association of Architectural Metal Manufacturers will be held April 27–May 2, 1964, at the Diplomat Hotel, Hollywood-by-the-Sea, Fla. . . . International Congress on "Problems of Restoration of Historical Monuments in Modern Life" will be held in Venice, Italy, May 25–31, 1964. Further information is available from the Secretary, Second International Congress of Architects and Technicians in Monument Restoration, Giorgio Cini Foundation, Isola de S. Giorgio Maggiore, Venice, Italy . . . A forum on the restoration and preservation of historic buildings will be conducted by the Building Research Institute in Washington, D.C., on June 11 and 12 . . . "Industrialized Building Systems and Components Exhibition" will be held in London from June 23 to July 4. Information is available from Industrial and Trade Fairs Ltd., 1–19 New Oxford St., London W.C. 1, England . . . Annual Meeting of the National Society of Professional Engineers will be held July 1–4 in the Grove Park Inn, Asheville, N.C. . . . Leo L. Beranek will offer a summer program on Noise and Vibration Reduction, August 17–28, at MIT.





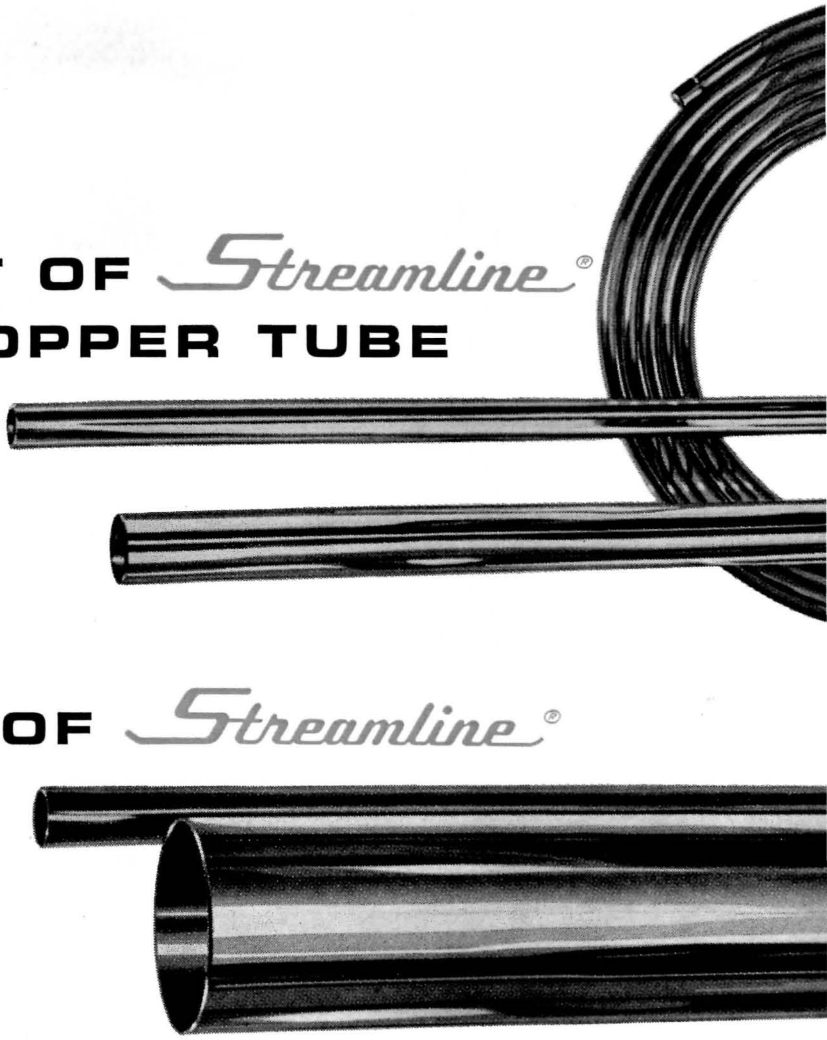
Civic Center in Park Setting

Generous landscaping will tie elements of Vallejo, Calif., civic center together in the configuration of an old village square. Entire complex, designed by **Marquis & Stoller** of San Francisco, and Beland, Gianelli & Associates of Vallejo, will be buffered from an existing freeway by a new city park. Plaza containing fountain, benches, sculpture, and bell tower will be faced by three of the center's main elements: commercial complex on the north, city hall on the south, and public library on the west. Library will have its main level facing the plaza, and mezzanine office space. On a lower level, a cultural center and terrace will open onto the park and Mare Island Channel beyond. City hall design centers on an interior court to provide transition between plaza and a lower parking level. Commercial facilities will include a hotel, shops, and sidewalk cafés. Fourth element of the project—a civic auditorium—is planned south of the main plaza. It will hold a 1500-seat concert hall/theater; a 500-person little theater with flexible seating, and a multipurpose arena.

Effective screening of parking—to be behind plaza and adjacent to auditorium—is anticipated by sinking this area and employing heavy planting. Landscape architect for civic center and park; Royston, Hanamoto, Mayes, and Beck.

Obituary

Walter A. Taylor, FAIA, director of the School of Architecture, Ohio State University, died Nov. 25.



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Streamline copper tube and fittings offer many other advantages, too. They are easy to handle, require fewer connections because of the convenient 20 foot lengths of tube, and a compact copper system actually adds available space because no furring out to accommodate bulky fittings and cumbersome pipe is needed.

Compare materials and you'll find that copper offers more on every count . . . for high-rise apartments or single story structures, Streamline copper tube and fittings are best for fabricating modern plumbing and heating systems.

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The Budget and Construction

by E. E. Halmos, Jr.

As predicted, President Johnson's first budget contained no surprises, and came in a little under (at $97.9 billion) the last Kennedy estimate.

Most reassuring from the viewpoint of the construction industry was that the budget called for little or no real cuts in construction spending (or in any other field, for that matter); most of the "savings" were, in fact, credit for programs already finished, or about ready to phase out.

For architects, there is a good deal of money tucked away in the various requests for departmental and agency funds:

General Services Administration, for example, seeks $131.5 million to spend on 151 new projects—up about $20 million from 1964 funds—and $25 million for design and site acquisition for 41 additional projects.

The Veterans Administration wants $85 million for new hospital construction; tucked away in the $1.1 billion military construction request is some $660 million for family housing, $150 million for civil defense construction work. The Housing and Home Finance Agency's numerous subagencies have asked for $222 million for public housing, $1.4 billion for urban renewal grants. Even the State Department is in for $16 million for new construction (with U.S. funds) abroad.

None of these items represent any substantial reductions at all over last year; in fact, some are slight increases.

In total, the economists' estimates that the Federal Government will spend an over-all total of about $8 billion on construction in general (including reclamation, rivers and harbors work, and highways) are just about on the nose.

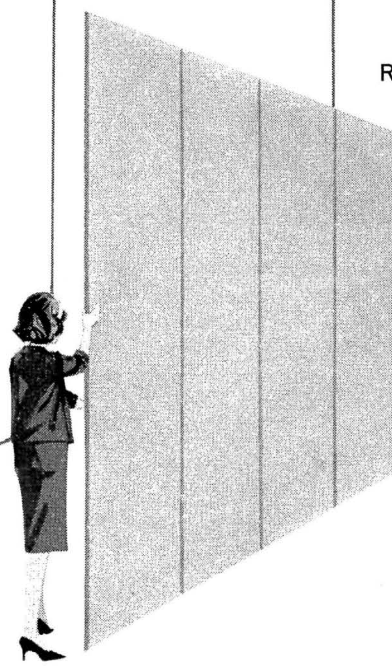
The series of special Presidential messages that followed the budget presentation contained two that will affect architects—one in their operations for housebuilding clients and planning agencies, the other in calculations of costs (if Congress goes along).

The message on housing and planning, for example, asked for one new

Continued on page 88

Planning a new project? A remodeling job?

Get full utilization out of every square foot of that costly space. Minimize fixed walls that limit area function and increase both construction and operating costs. Plan this job around versatile Brunswick Folding Partitions. There's a Brunswick man nearby to help plan and specify. He'll take care of things during and long after installation, too.



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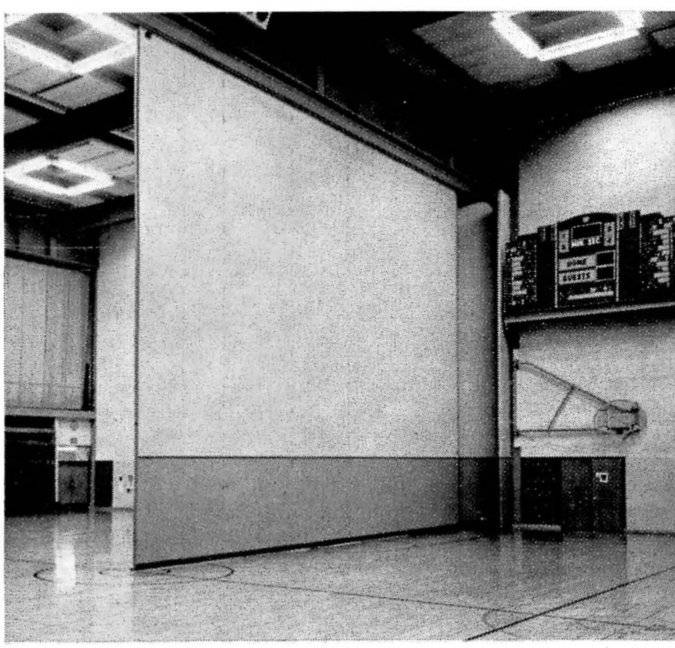

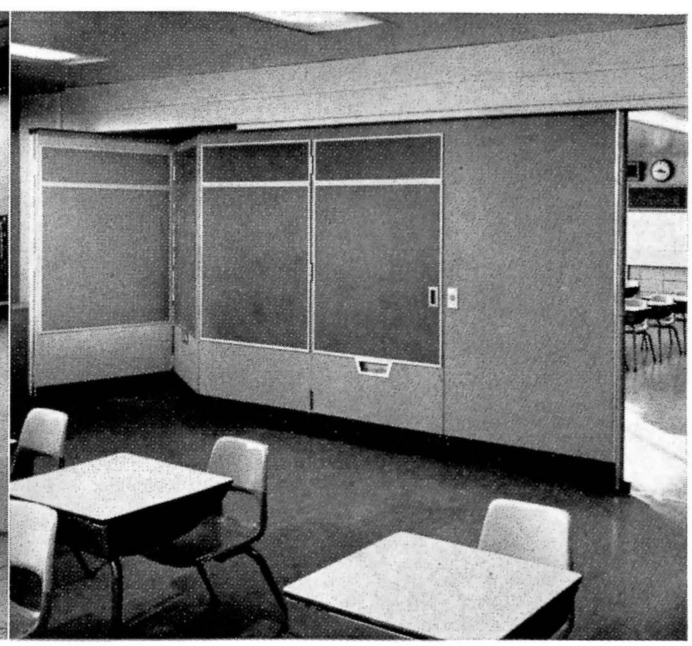

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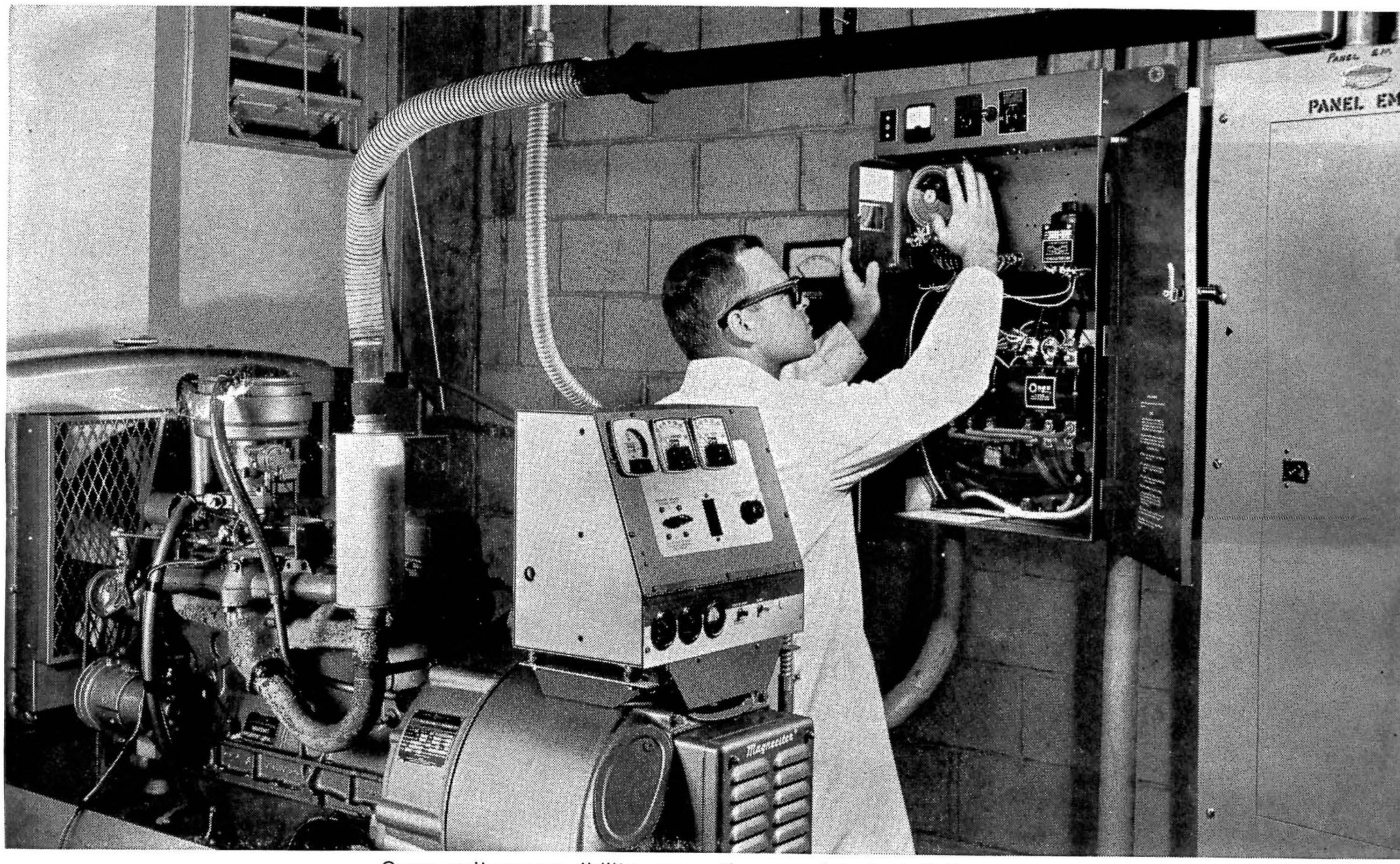
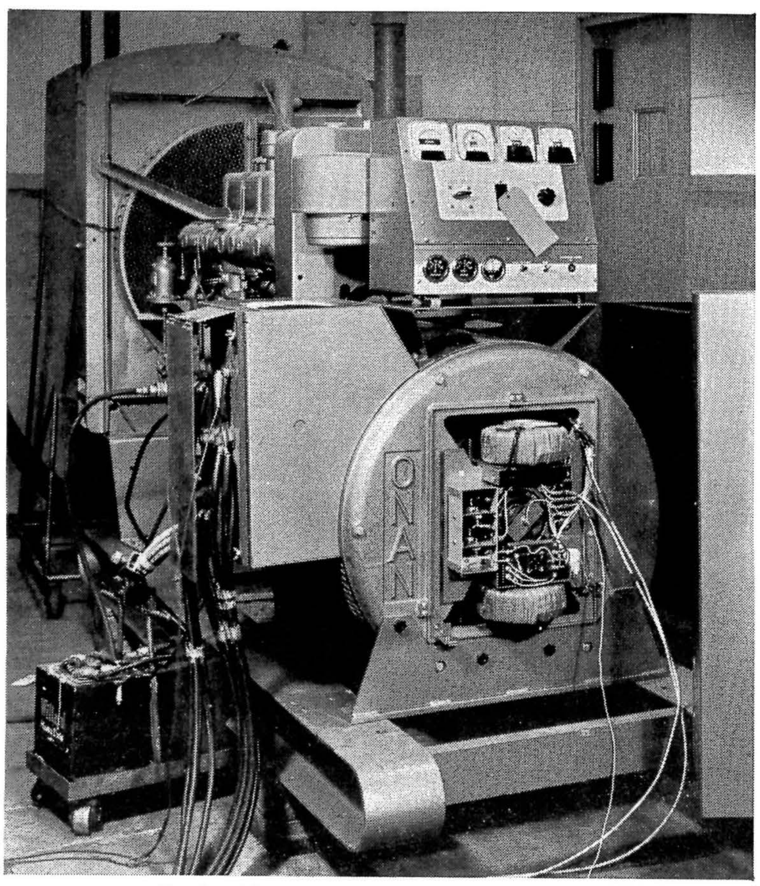


Onan unit responsibility covers the complete installation



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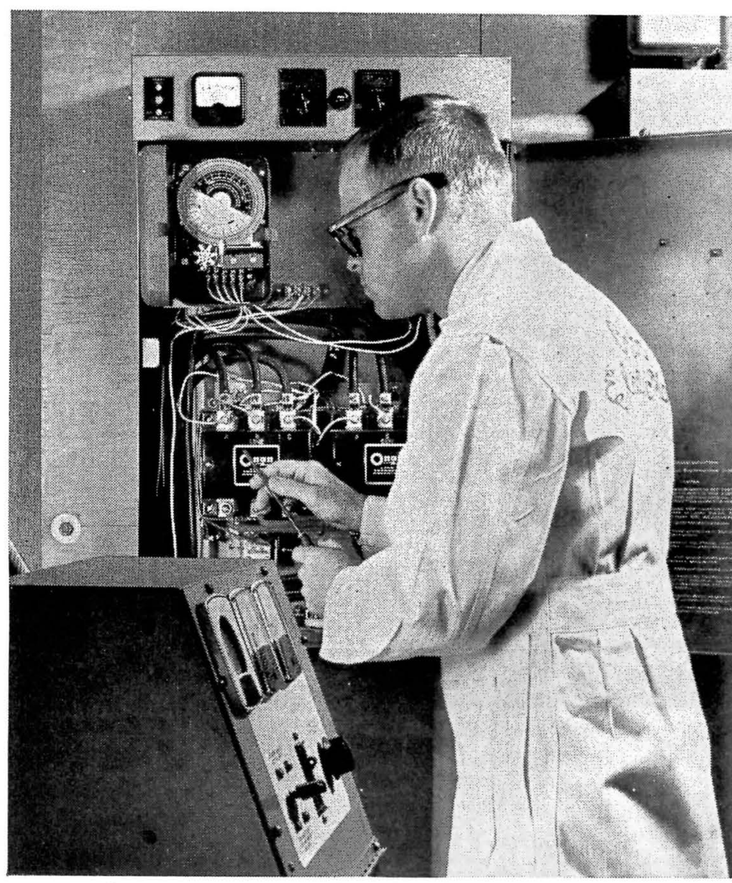

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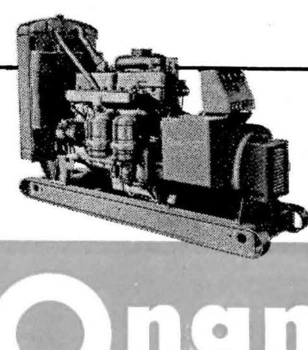

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Continued from page 84

thing: Federal aid (in the form of loan guarantees) to developers to aid them in assembling large blocks of land and planning entire communities.

The message on labor proposes penalties for overtime work, in the hope of creating new employment. Not welcomed by labor unions, the plan would work this way: In an industry such as construction, where overtime may be judged to be "excessive," a committee would be appointed to determine whether overtime is necessary. If it recommends against such work, then the Secretary of Labor could issue orders calling for double-time or higher payments, to encourage hiring of new workers. Construction was not specifically mentioned in the message, but with its current troubles over discrimination, apprenticeship, and the like, it is unlikely it would escape.

Money for Planning

The Bureau of Public Roads is continuing to push urban areas to get ahead with their highway planning work—on pain of possible loss of Federal planning money. Interest for architects centers on the legal requirement that such urban planning must show evidence of complete co-ordination with civic planning—for construction of buildings, as well as for integrated transportation systems.

Incidentally, there'll be at least one piece of highway legislation this year: the two-yearly "ABC" program (urban, primary, secondary roads). At the moment, Congress is funding this work (50 per cent Federal-aid) at the rate of $975 million yearly, has promised to get the figure up to $1 billion. But the Johnson Administration has frowned on any rise this year.

FINANCIAL

That big—and uncut—total of planned Federal expenditures in the field of public works construction (something like $8 billion) is probably the biggest factor that will contribute to the predicted continued slow rise of construction industry indicators this year. In an election atmosphere, there's little likelihood that Congress will tamper very much with the spending plans.

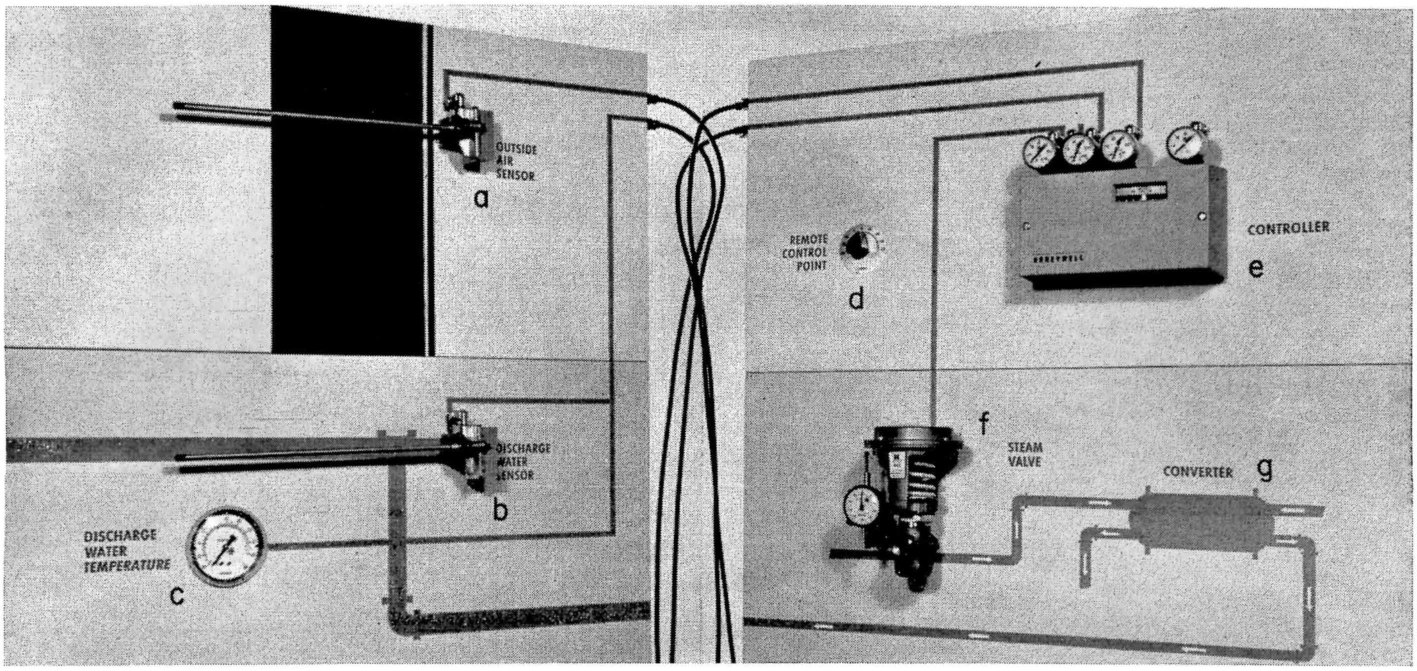
As a matter of fact, the expected speed-up in Congressional action on this area of spending has already started: Identical bills covering military construction, for example, have already been introduced in both houses of Congress, and are already under committee scrutiny. The procedure is unusual: normally, the House introduces and acts on its own bill, and the Senate refrains from action until it gets the House version.

Otherwise, general indexes of the health of the industry looked good: value of new construction put in place in December was set at $5.3 billion—up 11 per cent over the previous year; a total of 1,588,600 new, privately owned housing units were started in 1963, up 9 per cent over 1962.

However, some cautionary signs were apparent:

In November, according to the Investment Bankers Association, voters for the first time in many months turned down more construction bond issues than they approved, though totals on both sides were substantial. During the month, taxpayers approved $914.4 million in new bonds; turned down $1.1 billion. Support continued heavy for school and other educational construction; however, biggest turndown total ($487 million worth) came on proposals to finance new road and bridge projects.

And the U.S. Public Health Service's newly-fledged sewage treatment plant construction cost index showed a slight increase (.09 percentage points) from November (which is the first month the index was issued) to December.



Pneumatic System for Low-Cost Centralization

Conventional pneumatic systems have sensing and controlling functions mechanically connected together in one device. For peak performance, this device must often be installed in out-of-the-way locations. Proper calibration and control is often time-consuming and difficult. Now an improved system separates sensor, controller, and remote-control point so that they can be installed in convenient locations. Separation eliminates capillaries, replacing them with pneumatic tubing.

Improved sensor has only one moving part. It has a 200° span as compared with 40° to 50° span of conventional systems. Signals can be transmitted between sensors and controllers up to 1000 ft away. Controller has the ability of taking signals from a number of devices, comparing them, amplifying them, and using them to operate a valve or damper motor.

Primary advantage is that system will handle all temperature, pressure, and humidity control requirements on the *average* commercial air-conditioning job. Since all controllers can be located at one central point, system now offers low-cost centralization for buildings in the small-medium price class ($500,000 to $5,000,000). Moreover, it will cost only 10 per cent more than conventional pneumatic systems without centralization. Photo illustrates: (a) outside air sensor; (b) discharge water sensor; (c) discharge water temperature; (d) remote control point; (e) controller; (f) steam valve; (g) converter. Honeywell, 2747 Fourth Avenue South, Minneapolis 8, Minn.

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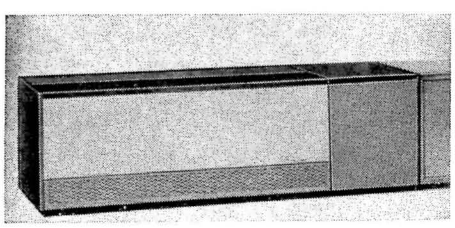


Ventilator Unit For Schools

Ventilator unit air conditions school classrooms without expense of complete air conditioning and remodernization. "SC UNI-VENT" allows existing schools to add air conditioning to one classroom at a time. It can be used with steam, hot-water, or electric-resistance heating or ventilating systems. Unit is shipped completely wired and assembled. All controls are push-button type and are factory installed and adjusted. Manufacturer estimates two days for installation. Herman Nelson Division of American Air Filter Co., Inc., 215 Central Ave., Louisville, Ky.

On Free Data Card, Circle **101**

Fan-Coil Unit

Thin-profile heating, ventilating and air conditioning fan-coil unit is used with all supply mediums including steam, hot water, hot water-chilled water, and electric resistance heating. "Mark II" is only 9¾" deep in both standard and decorator models. Units are available in floor, floor-recessed, wall, wall-recessed, inverted wall and inverted wall-recessed models. Other models are available in ceiling, ceiling-recessed, and built-in units. "Anti-blowthru" damper prevents wind, in either steady flow or in gusts, from blowing through unit from outside. American Air Filter Co., Inc., 215 Central Ave., Louisville, Ky.

On Free Data Card, Circle **102**

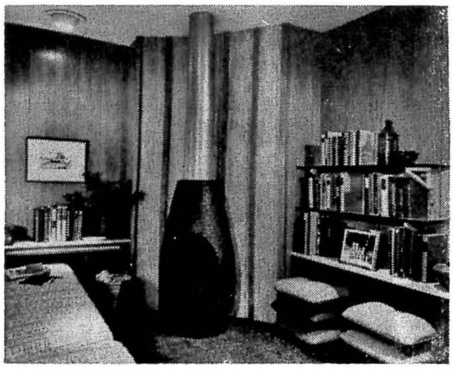
Concrete Roof Tile

Lightweight insulating concrete roof tile has recently been developed. Spanning up to 6′ in length, tile is 3″ x 24″. Reinforced with welded-wire mesh, it weighs about 10 psf and will support a 50 psf load with safety factor of five. Tile is beveled on four sides and bears directly on steel or prestressed-concrete joists. Top side is smooth and level to receive built-up roofing. Perl-Tile Co., 660 19 Ave., N.E., Minneapolis, Minn.

On Free Data Card, Circle **103**

Exotic Woods

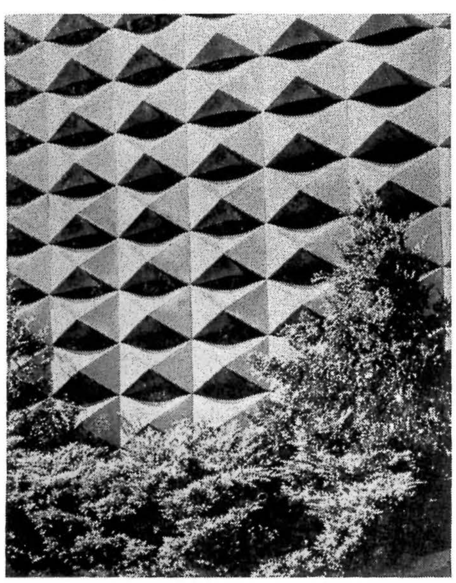
Brazilian rosewood, wormy chestnut, butternut, (*shown, p. 92*) and teak comprise "Classic" line of "Weldwood" prefinished panelling. Grooves in this line are spaced at regular 8″ intervals for installation in conventional 16″



o.c. stud systems. According to manufacturer, this is first time that these woods have been made available in regular stock. U. S. Plywood Corp., 55 West 44 St., New York, N.Y.
On Free Data Card, Circle **104**

One Part Sealant

One-part polysulfide joint sealant that cures chemically from solid, rubbery seal when exposed to atmosphere has been made available. It eliminates need for adding and mixing curing agent before using. Sealant seals exterior and interior joints between curtain-wall panels, metal framework, masonry, glass, porcelain, and wood buildings. It has good nonshrinking and noncracking qualities and will not stain or discolor stone, cement, or marble. It is available in white, gray, or black. 3M Co., 2501 Hudson Rd., St. Paul, Minn.
On Free Data Card, Circle **105**



Sculptured Aluminum Panels

Sculptured aluminum panels are finished in wide range of coatings and are available in single color or in combinations. They can be installed in either horizontal or vertical position. Panels may be fabricated in larger sizes and in special pattern variations. They can be employed as cooling tower screens, sunscreens, overhead canopies, and as ceilings. Construction Specialties, Inc., 55 Winans Ave., Cranford, N. J.
On Free Data Card, Circle **106**

Insulating Glass

Insulating glass made from "Tru-flex 200" tempered plate glass is available in standard patio door sizes of $33''$ x $76\frac{3}{4}''$ and $45''$ x $76\frac{3}{4}''$, and $34''$ x $76''$ and $46''$ x $76''$. Unit has thickness between $\frac{7}{32}''$ and $\frac{3}{16}''$, which will fit sliding door frames formerly restricted to use of $\frac{5}{8}''$ insulated glazing. Two pieces are joined together at edges by metal dividing strip to enclose $\frac{1}{4}''$ hermetically sealed space of dry air. Libbey-Owens-Ford Glass Co., 811 Madison Ave., Toledo, Ohio.
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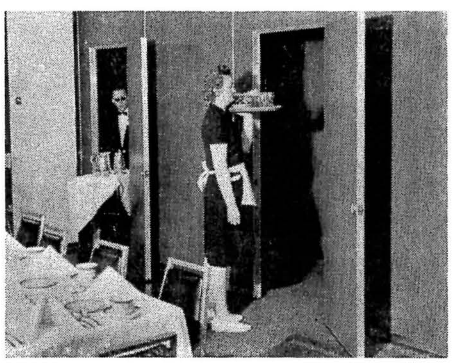
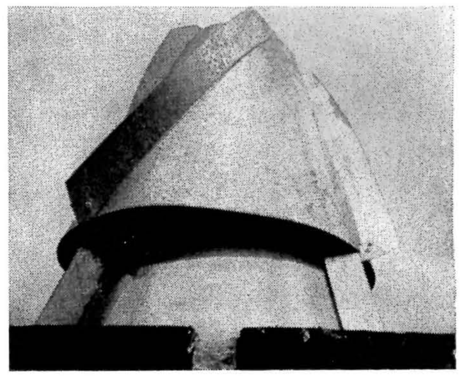


Pass Doors Without Threshold

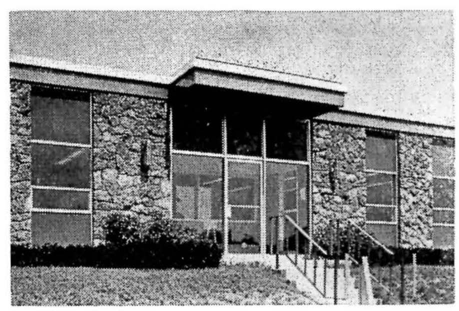
Partitions with pass doors extending to the floor are available in any panel or in several panels. They are sealed both top and bottom by hydraulic pressure applied through supporting head section. Adequate reinforcing around door frame is all that is required. Robert Haws Co., 19400 Allen Rd., Melvindale, Mich.
On Free Data Card, Circle **108**

Chimney Regulator

Regulator offsets chimney downdrafts. When installed in chimney top, regulator utilizes its upsweeping exterior vanes to create updrafts in proportion to any increasing or decreasing air turbulence. There is no covering involved, no moving parts or whirling metal vanes. Regulator accelerates flow of waste gases and excess moisture from chimney. Unburned gases are expanded at its base and then ejected



with nozzle velocity through cone-shaped regulator. Uni-Therm Co., Mays Landing, N. J.
On Free Data Card, Circle **109**



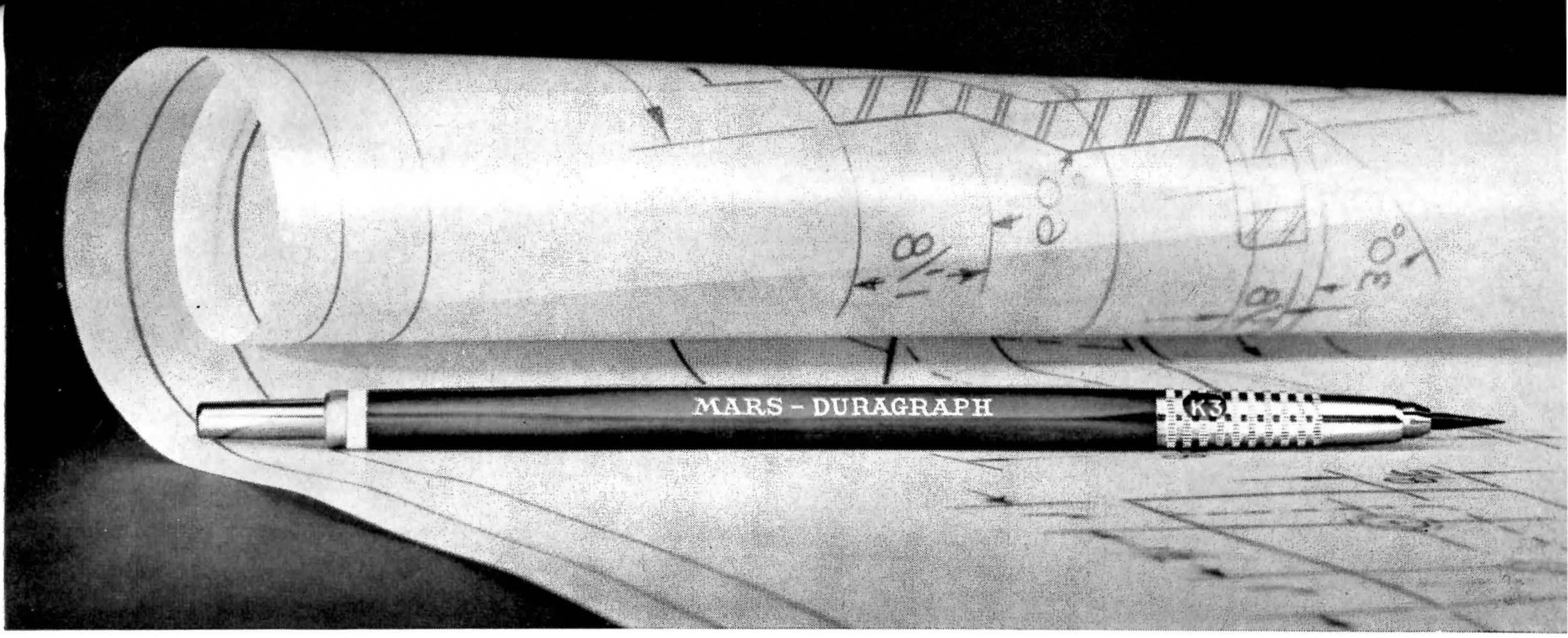
Doing the Fossil Rock

Quarried building stone contains authentic fossils of marine life that existed 400 million years ago. "Fossil Rock" has all strength characteristics of standard building stones. It is used for exterior walls and facing material for patios, fireplaces, and single walls. Stone is available in wide range of quarry colors. Heldeberg Bluestone & Marble, Inc., East Berne, N. Y.
On Free Data Card, Circle **110**

Pumice Stone

"Eastlake" pumice is rugged, porous volcanic rock that sometimes replaces sand, gravel, or cinders in manufacture of lightweight concrete and concrete block. Pumice has good insulation properties as well as good sound-retardant and fire-resistant characteristics. Standard concrete block weighs 40 lbs, whereas Eastlake pumice block of the same size weighs less than 25 lbs. It saves heating and cooling costs. Since pumice block can be sawed or nailed, furring and flooring can be easily attached. It has inherent cementing action when mixed with lime or cement. Pumice can produce high quality concrete, concrete block, pre-

For more information, Circle No. 377 ➤



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It reproduces beautifully.

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Yet for all its strength and durability, it has the "feel" of a graphite pencil.

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cast concrete, cast-in-place concrete, and insulating fills. At the present time, "Eastlake" pumice is only for Eastern distribution. Connecticut Coke Co., Stiles St., New Haven, Conn.

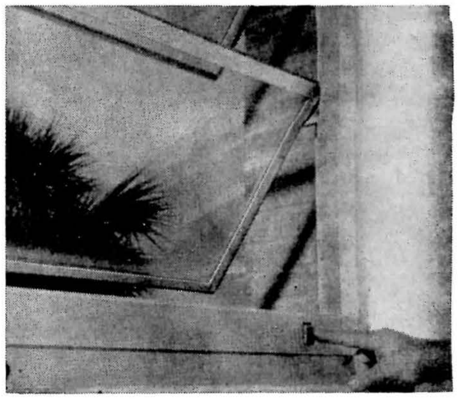
On Free Data Card, Circle **111**

Finish for Concrete Floors

"Tenant 420" is urethane finish made of an oil-free material that forms tough elastic, high-gloss coating on concrete floors. According to manufacturer, it lasts from two to six times longer than other types of concrete floor finish. Coating dries fast, even under humid conditions. Protects floors from traffic-wear, oil, abrasive dirt, and chemicals. It can be applied in crystal-clear, gray, red, blue, or green. G. H. Tennant Co., 721 Lilac Drive, Minneapolis, Minn.

On Free Data Card, Circle **112**

Automatic Window



Automatic open-close aluminum awning style window with built-in electrical control system has recently been developed. "Electric Window" features individual controls that operate on conventional horsepower through switch or control panel. Units can be used in high-ceilinged rooms where windows are inaccessible from floor level. Window can be linked to thermostatic control or to moisture-sensing cell, which will trigger window closure when temperature changes occur. It is available in variety of sizes, both anodized in number of colors or in natural aluminum. Brown & Grist, Inc., 25 Tyler Ave., Newport News, Va.

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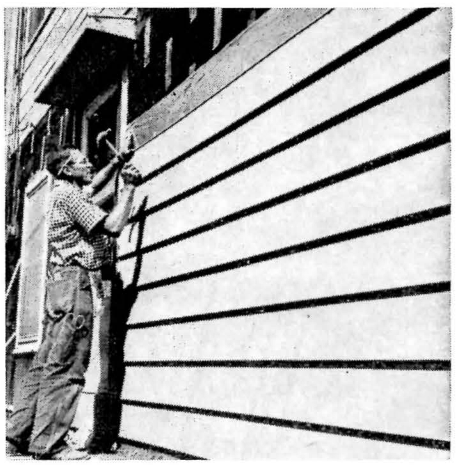


Steel Siding

Galvanized painted steel siding for residential housing has recently been developed. Steel siding has greater impact resistance than aluminum, thus minimizing possible hail damage. Galvanized .017 siding is about three times stronger than conventional aluminum siding. It also does not need backer board generally required in aluminum installations. Expansion and contraction with temperature change is only one-half that of aluminum. Siding is fire-resistant, vermin-proof, and maintenance-free. Finishes include many colors, including powder blue, gold, aqua, gray, and yellow. Electro-zinc and plastic-laminated coat-

ings may also be applied. Bethlehem Steel Co., Bethlehem, Pa.
On Free Data Card, Circle 114

Stainless-Steel Highway Lights

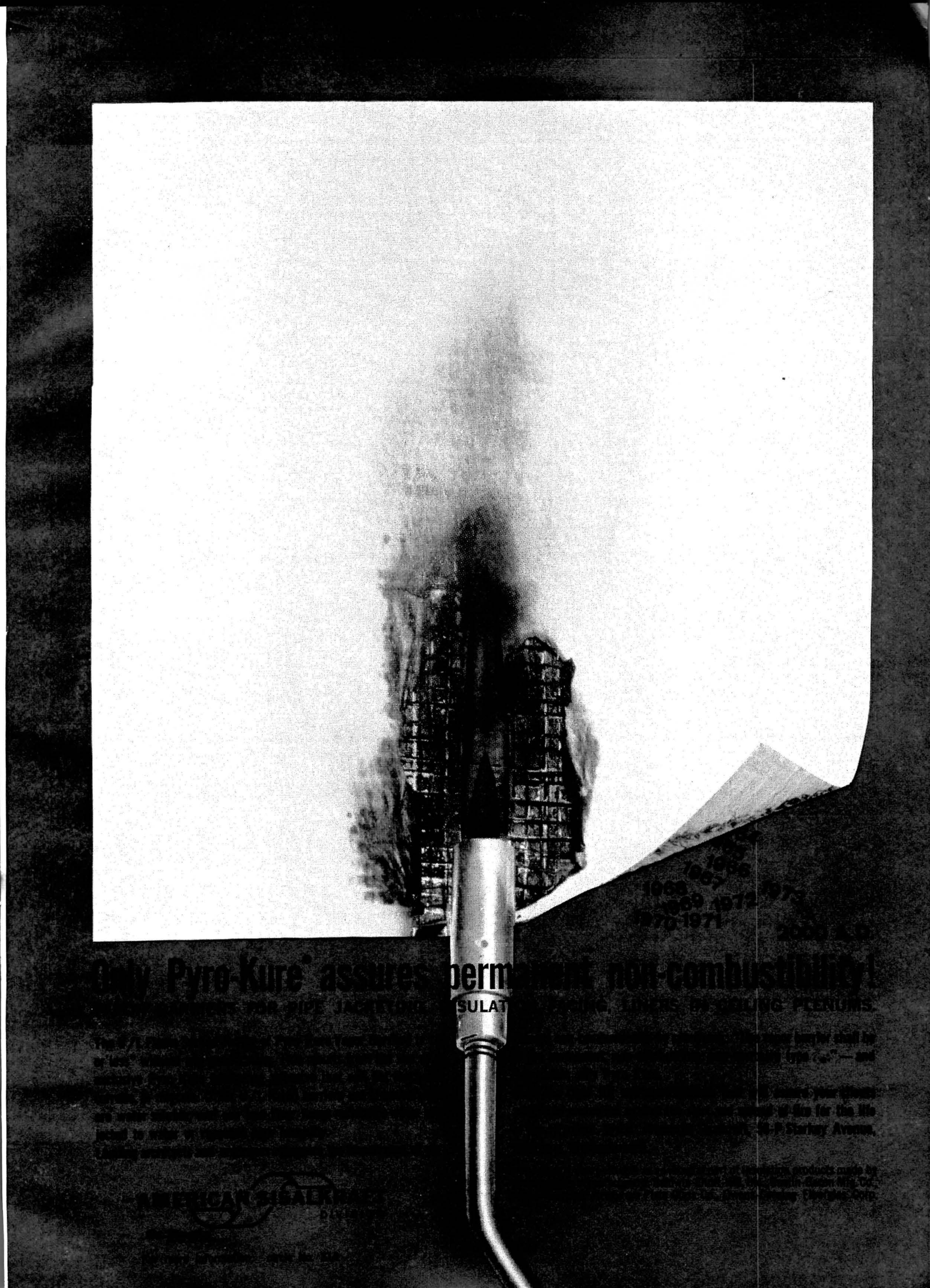
Two types of stainless-steel pole lights have recently been developed: (1) 30′ tall pole for city streets and highways; (2) 12′ ornamental upright for use in parks, campuses, and schools. Both poles are fabricated from Type 301 nickel stainless steel. Taller light pole is a davit-type in which the standard is one piece with a curve at the top. Smaller pole is vertical with luminaire at top. Both stainless-steel poles have high strength-to-weight ratios as well as corrosion resistance. Millerbernd Mfg. Co., Winsted, Minn.
On Free Data Card, Circle 115

Improved Duct Heater

Heater is available in 10 sizes from 50,000 to 400,000 Btu/hr input. "Model 33" includes oversize heat exchanger that handles large air volume with low resistance. This permits use of smaller blowers and motors while eliminating need for by-pass ducts. Unit can be suspended from ceiling or mounted over false ceiling remote from area to be conditioned. Multiple units can be used for unlimited capacity in single duct. Model 33 can be employed with matching blowers, cooling unit coils, and fan-coil units to provide year-round heating-cooling system. Bryant Mfg. Co., 2020 Montcalm St., Indianapolis 7, Ind.
On Free Data Card, Circle 116

Liquid Rubber Sealant

"Rubbaseal" sealant is liquid rubber containing neither solvents nor water. Requiring no mixing, it self-cures in 24 hours to form solid, permanently elastic seal that withstands expansion, contraction, and severe shock. Curing time can be reduced to few hours or to a few minutes with addition of 6 per cent "Vulca-Rubba" or "Vulca-Kwik" respectively. Rubbaseal is unaffected by sunlight, salt-water, or below-freezing cold. It withstands temperatures over range from –80 F to 250 F. It is resistant to strong acids, alkalies, and solvents. Rubbaseal can be applied regardless of weather conditions at almost any temperature. Rubba, Inc., 1015 E. 173 St., Bronx 60, N. Y.
On Free Data Card, Circle 117



1968
1969
1970 1971
1972
2000 A.D.
Only Pyro-Kure® assures perm
non-combustibility!

AIR/TEMPERATURE

Infrared Heaters

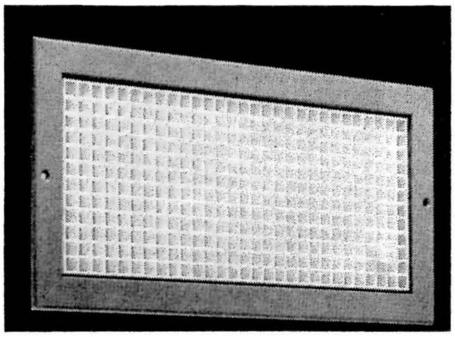
Catalog, 14 pages, describes electric infrared heaters. Featured are recently developed 30° and 60° symmetric and asymmetric controlled beam fixtures. Information for spot and space heating applications, as well as snow melting jobs, is included. Also discussed are coverage patterns for each reflector design, which show how large an area each fixture covers at various mounting heights. Charts and sketches are included. Fostoria-Wakefield, Dept. 101, 1814 East 40 St., Cleveland, Ohio.

On Free Data Card, Circle **200**

Oil Heaters

Folder describes oil heaters suitable for packaged boiler systems. They are of oil-in-shell design with removable U-tube bundle. Dimensional data, details, and thermal ratings are given. Whitlock Mfg. Co., West Hartford, Conn.

On Free Data Card, Circle **201**



Return-Air Grille

Booklet, 10 pages, offers recently developed return-air grille called "Thermo-Base Companion Return." It features washable white "Snap-Out" styrene plastic face of modular design that is set in 18-gage frame of vinyl-coated steel. High air flow rates may be used because of nonmetallic construction of grille. It is available in wide range of baseboard, wall, and ceiling types in standard and special sizes. Booklet contains photos, charts, and sketches. Gerwin Industries, Inc., Michigan City, Ind.

On Free Data Card, Circle **202**

Steam/Hot Water Heat Equipment

Catalog, 12 pages, presents steam and hot-water heating equipment. Included are circulators, air vents, and packless valves, "Fin-Vector" radiation, baseboard and convector radiation, centrifugal pumps, and other units. Photos and descriptive information are included. Dunham-Bush, Inc., West Hartford, Conn.

On Free Data Card, Circle **203**

Self-Contained Multizone Units

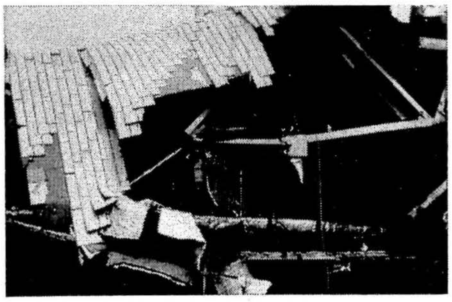
Brochure, 20 pages, describes self-contained multizone air-conditioning units. Ten horizontal and eight vertical units are discussed. Information includes fan performance data, cooling capacities, hot-water and steam heating coil capacities, and humidifier capacities. Specs, charts, photos, and details are also enclosed. Thermal Engineering Corp., P.O. Box 19483, Houston, Tex.

On Free Data Card, Circle **204**

CONSTRUCTION

Asbestos/Plastic Shingles

Folder presents "Fire-Chex" asbestos-plastic shingles that include 25-year guaranty bond. Shingle consists of reinforced blanket of asbestos fibers interlaced and bonded with weather-resistant thermoplastic asphalt. Color-



fast ceramic granules are embedded in this fire-resistant, flow-resistant shingle. Folder contains color illustrations and specs. The Philip Carey Mfg. Co., Cincinnati, Ohio.

On Free Data Card, Circle **205**

Curtain-Wall Panels

Brochure describes laminated curtain-wall panels. They consist of exterior grade, prefinished cement asbestos boards with face of porcelain matte finish permanent color. Standard sheet is in thicknesses of 1/8" or 1/4", in widths of 4', and in lengths of 8' and 10'. Panels are available with five different insulating core materials. Brochure shows charts describing core materials, contains wind load specs, and illustrations. Acorn Structures, Inc., Box 127, Concord, Mass.

On Free Data Card, Circle **206**

Types of Glass

Catalog, 20 pages, offers various types of glasses—plate, sheet, laminated, patterned, and spandrel. Heat-absorbing, glare-reducing, heat-tempered, and fire-resistant glasses are described. Catalog gives descriptions, photos, charts, and specs. American Saint Gobain Corp., P.O. Box 929, Kingsport, Tenn.

On Free Data Card, Circle **207**

Metal Batten Roofing

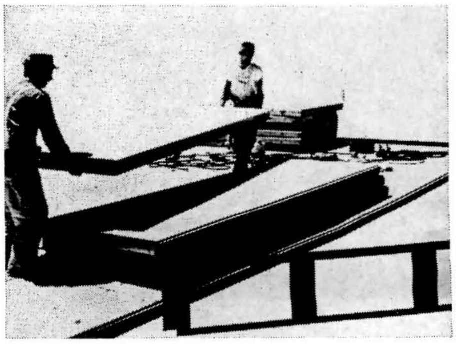
Pamphlet, 8 pages, describes metal batten roofing. Roofing can be fabricated in aluminum, copper, Monel metal, or stainless steel. Expansion and contraction are provided both laterally and longitudinally. System is adaptable to all pitched roofs, barrel roofs, spires, dome, and parabolic structures. Minimum pitch is 1½" in 12". Other descriptions include coping and skylights. Specs, details, and drawings are given. Overly Mfg., Co., Greensburg, Pa.

On Free Data Card, Circle **208**

Brick Panels

Folder consisting of 12 separate fact sheets describes brick panels. Each sheet lists surface treatment, sizes, and contains natural color illustration of brick panel. Sanford Brick & Tile Co., Colon, N.C.

On Free Data Card, Circle **209**



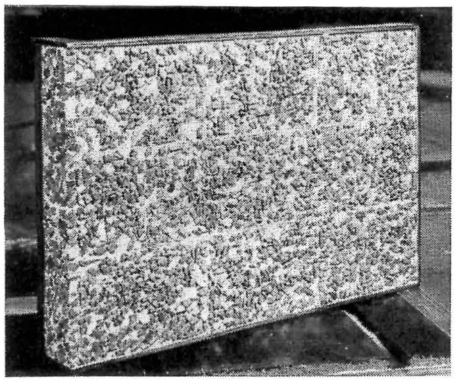
Stressed Skin Panels

Booklet, 12 pages, describes stressed-skin plywood panels. Sections include

Continued on page 102

Continued from page 98
load-span tables, capacity tables, short form specs, design criteria, typical panel section, panel overhangs, thermal insulation properties, and construction details. Douglas Fir Plywood Assn., Tacoma, Wash.

On Free Data Card, Circle **210**



Exposed-Aggregate Glass-Fiber Panels

Brochure, 8 pages, describes interior and exterior exposed-aggregate wall facings, stair treads, floor panels, and solar screens. They consist of natural rock aggregate, embedded in glass-fiber reinforced, thermosetting resin. Their tensile strength is 6500 psi. Panels can be mounted on all structural backings including precast concrete, steel, wood, and plaster. They are fireproof and warp-proof. Brochure includes color photos, details, and dimensional data. Pritchard Products Corp., Versa-Tex Div., 4625 Roanoke Parkway, Kansas City, Mo.

On Free Data Card, Circle **211**

DOORS/WINDOWS

Prefinished Wood Doors

Brochure describes prefinished hollow and solid flush doors. They consist of 7-ply construction and include two prefinishing choices. "Doraid" furniture type catalyzed finish is synthesized plastic base material, highly resistant to scratching and marring. It is applied to all six sides. "Dorseal" finish is tough, clear vinyl base sealer applied to all six sides. Doors are available in birch, oak, laminates, and other species of wood. Brochure gives specs, sketches, and descriptions. Requests must be made on company letterhead. Mohawk Flush Doors, Inc., 212 W. Ewing, South Bend, Ind.

Wood Windows

Booklet, 24 pages, illustrates "Pella" wood casement windows. Single and multiple units feature inside screen that rolls down in spring and up and out of sight in fall. Self-storing storm units are available. Ventilating windows can be washed on both sides from inside. Regular or diamond glass dividers snap in and out for easy maintenance. Color photos, dimensions, and descriptions are given. Rolscreen Co., Pella, Iowa.

On Free Data Card, Circle **212**

ELECTRICAL EQUIPMENT

Danish Lighting

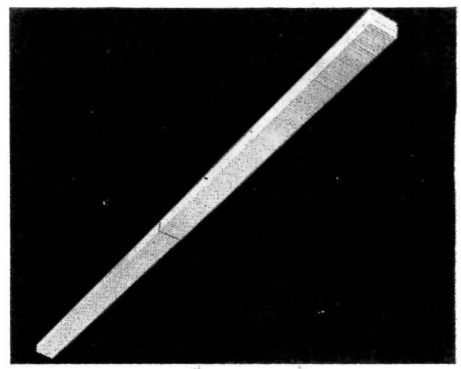
Pocket-size catalog, 66 pages, shows collection of Danish table lamps, floor-lamps, pendants, and wall fixtures. Designs are available in copper, brass, aluminum, porcelain, and glass. Color photo depicts each fixture with descrip-

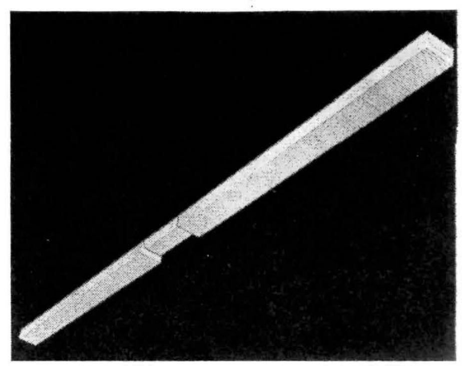
For more information, turn to Reader Service card, circle No. 347

tive data on reverse side. Separate price list is also included. Danlite, Inc., 21-21 41 Ave., Long Island City, N. Y.
On Free Data Card, Circle **213**

Lighting Fixtures

Series of brochures on lighting fixtures present fluorescent, outdoor, wall, indirect luminous ceiling, incandescent, and corridor units. "Panalux" wall lighting and "Madera" fluorescent lighting feature wood finishes as part





of their framework. Various models of each fixture are shown. Details, specs, sketches, charts, and descriptive data are included. Silvray Lighting, Inc., 100 W. Main St., Bound Brook, N. J.
On Free Data Card, Circle **214**

Street Luminaire

Brochure presents "Viscount" street lighting luminaire. Designed to use 100-, 175-, or 250-w mercury lamps, it has built-in ballast and segmented refractor. Standard hard-textured, silver-aluminum baked enamel finish in various colors resists heat, abrasion, and weathering. Acrylic plastic refractor resists weathering, discolorization, crazing, or cracking. Brochure contains color illustrations, ballast charts, and descriptive data. Westinghouse Electric Corp., Lighting Div., Edgewater Park, Cleveland, Ohio.
On Free Data Card, Circle **215**

For more information, turn to Reader Service card, circle No. 419

Surface-Mounted Incandescent Lighting

Booklet, 16 pages, describes 8 types of surface-mounted incandescent luminaires in wood, metal, or glass. Glassware is pure white for high transmission and even diffusion. Metal parts are heavy gage with corrosion-resistant materials or finishes. Diffuser assembly can be removed entirely by compressing "Torsiontite" spring fasteners and disengaging from retainers. Booklet contains charts, sketches, details, and descriptive data. Lightolier, 346 Claremont Ave., Jersey City, N. J.
On Free Data Card, Circle **216**

FINISHERS/PROTECTORS

Protective Coating for Many Surfaces

Pamphlet, 4 pages, describes vinyl resin protective coating. It can be used on wide variety of surfaces including block, brick, concrete, plywood, stone, stucco, and aluminum. Coating is tough, flexible, continuous plastic unaffected by sun or storms, heat or cold. It will not crack, chalk, chip, peel, or fade. Plastic is inert, odorless, and can be formulated nontoxic. Ply-On Coatings Inc., 55 Sheridan St., San Francisco, Cal.
On Free Data Card, Circle **217**

Vinyl Flashing

Booklet, 4 pages, offers flexible vinyl flashing in colors of white or black. Homogeneous material will not crack, craze, or peel under normal conditions. It has tear, puncture, chemical, and abrasion resistance. Details and specs are given. B. F. Goodrich Co., Building Dept., Akron 18, Ohio.
On Free Data Card, Circle **218**

Coating Protects Concrete Floors

Brochure, 4 pages, describes coating that penetrates surface of concrete. Introduction of wetting agent lowers surface temperature and carries solution deeper into pores of surface to insure its effective hardness about 10 times and increase its resistance to dust. "Mono-Lith" liquid coating is resistant to many acids, oil, grease, salt, abrasion, and wear. It has a five-year manufacturer's guarantee. The

For more information, Circle No. 356➤

DURABLE REPAIRS OF CONCRETE EASY WITH PLASTICON

no undesirable patched appearance

Solution to a difficult repair and maintenance problem — how to make thin layers of new concrete stick to old surfaces — is found in a new product, "Plasticon".

Used instead of water with portland cement and sand, this form "Plasticon Fortified Mortar". It reinforces the mix, adheres firmly to existing concrete, eliminates need for chipping or roughing of old surfaces, formerly necessary when newly-applied mortar is less than 2 inches thick. No catalysts or tricky proportioning.

Plasticon is suitable for use on concrete surfaces, indoors or out . . . floors, pavements, steps, decks, curbs, drives, sidewalks. Excellent for repair of structural concrete precast sections, railings, pillars, panels, forms. Uniform concrete color. Write for Bulletin 707L.

MAINTENANCE INC., Wooster, Ohio

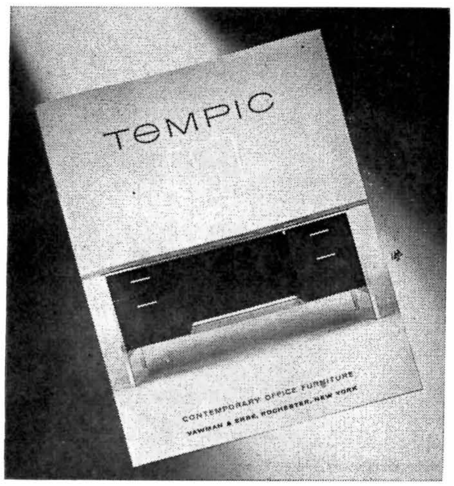
For more information, turn to Reader Service card, circle No. 349

Monroe Co., Inc., 10703 Quebec Ave., Cleveland 6, Ohio.
On Free Data Card, Circle **219**

FURNITURE

Church Furniture

Catalog, 44 pages, presents church furniture. Illustrations show altars, chairs, chancel sets, rails, tables, seating, screens, lecterns, pews, pulpits, and symbols. Turney Wood Products, Inc., Harrison, Ark.
On Free Data Card, Circle **220**



Metal Office Furniture

Brochure, 18 pages, covers line of "Tempic-9" metal office furniture. Desks, credenzas, tables, secretarial and modular work stations are shown in color photos. Tops are available in plastic laminates (white, gray, tan, green, walnut, silver gray scrim, and tan scrim) and natural woods (walnut, cherry, teak, rosewood, and butternut). Sketches and dimensions are given. Yawman & Erbe, 1099 Jay St., Rochester, N. Y.
On Free Data Card, Circle **221**

INSULATION

How to Insulate

Booklet entitled "Fundamentals of Building Insulation" tells how commercial and residential insulation works, why it is used, and where it should be used. This edition, 44 pages, discusses three new products, intermediate and nail-base insulation board sheathing, sound-deadening insulation board; proper insulation for electric

Continued on page 112

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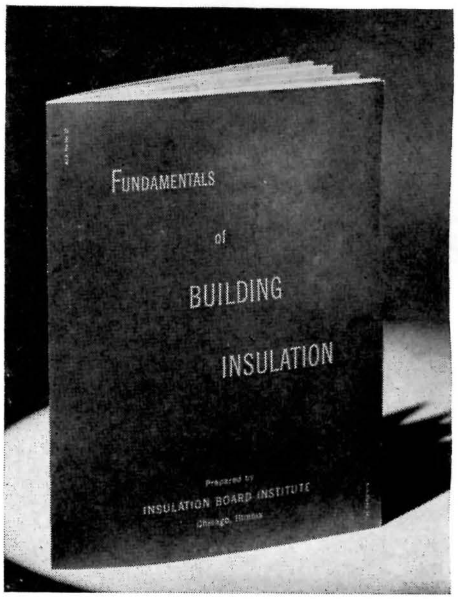

heating, and latest insulation information. Insulation Board Institute, 111 W. Washington St., Chicago, Ill.
On Free Data Card, Circle 222

Weather Stripping

Catalog, 32 pages, describes various types of door and window weather stripping equipment and suggested applications. Data, specs, and 168 full-size detailed drawings are included. Zero Weather Stripping Co., Inc., 453 East 136 St., New York, N. Y.
On Free Data Card, Circle 223

Insulations

Booklet, 28 pages, describes three types of insulation for operating temperatures from —450 F to +1200 F. Those discussed are "Unibestos," an asbestos pipe insulation for temperatures from +100 F to +1200 F; "Foamglas," cellular glass insulation for temperatures from —450 F to +800 F; and "Foamthane," rigid polyurethane foam insulation for temperatures from —330 F to +200 F. Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.
On Free Data Card, Circle 224

PROGRESSIVE ARCHITECTURE
NEWS REPORT

REINHOLD PUBLISHING CORPORATION
430 PARK AVENUE NEW YORK 22, N.Y.
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Publisher..........D. Bradford Wilkin
Editorial Director......T. H. Creighton
Editor..................Jan C. Rowan
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BFG FLEXIBLE VINYL FLASHING

keeps water where it belongs ...outside

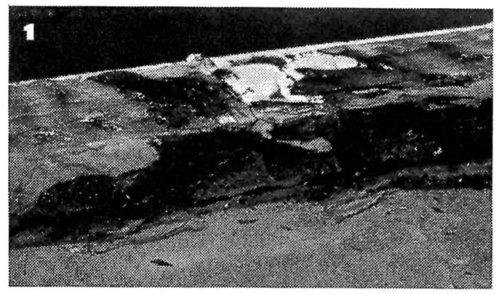
BFG Flashing is a specially compounded, extruded PVC sheet. It is tough, flexible over a wide temperature range and offers excellent weathering properties. By its very nature, it conforms easily to irregular shapes and surfaces—remains watertight where building movement is encountered. It's available in WHITE, too, for use on light colored roofs and other areas where aesthetically desirable.

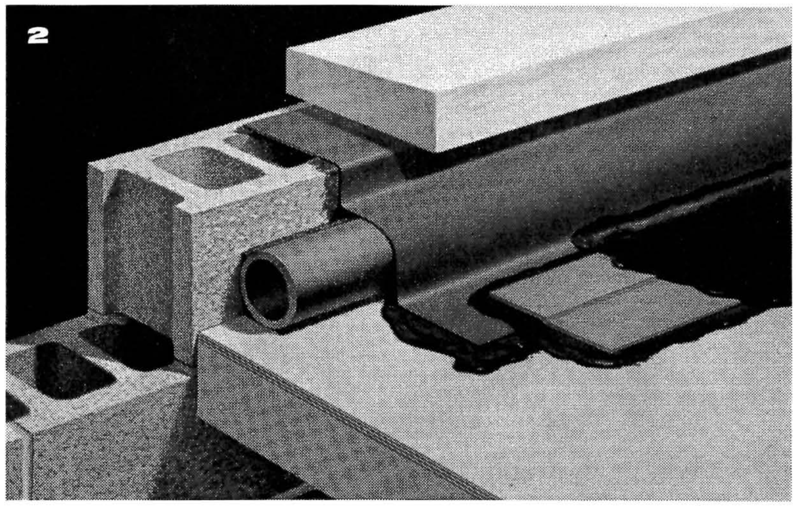
The same qualities that make BFG Flashing ideal for ordinary, everyday applications become doubly important where the "tough" jobs are concerned. Shown alongside: 1. A specific example of common flashing failure due to movement between deck and parapet. 2. BFG field service engineers' recommendations for solving the problem. 3. The finished installation.

Such technical service and assistance is available to help solve your flashing problems. Just write BFG Building Products Dept. PA-11, The B.F.Goodrich Company, Akron, Ohio 44318.

BFG
FLEXIBLE VINYL FLASHING

PROBLEM: Failure of composition flashing only three years old, due to movement between deck and parapet. Frequent attempts to patch were unsuccessful. In this photo, coping has already been removed.





SOLUTION:
BFG field service engineers recommended the following procedure:

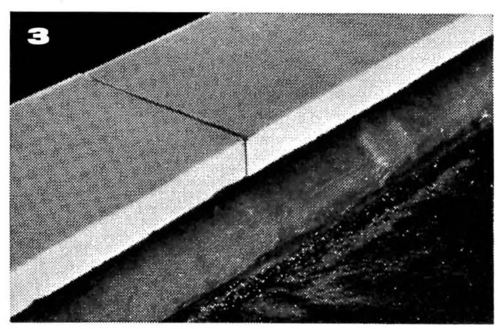
a. Remove existing coping, flashing and cant strip.

b. Place 4" O.D. flexible foam tubing in mastic at wall-roof juncture.

c. Mastic-adhere BFG flashing to parapet, lay dry over foam tubing, adhere to built-up roofing, and strip with felt.

d. Replace coping.

RESULT:
An installation that will remain trouble-free and water-tight because the unadhered loop of flexible flashing is sufficient to accommodate the indicated movement.



B.F.Goodrich

BUILDING PRODUCTS DEPT. PA-11
The B.F.Goodrich Company
Akron, Ohio 44318

Please send technical data and samples:

☐ **BFG FLEXIBLE VINYL FLASHING**
☐ **BFG VINYL WATER BARRIERS**
☐ **BFG VINYL BUILDING PANELS**

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What do CEM-SEAL and a bag of apples have in common?

Certain films used for packaging foods allow the contents to "breathe" while serving as a barrier against moisture and contaminants.

CEM-SEAL has much the same effect when applied to new concrete. It forms a clear membranous covering that holds the moisture in the concrete, allowing only a slow, controlled escape in the form of vapor. This assures a strong, dense, uniform cure throughout the slab. At the same time, CEM-SEAL protects the new concrete against extraneous moisture, grease and stains.

CEM-SEAL is quickly and easily applied with a sprayer or lambs wool applicator . . . and only one coat is needed. CEM-SEAL provides great coverage . . . and saves the time, trouble and labor expense involved in other methods of protecting and curing new concrete.

Write, wire or call collect for complete technical data pack on Hillyard CEM-SEAL, or call for a trained, professional Hillyard "Maintaineer," who serves "On Your Staff — Not Your Payroll."

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The Most Widely Recommended and Approved for Every Surface

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March 1964 **PROGRESSIVE ARCHITECTURE** ®

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

EDITORIAL

Preservation of historic buildings used to be a favorite subject of historians and of little old ladies munching cookies at tea parties. To belong to history, a building had to be at least 100 years old, preferably connected with a well-known figure who slept or ate or did something within the four walls of the structure, and small enough not to involve a large real estate investment. To gather public support for the preservation of such a building was relatively easy. But what does one do when the threatened building involves an investment of million of dollars, occupies a prime downtown site, is not 100 years old, and only bums use it for sleeping? Take, for instance, the demolition of Pennsylvania Station in New York. Recently, at a ghoulish rite, the first granite slabs were ceremoniously chewed away by pneumatic drills and the giant stone eagles were lowered from the cornice on which they perched for the last 53 years. And so began the end of the end of one of the few truly great buildings in the U.S.A. I was one of those who fought many months for the preservation of the station. Yet all I can do now is to make this editorial into an obituary by quoting two laymen who were moved deeply enough by the building to have written about it some years ago, thus immortalizing for future generations what our generation today is wantonly tearing down:

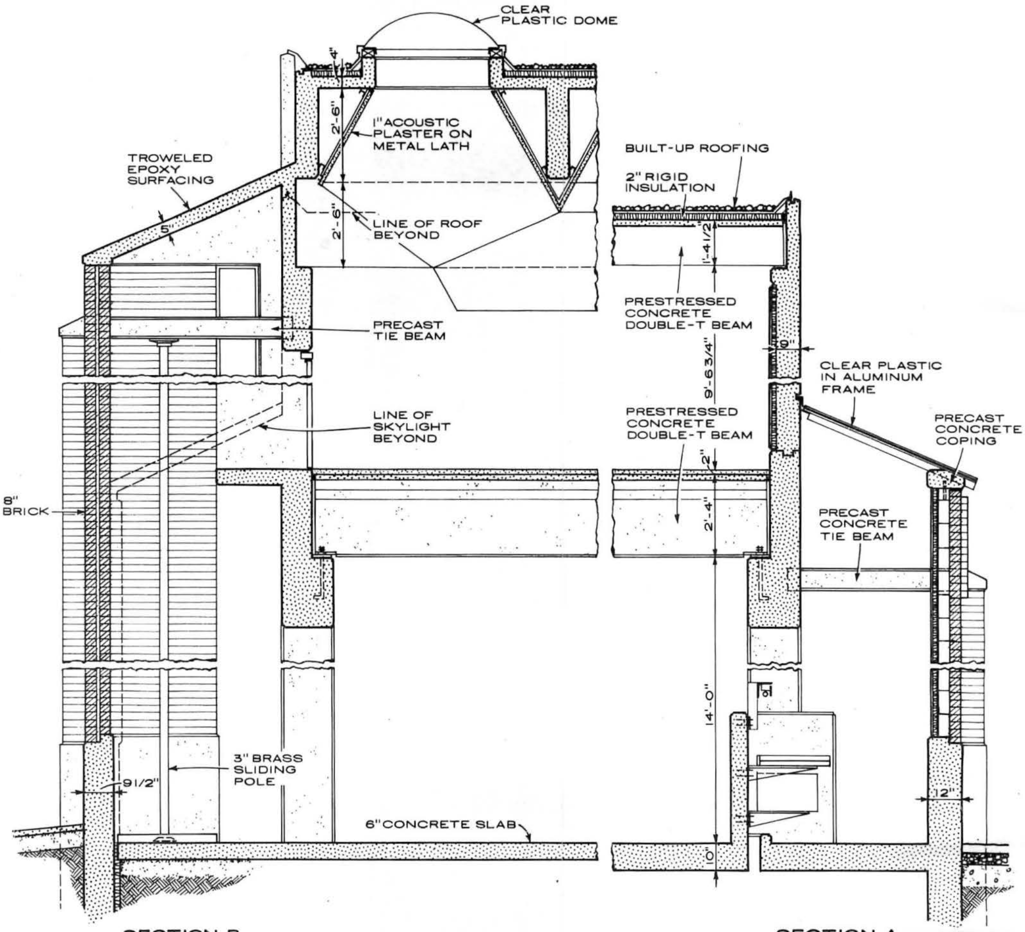
> The Pennsylvania Station in New York
> Is like some vast basilica of old
> That towers above the terrors of the dark
> As bulwark and protection to the soul.
> Now people who are hurrying alone
> And those who come in crowds from far away
> Pass through this great concourse of steel and stone
> To trains, or else from trains out into day.
> And as in great basilicas of old
> The search was ever for a dream of God,
> So here the search is still within each soul
> Some seed to find to root in earthly sod,
> Some seed to find that sprouts a holy tree
> To glorify the earth—and you—and me.
> —*Langston Hughes*

"The station, as he entered it, was murmurous with the immense and distant sound of time. Great, slant beams of moted light fell ponderously athwart the station's floor, and the calm voice of time hovered along the walls and ceiling of that mighty room, distilled out of the voices and movements of the people who swarmed beneath. It had the murmur of a distant sea, the languorous lapse and flow of waters on a beach. It was elemental, detached, indifferent to the lives of men. They contributed to it as drops of rain contribute to a river that draws its flood and movement majestically from great depths, out of purple hills at evening.

"Few buildings are vast enough to hold the sound of time, and . . . there was a superb fitness in the fact that the one which held it better than all others should be a railroad station. For here, as nowhere else on earth, men were brought together for a moment at the beginning or end of their innumerable journeys, here one saw their greetings and farewells, here, in a single instant, one got the entire picture of the human destiny. Men came and went, they passed and vanished, and all were moving through the moments of their lives to death, all made small tickings in the sound of time—but the voice of time remained aloof and unperturbed, a drowsy and eternal murmur below the immense and distant roof."—*Thomas Wolfe in "You Can't Go Home Again."*

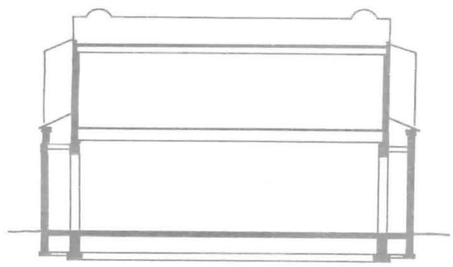
And so good-by Penn Station. Next time we meet, you will be only a ghost wandering through the subterranean tunnels of a subway station that will bear your name. You were too big, born too late, and gave joy merely to millions of travelers instead of providing a night's rest for George Washington. ■

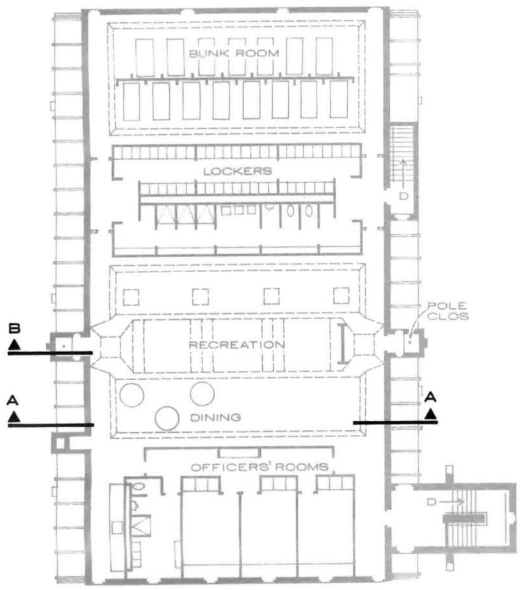
Jan C Rowan

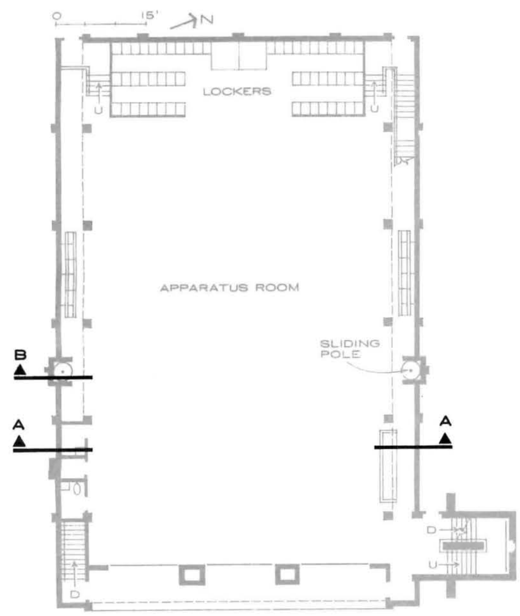


SECTION B

SECTION A

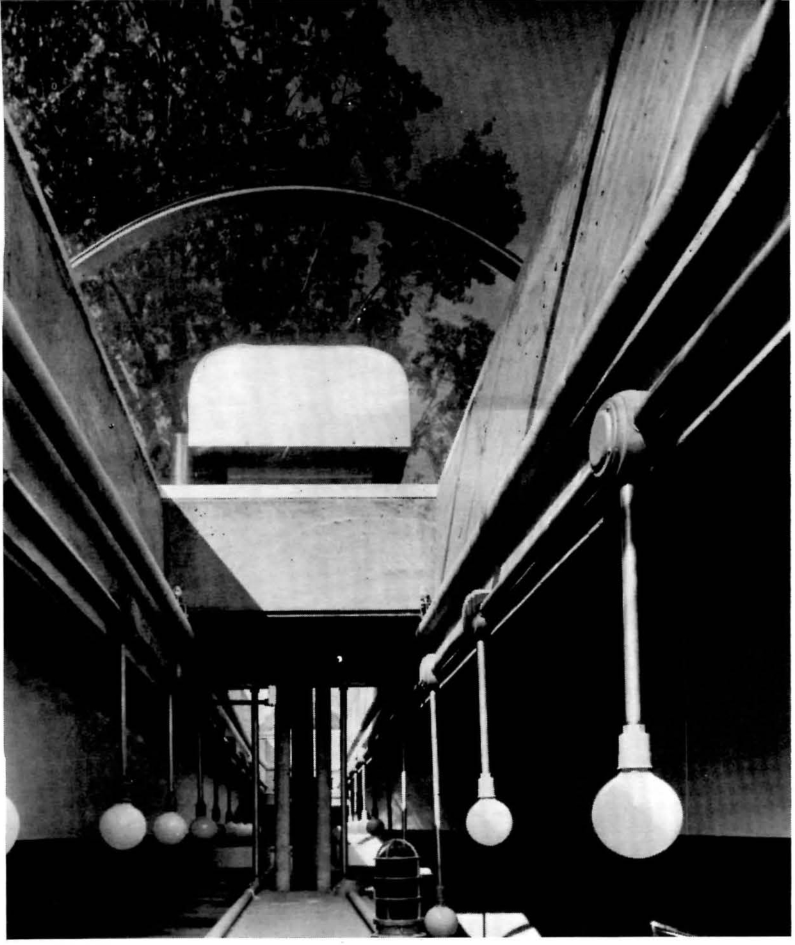


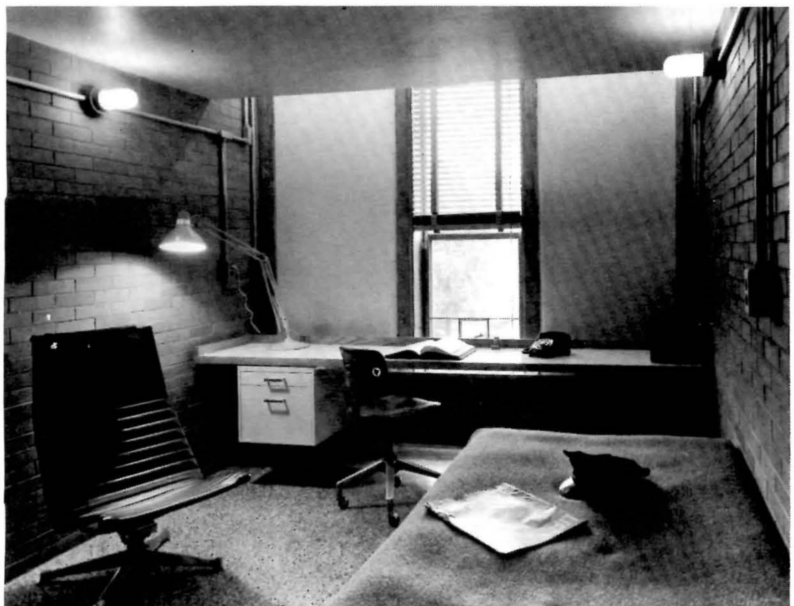




The two-story concrete core of the firehouse is flanked by lean-tos with brick bearing walls. The taller appendages (top right) *house the stairways and sliding poles that link the firemen's second-floor quarters to the main floor. The one-story areas* (bottom right) *house drying racks and accommodate mechanical lines serving the second floor. Their clear plastic roofs supply natural daylight to the apparatus room* (photo facing page) *and illuminate the textured concrete wall above at night* (top right).

The concrete structural system, designed by Henry Pfisterer, includes both precast and poured-in-place elements. The poured members that support the precast T beams of the second floor appear as a free-standing colonnade in the apparatus room (photo facing page). *Concrete bearing walls at the second-floor level carry the double-T beams of the roof.*



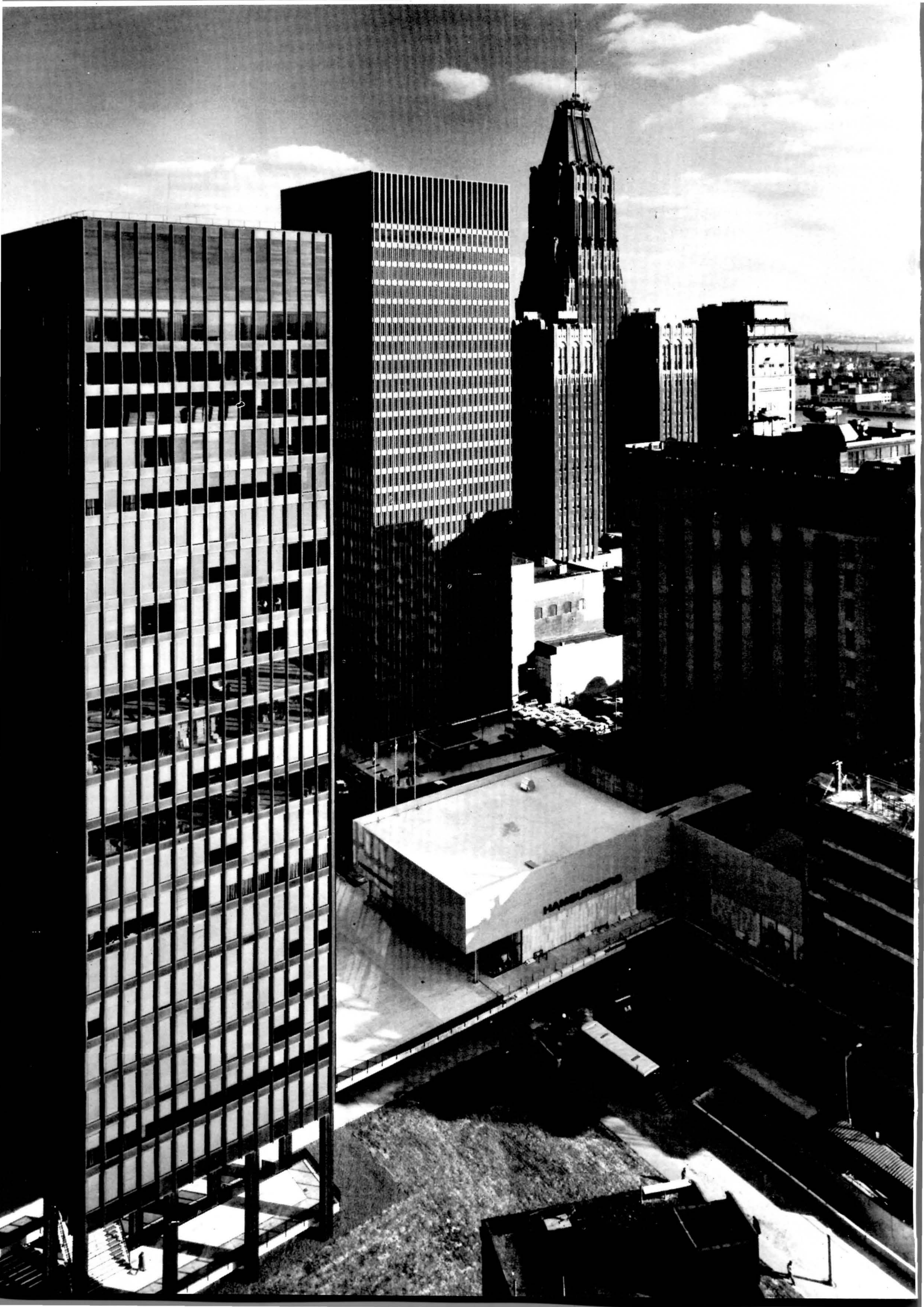


The dramatic, angular forms characteristic of Carlin's earlier fire station are only suggested on the exterior of this building, but appear full-blown in the ceiling of the second-floor recreation room (facing page). *The folded planes around the clerestories and skylights help to distribute natural light throughout the space. Fluorescent strips below clerestory windows produce lighting conditions similar to daylight. Incandescent lights are suspended in deep pyramidal projections that repeat the coffer forms in reverse.*

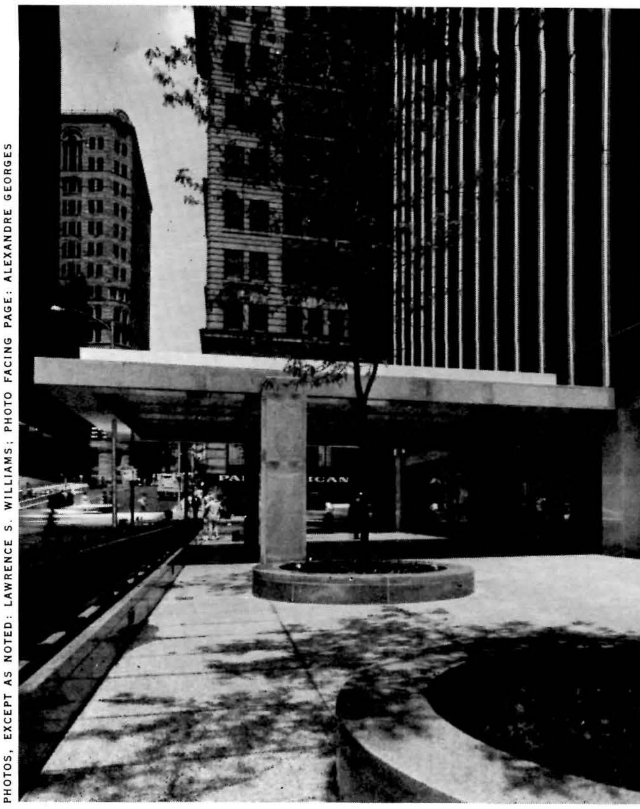
Clear plastic vaults above the shower room (upper left) *afford views of the treetops and light up the sculptural complex of exposed piping. In the bunk room* (middle left), *central coffered downlights and fluorescent strips at the perimeter allow for variation in lighting effect. Private rooms for officers* (bottom left) *have view windows of domestic scale and strip windows in a pocket above the main ceiling level. (These quarters are not permanent residences, but are used by men assigned to night duty.)*

Surfaces throughout the interior are of hard, durable materials that can be spotlessly maintained. Floors are of terrazzo, walls of hard-pressed face brick, and doors are plastic-faced. Maintenance is also facilitated by the use of built-in furniture, including brick-based tables (facing page), *brick headboards* (middle left), *and cantilevered desks* (bottom left).

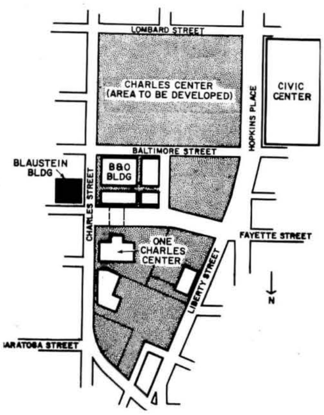

POLE



PHOTOS, EXCEPT AS NOTED: LAWRENCE S. WILLIAMS; PHOTO FACING PAGE: ALEXANDRE GEORGES



Private Supplement to a Civic Undertaking



THE BLAUSTEIN BUILDING • BALTIMORE, MARYLAND • VINCENT G. KLING, ARCHITECT • JOHN RUTKOWSKI, PROJECT MANAGER

The Blaustein interests—a group of related enterprises that originated in 1910 with the establishment of the American Oil Company—participated in the competition for sponsorship of the first office tower in the Charles Center Urban Renewal project. The building, designed by Mies van der Rohe for the competition winners, Metropolitan Structures of Chicago, has recently been completed (*left in photo, facing page*).

The Charles Center management ruled out additional construction of rental office space in the project for two years in order to avoid flooding the rental market. But the Blaustein organizations, with substantial space requirements of their own and greater confidence in the rental market, were convinced that simultaneous construction of a second office tower would have a healthy effect on downtown revival. They joined forces with McCloskey & Company of Philadelphia to construct the 30-story Blaustein Building (*center in photo, facing page*), diagonally across the street from One Charles Center. In this location, the Blaustein Building helps to bridge the gap of nondescript structures that separates Charles Center from the office towers of Baltimore's financial district—among them the city's tallest building, the Maryland National Bank Building (*at right in photo, facing page*).

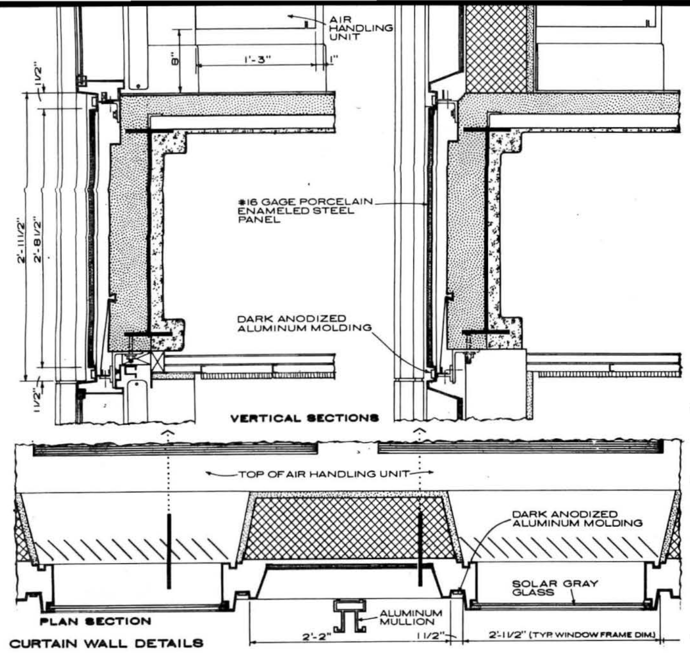
Although undertaken without the economic benefits of an urban renewal site, the Blaustein Building had to offer rents competitive with those of One Charles Center ($5.50 to $7.00 per sq ft). Since Blaustein was built as a corporate headquarters and not solely as a rental investment, it was possible to match these rents and offer certain functional advantages: virtually column-free office space of uniform depth around a central core; a ceiling-lighting system in which fixtures can be moved along tracks to meet changes in layout; and a cellular floor system to provide complete flexibility for wiring.

The square tower rises 360 ft without setbacks from the entrance plaza (*photo above*) that covers 20 per cent of the site. Its verticality is emphasized by continuous aluminum mullions and narrow floor-to-ceiling windows.

A close color relationship between the Blaustein curtain wall and the surrounding buildings helps to create a cohesive ensemble out of an otherwise disparate group of buildings. The gray glass that constitutes over one-third of the wall matches the glass of One Charles Center; the porcelain-enamel panels between the windows have a gray-tan matte finish that is close to the color of the stone cladding on older neighboring buildings; the dark bronze color of the aluminum curtain wall on One Charles Center (which recalls the bronze window-spandrel panels of the older B & O Building) is echoed on the Blaustein Building in the thin mouldings around the porcelain-enamel panels.

The canopied entrance leads to a 33-ft-high lobby (below), *with banking offices on the surrounding mezzanine. The slender aluminum mullions of the mezzanine continue up the face of the building as part of the office-floor curtain walls* (facing page, bottom). *The three-dimensional composition of the curtain wall produces interesting variations in appearance with changes in lighting conditions and angle of view. The projecting mullions and windows give the building a reflective appearance when seen from a sharp angle. When the wall is viewed head-on, the true ratio of window to wall becomes clear and the changeable pattern of shadows on the matte-finished porcelain enamel panels can be seen.*

On the interior (facing page, top) *the deep reveals of the floor-to-ceiling windows reduce penetration of sunlight and glare. Air-diffusing units were raised above the floor to serve as safety barriers.*

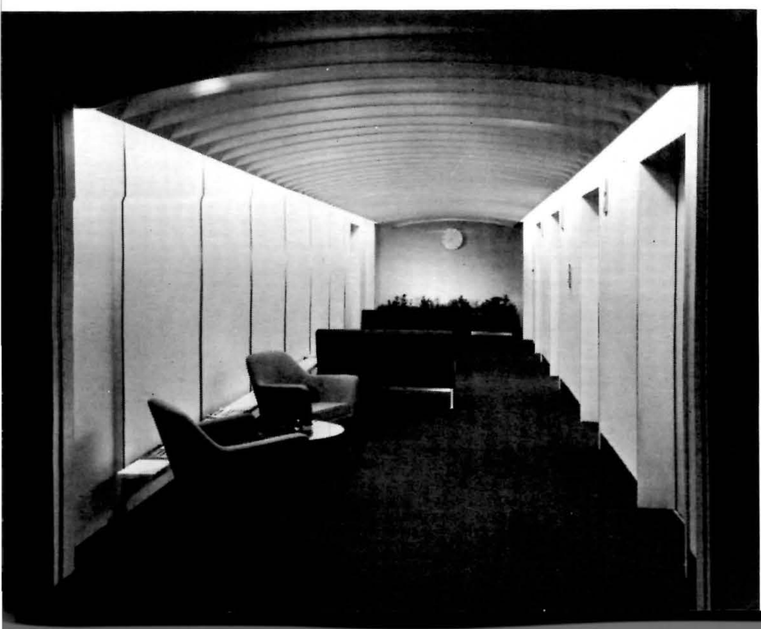


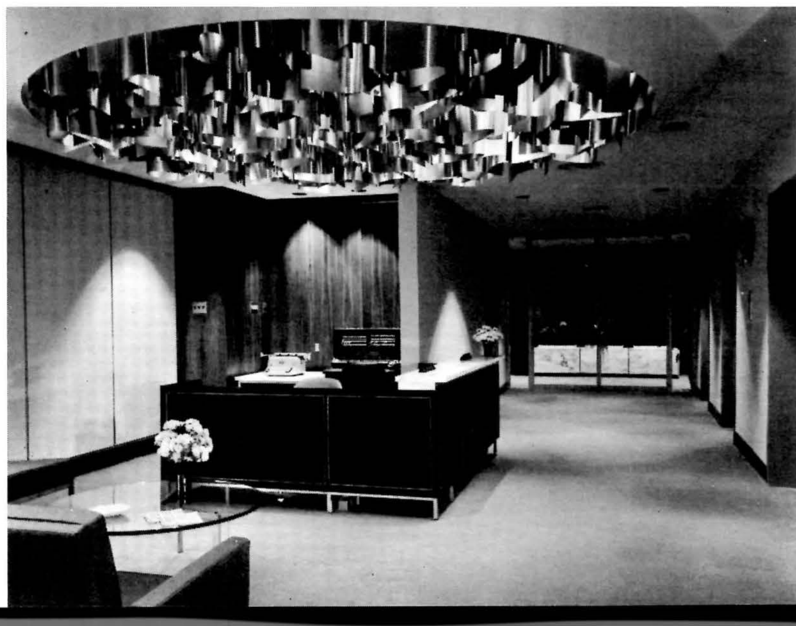
CURTAIN WALL DETAILS

PHOTO: ALEXANDRE GEORGES

PHOTOS, THIS PAGE: ALEXANDRE GEORGES

The interiors department of Kling's firm designed four floors of offices in the building: two for The American Trading and Production Corporation, which represents the Blaustein interests, and two for Crown Central Petroleum Corporation. Each company has been given a different visual identity. Crown Petroleum's reception-room scheme (below, left) *uses blue carpet and red upholstery in a white background, so as to reiterate the firm's public image through the colors displayed at its service stations. American Trading, however, does not market consumer products and so projects no corporate image to the public. Its reception room* (below, right) *is intended to convey the prestige of a co-owner of the building and the tastes of the executives of the firm.*

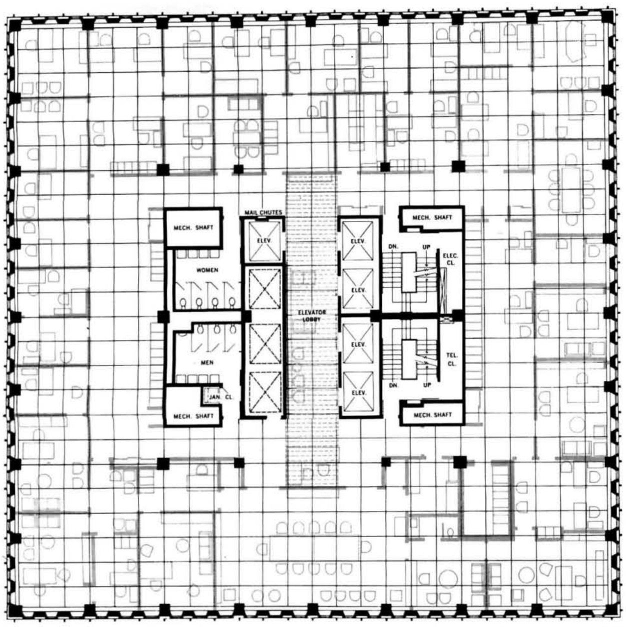




The plan has essentially column-free floors—laid out on a 4'-6½" module—providing considerable flexibility for the layout of partitions. The building-standard lighting system has troffers that can be slid on metal tracks between acoustical tiles to accommodate changes in partitioning. Typical of the layouts Kling's Interior Design Department did for the building is the plan of the 22nd floor (below), *which is occupied by Crown Central Petroleum Corporation.*

In installing window coverings, the designers were skillful in relating them to the configuration of the perimeter walls. Vertical blinds are set between deep window reveals and are floor length, passing behind the suspended air-handling units (facing page, top, left). *Draperies are hung to the tops of the units and part to fold back over the narrow perimeter walls.*

Typical of the interior detailing are a wall-hung sideboard (facing page, top, right) *and a U-shaped desk unit* (facing page, middle). *The side link is formed by pulling leaves out from both desk and back unit. Joseph Bobrowicz was the Interior Designer in charge.*

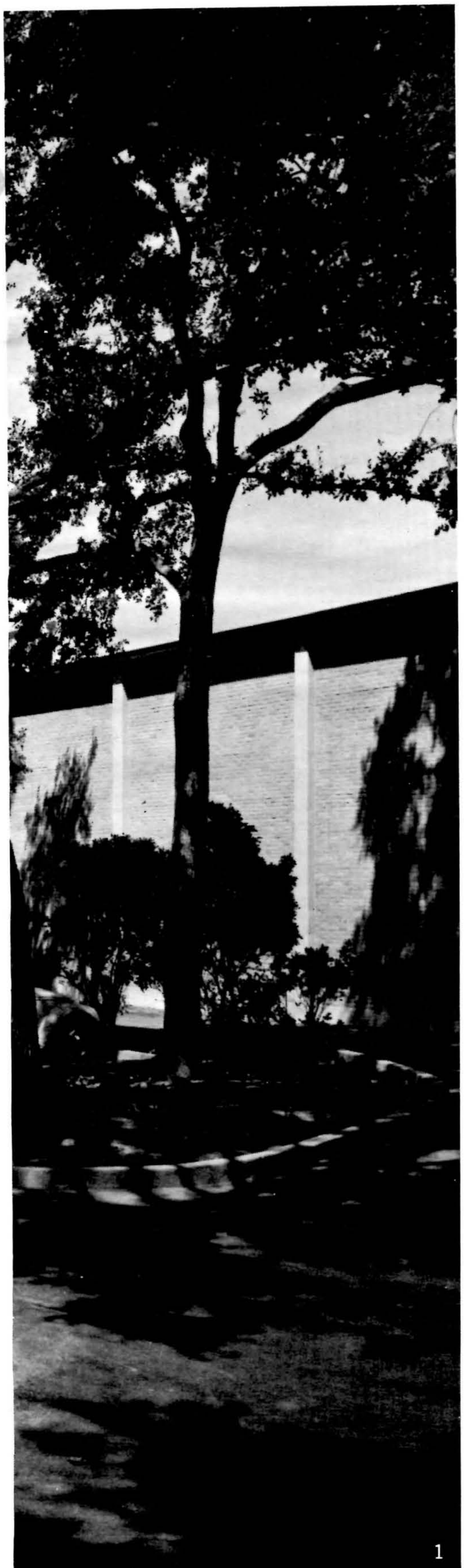


TYPICAL OFFICE FLOOR N ← 0 20'

DATA: Descriptions and sources of the major materials and furnishings shown.

RECEPTION, CROWN CENTRAL *(facing page, bottom, left)*: **Carpet:** royal blue wool/V'Soske. **Armchairs:** in bright red fabric/both Knoll Associates. **Sofas:** in black-red fabric/both Knoll. **Far wall:** painted beige. **Shelf:** white/Vermont Marble. **Planter:** black Formica/brushed chrome/architect-designed/Allied Crafts. **RECEPTION, AMERICAN TRADING** *(facing page, bottom, right)*: **Walls:** white cloth panels/Boris Kroll; off-white paint; walnut. **Carpet:** bronze wool/V'Soske. **Lighting:** recessed downlights/Century Lighting; ceiling fixture/burnished bronze, copper, brass/architect-designed/Allied Crafts. **Elevator reveals:** burnished gold enamel/Otis. **Desk:** macassar ebony/cremo marble/brushed steel/architect-designed/McCloskey-Grand Co. **Table:** glass/steel/Albano Co.
WINDOW TREATMENT: Vertical blinds: off-white aluminum/Eastern Products. **Draperies:** beige linen/Boris Kroll. **DESK UNIT:** walnut/ebony inlay/architect-designed/Walter P. Sauer & Sons. **Control box:** dimmers, telephone, intercom/custom. **Chair:** Knoll; terra cotta leather/Blanchard Bros. & Lane Inc. **Carpet:** beige/V'Soske. **Draperies:** beige/dacron & shantung/F. Schumacher & Co.

ALL PHOTOS: RONDAL PARTRIDGE; EXCEPT PHOTO ABOVE: PATTESON



1

VW Sales Under the Trees

SALES & SERVICE CENTER FOR INTER-CONTINENTAL MOTORS, INC., SAN ANTONIO, TEX. • O'NEIL FORD & ASSOCIATES, ARCHITECTS • HOWARD WONG, PROJECT ARCHITECT

Several unusual factors influenced the design of this automobile sales and service center: (1) the three-acre site, part of an old estate, harbored a dilapidated but unique and much-admired old house; (2) 75 handsome oaks, elms, and pecans remained on the property; (3) the new facilities were to take a prominent position between a major thoroughfare and a quiet street, bordering a large city park.

Consequently, the architects and their clients "were determined to counter considerable objection to destruction of the old house by saving every tree on the site and by doing—if at all possible—a building of distinction." Furthermore, good materials, generous set-backs from the street, good landscaping and interesting paving were to aid in achieving a complex of quiet distinction which would stand in persuasive contrast to the brash auto sales facilities all around.

While the actual planning of sales, office, and shop areas around the existing trees presented formidable problems, a floor plan "shaped like a fat tee" was found an ideally functional arrangement, which also spared and put to good use two towering oaks on the street side. "This solution," writes architect O'Neil Ford, "was extremely fortunate, as the high shading of the big trees cut out the morning sun, therefore allowing us to use glass on all walls **(1)**. Further, the tree limbs were so high that they never obstructed any view and now provide excellent mounting for soft light floods. The clipped cross shape also works especially well for the evening window shoppers who can see all of the nine cars—three in each bay—from three sides. The tile terraces provide an esplanade, and the showroom floor is elevated above street level, allowing passing motorists to view the display without obstruction. This separation of floor and earth is further accentuated by cove lights which 'float' the building in the evening **(15)**."

The tree-salvaging operation continued

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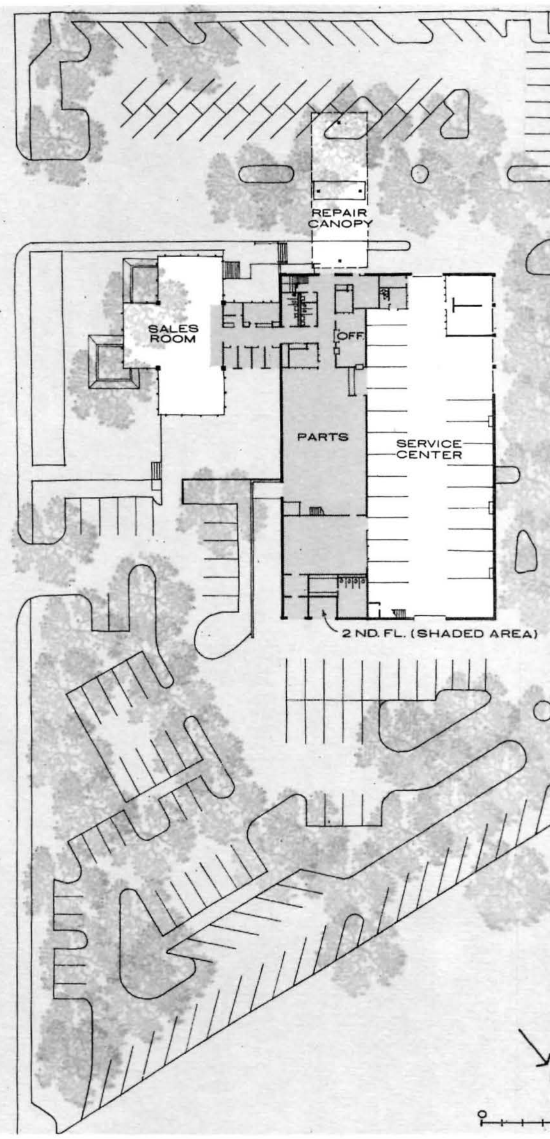

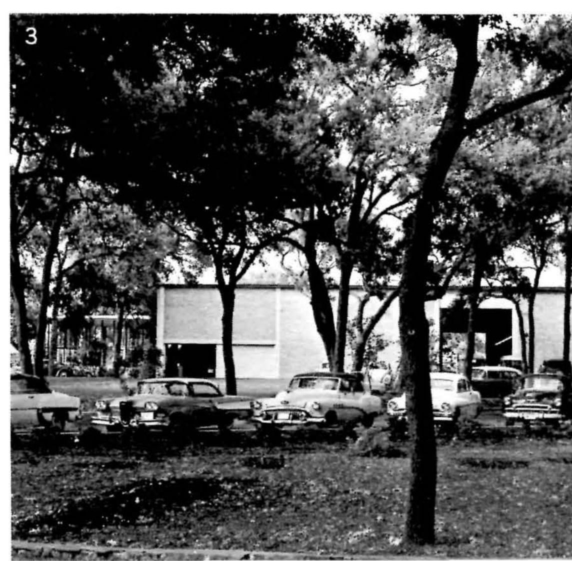

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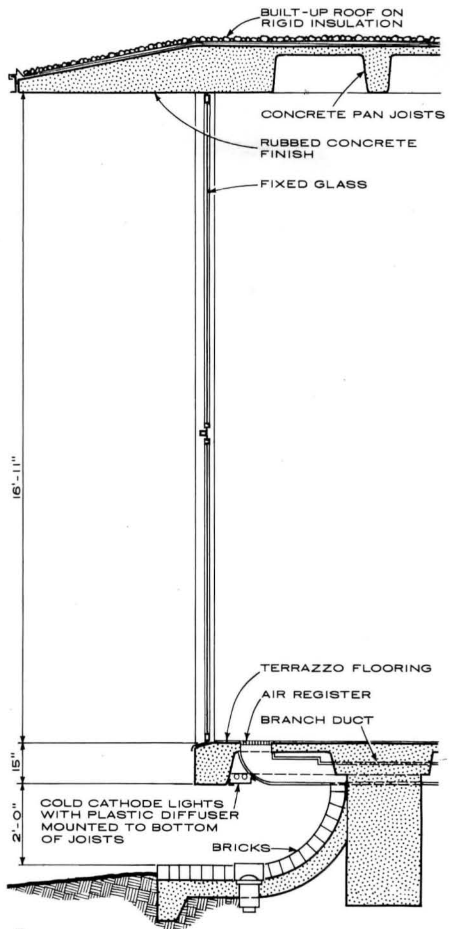
with the planning of driveways and parking areas. Eventually, all 75 trees were saved and the paved areas carefully woven around and among them **(2, 3)** in an effort to maintain the appearance of a big park, thereby eliminating the unsightly sea of pavement, usually found in commercial developments of this kind. For seasonal variety, textural interest, and color, small flowering trees and shrubs have been added; ground covers have been planted that require no mowing or trimming and are automatically sprinkled; and special containers **(7, 9)** were made available for additional plants within the building and on adjoining terraces **(6)**.

In juxtaposition to these rich landscape patterns, the structure is stated simply and directly, leaving the basic construction exposed wherever possible, as, for example, in the waffle slab that roofs the salesroom, and the long-span, precast concrete T-beams that span the shop areas. Foundations are steel-reinforced concrete slabs. Framing is of steel and reinforced concrete. Exterior walls, enclosing the service area, are of brick with concrete block backing; floor-to-ceiling glass is used in the salesroom. Flooring in the latter is of white terrazzo, which eliminates the need for excessive voltage in ceiling lamps. Daylight enters this sales area through glazed voids in the waffle-slab; night-lighting is effected by incandescent lights, clustered over the center of the sales area **(10)**. Similar ceramic fixtures are also used to light the terraces **(8)**.

Of particular design interest are the curved brick pedestals, which serve as a retaining wall for the two prominent oak trees and continue as foundation walls under the building **(4)**. Under the showroom, this brick cove **(5)** conceals lights that illuminate both base and paving, achieving, in this way, the "floating" effect at night **(15)**.

Silber & Wallis were the Mechanical Engineers; Feigenspan & Pinnell, the Structural Engineers; Stewart E. King, the Landscape Architect; and David & Chandler Construction Co., Contractor.



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Splayed brick base with integral cove-lighting—detailed in section through window-wall of salesroom **(5)**—*lends the building subtle grace, and, when illuminated at night, an air of weightlessness. The cove also incorporates the branch ducts, which carry air from a perimeter duct to adjustable floor registers. The curving surface of the base is of handmade, soft, pinkish-tan brick, which was also used in the construction of the walls of the service center. Choice of color and texture is particularly fortunate in relation to the natural setting, and as a background for such outdoor furnishings as the plant containers* **(7, 9)** *of beaten lead, designed and made by Lynn Ford, a member of the architect's staff, and the ceramic lighting fixtures designed and made by artist Martha Mood.*


6

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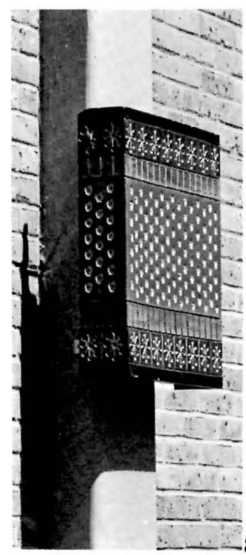
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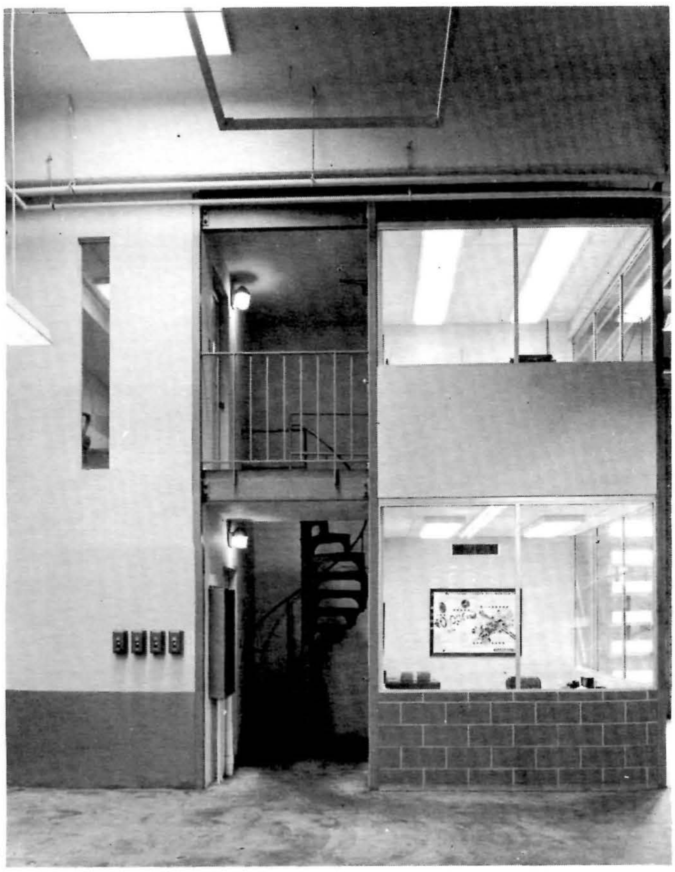

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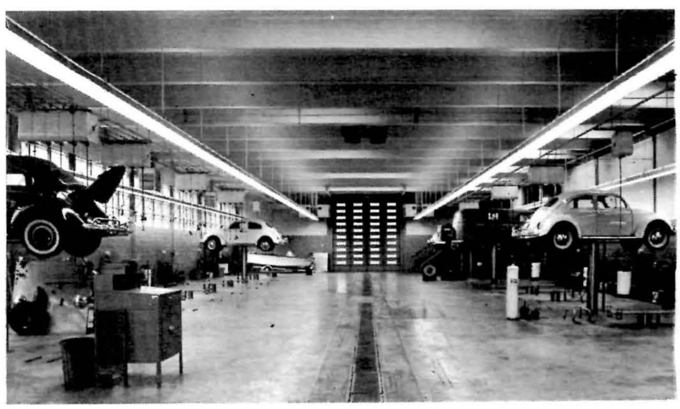

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Voids have been left in the waffle-slab to bring daylight into the salesroom **(10)**. *The square skylights are supported on curb-type frames; below these, plastic light diffusers have been installed 2 in. above the lower edge of the roof slab.*

A two-story wing forms the link between salesroom and service center. At one end, the second level of this center portion terminates in a balcony which overlooks the salesroom **(11)**; *at the other end, in the service manager's and dispatcher's office* **(12)**. *Also on this upper level is a waiting room, glazed on one side, to provide customers with a view down into the orderly and well-equipped shop* **(13)**. *This space is air-conditioned, has walls of glazed block, a concrete floor, and fluorescent lighting.*

Interior finishes in the general office area, as in the small closing rooms **(14)**, *are plywood or cement-plaster on metal studs; terrazzo flooring; acoustic tile ceilings; fluorescent lighting.*

Experimentation in the Harvard Tradition

DAVID & ARNOLD HOFFMAN LABORATORY OF EXPERIMENTAL GEOLOGY, HARVARD UNIVERSITY, CAMBRIDGE, MASSACHUSETTS • THE ARCHITECTS COLLABORATIVE, INC., ARCHITECTS • JOHN C. HARKNESS, PARTNER IN CHARGE • VICTOR MAHLER, EARL FLANSBURGH, JOB CAPTAINS • SOUZA & TRUE, STRUCTURAL ENGINEERS • LEO J. CROWLEY, MECHANICAL ENGINEER

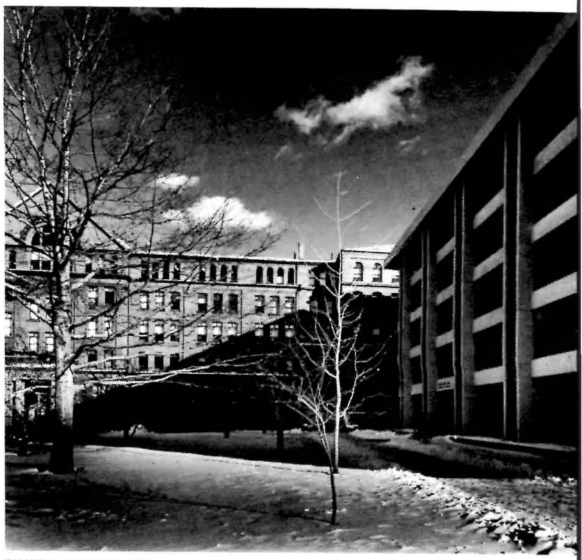
At the dedication of Harvard's new Hoffman Laboratory, a noted geologist spoke of his field as being, in some ways, more an art than a science. This is a familiar debate, to be sure, and its resolution is never clear-cut; architects would be the first to say that even the most exacting discipline must have its measure of creative intuition. In this new lab, The Architects Collaborative have included both sides of the argument—their building is an emphatic statement of scientific rationalism, yet has the artistry for which TAC is well known: the strength of simple forms and the warmth of natural materials. In 1962, the building received a P/A Design Award Citation.

With the new lab, experimental geology has come of age at Harvard. Research was previously conducted in a converted garage, in a building shared with ROTC, and in the basement of the Geological Museum. There has been no major construction for the department since 1901. Yet the importance of laboratory work has been increasing vastly; prior to 1957, one graduate student a year concentrated on lab work; today, there are 35 such students a year.

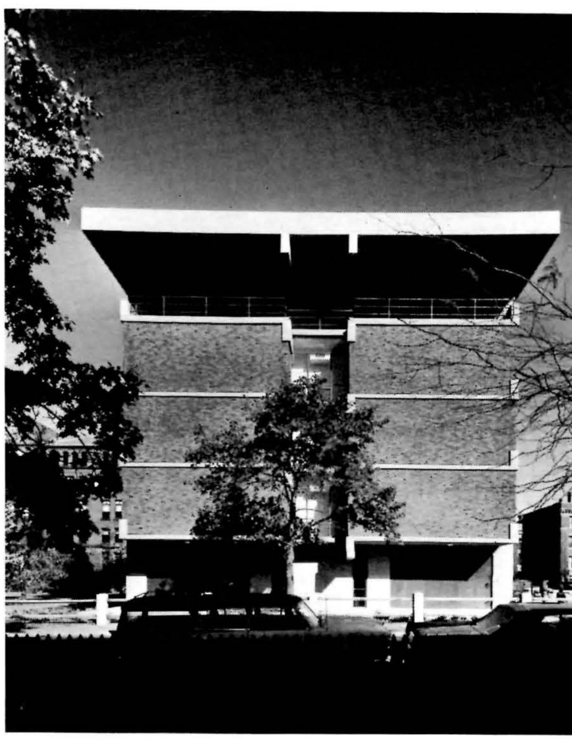
But if the subject of experimental geology is an expanding one, with its frontiers not even in sight, the new lab is, after all, at Harvard—oldest of the nation's universities. As Chip Harkness of TAC expresses it: "Perhaps it is a general problem of architecture today—how to add new buildings that are compatible with what is already there, yet are living architecture. We do not live in a monolithic society which produces Greek island villages, carved, as it were, out of one piece of stone. Yet, no matter how we twist and turn, we must admit that our culture has its roots in the past . . . The attitude a new structure must take is one of respect. And respect is not created by mimicry."

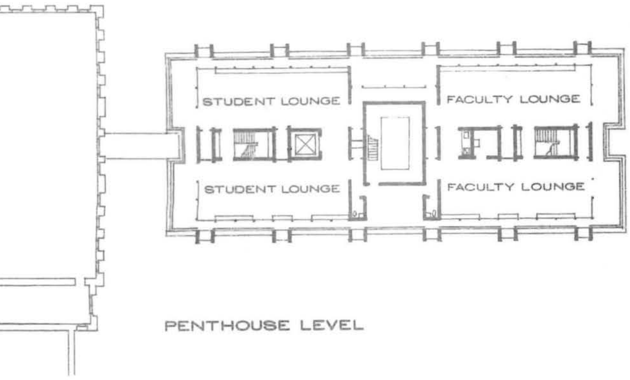
The immediate problem for the Hoffman Lab was to link it, visually and physically, with the adjacent Geological Museum (in which are housed the department's classrooms, library, and extensive rock collection). By setting the two buildings at right angles to each other, the architects have created a court in the finest Harvard tradition (*above right*). A ramped bridge joins the two at the third floor (*left*). It was not feasible to establish a relationship between the buildings based on floor height, since no two floors in the Museum are the same height. In terms of over-all height, however, there is a correspondence. The section of Hoffman was determined more specifically by the bridge to the Museum, by the maximum usable height for an individual lab, and by the economic need to keep the basement above water table. Visual continuity between the buildings has also been established in terms of bay width and window size. In materials, there is a particularly sensitive correlation: to go with the Museum's fine hand-pressed brick, TAC chose one similar in feeling—an irregular brick of rich blackish-red.

The need to respect traditional Harvard architecture was therefore one important design consideration. Where interior planning was concerned, however, the unpredictable needs of future research were a prime consideration. Victor Mahler, the job captain who saw the building through to its completion, reports the early conviction of the architects that the Lab be made as flexible as possible—ideally a "relatively anonymous shell"—offering a variety of areas able to be "repiped, rewired, and reorganized" as future needs might require. To give this variety, the corridor is set off-center, establishing two widths of labs and providing many combinations depending on whether a full bay or half bay is utilized. To give flexibility, all services—hot and cold water, waste, vents, compressed air, gas, and hot or chilled water for fan-coil units—are carried within the double beams and columns, and are easily accessible for expansion or alteration. This integration of structure and mechanical distribution gives the façades their strong vertical elements; strong horizontals are set up by the longitudinal beams that turn up at window sills and down (over doors) at the corridor (*below right*). The three typical lab floors "float" between the ground floor that is faced with black slate and the top floor that is recessed under a parasol roof (*see plans and interiors, overpage*).

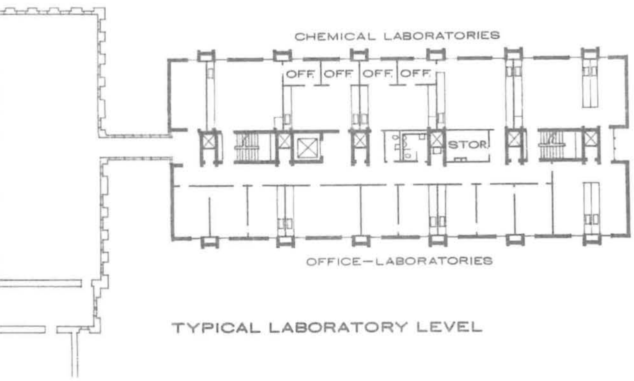


PHOTOS: LOUIS REENS

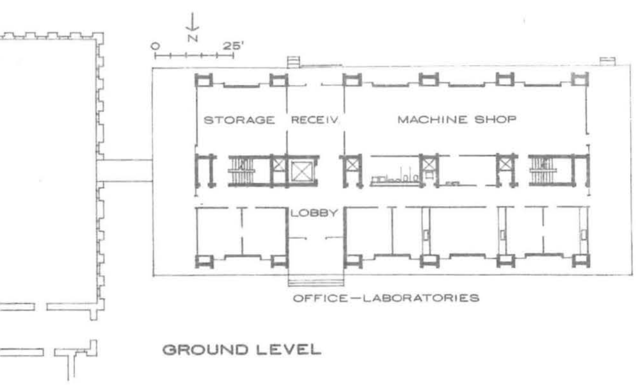




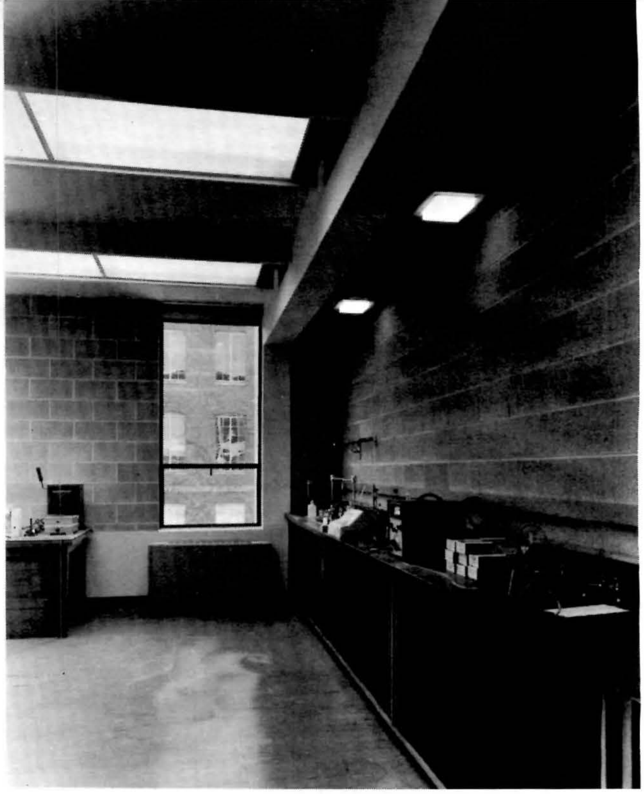
PENTHOUSE LEVEL



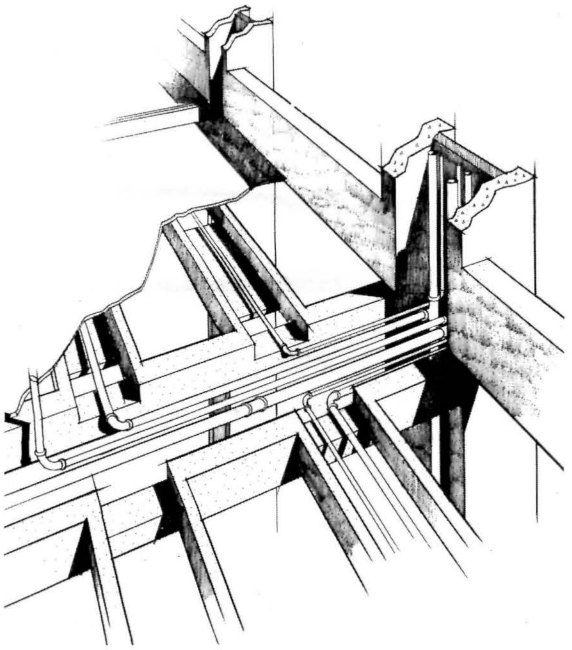
TYPICAL LABORATORY LEVEL



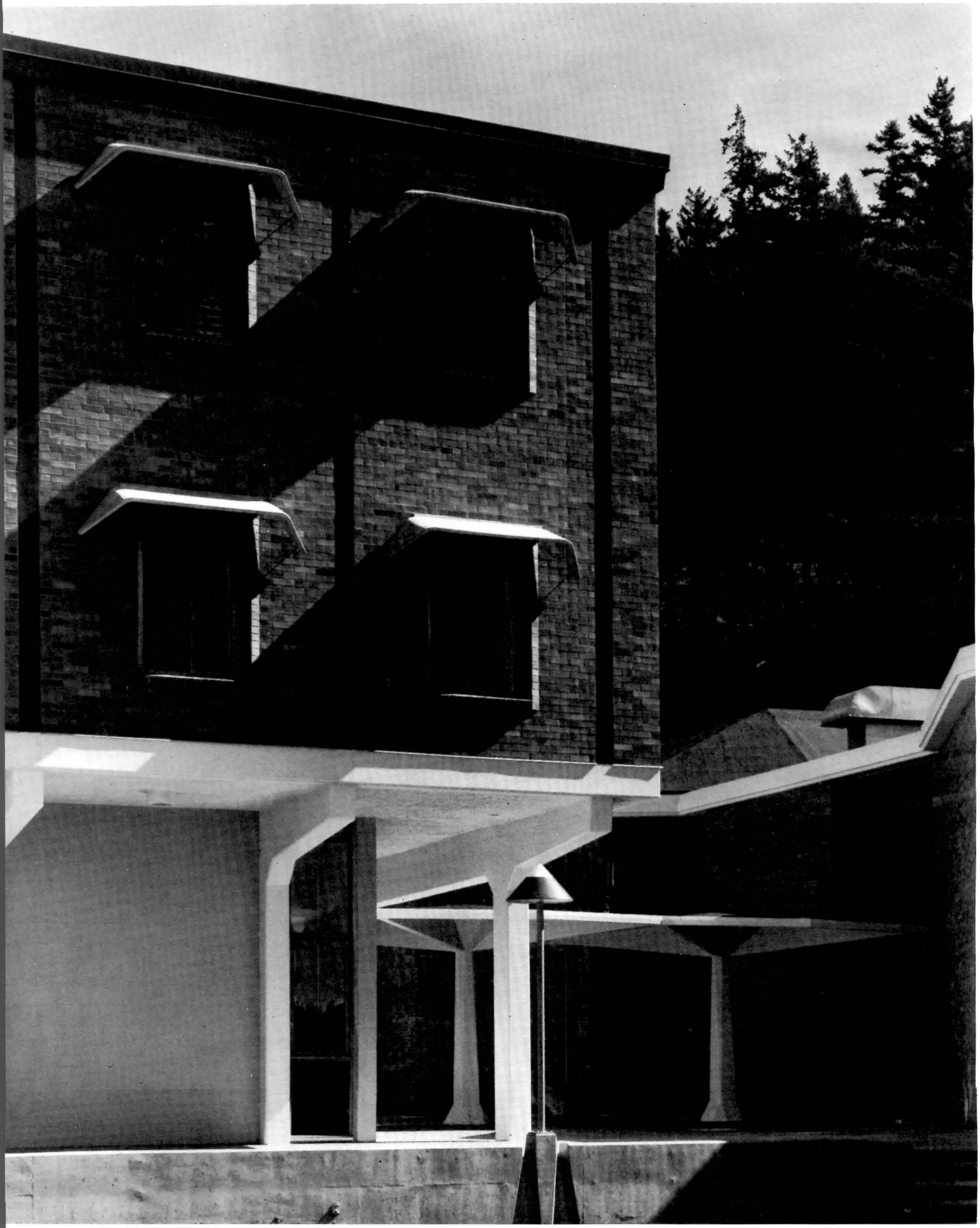
GROUND LEVEL



Integration of structural and mechanical systems is the keynote of the Lab, giving the building its form while giving the individual labs their lifeblood. Each lab space has full access to all utilities. There is double flexibility here: services may be easily altered, and the 4-in. pumice-block partitions (neither structural nor mechanical) may be easily



removed. Heating and ventilating are unusual, taking advantage of the building's natural exhalation to eliminate return ducts. The top floor, although originally to be left open, is now a faculty-student lounge. Its natural materials (cork, oak, teak), its Oriental rug and bright accent colors, are in warm contrast to the serviceable labs. Its windows, too, present a contrast—large glass areas open to a fine view; the labs, instead, needed less glass and more wall space. TAC made all design decisions—from ashtrays in the lounge, to concrete color and texture (an economical, sand-blasted surface on a mix that weathers to a warm buff). Substantial contributions for the $1 million Lab came from Robert Hoffman (Harvard, '19), a mining geologist, and the late Arnold Hoffman (Harvard, '25), a mine explorer and developer. The Lab also carries the name of the late David Hoffman (Harvard, '17), and has many works of art by the fourth brother, Irwin. This is one of the finest traditions embodied in the Hoffman Lab: the sons of an immigrant family returning their gift to America and giving added opportunity to those who follow them at Harvard.



PHOTOS, EXCEPT AS NOTED: HUGH N. STRATFORD

Campus Architecture

Human Scale for the Humanities

HUMANITIES BUILDING, WESTERN WASHINGTON STATE COLLEGE • BELLINGHAM, WASHINGTON • BASSETTI & MORSE, ARCHITECTS • WORTHINGTON, SKILLING, HELLE & JACKSON, STRUCTURAL ENGINEERS • ROBIN TOWNE & ASSOCIATES, ACOUSTICAL ENGINEERS

Western Washington State College, formerly one of the two state normal schools, has encountered a fantastic growth in program and enrollment over the past decade. Of great urgency was the need for the most basic facilities of education—classrooms, lecture halls, and offices for administration and faculty. The new Humanities Building at first seems to have the almost classical feeling appropriate to a humanities program: but, on closer examination, it shows the exploration necessary to any truly educational venture.

The new building is in the heart of the campus, surrounded on three sides by old brick buildings. The library, immediately adjacent, is described as "College Romanesque that has aged well," but has two recent additions that disregard the original. At the opposite end of the Humanities Building, beyond the auditorium wing, is the Campus Elementary School for teacher training—"a somewhat modernized Romanesque, not fine but not absolutely bad." The third existing building is Old Main, the earliest classroom and administration structure on campus—"a simple building of great dignity and honesty, direct in form but of no particular style." The fourth side of the building faces a vast grassy playfield.

It was these existing buildings that influenced the architects in matters of scale, texture, color. But as the plan reveals, and as the architects phrase it, "the building was designed inside out." Circulation was a major factor in the layout: classrooms are on the ground floor of the long block; seminar rooms and offices are on the upper floors; and the three lecture halls are grouped in a separate unit.

Internal circulation in the classroom unit is of special interest. Students enter their classrooms directly from the outdoors—the building's raised podium and overhanging upper stories make this outdoor area an effective corridor and "mingling space." Professors, however, arriving either from outside or upstairs, use the narrow central corridor and enter their classes by the "rear" door. According to the architects, this arrangement allows the professor complete freedom: he can enter before or after the class has assembled, and afterward can "mingle with the class or exit immediately without being collared." Protection against unwanted togetherness, and preservation of traditional distinctions between faculty and students, are built into the new building.

The shape of the classrooms are the outgrowth of discussions between the architects and their acoustical engineers. Sizes of the ten rooms vary in order to meet the different enrollments of different courses. On the office floors, too, rooms are of different sizes, accommodating everyone from instructor to department head, and providing space for everything from seminar to language laboratory. The corridor on these upper floors changes in direction and width according to traffic requirements and the shape and position of adjacent rooms. This is one more example in this building whereby a rational approach has resulted in a lively and imaginative architecture; in fact, schematic diagrams of circulation and acoustics can almost be seen in the finished building.

The structure and materials reflect the differentiated activities between upper and lower floors and between the separate wings. The classroom unit is of concrete on the lower level, with cantilevered beams supporting a concrete slab for the second floor. Upper levels are of glu-lam columns and beams, with wood-joist floor and roof. Walls are of pumice block; exterior walls at upper stories are brick veneered. The lecture halls are also different, with brick cavity walls and glu-lam roofs.

PHOTO: JUNE W. FRAME

Rallying Point for Campus Renewal

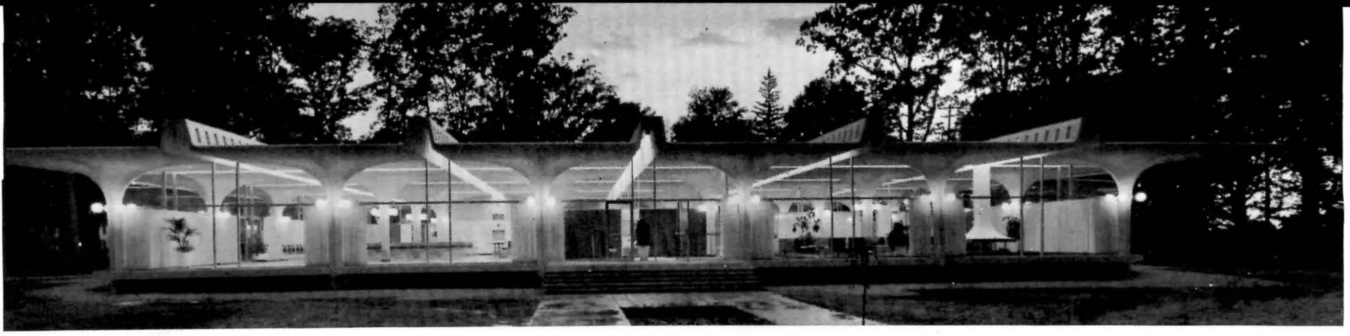
OLIVET COLLEGE COLLEGIATE CENTER • OLIVET, MICHIGAN • MEATHE, KESSLER & ASSOCIATES, INC., ARCHITECTS

As the first new structure on campus in over 30 years, this building had to stand as a symbol of revitalization. According to the master plan drawn up by the architects, this will be the first of a group of three buildings surrounding a plaza that will be the new campus focal point.

To express the significance attached to such a small building, the architects sought an architectural form that would be unmistakably modern, yet related to the classical idiom of existing campus buildings. A repetitive, nondirectional form was needed—one that could be carried over into the two future buildings to produce a homogeneous complex.

A system of concrete "trees," developed in collaboration with R. H. McClurg Associates, Structural Engineers, serves economically as structural support and enclosure. It is composed of cross-shaped columns that expand into 22-ft-square "capitals," which make up the roof. Monitors along the joints between these structural trees distribute natural light throughout the interior and serve as baffled sources for artificial lighting.

The design avoids some of the aesthetic pitfalls common among repetitive, sculptural concrete roof systems. Instead of the nervous, fluttering silhouette characteristic of vaulted systems, there is a strong



PHOTOS: BALTHAZAR

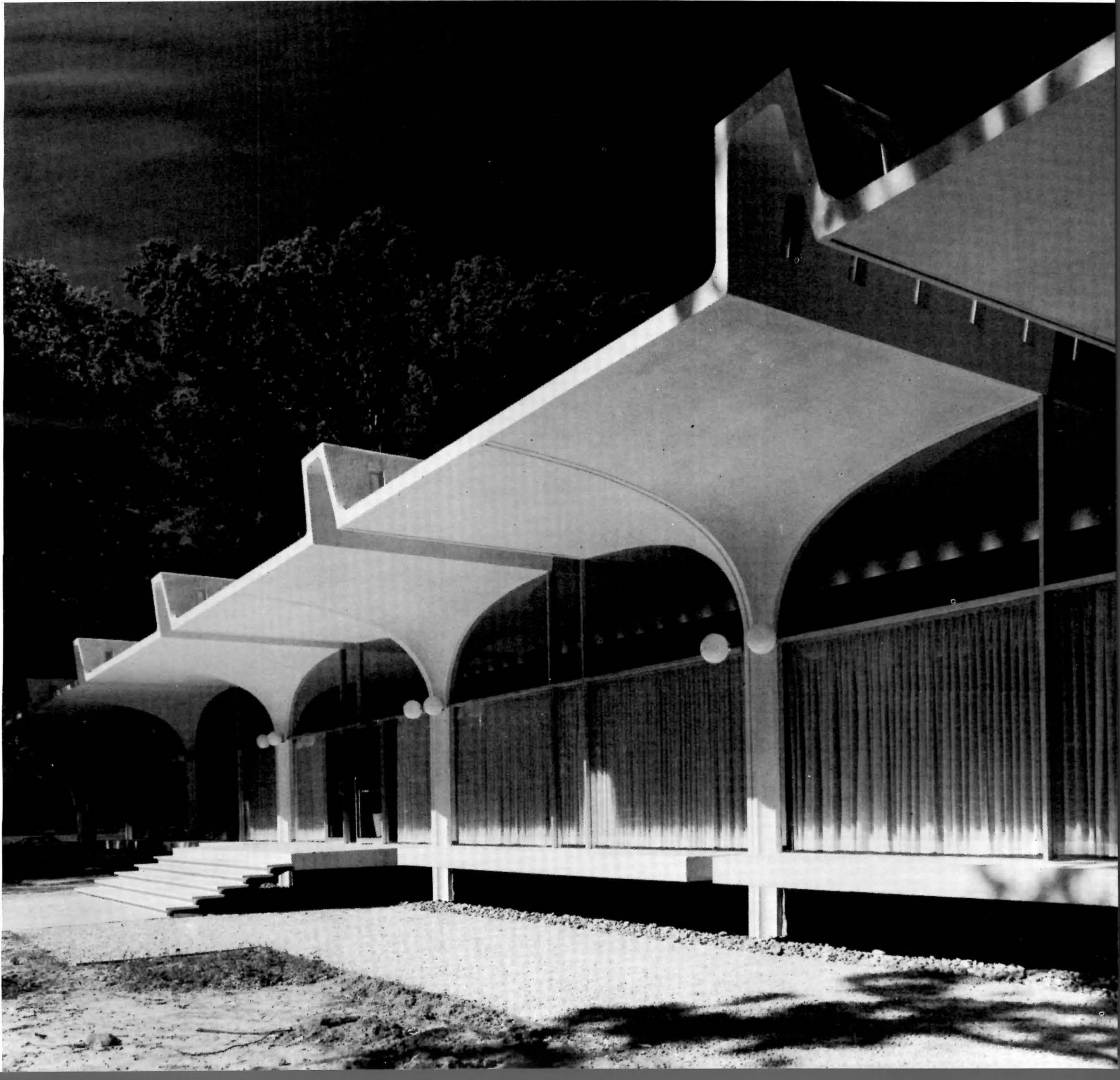
horizontal roof line, punctuated by the angular monitors; curves appear only in the shadow of this roof. Clumsy discontinuities at joints and edges have been avoided by careful attention to proportions, curvature, and details.

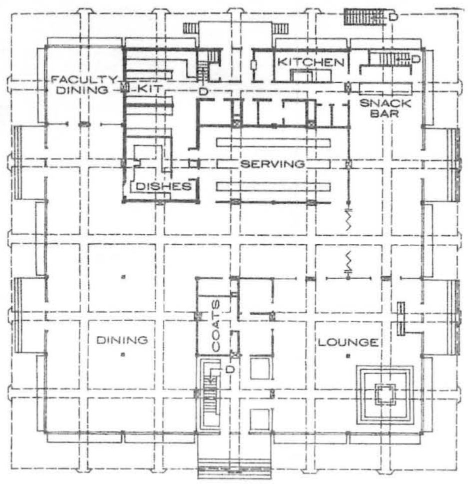
The concrete fascia is canted to match the angle of the monitors, thus suggesting that the building could be extended indefinitely without inconsistency. The canted surface gives the structure a light, springing effect and the angle reduces its apparent whiteness in contrast to the shaded soffits.

Glass-fiber-reinforced plastic was chosen for the framework because of the precise, smooth surfaces it permitted and because it could be made by a firm experienced in making molds of this material for the automotive industry. Three sets of forms were made from a plaster original representing a quadrant of the tree.

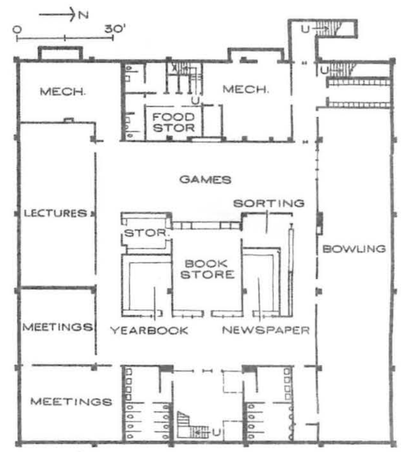
After 12 uses per set, the forms were as good as new and were stored away for use in the two future neighboring buildings. When their cost is prorated among the three structures, the unit cost of concrete placed will be unusually low. The total cost of this building, before such adjustment, was $20.10 per sq ft.

Exterior walls and interior partitions composed almost entirely of clear glass in aluminum frames expose the concrete structural system to view and emphasize the relationship of the activities inside the building to the campus as a whole.





MAIN FLOOR



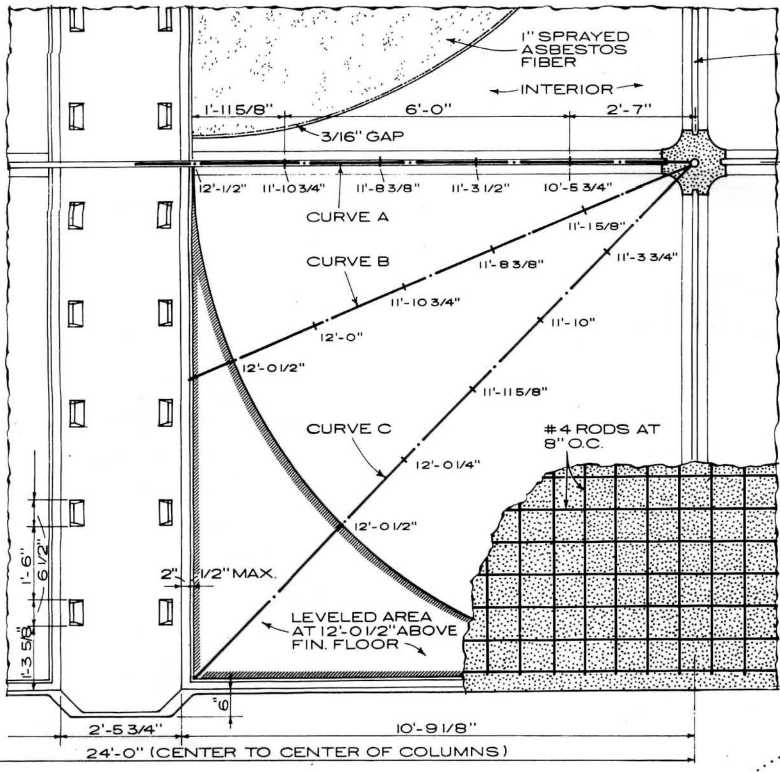
LOWER FLOOR

The diverse spatial requirements of the building's various functions have all been met within a uniform 24-ft-square bay system (plans above). *Recreation facilities, which occupy half of the total floor area, have been placed in the basement to conserve land and money.*

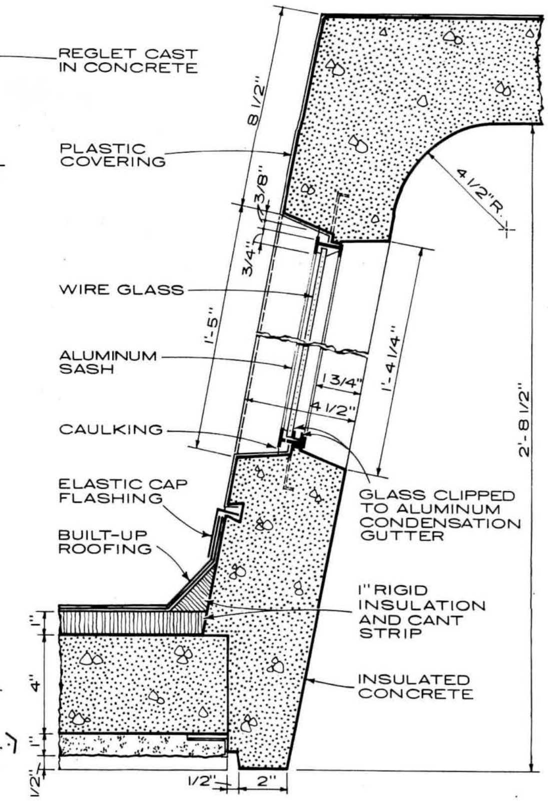
In order to preserve the dominance of the white-painted structural elements, furnishings on the main floor (photos left) *were limited in color to off-whites, beiges, and natural finishes—except for vividly colored rugs used to define areas in the lounges. Considerable use of bright colors in the basement lends appropriate liveliness to the windowless recreation spaces there.*

The monitors between the concrete structural "trees" are sources for both natural and artificial light, articulating the structural units equally clearly by day and by night (photos left).

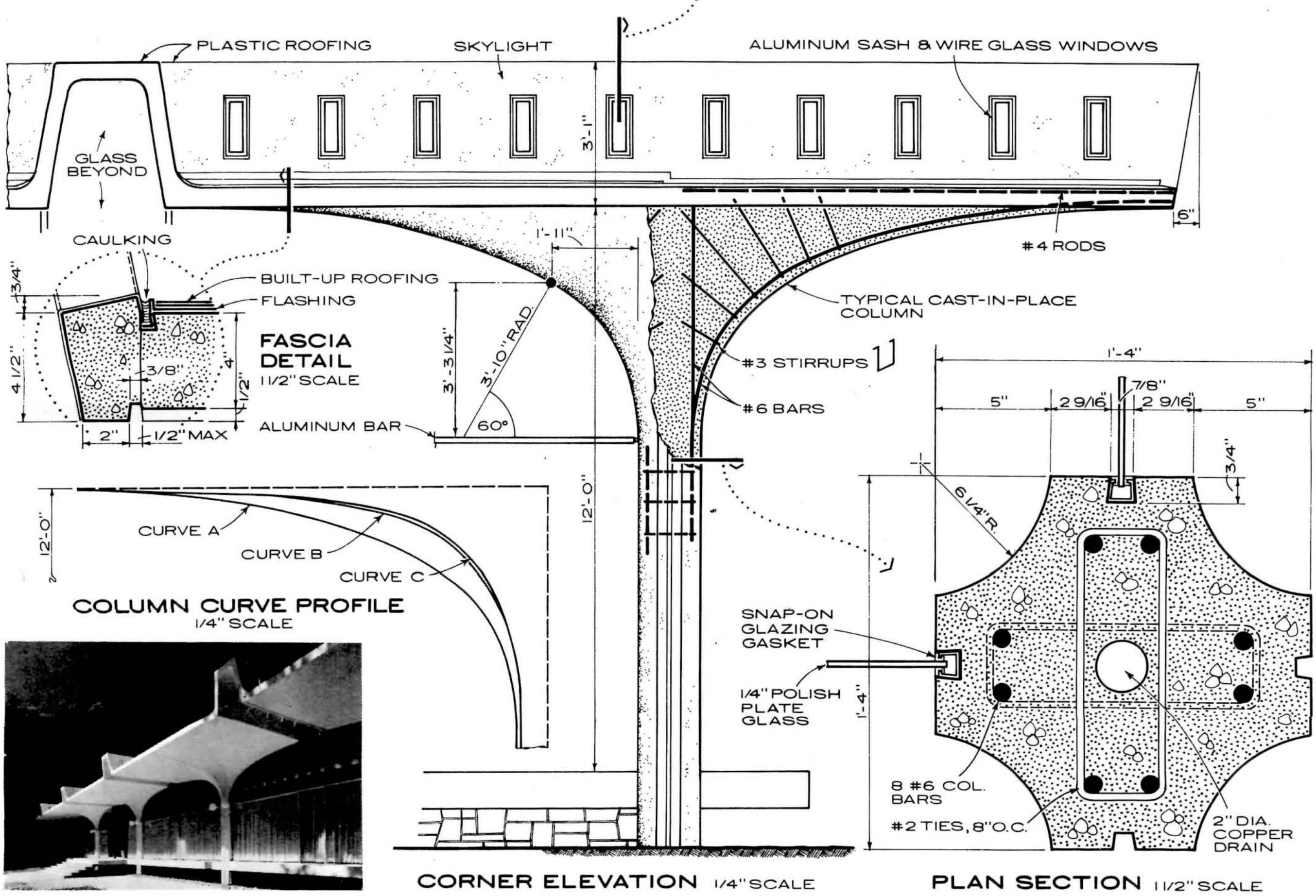
The structural "trees" (SELECTED DETAIL, facing page) *have been designed to meet varying design conditions without modification. Continuous recesses in the shaft and soffit accommodate partitions and walls and allow for joints in the formwork. The only variations were the 1-in. depressions in interior ceilings, which were filled with sprayed sound-absorbing material, thus restoring the uniformity of the profile.*



TYPICAL EXTERIOR REFLECTED CEILING PLAN
1/4" SCALE



SECTION THROUGH SKYLIGHT
1 1/2" SCALE



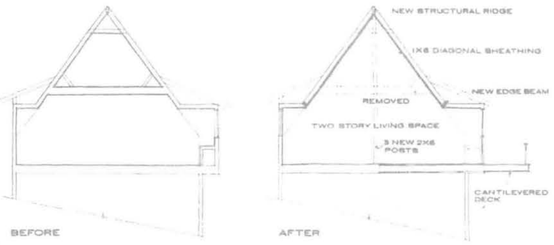
CORNER ELEVATION 1/4" SCALE

PLAN SECTION 1 1/2" SCALE

OLIVET COLLEGE COLLEGIATE CENTER: Olivet, Michigan MEATHE, KESSLER & ASSOCIATES, INC., Architects	SELECTED DETAILS COLUMN AND ROOF

Residential Spaces Reshaped

Sausalito Apartment Remodeled



PHOTOS: ERNEST BRAUN

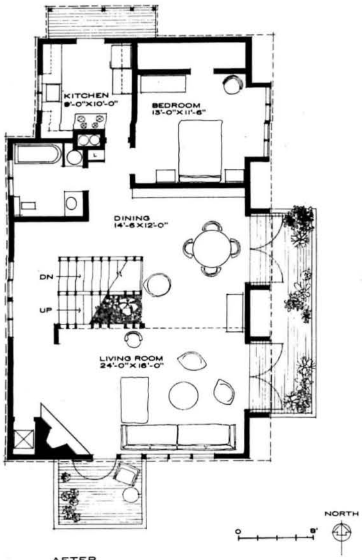
The design objective in remodeling the top floor apartment of this turn-of-the-century Bay-area house was to "open up" the cramped interiors. Toward this end, three major changes were made: First, several partitions, including those around an existing stair, were removed to leave one large living space, uninterrupted except for a new open staircase to the studio on the mezzanine. Second, the ceiling over the living area was taken out in order to incorporate the attic space and to add spatial interest. Third, to gain better views and natural light, the gable ends were glazed, and side windows enlarged into doors.

Structural problems that arose with the removal of the ceiling were solved by installing two structural poles that support a new ridge beam (*sections, facing page, top*). In addition, two new edge beams have been tied into the walls, which, together with diagonal sheathing, re-brace the structure. "Thus," explain the designers, "a whole new structural concept was incorporated into an old house in order to achieve a totally new space concept."

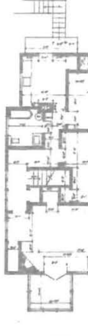
Fir and pine in their rough state were used for structural purposes as well as for trim work, in accordance with the owner's preference for rough textures. The entire apartment has been painted white, with a rich muted orange color over the ceiling of the dining room. Mats were used on the floors, and other colors provide bright accents. The exterior appearance of the house has not been changed, except for the white trim on the remodeled parts.

The ducts of a new gas-fired, forced warm air heating plant have been skillfully incorporated and disguised in the remodeled portions.

William Gilbert was the Engineer; John Carden Campbell, the Interior Designer.



AFTER



BEFORE

1

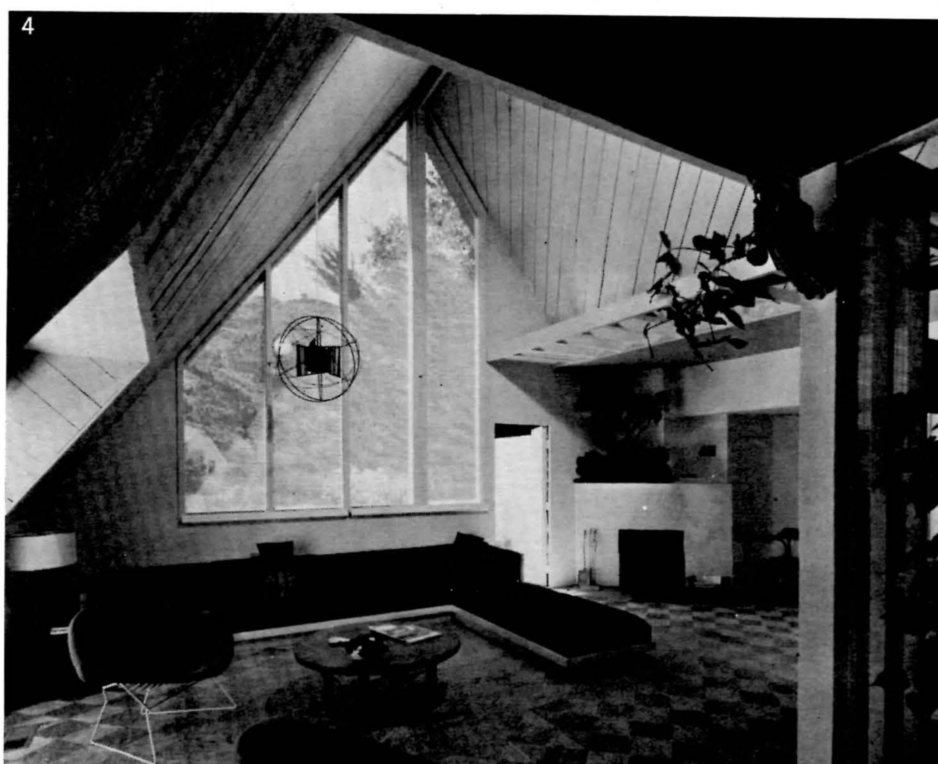
2

Removal of ceiling and interior partition, and replacement of two bay windows (**2**) *by two sets of French doors* (**1**) *has completely transformed interior space. Doors provide access to new view-desk at east side of house.*

Gable-end south wall, which before the remodeling had only small windows facing an enclosed porch (**3**), *is now almost entirely of plate glass* (**4**). *Former porch has become an open balcony, and fireplace has been remodeled.*

3

4



1 

PHOTOS: ROBERT C. LAUTMAN

Residential Spaces Reshaped

Georgetown House Expanded

2 

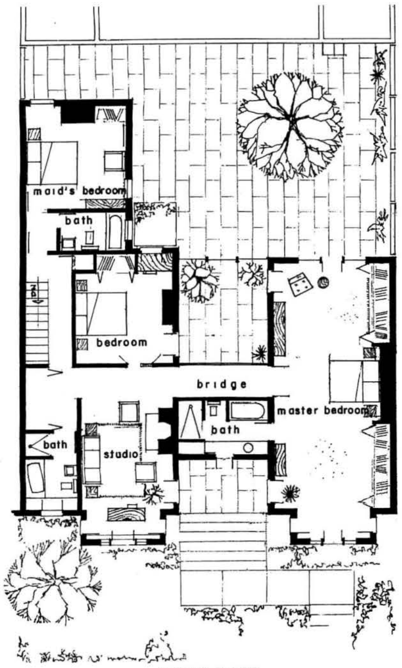
HOUSE, WASHINGTON, D. C. • HUGH NEWELL JACOBSEN, ARCHITECT

In remodeling and enlarging this residence, the architect's design approach was influenced to a considerable degree by the building's location in the historic Georgetown section of Washington, D. C. The original house (*"before" plan, facing page*) was one of five typical row houses built in 1885, which, as the end unit in the block, had the benefit of a side garden. This has now permitted the owners to carry out their plans for expansion (*"after" plan, facing page*) subject, however, to the architectural restrictions that have been set up in the interest of architectural unity and continuity. All new construction in the Georgetown area is governed by the Federal Fine Arts Commission and must, under the Old Georgetown Act, conform to the character of the original, early 19th-Century houses. Though Federal-style architecture of this period is preferred, architect Jacobsen was permitted to retain the late 19th-Century façade typical of 90 per cent of the Georgetown houses, and to add a second identical row-house front. This has transformed the standard row house into a stately, custom-designed town house, without destroying the architectural homogeneity of the existing street block.

While these restrictions fully determined the building's street front **(1)**, the architect was not limited on the garden side **(2)**, where he endeavored to "re-express the design of the street-façade in 20th-Century terms." In this he has been remarkably successful through careful proportioning of the large glass areas and judicious application of existing materials. The chief contribution, however, lies in the interior arrangement, where he has been able to create imaginative new spaces and spatial relationships within the confines of the prescribed shells.

Only minor changes were made in the original house, among them the moving of several interior partitions and the replacement of the street-side windows to match those of the new addition. All of the original materials have been recalled in the new portion, such as wood for the structural framing, common brick for the walls, and oak or stone for the floors.

3

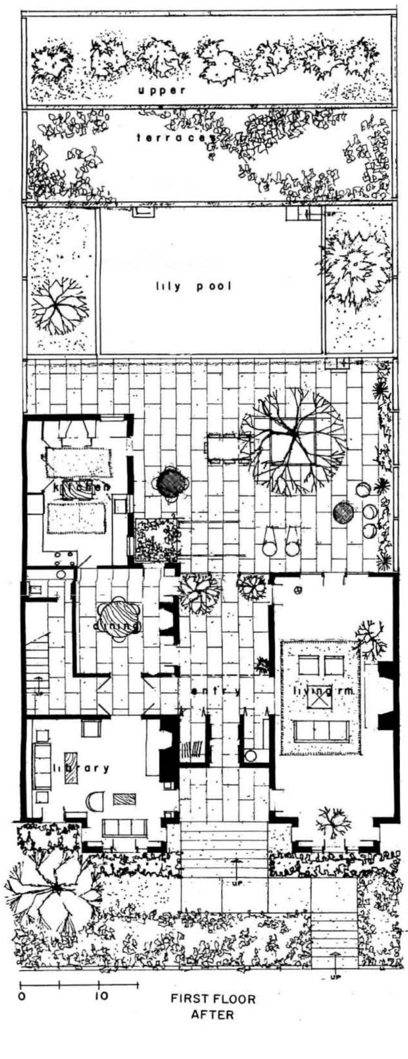


SECOND FLOOR
AFTER

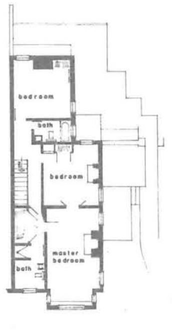
Since the former side-garden has now been absorbed by the new addition, the rear-garden has been consolidated and reorganized in terraced levels to serve more useful purposes, and to provide more pleasing views from within the house. For this purpose, the entry wing ***(4)*** *offers fine vantage points on two levels. This dramatic vertical space effects an ideal transition between house and garden, and between old and new construction. Further, the space centralizes circulation, and, most importantly, adds visual depth to adjacent rooms* ***(3, 5).***

4

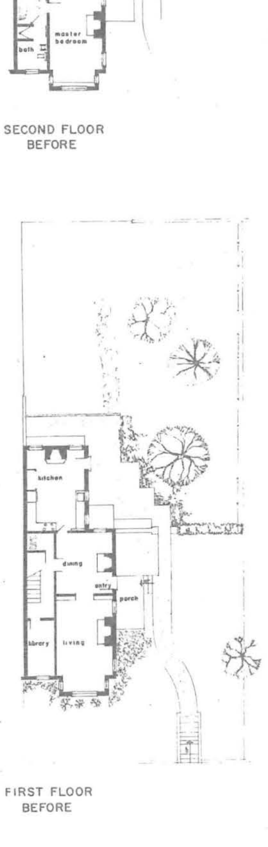
5



FIRST FLOOR
AFTER

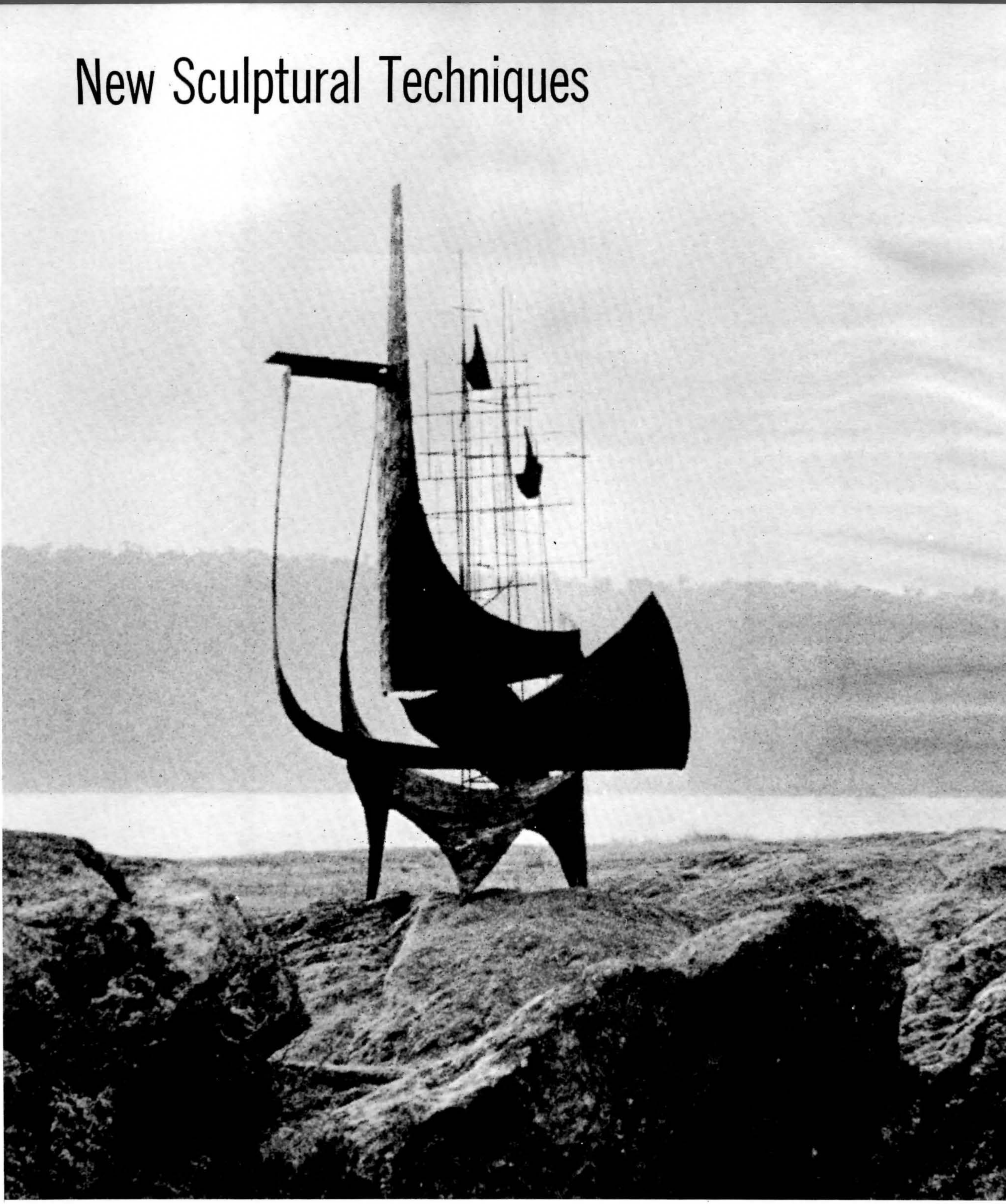


SECOND FLOOR
BEFORE



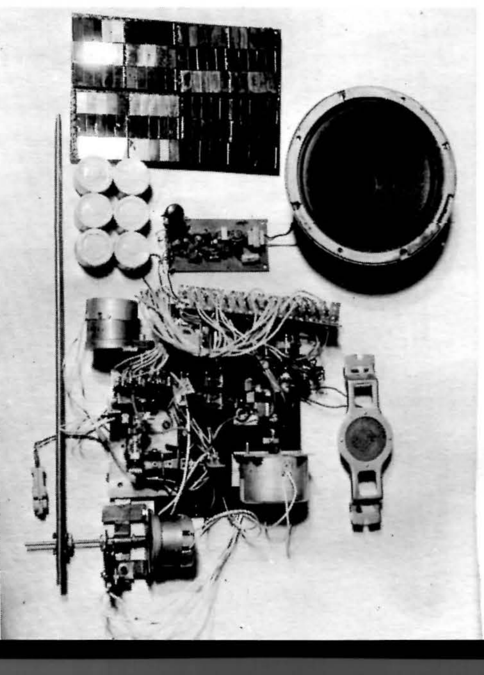
FIRST FLOOR
BEFORE

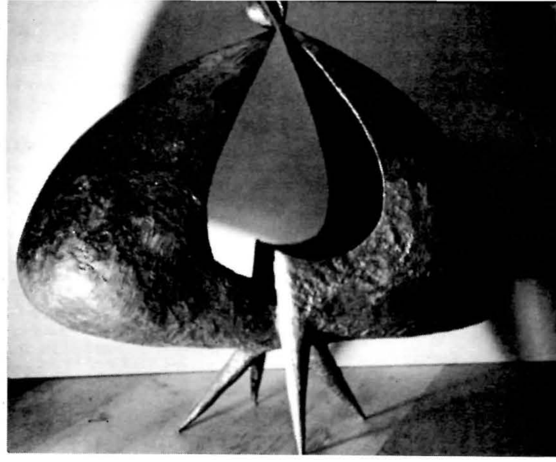
New Sculptural Techniques



Unusual sculptural techniques, evolved by a husband-and-wife team of sculptors, are described.

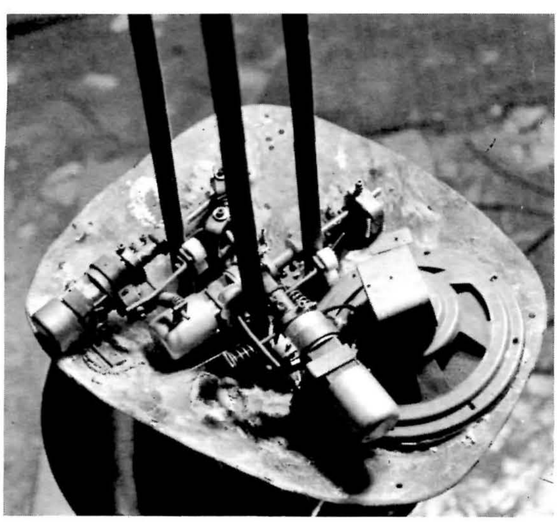
The styles of Pierre du Fayet and Suzanne Sablé are quite different, yet each partner has had a strong influence upon the other. Although their approach to sculpture has made use of both traditional and contemporary materials, some of the latter being perfected by du Fayet, total flexibility has been encompassed in their work. Significantly, all of their sculptures are executed in one piece and no molding has been required. Preferred media are: concrete as workable as clay; lightweight metalized glass-fibers as well as thermosetting resin-metal compounds to replace hammered and cast metals so that one piece can be worked into any shape and given numerous finishes; and welded metals that allow monumental forms of thin walls without resorting to hammering techniques traditionally associated with large-scale sheet-metal work. In addition to new forms, du Fayet has added the elements of sound and motion activated by solar cells. In du Fayet's "Bass Number One" (*above*), amplification of microvibrations in a metallic structure produce audio sounds. Components for an audio solar clock (*right*) will indicate the time of day by sound.



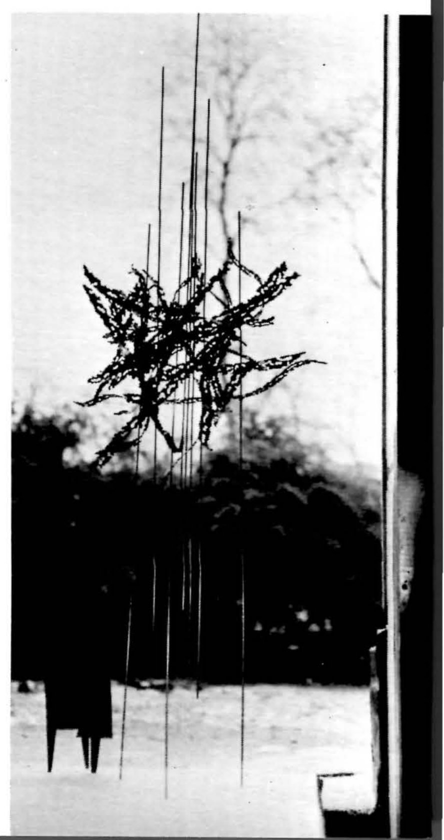


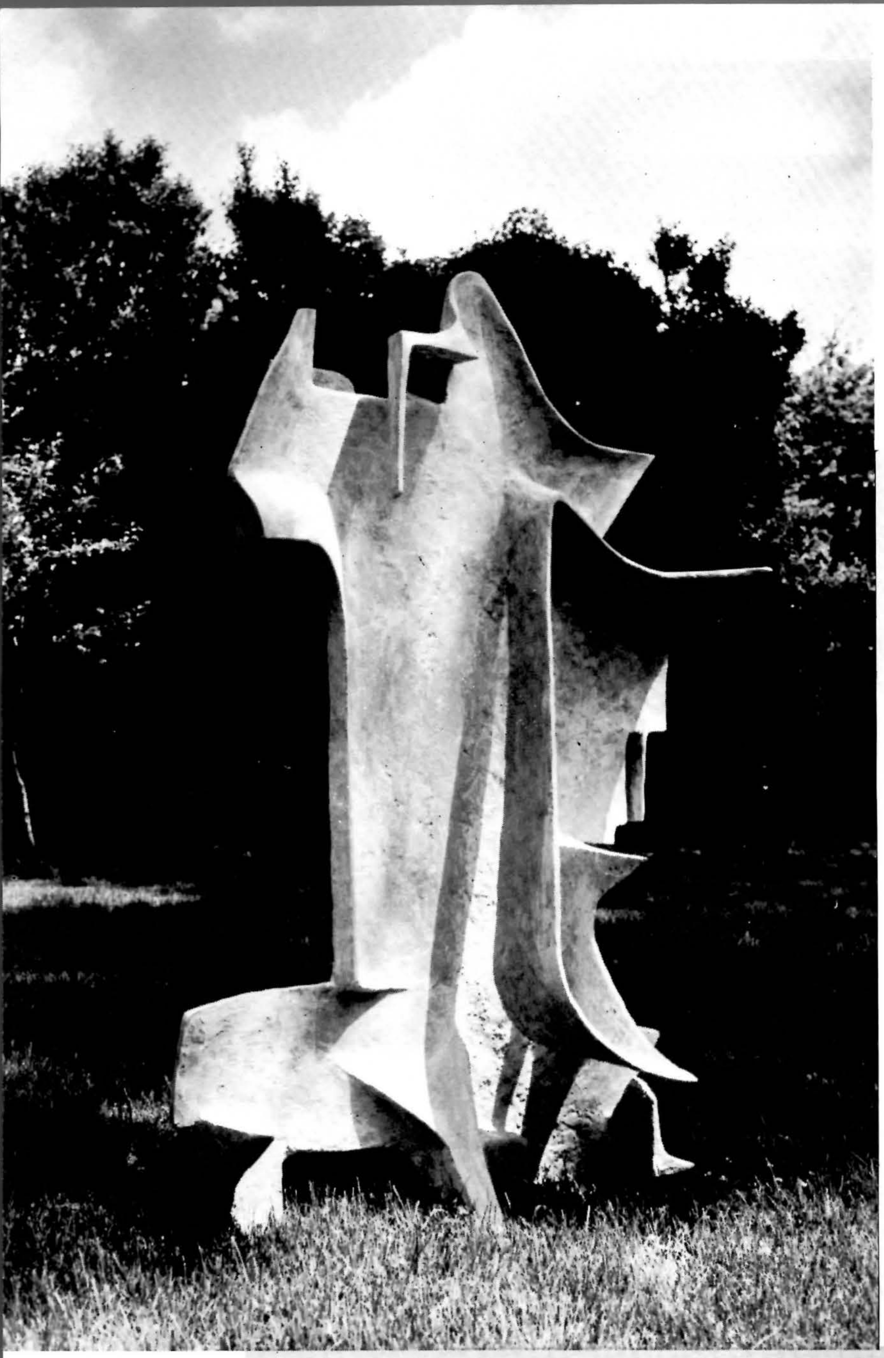
"Conversation." 3-ft high; compound of epoxy-resin and metal. Sablé.

"Mother and Child." 18-in. high; metalization of melted copper and glass-fibers mounted on flexible steel rod. Sablé.

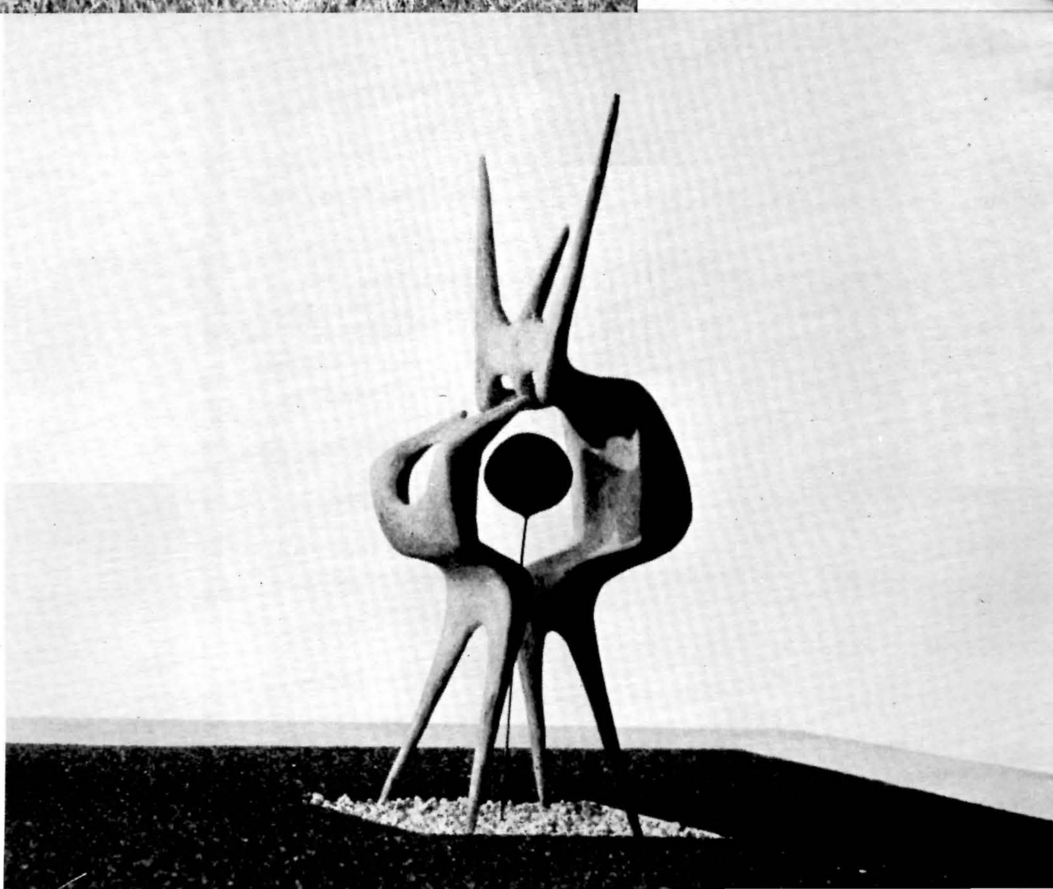


"Things To Come" (above and left). *7-ft high; glass-fiber reinforced plastic. Three moving parts slide vertically in irregular motions through central body. Sun, through solar cells (produced by International Rectifier Corp.), feeds electromechanical system* (left) *with electrical energy. du Fayet. "Dizzy"* (right). *3-ft high model. Swinging sculpture on flexible legs. Forest of metal strips, rubbing against one another from wind effect, create endless audio vibrations with a unique echo-like sound. du Fayet.*





"*Torquemada*" (left). *5-ft high; concrete with the workability of clay. du Fayet.* "*Christ*" (below). *49-in. high; copper work with acetylene torch. Sablé.* "*Fecundity*" (bottom). *5-in. high model; concrete. Sablé.*



Construction Joints for Elastomeric Sealants

BY WAYNE F. KOPPES

The proper design of construction joints, to take maximum advantage of elastomeric sealing compounds without exceeding their capabilities, is examined by a well-known Architectural Consultant of Basking Ridge, New Jersey.

Sealant failures that occur in building construction can usually be attributed to two basic causes: either the physical properties of the sealant have been inadequate for the application, or poor joint design has placed unnecessarily severe stresses on the sealant. The former problem has been alleviated by the introduction of improved elastomeric sealants, which exhibit excellent resistance to both compression and extension. However, the proper design of construction joints, so as to take advantage of the properties of these sealants without exceeding their capabilities, is still a matter of concern.

From a functional standpoint, there are only two types of joints in building construction: *working joints* which "come and go" with relative movement between the joining parts; and *nonworking joints*, in which relative movement between the joining parts is minimized or prevented by the use of fasteners.

In working joints, the sealing material must have unique properties that will enable it to withstand recurring stresses indefinitely without failure. In nonworking joints, used chiefly with sheet materials, the sealant functions principally as a weathertight gap filler that usually is subject only to compression. A good elastomeric sealant such as an appropriate silicone compound is an excellent material for either type of joint, but since careful attention to joint design is far more critical in working joints, most of this discussion will concern that type.

Working joints occur in all building materials: wood, concrete, metals, brick and stone masonry, glass, and plastics. All such joints are subject to predictable dimensional changes caused chiefly by temperature fluctuations. In the case of wood, however, humidity is a more important factor. Occasionally, unpredictable movement caused by settlement, vibration, or other forces may also be critical. Generally, cold weather causes building materials to shrink, thereby widening the joint; on hot days, materials expand, thereby tending to close the joint. Joint movements are much greater between units of metal or plastic than they are in concrete, wood, or masonry construction, because the metals and plastics have much larger coefficients of thermal expansion (*Table 1*).

Two factors largely determine the proper dimensions of a working joint between building units of any material other than wood: the physical properties of the sealing material; and the amount of movement likely to occur in the joint. Both of these can usually be determined in advance with reasonable accuracy.

Essential Properties of a High-Grade Elastomeric Sealing Compound

Stated in simplest terms, the sealant must be able to absorb all movements taking place in the joint without rupturing, and without loss of adhesion to the joining parts. This means that it must have good adhesion, good extensibility, and sufficient tensile strength to prevent its failure under extension; it must be able to recover almost completely from compression; and it must also be able to absorb shearing forces without damage. The sealing material must not only have these characteristics when installed, but it must also fully retain them over a period of many years. It is important, too, that the amount of shrinkage occurring during its cure be negligible.

The distinction between the somewhat similar terms, extensibility and elongation, should be clarified. The term "extensibility," as used here, refers to the stretch of the *width* of the sealant bead, in the transverse direction of the bead, caused by a widening of the joint. "Elongation," on the other hand, as the term is commonly used in rubber technology, generally refers to the *longitudinal* stretch of a relatively thin, flat, cured "dumbell" specimen of the material. The silicone compounds, for example, typically exhibit 400 to 500 per cent elongation in standard ASTM tests, but may exhibit only about 150 per cent extensibility in a ½" x ½" joint section.

A good sealant should have at least 100 per cent extensibility, even in the coldest weather, and should be capable of being compressed at least 50 per cent without permanently extruding or "bulging" from the joint opening. Allowing a safety factor of two in respect to its extensibility, it is recommended that the dimensions of working joints be based on the assumption that the sealant may be extended or compressed by 50 per cent of its original width.

Determining Anticipated Movement Due to Temperature Changes

Regardless of the materials being joined or the type of working joint design, the amount of movement likely to occur in the joint depends on: (1) the size of the pieces being joined; (2) the coefficient

TABLE 1: THERMAL EXPANSION OF BUILDING MATERIALS

Material	Coefficient of Thermal Expansion In./in./F (x 10^{-6})	Inches in 10-ft for Temperature Change of 150 F	180 F
Wood: Perpendicular to Grain	1.9 to 3.2	.034 to .039	
Parallel to Grain	2.1 to 3.6	.038 to .065	
Brick Masonry	3.1	.056	
Limestone Masonry	3.5	.063	
Plate Glass	5.1	.092	
Stainless Steel, Type 430	5.8		.126
Concrete	6.5	.117	
Structural Steel	6.7		.144
Copper, 110	9.4		.203
Stainless Steel, Type 302	9.6		.207
Red Brass, 230	10.0		.216
Architectural Bronze, 385	11.0		.238
Aluminum	12.9		.279
Lead	15.9		.342
Zinc, Rolled	17.3		.374
Plastics: Phenolics - Glass-Reinforced	8.5 to 25	.153 to .450	
Polyesters	10 to 14	.180 to .252	
Acrylics	40 to 50	.720 to .900	
Vinyl and Vinylidene Clorides	24 to 40	.432 to .720	

of thermal expansion of the joining materials; (3) the temperature range anticipated; (4) the ambient temperature at the time of installation.

Size of Pieces Being Joined. The amount of movement, with a given material and at a given temperature range, will, of course, be directly proportional to the sizes of the pieces abutting the joint. A 10-ft-wide piece will change in dimension twice as much as a 5-ft piece; the smaller the piece, the less will be the movement at the joint.

It is important to consider realistically the width of material contributing to dimensional changes in the joint width. A sectional view of adjoining sheet materials is illustrated **(1)**. Theoretically, they might be expected to expand and contract equally about their centerlines, in which case the amount of movement in Joint B would be computed in respect to the Width X′. In practice, however, this is rarely a safe assumption, because unless the adjoining sheets or parts are secured only at their centerlines, with no other frictional contact along their widths, there can be no certainty that they will move according to theory. Unforeseen restraints may be brought into play that cause one edge of a part, rather than its centerline, to remain fixed. The full movement will then be concentrated at the opposite edge. In Tables 2 and 3, the Width X, identified as the "Safe Design Width," should be used to determine the probable maximum joint movement.

Coefficient of Thermal Expansion. Commonly accepted coefficients of thermal expansion of various building materials are listed (*Table 1*), along with the amount of movement occurring in a 10-ft length of the material under the indicated temperature change.

Design Temperature Range. It is the actual surface temperature of the joining materials, rather than the ambient air temperature, that determines the amount of movement taking place in the joint. With metals particularly, these surface temperatures vary over a much wider range than the corresponding air temperatures: they may be as much as 50 or 60 F warmer than the air during the heat of the day, and perhaps 10 F colder on a clear, cold night. In most parts of the country, a daily variation of 100 F in the surface temperature is not uncommon in winter, and seasonal variations of 150 F in the surface temperatures of metal building parts are normal in the colder areas. On nonreflective metal surfaces, this range is often greater. It is recommended, therefore, that a temperature range of 180 F be assumed in designing joints in metals, and a range of 150 F be used for other materials.

Installation Temperature. The recommended design temperature range for

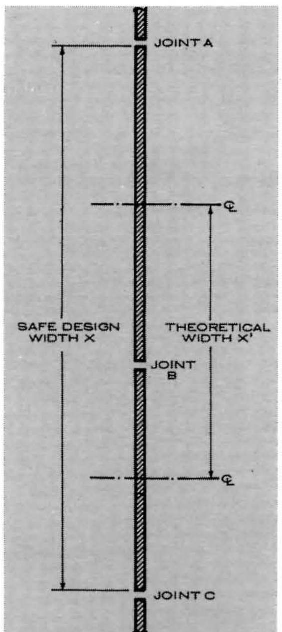


FIGURE 1

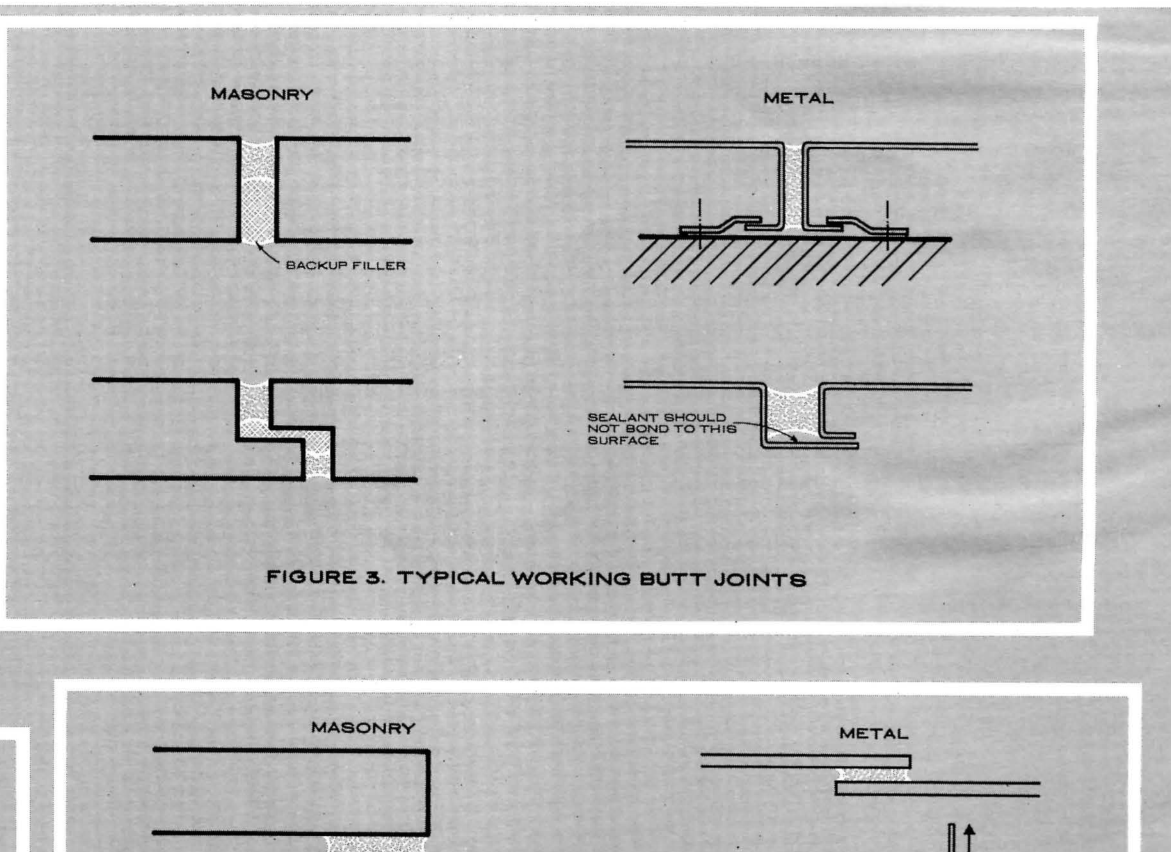


FIGURE 3. TYPICAL WORKING BUTT JOINTS

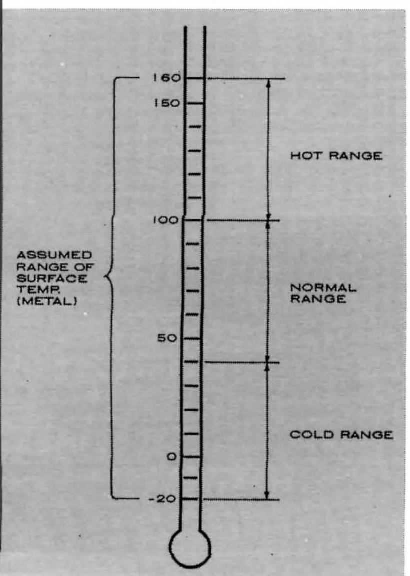


FIGURE 2

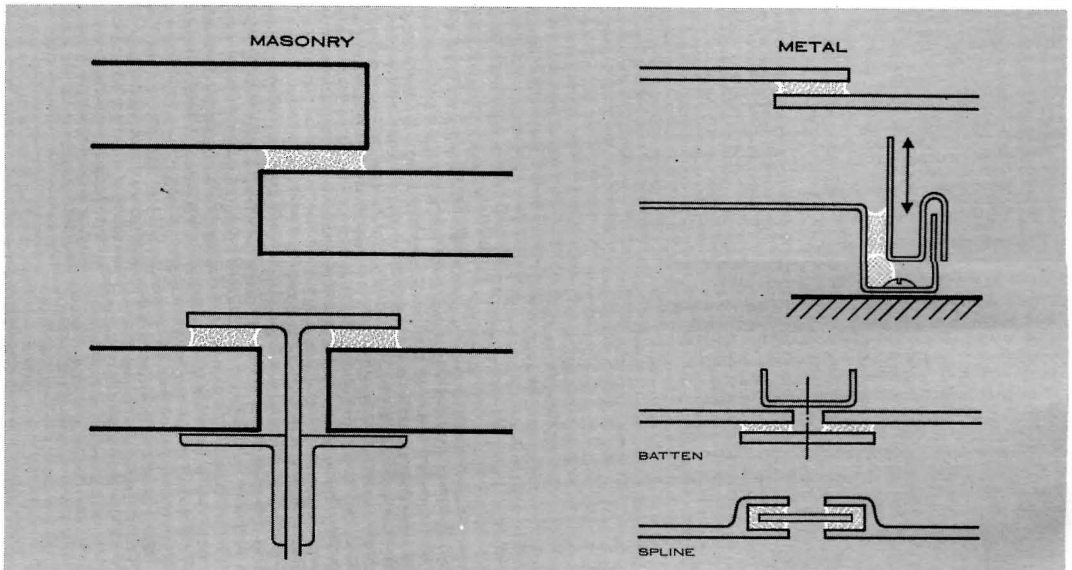


FIGURE 4. TYPICAL WORKING LAP JOINTS

metals is indicated diagramatically **(2)**, divided into three sections designated as the cold, normal, and hot ranges. Note that the temperatures indicated do not refer to the ambient temperature, but to the surface temperature of the material.

Undoubtedly, 90 per cent or more of all installations will occur when the material is at temperatures between 40 and 100 F, the "normal" range. The amounts of expansion and contraction from this norm will be approximately equal.

In some cases, however, installation may occur with the material in the hot or cold range. In the first case, most of the movement to be anticipated during the temperature cycle will result in widening the joint; and in the second case, it will result in closing the joint.

The effect of abnormal installation temperatures on the original joint width is illustrated **(7, 9)**, and is also reflected in the tables giving minimum joint widths.

Basic Joint Forms

Most of the joints used in construction are either one of two basic types, the butt joint or the lap joint, or a combination of these two types. In the butt joint, the sealant is subjected to alternating tensile and compressive forces; in the lap joint, to shearing forces. In joints combining butt and lap characteristics, the sealant may be subjected simultaneously, or in turn, to all three of these elementary forces. Whenever tensile or shearing forces are imposed, the adhesive properties of the sealant, of course, become critical.

In masonry work, the butt joint is by far the most common type. With sheet materials, however, the butt joint is less frequently used; most joints are either of the lap type or a combination of butt and lap. Typical examples of joints commonly used in construction are illustrated on this and the facing page **(3, 4, 5)**.

Working Butt Joints

Typical sealant performance in a butt type of working joint is illustrated diagramatically **(6)** as the joint is closed and opened to its assumed capacity during a temperature cycle. It should be noted that the volume of an elastomeric compound remains constant throughout the movement cycle, as evidenced by the fact that a joint will extrude or bulge when pressure is applied. A comparison of the sketches in lines A and B illustrates the advantage of a low compression set material (one which recovers to almost its original size when relieved of compression). Data currently available indicates that silicones may be superior in this respect, as against a high compression set material (one which recovers comparatively little). When these materials are extended to the required maximum joint width (a 50 per cent increase of the original joint width),

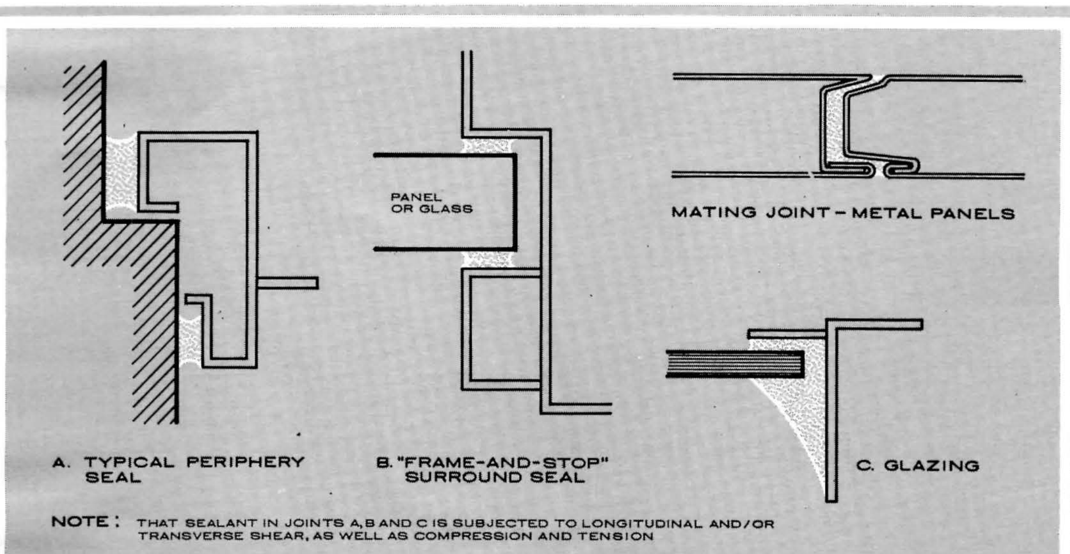


FIGURE 5. TYPICAL COMBINATION FORMS OF WORKING JOINTS

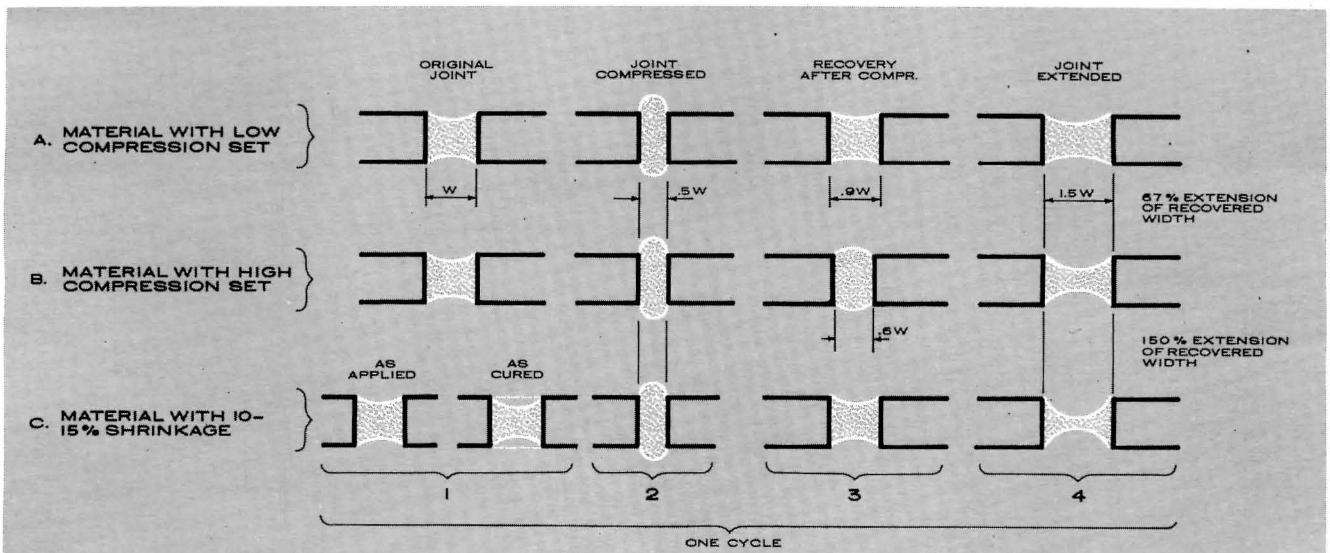


FIGURE 6. ACTION OF SEALANTS IN WORKING BUTT JOINT

material A is extended by only about 67 per cent of its recovered width to reach the same joint dimension. The disadvantages of materials that shrink noticeably upon curing are illustrated in line C. It will be seen that when such a material is extended by the required 50 per cent of *the original* joint width, high tensile stresses are imposed on the small neck section, inviting rupture.

The theoretically different actions taking place in a butt joint sealed in the different temperature ranges are shown **(7)**. It will be seen that if installation takes place in the normal temperature range (between 40 and 100 F surface temperature), and assuming that the sealant may be depended upon to both extend and compress by 50 per cent without ill effect, the joint width should be equal to the anticipated movement. If installation takes place when the temperature of the material is in the hot or cold range, however, the theoretical movement is still to be limited to 50 per cent of the original joint width. That width should be twice the amount of anticipated movement, at least in the smaller joints. In other words, if it is known that installation will occur during very hot or very cold weather, joint widths in the narrower range should be doubled, and larger joints should be substantially increased in width, to avoid overstressing the sealant. This principle was observed in computing the recommended minimum joint widths listed (*Table 2*).

In deeper joints, a backup material is usually used for reasons of economy. The choice of this material is of greater importance than is usually recognized. It should be a compressible material, so that when the joint itself is compressed in width, it will not tend to force the sealant out. Further, it must be non-oily, non-staining, and compatible with the sealant so as not to discolor or deteriorate it. Preferably, it should also be a material to which the sealant does not adhere; for reasons explained below, a rope or bead form of filler is best. Some materials used for this purpose include expanded polyethylene, expanded polyurethane (both of which are available in preformed beads and ropes), and flexible polystyrene. Black-rubber sponge and many types of neoprene sponge are questionable materials for this use, because of doubtful compatibility and the likelihood that they will bond to the sealant. They may also cause discolorization of light-colored sealants. Oily materials, and materials impregnated with asphaltic or bituminous compounds, should never be used as joint fillers.

The profile of the joint surface is likewise important. As a general rule, it should be tooled to a concave form **(8)**. This is recommended for several reasons: (a) to compact the sealing material, elimi-

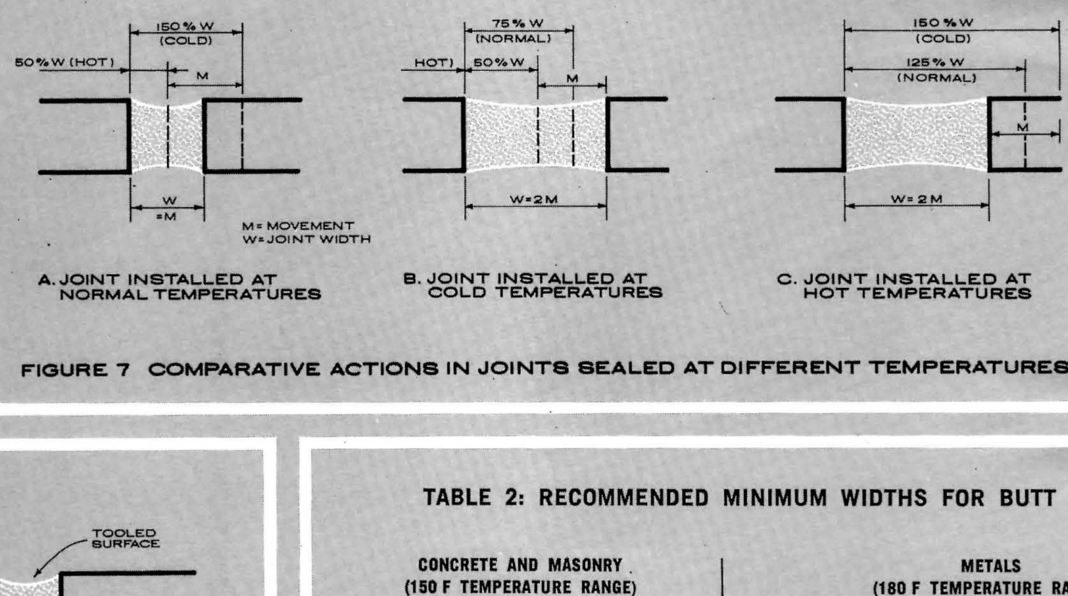


FIGURE 7 COMPARATIVE ACTIONS IN JOINTS SEALED AT DIFFERENT TEMPERATURES

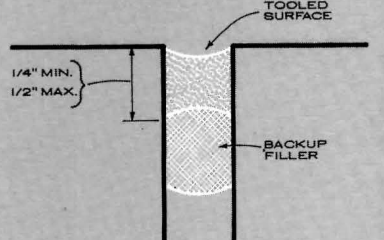


FIGURE 8

TABLE 2: RECOMMENDED MINIMUM WIDTHS FOR BUTT JOINTS

CONCRETE AND MASONRY (150 F TEMPERATURE RANGE)			METALS (180 F TEMPERATURE RANGE)								
				Carbon Steel, Stainless 430		Stainless Steel 302		Architectural Bronze		Aluminum	
	Joint Width			Joint Width		Joint Width		Joint Width		Joint Width	
Total Width* of Materials	Normal	Hot or Cold	Total Width* of Materials	Normal	Hot or Cold	Normal	Hot or Cold	Normal	Hot or Cold	Normal	Hot or Cold
10′ or less	¼″	¼″	2′ or less	⅛″	⅛″	⅛″	⅛″	⅛″	⅛″	⅛″	⅛″
12′	¼″	¼″	3′	⅛″	⅛″	⅛″	⅛″	⅛″	⅛″	⅛″	3/16″
15′	¼″	⅜″	4′	⅛″	⅛″	⅛″	3/16″	⅛″	3/16″	⅛″	¼″
20′	¼″	½″	5′	⅛″	⅛″	⅛″	¼″	⅛″	¼″	3/16″	5/16″
30′	⅜″	¾″	6′	⅛″	3/16″	⅛″	¼″	3/16″	5/16″	3/16″	⅜″
40′	½″	1″	8′	⅛″	¼″	3/16″	⅜″	¼″	⅜″	¼″	7/16″
50′	⅝″	1⅛″	10′	3/16″	5/16″	¼″	7/16″	¼″	½″	5/16″	9/16″
60′	¾″	1¼″	12′	3/16″	⅜″	¼″	½″	5/16″	9/16″	⅜″	11/16″
			15′	¼″	7/16″	5/16″	9/16″	⅜″	⅝″	7/16″	¾″
			20′	5/16″	½″	7/16″	11/16″	½″	¾″	9/16″	1″
			25′	⅜″	⅝″	½″	¾″	9/16″	1″	11/16″	1⅛″

*Combined widths of two adjoining units; or "Safe Design Width X" as shown in **(1)**.

nating possible air pockets; (b) to minimize extrusion of the sealant when the joint is compressed; (c) to reduce adhesive stresses at the bonding surfaces when the joint is expanded; (d) to provide a neat appearance.

As indicated **(8)**, concavity of the underside of the sealing bead is also desirable, and can be easily accomplished by using filler material in the form of a bead or rope.

Working Lap Joints

A good elastomeric sealant should be capable of being repeatedly deformed in shear by an amount at least equal to its thickness, even in the coldest weather, without any resulting damage or failure. The theoretical action of this type of joint, based on this assumed maximum deformation as governed by the range of temperature at the time of installation, is indicated **(9)**. It will be seen that, under normal conditions, the thickness of the joint should be at least one-half of the anticipated movement. However, if the installation is to occur in extremely hot or cold weather, it should be double this thickness, or equal to the total amount of movement expected (*as shown in Table 3 for the various architectural metals*).

Nonworking Joints

Nonworking joints may be of a variety of forms also, but again the butt and lap types are most common **(10)**. The fillet joint is sometimes used as a working joint, without fasteners, but this practice is not recommended. In metal work, at least, it should be used only with fasteners as a nonworking joint. Any significant amount of relative movement between the joining parts produces unreasonably high concentrated stresses in the sealant at the heel of the fillet, and is thus likely to cause rupture at this point.

The minimum dimensions to be used in nonworking joints depend largely on the mechanics of assembly. If the sealant is applied to one of the parts as a bead before the parts are joined, then squeezed flat by drawing up the fasteners, as is often the case, the joint thickness may be only 1/16", or possibly even less. If the sealant is to be applied into a preformed gap between the assembled parts, however, or as a fillet, its maximum thickness (throat thickness in the case of the fillet) should be 1/8".

Acknowledgement

The author wishes to acknowledge the assistance of elastomeric sealant manufacturers in providing data on their materials for this article. He especially wishes to thank the Silicone Products Department of General Electric Company, which allowed him full use of its extensive new test data on silicone sealants.

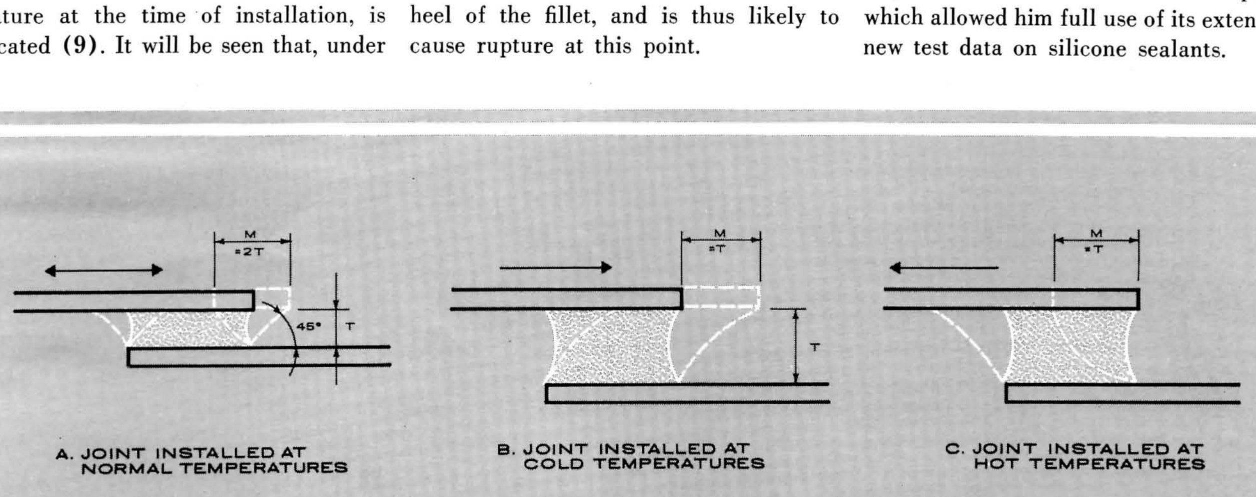


FIGURE 9. MAXIMUM DESIGN DEFORMATION IN LAP JOINT

TABLE 3: RECOMMENDED MINIMUM THICKNESS OF LAP JOINTS IN METAL (180 F Range)

JOINT THICKNESS (SEE NOTE BELOW)

Total Width* Of Materials	Carbon Steel, Stainless 430 Normal	Carbon Steel, Stainless 430 Hot or Cold	Stainless Steel Type 302 Normal	Stainless Steel Type 302 Hot or Cold	Architectural Bronze Normal	Architectural Bronze Hot or Cold	Aluminum Normal	Aluminum Hot or Cold
2′ or less	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"
3′	1/16"	1/16"	1/16"	1/16"	1/16"	3/32"	1/16"	3/32"
4′	1/16"	1/16"	1/16"	3/32"	1/16"	3/32"	1/16"	1/8"
5′	1/16"	1/16"	1/16"	1/8"	1/16"	1/8"	3/32"	5/32"
6′	1/16"	3/32"	1/16"	1/8"	3/32"	5/32"	3/32"	3/16"
7′	1/16"	3/32"	3/32"	5/32"	3/32"	3/16"	1/8"	7/32"
8′	1/16"	1/8"	3/32"	3/16"	3/32"	3/16"	1/8"	7/32"
9′	3/32"	5/32"	3/32"	3/16"	1/8"	1/4"	1/8"	1/4"
10′	3/32"	3/16"	1/8"	1/4"	1/8"	1/4"	5/32"	5/16"

*Combined widths of two adjoining units; or "Safe Design Width X" as shown in (1).

Note: Thickness above the stepped line (less than 1/8") should be used only if sealant is applied **before** the joining parts are brought together. If sealant is to be forced into joint gap, its thickness should be not less than 1/8" in any case.

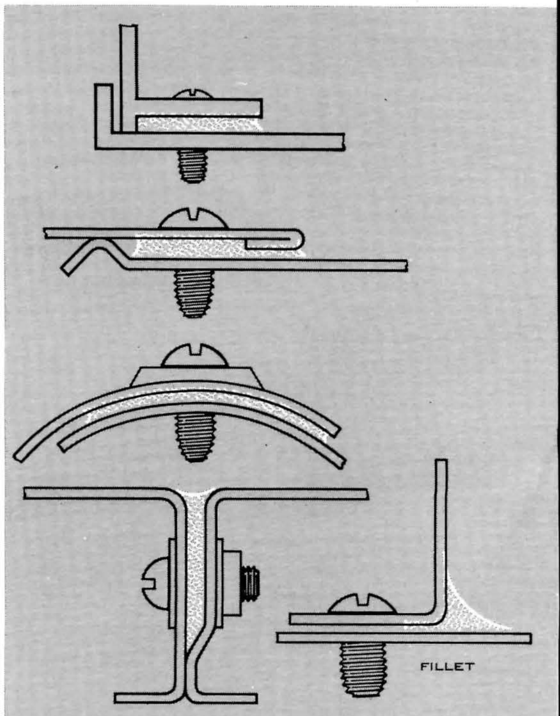


FIGURE 10. TYPICAL NON-WORKING JOINTS

Decorative Concrete Panels

Exposed-aggregate, sculptured panels are at the stage of development where they can be rapidly produced at prices comparable to other building materials. Casting procedures and other steps in the process of creating these panels are discussed.

Sculptured concrete panels with exposed-aggregate surfaces have been utilized to enhance the façade for the Central National Insurance Group Building in Omaha, designed by Leo P. Daly Co., Architects-Engineers.

Exposed-aggregate, sculptured panels remove any limitations of shape, surface contours, color, or texture. By varying designs and aggregates, façades can be created to contrast or blend with existing structures. Other advantages include minimum maintenance, rapid production, and self-cleaning qualities of the surface. Because of shipping and erection requirements, a practical panel size is about 8′ x 30′.

A variety of aggregates can be advantageously utilized in exposed concrete panels. Quartz is one of the favorites because it is widely available, inexpensive, and has a luminescence. Other inert minerals, such as mica and melanite, also reflect light to a large degree. Darker stones lack luminescence and have the additional disadvantage of becoming even darker after exposure to the elements.

The 220′-long Central National Building required 5′ x 9′ panels (*see illustration*). About half of these are sculptured and the balance have a flat surface, as do the small panels which cover the building's columns. The panels, which are located between the first- and second-floor windows, serve as spandrels. Six abstract designs were made and erected upright and upside-down for greater variation.

The 6″-thick panels have a 2″ facing of Colorado Milky quartz aggregate (¾″ down to ⅜″) which follows the sculptured contours. Conventional stone concrete, 4″ thick and with a strength of 5000 psi, is placed behind the facing. The face aggregate is set in mortar made with Medusa white cement. A light blue-gray color is then added to the cement by using a lime-proof, nonfading, inorganic pigment. The 7½-sack mix contained five gals of water. At some points, at the top and at the bottom, the panel is 10″ thick. The sculpture projects 4″ from the panel face and at the other points recedes 2″.

Before bids are received, the artist, William J. Harmon of Omaha, made preliminary sketches and small plaster molds. Together with the specifications, these sketches and molds served as the basis for bidding. Working closely with the producer, the artist made full-scale plaster models. Against this positive plaster form, a negative concrete mold was cast having a smooth surface. The high-strength concrete was made with a mix containing ⅜″ top size aggregate. After the concrete had set, the two molds were turned over and the plaster unit dropped out. The negative concrete mold was used for production casting of the panels and is useable for at least 10 panels without requiring repairs.

Panels were cast face down. The surface of the negative concrete mold was coated with Rugasol, a surface retardant manufactured by Sika Chemical Corporation. The retardant was applied with a brush suitable for both the flat and contoured surfaces. After forming the quartz concrete, the backing layer of conventional stone concrete was placed and the two vibrated together. Rugasol retarded the surface mortar, permitting easy removal of the mortar matrix between the quartz aggregate after stripping the panel from the forms.

Positive and uniform removal of the surface matrix is important both for durability and aesthetic reasons. When the aggregate has sharp angles, water drains readily, which prevents increased weathering effects from freeze-thaw cycles. The surface mortar was plastic when removed from the forms 18 hrs after casting. Washing with a hose and rubbing with brushes removed the surface matrix, even though the mortar had set ⅛″ below the surface. The Rugasol affects only the surface without reaching the mortar below this depth. A wash with muriatic acid brightened the aggregate surface. Since sculptured panels require meticulous handling of concrete, casting should not be attempted at the job site.

Actually, exposed-aggregate concrete panels have extremely good durability, as shown by tests during the past two years. To test their durability, the flat exposed-aggregate panels were subjected to 250 freeze-thaw cycles, which is equivalent to 75 years of exposure to New England weather. Each cycle consisted of a complete soaking in water, then subjecting the panels to a temperature variation of —40 F to +70 F in a 24 hr period. Excellent durability results were obtained during these tests, which were conducted for the City of New York's Board of Standards and Appeals.

Costs of sculptured panels are about the same as for limestone facing—about $6 per sq ft in place. Approximately half of this amount is for the sculptured facing and about half for the back up. Mold costs for sculptured panels or irregularly shaped ones are relatively inexpensive. Casting procedures and costs are similar to those used in producing flat panels. This contrasts with the high tooling costs for unusual shapes of factory-made metal panels, which can be relatively expensive when only a small number of unusual units are required for a building.

DORMITORY ROOMS

Owing to the increasing number of dormitories being built for expanding campuses, the dorm room is becoming a specialized room type—its elements so frequently evaluated that a body of technical data for it is now becoming standard. A survey of this current thinking is presented in this month's INTERIOR DESIGN DATA *by an author who regularly discusses these matters with architects and educators as Sales Manager of a manufacturer of dormitory furniture—Harvey B. Noll of Royalmetal Corporation.*

Since more and more dormitories are being built these days, an increasing number of refinements in their design are becoming standard. At the same time, more architects are designing dormitories for the first time. It may therefore be advantageous to the profession that this new methodology be publicized. An awareness of these new techniques is bound to be profitable, not only in terms of the design of the individual dormitory room but also in terms of the cost of the over-all building. For if the basic component is properly but economically detailed, funds may remain that can be turned back into the architecture. For instance, after one architect made final selection of furniture and determined its placement, he found he could save one foot on the length of each room. This saving, multiplied by the number of rooms on a long corridor, was sufficient to permit a substantial improvement in the exterior detailing.

Planning the Room

The first design decision is how students will be numerically grouped: in single, double, or triple rooms, or in suites. The fundamental difference between "rooms," of whatever size, and the suite system is that in the latter a room is utilized in common as a study-lounge, whereas separate "rooms" normally have combined study and sleeping facilities and are, therefore, referred to as study-bedrooms. Also, each suite usually has a separate bath.

Suite arrangements vary, both in the number of interconnecting rooms and in the use to which rooms are put. Facilities for sleeping, dressing, study, and relaxation can be variously combined.

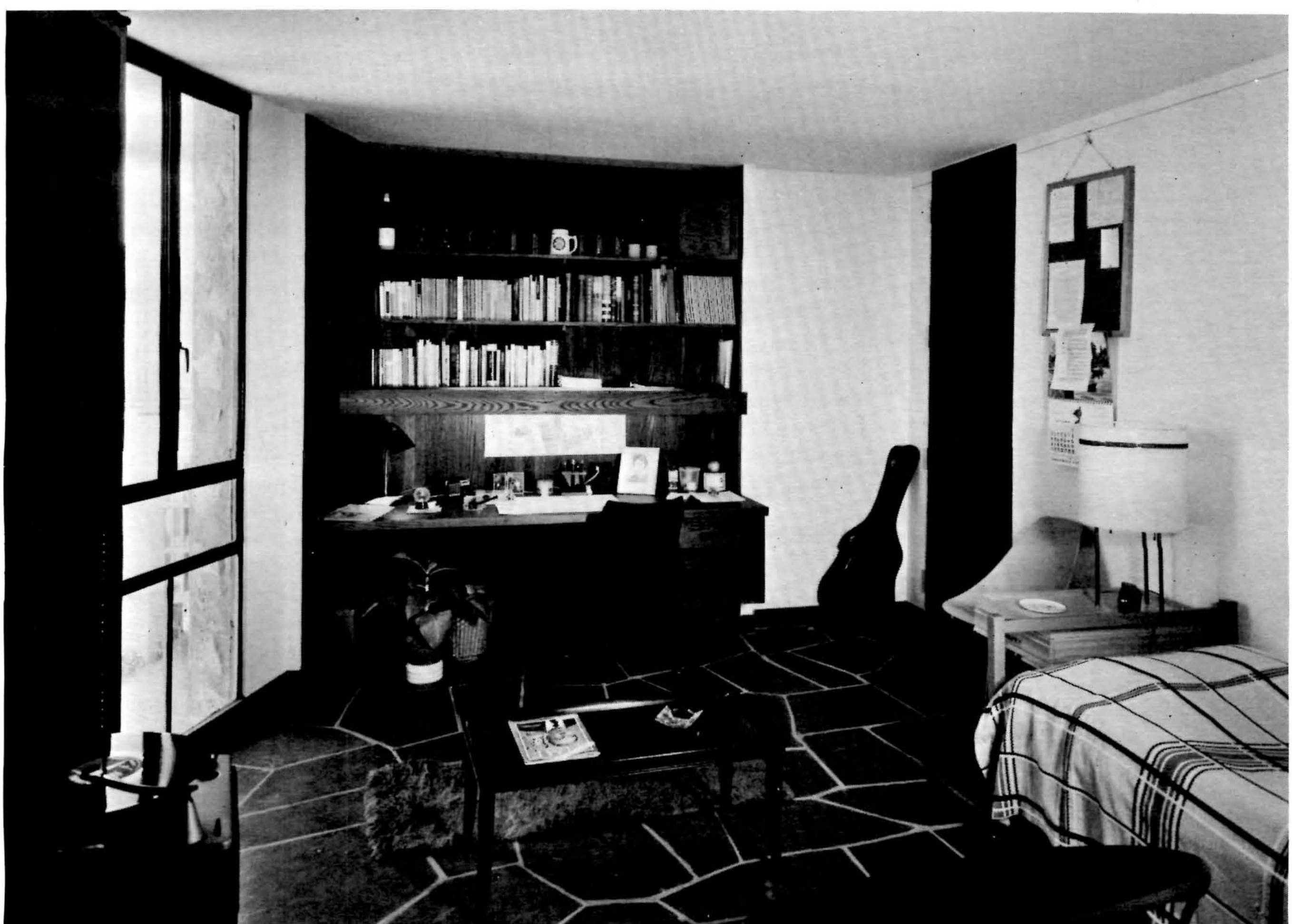
There are three-room suites, for example, which consist of a study with a double bedroom on each side or of the reverse arrangement—a central sleeping area with side studies for two. Some suites have four single bedrooms off a study-lounge, such as those at the Graduate Center, Polytechnic Institute of Brooklyn.

At Harvard, the suite plan in Leverett House provides for flexibility by permitting the addition or removal of a door or partition so as to combine single rooms into suites or to make study-bedrooms of suites. Harvard's Quincy House has two-story suites: floors for study-lounges are alternated with floors for bedrooms, so that each suite of four single bedrooms is reached through a study on the floor above or below. Corridors on the bedroom floors are therefore eliminated, making this duplex scheme economical.

The theory behind the suite system is to enhance students' intellectual and social life by providing them adequate area for better study and discussion. The Educational Facilities Laboratory book, *College Students Live Here*, states, "The major value of the suite plan is the opportunity it affords for closer student association and the freedom it gives students for using the various spaces as they wish."

"The theory of the Quincy House suite," says John M. Bullitt, Master of Quincy House, "is to give each student an individual study-bedroom while providing groups of students the opportunity to participate in mutual social and intellectual interests. An unanticipated problem arose when the system worked so well, and the suite members became so closely knit by studying, talking, eating, socializing together, that groups of roommates tended to isolate themselves. This gave impetus

A typical study-bedroom in Morse and Stiles Colleges at Yale by Eero Saarinen & Associates.



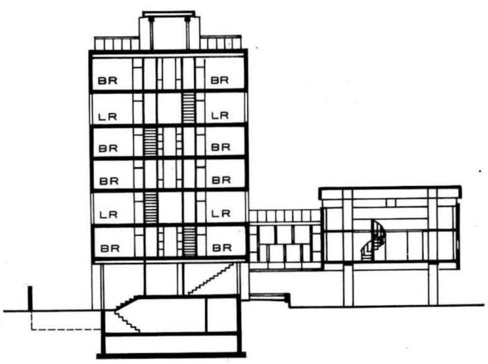
to planning House programs in which students could become better acquainted with others outside their own suites."

The suite, then, is said to promote the interchange of ideas more readily than *individual* room arrangements; they can be stimulating and powerful forces for intellectual and social development.

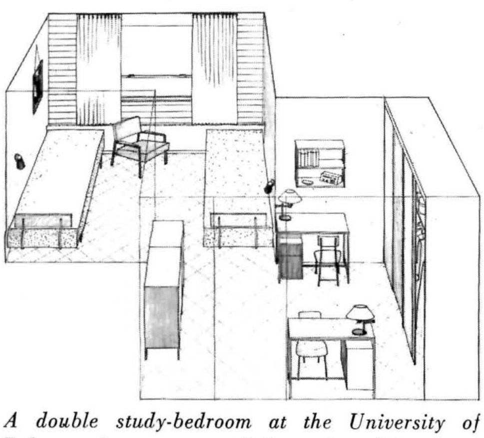
However, there is a school of thinking that today's student lacks the discipline to live in large groups, and that the double study-bedroom will provide both relief from isolation and opportunity for social and intellectual communication.

Many educators agree that students study better when sharing a room with only one other student than they do when sharing it with two or more, or when living alone. Although the single room obviously provides the most privacy and isolation, the double room provides social companionship with a minimum of social adjustment required.

The triple room, on the other hand, often encourages two roommates to pair off socially and isolate the third; therefore, some educators think this type of accommodation undesirable. Moreover, it is easier for college officials to pair off two students satisfactorily than to find larger groups that are compatible. Significantly, Harvard reserves the Quincy and Leverett House suites for upper classmen, and carefully screens applicants to assure the success of the suite system; it is expected that students selected will have achieved the necessary discipline, maturity, and adaptability. But in the main, the double study-bedroom is thought to be best suited for general usage.



Suites are arranged as duplexes in Harvard's Quincy House, for quiet study and economy.



A double study-bedroom at the University of Delaware has areas set off for each activity.

Comparing the economics of the two is also revealing. For the double study-bedroom, the average gross square-foot cost is $17, and the average footage required per student is 235 sq ft. On the other hand, in a six-student suite—consisting of a study-lounge, two double rooms, two singles, and shower and toilet facilities—the cost per square foot will be slightly higher due to extra bath facilities, and the per-student footage is generally increased to about 270 sq ft. The double study-bedroom therefore provides an economic advantage as well.

"Due to high construction costs," says Joseph P. Nye, Director of University Residence Halls at Columbia University, "the double study-bedroom for undergraduates will predominate nationally. On the other hand, strong preference of graduate students for single rooms will force universities to plan this more expensive housing where possible."

A survey of construction of the various room types published in *College and University Business* magazine in 1959 indicated: "A large majority of institutions favor placing two students in a room. In most cases single and double rooms, and occasionally triple occupancy, are provided in the same residence hall, which accounts for the total percentages reported [*below*] being in excess of 100:"

Men's Residence Halls

	1946–53	1954–60
Single	49%	39%
Double	82%	90%
Triple	21%	13%

Women's Residence Halls

	1946–53	1954–60
Single	53%	97%
Double	97%	87%
Triple	19%	20%

Generally, the selection of the double study-bedroom as the dominant dormitory room type being built across the country today is a compromise between the above-mentioned architectural, academic, economic, psychological, and social forces.

Choosing the Furniture

The next major decision to be made is the choice between built-in and free-standing furniture. Both have substantial advantages and disadvantages.

Careful consideration should be given to the activities and needs of the student-user before furniture is selected. The requirements in appearance and structural strength of furniture can vary between men and women, between undergraduate and graduate students. Girls are a bit easier on furniture than boys, who have a tendency to "swing from the rafters" and to stand on furniture. Also, furniture for graduate school use can be of more sophisticated design than that for undergraduates. With maturity go both the appreciation of better furniture and the responsibleness to maintain it.

Built-in furniture has a greater chance for longevity than the free-standing because it suffers less damage since it is not moved; it also conserves space, thereby affecting economies in room design. On the other hand, when students can move furniture about at will, their feelings of living in an institution are lessened. Many educators, therefore, prefer the free-standing. However, as Educational Facilities Laboratory states in *College Students Live Here*, "The visual impression of more space that can be gained with built-ins may be as desirable in small rooms as the freedom to shift furnishings about."

In any case, and regardless of psychological factors, most of the furniture to be used in dormitories over the next few years will be of the built-in variety owing to present methods of financing dormitory construction.

Financing

Several methods of financing new dormitories are current. There are privately financed dormitories, for which either the school or an "off-campus" individual raises all the money necessary to construction. Then there are various methods for establishing dormitories as self-liquidating operations. In such cases, students are charged at a rate that will offset the financing and operating charges over a predetermined period of years.

Government financing of college housing was authorized under The Housing Act of 1950, Public Law 475, 81st Congress. The Act is administered by the Community Facilities Administration of the Housing and Home Finance Agency, which has approved more than $2,000,000,000 of college housing loans as of the end of October 1963. In fact, $300,000,000 was approved in the year ending October 1963, for approximately 350 college loans out of approximately 500 colleges starting construction.

The HHFA is, today, the backbone of the dormitory growth program. Depending upon the type of project and the financial condition of the college, the Government will lend a substantial amount of the construction costs—even 100 per cent in some cases—on a low interest, long-term amortization basis up to 50 years.

Dormitory furniture can be financed under these Government loans if it is the "built-in" type. For this reason alone, it may be assumed that built-in furniture will predominate—as long as these conditions obtain. Built-in furniture can be defined as furniture that becomes an integral part of the capital improvement program.

Architects need not feel that they would be unable to safeguard the selection of furniture under HHFA terms. This is not the case. The HHFA policy permits the college to use the style, design, and construction of furniture it desires, as long as the purchase price has been arrived at by open competitive bidding. Also, HHFA policy leaves the responsibility for the selection of the furniture to the judgment and supervision of the architect and college. Therefore, the architect can assure quality control of specifications, products, and the bidders. [See paragraph 35 of GENERAL CONDITIONS CFA-238L(CH) (3/63) Available Regional HHFA Offices.]

The architect can:

(1) Write specifications of his own choosing and advertise for bids on them.

(2) Write detailed specifications of a manufacturer's product, or name a product by pattern number. He must consider bids from all sources. However, he retains the responsibility to judge which bids are equal to the specifications, accepting the lowest such bid. (See paragraph 8 of GENERAL CONDITIONS.)

Following are several methods of arriving at the ultimate purchase in compliance with the HHFA standards:

(1) Purchase through the General Contract. (See paragraph 36 of GENERAL CONDITIONS.)

(a) Specifications are written into the general contract and the furniture is bid through the general contractor for installation by the bidder or the G.C. The G.C. will select the successful bidder on the basis of the lowest bid for the specifications.

(b) An "allowance" is set up for an estimated sum covering the cost of the furniture. Bids are received by the architect and then forwarded to the G.C. If the lowest bid is under or over the allowance figure, adjustment is made by a change order.

(2) Purchase outside the General Contract. The college can provide equipment with funds outside the Government loan. In this case, no competitive bidding is required. For example: on a structure of $1,000,000, if the loan is for 90 per cent, the college can use $100,000—its own funds—in any way it chooses.

From the above, it should be clear that the HHFA will not require architects and colleges to accept products they do not wish, nor suppliers about whom they have reservations.

Basic Furniture Required

Whether built-in or free-standing, certain basic furniture must be supplied to each student. The dimensions of that furniture should be based on the needs and activities of the student. This basic equipment must include:

A single bed. The standard size for the woman's bed is 36" wide by 75" long. Widths for mens' beds are also standard at 36". However, there is no standard length for mens' beds today; they can be 75", 80", or 84". The 36" x 80" bed for men predominates.

Beds themselves vary in construction:

(a) a steel angle frame on legs with a spring construction that supports an innerspring mattress (the most commonly used type);

(b) a box spring and mattress set on a steel frame;

(c) a plywood board on legs used with a foam latex mattress;

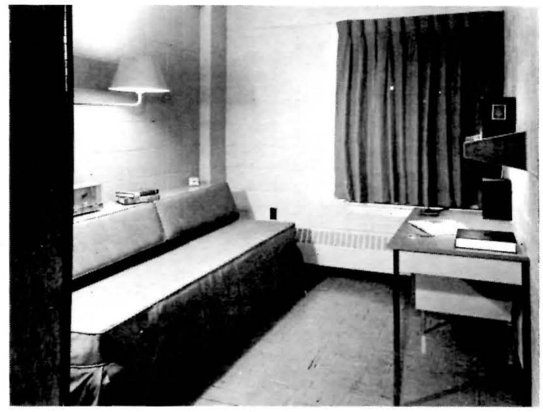
(d) a spring construction, new in recent years, consists of plastic covered wire (with no sharp edges) on which a mattress —either foam rubber or innerspring—can be used without a box spring. A patented tension device permits the spring to be tightened to suit the individual user. These frames, constructed to withstand rough handling by students, promise to become widely accepted.

Beds usually have head boards; a simple all-plastic or wood head board is preferable to upholstered types. Sometimes beds are used without head boards, but this is generally considered an economy measure, and it is always best to have a pillow rest of some sort.

Beds can be designed as built-ins, and can therefore be available under HHFA loan monies. This can be accomplished by treating them as murphy beds, which fold down from a wall or a closet, or by treating them as studio couches.

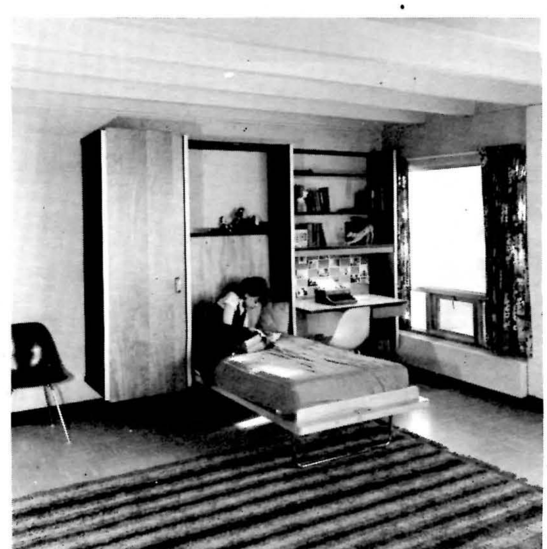
Students like the ease with which a social gathering can be assembled around beds that are arranged as studio couches. Also, since they like to lounge while reading and studying, they have generally approved studio couches.

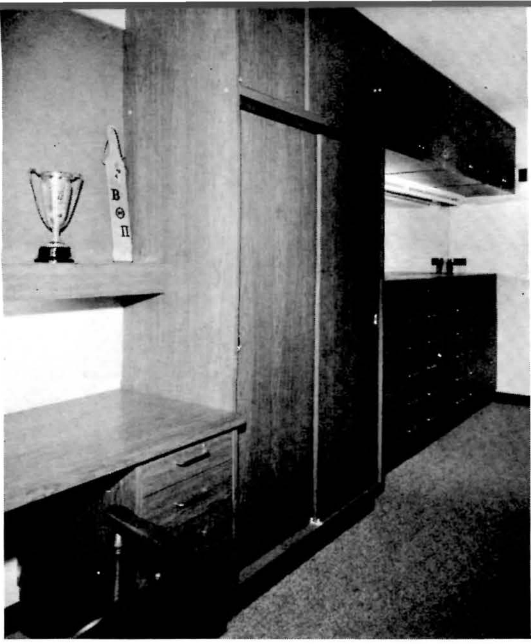
A studio couch can be made with a standard bed, placed against the wall lengthwise, and a bolster storage unit, which provides an upholstered backrest. Bolster units can be either wall-hung or attached to a pull-out mechanism; beds are pulled out about 12" from under the



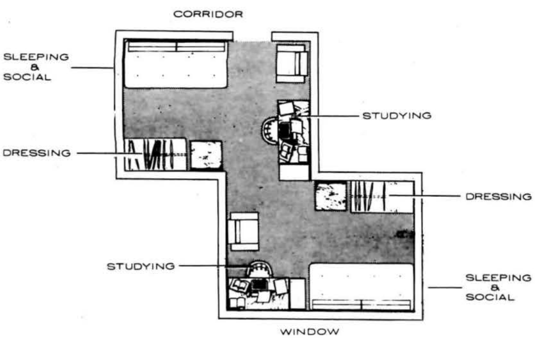
Built-in wardrobes and studio couches with bolster boxes (above) *are in Graduate Center of the Polytechnic Institute of Brooklyn. Mfr.: Royalmetal Corporation.*

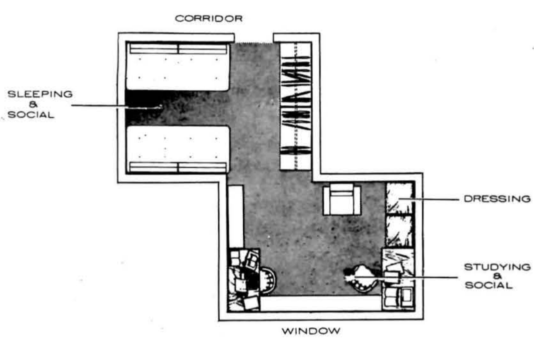
Special built-in desks (above) *are designed as study carrels by P. Belluschi with Sasaki, Walker & Assoc. Built-in wall-hung system in Barat House, Detroit,* (below) *makes use of murphy bed. Mfr.: Herman Miller, Inc.*



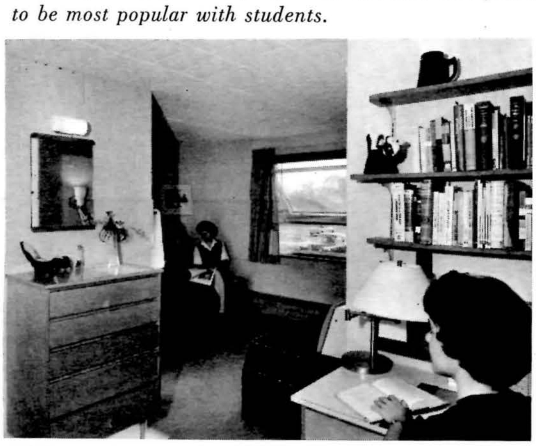


Built-in furniture for Beta Theta Pi Fraternity House, Champaign, Illinois. Mfr.: Thonet Industries, Inc.





The double study-bedroom plan designed for the University of Delaware by Howell Lewis Shay & Associates, Architects, gives students maximum opportunity to move free-standing furniture to suit their preferences. Separation of study and sleeping areas (below) *was found to be most popular with students.*



storage unit so the full width is usable. Pull-out mechanisms, which have a tension spring operation connecting the bed and bolster, are available from dormitory furniture manufacturers; a simpler, roll-out equalizer is also available at less cost with satisfactory results.

A Desk. The specific student's requirements should be analyzed before the desk is chosen, for the "average" desk may not be adequate to the student's particular work and may hamper him. On the other hand, the "average" desk may be an unnecessary expenditure. The desk pedestal, for example, is taken too much for granted: it is generally assumed that the student will require two, three, or four drawers 24" or 30" deep.

In a nationwide tour of college dormitories, the author made a point of reviewing the contents of desk pedestals. The results were 4-to-1 in favor of tennis balls and sneakers over papers and notebooks. One drawer for pencils and paper was found to be adequate. Colleges could well have saved money on expensive pedestal desks and have provided additional clothing space. However, even when clothing storage was adequate, desk drawers were still burdened with nonscholastic material. To restate Parkinson's law, clothing increases to meet available storage space.

The solution may well be to furnish students an ample writing table with one drawer for pencils and paper.

The ample desk top should be a minimum size of 24" x 36" for liberal arts students. Boston University, however, uses only a 24" x 34" table; the University of Connecticut uses a 24" x 36" table. But the architectural and engineering student will find a 30" x 60" top necessary for oversize drawings, papers, and books. Manhattan College in New York, for example, uses a 30" x 60" top because they have a large number of engineering students. Proper, early selection of desk-top size will help to effect savings in dormitory rooms.

A Closet. Clothes hanging space should be 48" wide to be adequate, though if space and budget permit, 60" is more generous and will not go to waste. For men, 42" to 48" space is sufficient. For women, there is, of course, never enough closet space.

If a chest of drawers is put in a wardrobe, it should not take up more than 50 per cent of the width nor be more than 35" high, so that short-length clothing—such as jackets and blouses—can be hung over it.

Closets prefabricated by furniture manufacturers are gaining ascendency over job-built closets, primarily on the grounds of cost. Many architects still believe that furniture manufacturers are unable to offer built-in wardrobes that will fit their floor plans and overcome building construction obstacles, such as pipes and beams. However, in recent years, furniture manufacturers have developed built-in wardrobes that negotiate such installation problems. Wardrobes can be pre-finished and semi-assembled at factories to insure quality standards, and can be installed in dormitories in less time than ordinary millwork.

In addition, the plastic materials now used for wardrobe panelling, such as Fiber-X, Fiberesin, or Micacor, have the advantage of resisting abuse, whereas wood surfaces will scratch, dent, and chip.

A chest of drawers. Girls favor a number of shallow and narrow drawers that are convenient for stockings and underclothing. The men's first requirement is a shallow drawer to fit shirts and underclothes. Both appreciate a larger drawer for sweaters. The standard depth found in drawers of household furniture—18"—is best and most economical.

By using the wall space above the chest for a lighted mirror or medicine chest, a convenient dressing area will be created that will relieve congestion in the lavatory.

Additional storage space. Storage space above closets should be provided for luggage. This space should be designed with hinged doors, as opposed to sliding doors, so that the full width of the opening can be used for large suitcases and trunks. Storage units can also be attached under free-standing or built-in beds. They should be used only in cases of real emergency, however, because they become cumbersome and interfere with bed-making and cleaning.

Bookshelves. Since many college books are available in paperback editions, students now save more books than when textbooks were mostly expensive hard-cover volumes that could be traded-in after use. These budding libraries require shelf space—and of adequate height as well as length. There is a noticeable lack of bookcases built to accommodate notebook binders and oversize texts. Bookcase and bookshelf sizes of 36", 42", and 48" can be integrated into any room arrangement. They can be floor-standing or wall-mounted. A number of colleges still provide a combination bookcase and desk, even though a good deal of floor space is wasted when the bookcase is 24" deep. The shelf provided by bolster boxes over studio couches can also be used for books.

Other furnishings. A sturdy desk chair is essential. An occasional table and a lounge chair are required except when the studio couch arrangement provides these facilities. This latter condition would also apply to the customary bedside table. Mirrors, wastebaskets, and tackboards are desirable. And adequate lighting is mandatory.

Factory versus Millwork

Special conditions sometimes require special products, but when specially designed furniture is requested for its own sake, then the client may suffer higher cost and perhaps inferior quality—or both. It is advisable that dormitory planners gain from the experience of manufacturers of institutional furniture. Manufactured products can be presumed to be pretested and to have a record of satisfactory field service. It is therefore to the advantage of both the college and the architect to select factory-manufactured goods by reputable companies rather than unproved furniture.

For example, the operation of a drawer in its case requires careful testing of construction. In the past, architects have turned to mill shops for built-in furniture, and have often been dissatisfied with the quality of drawer construction and operation. Wood drawers have a tendency to warp, stick, and twist in dampness; for this reason, steel drawers have been increasingly accepted, due to ease of maintenance and to nylon rollers, on which many of them operate.

For another example, it takes very little use of a case for it to get out of shape and for the drawers to begin sticking. Therefore, there has been an increasing use of one-shot laminated plastics (a completely balanced and sealed-in-the-process product) such as Fiberesin by the Fiberesin Company, Micacor by the Decor Plastics Company, and Fiber-X by Royalmetal Corporation. These materials have good screw-holding power, and are therefore being used for tops and drawer fronts and sides, since they make strong cases.

In wood or metal, then, manufacturers prefer to stay with their patterns not only because of costs, but because the functioning of the furniture has been perfected by testing thousands of items in use yearly and by constant improvement.

The State College Board and State Building Commission Committees in Jackson, Mississippi, agreed to adopt such standard room equipment for college dormitories to reduce costs. Representative George Payne Cossar of Tallahatchie County, Chairman of the Building Commission subcommittee, stated, "We find a crying need for standard rooms with standard equipment." One architect's specifications for a recent university dormitory read, "Furniture shall be constructed and completely finished at a furniture factory by a reputable, nationally known manufacturer of institutional furniture who is approved by the architect. Household-type furniture and/or millwork-type construction will not be acceptable."

Furthermore, manufacturers have increasingly developed lines with modular flexibility to accommodate architects' requirements.

Comparative longevity of free-standing and built-in dormitory furniture, it must be noted, can be based only on equal quality in both types. If the built-in, which is generally considered less susceptible to damage, is made by a mill shop and the free-standing by an experienced and reputable manufacturer, then the longevity will be on the side of the free-standing furniture. Factory-produced built-in furniture is now thought to be most durable.

Furniture in the Future

Built-in, factory-produced dormitory furniture is most likely to continue gaining acceptance. The thinking about built-ins will probably increasingly include the walls of the building itself: Architects are attempting to create rooms with built-in furniture back-to-back so that they can eliminate interior masonry walls. Generally where this has been tried, however, excessive noise has prevented effective studying. Thus the concept of built-ins combined with prefabricated, soundproof walls is finding favor.

Of all the gains made in education and in college living, the most important—keeping the student in college until graduation—has made no gains in 40 years. Sixty per cent of all students enrolled are not graduated; in fact, most of them leave college before reaching their second year—a situation identical to the one 40 years ago.

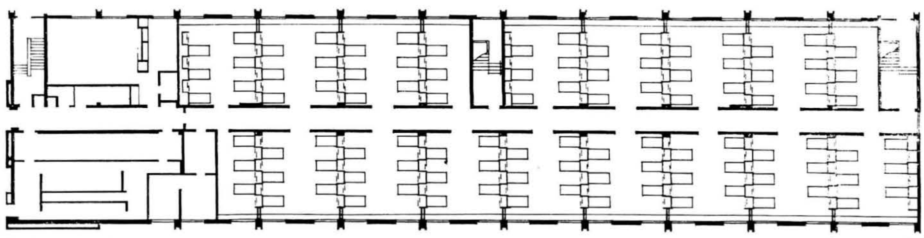
The responsibility for keeping the better-than-average student in college rests not only with educators, but also with architects, designers, and suppliers who build and furnish college buildings. Perhaps a warmer environment, a little more consideration for human scale, might keep students from dropping out.

The bleakness of long corridors might be eliminated. The practical advantages of investing initially in more expensive and more comfortable materials—which are also longer-wearing—might be borne in mind. Both the tendency to mix too many wood grains in a small area and the tendency to use only one veneer throughout the building should be carefully considered. The former has been found to produce messy, incoherent rooms, whereas the latter produces monotony. In specifying large quantities of furniture, it should be possible to use a variety of plastic laminate wood grains, so that woods would be consistent within each room, yet vary from room to room—a planned individuality.

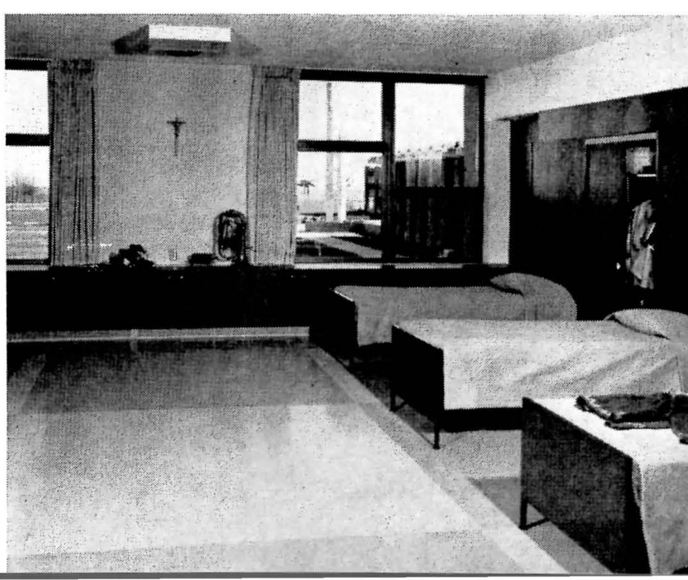
Institutional color could also be improved. Doors on long, bleak corridors could be brightly painted, with as pleasing results as in office buildings.

A "tough" course, trouble at home, a low grade, a cut from an athletic squad, a sorority pledge that did not come—all these could perhaps be better weathered if the student returned to a dormitory room that was less bleak, a corridor less formidable, a social room less unfriendly. Perhaps the student would not have dropped out of college that day.

For photo credits, see page 223



TYPICAL FLOOR PLAN



At De Sales Preparatory Seminary, long areas without interior walls were partitioned into six-man rooms by alternating wardrobes and beds. This bed-closet partition was repeated on the other side of the wall. Since these are not study areas, the problem of acoustics was not critical. Mfr.: Simmons Company.

School Air Conditioning

BY WILLIAM J. McGUINNESS

A comparative analysis of two questionnaires, concerning the acceptance of air conditioning in public schools, is discussed by the Chairman, Department of Structural Design, School of Architecture, Pratt Institute.

In a recent four-page report, the Carrier Corporation presented current opinions of public school superintendents concerning the acceptance and efficacy of air conditioning for elementary and secondary schools in the United States. The report is especially valuable because it compares their thinking in 1963 with that of 1960 based upon a similar questionnaire. Both reports were addressed to about 300 superintendents at representative geographic locations. Excerpts follow.

Question		Percentage or Other Statistic 1963	1960	Comments (This Author)
1. (a) Are major changes in architectural design expected in the next few years?	Yes	48%	41%	A distinct increase in the number of opinions that designs will change and that the predominating design will be the "compact" type.
(b) Which design type do you expect will predominate?	Compact	55%	Not Asked	
	Finger Type	18%	in	
	Campus	8%	1960	
2. (a) Do you have summer sessions?	Yes	87%	76%	Almost every district had summer sessions. There was a growing conviction that an uncomfortable environment is detrimental during these sessions.
(b) Does physical environment impair these sessions?	Yes	69%	61%	
3. How many classrooms do you plan to build in your district in the next three years?	Elementary	11,547	11,587	A steady demand for new classrooms makes the problem of comfort an important one.
	Secondary	13,810	13,134	
4. Status of air conditioning in your district:				Actual classroom installations of air conditioning in the three-year interval have doubled in elementary schools and tripled in secondary schools. Proposals for the next three years show an even greater rate of increase.
(a) How many of your present schools have air conditioning in classrooms?	Elementary	96	47	
	Secondary	108	33	
(b) In how many schools proposed for the next three years are air-conditioned classrooms definitely planned?	Elementary	143	23	
	Secondary	82	21	
5. (a) Have you carefully investigated the comparative costs of building a school designed around air conditioning as against non-air-conditioned designs?	Yes	32%	20%	An increasing number of superintendents have given serious study to the comparative costs of air conditioned and non-air-conditioned schools. Three times as many as in 1960 think that air-conditioned schools need not be more costly than those without air conditioning. The compact style of designing may help to substantiate this opinion.
(b) Based upon your current knowledge of these comparative building costs (for schools of similar capacity and function), do you believe that schools designed around and including air conditioning cost about the same as non-air-conditioned schools?	Yes	40%	14%	

For more information, turn to Reader Service card, circle No. 327

Topics for CSI Convention

BY HAROLD J. ROSEN

Seminar topics to be discussed at the annual convention of the CSI are outlined by the Chief Specifications Writer of Kelly & Gruzen, Architects-Engineers.

The Construction Specifications Institute will be holding its annual convention in Dallas between April 20 and 22. The Institute is a relatively new organization consisting of specifications writers, representatives of building product manufacturers, and others who are concerned with the improvement of construction specifications and the growing science of building technology. In its short life, the CSI has already made a notable contribution to the art of specifications writing in its promulgation of a "Format for Building Specification," (*see* SPECIFICATIONS CLINIC, SEPTEMBER 1963 P/A), which has also been adopted by the AIA and the Specification Writers Association of Canada.

At the upcoming convention, the Institute's technical program will revolve about the theme, "CSI's Role in Education." The first two technical seminars will be concerned with education, at the undergraduate level, of architects and engineers who wish to specialize in the field of specifications writing. This portion of the program should be of special interest to educators in technical institutes, colleges, and universities. The remaining portion of the seminars will concern the continuing education of practicing specifications writers, which will be of equal importance to the sales representatives of building materials manufacturers.

There is a need for changing or for augmenting current curricula in architectural schools to provide more basic background information on the science of building materials. This is virtually mandatory if architects are to keep pace with the evolving chemical complexity of these materials. Architecture, after all, is shaped by the building materials available to it. Nature's materials—wood, stone, and clay—have been utilized in building construction since man's earliest days. A mass of information and practical experience are available to the architect when he selects, details, and specifies these basic materials. Man-made materials such as concrete and steel are, historically, more recent acquisitions to the architect's arsenal of building materials. Essentially structural materials, they have been mastered by the architect and the engineer so that their properties are well documented. Extension and experimentation of their architectural uses are possible only because they are so well understood.

However, the chemical industry has been engaged since World War II in creating building products out of raw chemical materials. The behavior of these products, either singly or in combination with other materials as components of construction details, remain largely outside the educational and practical experience of architects. Since architects are responsible for the selection and use of materials, it is therefore incumbent upon educators to include in the curriculum courses that will detail basic information about these materials. The CSI convention will explore proposed improvements in the curriculum, and will undertake to outline areas where fundamental courses of study must be considered and adopted.

In addition, CSI is interested in extending the knowledge of these new materials on the part of practicing specifications writers. This involves a number of problems. For one thing, specifications writers and architects are constantly deluged by a flood of literature on these new materials. How is information about these new materials obtained; how is such literature filed; and how is it retrieved? One seminar will be devoted to this problem of disseminating, storing, and retrieving information. In other words, the building industry needs a system of abstracting vital information from the plethora of manufacturer's literature. The chemists have Chemical Abstracts; other professions have similar systems. But architects in this country have no comparable system. The Bouwcentrum in Rotterdam is an example of a collection center for information pertaining to building construction which also functions as a library and research center.

The concluding seminar at the convention will probe in depth how practicing specifiers can obtain more insight into these new materials. Teaching programs centered around CSI chapter meetings and regional conferences will be reviewed. People who have successfully established such programs in conjunction with universities will outline their methods. Basically, these methods consist of industrial technicians meeting with architects and engineers in order to assist them in keeping abreast of new developments in materials, processes, and techniques; to update and upgrade their knowledge; to broaden their scope and avoid becoming educationally obsolete.

Another portion of this same seminar will discuss "Spec-Data Sheets" (*see* SPECIFICATIONS CLINIC, FEBRUARY 1964 P/A). This is an attempt by CSI to establish a semblance of order out of the broad range of new products, where present evaluation is too vague and confusing due to a lack of standards, and where current literature is simply too laudatory, self-serving, and devoid of technical information on a standardized basis.

This last program will feature an architect and a manufacturer who will present their views on how a building product should be presented to a specifier so that he can obtain an honest evaluation of its merits.

For additional information concerning this convention, write to CSI, 632 DuPont Circle Building, Washington 6, D.C.

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The Arbitration Clause

BY JUDGE BERNARD TOMSON AND NORMAN COPLAN

P/A's legal team discusses the importance to an architect of having a carefully drafted arbitration clause in any contractual agreement providing for one.

Contracts between architect and client commonly contain arbitration provisions that become applicable in the event of disputes. The American Institute of Architects forms contain such provisions, and arbitration is commonly provided in construction contracts. It is very often the case, however, that the arbitration provision that is drafted for inclusion in a contract is ambiguous, thereby barring its enforcement by a court, or inadequate, thereby excluding areas of contention which the parties intended to be included. Some aspects of this problem are illustrated by a New York case (*Brown & Guenther* v. *North Queensview Homes, Inc.*, 239 N. Y. S. 2d 481) which involved the interpretation of an arbitration clause contained in a contract between an architect and his client.

In the above case, the Court found that the owner had planned to erect a co-operative housing project consisting of seven buildings for approximately 364 families. His contract with the architectural firm called for a basic fee of approximately $120,000, and provided that all "disputes, claims or questions" that might arise under the contract were to be submitted to arbitration and that "the demand for arbitration must be made within fifteen (15) days after the dispute has arisen."

The project was substantially completed in August 1958. After its completion, and for several months thereafter, letters and memoranda were exchanged between the architect and the owner involving disputes and differences of opinion concerning the architect's performance and the amount of fee payable. Finally, the owner demanded arbitration of six particular items. The architect took the position that since these disputes had arisen more than 15 days prior to the demand for arbitration, the owner was not entitled to arbitrate the same under the express provisions of the contract. A legal proceeding was instituted by the architect to stay such arbitration, but the architect's application for a stay was denied. The determination denying a stay was appealed to the Appellate Division of the Supreme Court of New York.

In affirming the denial of a stay of arbitration, the Appellate Court ruled that the 15-day provision was unreasonable because of the shortness of time involved, and, further, the clause in which it was contained was ambiguous and therefore not enforceable.

In considering whether a time limitation for the commencement of arbitration could be properly included in a contract between owner and architect, the Court said:

> "The general rule is recognized that parties may by contract provide for a time shorter than the statutory period as a limitation of time for required action. . . . but the corollary rule is equally well established that the contractual limitation must not be 'so short as to be unreasonable. . . . Thus, consideration should be given to all the provisions of the contract, the circumstances of its performance and the relative abilities and bargaining positions of the parties. From all of these a conclusion may be reached as to whether the limited time is unconscionable, unfair, unreasonable and therefore unenforcible."

In reviewing the question of reasonableness, the Court distinguished the form contracts issued by the American Institute of Architects which contain a limited period in which an architect is to make decisions as an arbiter of disputes in the first instance. The Court said:

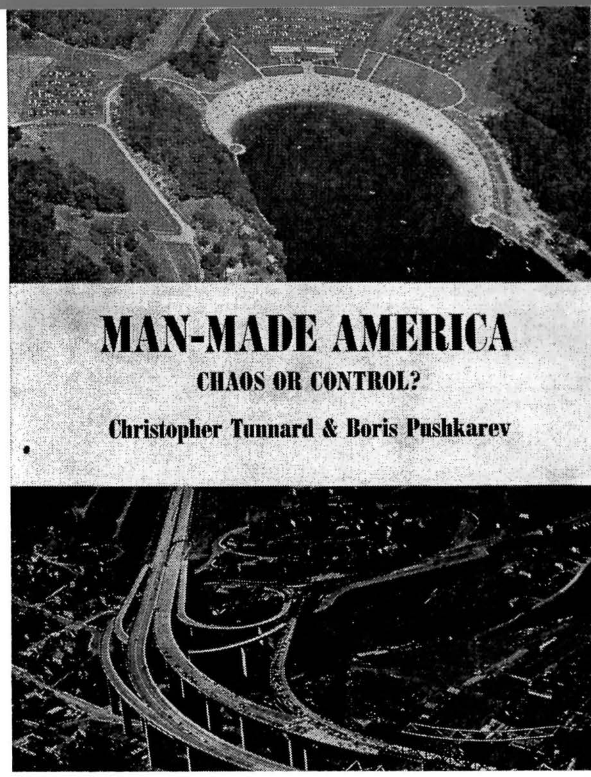
> "The short period of limitation here placed in the contract has a recognizable use in other areas. Thus the standard form of contract between owner and contractor approved by The American Institute of Architects contains provisions (Arts. 39 and 40) making the architect in the first instance the arbiter of disputes. If he fails to make a decision within ten days or within a similar period after decision either party may demand arbitration. In any other case such demand must be made within a reasonable time after the dispute arises. Within the frame of such a provision both parties may ascertain with certainty the date upon which the period of ten days commences to run. In other words, there is no uncertainty as to the date a dispute is submitted to the architect or the date he makes a decision."

In considering the reasonableness of the 15-day provision for arbitration contained in the contract between architect and owner, the Court was also concerned with the collateral problem of whether this provision was so vague and ambiguous that it was unenforceable. Although the arbitration clause provided for "disputes, claims, or questions" to be submitted to arbitration, that part of the paragraph relating to a demand within 15 days only referred to "disputes." In this connection, the Court said:

> "Here the agreement provided that all 'disputes, claims or questions' arising under the contract should be submitted to arbitration. But only one of these three was subjected to a short period of limitation—demand for arbitration was mandatory within fifteen days 'after the *dispute* has arisen.' The parties for a period of more than two years exchanged writings relating to some of the subject matters now claimed to be arbitrable. It would be an exercise in semantics for either court or arbitrators to analyze these writings and determine whether the parties were discussing 'claims,' 'questions' or 'disputes.'"

An arbitration clause that will permit a court to effectuate the intent of the parties to a contract requires careful draftsmanship. The scope of the subjects covered by the clause, the procedure of arbitration to be utilized, and the manner in which jurisdiction will be obtained, are all significant questions that must be considered when such a provision is formulated. This is one more example where an architect acts as his own attorney at his peril.

For more information, circle No. 399.➤



Over-Ordering the Environment

BY LAWRENCE HALPRIN

MAN-MADE AMERICA: CHAOS OR CONTROL? *by Christopher Tunnard and Boris Pushkarev. Published by Yale University Press, 149 York St., New Haven 11, Conn. (1963, 479 pp., illus. $15). Reviewer is a landscape architect whose new book* Cities *is a poetic and provocative study of the art of urban design.*

This is an important book which deserves wide distribution and careful study among all the professionals involved in planning our environment—planners, architects, landscape architects, and engineers. I would also hope that it will reach the large numbers of informed laymen who are more and more beginning to understand that they, too, have an important role to play as clients and critics in the future of man-made America.

Its theme, beautifully documented, is a simple and direct one—we are all responsible for the appearance and beauty of our surroundings. If we care enough, these can mount to the category of high art; if we abandon the struggle, chaos will result, and ugliness.

It is a theme we need to hear over and over again. And act upon.

Tunnard and Pushkarev dissect our environment into six basic parts, assigning each a chapter, showing how we can plan each type of area to make it beautiful.

In their first chapter, a general survey of the American landscape, the authors point out that America is becoming more and more urbanized, and they summarize the problems of an emerging industrialized civilization. They stress that, "If the informed visitor [to our country] gives us high marks for the production of goods and the spectacular conquest of difficult technical problems, he is not so likely to give wholehearted approval to the environment which is the result of this production—not only are our creations without soul, but they seem to be aimless and without forethought."

They go on to speak of the natural landscape as the matrix of our lives, show how easily it can be destroyed, and then embark on a search for a new form of order that will "nourish our emerging settlement patterns and satisfy the demands of modern life." In an attempt to clarify the search for this order, they speak first of the central city, then of the middle ground, the urban fringe, then of suburbia (that easy target of abuse for all designers), the rural fringe, the true rural landscape, and, finally, unsettled country and wilderness.

It is a vast subject and possibly too much to tackle within the confines of one book. The results are uneven. Some chapters are brilliant and forceful, while others are less convincing.

The second chapter makes a good introductory text for young students of site planning—it deals with the aesthetics of low-density housing: of roads and patterns of houses, of spacing and articulation of groups. Many examples of house-street relationships, of house grouping principles, of the influence of differing degrees of density are explored, all based on the very sound point that "because of the relatively weak imprint of man-made elements at low density, a neighborhood of detached houses cannot be successful unless the houses and their natural environment are molded into one integral form."

The third chapter, on freeways, is a brilliantly poetic description of vision-in-motion as it is expressed through the design of roadways and their environment. The first section is particularly exciting, dealing with the internal harmony of the freeway—that is, its own inherent form as sculpture, unrelated to its impact on the external environment. As pure abstraction, the freeway has sculptural form experienced only by driving along it, and this chapter analyzes brilliantly the qualities to be sought after in this experience of mobility, and the specific techniques for achieving them. It is chock-a-block with visually understandable technical descriptions of curvature, horizontal alignments, three-dimensional juxtapositions of vertical and horizontal

Continued on page 192

Continued from page 194
nal environment. There are great virtues to be gained from recognizing the excitement of chance occurrences, of the value of what Tunnard and Pushkarev peroratively call "haphazard results."

The difficult task ahead, I believe, is to achieve a fine balance between planning for the preservation of limited resources, such as open space and natural landscapes that are nonrenewable and ecologically necessary, and the design of specific living and working environments. These latter, conceived of as works of art, can too easily become overly sterilized by controls or preconceptions as to their form. They need to grow and evolve, sometimes haphazardly, in an organic way, so that they reflect our lives with all their variegations and conflicts and involvements. The notion that our choice is between "chaos or control," as stated in the subtitle of this important work (and the implication that chaos is all bad), is a choice I do not wish to make. What we need, I believe, for an exciting and creative environment, is both.

Comprehensive Guide to Utopia

The Place of the Ideal Community in Urban Planning *by Thomas A. Reiner. Published by The University of Pennsylvania Press. 3436 Walnut St., Philadelphia 4, Pa. (1963, 194 pp., illus. $8.50)*

This volume is the first publication from the University of Pennsylvania's Institute for Urban Studies, one of the most promising centers of American research on city problems. In the foreword, the author acknowledges his indebtedness to Lewis Mumford and to Professors Herbert Gans and William Wheaton; he has also studied with Burnham Kelly and Kevin Lynch at MIT. Reiner has worked as a city and regional planner in Connecticut, Massachusetts, and Puerto Rico, and is at present a lecturer in city planning and regional science at the Pennsylvania Institute.

The concept of the ideal community is, of course, a very old one in Western thought. Reiner, however, confines himself to those utopias which have been presented only since the late 19th Century. This limitation makes sense, since the book was obviously intended as a background volume for contemporary planners rather than as a historical inquiry. The first two chapters are a consideration of the uses of ideal communities to the planner and a study of "Physical Planning Principles in Ideal Communities." The third, and longest, chapter is a survey of the leading utopias of our time. Here the reader will find evaluations of Howard's "Garden City," Wright's "Broadacre City," Neutra's "Rush City Reformed," and a variety of others. While everyone will mourn the absence of his own pet scheme (I was unhappy over the omission of Ludwig Hilberseimer's "Linear City"), it should be clearly stated that the author has done his best to make a representative selection. It is also important to note that this section of the book is illustrated with a multitude of useful diagrams. Reiner makes a strong effort to be objective and does not lean toward any particular solution. In the last two chapters he makes a comparison of the physical planning content of his ideal communities and presents some summary considerations.

Of particular interest to this reviewer was Reiner's enumeration of the indispensable elements which any ideal community should contain:

> "One would expect to find a socio-economic content: that is, an indication of what activity goes on, and on whose part. There should also be consideration of the spatial relationships of these activities. Where and in what three-dimensional relationships to each other do the actions ideally take place. And there must be some concept of cost and benefit and of how the ideal may be achieved and evaluated. It cannot be expected that these substantive areas should be developed to any high degree of sophistication. For example, cost may be considered in terms of ordinal rather than cardinal numbers or even simply expressed as the wish to minimize certain expenditures with regard to each other."

The passage gives a good idea of the comprehensive quality of Reiner's approach. It will be some time before anyone else has to touch upon the subject of the ideal community. This book should, in fact, be a standard reference work for years to come.

LEONARD K. EATON
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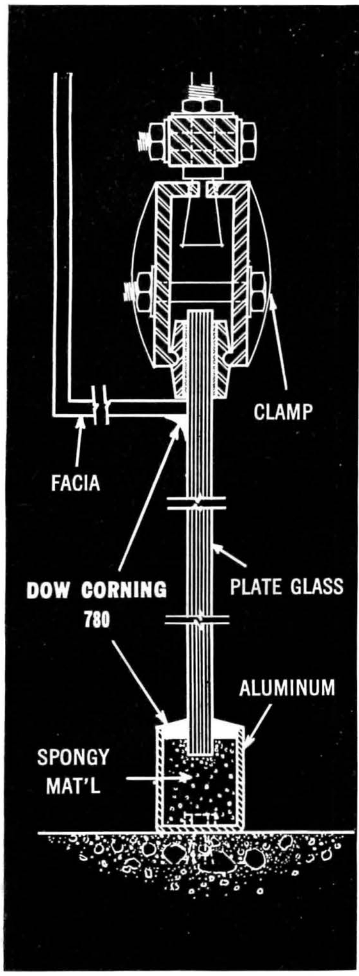
College of Architecture & Design
University of Michigan
Ann Arbor, Mich.

A Rich Tapestry

The Urbanization of America, 1860–1915, *by Blake McKelvey. Published by Rutgers University Press, 30 College Ave., New Brunswick, N.J. (1963, 370 pp., illus. $10)*

From 1860 to 1915, forty-two million Americans, migrants and immigrants, congregated in cities. The reasons they did so, the conditions they brought about, and the vices, virtues, and rewards they engendered by their endeavors—all these and more—Blake McKelvey has woven

Sealing at the World's Fair



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into a rich tapestry of people and events. The need for a single-volume panoramic view of this vital period of American urbanization is now well fulfilled.

Dating is a typical historiographic problem and McKelvey has chosen good markers for the flow of occurrences. Circa 1860:

"The cities of America now acquired, as a result of technological advances and population increments, new industrial energies . . . with the nation's geographic expansion [this] brought renewed vitality to many old centers [and] also multiplied the number of cities, increased their diversity and raised the quality of their inter-relationships."

Circa 1915:

"The process of America's urbanization had reached a turning point. The increased size and complexity of the cities and the mounting significance of their interrelationships had transformed many into metropolitan centers [bringing about] important structural changes in their organization and calling for increased functional specialization."

The single most important by-product of this 55-year period is the demonstration of the vitality of democracy during unforeseen stress and strain. The development of institutionalized forms of commerce, art, welfare, science, and learning was a response to the challenges thrown up by the rise of cities. McKelvey searches out the common denominator, but illustrates the general with fascinating examples of the particular. Yes, there were (and are) social, economic, and political injustices. But, considered as a whole, the results of urbanization were highly favorable. The story of the Doctors Mayo and the city of Rochester, the evolution of jazz, the invention of the ice-cream cone, improvements in transportation, the expansion of libraries and urban recreation, municipal reform, the growth of periodicals and newspapers are all part of the balance sheet.

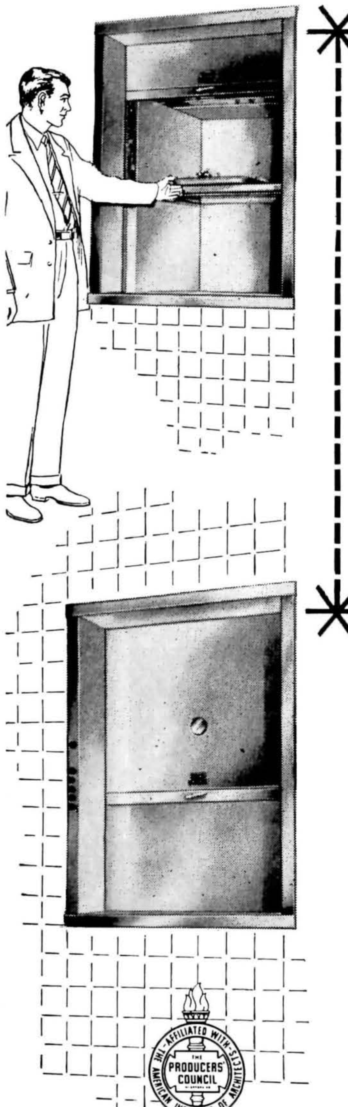
Among the arts, architecture and city planning have a poor showing. Richardson, Wright, and Sullivan are the high spots, and the City Beautiful movement the only continuity. In the latter instance, the gap between social purpose and aesthetics in urban design was never closed, and with the exception of the landscape architect's contribution, the record is not particularly inspiring. Nonetheless, from such unpromising beginnings a more realistic and practical control of environment did emerge, a point which the author makes clear.

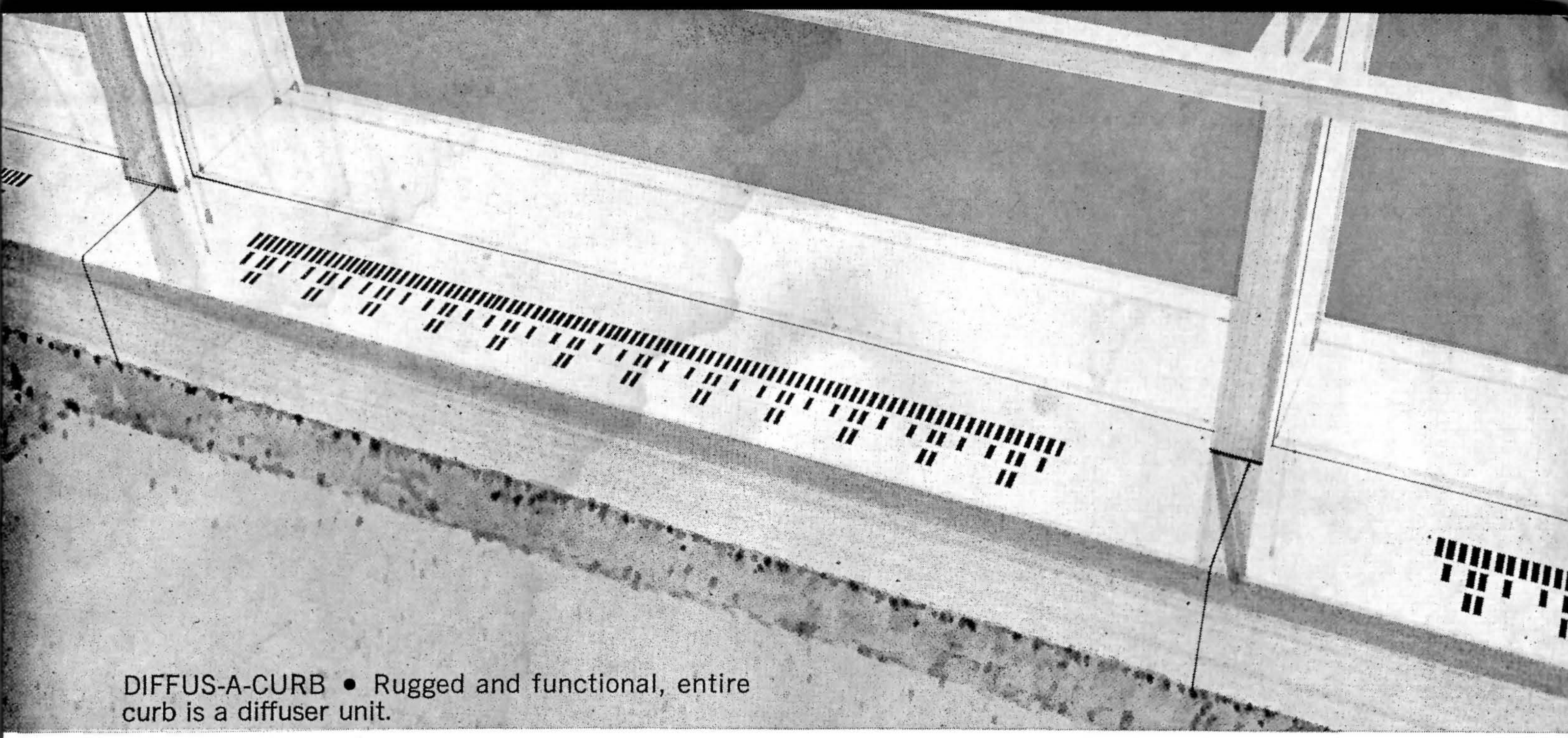
Inevitably, a book of this magnitude is occasionally blemished with trivial errors. McKelvey has a Thomas Lee Higginson backing the Boston Symphony Orchestra in the 80's, rather than the brothers Henry and Francis. Some elliptical paragraphs show that either time or space gave out in the final summing.

One hopes that McKelvey will write a sequel. In a memorable essay ("Urban History Today," *American Historical Review*, July 1952), he noted that in the period that followed, "cities present antitheses, as the opposing tendencies of the day find their most striking expression in urban life: diffusion versus centralization, heterogeneity versus standardization, expressionism versus planning." The illumination he could shed on these matters would be of great service. Without an historical appreciation we may be condemned to repeat the mistakes of the past as we rebuild and enlarge our urban areas in the decades ahead. If our vision is to have roots in continuity, as I think it must in urban design, then the course of the arts of environment may well depend on works such as his.

RICHARD P. DOBER
Visiting Critic in Urban Planning
Harvard University
Cambridge, Mass.

Continued on page 204





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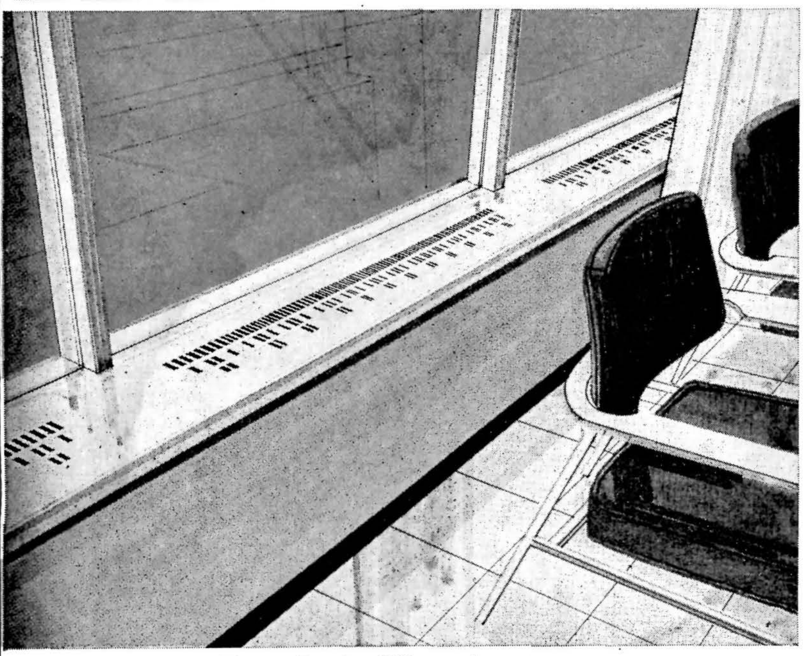

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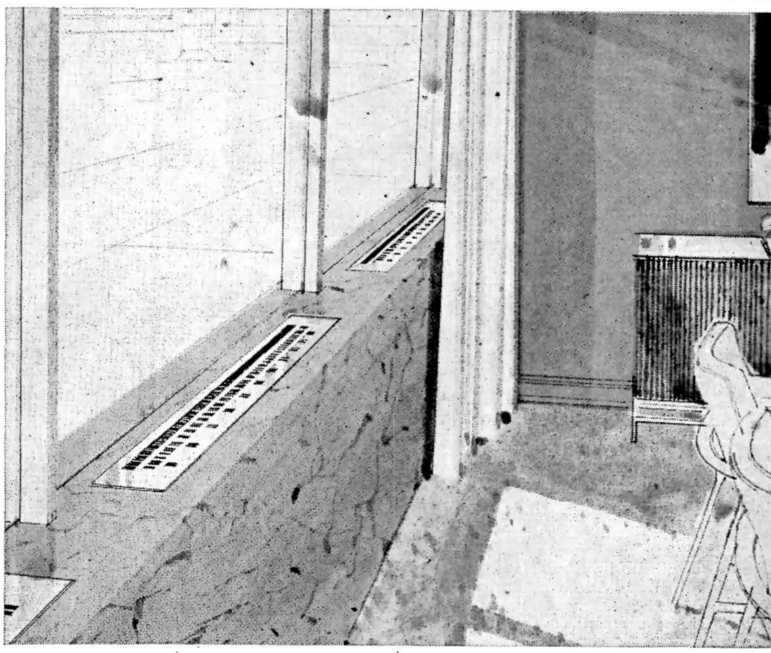

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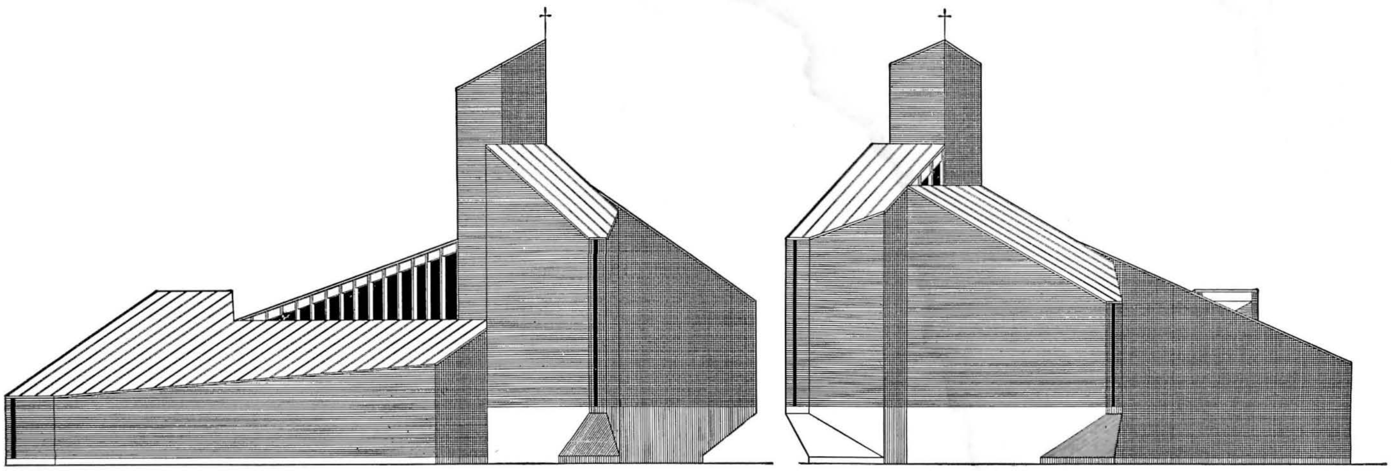


Martin Price designs a church

He utilizes Zonolite* Masonry Fill Insulation to cut wall construction costs. The material also cuts heating and air conditioning costs $360 annually.

Martin Price and Consulting Engineer Marvin M. Serot, both of New York City, were commissioned by Zonolite to do this church.

They developed an unusual brick cavity wall to carry the load; 6" SCR face brick exterior and interior, with a 2½" cavity.

No finishing on the interior walls was needed, because the Zonolite Masonry Fill Insulation in the cavities was more than sufficient to keep the inside surfaces warm and dry.

The fact that the interiors could be left unfinished cut total wall construction costs. Simply because less materials and fewer trades were needed than for conventional walls.

Price and Serot also found that by filling the cavities with Zonolite Masonry Fill, they could cut the annual heating costs 27.5% and the air conditioning costs 5.3%.

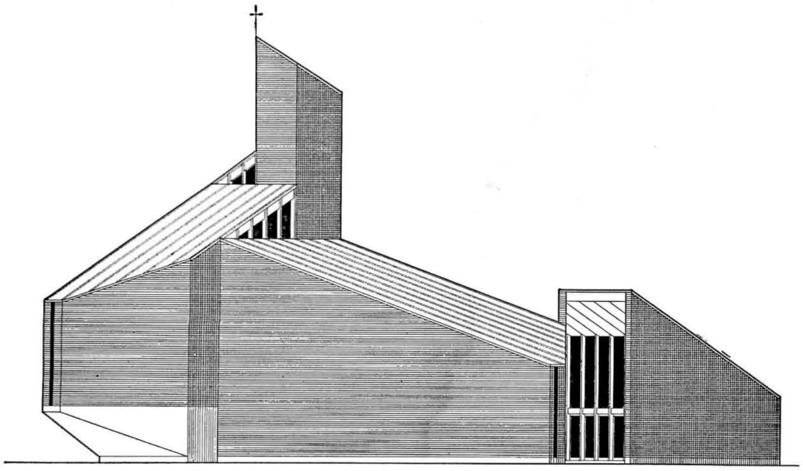
This figures out to be an annual savings of $360.

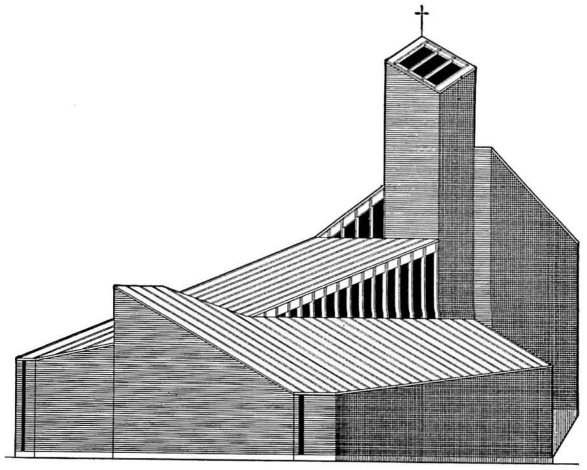
Perhaps of even greater interest to a client is the annual return he can get on his investment in Zonolite Masonry Fill Insulation.

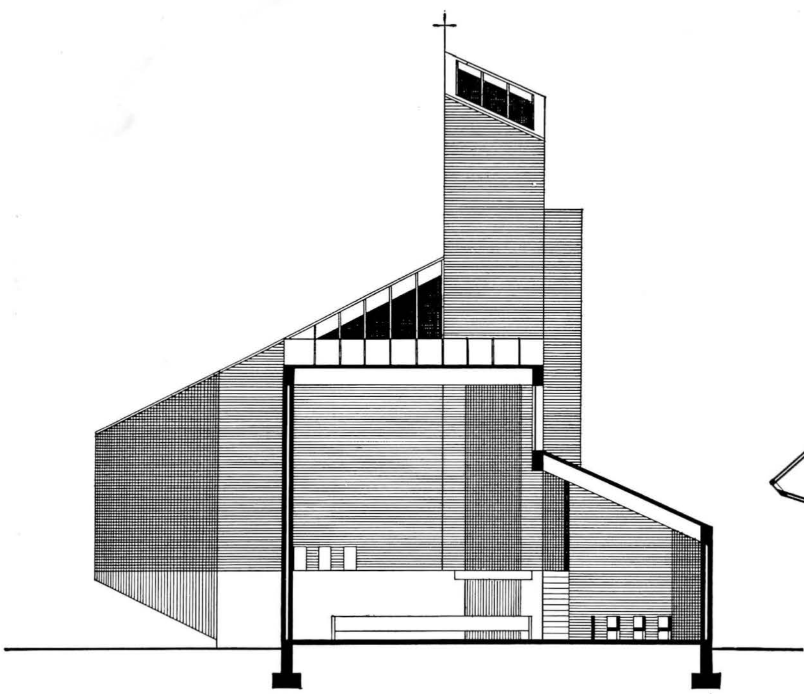
Serot found that in this case, the insulation (financed as part of the 20 year mortgage at 6%) costs about $86 a year. Compared with the annual heating and air conditioning savings of $360, this makes a 425% return on the annual investment in the insulation.

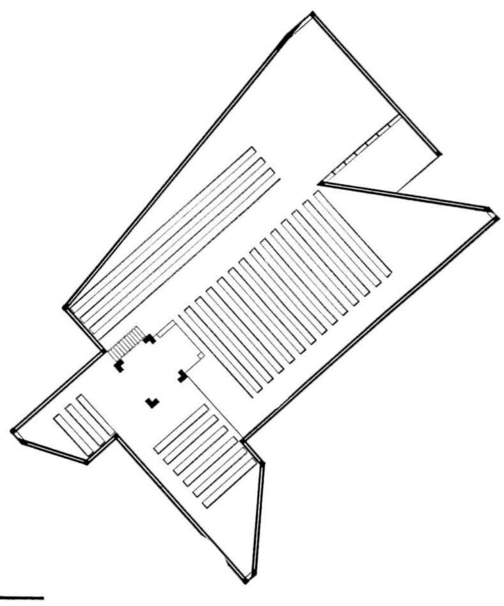
One reason for this high return is the low installed cost of the material; about 10¢ per sq. ft. in this 2½" cavity.

The cost is low because the material is just poured out of the bag into the cavity.









Additional facts worth investigating are contained in our Bulletin MF-83. Write PA-34, Zonolite, 135 South LaSalle Street, Chicago 3, Illinois.

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Design Conditions			Winter Heat Loss in BTU/Hr Assuming 70°F DB Indoor 0°F DB Outdoor		Summer Heat Gain in BTU/Hr Assuming 95°F DB, 75°F WB Outdoors 78°F DB, 50°RH Indoors	
	Without Masonry Fill	**With Masonry Fill**	Without Masonry Fill	**With Masonry Fill**	Without Masonry Fill	**With Masonry Fill**
Walls	6" Face Brick Interior & Exterior with 2½" Air Space Cavity	6" Face Brick Interior & Exterior with Masonry Fill in Cavity	290,000	**110,000**	54,000	**20,500**
Roof	Roofing, 4" Concrete, 2" Insulation		32,000	**32,000**	6,000	**6,000**
Floor	4" Concrete on Grade		7,200	**7,200**	—	—
Glass: Solar and Transmission	¼" Single Plate		65,000	**65,000**	23,860	**23,860**
Ventilation & Infiltration	3,000 Cubic Feet Per Min.		260,000	**260,000**	105,000	**105,000**
Lights	—		—	—	47,500	**47,500**
People	—		—	—	150,000	**150,000**
Totals			654,000	**474,200**	386,300	**352,860**
% Savings with Masonry Fill			$\frac{654{,}000-474{,}200}{654{,}000}$ **27.5%**		$\frac{386{,}000-352{,}860}{386{,}000}$ **=5.3%**	

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Continued from page 200

A Departed Giant

EERO SAARINEN ON HIS WORK: A SELECTION OF BUILDINGS DATING FROM 1947 TO 1964. *Statements by the architect, edited by Aline B. Saarinen. Published by Yale University Press, 149 York St., New Haven 11, Conn. (1962, 107 pp., illus. $15)*

The design development of Eero Saarinen, according to some observers, was —to borrow a phrase from Sir Winston Churchill—". . . a riddle wrapped in a mystery inside an enigma." To others, it was the thoroughgoing examination of each project in its own individual light, on its own individual requirements, arriving at its own individual conclusion. There have been speculations on what Saarinen would have become given a longer span of life; there can be no speculation, however, that what he gave us was lasting and deserving of memorialization.

Such memorialization has been given us in beautifully pictorial form by Yale University Press (the university where he did what was, to many, one of his best works in the Stiles-Morse Colleges), with text from his own writings edited by his widow, the noted art and architectural critic, Aline B. Saarinen.

Much has been said and written in the past few years about "form givers." It is doubtful whether Saarinen saw himself in this light. He was, as this volume proves, a form *maker*. He perhaps saw, or conceived, a form for each function, rather than each function seeking a form. We are undoubtedly the richer for this individual approach—would a Gropius or a Mies have given us in so short a time such a diverse heritage as the Yale buildings, MIT, Dulles, TWA, the St. Louis arch, and General Motors Tech Center? Not to speak of such "lesser" works as the two embassies, Concordia College, IBM, CBS, the Bell Labs, the Deere building. And how many architects have owned and specified his furniture?

This book is not, of course, a definitive retrospective of either Saarinen or his work. It is, rather an appropriate collection of his thoughts on his work, impressively presented and illustrated. As such, this is a valuable reminder of a departed giant.

J.T.B., Jr.

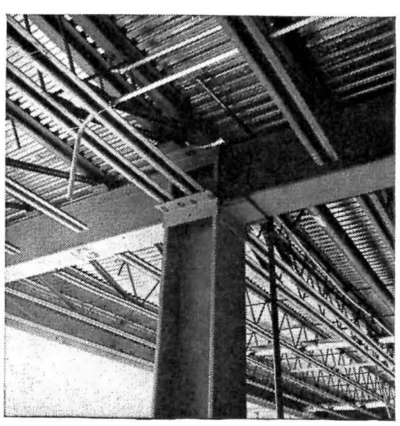
Lucid and Logical

CONCEPTS OF STRUCTURES *by William Zuk. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. (1963, 80 pp., illus. $5.95)*

The increasing interdependence of structure and form in contemporary building has reached the point where scientifically designed structure is often the overwhelming determinant in shaping the architectural work. For the first time in the history of building, we appear to have created an architecture of the scientific spirit as it is embodied in the physical laws of structure. The literary indication of this phenomenon is the number of books which seek to explain the action of structural elements and their function in the building complex. One book in this series is Professor Zuk's little volume. For its comfortable size, its clearly organized, compact, and readable text, it is the most convenient for ready reference. The subject matter follows what has now become a well-marked path. After two introductory chapters on the fundamentals of structural design—forces, materials, characteristics of creative design—and the principles of analysis, the author plunges into the main body of his text, which

Continued on page 208

SATURN TOWERS, *Colorado* Springs, Colorado. OWNER-BUILDER: Crestmar & Co.; ARCHITECT: Roland A. Wilson Associates; STRUCTURAL ENGINEER: Sallada and Hanson; STEELWORK: Sterling Steel & Supply Co. All firms of Denver, Colorado.



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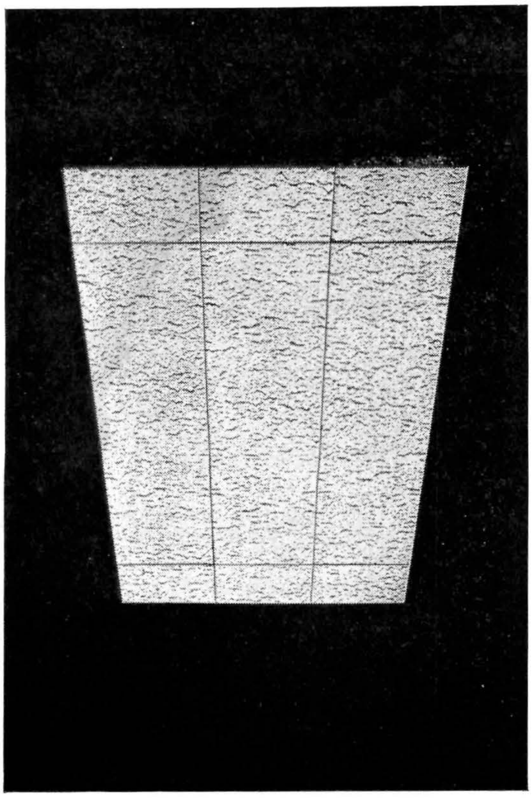

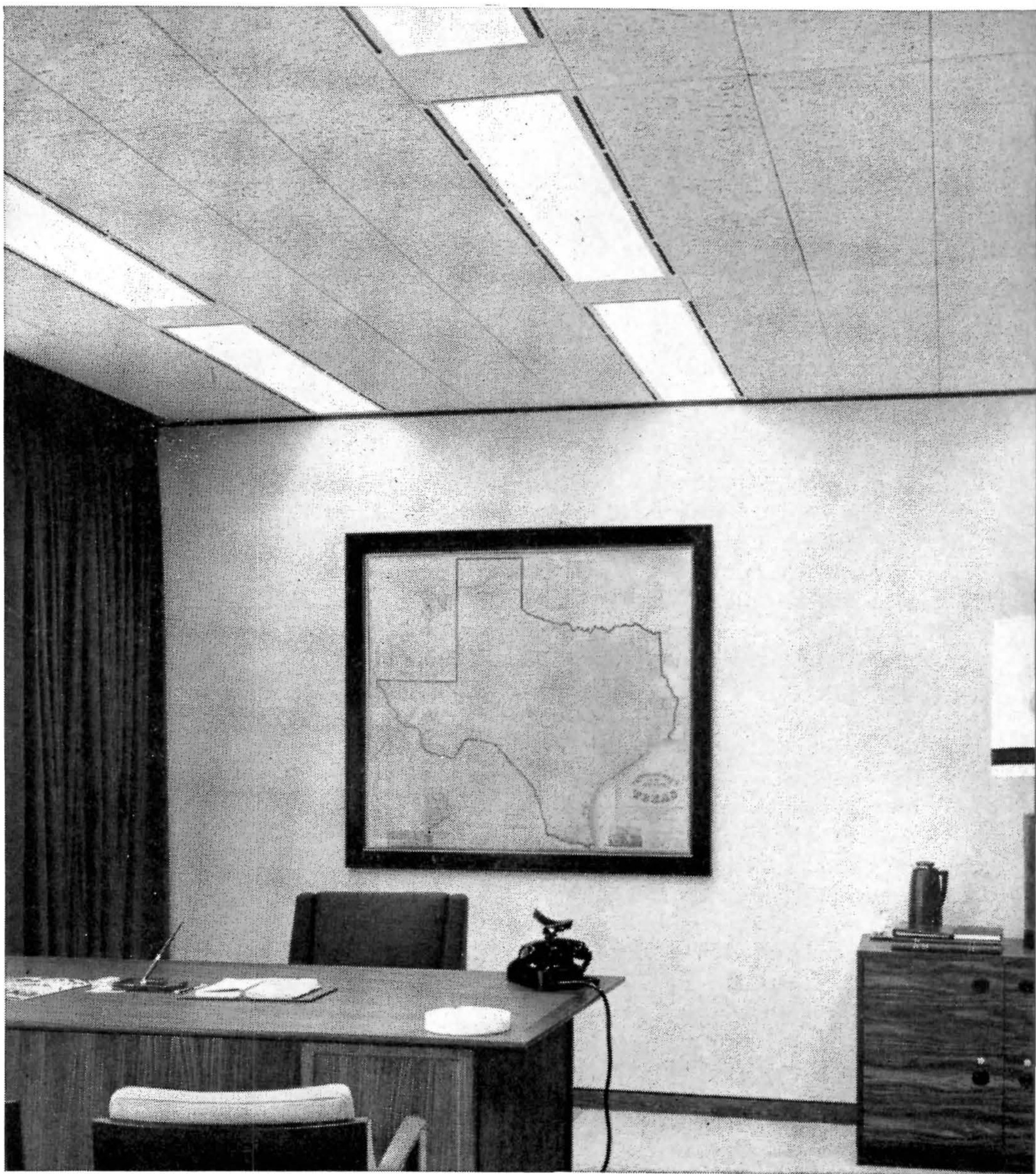

The acoustical ceilings in the 44-story Humble Building were installed prior to heating and air-conditioning equipment. The weather turned alternately hot, cold and rainy. Condensation was heavy enough to actually saturate the ceiling panels. Open flame-type burners were then used to dry out the building. But the Acoustiroc ceilings were not affected—due to built-in stability achieved by an exclusive felting process that interlocks long mineral wool fibers. Acoustiroc did not sag, shrink or warp.

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Continued from page 204

deals with the functional analysis of structural elements such as beams, columns, arches, trusses, and shells. The final chapter, entitled "Functional Analysis of Structural Complexes," is disappointing, offering only a very brief comparison of combination and integrated structures, together with a few widely known examples of the latter.

The author addressed his book primarily to architectural students, but there is no reason why it should not prove valuable to any patient reader who is capable of understanding simple algebraic equations, and who is seriously interested in penetrating into the inner character of contemporary building form. As a presentation of a technical subject, the book has a number of solid virtues: accuracy and lucidity of exposition, logical development from fundamentals to advanced concepts, unambiguous references to figures, and coverage of all the essential elements. The clear line drawings are valuable supplements to the text because they include bending-moment diagrams, deformation patterns, and stress trajectories as well as the structural forms themselves. Certain passages are the best of their kind that I have seen. A particularly good example is the explanation of the solution of a simple indeterminate structure (a continuous beam in this case) by means of equilibrium equations based on the deformation pattern.

The final evaluation of Professor Zuk's book must depend on the reviewer's criteria of adequacy for such a work. In my own view, the book would have been improved if certain technical concepts had been more fully developed. The stress-strain diagram and Young's modulus of elasticity require further explanation. The dimensional units of the deformation or strain axis in the diagram and the exact meaning of elastic limit, yield point, and ultimate strength are obscure; without an adequate understanding of these concepts, Young's modulus has little physical meaning. Further on, the author cites Prandtl's discovery of the identity of soap-film deformation and surface deformation of a rectangular bar under torsion. But he fails to tell us exactly what Prandtl's equations describe and in what way they are identical with St. Venant's torsion theory. The author's discussion of the area moment of inertia is most welcome, since the subject is seldom included in works of this kind, but he tells us so little about this fundamental concept of mechanics that the uninitiated reader is left very much where he started. It seems to me that it is possible, at least, to show how the concept tells us that the I-beam is the most efficient structural form among easily rolled shapes. In the same way—although I raise this point as a tentative question rather than as a criticism—is it possible to give a readable exposition of the determination of forces acting on a differential element of a thin slab? Professor Zuk dodges the problem, citing the mathematical difficulty of Navier's theory. And yet, sooner or later, a properly trained historian will have to rewrite Timoshenko's impressive *History of Strength of Materials* so that these mysteries are made available to the layman.

Beyond these, I have one minor criticism of the author's way of presenting certain computations. In a sample analysis of forces in a truss, the factor 0.707 appears in the equations. For the truss in question, the angle between diagonal members and bottom chord is 45°, and the number 0.707 is the $\sqrt{2}/2$, or sin 45°. By indicating this fact, the author could have then shown how the trigonometric functions are used for the resolution of forces in a truss.

Continued on page 214


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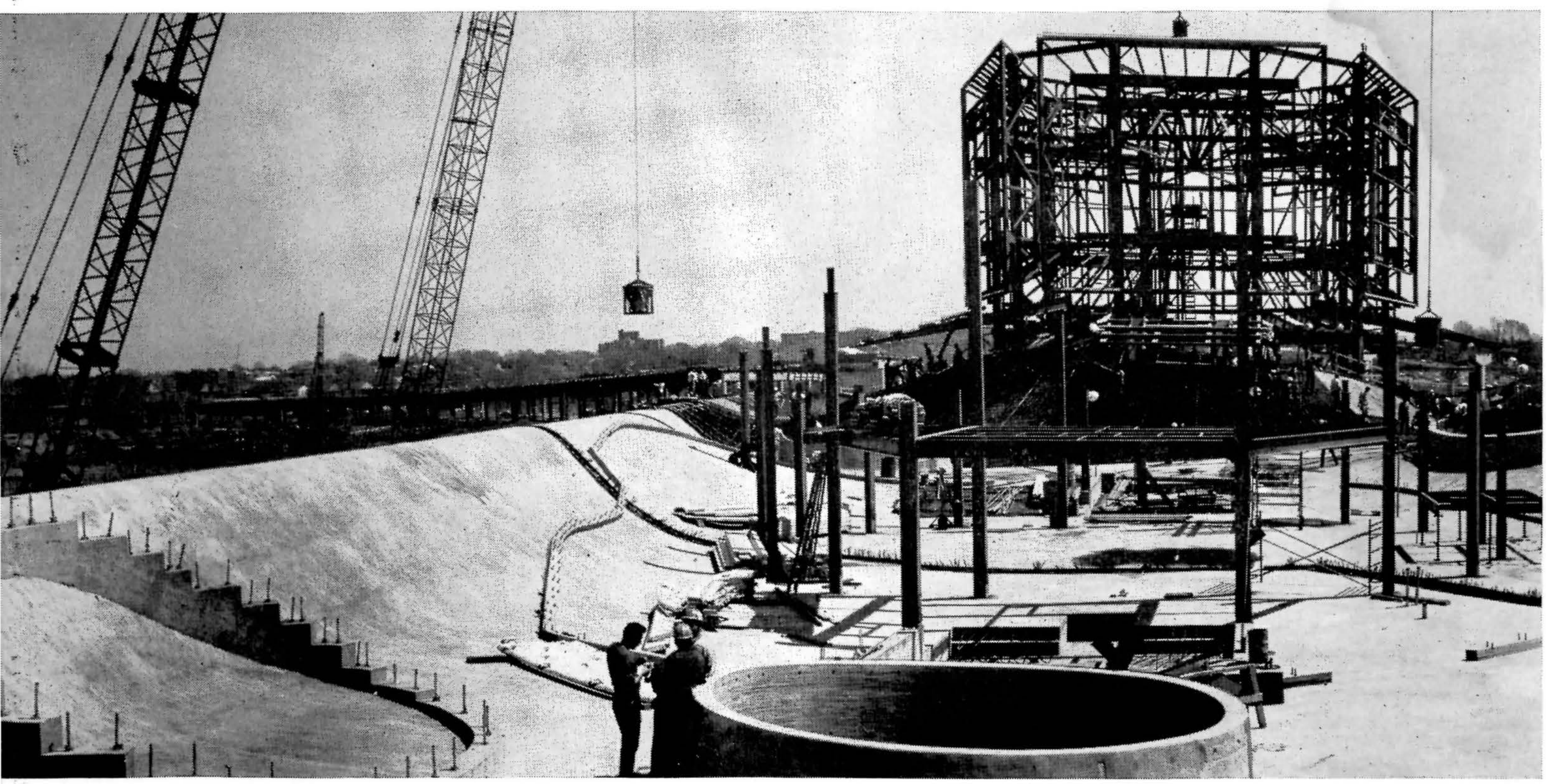

Eastman Kodak Pavilion, New York World's Fair. Designer: Will Burtin, New York. • Architects: Kahn & Jacobs, New York. • Engineers: Lev Zetlin & Associates, New York. • General Contractors: George A. Fuller Co., New York. • Concrete Sub-contractors: Corbetta Construction Co., Inc., and Pavarini Construction Co., Inc., New York. • POZZOLITH Ready-Mixed Concrete: Colonial Sand & Stone, Inc., New York. • Testing: Haller Testing Laboratories, Inc., New York.

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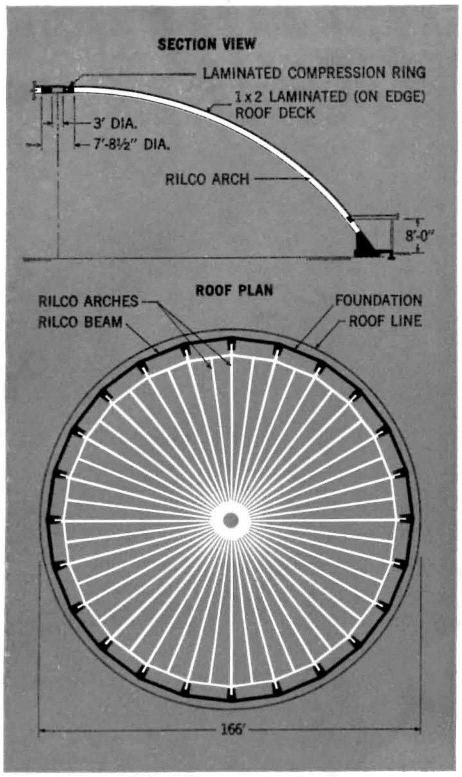

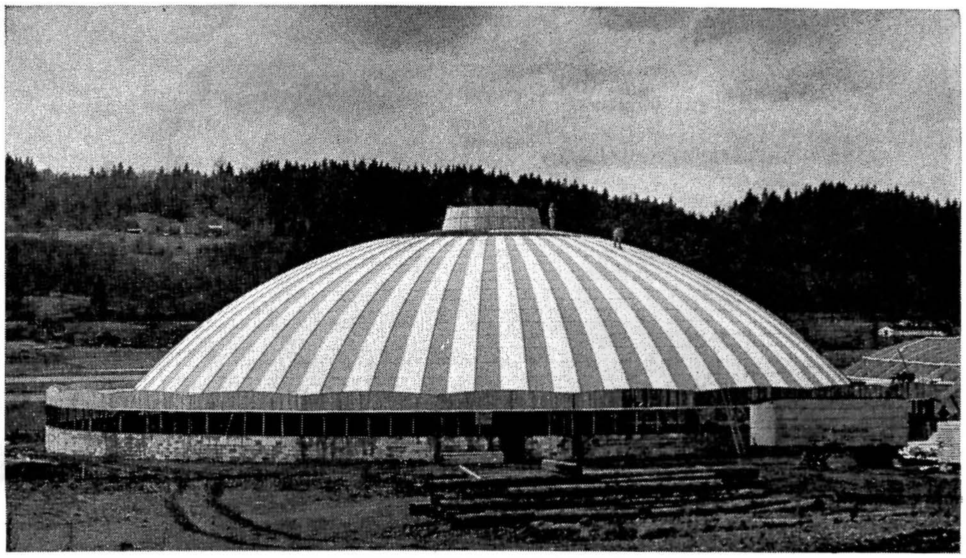
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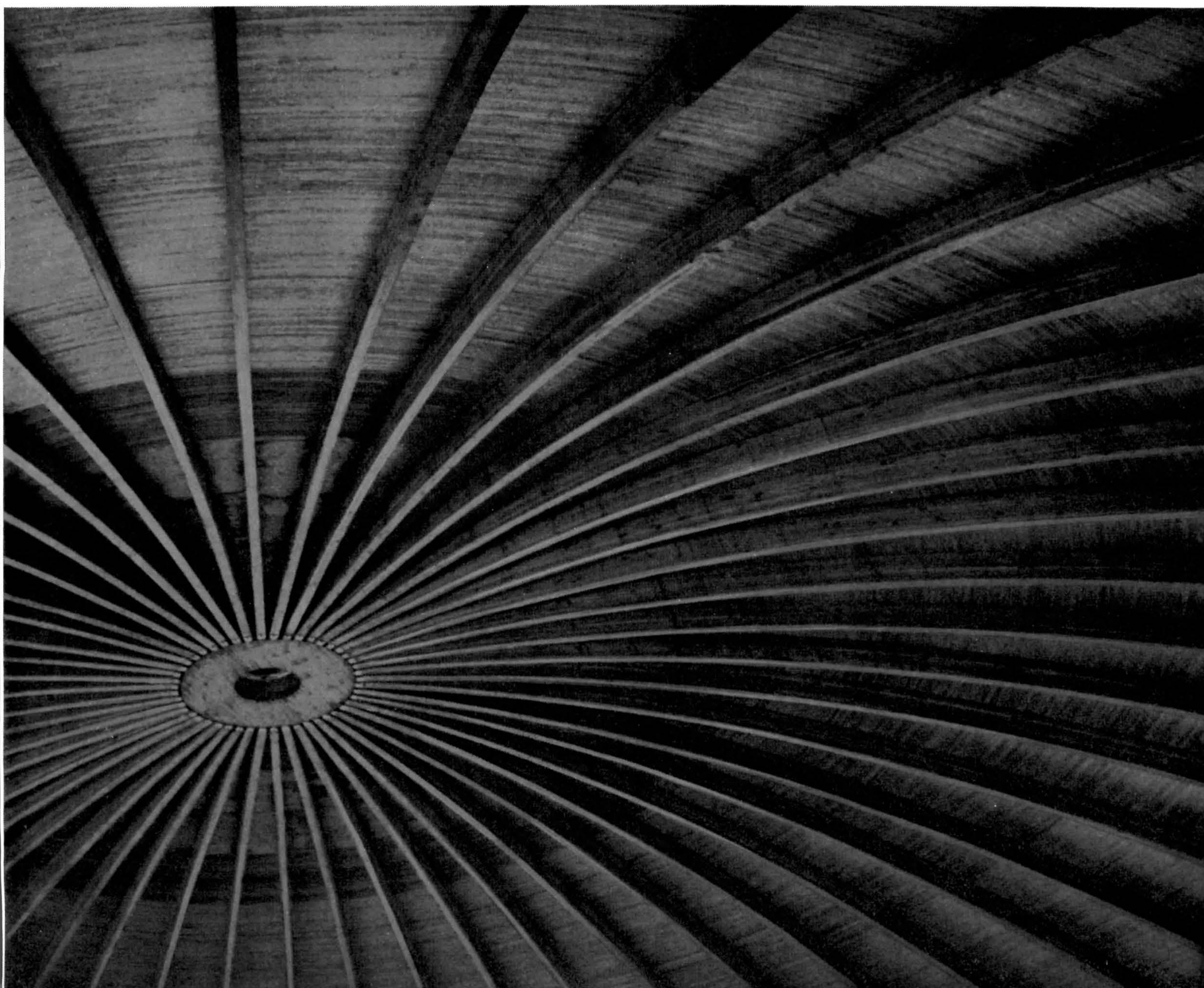

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I raise these questions less as serious criticism than as suggestions for fully rounding out the exposition in this otherwise useful essay. Knowledge of its subject is necessary not only to the architect who designs but also to the layman who wants to comprehend the results. Contemporary architecture is so thoroughly imbued with the structural spirit —the play of tension and compression, the movement of forces in a tense and dynamic equilibrium—that our enjoyment of it is strongly kinesthetic, and our full appreciation intimately bound up with the sciences of structural analysis and material behavior.

CARL W. CONDIT
Professor of the History of Science
Northwestern University
Evanston, Ill

Two Basic Facts Acknowledged

PLANNING AMERICA'S SCHOOL BUILDINGS, *Report of the AASA School-Building Commission. Published by the American Association of School Administrators, 1201 16 St., N.W., Washington 6, D.C. (1960, 229 pp., illus. $6)*

The epitaph for this report might well be contained in two early lines: "This publication is a result of team effort. No majority or minority opinions are expressed." I presume most of the seven authors and two contributors listed consider this to be a virtue, though one, I know, wishes to disassociate himself from the result.

Traditionally, committee reports are supposed to be offensive to no one (you agree to forget my unpleasant realities if I agree to forget yours). While safe, they frequently are insipid. This book surely would have been more valuable had it not been so homogenized and sterilized. However, it does have the virtue of acknowledging two basic facts about school buildings, which previously had received little notice: one, that "environment educates"; two, that "beauty is a basic ingredient."

There is much useful and timely information in the text which is made less readable by a rather pedantic style. The illustrations are well reproduced, the typography is good, and there are author and subject indexes. Good books on school design and construction are few. Surely this is one of the best in spite of certain faults, which have been noted.

PHILIP H. HISS
Chairman, Board of Trustees, New College
Sarasota, Fla.

OTHER BOOKS TO BE NOTED

Art before Columbus. André Emmerich. Photos by Lee Boltin. Simon & Schuster, 630 Fifth Ave., New York 20, N.Y., 1963. 256 pp., illus. $10
To be reviewed.

Ben Shahn: Paintings. James Thrall Soby. George Braziller, Inc., 215 Park Avenue South, New York 3, N.Y., 1963. 144 pp., illus. $15

Ben Shahn: His Graphic Art. James Thrall Soby. George Braziller, Inc., 1963. 141 pp., illus. $10 Boxed set of the two books: $25

In Paintings, *Shahn's portraits of human experience, dabbed with compassion and satire, are reproduced in color as well as black and white. James Thrall Soby attempts to clarify and resolve the complexities of Shahn's style—a style which from the 30's to the present fluctuated between realism and symbolism.*

In His Graphic Art, *the graphic work of this painter, who began as a lithographer, is seen as an expression basic to, yet independent of, his painting. Both books contain a chronology and bibliography of the artist. Soby is Trustee and Chairman of Painting and Sculpture at the Museum of Modern Art.*

Color for Interiors. Faber Birren. Whitney Library of Design, 18 E. 50 St., New York 22, N.Y., 1963. 210 pp., illus. $15
To be reviewed.

Continued on page 218

Steel for Strength

STRUCTURAL DESIGN **NEWS**

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13-STORY BALTIMORE APARTMENT BUILDING was built with structural steel for $2.29 psf -- $.40 less psf than poured concrete. In addition, steel permitted faster erection during winter months, making possible earlier occupancy.

4-STORY LANCASTER, S. C., WAREHOUSE, was considered in prestressed concrete and in structural steel. Steel proved more economical. Further investigation proved that composite design in steel saved an additional $20,000.

5-STORY CITY HALL in Allentown, Pa., was investigated in both reinforced concrete and structural steel. The steel estimate was slightly less than the alternative, and provided better solutions to such design features as cantilevered floors and curtain walls.

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

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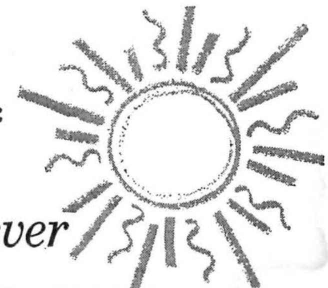

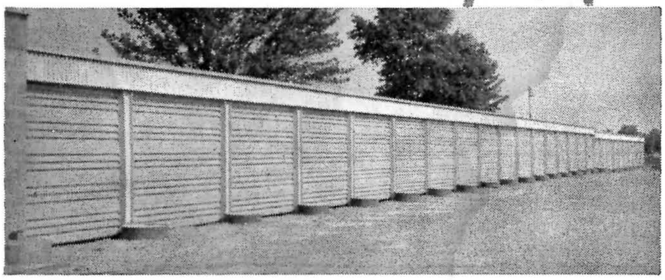

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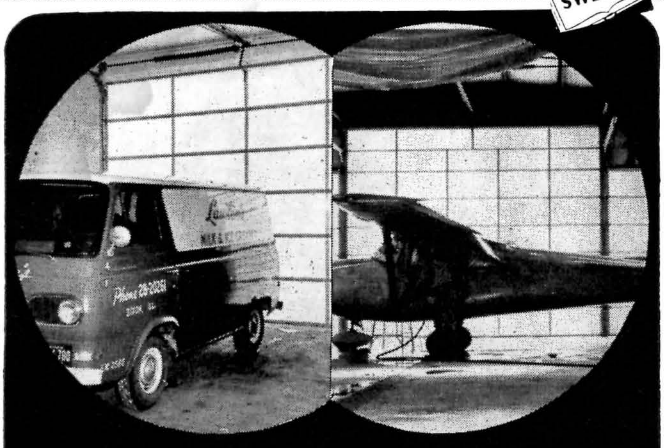

interior photographs taken with natural daylight

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Continued from page 214

The Complete Book of Home Remodeling, Improvement, and Repair. A. M. Watkins. Doubleday & Co., Inc., Garden City, New York, 1963. 351 pp., illus. $4.95

This nontechnical guide for the homeowner, or anyone new to home remodeling, contains advice on diagnosing remodeling needs, planning for conversion or addition of space, selecting the best materials, and employing contractors or repairmen. There is advice on problems peculiar to old houses.

Design of Prestressed Concrete Structures (2nd Edition). T.Y. Lin. John Wiley & Sons, Inc., 605 Third Ave., New York 16, N.Y., 1963. 614 pp., illus. $12.50

Basic principles of prestressed concrete applied to all types of structures. The use of Lin's load balancing method to simplify the design of statically indeterminate structures is a major theme. T.Y. Lin, professor of Civil Engineering at the University of California, was 1958-1962 vice-president of the International Federation for Prestressing.

English Furniture: A.D. 43-1950. E.T. Joy Arco Publishing Co., Inc., 480 Lexington Ave., New York 17, N.Y., 1963. 64 pp., illus. $4

Account of the development of English furniture, period by period, from the portable medieval chest. Line drawings and photos that represent isolated pieces, rather than furnished rooms, are interspersed with text, enabling easy identification of design characteristics and serving as a swift pictorial index. Text, strictly of an introductory and historical nature, has negligible coverage of 20th-Century styles. Capsules of social background which accompany each section show how form and style have been affected by demands of function and taste.

The Genuis of John Ruskin: Selections from His Writings. Edited by John D. Rosenberg. George Braziller, Inc., 215 Park Avenue South, New York 3, N.Y., 1963. 560 pp., $7.50

To be reviewed.

God's Own Junkyard. Peter Blake. Holt, Rinehart & Winston, 383 Madison Ave., New York 17, N.Y., 1963. 143 pp., illus. hardbound: $4.50 paperback: $2.95

To be reviewed.

The Italian Townscape. Ivor de Wolfe. Sketches and plans by Kenneth Browne. Photos by Ivy de Wolfe. The Architectural Press, 9–13 Queen Anne's Gate, London S.W.1, England, 1963. 280 pp., illus. $8

To be reviewed.

The School Library: Facilities for Independent Study in the Secondary School. Ralph E. Ellsworth and Hobart D. Wagner. Educational Facilities Laboratories, 477 Madison Ave., New York 22, N.Y., 1963. 143 pp., illus. no charge (paperbound)

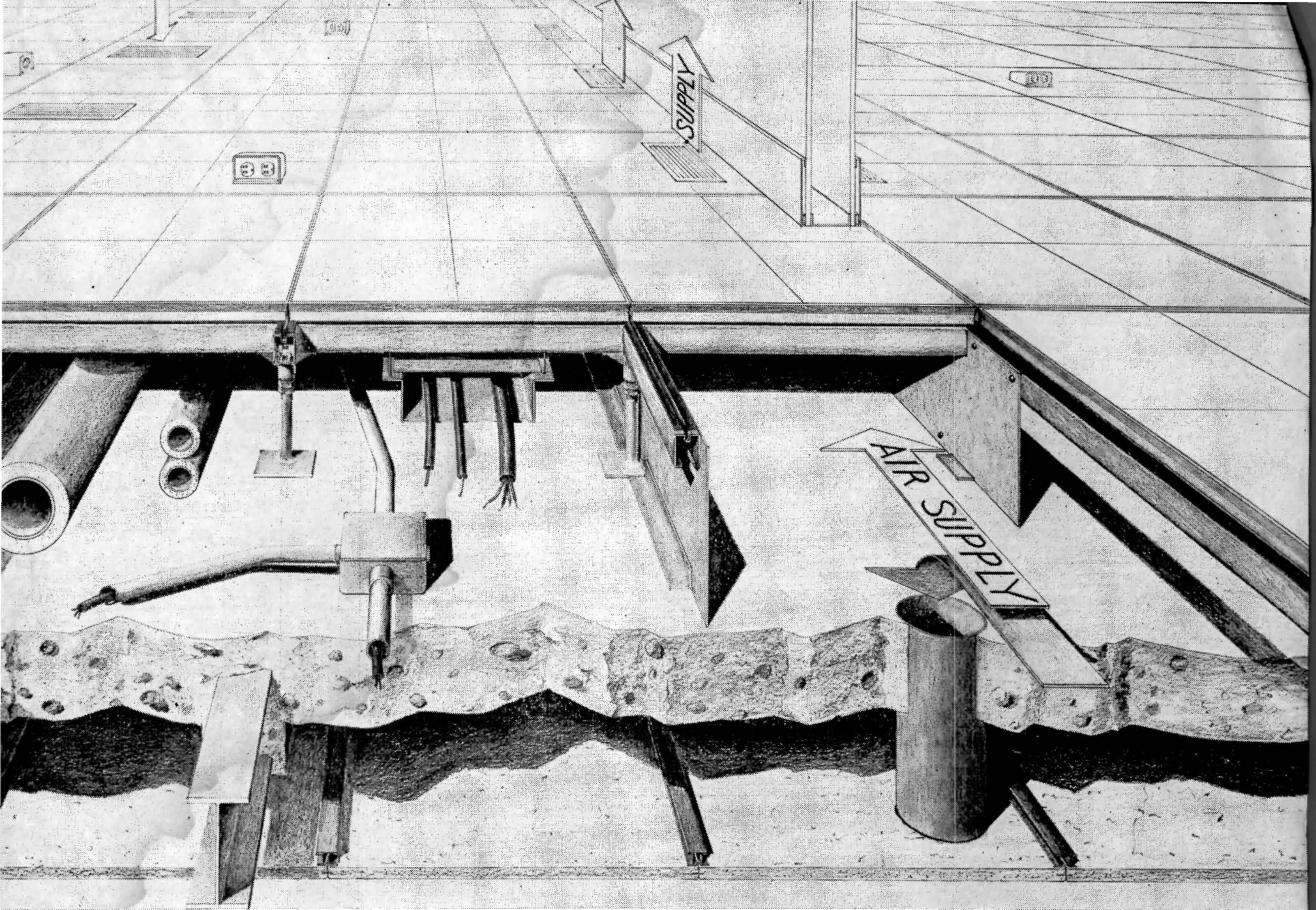
Attractive, compact booklet analyzing fundamentals for planning secondary school library is useful for college facilities as well. Text discusses various library problems stressing the need for places dedicated to studying alone, to easy-chair study, to group study, to mechanical aids, and to taking a break. Special emphasis is placed on the study carrell and library layout. Final section illustrates six prototype architectural designs plus a variety of divider screens.

Standard Graphical Symbols: A Comprehensive Guide for Use in Industry, Engineering, and Science. Alvin Arnell. McGraw-Hill, 330 W. 42 St., New York 36, N.Y., 1963. 525 pp., plus index, illus. $14

Reference to graphic symbology in 13 major branches of engineering science. Information was derived through consultation with technical and industrial societies, associations, companies, and Government agencies. Index to over 9000 symbols is included. Appendices list symbols available in type face plus accepted abbreviations for drawings.

Styles in Paintings: A Comparative Study. Paul Zucker. Dover Publications, Inc., 180 Varick St., New York 14, N.Y., 1963. 338 pp., illus. $2 paperbound

Paperback edition of Zucker's study of art forms presents historical cross-sections of themes. Landscapes, still life, nudes, or religious allegories are juxtaposed showing, in each instance, the complex changes that have occurred over the centuries. The book begins with a discussion of art and style and concludes with one on the history of style.



Zucker, a contributor to P/A, is the author of several books, including Town and Square: From the Agora to the Village Green.

The Technology of Urban Transportation. Donald S. Berry, George W. Blomme, Paul Shuldiner and John Hugh Jones. The Transportation Center, Northwestern University, 1818 Hinman Ave., Evanston, Ill., 1963. 145 pp., tables. $6

Useful knowledge for planners of urban transit is found in this comparison of transit facilities—their design features, capacity, performance, costs, and effective range of utilization. Information on automotive transportation, transit equipment, facilities and terminals, possible innovations, and central area circulation is also provided.

Ten Designs: Community Colleges. A publication of the School of Architecture, Rice University, Houston, Texas, 1963. Sponsored by Educational Facilities Laboratories, Inc., New York, N.Y. 100 pp., illus. no charge.

Report of a 10-day Design Fete at Rice University. Teams of five students headed by prominent architects attacked the problem of community colleges for ten hypothetical, but typical, communities. A community college, in each case, was to fulfill varied needs—including general adult education, pre-college, technological and post-college courses. Diagrams and model photos plus photos of the architects at work illustrate each team's approach and solution.

The Testament of Stone: Themes of Idealism and Indignation from the Writings of Louis Sullivan. Maurice English. Northwestern University Press, 1840 Sheridan Rd., Evanston, Ill., 1963. 227 pp., $6.50
To be reviewed.

A Treasury of Scandinavian Design. Edited by Erik Zahle. Golden Press Inc., 630 Fifth Ave., New York 20, N.Y., 1963. 300 pp., illus. $14.95 deluxe edition: $16.95
To be reviewed.

Troy and the Trojans. Carl W. Blegen. (Ancient Peoples and Places Series.) Frederick A. Praeger, 64 University Place, New York 3, N.Y., 1963. 240 pp., illus. $6.95
To be reviewed.

Using Computer Graphics in Community Renewal: CRP Guide 1. Urban Renewal Administration. U.S. Government Printing Office, Washington 25, D.C., 1963. 5 sections, illus. $1.50 paperbound

Manual containing five computer programs for the professional city planner. Programs have been developed in preparation for a Community Renewal Program for Spokane, Wash. Introduction, containing glossary, orients the planner in the logic of computer operations; four appendices detail related programs.

The Works of Sir Joseph Paxton. George F. Chadwick. The Architectural Press, 9–13 Queen Anne's Gate, London S.W. 1, England, 1961. 275 pp., illus. $5.10
To be reviewed.

NOTICES

New Addresses

GEDDES, BRECHER, QUALLS, CUNNINGHAM, Architects, 2101 Pine St., Phila., Pa.

KIESLING-HESS FINISHING CO. INC., 519 W. 38 St., New York, N.Y.

DESMOND J. PARKER, Architect, 1595 Fifth Ave., Prince George, B.C.

MURTON H. WILSON & Assoc., formerly of San Marino, moved to 3939 East Coast Highway, Corona del Mar, Calif.

New Firms

AFFILIATED ARCHITECTS, 710 W. High St., Lexington, Ky.

DUNBAR AND GUSTAFSON, Architects, 752 S. Monroe St., Monroe, Mich.

JAMES W. FOUG, Architect, 701 Welch Rd., Palo Alto, Calif.

JAY GOLDBERG, Architect, 800 Peachtree St., N.E., Atlanta, Ga.

GORDON, DRAKE & PATTILLO, Architects, 206 W. Forsyth St., Jacksonville, Fla.

HOILAND AND ZUCCONI, Architects, 606 Strain Bldg., Great Falls, Mont.

HAROLD M. LIEBMAN & Associates, Ar-

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chitects, 420 Lexington Ave., New York, N.Y.

DION NEUTRA ASSOCIATES, ARCHITECTS AND CONSULTANTS, 2525 Hyperion Ave., Los Angeles 27, Calif.

BERNARD SCHULAK, 6889 W. Maple Rd., Walled Lake, Mich.

SIDELLS, PHILLIPS & ASSOCIATES, Architects, 2660 S. Street, Perkinswood Blvd., Warren, Ohio.

Elections, Appointments

RAYMOND B. BEEBE, RAFAEL C. CORDERO, MICHAEL NIKCEVICH, AND JOHN C. VUKOVITZ have been appointed Project Engineers for THE ENGINEERS COLLABORATIVE, Illinois.

DAVID M. CHECKLEY has been appointed Managing Director of the Seattle, Wash., office of JOHN GRAHAM & COMPANY, Architects, Engineers, and Planners.

WILLIAM DUDLEY HUNT, JR., of Port Chester, N.Y., has been appointed Publisher of the *AIA Journal.*

WALLACE R. JONASON has been appointed Director of Design for DESIGN/PLANNING, INC., Calif.

WALTER E. KUNZE, JR., has been appointed Director of Promotion Planning and Engineering Services for PORTLAND CEMENT ASSOC. W. BURR BENNETT, JR. has been named Manager of the Association's Structural Bureau.

JASPER MERENDINO has been appointed Vice-President of FRED S. DUBIN ASSOCIATES and will continue as Manager of the Puerto Rico office.

HENRY NEUMAN has been appointed Vice-President of Planning and Design of The Pace Collection of JIL ASSOCIATES, N.Y.

HARVEY PROBBER, INC., New York, announces the appointment of RAUB & ROBINSON of Los Angeles, California, as West Coast representatives of the Probber residential, contract, and office furniture lines.

ABRAHAM WARONOFF has been elected President of ARCHITECTURAL-ENGINEERING SERVICES, INC., Detroit, Mich.

LAWRENCE E. WILLIAMS has been appointed Staff Economics Consultant in the firm of DANIEL, MANN, JOHNSON & MENDENHALL, Los Angeles, Calif.

HERBERT G. WINKLER named Project Manager and GEORGE PUJDAK named Designer of the BEAUDRY DIV. in firm of ALBERT C. MARTIN & ASSOCIATES, Los Angeles, Calif.

New Partners, Associates

FRED BASSETTI & COMPANY, Architects, Seattle, Wash., has named J. WILLIAM DIMMICH Partner. DONALD McL. FROTHINGHAM, ROBERT H. ROSS and PHILIP C.

NORTON have been made Associates.

KENNETH W. BROOKS, Architect, Spokane, Wash., has named FRED L. CREAGER Associate.

HENRY J. CAMPBELL, JR., Consulting Engineers of Garden City, N.Y., have announced the following new Associates: VINCENT J. CERNIGLIA, PETER J. SEITZ, and ROBERT J. YONELUNAS.

CARENTINI ASSOCIATES, New York, announce the appointment of WALTER J. BROWN, JR., MICHAEL A. MARINO, DAVID MICHAELI AND AVA TINFO as Associates of the firm.

CHAIX & JOHNSON ASSOCIATES, Los Angeles Architectural firm, announces the appointment of RICHARD HENNESSY, EDWARD J. PACE, AND WAYNE TAKEUCHI, as Associates.

ECKBO, DEAN, AUSTIN & WILLIAMS, Landscape Architects, have announced the appointment of DONALD BLAIR AUSTIN as general Partner. He will work in the firm's San Francisco office.

A. EPSTEIN & SONS, INC., Chicago, Ill., has made MARVIN L. MASS and J. STEWART STEIN Associates.

HOLFORTY, WIDRIG, O'NEILL ASSOCIATES, INC., Birmingham, Mich., Engineers, announce a new principal Associate, JAMES H. O'NEILL.

ARNOLD BLAIR KOMINSKY of the Chicago office of PERKINS & WILL has been named Associate in that firm.

EMERY ROTH & SONS, Architects, New York City, announce the following new Associates: GELAL KENT, BERNARD KESSLER, and JOSEPH SOLOMON.

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(2nd) Louis Reens, courtesy of Royalmetal Corp.
(3rd) Robert D. Harvey Studio
(bottom) Balthazar

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(top) Courtesy of Thonet Industries, Inc.
(middle) Drawings, both, courtesy of Howell Lewis Shay & Assoc., Architects
(bottom) Lawrence S. Williams

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Courtesy of Simmons Co.

P/A JOBS AND MEN

SITUATIONS OPEN

ARCHITECT—Architect Mechanical or civil engineer. 0 to 10 years experience. Large building materials manufacturer requires man for permanent position in developmental architecture involving design, construction and evaluation of new structural and building materials systems. Scope of work includes all stages from new product concept through marketing. Emphasis will be on use of plastics alone or in combination with conventional building materials. Registration in at least one state desirable but not essential. Location of office in attractive part of New Jersey. Submit resume of background and experience with salary requirements to this equal opportunity employer. Box #730, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Excellent opportunity for highly qualified Architect for future partnership in small, contemporary fast-growing firm in Northwest. Must have creative talent in design and experience in promotional and production drawings and client relationship. Please send recent work samples with resume. Box #731, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Immediate opening for graduate architect who is a creative designer. Permanent position with a well established Midwest consulting firm. Salary commensurate with ability. Moving expenses paid. Box #732, PROGRESSIVE ARCHITECTURE.

New Jersey. Submit resume of background and experience with salary requirements to this equal opportunity employer. Box #730, PROGRESSIVE ARCHITECTURE.

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Standard charge for each unit is Five Dollars, with a maximum of 50 words. In counting words, your complete address (any address) counts as five words, a box number as three words. Two units may be purchased for ten dollars, with a maximum of 100 words. Check or money order should accompany advertisement and be mailed to Jobs and Men, c/o Progressive Architecture, 430 Park Avenue, New York 22, N. Y. Insertions will be accepted not later than the 1st of the month preceding month of publication. Box number replies should be addressed as noted above with the box number placed in lower left hand corner of envelope.

vania. Also architectural draftsmen capable of developing working drawings with minimum supervision. Send resume, salary required and references. Box #733, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Top opening available for experienced architect in medium-sized architectural firm in Richmond, Virginia. Diversified practice in contemporary architecture. Submit resume of education and experience and salary expected. Box #734, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL DRAFTSMEN — Openings available in Knoxville for college graduates and men with several years' experience. Diversfied public and private work. Submit resume of experience and salary expected to Cooper & Perry, Architects-Engineers, 200 West Fifth Avenue, Knoxville, Tennessee.

ARCHITECTURAL POSITIONS AVAILABLE—For youthful architects, experienced draftsmen, architectural graduates in training to assist in the further development of an established thirty-year old firm. Needs are for two working drawings draftsmen; also for a young architect to lead as a Project Architect; also for several graduates with some office experience to train as Project Architects and for office management. Neat offices, cooperative staff, comprehensive insurance program, profit sharing, company cars, modern office machines and progressive spirit makes this firm one where opportunity abounds. If you have the qualifications needed, please write or call C.S. Buchart, Buchart Associates, 611 West Market Street, York, Pa. Tel 8-1567.

PROJECT ARCHITECT OR ENGINEER—Leading national corporation seeks man to be responsible for development of heating, cooling, ventilating, lighting, ceiling and partition systems and fireproofing for use in pre-engineered commercial and community buildings. Supplier coordination, specification, lighting and pilot testing included in duties. Send full particulars Box #735, PROGRESSIVE ARCHITECTURE.

PROJECT MANAGER—Graduate Architect or Engineer, preferably with advanced degrees, thoroughly experienced in design and construction of all types of buildings for industry and government. Assignment requires proven administrator with polished professional skills to direct every phase of consulting service with established firm. Salary open. Moving expenses paid. All replies will be acknowledged and treated in confidence. Write Box #736, PROGRESSIVE ARCHITECTURE. (An equal opportunity employer).

WISCONSIN PROJECT COORDINATOR—Participate in State of Wisconsin's $300 million building program. Need degree and seven years architectural experience, four of which involved administrating major architectural projects. Opportunities also exist for less experienced Architects. Eligibility for Wisconsin registration as Architect necessary. Location Madison. Apply immediately: Bureau of Personnel, 1 West Wilson, Madison, Wisconsin.

SITUATIONS WANTED

ARCHITECT—Experienced American Architect, degree, registered in several states, currently in private practice, age 35, married; seeks permanent position or opportunity in France. Resume on request. Box #737, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Two degrees Harvard. Registered two states. Age 39. Thirteen years comprehensive experience. Can do anything in profession with imagination and versatility. Particular skill in program analysis, design and project development. Desires permanent top position with real future. Interested New England, New York. All serious replies acknowledged. Box #738, PROGRESSIVE ARCHITECTURE.

ARCHITECT-RENDERER—Four years designing experience in office, ecclesiastical and educational buildings. Proficient in Casein water color rendering. Desires a position with advancement in established architectural office, would prefer Canada and United States. Age 26, married, Philippine registration. "The Architect", 313 Durango Street, Makati, Rizal, Philippines.

ARCHITECTURAL DESIGNER—What small or medium sized architectural office, preferably West Coast area, is interested in good contemporary design and in need of a reliable Architectural Designer? I am 31, imaginative, love my profession. Received architectural University education in West Germany, have seven years of experience in the United States. Box #739, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL GRADUATE—26, married, family. B.Architecture, University of Michigan. Four years experience in residential, educational, and commercial projects, all phases. Desires responsible position, leading to association, etc., with small to medium well established progressive architectural firm. Resume upon request. Box #740, PROGRESSIVE ARCHITECTURE.

DESIGNER—With special responsibility and many years of service with the firm of Eero Saarinen & Associates is seeking design position with an architectural firm. Box #741, PROGRESSIVE ARCHITECTURE.

DESIGNER-ARTIST — Woman artist-designer associated for sixteen years with architectural firm as color coordinator and consultant, available to architects and industries on free-lance or time basis. Box #742, PROGRESSIVE ARCHITECTURE.

INTERIOR DESIGNER—Young woman, thoroughly experienced, in long association with architects, designers on major projects, seeks position with architect or interior design firm. Will travel. College graduate in design, well-traveled, personable. Resume available. Box #745, PROGRESSIVE ARCHITECTURE.

REGISTERED ARCHITECT—Age 30, married with family, desires permanent position in Rocky Mountain or Pacific Northwest area. Architect for $3 million worth of construction for investment firm last year in three states. Capable of all phases of practice with six years experience on all types of buildings. Resume on request. Box #743, PROGRESSIVE ARCHITECTURE.

STRUCTURAL ENGINEER—Ph.D., P.E., 30, interested in joining progressive minded A&E or Consulting Engineering firm in East. Six years experience of structural analysis and design. Resume upon request. Available for personal interview. Box #744, PROGRESSIVE ARCHITECTURE.

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