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Progressive Architecture® September 1967

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107 EDITORIAL

P/A's Editor comments on the recent international architects' conference held in Prague.

COMMENTARY AND ANALYSIS

- 108 **FORTUNATE SCHOOL:** Association of two prominent architectural firms produced a handsome, straightforward solution to the problem of accommodating complex equipment and facilities for a large high school's unusually sophisticated educational program. **THE PERKINS & WILL PARTNERSHIP, THE ARCHITECTS COLLABORATIVE, ASSOCIATED ARCHITECTS.**

- 116 **SELECTED DETAILS:** Precast concrete mullion, precast bench and rail, New Trier West High School, Northfield, Ill.

- 118 **ANOTHER LOOK AT ECLECTICISM:** Eclecticism—the movement in architecture and the “allied arts” that gave us the pseudo-Colonial house and the Roman bank — has often been assailed as immoral and basely motivated. This article attempts to re-evaluate the attitude of the Eclectics.

- 128 **COLOR IT COLOR:** Color consultant Faber Birren reports on scientific research that overthrows classical theories of light perception and indicates the existence of a distinct world of color within man's consciousness. Architects will recognize the implications for design of interior environments, and, by extension, of our cityscapes.

- 142 **CO-OP BUILDS CO-ED DORMS:** Co-ed dormitory commissioned by a student cooperative stresses individuality of room design. **RATCLIFF, SLAMA, CADWALADER, ARCHITECTS.**

INTERIOR DESIGN DATA

- 134 **S.O.M. DETAILS FOR THE MINIMAL AGE:** What was probably the first example of Minimal Interiors is to be found, paradoxically, within one of the last great palaces of the International Style, the Banque Lambert in Brussels. **SKIDMORE, OWINGS & MERRILL, ARCHITECTS.**

ON THE JOB

- 157 **DESIGNING LIGHTING FIXTURES:** Methods used by designer to design office lobby lighting fixtures for best bid price; design drawings are compared to shop drawings of the successful bidder.

MATERIALS AND METHODS

- 148 **WEATHERING STEELS BECOME LOADBEARING:** Designers of two new buildings have found ways to eliminate externally applied fireproofing, thereby allowing weathering steels to be both loadbearing and exposed to the elements.

- 151 **URETHANE FOAM FILLS A VOID:** Urethane foam is used to insulate ducts and chilled water pipes in the air-conditioning system of an existing building. Foam cures moisture condensation problems and improves total system efficiency.

- 154 **CALKS AND SEALANTS:** Oscar L. Vaughan and C. Arlen Hile have tabulated physical properties, costs, and specifications for application of the newer sealing materials.

- 152 **THE HELIODON:** Kansas State University's push-button version of a device for simulating sun and shadow patterns on architectural models can also serve as a 50-seat classroom, a rapid-change psychometric chamber, or an acoustics laboratory.

P/A NEWS REPORT

- 51 Labor contracts boost building costs . . . Bunshaft designs Hirshorn Museum . . . Luckman bank wins plaudits of Cleveland Fine Arts group . . . UIA meeting . . . Ecology: Man shapes his environment . . . Products . . . Data . . . Washington/Financial column.

P/A OBSERVER

- 160 **SWINGING IN IPANEMA:** In designing a Cultural Center for Youth for Rio de Janeiro's Ipanema section, architect Paulo Casé has created an exciting arrangement of spaces, levels, and events for a small site.
- 164 **FUN WITH FUNNELS:** The conversion of a concrete warehouse into a branch bank at water's edge was accomplished with tasteful emphasis on nautical themes.
- 166 **OUT OF THE ATELIER AND INTO REALITY:** Two projects designed and executed by students at the Yale School of Architecture illustrate the student's desire for involvement in real social processes as well as actual design problems.

- 170 **AS YE SEW, SO SHALL THEY REAP:** Though empty now and awaiting demolition, New York City's Singer Building has suffered few changes in the 60 years since its construction.

- 172 **NIGERIAN NEW TOWN:** A young Nigerian's solution to the problem of developing a "primitive" village to accommodate contemporary economic activity without sacrificing the community's traditional social structure.

MECHANICAL ENGINEERING CRITIQUE

William J. McGuinness explains how educational buildings can use gas- or oil-fired total energy installations to generate electric power, provide climate control, and produce hot water.

SPECIFICATIONS CLINIC

Harold J. Rosen continues a presentation of useful guidelines for better specifications writing.

IT'S THE LAW

Bernard Tomson and Norman Coplan conclude a discussion of the legal validity of aesthetic considerations as bases for zoning regulations.

BOOK REVIEWS

A cross-section of significant new books.

6 VIEWS

Our readers' comments on the architectural scene.

COVER

Community Center, New Zion, Ky. Photo: Alberto Lau.

106 FRONTISPIECE

Street scene, Prague, Czechoslovakia. Photo: Jan C. Rowan.

105 TITLE PAGE

From the writings of the Danish poet and mathematician, Piet Hein.

234 JOBS AND MEN

236 DIRECTORY OF PRODUCT ADVERTISERS

239 READERS' SERVICE CARD

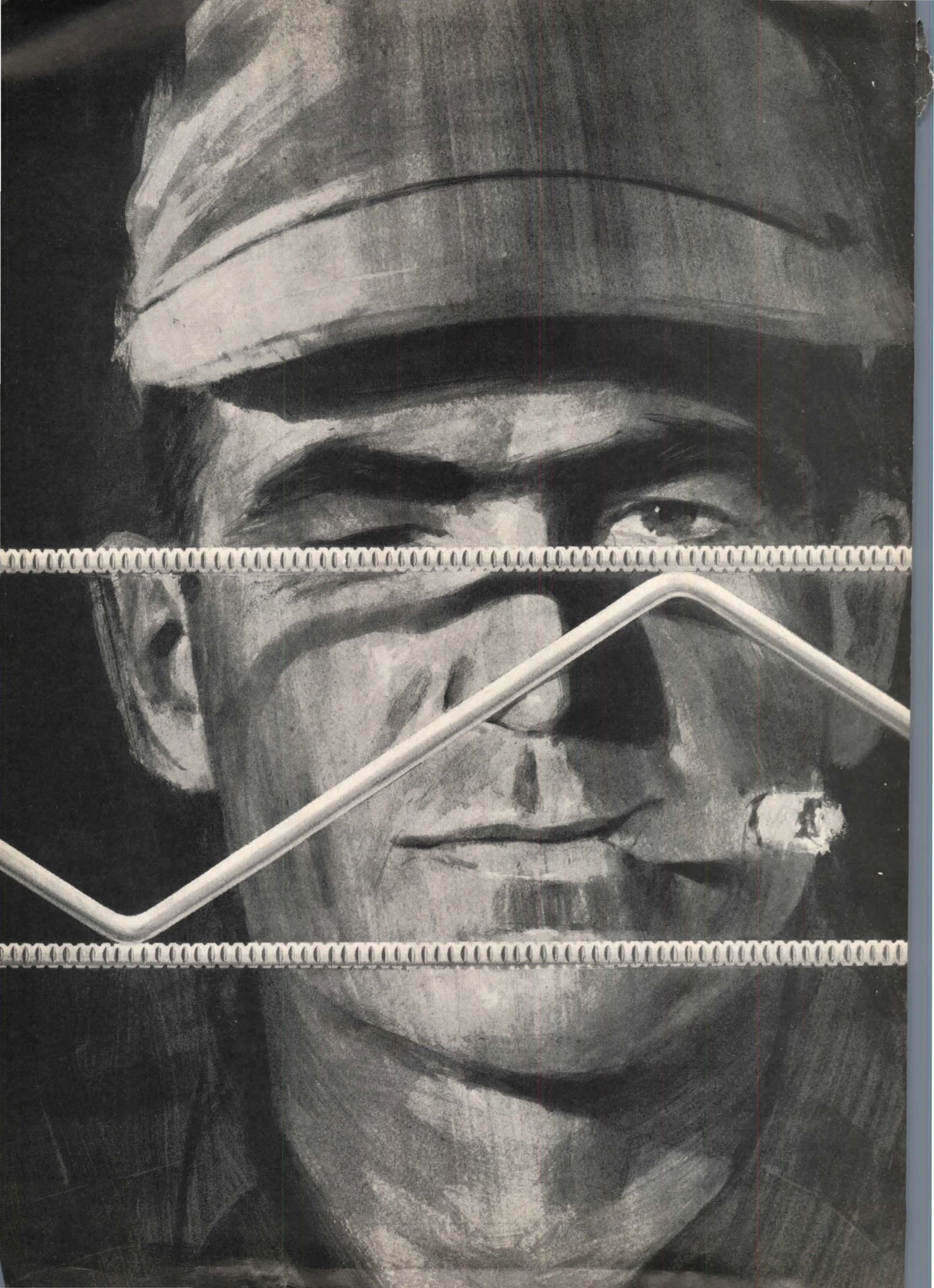
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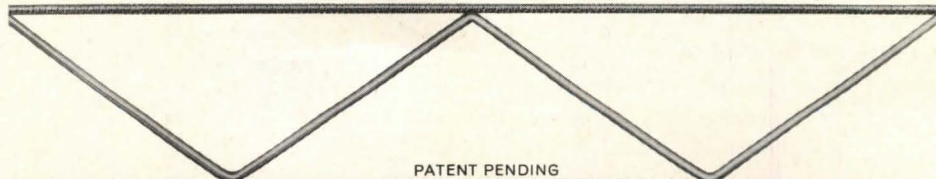
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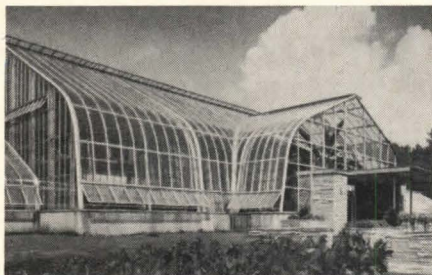
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VIEWS

Filling Architectural Voids

Dear Editor: This is just a short note to compliment you on your fine review of Lawrence Halprin's "Experiment in Environment" (JULY 1967 P/A). This kind of experience is very valid and has to be made available to more of us in the field of environmental planning.

Your timely Editorials and articles are filling a large void in the area of the profession's publications, and it is time someone in the field that is responsible for the environment we live in addressed himself to the real problems of society, not just the mechanics of architecture.

ROBERT M. BAKER
Goleta Regional Planning Office
Division of Beaches and Parks
State of California
Santa Barbara, Calif.

Halprin's Happenings

Dear Editor: I read your Editorial in the JULY 1967 P/A and glanced through the issue. My observation is that you do need a good night's sleep.

The Halprin Happenings in California, and the Dunlap-Rocha thing here in Kansas City described in the OBSERVER section, may be *it* for something but I doubt if it is "progressive architecture."

FRANK GRIMALDI
Kansas City, Mo.

[Perhaps one should read rather than glance at the text before commenting on it. — Ed.]

Humor Reconsidered

Dear Editor: The publication of the letters along with the photographs of "The Shaking Minarets of India" in the JULY 1967 P/A is childish and in sheer bad taste. Any attempt at ill humor of this nature brings forth nothing but disgust and condemnation.

GAJINDER SINGH
San Francisco, Calif.

[The article was published in appreciation of the charming sense of humor of its author, Mr. Giri Raj Kapoor. — Ed.]

Urbicide

Dear Editor: As a citizen of Ann Arbor, Michigan, I would like to point out that the apartment house by King & Lewis, published in the JULY 1967 P/A as an example of slip-form construction, is perhaps the most socially objectionable building ever put up in the town. It will incredibly overcrowd an already congested area and overtax the city's facilities in every way. It is even doubtful whether

the added tax revenue from the structure will compensate for the services it will require. The thing is uricide in every way. It is truly amazing that a magazine that purports to be interested in the improvement of cities would publish this building.

LEONARD EATON
Professor of Architecture, University of Michigan
Ann Arbor, Mich.

[The article on slip-forming sought to describe a fast construction method aimed at producing economical high-rise apartment buildings in which the acoustic privacy between dwelling units is improved greatly by the characteristics of the structural system itself, a development that does indeed promise to enhance urban living so long as high-rise apartments continue to be built in cities. Neither the designers, King & Lewis, nor P/A commented on the wisdom of erecting 300 apartment units on the site in question; that is a criticism Prof. Eaton might better direct to Ann Arbor's zoning officials. — Ed.]

Man and His Nationalism

Dear Editor: The architects of Canada will be grateful for the comprehensive attention paid Expo 67 in the JUNE 1967 P/A. Several of my colleagues in Canada have drawn to my attention, however, what they feel is inadequate recognition of the role of the Canadian profession in what is overwhelmingly a Canadian achievement.

The really remarkable aspect of Expo is not the virtuosity of individual buildings or the mere reiteration of structural techniques, but the concept itself in master planning terms and the organizational techniques that made Expo 67 a triumph in contrast to immediate past failures.

Basic to the Expo story is the fact that architects had direct access at all times to ultimate authority in the person of the Commissioner General of the Canadian Corporation for the 1967 World Exhibition, The Honourable Pierre Dupuy. A brilliant Chief Architect, Edouard Fiset, and his dedicated Deputy, Rudolf Papanek, gathered together an outstanding team of architects, planners, and designers. They were assisted in a consultative way throughout the entire planning and design process by an Advisory Committee on Architecture of 11 Canadian architects, themselves of substantial reputation. It was to this committee, through the whole process, that innumerable questions of design were turned, and, in some instances, appeals to the Commissioner General made. It was the direct access to the Commissioner General and his un-

Continued on page 14

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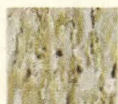
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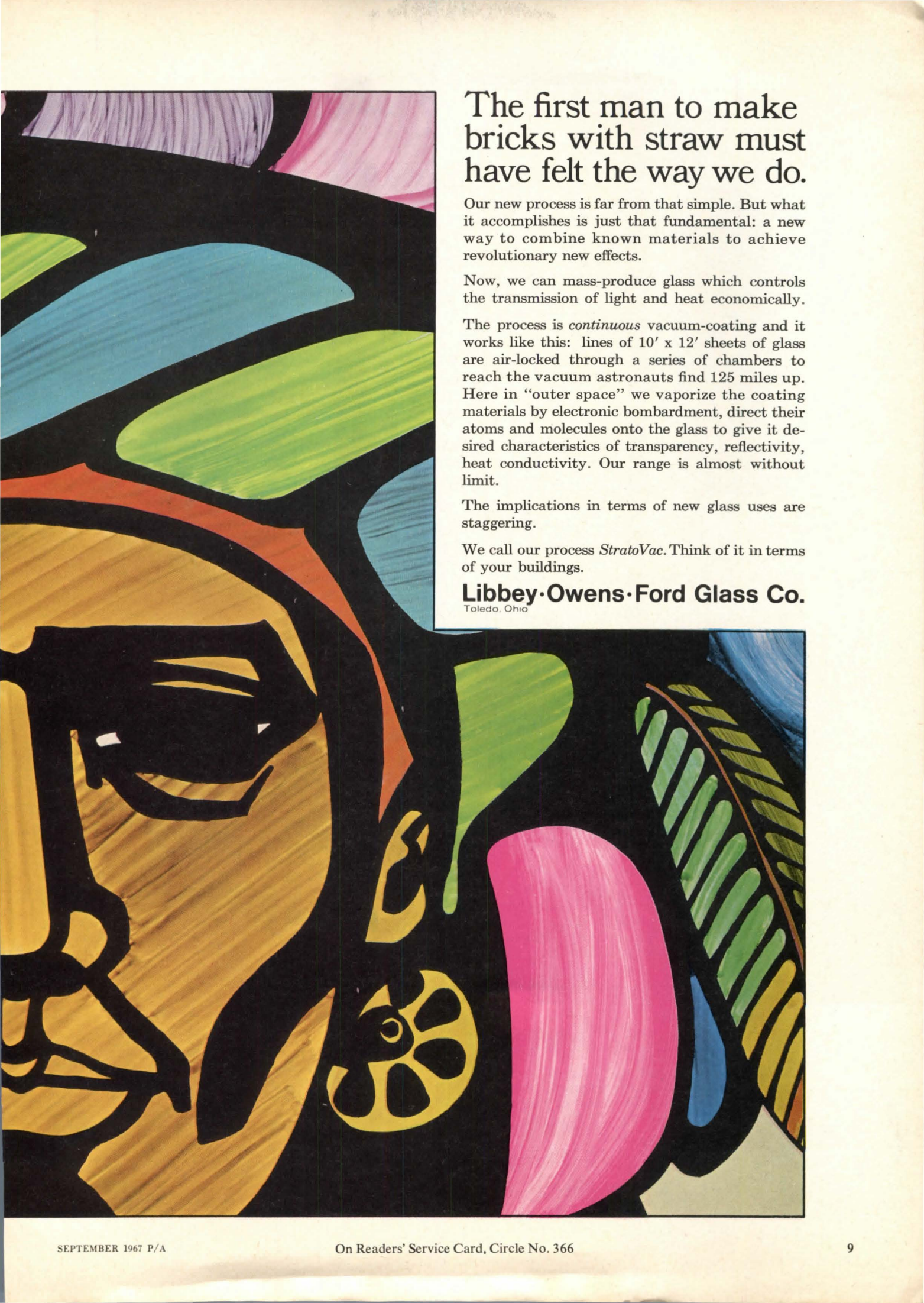
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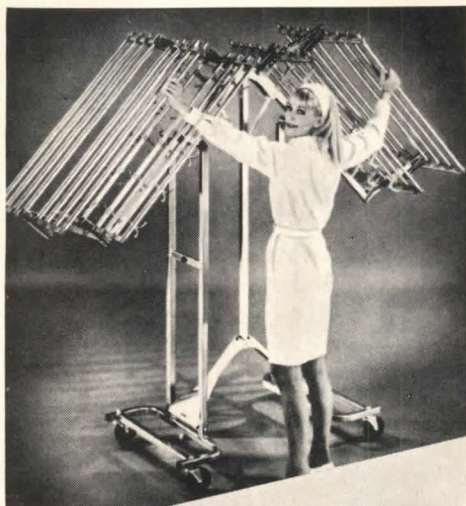
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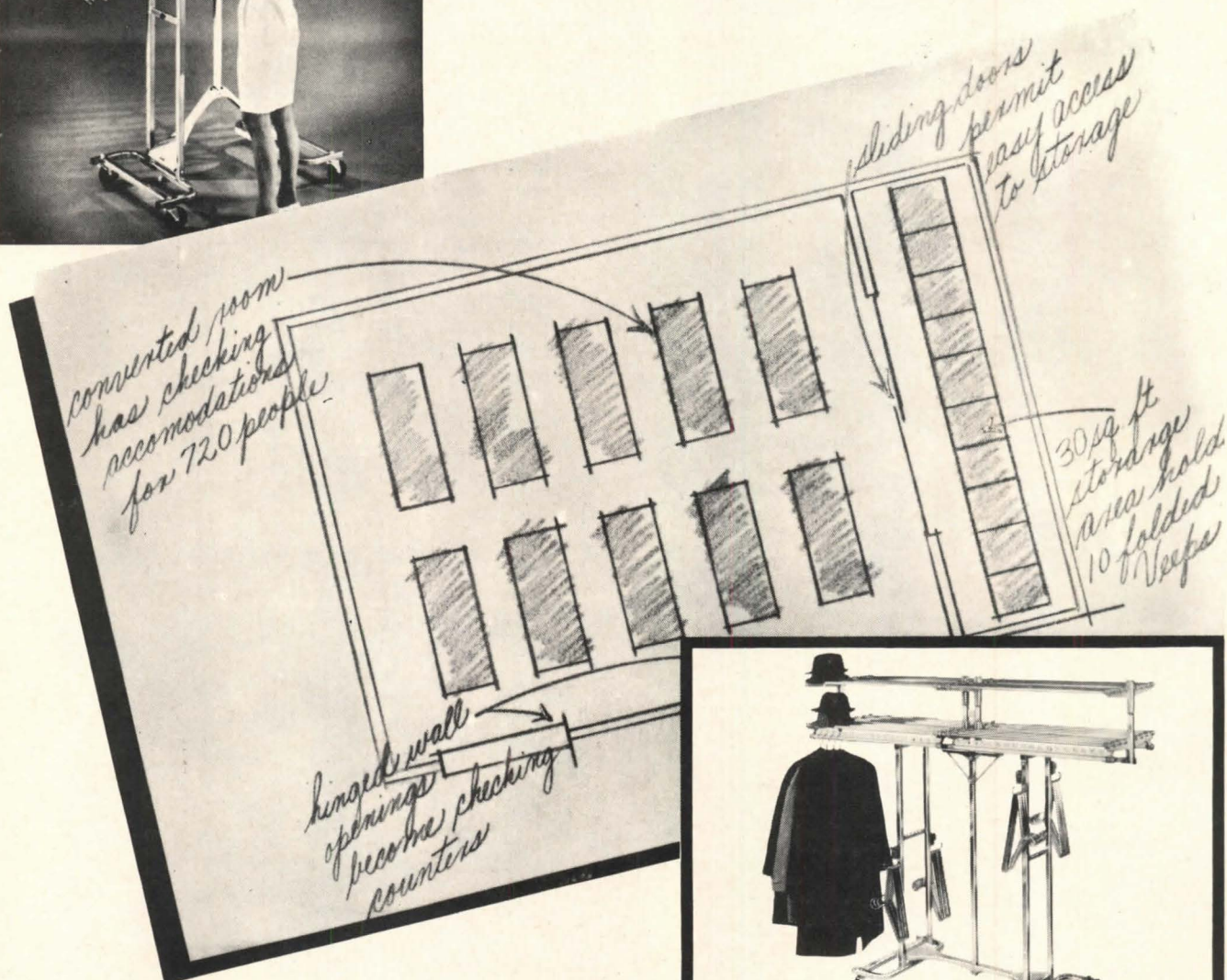
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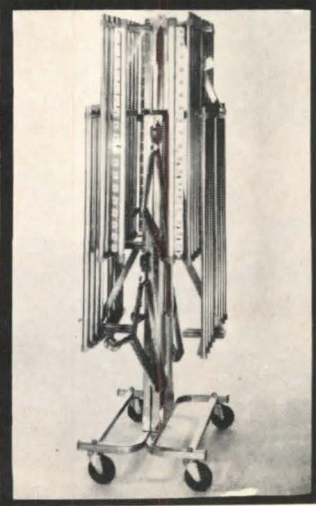
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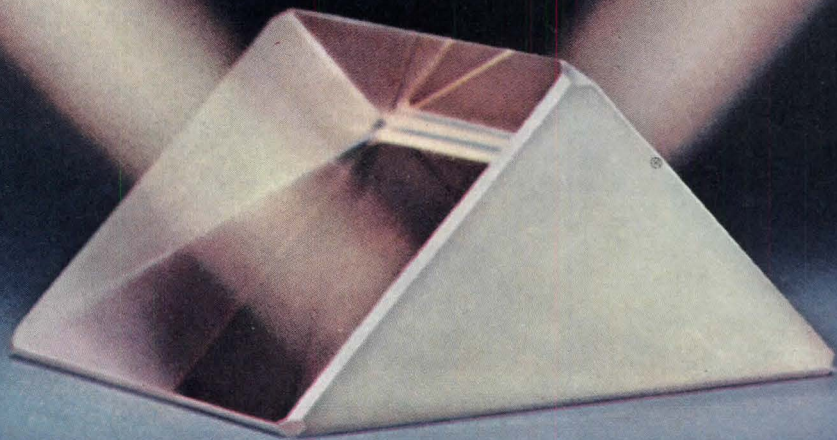
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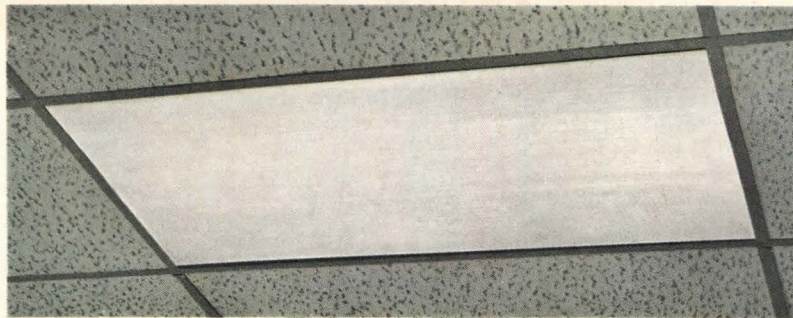
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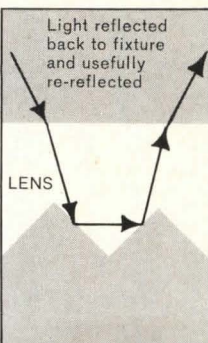
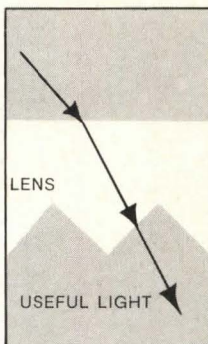
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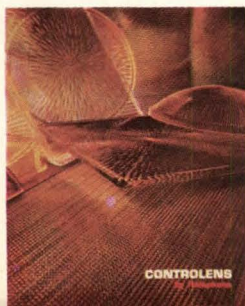
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Continued from page 6

doubted empathy which made the Expo story a successful one. All individual achievements at Expo are of relative insignificance when contrasted with this happy organizational pattern.

JOHN C. PARKIN
Chairman, Architectural Advisory Committee
Canadian Corporation for the 1967 World Exhibition

[In spite of the fact that a major emphasis of our story was on Canadian achievement, admittedly we neglected to include the words and music to O Canada. Vive Le New York Libre! — Ed.]

The Trip's the Thing

Dear Editor: I have just finished reading your article on Expo 67 (JUNE 1967 P/A) and have found that the only thing left to be desired is a trip to the fair. Congratulations on a very thorough and well-written commentary.

LLOYD A. HART
Houston, Tex.

A Boon for Burns

Dear Editor: Thank you for the issue on Expo (JUNE 1967 P/A). It is clear work right through—in editing, in photographs, in explanation, in comment. You

and your editors, especially Mr. Burns, deserve great credit.

ETHEL DEAN
New York, N.Y.

Cuba and the "Dark Suits"

Dear Editor: I wish to thank you for your fascinating coverage of Expo (JUNE 1967 P/A).

I am sorry, however, that the Expo people did not explain to you the reason for the men in dark suits standing everywhere around the Cuban pavilion. It is that Cuba has been threatened, through letters, phone calls, and even declarations published in newspapers, with having its pavilion blown up by Miami anti-Castroists. Neither Expo nor Cuba wants this to happen and the Royal Mounted Police have two men on watch 24 hours a day. Cuba did not intend such a show of "dark suits" but rather was forced to do it to avoid death tolls. (The Cuban Embassy in Ottawa was bombed last summer.)

FRANCOIS ROUSSEAU
Montreal, Canada

The Case of the Hidden Credits

Dear Editor: I would like to congratulate you on your June issue, which I feel is the finest publication on the planning and architecture of Expo 67 to date. I only regret, however, the lack of credit given to the architects whose works are illustrated and described.

EDOQUARD FISET
Chief Architect, Canadian Corporation for the
1967 World Exhibition
Montreal, Canada

[Credits were listed, on p. 256, a fact we neglected to mention in the article itself. — Ed.]

WHITE PINE SERIES OF ARCHITECTURAL MONOGRAPHS, edited by Russell F. Whitehead: Anyone interested in purchasing numbers from Vols. V through XIII should contact Mrs. Christiana S. Graham, 440 D Grinnell Drive, Claremont, Calif.

CORRECTIONS:

■ In the Introduction to "Light and Air Houses," p. 106, JULY 1967 P/A, the architect mentioned as working with Peter Gluck should have been listed as Robert Rhodes.

■ The Selected Detail credit on p. 159 of the JULY 1967 P/A should have been listed as Davis, Brody & Associates and Richard Dattner: Architects.

■ The renderings on pp. 139 and 142 of Haystack Village and Summit Lodge (JULY 1967 P/A) were done by Norman Jaffe. The Haystack Commercial Village was planned jointly by Bruce Graham and Norman Jaffe.



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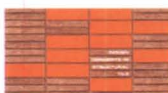
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Versatile Electric Heat Pump System Meets Unusual Space Conditioning Requirements for Radio-TV Studios



THE CASE—The new King Broadcasting Company building—home of radio and TV station KGW in Portland, Oregon—clearly illustrates the superiority of electric space conditioning systems in meeting unusual design conditions.

The problem here was to condition 54,000 sq ft of building space on three levels. The station's 100 rooms include two large studios, 70'x60'x25' and 60'x50'x25' in size, each equipped with 500 foot-candles of lighting for color telecasting and each requiring seven cubic feet of air per minute per square foot for maximum cooling. A large master control room and two computer rooms containing sensitive electronic equipment also require large volumes of conditioned air.

THE HISTORY—The new KGW building was opened in June, 1965. Architect Fred Bassetti of Seattle, Washington, designed the structure and consulting engineer Omer T. Jacobson of Portland designed the space conditioning system. Mr. Jacobson selected an electric water-to-water heat pump system because, he says, it offered advantages in installation and operating costs and pro-

vided the flexibility needed to meet the widely varying heating and cooling requirements in each area of the three-story building.

The electric heat pump system utilizes two 90-ton centrifugal compressors. Well water at 55F is used to remove or add heat to the compression cycle, depending on the building's net heating or cooling requirements. A low-pressure ventilation system distributes air throughout the building. Duct-mounted water coils heat or cool the air near its delivery points. Because of stringent cooling requirements for the large color-TV studios with their high lighting levels, and the master control and computer rooms with their sensitive electronic equipment, cooling coils are in series, with these critical areas first in the circuit. Top floor areas that overhang the floor below, and thus are exposed, have supplemental heat from water coils in the floor and finned tubing on walls under windows.

The electric heat pump system was a "natural choice" for KGW, Mr. Jacobson says, "because of the unusual cooling requirements and because the system is essentially automatic and very flexible."

SEE REVERSE SIDE FOR DETAIL INFORMATION

1 CATEGORY OF STRUCTURE:

Commercial—Offices and TV Studios

2 GENERAL DESCRIPTION:

Area: 54,000 sq ft

Volume: 910,000 cu ft

Number of floors: three

Number of occupants: 145

Number of rooms: 100

Types of rooms: radio and TV studios, control and computer rooms, offices, library, conference rooms, coffee shop, storage areas.

3 CONSTRUCTION DETAILS:

Glass: single

Exterior walls: tile on cement bed, 2" mineral wool batts (R/7), gypsum board. U-factor: .10

Roof or ceilings: lenticular design, 4½" concrete with 2" insulation (R/7). U-factor: .13

Floors: concrete

Gross exposed wall area: 19,500 sq ft

Glass area: 3,500 sq ft

4 ENVIRONMENTAL DESIGN CONDITIONS:**Heating:**

Heat loss Btuh: 1,600,000

Normal degree days: 4,150

Ventilation requirements: 9,200 cfm

Design conditions: 10F outdoors; 75F indoors

Cooling:

Heat gain Btuh: 2,690,000

Ventilation requirements: 9,200 cfm

Design conditions: 95F dbt, 68F wbt outdoors; 75F, 50% rh indoors

5 LIGHTING:

Levels in footcandles: 100-500

Levels in watts/sq ft: 5-40

Type: fluorescent and incandescent

6 HEATING AND COOLING SYSTEM:

The building is heated and cooled by an electric water-to-water heat pump system utilizing two 90-ton centrifugal compressors. Well water is used to remove or add heat to the compression cycle depending on the building's net heating or cooling requirements. A low pressure ventilation system distributes air throughout the building. Duct-mounted water coils heat or cool the air near its delivery points. Water coils are in series, with studios, master control room and computer rooms first in the circuit. The TV studios require 7 cfm per sq ft for maximum cooling. Top floor areas that overhang the floor below have supplemental heat from water coils in the floor and on walls under windows.

7 ELECTRICAL SERVICE:

Type: underground

Voltage: 120/208/277/480v, 4 wire, wye

Metering: primary

8 CONNECTED LOADS:

Heating & Cooling (180 tons) *	202 kw
Ventilation	43 kw
Lighting	534 kw
Water Heating & Cooking	54 kw
Amplifier Rack	160 kw
Power Receptacles	120 kw
Well Pump, Elevator & Misc.	115 kw
TOTAL	1228 kw

*Cooling capacity is adequate since both large studios do not operate simultaneously.

9 INSTALLED COST:*

General Work	\$ 983,161	\$17.84/sq ft
Plumbing	32,744	.61/sq ft
Electrical	74,040	1.37/sq ft
Heating & Cooling	243,357	4.51/sq ft
Lighting	43,148	.76/sq ft
TOTALS	\$1,376,450	\$25.09/sq ft

*Building was completed 6/65

10 HOURS AND METHODS OF OPERATION:

5 a.m. to 1 a.m., seven days per week.

11 OPERATING COST:

Period: 2/66 through 1/67

Actual degree days: 4,203

Actual kwh: 2,337,212*

Actual cost: \$17,280.32*

Avg. cost per kwh: 0.74 cents*

*For total electrical usage

Month	Degree Days	Demand	kwh	Amount
2/66	620	392	188,160	\$ 1,378.48
3/66	545	408	189,728	1,402.52
4/66	425	392	188,160	1,378.48
5/66	249	408	172,480	1,340.43
6/66	99	455	177,184	1,411.41
7/66	27	486	199,136	1,526.09
8/66	16	439	177,184	1,393.01
9/66	56	423	188,160	1,414.13
10/66	345	455	192,864	1,467.86
11/66	531	439	185,024	1,421.24
12/66	635	470	200,704	1,513.33
1/67	655	486	228,928	1,633.34
TOTALS	4203		2,337,212	\$17,280.32

12 UNUSUAL FEATURES:

The extreme size of the TV studios (70' x 60' x 25' and 60' x 50' x 25') and the 500 footcandles of lighting required for color telecasting plus the use of sensitive electronic equipment in the master control and computer rooms posed special cooling problems. Cooling coils are in series with these areas first in the circuit.

13 REASONS FOR INSTALLING ELECTRIC HEAT:

Electric space conditioning was selected for the KGW building because it offered economic advantages in installation and operating costs; provided the flexibility needed to meet varying heating and cooling demands throughout the building; and because it could provide large amounts of cooling in the critical core areas.

14 PERSONNEL:

Owner: King Broadcasting Company

Architects: Fred Bassetti & Company

Consulting Engineers:

Mechanical: Omer T. Jacobson

Electrical: Grant Kelley & Associates

General Contractor: Howard S. Wright

Electrical Contractor: McCoy Electric Co.

Utility: Portland General Electric Company

15 PREPARED BY:

Charles M. Gates, Comm'l & Ind'l Sales Representative, Portland General Electric Co.

16 VERIFIED BY:

Fred Bassetti *Omer T. Jacobson*

Fred Bassetti, FAIA

Omer T. Jacobson, P.E.



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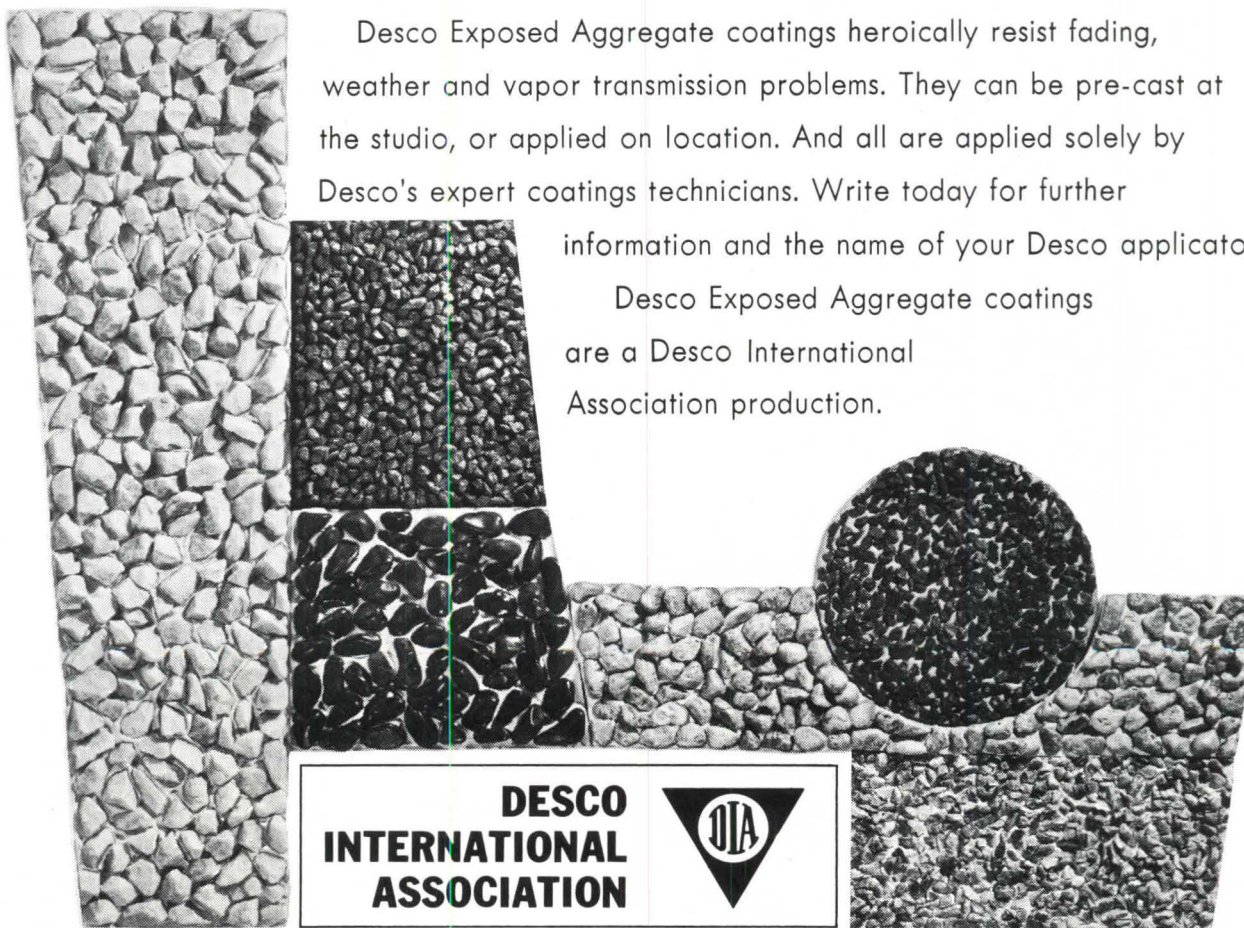
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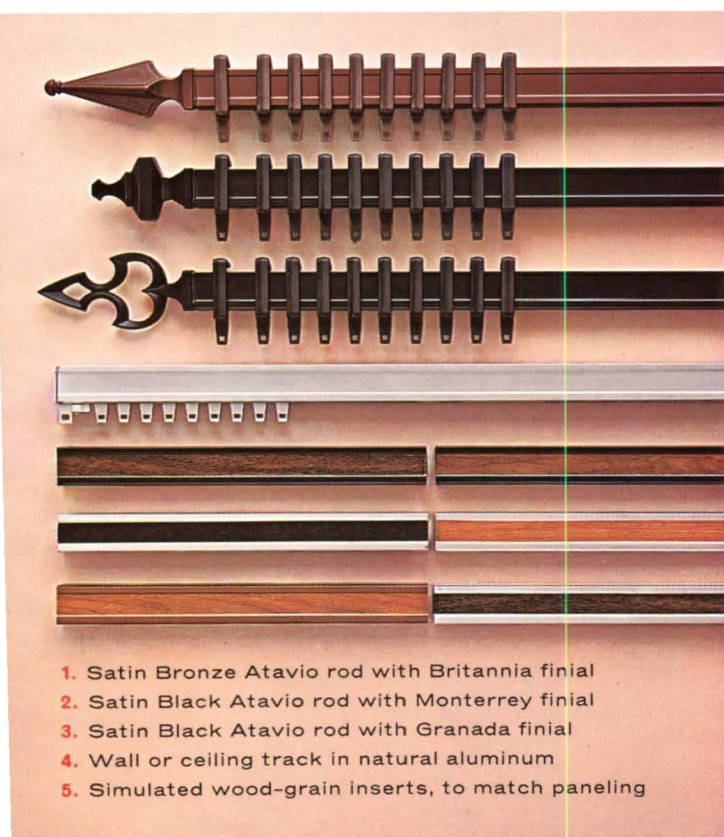
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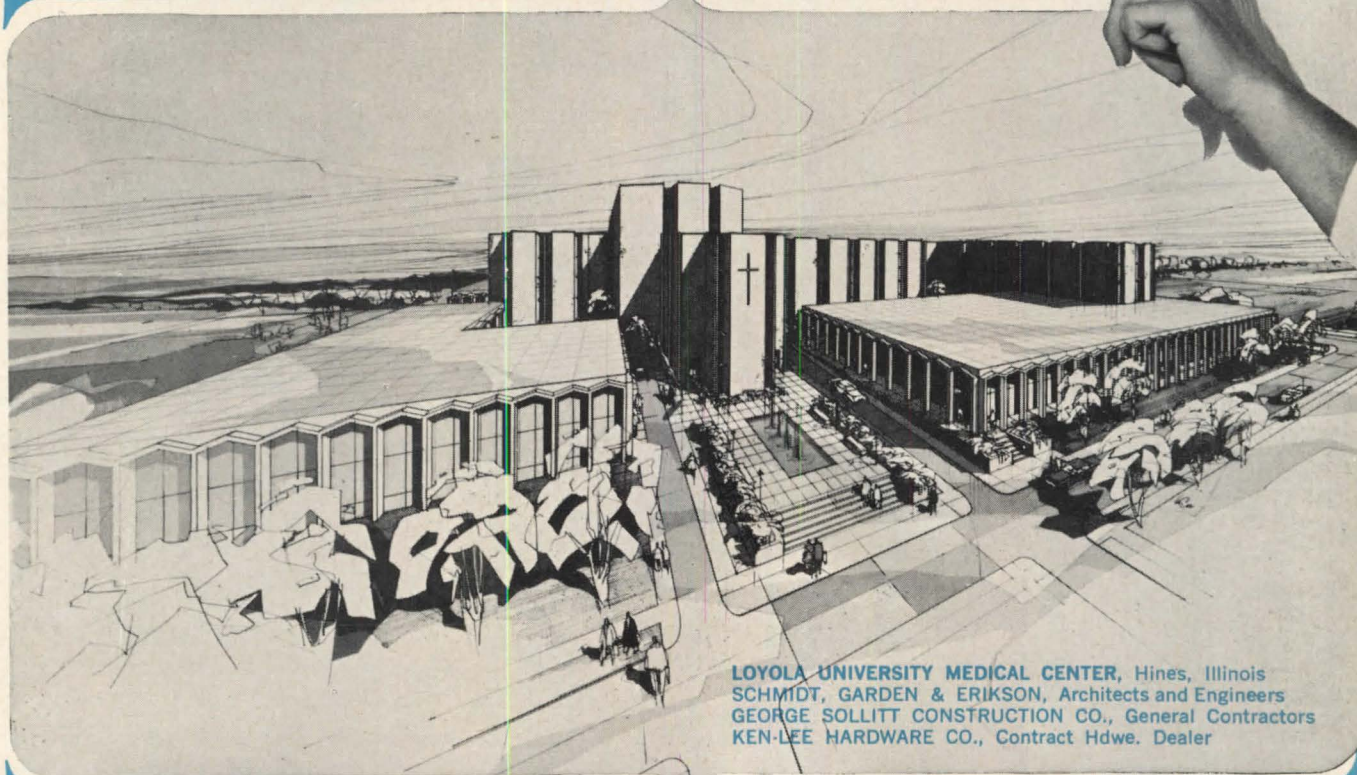
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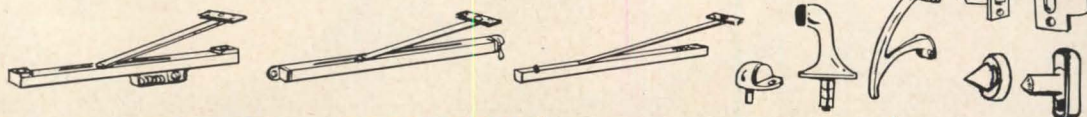


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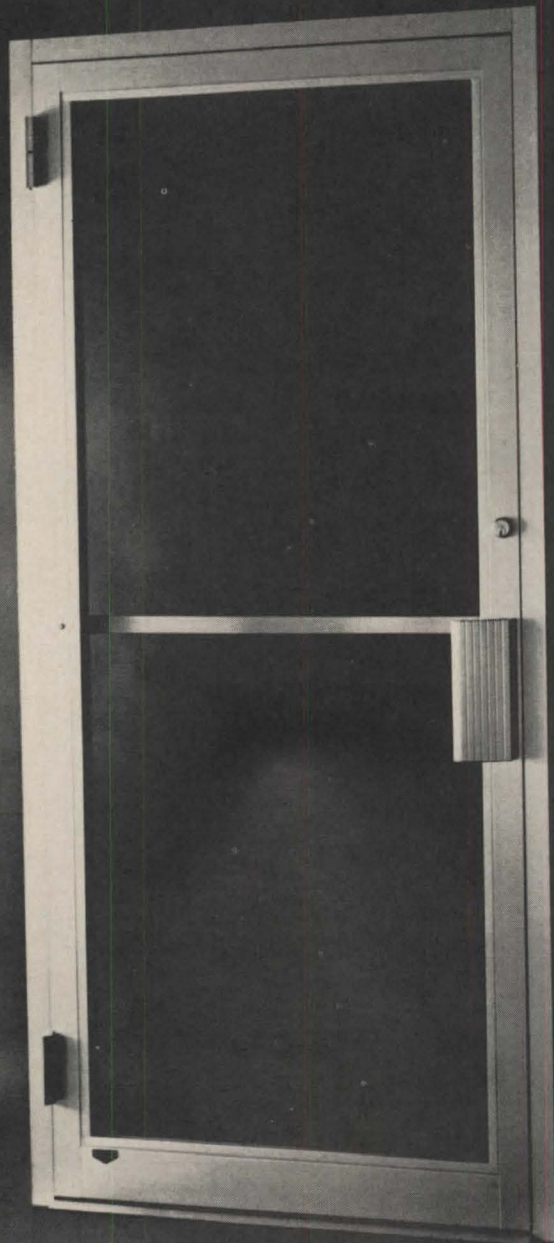
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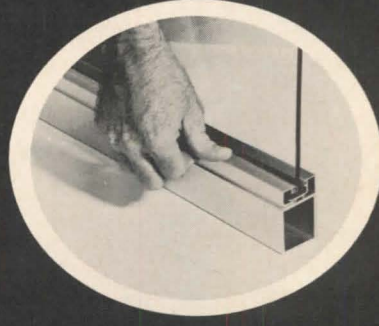
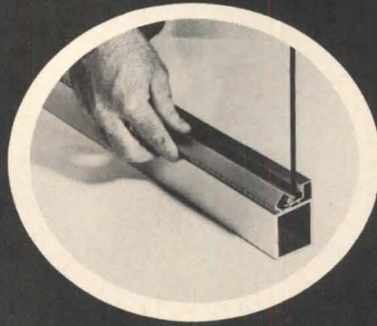
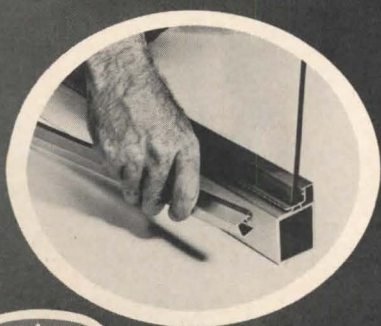


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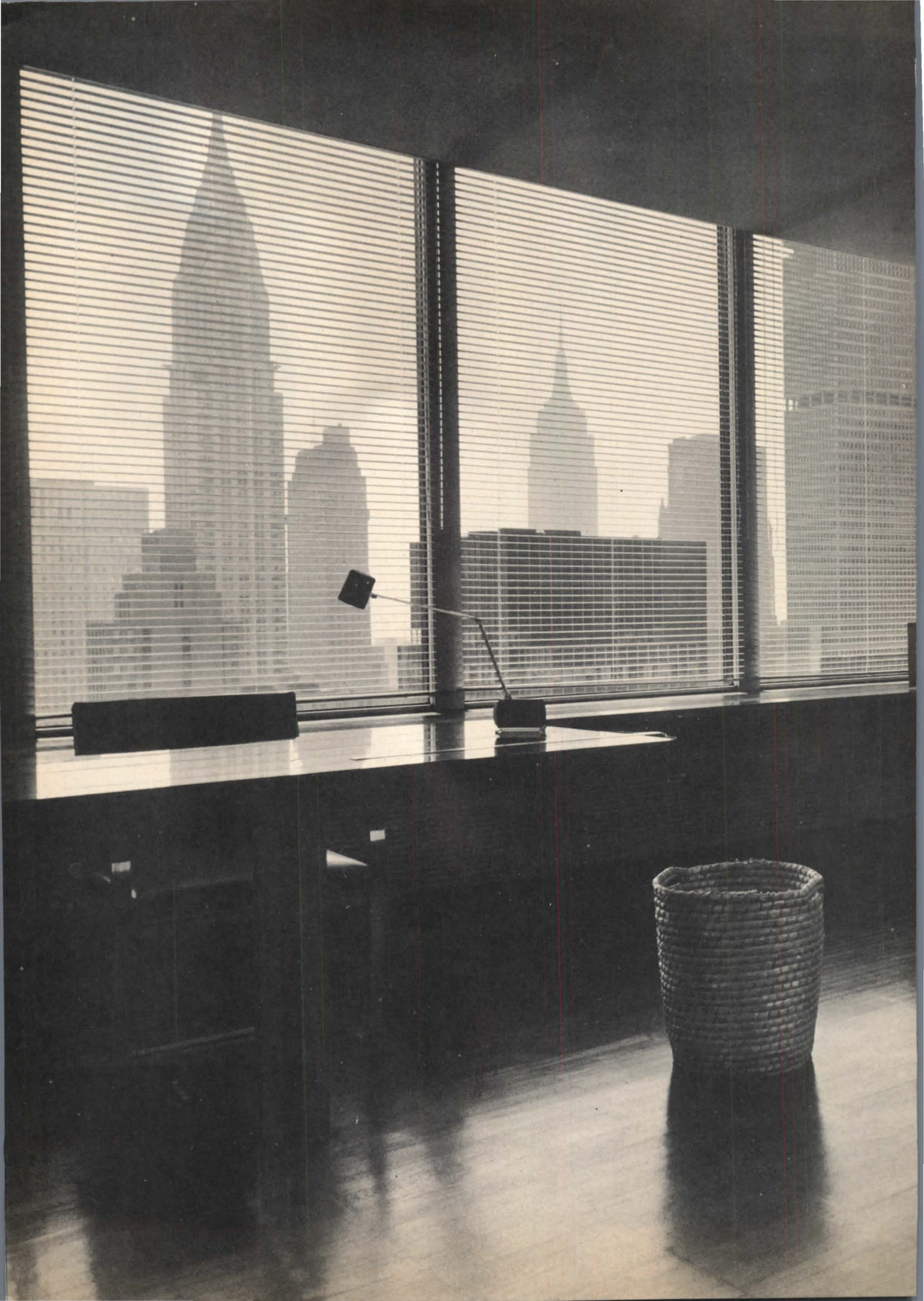
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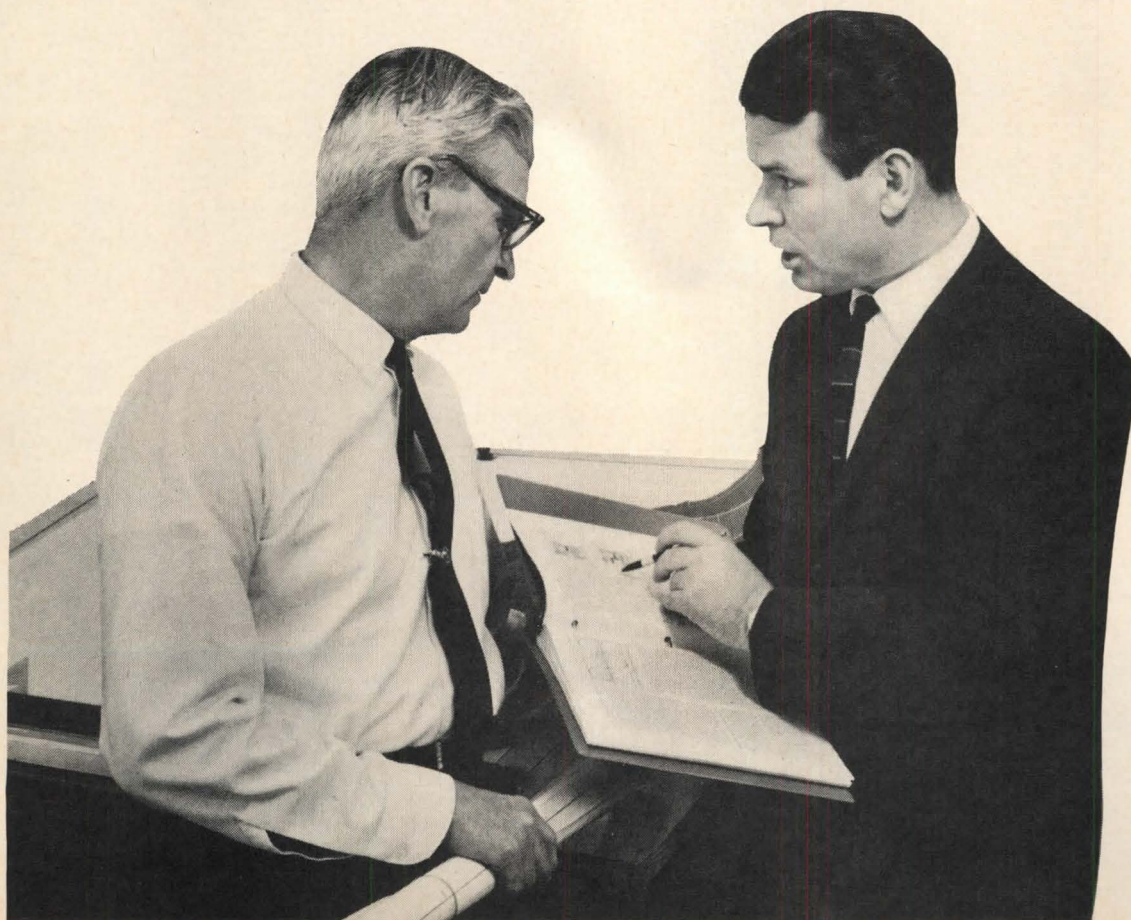
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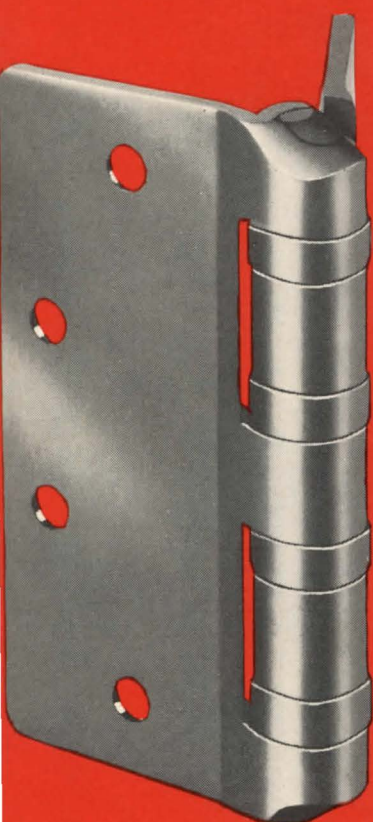


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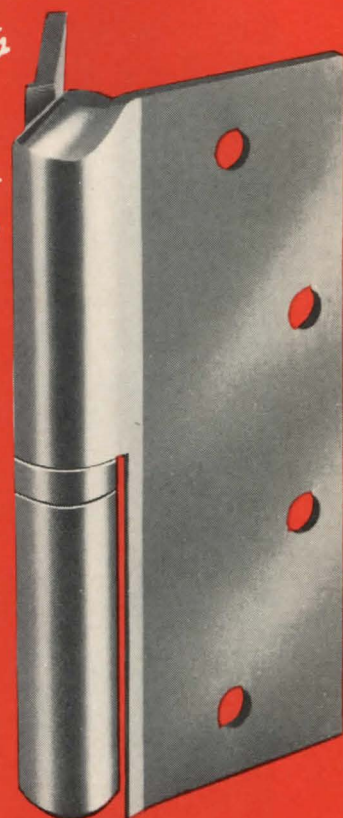
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MODERNE it's easy because the separable leaves facilitate hanging or removal of the door. In actual tests, McKINNEY MODERNE extra heavy hinges showed less vertical wear than three competitive makes of 4-bearing hinges.

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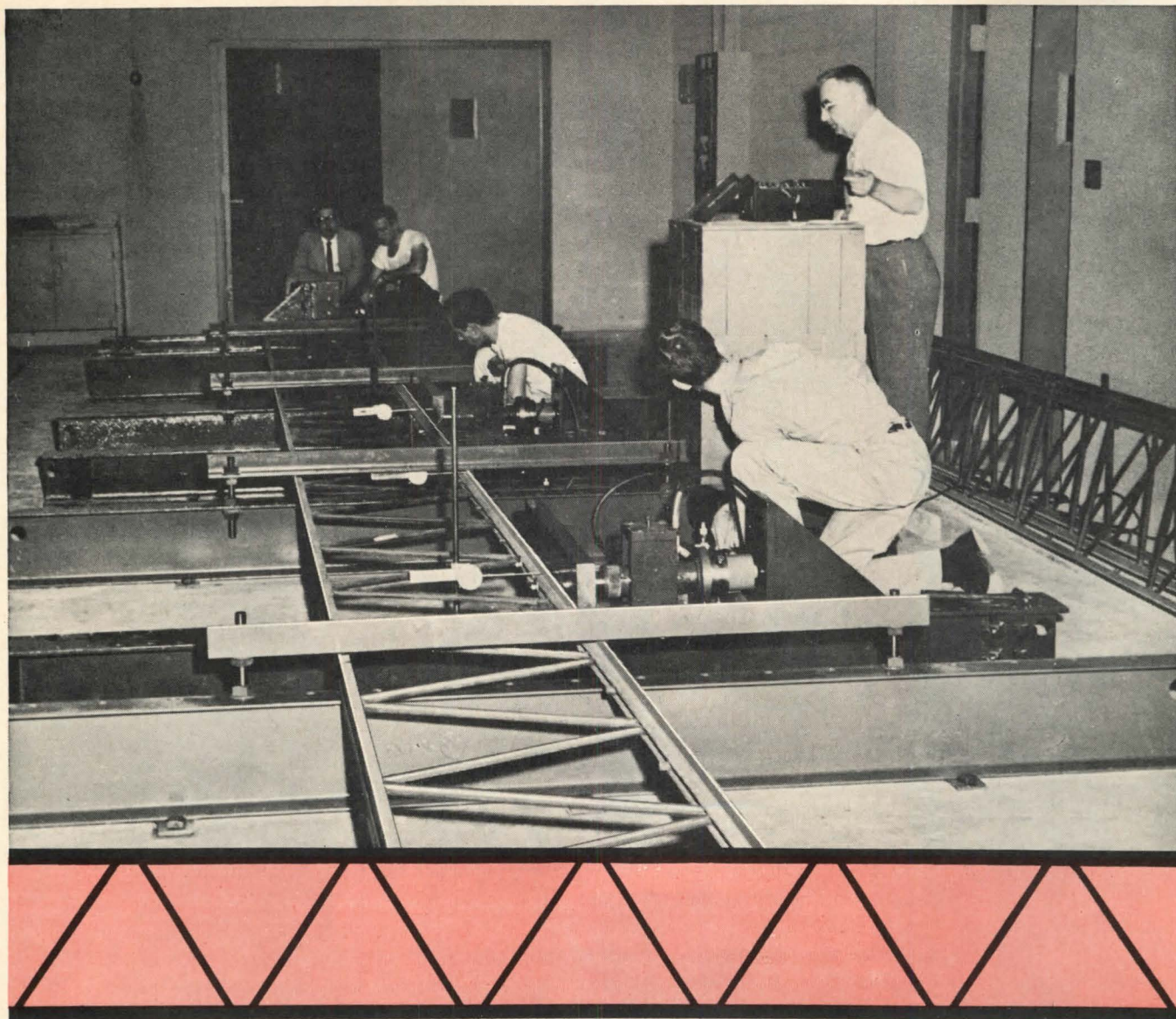
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ing Practices Committees and the Institute's consulting engineer, Dr. Theodore Galambos of the Washington University School of Engineering, St. Louis. These men are responsible for research in the technical and engineering aspects of open web steel joists.

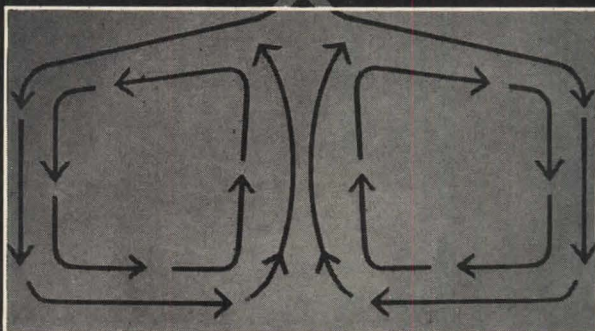
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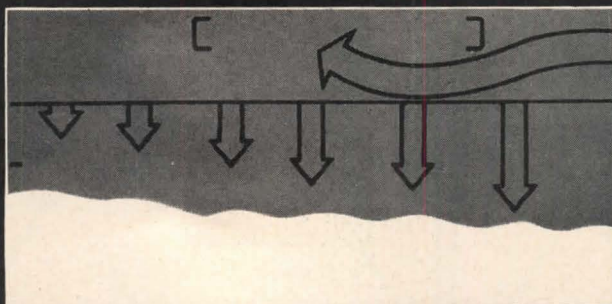
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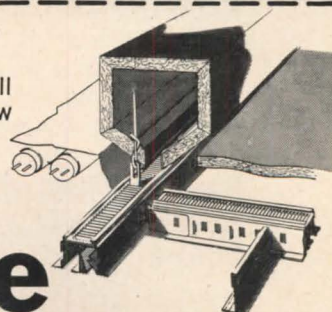
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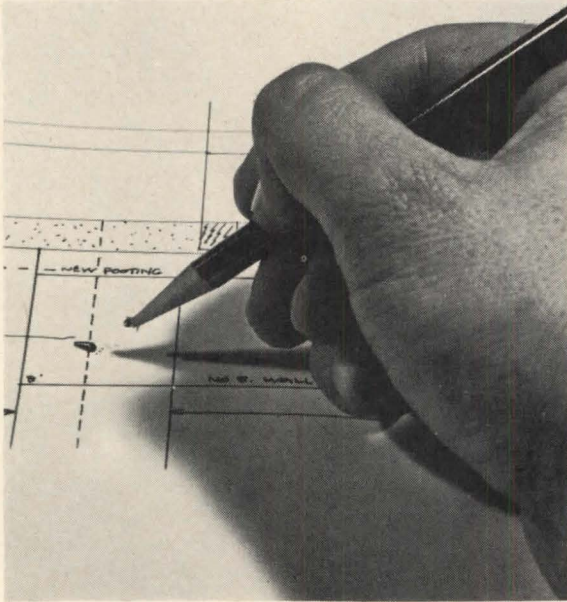
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PA-9



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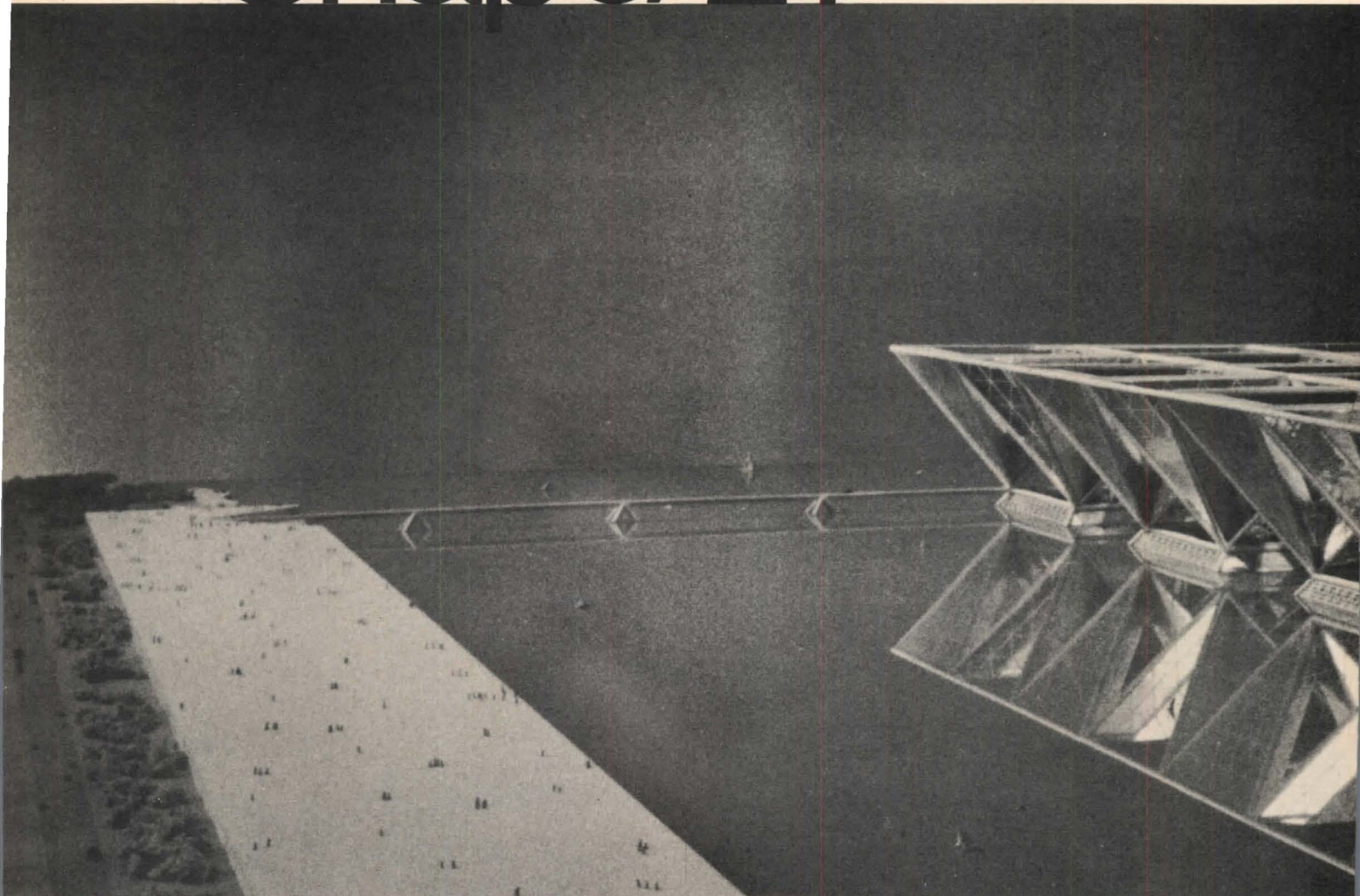
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City-Shape/21

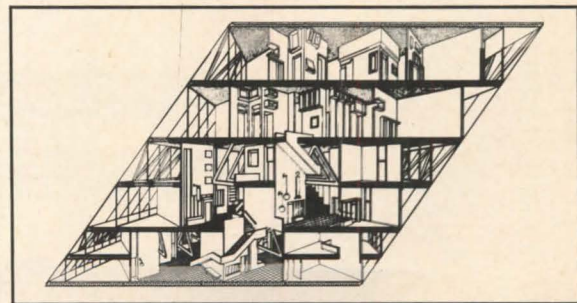


...city of the 21st century, made possible today with

A floating city. A versatile, densely-populated, off-shore extension of a city's central core area—but one that's a complete community in itself, with its own residential, municipal, commercial, and recreation facilities. A city of "truncated tetrahedron" pyramids, arranged to give each store, office, apartment, and recreation unit plenty of direct sunlight and fresh air.

City-Shape/21 could well be the city of 2000 A.D.

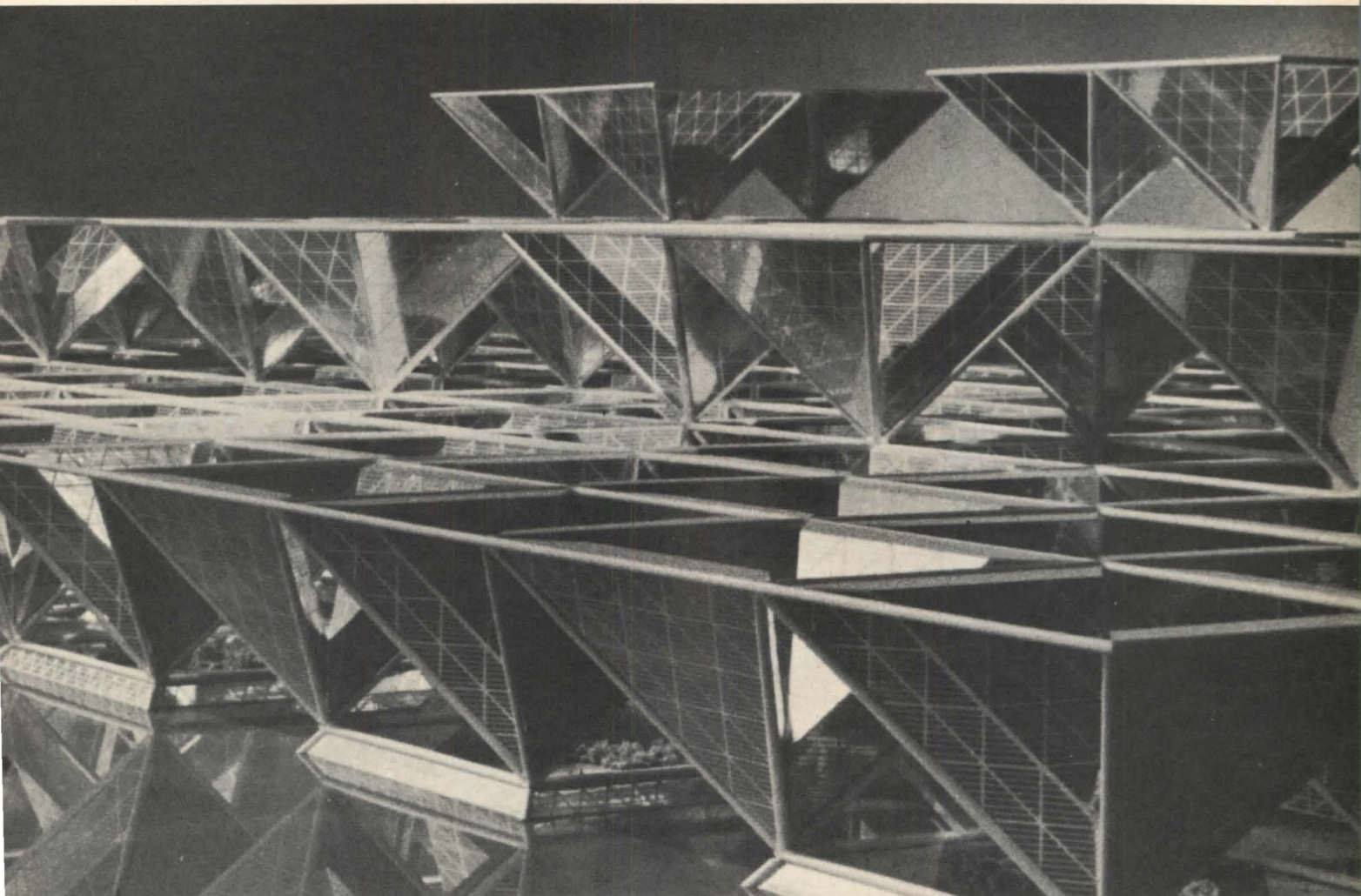
The men at Reynolds had a leading Chicago architect, Stanley Tigerman, study urban planning problems. His ideas offer an exciting glimpse of 21st century living. He suggests that we expand right out onto the water that touches most major cities. He designed a floating complex of units which he calls an "urban matrix." In its 1½ square mile area, City-Shape/21 provides about 21,500,000 more square feet of space than the Chicago Loop, 7,600,000 more square feet of open land. It has its own internal transportation system,



Basic unit of City-Shape/21, a truncated tetrahedron pyramid. Each side is 600 ft.; unit is 100 ft. thick with 46 floors for residential, commercial, and community functions.

through the hollow trusses connecting each unit.

Appropriately enough, aluminum will do a major job for the buildings of the future, just as it does for today's. Strong, lightweight octagonal trusses support the City-Shape/21 structure. Tough, rust-free aluminum cable anchors the floating city on



aluminum from the men at Reynolds.

pontoon plazas adaptable to multiple uses.

And because the city floats, the lightweight strength of aluminum is a key factor in substructures, floors, partitions, inside structurals, siding, and ceilings. Sandwich walls, secured by aluminum fasteners, enclose insulation between exterior Reynolds Concealed Clip Panels and interior aluminum sheet finished with textured vinyl laminate. Reynolds Aluminum is also used in windows, mullions, and sound-conditioning systems.

Of course, many of these same Reynolds Aluminum architectural and building products are working right now—in skyscrapers, homes, stores, warehouses, structures of all kinds. They help builders reduce costs, give owners more beautiful, more enduring, lower-maintenance buildings. And they give architects more freedom of design.

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Please send me the data kit on City-Shape/21, plus information on Reynolds Aluminum Building Products.

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REYNOLDS
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Imaginative concrete floor design cuts high rise apartment costs

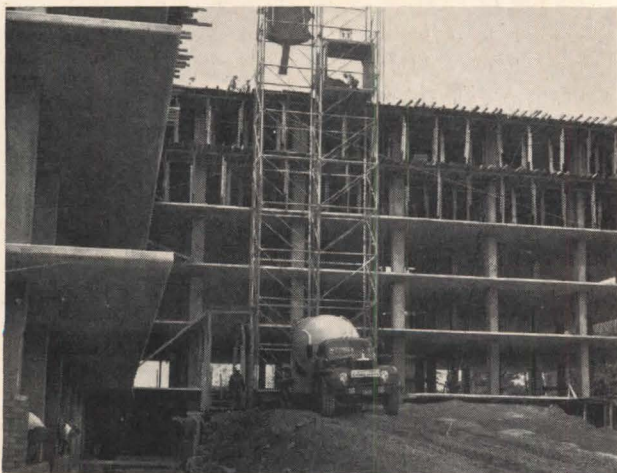
The creative design of the Dolley Madison Apartments couples maximum structural efficiency with an interesting architectural effect. And does it at a most economical in-place cost. The post-tensioned, short span design reduced the thickness of the floors to 5"—a saving of at least 1" per floor. This reduction in dead load resulted in a saving in columns and caissons. Post-tensioning also eliminated 790 lineal feet of expansion joints and all beams at openings.

With a rigid construction schedule and a minimum amount of labor, the contractor constructed 13 floors in 13 weeks and 1 day. To help maintain this schedule, the contractor used concrete made with Lehigh Early Strength Cement for completion of certain slabs to permit post-tensioning the next day. All other concrete for this project was made with Type 1 Lehigh Cement. Lehigh Portland Cement Company, Allentown, Pa.

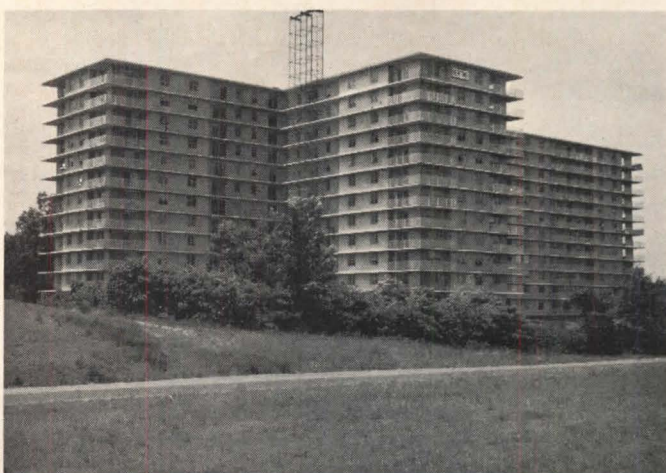
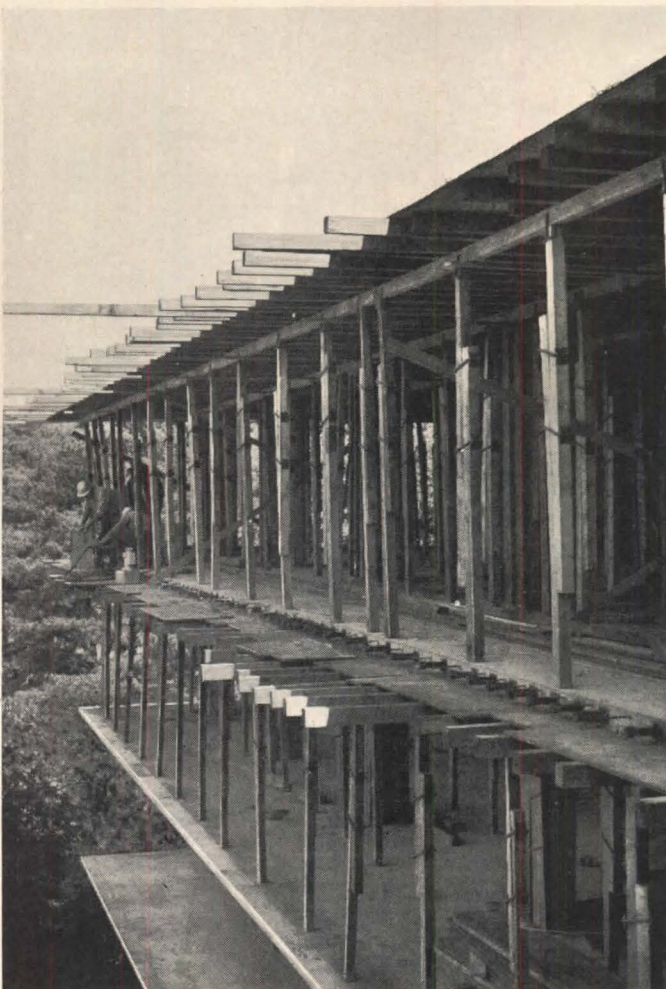
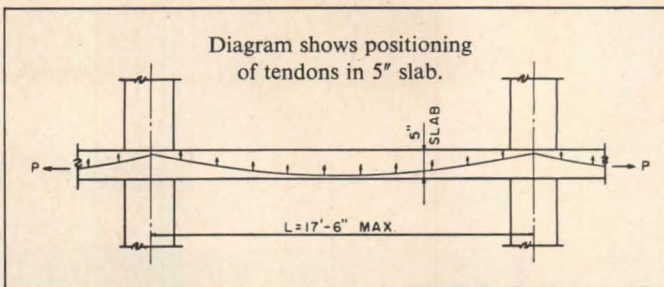
Owner: Dolley Madison Associates, Arlington, Va.
Architect: Sheridan, Behm & Associates, Arlington, Va.
Structural Engineer: Horatio Allison Associates, Rockville, Md.
Builder: Dittmar Company, Inc., Arlington, Va.
Ready Mix Concrete: Virginia Concrete Co., Springfield, Va.



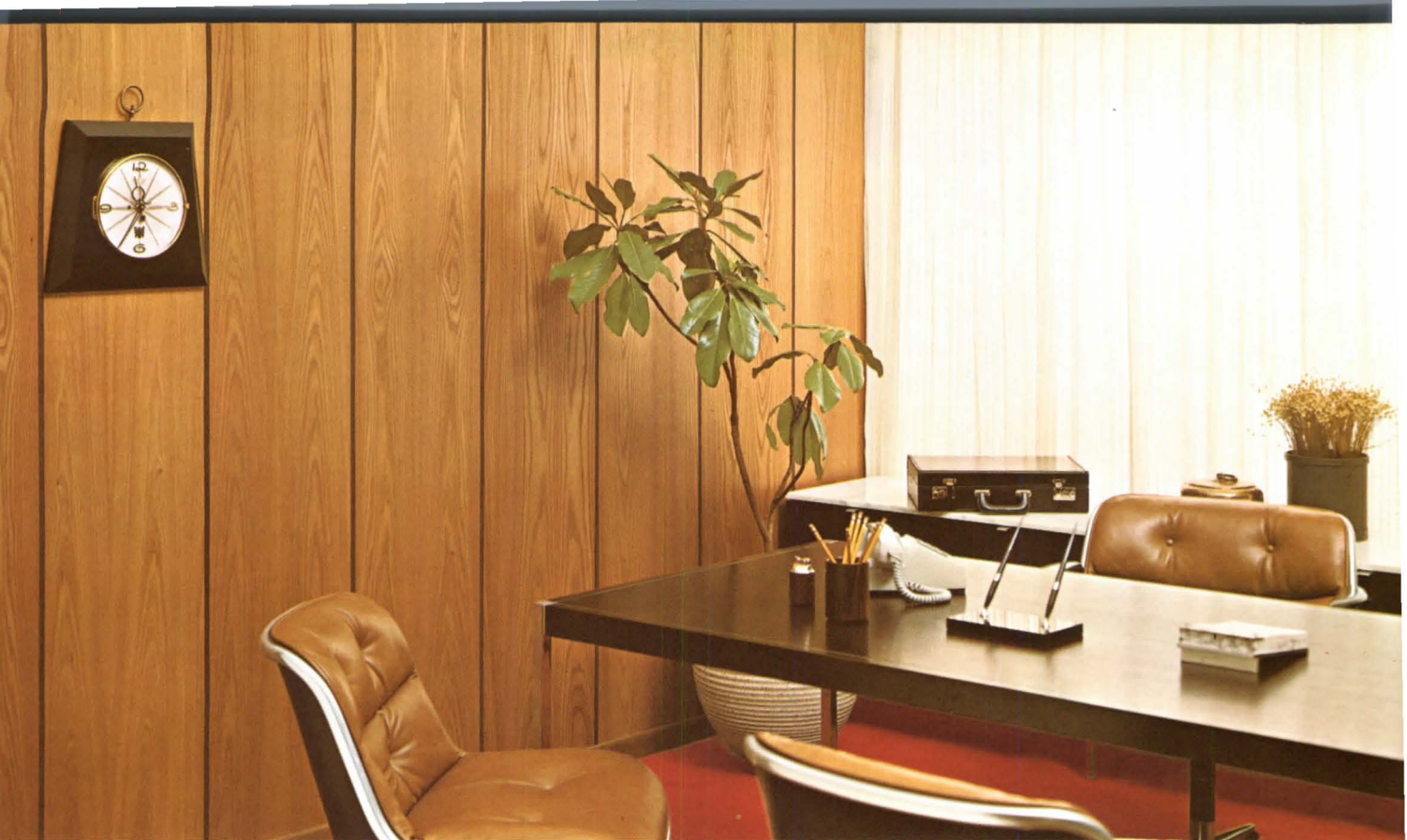
(Right) Floors are made with lightweight concrete. As concrete reached 2000 PSI, stressing began with a pressure of 11,000 lbs. After post-tensioning was completed for each floor, a closure strip was placed to cover button heads around perimeter.



Spans between columns are 15' 4" x 17' 6". Post-tensioning the 393' length of this structure was done in three sections. The center 209' 4" was placed and tensioned with jacking force at each end. Then the two remaining outside 92' sections were placed, tensioned, and tied to the already tensioned tendons of the center section. Floors are also post-tensioned in a transverse direction.



The building has an offset "T" shape. It is 65' 4" wide and 393' 4" in length. Offset T's extend 92' to front and rear and are also 65' 4" wide.



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Want a beautiful way to lick fire and sound control problems?

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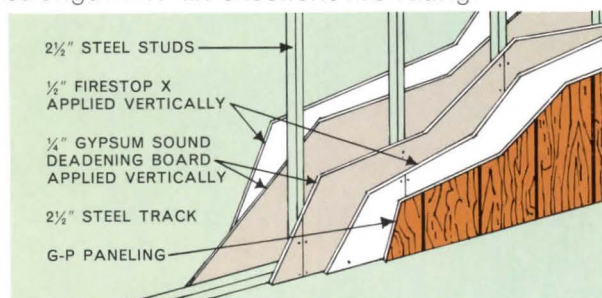
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MORE



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3-Way Benefits. There's G-P paneling with warm beauty that really impresses clients. G-P Bestwall® Sound Deadening Board gives you sound control without combustible materials that hinder fire ratings. In addition, G-P Bestwall Firestop* is reinforced with glass fibers for strength and an excellent fire rating.



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3 more beautiful paneling lines from G-P!



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STYLE IV WALNUT



CHATEAU KNOTTY ELM

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- ☐ Send more information about G-P Bestwall Firestop!
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Inlaid*: Looks like the work of a master craftsman. You have a choice of four hardwood combinations . . . all inlaid by hand! **Style IV*:** A new paneling designed especially for men! The grooves are 4 inches apart. This effect used to call for custom carpentry. **Chateau*:** Wide grooves give the wall a deeper, more solid look! Choice of 32 beautiful hardwood plywood panels . . . prices start at just \$11.20 for a 4' x 8' panel.

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Time Capsule



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THE ANSUL COMPANY, MARINETTE, WISCONSIN



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to do something
unique with INTAGLIO
and look what happened.**

Creative use of the design versatility of Intaglio produced this striking effect at the Academia San Jose High School in Puerto Rico.

Part of an extensive expansion program, the administration building, library and science laboratories building, and a two-story classroom building were designed by David Chang, A. I. A. Intaglio was chosen to reduce heat gain on a western exposure, admit light and add beauty.

PC Intaglio all-glass wall units combine pattern, texture, light and form in a functional yet intriguing way. Intaglio offers the visual appeal of a grille with the practical qualities of a dimensional wall. It gives



feeling of openness without the usual maintenance problems or the loss of space.

For a variety of effects there are four patterns with glass and masonry-like surfaces; two others are plain masonry-textured. Sizes are 8" x 8" x 4" and 4" x 8" x 4". Striking color effects through the clear glass design are possible through use of fabric or light on the interior side.

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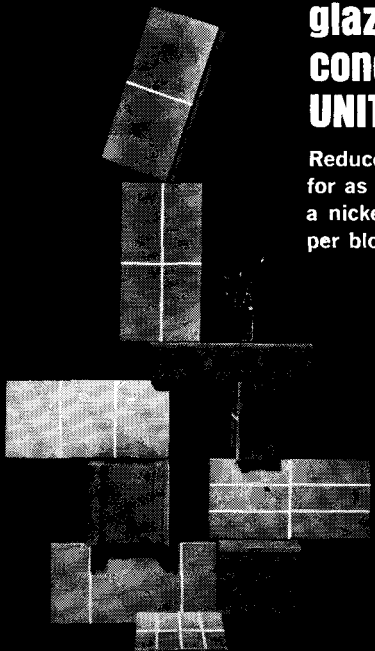
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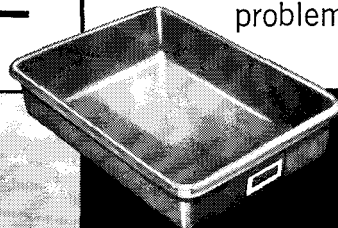


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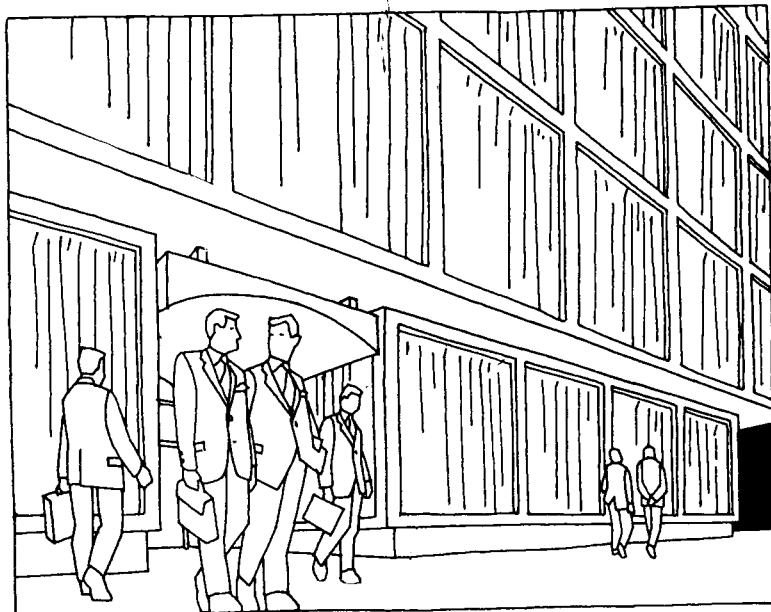


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P/A NEWS REPORT

Progressive Architecture's Monthly Digest of Buildings, Projects, People and Products September 1967

INTERNATIONAL MEETING OF ARCHITECTS

PRAGUE, CZECHOSLOVAKIA
About 2000 persons from Europe, Asia, and North and South America attended the ninth world congress of the International Union of Architects here July 3 through 7.

Much of the conference's work took place in preliminary sessions, in which from 20 to 25 delegates from as many countries met in specialized workshops. In these sessions, they discussed such topics as schools, registration, housing, and hospitals. Much of the value of these UIA meetings, says Daniel Schwartzman, who was one of the AIA delegates to these preliminary sessions, is "in sharing our experience with less developed nations." Another part of their value, of course, is as an exchange for international architectural information. Schwartzman is responsible for reporting on the meeting to the AIA, which will in turn report to its members.

For P/A's comments on the conference, see this month's Editorial.

NATURAL LIGHT FROM A FLUORESCENT LAMP

NORTH BERGEN, N.J. A recently introduced fluorescent lamp is said to match both the visible and ultraviolet spectrum of natural outdoor light. Called Vita-Lite, it will provide a limited amount of the ultraviolet wavelengths, enough to help synthesize vitamins needed for healthy bones and teeth without causing sunburn, according to the developers. They also claim the lamp will help rid an indoors atmosphere of bacteria and viruses that are normally killed by sunlight. It is being made available for commercial and industrial applications by the Duro-Test Corporation.

WAGE BOOSTS CATCH BIDDERS OFF - GUARD

Do it today. It will cost you more to do it tomorrow. Or, better yet, don't do it at all. These attitudes, especially the latter one, are affecting many architectural projects across the nation as building costs continue their often shockingly steep advance. Spearheading this advance are labor contracts, which averaged increases of nearly 5% across the U.S. during the first half of 1967.

What makes these cost boosts dangerous to architects is the relative quiet with which they are achieved. This is especially true if the labor contract is signed locally — in New Orleans, for example — and the architect responsible for a job there is from, say, Chicago.

Some of the largest labor wage increases occurred in the construction industry, ranging in April and May alone from a 5¢ hourly increase in Jacksonville, Fla., to a whopping 50¢ an hour increase over a three year-period in Cleveland.

Understandably, these rapidly proliferating cost increases have thrown bids off alarmingly, sometimes by as much as 50%. And it is no surprise that, faced with these unexpected advances, clients are having second thoughts about going ahead with their plans. At least two Cleveland projects were so affected recently — a two-block rehabilitation job in the Hough section, which is currently trying to find new financing (see p. 49, AUGUST 1967 P/A), and five campus buildings of the Cuyahoga Community College.

If nothing else, these soaring labor costs are going to mean that clients will have to pay more for building. One Cleveland home builder estimates that recent wage boosts alone will, by 1969, tack an extra \$5000 on a house that would have sold last year for \$23,000.

BUNSHAFT DESIGNS ART MUSEUM FOR WASHINGTON

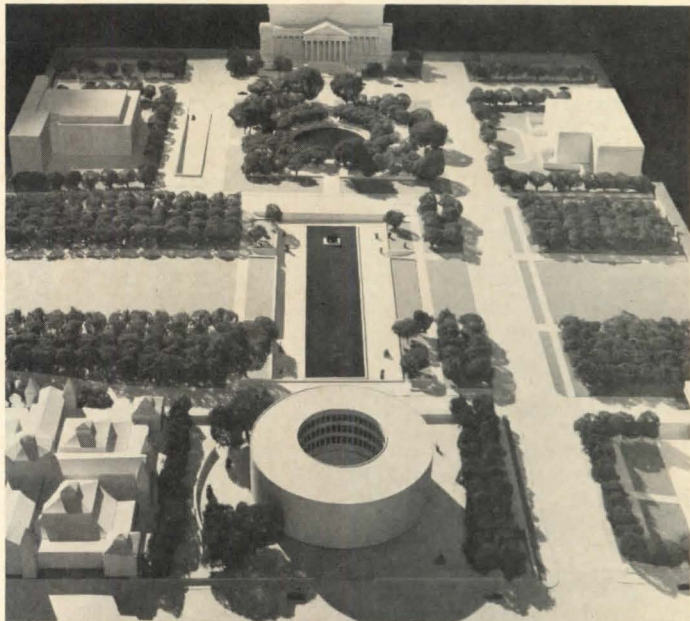


Photo: Ezra Stoller

WASHINGTON, D.C. If the membership of the Fine Arts Commission is changed by the President (see news item, p. 57, one of the first tasks facing the new members may be a decision on the new Hirshorn Museum, designed by Gordon Bunshaft of the New York office of Skidmore, Owings & Merrill. The circular museum rests on four hollow "legs," above a sunken sculpture garden, which will line a rectangular, 500' reflecting pool directly in front of the museum. Pool and garden will run at right angles across the Mall, depressed 7' below

grade, creating a new cross axis of the Mall first proposed more than 50 years ago. Beyond the garden would be a proposed National Sculpture Garden surrounding a circular pool that could be used as a skating rink in the winter. The National Planning Commission has granted preliminary approval of the plans, while questioning the idea of skating amid works of art. Although President Johnson has signed a bill authorizing the \$15 million museum to house the art collection of Joseph H. Hirshorn, construction awaits Congressional funds.

ECOLOGY : MAN SHAPES HIS ENVIRONMENT

*"From Nature's chain, whatever link you strike,
Tenth, or ten thousandth,
breaks the chain alike."*

ALEXANDER POPE

Earlier this year, the nocturnal stillness of Knott County, Ky., was shattered by a gigantic explosion. Someone had fastened dynamite charges to a diesel power shovel of the Kentucky Oak Coal Company and blasted it, as they say, to kingdom come. Feuds are, of course, nothing new to the Kentucky

hills, but this one had implications the Hatfields and McCoys never dreamed of. Disputed were the rights of strip coal miners to tear up the homes and yards of eastern Kentucky residents to get at the coal beneath. Rights to coal just beneath the surface were given to the mines 60 to 100 years ago in so-called "broad-form" deeds, and so far the Kentucky courts have upheld the rights of the miners. A further ruling is due this month from the Kentucky Supreme Court.

Mo-Sai wins this round on the new Madison Square Garden



Mo-Sai was chosen to completely encompass the new drum-shaped home of Madison Square Garden. To create a warm color and emphasize the 13-story height of the building, Mo-Sai with exposed chocolate-colored pebbles and light beige ribs was cast in one

unit 22 feet wide and 8 feet high. When bolted into position the ribs run vertically the height of the building.

To further accent the height, vertical coves in a light beige Mo-Sai were placed every 22 feet (see inset). The coved units

were joined to the back of the flat panels with tongue and grooves cast in the Mo-Sai.

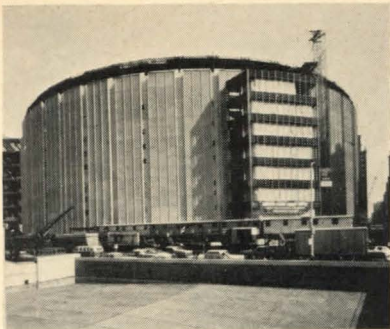
The textured Mo-Sai surface of hard, natural aggregate will maintain its color indefinitely, winning maintenance "rounds" for many years to come.

Architects: Charles Luckman Associates / Structural Engineers: Severud, Perrone, Fischer, Sturm, Conlin and Bandel / General Contractors: Turner-Del Webb, a joint venture



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Photo: Billy Davis

Home owners are understandably reluctant to see their homes destroyed with no compensation. "Random shooting from both sides has become commonplace," read a report from the area in mid-July. "Mine guards go armed." But the ramifications of strip mining go even beyond the personal tragedy of home owners. For wherever strip mining occurs, the land is made unfit for habitation. Not only does the surface soil get removed or mixed with deep-lying minerals, making it impossible for it to support vegetation, but also pools of water fill in depressions and irregularities with high concentrations of dissolved substances inimical to life. Moreover, where the vegetation is stripped away, the earth becomes prey to the effects of wind and rain. Much the same thing happened in the 1930's on the great Midwestern plains. The grasslands were plowed under for crops, which died during a drought. Left unprotected, the land blew away in swirls and clouds that blotted out the sun, burying homes and hopes alike. Suddenly, thousands of families were without means of support, defeated by their ignorance of natural sequences of events. The

study of these sequences is known as ecology — literally, the study of man (or any other living organism) in relation to his environment. Unlike other animals, man has a penchant for fouling his own nest, partly because of a lack of ecological knowledge, partly because he seems not to care.

Nor any fish to eat — Take the alewives, for example. Originally a salt-water fish, the alewives crept into the Great Lakes when the St. Lawrence Seaway was opened about 10 years ago. With no natural enemies to keep them in check, they have proliferated until the lakes contain literally millions of them. This summer, millions died, perhaps from pollution, perhaps from sudden changes in water temperatures. Whatever the cause, lakeside cities, especially Milwaukee and Chicago on Lake Michigan, found their lakefront beaches covered with dead alewives. Water intakes were clogged, and an overpowering stench wafted inland on northeasterly breezes. Crews worked around the clock with bulldozers trying to clear the beaches; Chicago even sprayed the decaying mass with deodorant. At the height

of the summer season, lake cities found their beaches unusable.

The alewives might have met with natural enemies in the Great Lakes, but the opening of the Welland Canal connecting Lakes Ontario and Erie some 40 years ago let in the lampreys—long, black, fish-eating eels. The canal was helpful to the shipping industry. At the same time, by providing a passage-way for the lamprey, it effectively killed the Great Lakes fishing industry. Like the alewife, the lamprey found no natural enemies in the lakes. (It had originally been a denizen of the Atlantic, also like the alewife.) And with nothing to check its progress, it ate its way through the lakes, completely wiping out the trout and pike. With the fish went not only the fishing industry but peripheral industries, such as fish distribution and sea food restaurants. Through some brilliant work by biologists, the lampreys are now under control. But the alewives are not. A \$10 million bill is pending in Congress to find out what to do with them.

Unplanned suicide — A Pandora's box is opened each time someone tampers unknowingly with man's environment. Although the alewives were mostly only a costly nuisance, more often man's tampering with the ecological balance can cost him his own life. Perhaps the most dramatic example came recently with the death of three American astronauts. Engineers had sought to make the rocket load lighter by using pure oxygen inside the space capsule. What they overlooked is that a spark fed by pure oxygen can cause a life-snuffing fire. Human ecology. Man exists in air, not in pure oxygen.

In southern California, the push for living space has led man to redesign the hills, land formerly considered too steep for adequate housing. In his book *Eden in Jeopardy*, Richard G. Lillard describes the results of this particular folly.

"From around 1945 on, up and in went the skiploaders and bulldozers and big eight-wheeled trucks to hack at

primeval green slopes and reduce them to crumbly, desolate cliffs, ripping at ancient seepages and springs, dumping topsoil to creek bottoms and covering it flat with sterile inner layers. Often contractors, as they skimmed the tops of hills, or as they ran their arbitrary roads up hill-sides or as they gouged out little shelflike pads for bungalows or castles, had the machinery efficiently shove tons of loose dirt and brush over the side, where it slouched, loosely held up by bushes. 'Just shove 'er over. The brush'll hold 'er!'"

Then, of course, the rains came. Lillard goes on: "Tons of rainwater soaked into tons of loose dirt and rock in the raw cuts and loose fills until finally the soggy masses uprooted the shrubs they lay on and slipped rumbling and smashing down the slopes. Rivers of ruin on denuded hillsides picked up rocks and soil and roared down. Sometimes as the mud flows gave way they pulled the foundations out of the house just above them. More often they piled up around the houses below them, new spic-and-span all-glass contemporary homes, and then when the mudslides slopped up deep and heavy enough, they went on through the houses, pushing in walls and windows, filling swimming pools, carrying away terraces and plants and trees and all the accumulated objects of Home, Sweet Home and Garden Beautiful."

Finally, in 1952, a Los Angeles ordinance set restrictions for the cutting and grading of hills and for the drainage of water. But even so, drains clog, seepage from drains and swimming pools puts pressure on weakened soil, and careless contractors grade during the rainy season. So landslides still occur.

The finger in the dune — The same type of needless destruction happens along the eastern seaboard, because there, as elsewhere, man has tampered heedlessly with his environment. In 1962, the northeast coast was lashed by a violent three-day storm. Day after day, 60 mph winds pushed 40' waves against the shore from Long Island to Georgia. In



Photo: National Geographic Society

New Jersey alone, 2400 homes were destroyed, 8300 partially damaged, and in all, \$80 million worth of damage done. Almost all of it could have been avoided, if man had heeded knowledge about natural processes. Ian McHarg, chairman of the landscape architecture department at the University of Pennsylvania, wrote about that storm in an essay entitled "Ecological Determinism":

"The theory of dune formation is well understood, as is stabilization by vegetation. The ecological communities from beach dune to bay shore have been their limiting factors. In the Netherlands, the value of dunes and their stabilizing grasses and the important role of ground water are known and attributed value, but not, however, in New Jersey. It is common knowledge that beaches are highly tolerant to human use but that dunes and their grasses are not. Development of the Jersey shore included breaching of dunes for many purposes — home building, beach access, etc. No constraints were placed upon use of dunes so that vegetation died and the dunes became unstable; no effective restraints were placed upon withdrawals, ground water which inhibited vegetation growth. Considerable areas

were waterproofed by buildings, roads, parking areas, which diminished recharge of the aquifers. The consequences were inevitable: with its natural defenses destroyed, the shore was vulnerable and was extensively damaged."

McHarg has two professional ecologists teaching on his staff at Pennsylvania. He considers a knowledge of ecology so important for his landscape architects that his department offers the university's ecology courses. Graduate students in biology who want ecology credits take them in the department of landscape architecture.

Fouling the waters — There seems to be nothing man likes to foul better than water. By pouring sewage and the wastes of industrial processes into lakes and streams, he not only makes the water undrinkable, but he also often makes it impossible to swim in it, and kills off its wildlife, which has provided both recreation and food. So polluted is Lake Erie that little life exists in it. Its beaches have been closed to swimming for years. In Lake Erie, the effects of pollution have run their course, and the Federal Government is being forced to undertake a \$3,900,000,000 program to clean it up. Deep in Soviet Russia,

Lake Baikal, which contains one-fifth of the world's lake water, is just beginning the pollution cycle. A newly opened pulp mill is pouring its waste into the lake in quantities sufficient to worry biologists about the ultimate fate of some 1000 species of plant and animal life found only in that lake. Also threatened is the lake's considerable fishing industry, currently producing 35% of Siberia's fish catch. Hundreds of thousands of the world's smaller lakes are threatened by the wastes produced by the sewage of the homes that line their banks. Slowly, what was once an ideal home site becomes a homesite next to a sewer.

Marshes are invaluable — Wetlands, the coastal marshes rimming much of the continental United States, are suf-

fering much the same fate as lakes and rivers, with much the same dire results. As these wetlands are dredged away to provide landfill, or filled in with garbage and other pollutants, or paved for roads or housing developments, factories or marinas, several things happen. For one thing, removing or covering the nearly indestructible peaty salt marsh barriers destroys one of the greatest natural buffers against storms. High seas are absorbed by these marshes the way sponges absorb water. Like dunes, they protect the land behind them. Another thing that happens, ironically, is that some of man's most economically val-

uable food is destroyed. An acre of salt marsh can produce 300 lb of edible scallops per year, more than an acre of grassland can turn out in beef. Besides, these marshes afford protection for both the young of many food fish and for the Crustacea and other invertebrate creatures they eat. If the marshes are destroyed, a large portion of the off-shore commercial fishing may be endangered. "A marsh takes a good thousand years to be created," Dr. Nelson Marshall, professor of oceanography at the University of Rhode Island, told a reporter recently. "It can be destroyed in a day."

Cities and climate — As the rapid filling and paving of the United States' vast megapolitan stretches picks up speed, it appears that such huge, rel-

evaporation is lost. Just how all this affects continental climates is not precisely known. In fact, it is thought by some that, despite the heating effect of cities, the climate is becoming slowly cooler. The cooling trend is explained as a result of the increased carbon dioxide in the air, man-made pollution, which throws up a dome-shaped shield against the sun's rays. Not as much heat reaches the ground, and the earth slowly becomes cooler. Whatever is happening, with care, man can guard against it. Judicious interspersal of cities and parkland, the placing of buildings to allow for the cooling, clearing effects of wind, and, of course, the control of pollution, can keep climate in balance. The important thing — and for man it seems almost impossible to do — is to keep from tampering with nature without knowing what the results will be. Once the economic significance of preserving the environment — and indeed the need to preserve it if we are going to preserve ourselves — is recognized, we can avoid the confusion Dr. René Dubos of the Rockefeller Institute has noticed. "Throughout the centuries," he states, "man worshipped nature. He still does, but now he does it with a sense of guilt."

BRITISH ARCHITECTS CONVENE

BRIGHTON, ENGLAND Some 500 persons attended the annual meeting of the Royal Institute of British Architects in this seaside town July 13 to 15. Given the number of architects registered in the British Isles, attendance was proportionately what can be expected at AIA conventions, and the tenor of the occasion was much the same. There was a program of speeches, followed by discussion, much of which centered on the old topic of prefabrication: how architects will have to lead in the development and utilization of more economical building systems or have their work usurped by package builders. There was also talk of increased costs and the need for evaluating them correctly. And there was some mention of the environment and the planning of neighbor-

hoods. In short, it sounded like an architectural convention on the western shores of the Atlantic. But there was a notable difference. The RIBA allows no product suppliers at its convention, no salesmen, no exhibits of architectural products. Perhaps, by this act of segregation, they are missing a valuable chance for exposure to the suppliers they depend upon.

LOW-COST HOUSING SYSTEM BEING TESTED IN DETROIT

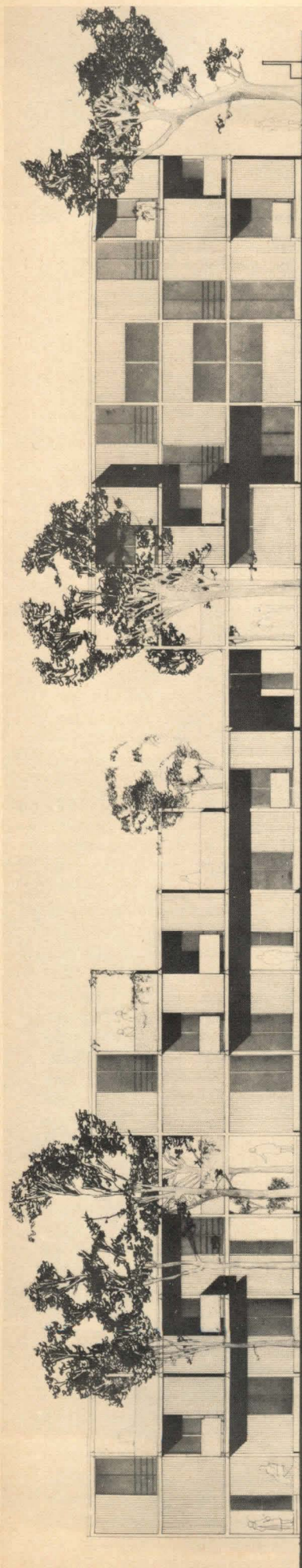
DETROIT, MICH. With the aid of a \$203,000 grant from HUD, seven units of low-cost housing are being constructed here. If cost estimates of about \$7 per sq ft are met, the implications of the system in a world hungry for feasible low-cost housing may be far-reaching. Designed by Neil Mitchell, who teaches at Harvard, and who spent a year recently in Venezuela as consultant for development on the new city of Ciudad Guayana, the system, a variation of which is getting its first try here, was devised originally to rely heavily on the enterprise of the householder, who is expected to put it together himself — in the best homesteading tradition. What he does is erect four porous concrete columns on sunken concrete pilings. (The concrete used is extremely lightweight, about half its volume consisting of small air bubbles entrained in the fresh concrete at the time it is mixed.) Two beams of porous concrete are then lifted onto the columns and secured by steel pins; porous concrete roofing slabs are placed between the beams. Each component weighs only 150 lb, so it can be put in place by two men. "It's idiot proof," says an associate of Mitchell's. "My wife helped put one together." With the roof in place, the owner theoretically (but not in Detroit) supplies his own materials for walls — anything that will keep out the weather, such as tar paper, orange crates, adobe bricks.

In Detroit, plans call for experiments with different



Photo: Ben Martin

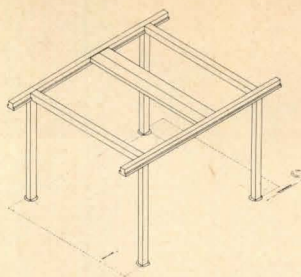
actively unalleviated areas of concrete, steel, and other man-made materials can appreciably change the climate. Everyone knows that it is usually warmer in the city than in the country. "The temperature tonight is expected to dip into the sixties in the city and into the upper fifties in the suburbs," announces the radio. And the reasons for this disparity are not hard to find. The rock-like materials of cities store heat more effectively than do trees and open land. Moreover, tall buildings keep cooling breezes from dispersing the heat. The rain and snowfalls in cities are allowed to run off in gutters so that the cooling effect of their



types of siding: steel, aluminum, plastic, asbestos, cement, and wood. Construction will be done by union labor. Since this is the first time the system has been tested on such a scale, and because here it is not a do-it-yourself project, costs may run as high as \$10 per sq ft. But HUD is picking up the extra tab. Neither bathroom nor kitchen will be prefabricated. "At this point, the prefab units on the market cost more than a piecemeal installation," explains Robert Mayers, a New York architect, who, with his partner John Schiff, is designing the Detroit housing for Mitchell. Schiff and Mayers have added some innovations to the system. They use the cross-beams, for instance, which cantilever 3' beyond the columns, to provide space — when two 10' units are placed back-to-back — for a bathroom and stairwell, or, on the exterior, a sunscreen. Using the basic unit, they have provided an amazing variety of configurations. Sometimes the frame is left open, forming a courtyard or an upstairs balcony. On the interior, they can form a two-story living room by omitting the roof panels at the first-floor level. Experiments with the porous concrete have reduced its weight to about 80 lb.

HUD plans to sell the units to persons in the area, offering them low-cost Government mortgages. The architects, Mitchell, Mayers, Schiff, and architectural consultants Bruno Leon & Associates of Detroit, went into the area to talk with prospective purchasers, asking them what they wanted in housing. Most liked the fact that the system allowed for low-cost additions as their families grew. To this end, the architects have run prefabricated plastic pipe stacks for bathroom plumbing to the third story in all five-bedroom houses although there is now no bathroom on these floors.

Thirteen of the units will be strung out on land that is now a parking lot owned by the Catholic Church. Four individual units will go up on vacant lots also owned by the Church. No land will be specially cleared; while enthusiastic about the low-cost housing, residents in the area



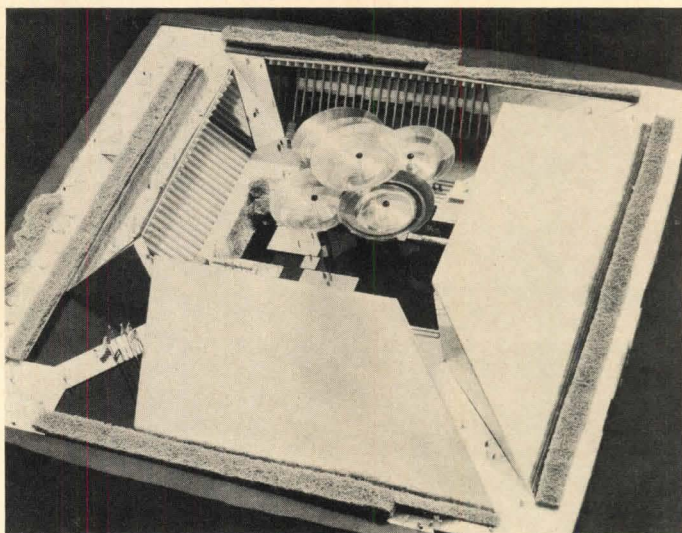
were vehemently opposed to any urban renewal that might be tied in with it.

Mitchell feels that his system could provide shelter in disaster areas. A plane could fly the abbreviated factory needed to turn out components to, say, the site of an earthquake in Turkey. Using

local materials, it could be turning out housing components within 12 hours.

In underdeveloped areas, the system has the advantage, besides being low cost, of encouraging the homeowner to improve his economic status. As his income improves, he could change the wall materials. And if, as Mitchell suggests, 16 pilings are sunk on an individual lot instead of a minimal four, the house could be gradually expanded without much extra help. According to one estimate, the original cost, including surveying, placing of pilings, and price of components, could be as little as \$300.

CANADIAN PAVILION FIRST FOR EXPO 70

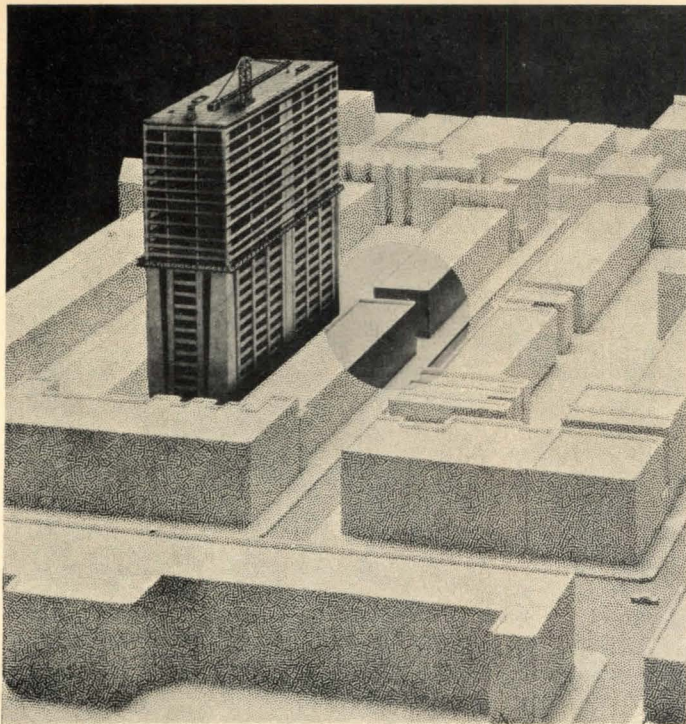


VANCOUVER, BRITISH COLUMBIA Appropriately enough, the first pavilion announced for Expo 70, the international exposition to be held in Osaka, Japan, comes from Canada. It is the result of a two-stage, nationwide competition in which there were 207 entries. Winners are Erickson Massey, Vancouver architects, who started out to design a structure that looked as little like a world's fair building as possible. "We have seen enough of fair buildings recently," comments Arthur Erickson, whose firm designed the Man in the Community pavilion at Expo 67.

What they had to do, however, once the size of the exhibit space wanted was settled, was, as Erickson explains it, to "bring the building out of the ground." Model of the Canadian exhibit shows four shed type shelters ("A-frames

with one side extended to provide an overhang"), surrounding a central courtyard. The exterior surfaces of these sheds are sheathed in mirrors, to reflect the sky. One of the sheds will house a restaurant and exhibit offices; the others will hold the Canadian exhibit entitled "Discovery." Each shed, 65' long and 50' high, is hardly an invisible structure, but the mirrors will help them seem less obtrusive, reflecting as they will the surroundings from their 45° surfaces.

The interior courtyard, with reflecting pool, is thought of as a place to sit or walk through without having to view an exhibit. Above it will be five overlapping, rotating umbrellas on mirror-sheathed pedestals. On the undersides of the umbrellas, the architects plan to paint a work of art that will move and mesh as the umbrellas rotate.



PLAN OFFERS HOUSING WITHOUT RELOCATION

NEW YORK, N.Y. A scheme for building new apartment units in crowded, run-down urban areas without displacing present tenants is being put forward by the firm of S.J. Kessler & Sons. Impossible? Not so, say the Kesslers, who have applied for a patent on their idea. What they propose is to build a high-rise structure in the now-vacant, contiguous backyards of urban tenements. Although originally proposed for use in Harlem, the scheme might be used in virtually any urban ghetto where backyards have little use besides depositories for garbage. They envision an apartment house approximately 53' wide, leaving 15' to 20' of space on either side, between it and the street-lining tenements. Perhaps one tenement would be removed to provide access for construction machinery and materials. Once the high-rise apartments were completed, the persons in the surrounding houses would be moved into them, and the site cleared to be turned into park and recreational facilities. The Kesslers believe that such construction could be done under present Federal 221 (d) 3 regulations, providing more spacious, sounder homes than current rehabilitation does. Some provision could be made at ground level for small busi-

nesses and underground space allocated for parking.

Many New York City agencies and organizations have offered encouragement, but, so far, none have offered to back a trial unit.

ROCHESTER REVIEWS ITS RIVER

ROCHESTER, N.Y. Several years ago, the Rochester Society of Architects realized the need to acquaint citizens of this upstate New York city with the extent to which their lives are influenced by architectural design. As a first step, the society inaugurated an annual exhibition whose themes were calculated to stimulate public awareness of its environment as provided by nature and improved (or disfigured) by man. After some early exhibitions had presented a general view of the profession, the society dug in further with shows that concentrated on individual building types. Recently, hitting even closer to home, the Society ran an exhibition entitled "The River," which spotlights the city's most obvious physical feature.

It was the aim of the committee that arranged this year's exhibition, which ran from May through August, to expose existing conditions along the river, to point out the natural amenities it affords, to explain inappropriate uses of waterfront land, and

to suggest changes that would "bring the Genessee River into the city instead of allowing it to sneak by the back door as a sort of large-scale, open sewer." Such an aim involved, of course, a great deal of work on the part of society members, and it is hoped that the effort will not be wasted — as the waterfront has been.

At the river's mouth, the society proposes construction of a new, modern port facility with new warehouses, a boardwalk for visitors, a waterfront restaurant, and a marine museum. The river basin would be widened to accommodate ships and the increasing numbers of pleasure craft. As a point of attraction for tourists and boaters, a pavilion might be built to incorporate a fog horn and a beacon and form a sort of "River Gateway."

Other proposals include a large marina in the lower river near Lake Ontario, an apartment complex at the top of the gorge south of the Upper Falls, and a "River Plaza" complex of shopping and recreation facilities that would line both sides of the river in the downtown commercial district.

Fortunately, the society's interest in the river coincides with the thinking of city officials, some of whom, including the mayor, were on hand at opening ceremonies last May. Since then, the exhibit has been displayed in storefronts, office building lobbies, and at the county fairgrounds, so that a large segment of the Rochester public has had a chance to see and perhaps even to consider it.

THE FINE ARTS COMMISSION

WASHINGTON, D.C. Architects and city planners were waiting with some apprehension, in early August, for the White House to make decisions that could affect the future development of the nation's capital.

The decisions involve the composition of the prestigious Commission of Fine Arts, which is essentially a sort of architectural (and unpaid) review board, chartered by Congress to judge design proposals for new public buildings, parks, bridges, monu-

ments, and the like. It has no statutory power to enforce its judgments (and it can and has been ignored by Presidents), but its opinions have been increasingly important to the development of the capital.

Problem now is that, through the ire of former President Truman, who ignored decisions and refused to make appointments, terms of four of the commission's seven members have already expired or will expire soon. Thus, President Johnson could, with a mass appointment, completely change the character of the group — and with it, the character of the future city development.

All six members were appointed in 1963: artist William Walton, who is serving as chairman; planner Burnham Kelly; sculptor Theodore Roszak; critic Aline Saarinen; architect John Carl Warnecke; architect Gordon Bunshaft (whose term expires this month). All six will continue to serve until someone else is appointed, but the situation leaves only landscape architect Hideo Sasaki (whose term expires in 1970) serving on a continuing basis.

A prescribed system of staggered terms, considered essential by commission members for the sake of continuity, broke down when President Truman, annoyed because the then-existing group didn't like his plans for a porch on the south side of the White House, began to ignore the commission and didn't bother to replace members whose terms had expired. Thus the members were finally replaced as a group.

White House delay in naming new commissioners is due in part to an attempt to work out a new system of staggering terms; in part, apparently, to uncertainty about names of possible new appointees.

Of special concern to architects is the fact that, with encouragement from Presidents Kennedy and Johnson, the existing commission has assumed a powerful role — trying to turn poor plans into better ones, criticizing architects, even redesigning some projects. A wholesale replacement by people not oriented to what the existing commission has tried to do could

mean a complete change of signals for anyone attempting to design almost anything of monumental or official nature in Washington.

Although Gordon Bunshaft, chief opponent of the new AIA headquarters addition, is one of the commission members whose term is expiring, chances are he will not be replaced. Bunshaft, of course, is working on the LBJ Library in Austin, Tex., and it is probably safe to assume that the President will continue to seek his advice. Bunshaft's retention on the commission will no doubt doom any reconsideration of the AIA building.

Just how a change in the commission's membership could affect the FDR Memorial designed by Marcel Breuer is not certain. A bill is now pending in Congress suggesting that Breuer's version be built despite the Fine Arts Commission ruling. The bill would reverse the provision of an earlier bill making Fine Arts Commission approval mandatory for the memorial.

In normal circumstances, the Fine Arts Commission's rulings are merely recommendations. However, according to a provision of Shipstead-Luce Act in 1930, in certain "monumental" areas of the city — the Rock Creek Park area, for example — the commission acts with much the powers of a local zoning or planning board. Since the AIA land falls in one of these areas, the commission's ruling on it can only be reversed by decision of the district commissioners. Whether or not the AIA will appeal to the commissioners is undecided, and the matter is further complicated by a soon-to-be-carried-out consolidation of the district commissioner's offices, which will reduce the number of commissioners from three to one.

— E.E.H. JR.

PERSONALITIES

William H. Liskamm of the San Francisco architecture and planning firm Okamoto/Liskamm has received the Arthur W. Wheelwright Fellowship in Architecture from Harvard University. The fel-

lowship will enable Liskamm to study transportation facilities, design, and development in various parts of the world while serving as visiting senior lecturer at the University of London for the academic year 1967-68 . . . At the request of the White House, **Charles Luckman**, New York architect, is attending the 43rd session of the United Nations Economic and Social Council in Geneva. Luckman is Special Advisor to the U.S. delegation . . . Head planner and architect for the Planning Office at Stamford University, **Royal H. Tyson**, was recently elected president of the Association of University Architects . . . For service to the profession, **George T. Rockrise**, Seattle architect and adviser on design to HUD Secretary Robert C. Weaver, was awarded a citation by the American Society of Landscape Architects.

PCI PRESENTS AWARDS



1

CHICAGO, ILL. Eleven projects that demonstrate "interesting functional and economic use of precast and prestressed concrete" and take "liberal advantage of the inherent character of the material" were selected for honors in the Prestressed Concrete Institute's 1967 awards program. Judges for the competition were: Charles M. Nes, Jr., immediate past president of the AIA; Earle T. Andrews, president, American Society of Civil Engineers; Thomas M. Linville, president, National Society of Professional Engineers; Guy Desbarats, partner in the Canadian architectural firm of Affleck, Desbarats, Dimakopoulis, Lebensold, Sise; and MacDonald Becket, vice-president, Welton



2

Becket & Associates.

Winning designs, which include five Canadian projects, were: Community Center (1) San Pedro, Calif., by Joncich, Lusby & Associates; Ohio Savings Association, Parma Heights, Ohio, by Don M. Hisaka & Associates; Toronto City Hall, Toronto, Ontario, Canada, by Viljo Revell and John B. Parkin Associates; Warehouse for Pleasantdale Corporation (2) Atlanta, Ga., by Martin & Bainbridge; Habitat 67, Cité du Havre, Montreal, Quebec, Canada, by Moshe Safdie & David, Barott, Boulva.

In addition, the Water



3

Tower and B.C. Hydro and Power Authority Communications Center, near Simon Fraser University, Burnaby Mountain, British Columbia, Canada, by Erickson Massy; Central Heating and Cooling Plant (3), University of Saskatchewan, Regina, Saskatchewan, Canada, by Clifford Wiens; Bay Area Rapid Transit System, San Francisco, Calif., elevated system by Tudor Engineering Company for Parsons-Brinckerhoff-Tudor-Bechtel, Donn Emons, consulting architect; Industrial Bridge for General Mills, Inc., West Chicago, Ill., by A. Epstein & Sons; Ardrossan Grade Separation, Highway #16, near Edmonton, Alberta, Canada, by McBride-Reagan, Consulting Engineers; Pedestrian Bridge for University of Tennessee, Knoxville, Tenn., by Bruce McCarty & Associates.

IT'S A CIRCUS!

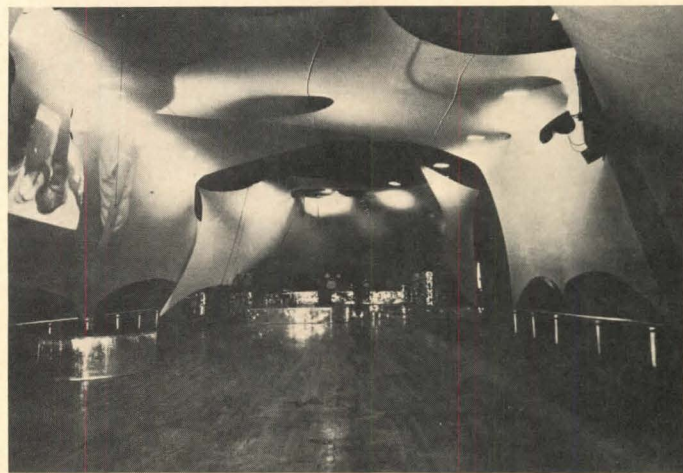


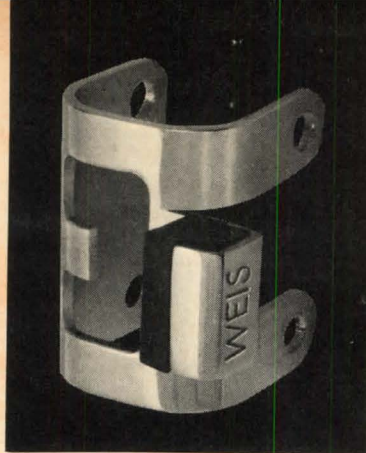
Photo: Ann Douglass

NEW YORK, N.Y. Like it's here, baby. The Electric Circus has come to town: a psychedelic blend of showmanship, big beat music, and pulsing projections. It is a discothèque located in an old Polish dance hall in East Greenwich Village. It has a little of the look of a high-school gym, transformed beyond the wildest dreams of the prom committee. It is an almost total environment. Playing in the wash of an apricot-colored light,

the band bangs out an electronically amplified beat. On the inside of a white wool canopy, draped beneath the ceiling like the roof of the German pavilion at Expo 67, projections appear. The room is lit only by their dancing colors, which flow like a gigantic mass of protoplasm exploded against the ceiling. Occasionally, a circus performer appears and does his act — juggling, escape, trapeze work — by strobe light.

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The "Lamp Man" is one of these. He comes to the microphone in white tie and tails, shrieking, wailing, and beating his head with his arms. Behind him is a pulsing projection in bloated curved letters: Lamp Man.

Painted onto the floor at one end are colored butterflies, glowing in an iridescent light. Benches are covered with artificial grass or with silver-colored foil. But something is missing. In the midst of all that frenetic sight, sound, and touch, there is no odor, no hint of a scent, nothing but odorless fresh air in the midst of 100 frantic dancers in an enclosed space. It is enough to make one re-

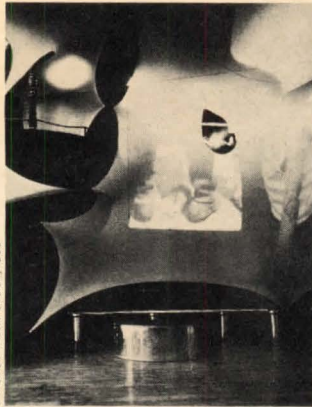
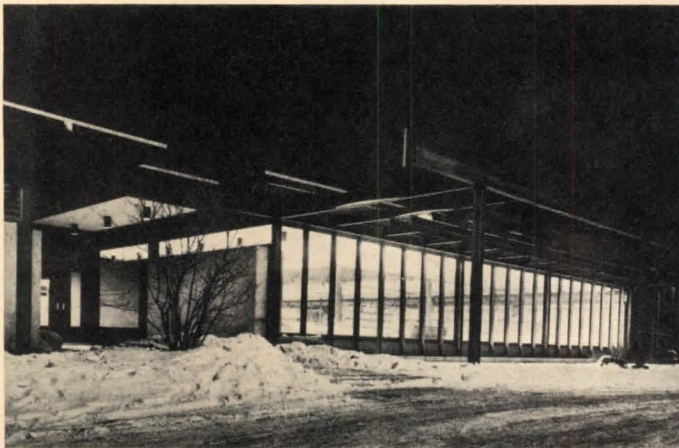


Photo: Ann Douglass

alize that Eric Bentley was right when he called the hippies "the middle class in fancy dress."

Architect was Bryan Scriven of Chermayeff & Geismar Associates, Inc.

AISC AWARDS TO 12 STEEL-FRAMED BUILDINGS



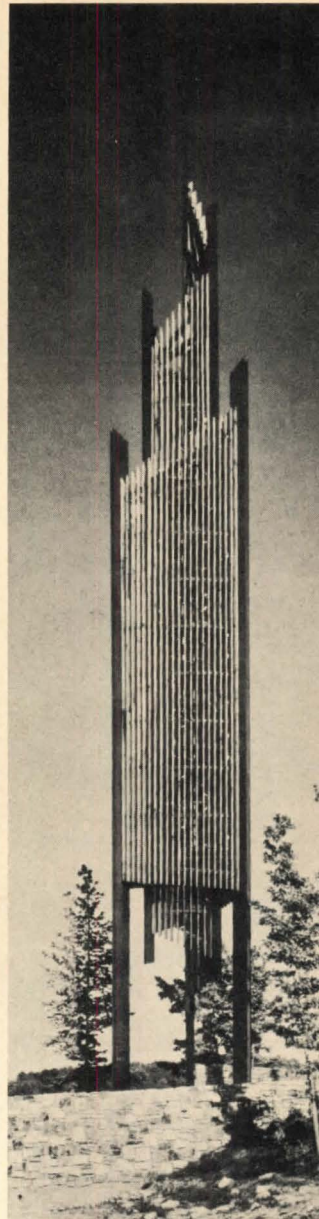
NEW YORK, N.Y. The American Institute of Steel Construction announced 12 winners last month in its annual awards program to honor aesthetic design with structural steel. The jury consisted of Henry Degenkolb of H.J. Degenkolb & Associates, Engineers; Robert L. Durham, AIA president; Robert F. Hastings, president of Smith, Hinchman & Grylls; Walter Sharp, Director of the Tennessee Fine Arts Center; and David N. Yerkes, Director of the AIA's Middle Atlantic Region. Jury members named all 12 winning buildings to receive Architectural Awards of Excellence. Awards went to:

Auditorium-Gymnasium, Fort Collins, Colo., by Bunts & Kelsey of Colorado Springs, Colo.; Washington & Lee High School Gymnasium, Montcross, Va., by Stevenson Flemer, Eason Cross, Harry Adreon, Associates, of Wash-



2

ington, D.C.; Forest Home Branch Library (1), Milwaukee, Wis., by von Grossman, Burroughs & Van Lanen of Milwaukee; Loutit Hall of Science, Grand Valley State College, Allendale, Mich., by Meathe, Kessler & Associates of Grosse Pointe, Mich.; Whitesboro Senior High School, Whitesboro, N.Y.,



3

by The Perkins & Will Partnership and Frank C. Delle Cese of White Plains, N.Y.; Health Sciences Instruction and Research Building (2), San Francisco, Calif., by Reid, Rockwell, Banwell & Tarics of San Francisco; Carillon (3), Stone Mountain, Ga., by Robert & Company of Atlanta; Westchester Tuberculosis and Public Health Association Office, White Plains, N.Y., by Joseph Roth of Yonkers, N.Y.; Ford Motor Credit Company Office, Dearborn, Mich., by Skidmore, Owings & Merrill of New York, N.Y.; a Parts Depot, Richmond, Calif., by Volkman & Stockwell, of San Francisco; the Charles F. Read Zone Center Building, Chicago, Ill., by E. Todd Wheeler and The Perkins & Will Partnership of Chicago; and an Office Building for the

ESCO Corporation, Portland, Ore., by Wolff, Zimmer, Gonsul, Frasca of Portland.

In conjunction with the awards program, AISC's Board of Directors voted to extend a Special Award for Excellence to the St. Louis Gateway Arch in recognition of its outstanding achievement in aesthetics and technology.

LUCKMAN BANK WINS CLEVELAND ACCLAIM



CLEVELAND, OHIO Directors of the Central National Bank of Cleveland agreed with the architects, Charles Luckman & Associates, that their 23-story headquarters building in downtown Cleveland should be restrained, neither flashy nor disruptive of regional tradition in building design.

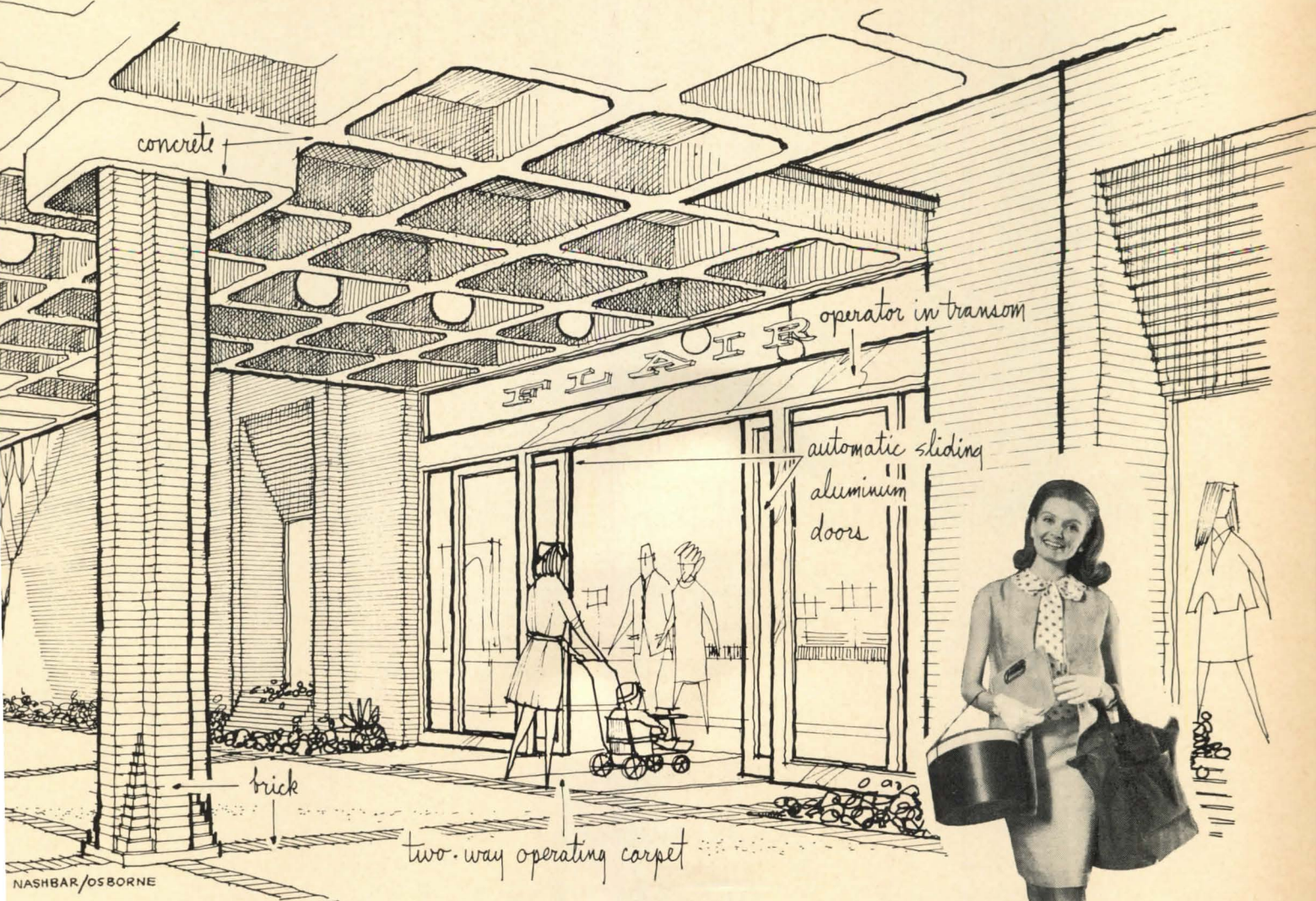
To be faced with brown brick and bronze-tinted glass with bronze-colored metal trim, the resulting structure fits the specifications. The boxlike building, with its vertical mullions and louver-like treatment of the upper stories, which house mechanical equipment, is quiet and inoffensive. It is, as the architect observes, "neither old nor new," neither beautiful nor ugly. Indeed, it seems to please almost everyone. In approving the design "with high commendation," the Cleveland Fine Arts Advisory Commission accorded it the highest praise it has given in five years and expressed its "great relief to have something that isn't in the language of all the other shiny buildings in the area."

Behind the office structure will be a seven-story garage for 350 cars, with three drive-in teller booths located near the garage entrance. Its

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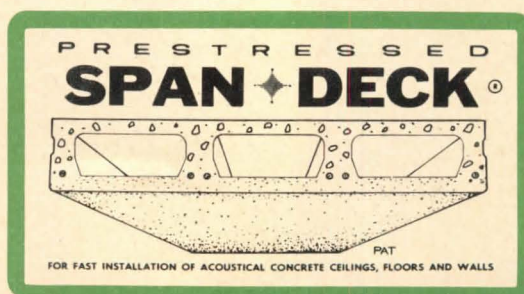
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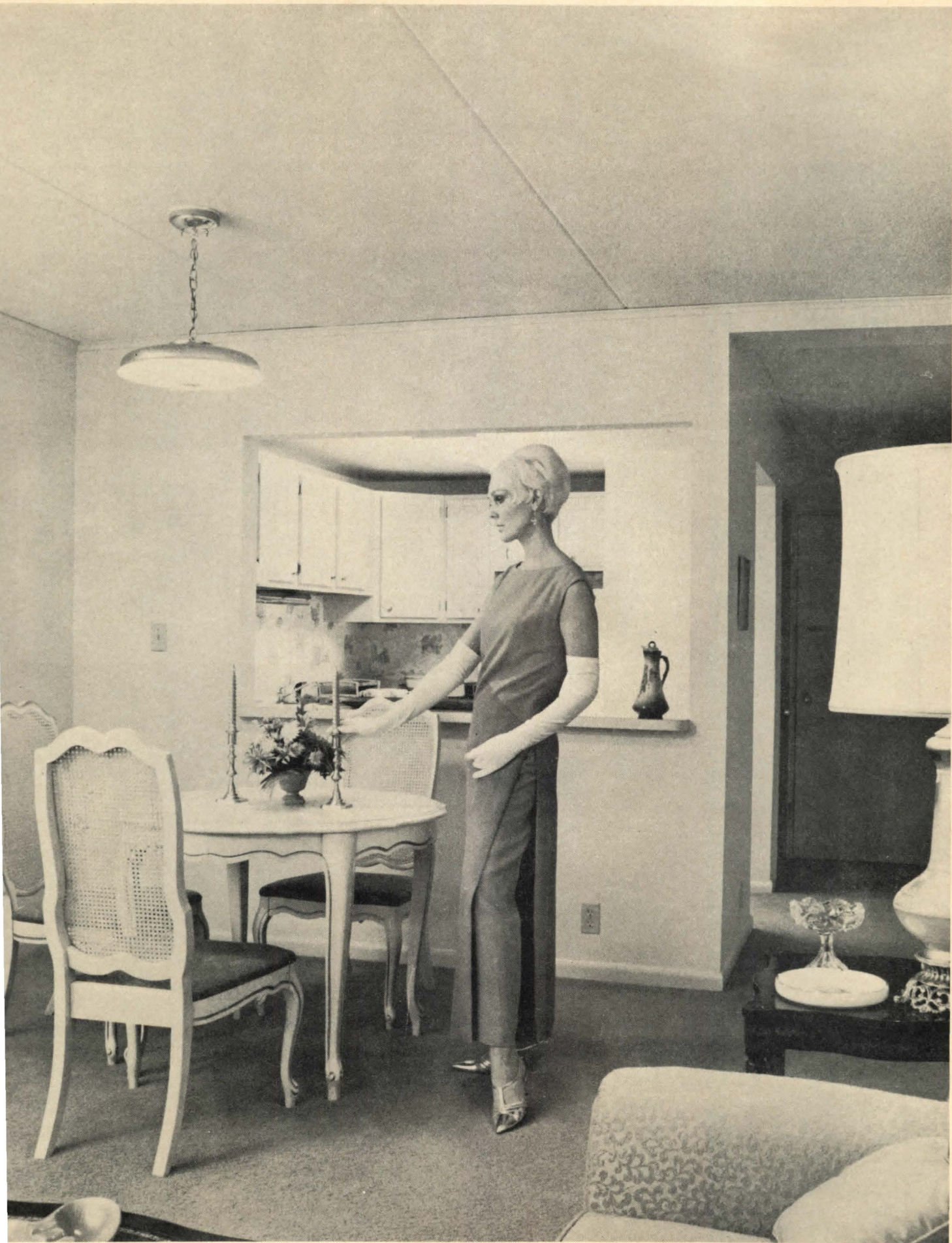
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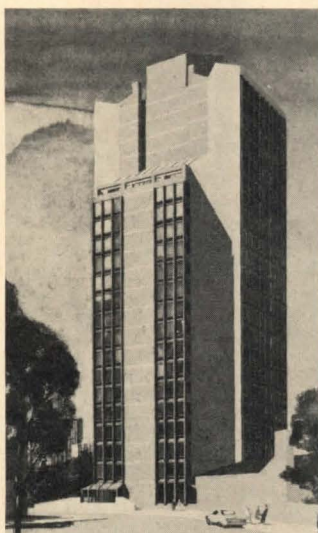


pierced walls will be covered with brick similar to that which will be used on the main building.

Restaurants and shopping facilities on the ground floor will open onto a 180'-long covered promenade that will connect bank and garage. Plans for landscaping include a reflecting pool.

Net rentable space, including 21 office floors and ground floor commercial space, is 530,000 sq ft. Construction will begin this month and should be completed late in 1969.

MOORE DESIGNS TOWER FOR ELDERLY



NEW HAVEN, CONN. Pending approval by the New Haven Redevelopment Agency, a 22-story tower of apartments for the elderly designed by Charles Moore will get under way here by the end of the year. Sponsored by the Jewish Community Council, the tower will provide 217 apartments for persons over 62 with incomes below \$4800. As seen in the rendering, the building will have three walls of glass and steel, and one of masonry. Besides the 180 efficiency units, the building will contain a hobby shop, a sauna bath, and a large solarium with palm trees on the sixteenth floor, a beauty salon, and a private men's club. There will also be a dining room and commissary. A Federal loan from the Housing Assistance Adminis-

tration will pay for construction. The building is part of a \$15 million redevelopment complex at Church Street South and Columbus Avenue.

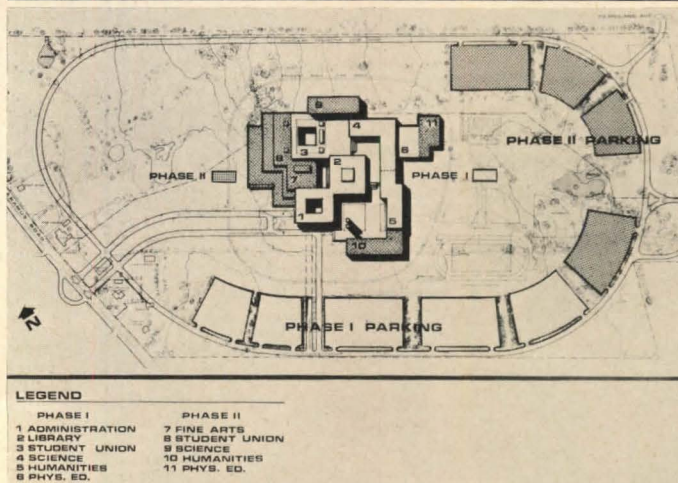
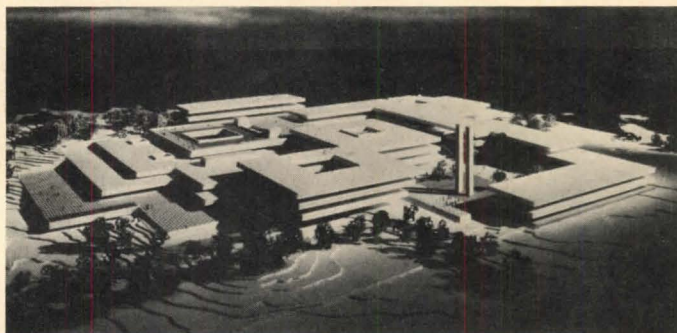
CALENDAR

The **Annual Meeting of the Porcelain Enamel Institute** is scheduled to take place at the Greenbriar Hotel, White Sulphur Springs, W. Va., September 24-27. For details, write to: John C. Oliver, Executive Vice President, PEI, 1900 L St., N.W., Washington, D.C. 20036 . . . From October 1-4, the **National Builders' Hardware Association** and the **American Society of Architectural Hardware Consultants** will meet at the Palmer House in Chicago. More information is available from: Nels M. Nelson, 309 Ontario St., S.E., Minneapolis, Minn. 55414 . . . The **AIA Committee on Health Environment** will sponsor a workshop on programming the community mental health center, October 2-3 in Washington, D.C. Registration is limited to 150 applicants and must be accompanied by a fee of \$35. Registration forms are obtainable from: Mrs. Marilyn Ludwig at the Octagon, 1735 New York Ave., N.W., Washington, D.C. 20006 . . . The **Florida Chapter, AIA**, plans its annual convention for October 5-8 at Hollywood's (Fla.) Diplomat Hotel. List of theme speakers includes Louis I. Kahn, and Columbia University's Albert Goldman, professor of literature . . . The **California Council, AIA** will stage its **22nd Annual Convention** in San Diego's Mission Bay Park, October 5-8 . . . The **AIA's New England Regional Conference** will convene in Portland, Me., October 6-8. Theme of the sessions will be "Recreation: Re-create" . . . The **Lions International** is to sponsor a conference entitled "**The City of the Future**" at the University of Puerto Rico, October 16-18. Participants will include Margaret Meade, Dean Clarence Walton of Columbia University, Constantinos Doxiadis, and James W. Rouse . . . The **Museum of Modern Art**, 111 W. 53 St., New York, N.Y.,

will offer a one-day symposium entitled "Transportation Graphics: Where am I Going? How Do I Get There?" on October 23 . . . The **Committee for Construction Industry Product Literature of the Producers' Council, Inc.**, has arranged to hold its **Second Conference on Product Literature and Advertising** in Chicago's Drake Hotel, October 23-24. Write for information to: Product Literature Conference, Producers' Council, Inc., 1717 Massachusetts Ave., N.W., Washington, D.C. 20036 . . . November 9 is the date selected for the **Fourth An-**

nual Design Conference sponsored by the Society of the Plastics Industry. Place will be the Americana Hotel, New York City . . . The **11th Semiannual Meeting of Consulting Engineers Council of the U.S.** will be held November 15-17 at the Olympic Hotel, Seattle, Wash. . . . An **Interprofessional Conference on Environmental Design** will convene November 16-18 at the Education Center of the University of Maryland. Sponsoring organization is the interprofessional Commission on Environmental Design, an alliance of six professional groups.

SINGLE STRUCTURE FOR NEW COMMUNITY COLLEGE



PARAMUS, N.J. A new two-year college to serve residents of Bergen County, N.J., will be housed in a complex but well-proportioned "mega-structure," according to the master plan developed by Frank Grad & Sons, Newark architects and engineers. The plan, approved by the college's board of trustees in late July, calls for two phases of construction, the first to provide 400,000 sq ft of space and facilities for 2000 full-time and 4000 part-time students. In the second phase,

expansion will bring total floor space to 900,000 sq ft to accommodate 5000 full-time and 10,000 part-time students.

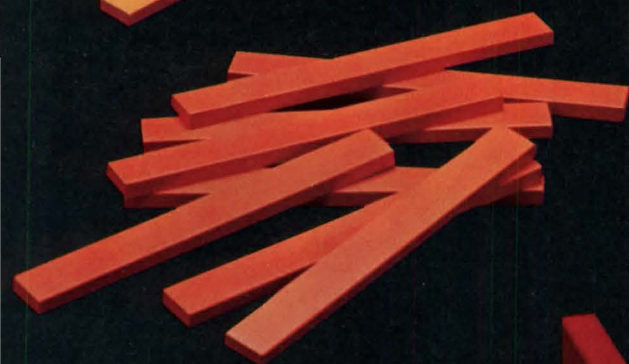
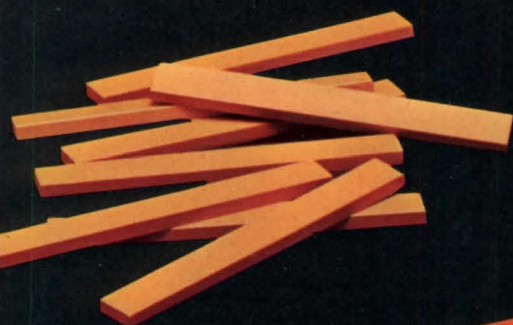
Construction will begin next year on the 167-acre former site of the Orchard Hills Country Club in Paramus, with completion of the first phase scheduled for early fall of 1970.

The master plan was carefully thought out in relation both to the academic program of the school and to the needs of the community. The

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individual academic and career departments are related architecturally to the library, and were located with regard to their mutual inter-relationship and probable use by the community. Administration and fine arts sections of the building will be placed near each other and close to parking areas, since they are most likely to attract outside visitors. A 400-seat performing arts theater is part of this section. The physical education "building" will be furthest from the academic area and adjacent to the athletic fields. As the library is the logical core of academic life, so the student union, with bookstore, dining hall, and leisure area, is the dominant feature of social activity. Recognizing its importance as a binding factor in a student body composed to a great extent of commuters, the architect gave it a prominent position on the perimeter of the plan near the administration and fine arts facilities.

The building that will contain all these facilities is a three-level, terraced structure of concrete and masonry that will project naturally from the gentle slope of a hillside.

In size, it will approximate the area of six square city blocks. Outdoor terraces and landscaped patios flow into each other to connect various levels of the building, while internal corridors, for use in winter or inclement weather, communicate with various elements within the structure.

Construction in the first phase is expected to cost \$17 million. Construction costs for the entire campus will be shared equally by the state and Bergen County; operational costs will be divided among state, county, and student body.

COMPETITIONS

One of the nation's largest architectural awards, the New York Chapter's **Brunner Scholarship Grant**, is open to any citizen of the U.S. who is engaged in the practice of architecture or a related field. The award, which carries a stipend of \$6000, is made for advanced study in a special field of architectural investigation that is expected to

contribute to the practice, teaching, or knowledge of the architectural profession. Application forms are available from H. Dickson McKenna, Executive Director, New York Chapter, AIA, 115 E. 40 St., New York, N.Y.; proposals will be reviewed until January 15, 1968 . . . Members of chapter, state, and regional divisions of the AIA are urged to submit material for presentation to the AIA Committee on Institute Honors for 1968 national medals and citations. Entry blanks are obtainable from: AIA, The Octagon, 1735 New York Ave., N.W., Washington, D.C. 20006, will be accepted until December 1, 1967. Submissions must be mailed before February 16, 1968. Awards will be presented at the AIA convention in June.

BULGING BOSTON BANK

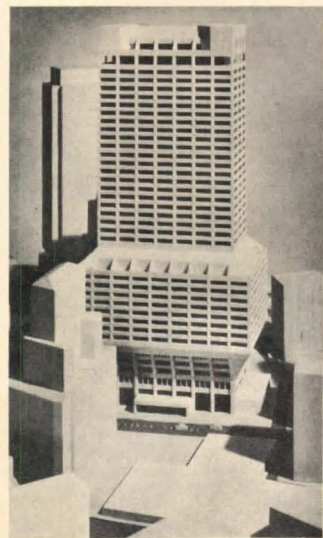


Photo: I. Hokian Karas

BOSTON, MASS. The First National Bank of Boston plans a \$40-million headquarters structure that will provide 1,463,046 sq ft of space in 37 stories. Rising from a landscaped plaza, the building will bulge outward 30' beyond the vertical on all four sides from the sixth to the thirteenth floors, a protrusion that gives the building a little of the look of a streamlined gourd.

Demolition of buildings now on the site, including the old Chamber of Commerce Building, will begin this fall. The bank expects to occupy about 1 million sq ft of space and lease the rest. Architects are Campbell, Aldrich & Nulty.

PERIL OF THE IMPERIAL



Photo: Courtesy, Museum of Modern Art

TOKYO, JAPAN The Imperial Hotel is too old (at 44 years), too inefficient to operate, and too wasteful of urban space. For all its value as architecture and its international traditions, which have made it a symbol of Tokyo and sought out by thousands of travelers, times have changed, and Wright's hotel is slated to make way for a 23-story replacement.

For years, the hotel's owners and management have been considering replacing the buildings with a new one, but the final decision was made only early this year. Since then, architects have been selected, application for a building permit has been filed, and demolition has been scheduled for November at the earliest. Exact determination of the demolition schedule is pending city action on the application for a building permit; since the hotel is in a "scenic area," action is being delayed by the Marunouchi controversy (see p. 61, JUNE 1967 P/A).

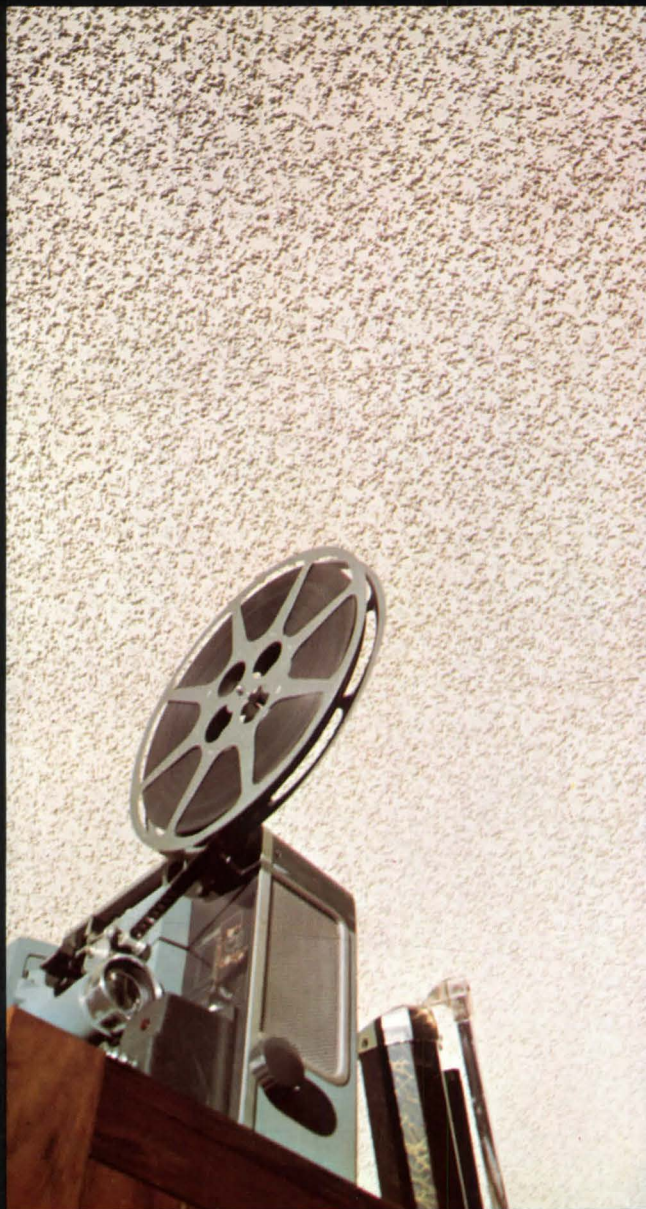
Although there had been talk in the past of retaining at least the lobby while discarding the wings (construction of which was not personally supervised by Wright) and erecting a U-shaped building embracing the old lobby, such considerations seem to have no place in the owner's plans. Nevertheless, the newly formed Society for Preservation of the Imperial Hotel is concentrating efforts on retention of the building at its present site. The Society is considering several proposals, including one advocating turning the hotel into a public library, but its chances of success seem bleak. The hotel

owners reportedly have no intention of doing more than retaining a single pillar as a "monument" to Wright and his building.

Many in the preservation movement have expressed the opinion that the national government should recognize the importance of the problem, not merely because of the nature of the old Imperial itself but because of the broader issue of the significance of individual buildings in the urban environment, and the need for proper evaluation and treatment of works of modern architecture. Architectural historian Seiken Fukuda thinks that resolution of the problem need not be accomplished on a purely commercial basis; the government could merely act on behalf of the people. But the general reaction from official quarters is that the building cannot be saved, and this may well make the difference between success and failure for the society.

Perhaps the major potential weapon the Society has become operative only if the government decides to work for preservation of the building. The site is 95% nationally owned land and the property of the Imperial Household Agency, which had the first Imperial (which burned) and the Wright-designed hotel built, to be used as a state guest house and as a first-class modern hotel for Japan. On this basis, it has been suggested that an alternate site be made available to the hotel owners, so that the old Imperial could be preserved. Whatever does happen, some change in ownership of the

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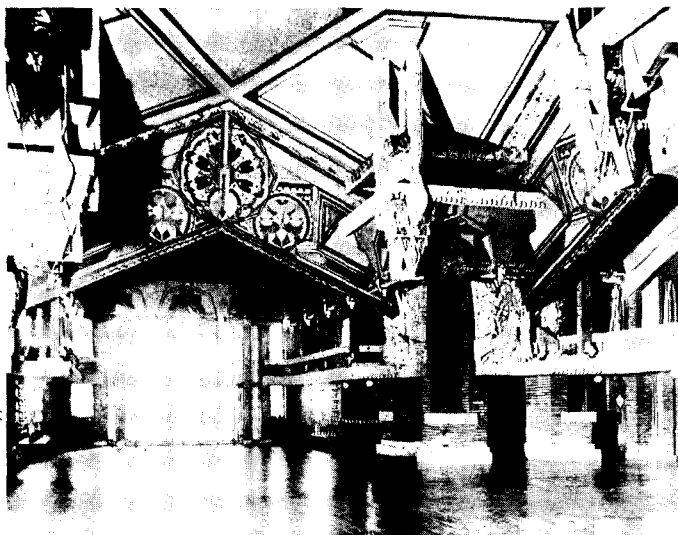
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land is due. When the old Imperial is demolished, the lease will have terminated. The Finance Ministry has therefore told the hotel owners to buy the land or return it to the state. The site is assessed at about \$11 million, but may be worth considerably more if placed on the market.

Because of the great expense entailed in moving even a part of the hotel for a short distance, and because the hotel needs a good deal of geriatric care, there has even been a proposal that an entirely new Imperial Hotel be built at an as-yet-undetermined site, according to Wright's original plans. This would cost less than relocation, it is believed. Perhaps this may be linked to the Ise Shrine tradition of periodic reconstruction of wooden architecture, and although the proposal does not seem to have much of a chance, it certainly offers food for thought to architectural theorists.

If relocation is possible, the most likely site would seem to be in Hibiya Park, located on the other side of the street from the hotel. The park could use redesigning, and would benefit from the hotel's presence. The emendation of laws required for this would be far simpler than suggested in other proposals.

An Imperial Hotel spokesman has stated, "We will pre-

serve as much of Wright's concept in the new building as we can"; but the architect is to be Teitaro Takahashi, who designed the annex, called the New Imperial, which was built in 1958 and denounced by Wright. No faith can thus be placed in the hotel's statement of professed interest in preservation.

This year is the centennial of Frank Lloyd Wright's birth. Of his early works, both Midway Gardens and the Larkin Building have been demolished, and if the Imperial Hotel is to be saved, it requires immediate action. Statements of support or proposals can be sent to the Society, c/o Prof. Gaijiro Fumishima, Department of Architecture, University of Tokyo, Bunkyo-ku, Tokyo. It would certainly be a fitting memorial to Wright if his hotel were to be preserved, even though he detested what had been done to it, because through preservation, restoration becomes possible for the first time. In his last letter to architect Antonin Raymond, who worked for him, Wright requested that a "devastating electric sign" be removed from the banquet hall. They had mutilated his building, Wright said, and now there is a chance — although a small one — that the mutilation can be atoned for.

— MARTIN COHEN of the *Japan Times*

SCHOOLS

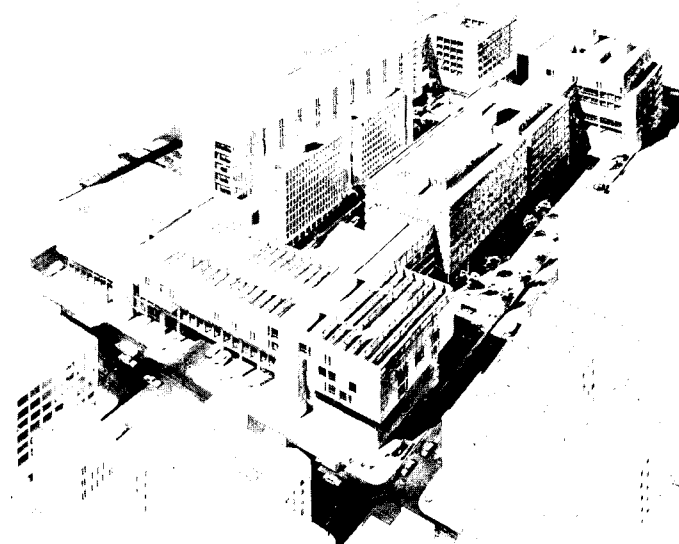
Forty-six students and graduates of the **Columbia University School of Architecture** are traveling and studying in the U.S. and Europe

under the \$59,000 William Kinne Fellows Memorial Traveling Fellowship program. Stipends for individual scholars range from \$1200 to

\$1500 . . . At **Harvard University's Graduate School of Design**, Albert Szabo was recently elected a professor of architecture, and Gerhard Michael Kallmann was appointed professor with the stipulation that will continue his private practice . . . New associate dean of the **College of Environmental Design** at the **University of California's Berkeley** campus is Henry J. Lagorio . . . Head of the newly organized department of visual studies

in the **Clemson School of Architecture** is Robert H. Hunter, associate professor of architecture . . . Richard R. Whitaker, Jr., director of educational programs for the AIA, has been appointed associate professor of architecture at the **University of Colorado** . . . Chicago's Commissioner of Development and Planning, John G. Duba, will head the civil engineering faculty at the **Polytechnic Institute of Brooklyn** in New York.

URBAN INSTITUTE OF FASHION



NEW YORK, N.Y. New York's Fashion Institute of Technology plans to expand from its present building on West 26th Street into an urban campus. A \$30 million program will add a dormitory, an auditorium, an academic building, a student center, a design lab, a library, and an arts building by 1973. As much of the ground level as possible will be kept open and continuous. Circulation through the buildings will be provided at the third-story level. Eventually,

27th Street, between 7th and 8th Avenues, will be surrounded by Institute buildings and will be closed to traffic and turned into a landscaped pocket-sized interior campus.

When construction is completed, the Brooklyn Museum plans to turn its collection of fashions over to the Institute for permanent storage and display, and for use by the students. Architects are deYoung & Moscovitz; Philip deYoung, partner-in-charge; Youssef S. Bahri, project designer.

WASHINGTON/FINANCIAL NEWS

by E. E. HALMOS, JR.

Urban Legislation Rush — It is now certain that Congress will crank out a bill aimed at urban housing before this session is over — and that

the final result will be a major switchover from existing philosophy on such matters:

It will lean heavily on private enterprise as a source of

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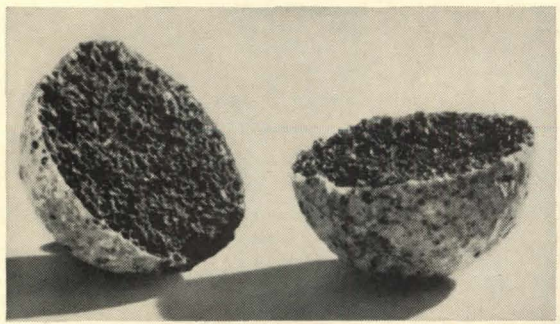
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funds and know-how, relegating the Government role to adviser and monitor; and it will also attempt to make it possible for slum-dwellers to become homeowners, perhaps by substituting "sweat equity" (labor on the project) for cash down payments.

Sadly, passage of such legislation will owe a debt to the tragic rioting that has swept so many urban centers: It is aimed at eliminating some of the causes of big-city unrest by providing adequate housing.

What comes out of Congress may have little to do with the immediate task of cleanup and rebuilding — that's likely to be handled on an emergency basis. Here, the aim is a long-term, effective solution for low-income housing. It will certainly dictate a major change both in the agencies for which architects will be working, and in the over-all concept with which they approach the task.

Basis for this new approach exists in three key bills now before the Senate: a bill bearing the endorsement of most Republicans (S. 1592), presented by Illinois' freshman Senator Percy; and two related bills (S. 2011 and S. 2088), authored by New York's Robert Kennedy. Percy's bill went into the hoppers early in April, Kennedy's in late July. The measures are complementary in some respects, and are worth a close look.

The Percy Proposal — Percy's bill (the "National Home Ownership Foundation Act") would create a private, nonprofit "National Home Ownership Foundation," which in turn would organize local community groups (of businessmen, clergy, charitable organizations, slum dwellers), which would plan for development of low-cost housing for sale, obtain financing (with guarantees from the Government) and would even offer counselling to prospective owners to the extent of family planning.

Prospective owners could contribute cash as downpayment and monthly payments (in a cooperative venture, or a condominium), or they could contribute labor to its construction (or rehabilitation) to

take the place of a cash equity, paying out the rest of the mortgage in regular monthly installments.

Property would be acquired by the local nonprofit group, which would finance all initial work for construction or rehabilitation, backing an initial loan from the Federal "Foundation" with the mortgages and the property itself.

Kennedy's Call to Action — Kennedy's "Urban Housing Bill" could be complementary: It calls for tax-incentives for private industry of any kind as reward for investment of money and knowhow in low-income city housing — through such devices as mortgage insurance up to 80% of costs, interest rates at 2%; tax incentives on property (if the project contains 100 units or more), further incentives on general corporate taxes, if the corporation wants to invest in such housing.

In addition, the "Industrial Incentive Act" (S. 2011) would be a try at providing jobs and training in skills to slum-dwellers, who could be employed on constructing the low-income housing that would be authorized in the first measure. Industries volunteering to employ "significant numbers" of unskilled or semiskilled local residents on such jobs would get further incentives that would include a deduction of 25% additional (thus 125% deduction) on all salaries paid to such employees, plus other deductions on machinery and equipment used in training programs, and the like.

A number of somewhat similar measures have been introduced in the House.

Meaning for Architects — Significant for architects — beyond the social objectives — is that sponsors of these bills have expressed: (1) growing Congressional impatience with the slow progress and blunderings of existing Government attempts to build low-rent housing; (2) acceptance of a principle long advocated by social scientists, city officials, and some architects: less displacement, less discontent, less problem, if salvageable residence properties are rehabilitated, rather than bulldozed out of existence for

eventual replacement by new (and often unfamiliar and unfriendly) structures; (3) the belief that if slum-dwellers can really get an equity on their homes, the tinder for destructive riots won't be quite so dry.

A-E Procurement, Cont. — Architects and other professionals who have been working for legislation to clarify the question of professional fees and contract awards seemed to have the feeling that, with friends like Wisconsin's Senator Proxmire, they had no need of enemies.

While a six-Society "Committee on Federal Procurement of A-E Services" was at work on a suggested bill on the subject (and trying to decide on a proper legislator as sponsor), the often-maverick Proxmire rushed into the breach and introduced a bill of his own (S. 2089).

In the view of the professionals, the Proxmire bill was worse than nothing at all: It would flatly eliminate the 6% fee limitation now in force (as recommended by both the societies and the General Accounting Office), but it would place total reliance on "Truth in Negotiation" laws that would, in effect, enforce bidding on a price basis for professional service contracts.

Richard H. Tatlow, III, chairman of the "committee," tried to be tactful in a statement on the Proxmire action: He said the proposal is "not a satisfactory solution," but added that his group is "hopeful that future measures introduced by other Senators and Congressmen will include clarification of the fact that architects and engineers cannot be expected to submit competitive price proposals on work that has not yet been designed, and for which even feasibility may not yet be established." Tatlow couldn't keep out a sharper comment, though: "We are appalled at any suggestion that professionals be secured on the basis of negotiated or competitive bids."

In effect: Thank you very much, Senator Proxmire.

(Another Congressional check into matters of concern to architects were hearings opened early in August by the Senate Public Works Com-

mittee, into progress of "value engineering" programs both in the military construction areas, and in civilian construction agencies of the Government.)

Financial — Overshadowing any other financial consideration was what now appears to be an inevitable boost in taxes, though whether it will come in the form of the "surtax" proposed by the President in his January budget message, or something else, isn't yet clear. But there's no doubt that the national deficit for Fiscal Year 1968 will run well over \$20 billion — even with a tax rise — and something will have to be done. Economists, noting one of the strongest trends in history of money flowing into savings institutions in the first half of 1967, fear that prospects of a heavy tax increase will cut off the flow, thus reducing money available for financing construction work.

□ Along with total new-home construction starts, sales of new one-family homes were down again in April (compared to a year ago), according to the Census Bureau. In the month, actual sales were listed at \$45,000 — up from March, but down 4% from 1966.

□ State and local governments continue to increase their public works spending. In the 12 months ending in March 1967, according to Census Bureau figures, the local governments spent \$20,400,000,000 for new construction — an increase of about \$2 billion, or 11% over the previous 12-month period. Almost half of the money was spent on streets and roads; about a quarter went for educational facilities.

□ Over-all, the construction industry was performing just about as predicted during the first half of the year. In May, the seasonally adjusted annual rate of new construction put in place was about even with the year before — \$72,400,000,000. That's actually a very slight percentage behind 1966, but with the normal summer pickup, the industry was expected to just about hit last year's total (around \$76 billion) when all the reports are in. It will be the first time in more than 10 years that a new dollar-volume record will not be set.



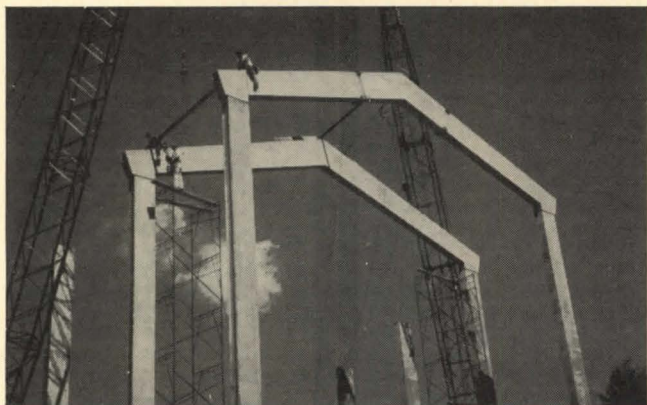
THE PRESCON MEMO NEWS

THE PRESCON CORP.: 502 CORPUS CHRISTI STATE NATIONAL BUILDING — CORPUS CHRISTI, TEXAS 78401

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COLUMN-FREE AREAS

REDUCED COSTS AND FASTER COMPLETION GAINED BY POST-TENSIONING



These three projects emphasize the scope of Prescon operations. Twenty offices offer assistance to architects, engineers and contractors to gain the advantages the Prescon System offers.

Eleven precast and post-tensioned prestressed concrete frames give architectural unity and expression to the new Chapel and Dining Hall for the Sisters of Notre Dame de Namur in Fairfield, Conn. Designed by J. G. Phelan and Associates, and Fletcher-Thompson, Inc. Architects and Engineers, Bridgeport, Conn., 22 peripheral frame columns support the main Chapel floor and rise from the Ambulatory to a height of 55'. Saddle-shaped concrete beams connected to the column at the top, to form rigid frames, rise from 46' to 65' height and support the roof.

The prestressed concrete frame components were precast and prestressed as individual units. They were assembled in their final position to form rigid frames. The bent frame spans range from 56' to 78'.

Beams and columns were post-tensioned immediately after the concrete reached a strength of 4,000 psi. They were assembled to rigid frames by post-tensioning the junction. Prescon Type S grouted tendons were used.

The frame beams are designed for simple bending under their own weight and part of the dead roof load. The balance of dead load, snow and wind forces are resisted by frame action. The columns were prestressed to resist wind loads, to absorb the tensile stresses from frame action and to prevent bending cracks during handling and erection. The compressive force resulting from beam end-reaction and bending moment was transferred into the column thru a lead pad, to provide uniform stress distribution.

It is estimated that the methods and construction used greatly reduced costs. Precasting saved \$22,500, and prestressing steel was slightly over \$1,000 per frame. Reduction in steel weight afforded in additional savings in material handling.

Prestressing the concrete frames eliminated cracks due to shrinkage, bending, and handling, resulting in controlled deflection and a structure more than twice as rigid as one designed by conventional methods.

Contractor: E. & F. Construction Company, Bridgeport, Connecticut.

\$12,000,000 Mills Square Complex is central stressed with Prescon tendons. Located in San Mateo, Calif., this 3-building complex — 9 story office building, 9 story apartment building and 4 story hospital plus 3 lower levels of parking for 680 cars — largest central stressed project in the United States, used central stressing to eliminate pour strips, and speed up construction schedules. In the garage area the use of steel expansion joints prevented conventional end stressing, complicated expansion joint construction, and demanded an all too rigid sequence of placing concrete. Central stressing solved these problems. There is a total of 700,000 sq. ft. of floor space.

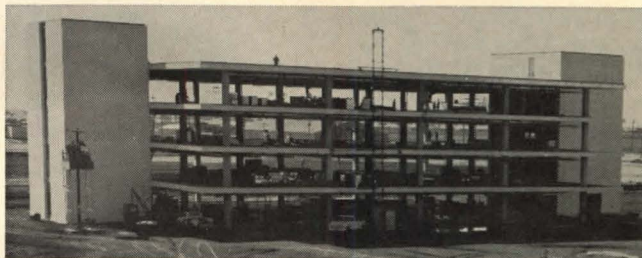
The floor system has spans up to 28' in two directions, with 8" flat slabs post-tensioned in both directions. Central stressing was used where needed to simplify construction or speed up concrete placing. Post-tensioning eliminated slab deflection and allowed greater flexibility in placing interior walls, and elimi-

nated many columns in the parking garage, allowing easier self-parking.

Central stressing tendons varied from 4 wire to 10 wire Prescon Type X (central stressed) tendons, with conventional Type S (standard end stressed) tendons used where central stressing was not required. Blockouts for stressing the Type X tendons were formed of plywood with each side sloped slightly to facilitate early removal of the form and allow reuse. Blockouts were located at approximately the quarter point of one of the spans near a point $\frac{3}{4}$ the length of the tendon. Exact location was determined by the position of the nearest quarter point of a span near the 60' dimension.

The stressing blockouts for adjacent tendons were located on alternate sides of a column strip. This prevented any conflict of blockout forms and reduced the chance of temporarily weakening the slabs. The first two elevated slabs terminated against an embankment supported by sheet piling. Conventional end stressing was impossible in this area. Type X, central stressed, tendons terminated at this point with dead end anchorages, allowing the concrete to be placed hard against the sheet piling. Spacing of tendons averaged approximately 36" on center in the middle strip, and 24" on center in the column strip.

Owner: San Mateo Civic Center Associates, San Mateo, Calif. Architect: DeWolf & Associates, AIA, San Mateo, Calif. Structural Engineer: T. Y. Lin, Kulka, Yang & Associate, San Francisco, Calif. General Contractor: Stolte, Inc., Oakland, Calif. Owners Representative: Alex Groszard, Menlo Park, Calif.



Collins Radio Corporate Headquarters post-tensioned with Prescon tendons. Twenty columns support a prestressed concrete area of 25,000 square feet per floor in the four-story headquarters in Richardson, Texas. This remarkable, yet simple structural system yielded an economical and functional building with a long span, thin floor system for clean, crisp lines.

Large column-free areas enabled flexible office arrangement. Bays are 41'-8" x 37'-6", floors and roof slabs cantilevered 8'-4" beyond the north and the south column lines, and 12'-6" beyond the east and the west column lines to reduce heat load and sun glare. Live load requirement was 100 pounds per square foot.

Analysis by the Owner's Construction Division determined that a post-tensioned waffle slab offered the best solution to cost, time, and construction depth requirements. Such construction would also allow deflection control by choice of size and positioning of the Prescon tendons. The waffles were 3'-5" square with a 9" wide rib 16" deep, plus a 3½" slab.

Concrete for each floor and the roof was placed in two days. Tensioning began when concrete reached 3000 psi which was 5 to 6 days later. Forms and shores were then immediately removed. Some reshoring was required while concrete was placed at the next level, and remained in place until the new slab was stressed.

It is estimated that 2 weeks were saved in constructing the frame, and \$25,000 in costs by using a post-tensioned prestressed concrete structural system.

Owners: Collins Radio Co. Consulting Engineers: Terry-Rosenlund & Co., Dallas, Tex.

The advantages that often can be gained by post-tensioning prestressed concrete makes it important that the Prescon System be considered in your project design. Write for literature.

THE PRESCON CORPORATION

General Offices: Corpus Christi State National Building
Phone: (512) 882-8291, Box 2723, Corpus Christi, Texas 78403
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PRODUCTS

ACOUSTICS



Solid-state circuitry for sound reinforcement in auditoriums.

A new solid-state, control console provides better sound control in auditoriums. It makes possible a multitude of sound reinforcement operations: volume control for 13 to 18 loudspeakers (stereophonic or monaural), a cueing system for tapes and discs, monitor and intercom systems for the technical staff, tape recording from live or recorded programs, and dual metering. The controls are under a locked lid. The whole system can be set up on site within two hours, claims manufacturer. Acoustical Laboratories, Inc., 509 W. 2nd North, Salt Lake City, Utah.

Circle 100, Readers' Service Card

AIR/TEMPERATURE

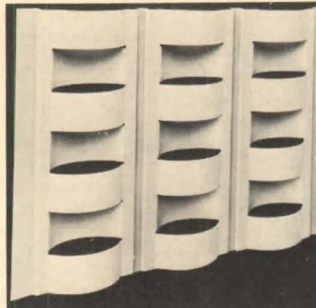


Cooling fountain. Floating spray device converts ponds into water cooling facilities. Main advantage of submersible propeller pump unit, anchored by cables, and powered by submersible electric cable, is its simplicity in converting existing ponds to cooling facilities — no piping, or discharge nozzles are necessary. Unit sprays cool subsurface water into the air, where it evaporates, producing the cooling effect. Welles Products Corp., Roscoe, Ill. 61073.

Circle 101, Readers' Service Card

CONSTRUCTION

Exterior refacing panel. The C/A Alumatex II building refacing panel is fabricated from sheets of 16 gage aluminum. Two basic panel patterns are available: diamond and elliptical. These may be alternated, staggered, or inter-



mixed for variety. For additional variations, each pattern may be elongated; and each is available in clear or color finishes. Pattern modules measure 8" x 3" x 3", and panels, 8" x maximum 12'-6". They are designed for installation by screwing the tongue-and-groove panels to horizontal members. Construction Specialties, Inc., 55 Winans Ave., Cranford, N.J. 07016.

Circle 102, Readers' Service Card

DOORS/WINDOWS

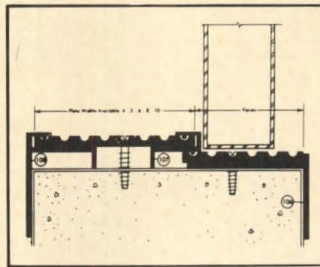
The side slide door. Store doors can now slide automatically to the side, leaving up to 63" for passage without using valuable interior floor space. Installed with single or double



door panels, the "Auto-Slide" is said to take half the installation time of comparable doors because of special head and jamb design. Positive door alignment is maintained by heavy-duty one-piece extruded aluminum construction with built-in rollers, claims manufacturer. The compact pneu-

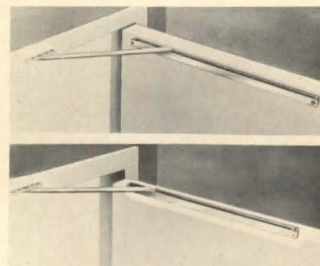
matic operator adjusts sliding speed to suit store traffic. The Stanley Works, 195 Lake St., New Britain, Conn. 06050.

Circle 103, Readers' Service Card



Adjustable sill. Two-plate aluminum saddles for roof-exits and fire doors telescope to fit nonstandard sills. Either plate may be specified to adjust to sill depths from 6" to 20". Zero Weatherstripping Co., Inc., 415 Concord Ave., New York, N.Y. 10455.

Circle 104, Readers' Service Card



Door holders. Overhead door holders fit doors up to 48" wide. Extruded bronze units may be attached to door surface or concealed within it. They are applicable to both exterior and interior doors, and are available in friction and nonfriction models. Some units can be made to hold door open by merely turning a knob. Sargent & Co., 100 Sargent Dr., New Haven, Conn. 06509.

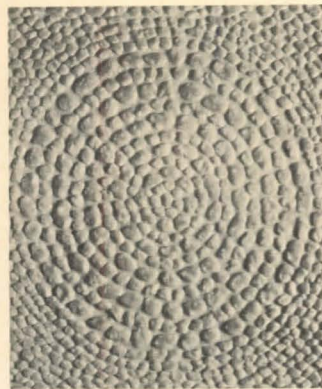
Circle 105, Readers' Service Card

FINISHES PROTECTORS

Garage deck coating. Garage decks can be protected from salts dripping from cars, and from oil and gasoline spillage by a low-cost deck coating. Costing 10 to 15¢ per sq ft, it is said to penetrate and seal surface pores of the concrete. It thus remains effective despite concrete wear. Application is in two steps: a base coat seals the concrete pores, and a finish coat provides added resistance to corrosive

substances. Coating can be applied to freshly placed concrete. Dewey and Almy Chemical Division, W. R. Grace & Co., Cambridge, Mass.

FURNISHINGS



Various vinyls. Five vinyl flooring textures are added to Amtico's line: "Cabochon" is a pebble-like mosaic swirl of ever-widening circles. Colors include pearl, topaz, and emerald mingled with sapphire. "Kaleidoscope" is a pattern of tiny polished pebbles in 50 colors. A tartan-like pattern, "Plaid," features a criss-cross of shiny streaks against a rough background. Selection also features "Carbouche," and "Basketry." American Biltrite Rubber Co., Inc., Trenton, N. J. 08607.

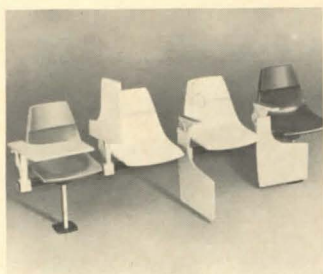
Circle 106, Readers' Service Card



Table for tots . . . and adults. A children's game table, part of a collection of "play and study furniture for the kindergarten child," is also useful as an occasional table for adults. One molded polyether plastic piece forms both legs and oval top measuring 24" x 36" x 18½". Also in the collection: a stylistic rocking horse, a swing, and stacking chairs with white tubular steel legs. All plastic available in

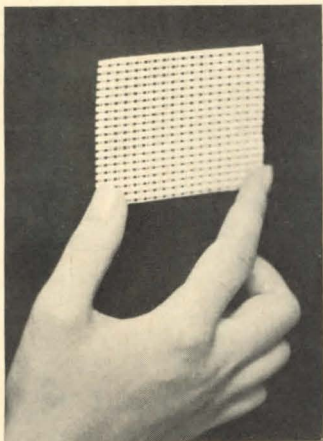
red or blue. Hank Loewenstein, Inc., P.O. Box 12383, Dallas, Tex. 75225.

Circle 107, Readers' Service Card



Classroom seating. Floor- or riser-mounted molded glass-fiber seating for classrooms, in two-, three-, or four-unit groups, have backs said to be contoured for posture support. An ample writing surface folds aside to the storage position, uncovering an armrest. Krueger Metal Products Co., Green Bay, Wis. 54306.

Circle 108, Readers' Service Card



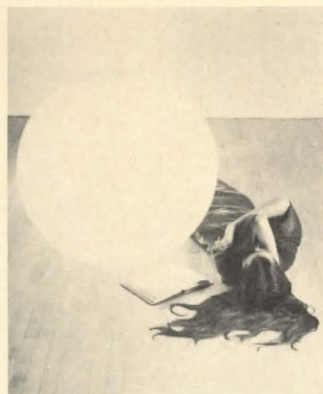
"Comfort shade." Woven shade of weather-resistant, vinyl-coated glass-fiber yarns keeps solar heat under control and air-conditioning costs down, without blocking outside views. Yarns are locked together by a heat-setting process that stabilizes the fabric pattern. It is said to be durable, to act as a protection against insects, and to reduce fading of draperies and furniture. Joanna Western Mills Co., 2141 S. Jefferson St., Chicago, Ill. 60616.

Circle 109, Readers' Service Card

Non-tear paper. An innovation in paper, a spunbonded Olefin, is virtually impossible to tear but cuts easily without snags or tears. "Tyvek" has a smooth matte surface, and can be hung with any common wallpaper adhesive. The nine

hand-print designs include a plaid and several gay flower patterns in clear, bright colors. Suitable for residential use and intimate public areas. Cost is somewhat less than cloth-backed vinyls, manufacturer says. F. Schumacher & Co., 939 Third Ave., New York, N.Y. 10022.

Circle 110, Readers' Service Card



Like a rolling sun. A 36"-dia globe-shaped lamp, which, claims the manufacturer, is "the largest seamless (one piece) plastic ["Lumacryl"] globe in existence," sits directly on the floor. It accommodates a 200-w bulb that gives multidirectional light; the cord (not visible in photo) has a foot switch and thus maintains the clean lines of the globe. Also in the line is a 12"-dia, 52"-high, closed-topped cylinder accommodating a 600-w bulb. Habitat, Inc., 341 E. 62nd St., New York, N.Y. 10021.

Circle 111, Readers' Service Card



A touch of Windsor. Descendant of the classic Windsor chair is constructed of steam-bent ash with precompressed dowels for solid joints. Sturdy, simple design by Claud Bunyard is suitable for colleges, hospitals, libraries, and other public areas. Lacquer or an oil sealer finishes the wood, which can be left

natural or stained. Also available without arms. F. W. Lombard Co., South Ashburnham, Mass. 01466.

Circle 112, Readers' Service Card



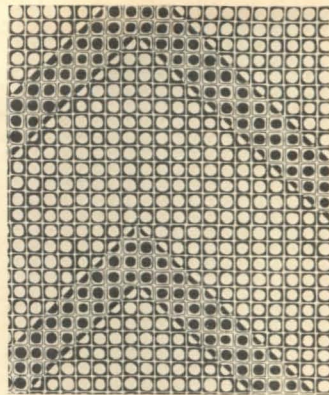
Versatile tables. Group of end and coffee tables for offices, lounges, or reception areas is designed to fit in with many furniture styles. Teak, walnut, or plastic tops are available in rounds as well as the square and rectangular shapes shown. Robert John Co., 821 N. Second St., Philadelphia, Pa. 19123.

Circle 113, Readers' Service Card



Electric blanket for windows. An electric drapery liner called "WindoWarmer" will help eliminate those hard to control winter drafts, claims manufacturer. Designed to create a warm-air shield at even the most drafty windows, the Fiberglass WindoWarmer is controlled by out-of-the-way thermostats. The result of six years of testing, it is said to be easy to install, is fireproof, and uses currents of 80 w, 115 v, and 60 cycles. Available in 5 lengths ranging from 54" to 95", with prices from about \$20 to \$30 a pair. Cameo Curtains, 260 Fifth Ave., New York, N.Y. 10001.

Circle 114, Readers' Service Card



Fabrics with a foreign flair. In both bold and subdued custom-dyed colors, large-scale patterns keynote collection of upholstery and drapery fabrics, the work of five designers. The group suggests flavors of ancient Greece, the Renaissance, and the Orient. Patterns are 50" wide, and linens are the predominant fabrics used. Isabel Scott Fabric Corp., 979 Third Ave., New York, N. Y.

Circle 115, Readers' Service Card

LIGHTING



New light on the convalescent. A low-cost lighting fixture, "Convallaire Jr.," is designed for hospitals, convalescent homes, and dormitories. The wall-mounted fixture with a walnut finish has acrylic lens and casts non-glare light both up and down. An optional plug-in arm for reading and examination light is available, as is a remote-operated switch. Electro Systems, Inc., 171 Minna St., San Francisco, Calif. 94105.

Circle 116, Readers' Service Card

Prismatic panels for luminous ceilings. Two reversible ceiling panels are available, either clear or translucent. These polystyrene panels have a geometric, prismatic surface on one side and a pebble surface on the other. When the prismatic side is facing up, it re-



fracts light and the pebble face disperses it to the room below, producing a luminous crystalline effect. When the prismatic side is facing down, there is a high intensity of light, with low surface brightness. Alternating reversed panels produces 3-D effect. Samples available. Artcrest Products Co. Inc., 255 W. 79 St., Chicago 20, Ill.

Circle 117, Readers' Service Card

SANITATION PLUMBING

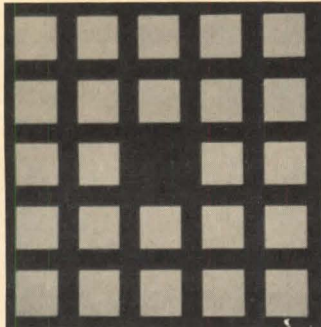


Hands off. Foot-controlled lavatory leaves hand free. Stainless-steel unit, available with or without accessories (cabinet, light, towel and cup dispensers), measures 20" wide and fits into a 4" wall. Suitable for commercial and institutional installations. Bradley Washfountain Co., 9193 Fountain Dr., Menomonee Falls, Wis. 53055.

Circle 118, Readers' Service Card

SERVICES

Graphics. Architects may commission graphics of all kinds from a group of British print makers represented in this country by London Arts, Inc. The artists work in woodcuts, lithographs, serigraphs, and etchings in a number of individual styles—including the geometric pattern and abstract shown. Forms are generally crisp, colors clear and



fresh. Size varies. The aim is to make good graphics available at modest prices, and an edition of prints commissioned by an architect might run from \$10 to \$25 each. London Arts, Inc., Drawer H, Lenox Hill Station, New York, N.Y. 10021.

Circle 119, Readers' Service Card

SPECIAL EQUIPMENT

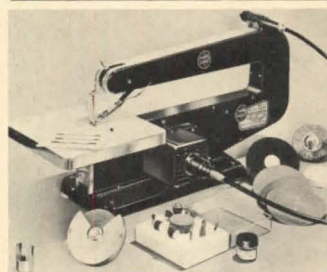


An Inner Voice. Interoffice telephone poses a triple threat: It can be used as a loudspeaking intercom system, as a low-level conference telephone operated quietly from a distance of 3' or so, and as a conventional hand-held telephone. Known as "Triphone," the unit can be tilted at a slight angle to channel calls to a secretary, or placed horizontally to cut off calls completely. In addition, manufacturer states unit can be operated in connection with loudspeakers or connected to a piped music system. ELC International, Inc., 16 E. 40th St., New York, N.Y. 10016.

Circle 120, Readers' Service Card

Giant fireplace damper. An 8' damper offers possibilities for increased fireplace sizes. Constructed of cast iron, damper is designed to provide a correctly proportioned passage for smoke and fumes. It is shaped with splayed ends to reflect heat back into the room. Steel or cast iron valve plate is hinged at back to check downdrafts. Damper comes with either a poker or rotary control. The Donley Brothers Company, 13900 Miles Ave., Cleveland, Ohio 44105.

Circle 121, Readers' Service Card



Portable model-maker. Scale models of buildings can be handily made with the "Moto-Shop." This quiet-running workshop combines jig saw, disc sander, bench grinder, and buffing wheel in a unit so small it can be set on a drawing board. Unit includes a flexible shaft attachment for drilling, grinding, routing, sharpening, deburring, and carving. The 15"-throat jig saw can cut plastic, light-gauge wood, or metal. Depth of cut up to 1 3/4". Uses of fine blades for precision work. The 10-lb unit is especially appropriate for the architect wanting to make only an occasional scale model. Price is \$33.95. Dremel Manufacturing Co., Racine, Wis.

Circle 122, Readers' Service Card

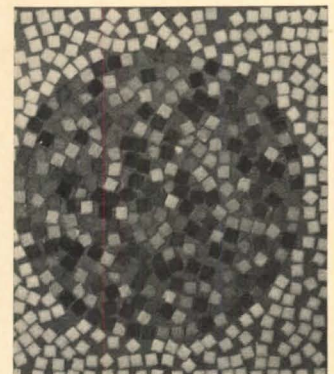


Keeping track of hospital bed assignments. To cut down paper work and improve hospital efficiency, the "Medi-Scan 220 Census Control System" transmits information on bed occupancy and availability to key personnel on accounting, admitting, house-

keeping, and dietary staffs. Information is fed into the system's display panels located at nursing stations. Motorola Inc., Communications Div., 4900 W. Flournoy St., Chicago, Ill. 60644.

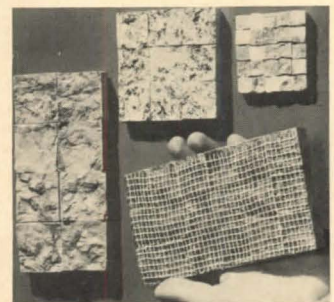
Circle 123, Readers' Service Card

SURFACING



Paving and wall slabs. Venetian glass tile, exposed aggregate, and slate panels are suitable for walls, malls, courtyards, and walkways. Venetian glass tile panels, of either standard or custom design, come in the following sizes: 24" square, 24" x 30", 24" x 36"; 2" thick. Slate panels are available in two random patterns and in 12" x 12" squares with various color combinations. Special aggregates include marble chips, quartz, granite, and tumbled stone. Duracrete Block Co., Inc., 1359 Hooksett Rd., Hooksett, N.H. 03106.

Circle 124, Readers' Service Card



Marble "tile." Split-face, polished, or rough-cut marble squares are mounted on mesh for easy installation. Fifty types and colors of marble can be mixed or matched, to designers' specifications, in three sizes, and in panels of any size up to 12" x 12". Manufacturer claims that cost is approximately the same as ceramic tile. Walker and Zanger, Inc., 100 Hudson St., New York N.Y. 10013.

Circle 125, Readers' Service Card

It might do the job at first. But gradually there's a loss of insulation efficiency in low-cost, water-susceptible insulation. Heating bills and cooling costs go up, and up, and up.

Here's what happens. The bargain insulation gets water-logged and loses its insulation value. Vapor barriers aren't enough. Movement of a building will split them, allowing moisture-laden air to penetrate the insulation. Moisture forms through

condensation, reducing insulation efficiency. What to do?

Specify STYROFOAM® brand extruded foam. It's the finest, most modern insulation you can buy. Never loses its effectiveness. Always stays dry. Requires no vapor barrier. Doesn't rot, mold or deteriorate. Flame retardant. Lightweight and easy to install.

As for application, you can use the

Miller System; apply paneling or decorative wallboard directly on it; use as a base for wet plaster; or as a perimeter insulation for foundations and slabs.

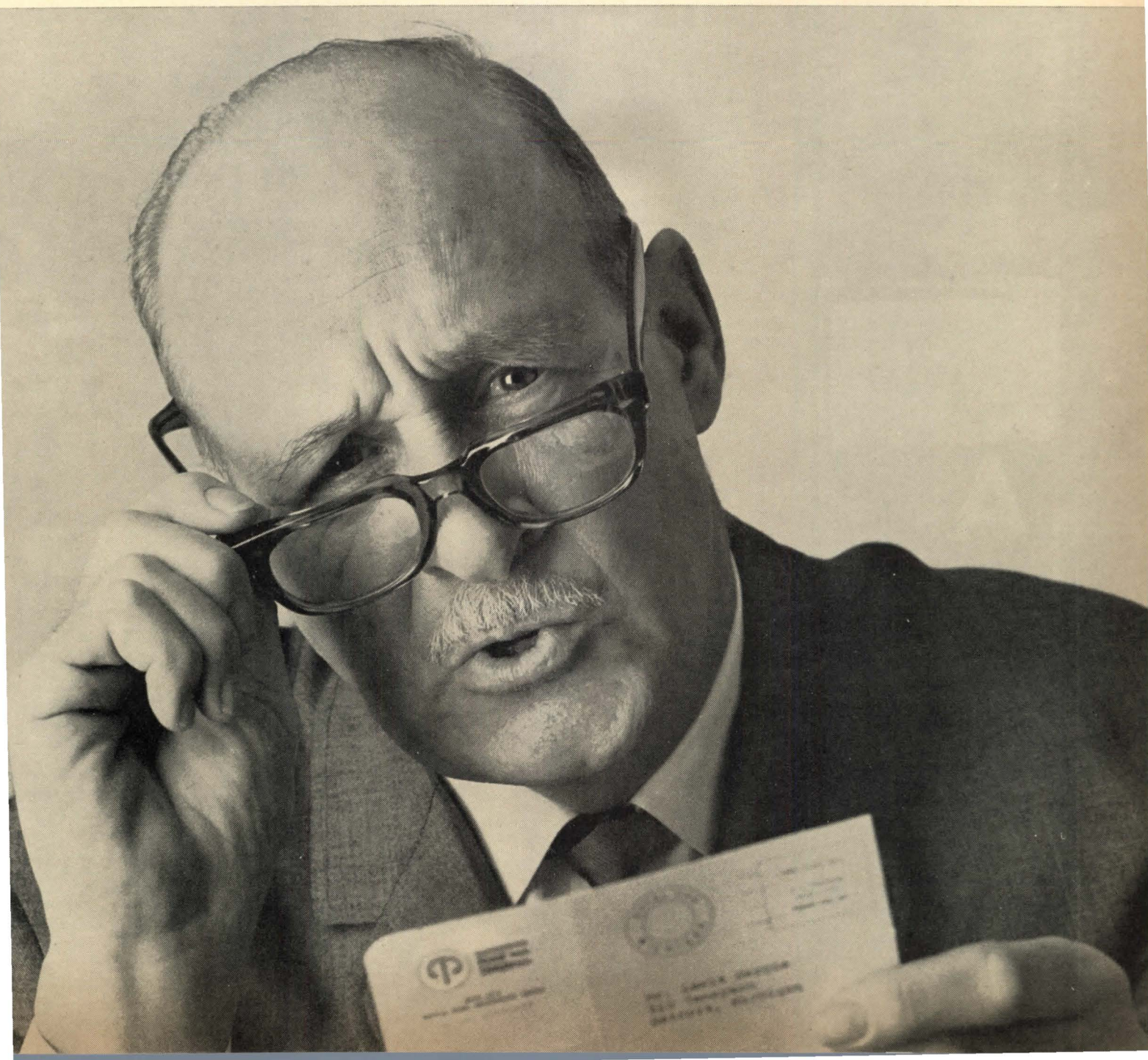
The next time why not specify STYROFOAM brand insulation... one of a family of rigid foam insulations offered by Dow. For more information, write to The Dow Chemical Company, Construction Materials Sales, Dept. 71300, Midland, Michigan 48640.



No one will know you installed bargain insulation.

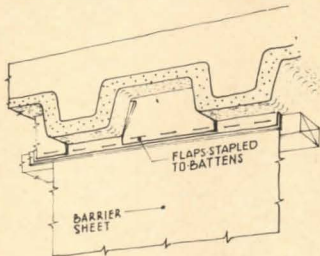
(until the owner heats up)

On Readers' Service Card, Circle No. 333



MFRS' DATA

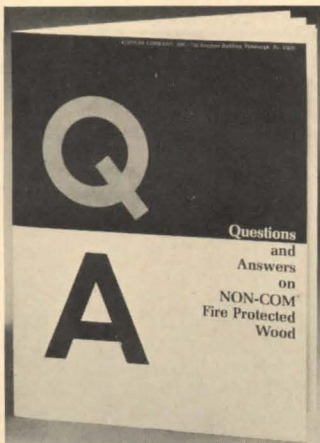
ACOUSTICS



Lead plenum barriers. Cost estimates for an installed acoustical barrier of lead is about \$1 per sq ft. Booklet recommends lead as an efficient noise-stopper, flexible, and easy to work. Normal thickness for plenum barriers is $\frac{1}{64}$ ", which weighs about 1 lb per sq ft. Descriptions and details are given for seams, joints, installations under pan-type floors (shown), and around ducts and pipes. Comparison graphs show sound attenuation with and without lead insulation. 8 pages. Lead Industries Assn., Inc., 292 Madison Ave., New York, N.Y. 10017.

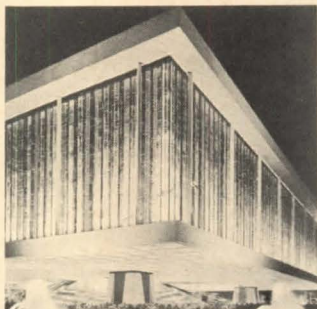
Circle 200, Readers' Service Card

CONSTRUCTION



Wood against fire. Lumber and plywood, pressure-impregnated with mineral salts, has a fire hazard classification of about 15, which is roughly comparable to gypsum wall-board. Questions and answers about "Non-Com" fire-retardant wood cover such subjects as species of wood suitable for treatment, finishing and working of treated woods, testing, fire-resistance ratings, insurance rates, cost, code recognition, and specifications. Although fire-treated wood goes back to the turn of the century, recent improvements have made it more efficient,

more workable, cleaner and less hygroscopic, says manufacturer, and, when exposed to fire, it retains its structural strength for a longer time than unprotected steel. 14 pages. Koppers Co., Inc., Lumber Sales, 750 Koppers Bldg., Pittsburgh, Pa. 15219.

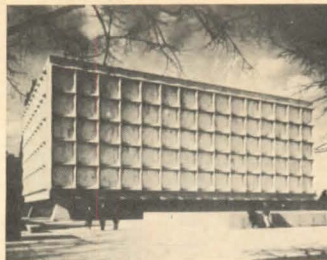


"Krinklglas." Glass-fiber reinforced plastic sheets with a textured surface are available in 54 solid colors and 18 mixed-together combinations, random striations, and geometric patterns. Suitable for interior and exterior applications, the material was used in structural panels enclosing the U.S. Pavilion (shown) at the New York World's Fair. Color chips of representative shades and patterns, sheet sizes and thicknesses are contained in folder. Price list and samples of product are available. 4 pages. Dimensional Plastics Corp., 1065 E. 26 St., Hialeah, Fla. 33013.

Circle 201, Readers' Service Card

Wind load data. "Tentative Standard for Design Wind Loads for Walls of Rectangular Buildings" discusses standards for buildings with three basic types of exposure: urban, suburban, and open country. The National Association of Architectural Metal Manufacturers considers these standards much more realistic than the ones they replace. Height, geographic location, and negative corner loads are covered in the text; wind velocity map of the U.S., and wind pressure tables for the three exposure types plus height and exposure-factor table are included. National Association of Architectural Metal Manufacturers, 228 N. LaSalle St., Chicago, Ill. 60601.

Circle 202, Readers' Service Card

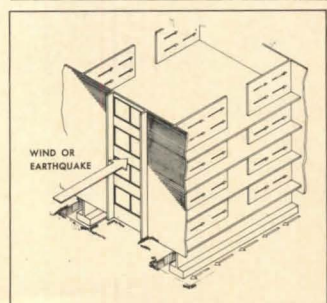


Translucent marble. The crystalline structure found in some marbles permits them to transmit light. A broad range of whites, buffs, pinks, and some greens are available, and colors can be varied by using different light sources. Folder discusses briefly the marble, its recommended sizes and uses. Three buildings with architectural details of marble installation are shown as examples. Above is the Beinecke Rare Book and Manuscript Library at Yale, by Skidmore, Owings and Merrill. 6 pages. Marble Institute of America, Pennsylvania Bldg., Washington, D. C. 20004.

Circle 203, Readers' Service Card

Stainless-steel roofing system. Booklet tells how to design and specify stainless-steel built-up roofs. Drawings of flashing, gutter, coping, and seam details illustrate text; tables compare characteristics of various roofing and flashing metals. 20 pages. Republic Steel Corp., 1441 Republic Bldg., Cleveland, Ohio 44101.

Circle 204, Readers' Service Card

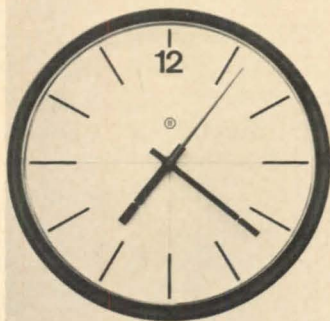


Brick sheer wall design. One of a series of "Technical Notes" on uses of brick, this pamphlet discusses lateral forces (wind and earthquake) on sheer walls, distribution of those lateral forces, rigidity of sheer walls, coupled sheer walls, and test data on sheer strength of nonreinforced brick masonry walls. Drawings, tables, technical data, and a number of references for various technical books and publications. 7 pages. Structural Clay Products In-

stitute, 1520 18 St. NW, Washington, D. C. 20036.

Circle 205, Readers' Service Card

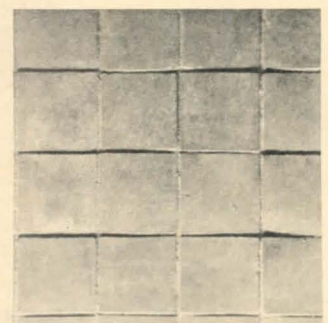
ELECTRICAL EQUIPMENT



Two-faced or straightforward. Eight electric or battery-operated clocks, single- or double-faced, are intended primarily for institution use. The clocks may be flush mounted, surface mounted, or attached to wall or ceiling brackets. Measuring 14" in diameter, they come with concave acrylic covers to reduce reflections. Clock bezels come in 12 colors and various anodized finishes; clock housings are clad with wood veneers. A special control makes possible the simultaneous resetting of hundreds of clocks from one central location. Several numeral types are available. Folder contains photos and table of faces, finishes and prices. 4 pages. Peter Pepper Products, 22422 S. Avalon Blvd., Wilmington, Calif. 90745.

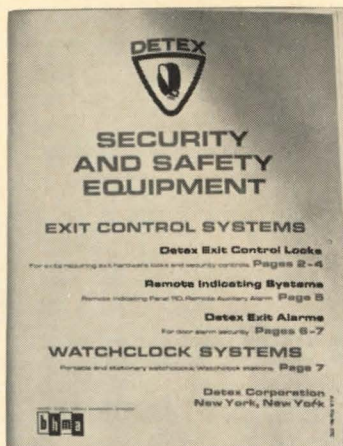
Circle 206, Readers' Service Card

FLOORING



Viva terra cotta. Hand-made Mexican floor tile retains all the color variations and minor imperfections of unsophisticated Mexican handicrafts. Carrillo tile is fabricated in squares, hexagons, and several other shapes; sizes from 2" to 16"; unglazed natural terra cotta colors, plus chocolate. Glazed tile for floors or wall

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April 1967 reprint—Circle #435

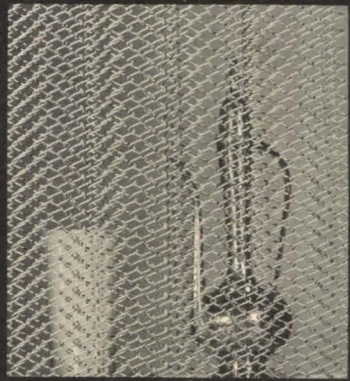
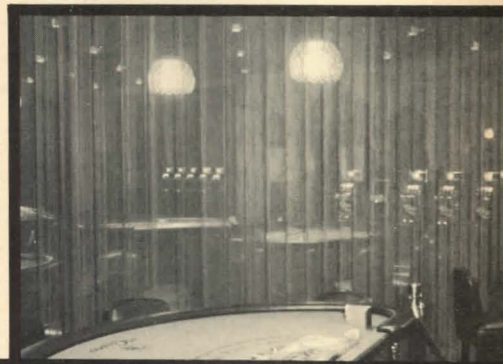
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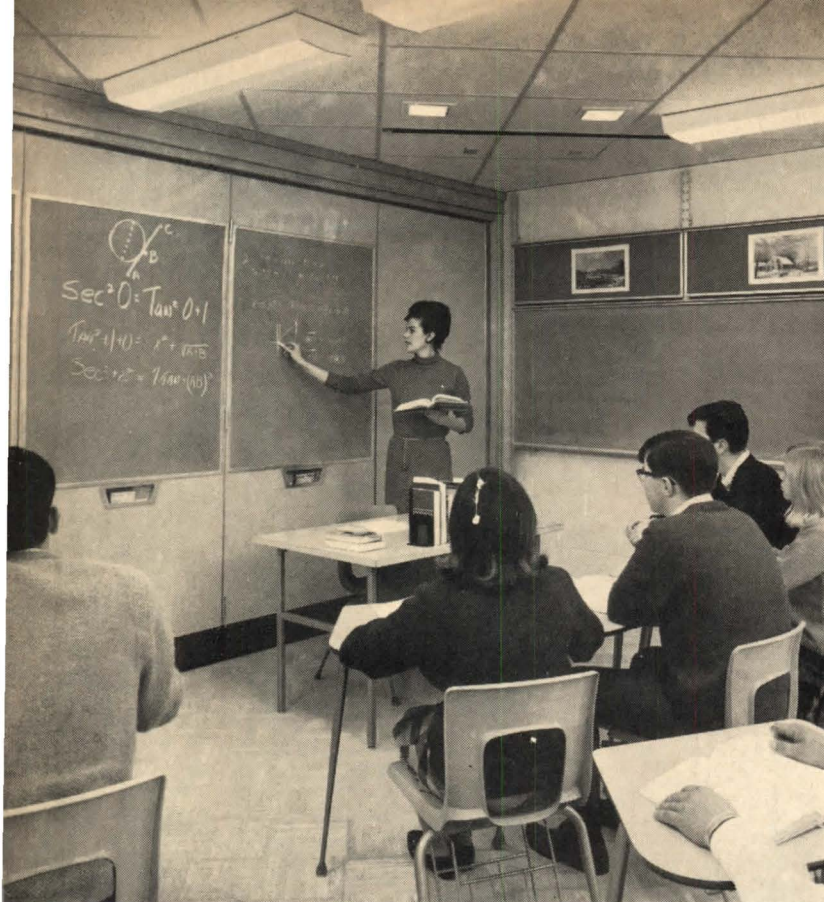
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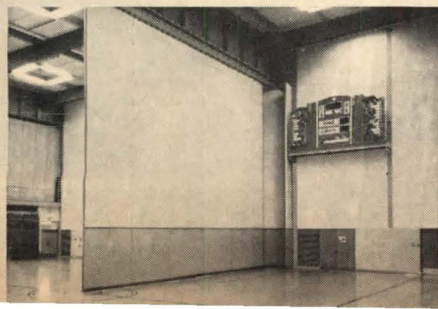
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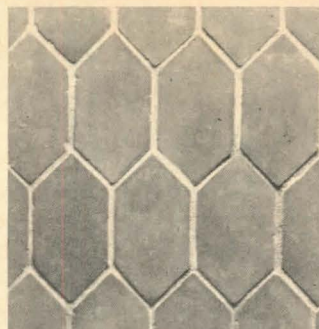
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is in 9 solid colors: oyster white, blue, green, yellow, black, mustard, mauve, terra cotta, and chocolate. Decorative, hand-painted tile also available. Full-color photos illustrate brochure. Elon, Inc., 246 E. 53 St., New York, N.Y. 10022.

Circle 207, Readers' Service Card

FURNISHINGS



A feast of tables. A catalog/price list of all-wood-construction tables lists square, rectangular, and round designs in 1" modules (from 18" x 15" x 12" to 96" x 48" x 30"), making approximately 45,000 combinations, available in four wood finishes and 16 lacquer colors. Manufacturer uses as lacquering technique an old Italian method that utilizes lacquer and gesso and that results in a deep "translucent" color. Brochure features photographs, description of lacquering technique, as well as prices. 6 pages. Intrex Incorporated, 341 E. 62nd St., New York, N.Y. 10021.

Circle 208, Readers' Service Card

Flocked carpets. Indoor-outdoor carpeting has a low, dense pile (obtained by an electrostatic flocking process) bonded to a vinyl backing. Fine, nylon pile is pleasant to the touch, and is available in rolls or tiles. Weather-resistant French import comes in shades of blue, green, red,

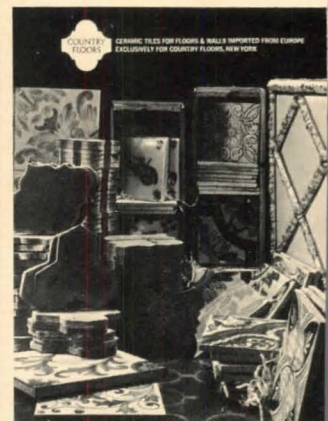
beige, and grey (*flanelle et éléphant, par exemple*). Sample card, folder and data sheets describe material, its installation and upkeep. Durkan Carpet Corp., 208 E. 60 St., New York, N.Y. 10022.

Circle 209, Readers' Service Card



Dorm-in. A thick packet of catalog sheets covers manufacturer's line of built-in dormitory furniture — daybeds, wardrobes, desks, bookshelves, chairs, storage units, and accessory hardware. Floor plans, drawings, photos, and extensive information on materials, construction, sizes, and installation is given. Furniture is surfaced with plastic laminates in solid colors or woodgrains; color samples included. Thonet Industries, Inc., One Park Ave., New York, N.Y. 10016.

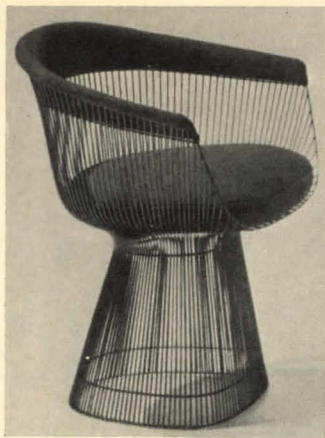
Circle 210, Readers' Service Card



Old World tiles. From France comes natural terra cotta floor tile in many traditional shapes, in brick colors or in bright-color glazes. From Italy and Portugal, wonderfully ornate hand-painted glazed tile in a host of colors and patterns for walls and floors. Brochure gives size and generous sampling of tile patterns in full-color photos. 4 pages. Country Floors Inc., 214 E. 26 St., New York, N.Y. 10010.

Circle 211, Readers' Service Card

September 19



Knoll scroll. Brochure/catalog from the House of Knoll is a selection of pieces from most of their distinguished designers — Bertoia chairs, Eero Saarinen tables, the Mies chairs, Florence Knoll desks, the Richard Schulz outdoor furniture, and so on. Shown above is the steel-wire design by Warren Platner — also available in tables, ottoman, and an easy chair faced with upholstery from head rest to seat cushion. Dimensions and photos. Knoll Associates, Inc., 320 Park Ave., New York, N.Y. 10022.

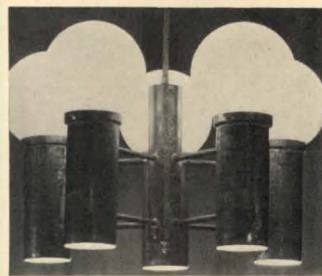
Circle 212, Readers' Service Card



Chair fair. Classic bentwood arm and side chairs with woven cane seats (above), and ladder backs with rush seats, among fussier styles, are suitable for contract installations. Also, tall-legged, rush-seated stools for counters, bars, or drafting tables. Italian imports. Photos, price list, dimensions. 8 pages. Piazza Originals, 225 Fifth Ave., New York, N.Y. 10010.

Circle 213, Readers' Service Card

Bold chandeliers achieve a kind of rough elegance in



rusted iron and hand-blown crystal globes, or translucent opal spheres as shown above. Also in pewter, oil-rubbed bronze, and a black finish, the basic design is available in a number of variations with different numbers of arms. Downlights are concealed in the cylinders. Catalog illustrates text with drawings and photos and includes several other fixture designs for wall or post mounting, and for hanging. Robert Long Lighting, 2 Gates Rd., Sausalito, Calif. 94965.

Circle 214, Readers' Service Card

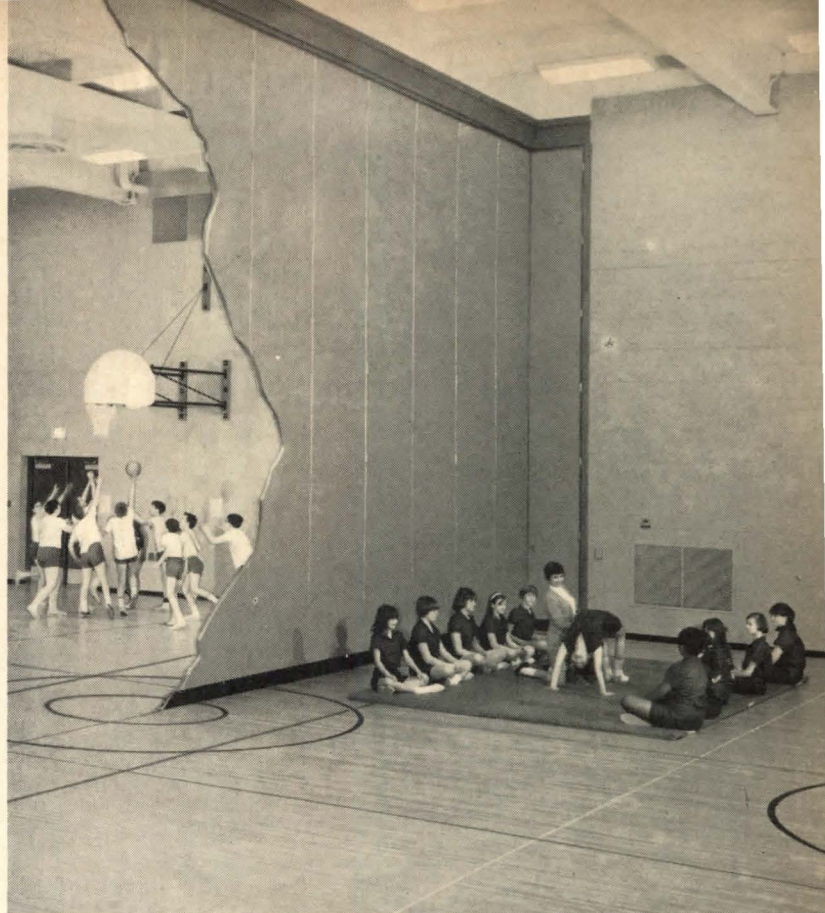


The outdoor generation. Among much traditional leafy scrollwork and imitation bamboo, are some simple metal furniture designs for terrace, poolside, and garden. "Radar Sta-Out" (above) has tubular frame with punched mesh tabletops and chair seats in 12 standard finish colors. "Catalog No. 49" lists chairs, tables, love seats, and chaises; photos and dimensions; sample swatches of cushion materials — expanded vinyl, plastic "Strawcloth," and sailcloth with Zepel finish in nine strong colors. 34 pages. Salterini, Div. of Walter Kidde & Co., Inc., 216 N. Main St., Freeport, N.Y. 11520.

Circle 215, Readers' Service Card

LIGHTING

Lighting maintenance. Brochure describes planned maintenance of lighting fixtures in industrial plants, offices, stores, schools, and other pub-



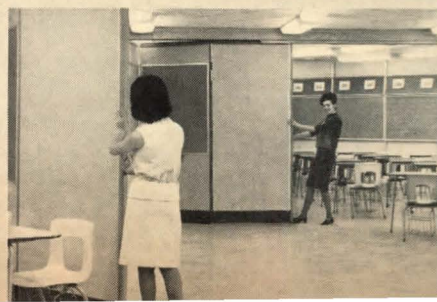
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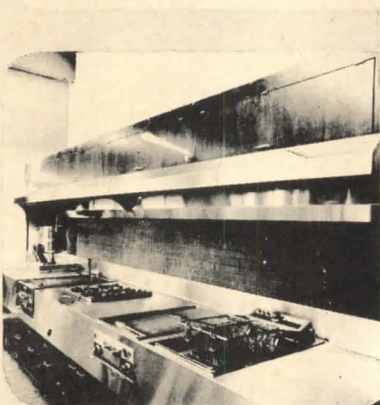
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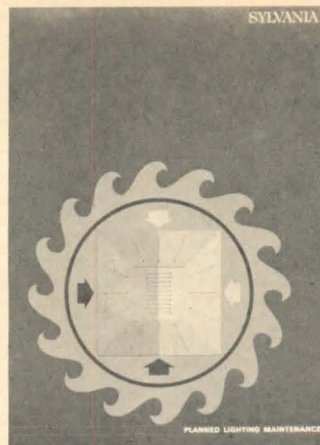
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lic buildings. Some of the information on cleaning and relamping programs is not pertinent to design, but other data will provide an insight into how lighting can be designed for more efficient and economical upkeep. Discussions of maintaining incandescent, fluorescent, and mercury lamps, and recommended lighting level for industry, stores, and offices. Text and graphs. 20 pages. Sylvania Electric Products, Inc., 1100 Main St., Buffalo, N.Y. 14209.
Circle 216, Readers' Service Card

OFFICE EQUIPMENT



Drafting equipment. "Catalog 85" lists 1700 items for draftsmen, from papers, pencils, scale rules, and drawing instruments to drafting machines and lamps for drafting tables. Photos, and catalog information. 96 pages. The Lietz Co., Div. of Paxton National, Inc., 330 Corey Way, South San Francisco, Calif. 94080.

Circle 217, Readers' Service Card

SPECIAL EQUIPMENT

Food service systems. Full range of modular countertop and kitchen equipment for restaurants and cafeterias includes griddles, fryers,

ranges, ovens, steamers, waste disposers, and a controlled-temperature trunion kettle. Catalog contains photos, dimensions, and technical data. 36 pages. General Electric Co., Dept. 762, 14 & Arnold Sts., Chicago Heights, Ill. 60411.

Circle 218, Readers' Service Card

Locker room planning. "Fully enclosed lockers with a few louvres pressed into the door . . . are as outdated as the 'pot belly' stove," says locker room equipment consultant, Donald Dickey. He recommends mesh-type athletic lockers with sides, fronts, and backs (where possible) of open mesh, wire screening, for the best visibility and ventilation. Also, bright colors should replace the rather dismal olive green. Booklet discusses customizing standard lockers, lockers on wheels, dressing and box lockers, locks, and so on. Although addressed in simple language to school and college personnel, it contains helpful tips for the architect as well. Cost: \$1.50. Donald D. Dickey, P.O. Box 6630, Minneapolis, Minn. 55420.



Fountains of nylon. System of nylon filaments down which slides a "special liquid" to form "hanging" columns and other shapes limited only by a maximum angle of 25° from the vertical. The "fountain" liquid is clear but may be dyed if so desired. Although manufacturer suggests various filament patterns, final designs are up to the architect. Booklet includes text on functioning of "WonderFall," plumbing schematics of recirculating system, lighting suggestions, typical mounting details, and guide specs. Installation shown is a

Victor Gruen Assoc. design.
18 pages. Navan Inc., 1320
E. Imperial Hwy., El Segun-
do, Calif. 90245.
Circle 219, Readers' Service Card

Sauna samples. Prefabricated
panels or entire free-standing
sauna units, have redwood
interiors and mahogany
veneer or marine plywood ex-
teriors. Cast-in-place urethane
insulation forms core of 2 1/4"
wall sandwich panels. Bro-
chure and a series of data
sheets describe 5 models rang-
ing from 25 sq ft to 80 sq ft,
and UL-approved heaters and
control panel; short specs.
Am-Finn Sauna Inc., Haddon
Ave. and Line St., Camden,
N.J. 08103.
Circle 220, Readers' Service Card

SURFACING

Vinyl tiles and sheets. Small
four-color folders, one each
on floor tile, sheet flooring,
and countertops, show Good-
year's all-vinyl line designed
primarily for residences. New
are "Mirada" countertop
(either sculptured or smooth),
which matches Mirada floor
tile, and "Roman Villa," a
sculptured random stone pat-
tern set in an aggregate of
small pebbles. Also available
is a black-and-white brochure
on the flooring line called "Go
for Growth." Goodyear Tire
& Rubber Co., Akron, Ohio
44316.
Circle 221, Readers' Service Card

Tile and trim. Standard ceram-
ic tile, vitreous accessories,
and trim shapes are listed and
illustrated in catalog. Base
trim is suitable for installa-
tion with resilient flooring or
thin set and conventional ce-
ramic floors. Color photos
show 14 standard colors. 4
pages. Marshall Tiles, Inc.,
P.O. Box 1119, Marshall,
Texas 75670.
Circle 222, Readers' Service Card

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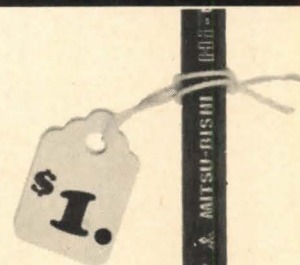
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NEXT MONTH IN P/A

THE NITTY-GRITTY OF CONCRETE CONSTRUCTION. Our complete issue on the design and use of concrete last October drew such a wealth of attention and controversy that we are following up this October with a major investigation of down-to-earth, day-to-day concerns of concrete in architecture. Architects, engineers, fabricators, and builders have contributed invaluable do's and don'ts—generously illustrated with graphic details of proper (and improper) concrete usage. Among those speaking out will be Morris Ketchum, Emery Roth & Sons, George Santry of Schokbeton, James Shilstone, the winners of the recent Prestressed Concrete Association awards, and many other architects and industry experts.

THE RETURN OF "OLD JEFF." In these days of "tear it down, it don't pay," it is gratifying to be able to present a notable example of building salvation and re-use. Greenwich Village's Jefferson Market Courthouse is a fine example of High Victorian Gothic that was about to go the way of all older structures until a group of "friends" rallied to its defense, persuaded the city to re-use it as a branch library, and encouraged architect Giorgio Cavaglieri in his tasteful renovation of the interiors. An encouraging tale for any community.

WHAT THE GANG IS UP TO. The continuing adventures of the Rover Boys of the new architecture: Hugh Hardy, Charles Moore, Paul Rudolph, David Sellers, Bill Rienecke, Louis Mackall, Frederick Romley, Charles Hosford, Robert Venturi, et al., this time with the emphasis on super-mannerist interiors.

AND MORE . . . Robert H. Mutch, gadfly-at-large, again hectors his colleagues constructively in "The Medium is Willing, But the Message is Weak" . . . A quietly evocative Episcopal Parish Hall in Sausalito by Henrik Bull is shown and discussed. . . P/A News Report brings you up to the minute on late-breaking excitement in architecture . . . P/A Observer reveals the get-out-of-the-studio-and-build technique of new Yale students, and digs into a few other lively happenings.

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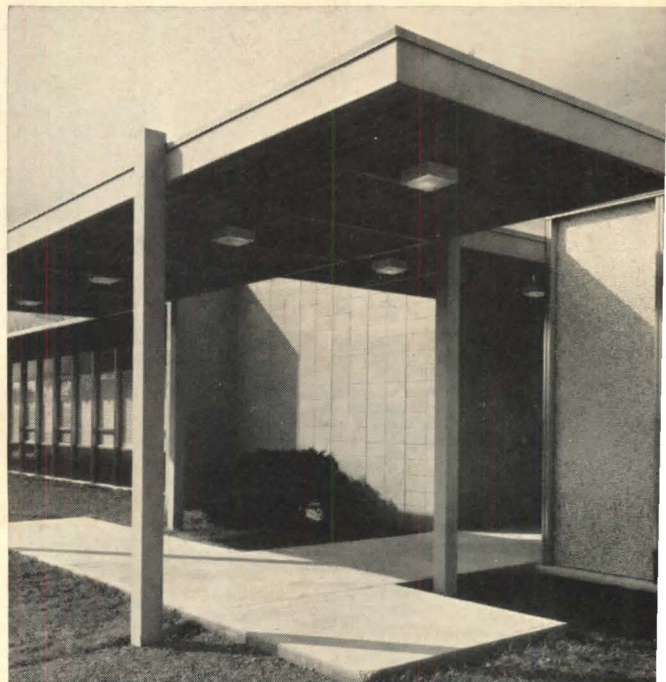


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On Readers' Service Card, Circle No. 398



Facings and Construction: Aluminum Co. of Canada. Architect: Karl Schwanzer, Vienna.

How many sandwiches can you count in this Expo 67 pavilion?

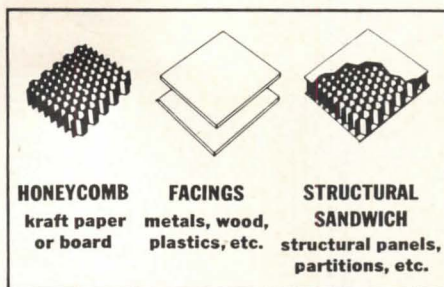
There are 264 triangular aluminum faced panels in the Austrian Pavilion.

And every one is fabricated with Union Camp Honeycomb structural sandwich core.

Why Union Camp Honeycomb?

Most of the Expo 67 pavilions are built on newly filled land, and beefing up a foundation is expensive. But structural sandwich panels made with honeycomb keep weight to a minimum while maintaining maximum *strength*. In fact, honeycomb has the most favorable strength/weight ratio of any structural core material made. Yet honeycomb core density is only 1½ lbs. per cubic inch.

Modular honeycomb panels require less time and labor than conventional construction. Floor, wall and roof sections are lighter and easier to handle. So if your building problems involve strength, weight or economy, maybe you should get to the core of the matter, too. With Union Camp Honeycomb.



Honeycomb, as manufactured by Union Camp, is a resin-impregnated kraft fibre structure fabricated as to form nested hexagonal shaped cells. This remarkable lightweight material is similar in appearance and principle to the honeycomb of bees—yet is as modern as the space-age. Honeycomb is manufactured in various grades and sizes and can be designed to meet the requirements of a variety of design problems. Honeycomb is especially effective when panels combining light weight and high structural strength are required.



Austrian pavilion's large modular structural units are made up of four separate panels. Each panel is filled with Union Camp kraft Honeycomb cores. These give facings continuous support—eliminate need for rivets or spot welds that have to be finished off before painting.

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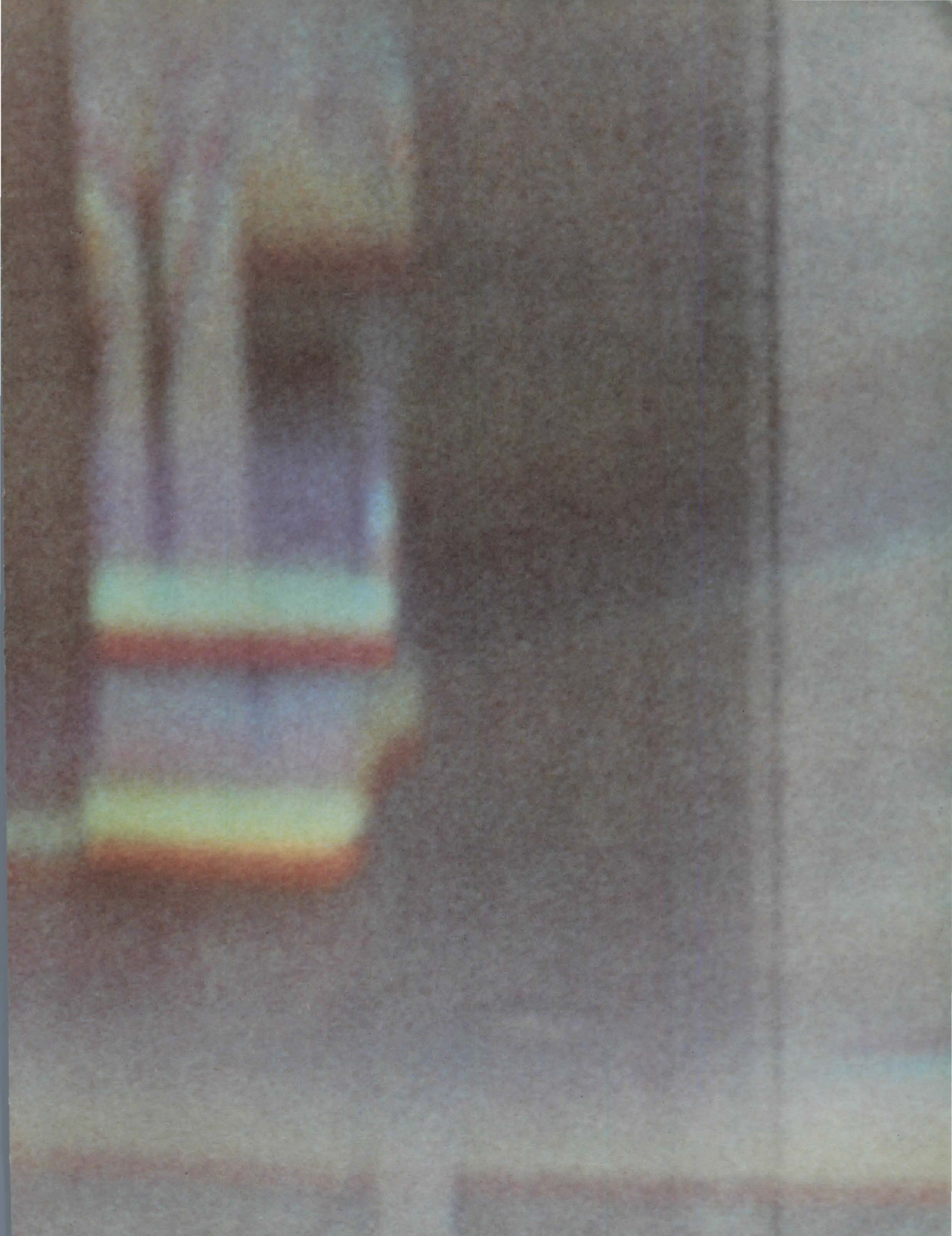


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(The original caulk couldn't stand the weather.)

Was it the Florida heat or a hurricane named Dora?

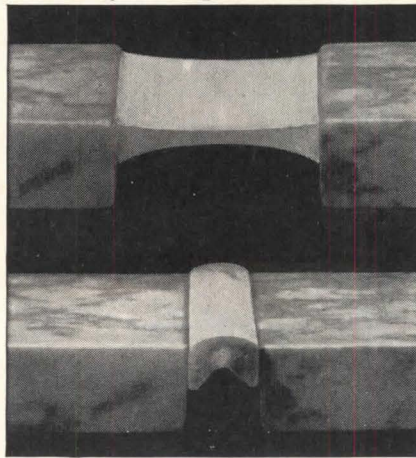
Chances are, both caused the vinyl caulk* in this Florida hospital to break down in just two years. (And it was guaranteed for five!)

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*Previously, we referred to the caulk as polysulfide. This was an error. Polysulfide was not used for glazing windows at Memorial Hospital.

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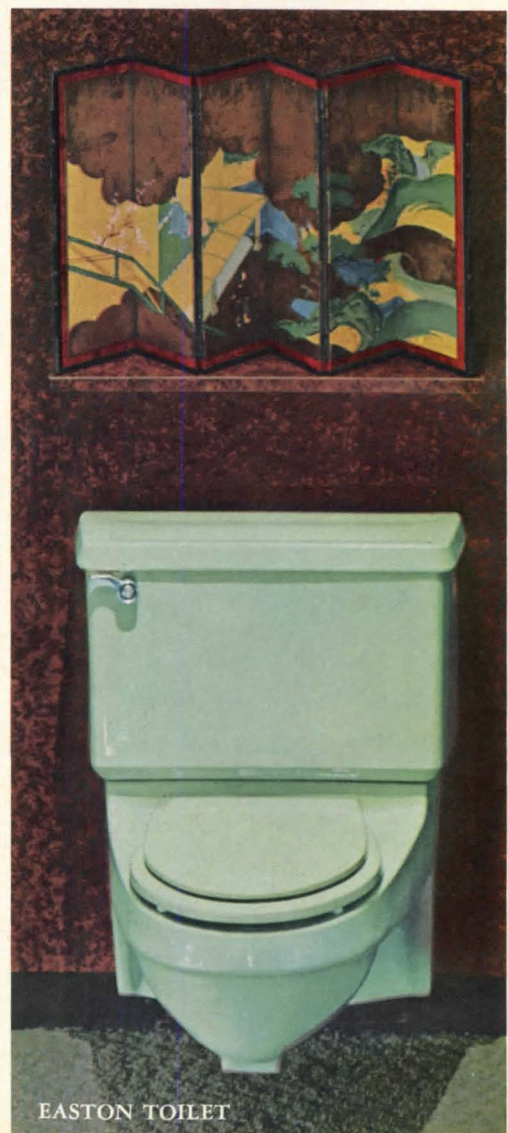
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3 Start-up in seconds. The Solar 200 kw gas turbine generator starts fast, has full power capability in seconds. No elaborate heating

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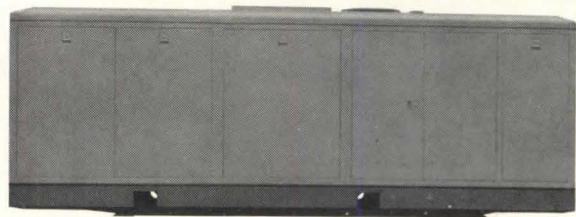
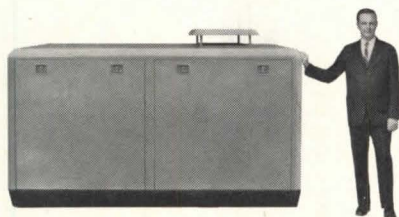
4 Easy, low-cost installation. The set is quickly and easily installed anywhere from rooftop to basement. No special foundations or cooling water are needed. Thus, unlike a reciprocating engine, the Solar generator can be inexpensively moved to a new location if desired. The result: *lower installed costs per kilowatt than any other form of standby power!*

5 Almost any site suitable. The small size and light weight of the Solar set become particularly important where buildings requiring standby power were not originally designed for this needed equipment. Nearly all building codes and designs permit installation of Solar gas turbine generator sets. Many city and state governments are presently considering mandatory standby power legislation. So, whether you are designing a new

airports...



vital communications...



Solar 200 KW (left) and 750 KW gas turbine generator sets

building or adding standby power to an existing one, a Solar gas turbine generator set should be your first consideration.

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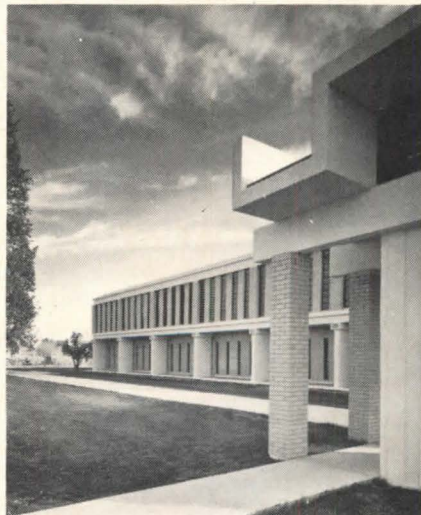
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Architect: T. S. Montgomery, Tempe, Arizona; photography by Bill Hedrich, Hedrich-Blessing, Chicago, Ill.



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Manufacturers and Traders Trust Company Bank Building,
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Architect: Minuro Yamasaki, Detroit, Michigan
General Contractor: John W. Cowper Company, Buffalo, N. Y.
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Concordia Lutheran Junior College — A College of the Lutheran Church, Missouri Synod—Ann Arbor, Michigan
Architect: Vincent G. Kling, FAIA Philadelphia, Pa. Roofing Contractor: Detroit Cornice & Slate—Detroit, Michigan

ROOFS, ARCHITECTS, AND IMAGINATION. On the one hand, there is a renewed interest in visually significant roofs. And on the other, there is a notable increase in the specification of Follansbee Terne. We believe that both of these trends happily reflect a greater emphasis on purely imaginative elements in contemporary architecture, a welcome departure from the "anti-septic line". And both are essentially interdependent, for terne is unique among roofing materials in that it provides maximum creative latitude at relatively modest cost.



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George Nemeny (F.A.I.A.) tore down walls, installed skylights, window walls and white ceramic tile to update this Kings Point, N.Y., house designed by Stanford White at the turn of the century. He flooded the dark interior with light and centered on highlighting a magnificent view of Long Island Sound while retaining the spirit of the Classic Revival original.

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On Readers' Service Card, Circle No. 342

September 1967 **PROGRESSIVE ARCHITECTURE**

"You can say about art — meaning the inner psychological side of the creative process — that it is the process of solving problems than cannot be stated clearly before they are solved. The process of orientation to a new problem is practically one hundred per cent of the solution."

PIET HEIN



UIA, in case you do not know, does not stand for United Israeli Appeal but for *L'Union Internationale des Architectes*. Which, if you really need a translation, is the French version of The International Union of Architects — an organization that aspires to establish understanding among architects of all countries.

Every two years, the UIA holds a congress in different parts of the world. This year, the host city was Prague in the Czechoslovak Socialist Republic. And so in July, some two thousand architects, their wives, students, and other architectural sympathizers from over seventy countries (including a Parisian who was a delegate from the World Movement of Mothers) gathered in that somewhat drab but still beautiful city to discuss the eternal and noncommittal theme: "Architecture and the Environment."

Whether you call it a congress, or a convention, or a conference, or anything else, a meeting involving masses of people can become an obstacle rather than a help in achieving better understanding among the participants. The spoken word can be used most effectively as a mental aphrodisiac to sway the masses, a fact well known to all preachers and politicians, but mass psychology does not have much to do with intradisciplinary discourse. The spoken word, as a real vehicle of communication, can be effective only when there is close personal contact between the speaker and the listener. With electric devices or without them, personal contact seems to depend on the size of the group — on the number of seats in an auditorium, or theater, or cinema, or even television-equipped living room. When the group becomes a mass, communication ceases and mass psychology takes over.

Which is why the only meaningful professional communication took place not at the UIA Congress but at the sessions of the five UIA Permanent Working Commissions, which are groups of about 20 people from as many countries who, once a year, meet for a few days and discuss specific subjects (housing, schools, urban planning, sport and recreation, and professional practice). This year, the Commissions met a week ahead of the Congress. Apparently, many worthwhile discussions took place at these sessions and "better understanding" was reached, but we cannot report on what transpired because the Commissions meet in closed sessions and are, in effect, private clubs. Thus the leastest got the mostest.

As to the Congress itself, the numbers difficulty was compounded by the language difficulty. The four official languages (French, English, Russian, and Spanish), used at random, were translated first into Czech, then into the other three languages, and finally broadcast via those little crackling earphone gadgets familiar to those who attended the 1965 AIA Convention. Results were neither instant nor comprehensible, but somehow, at times, enough came through to start off political stampedes. Most pronounced of these was the Vietnamese affair.

At the very beginning of the Congress, the North Vietnam architects made a violently anti-American (and very much political) speech and offered a donation in the form of a pop sculpture made from pieces of a shot-down U.S. plane. This action split the American delegation quite neatly into the hawks and the doves. Because the speech was allowed to be delivered and the sculpture allowed to be presented, the hawks rushed back to the Octagon vowing to pull out the AIA from the UIA. But because the speech was eventually struck from the record and the sculpture not accepted by the Congress, the doves stayed on and worked hard to smooth out political tensions.

Political maneuverings do not have much to do with architecture. Certainly, they do not further professional knowledge and understanding. The big problem the UIA faces, therefore, is much greater than the already difficult problem of communication among too many people in too many languages.

Professional meetings can be really professional when the participants are there only because of the professional contribution they can make. In other words, they must represent themselves — their own ideas and aims. Disciplines, after all, do not have geographic boundaries nor knowledge political frontiers. But when professionals come to a meeting as "delegates," what you get is not a professional meeting at all, but a sort of quasi-political meeting. Be it UIA or AIA, this is what inevitably happens. And it happened this July in Prague. ■

Jan C Rowan

FORTUNATE

NEW TRIER WEST H.S., Northfield, Ill. **Architects:** An association of the Perkins & Will Partnership and The Architects Collaborative. Perkins & Will: Partner-in-Charge, C. William Brubaker; Project Architect, Morton Hartman; Designer, A. Frederick Kolflat; Job Captain and Field Supt., Harry A. Laman; Structural Designer, John Marin. The Architects Collaborative: Partner-in-Charge, John C. Harkness; Designer, David Sheffield. **Site:** Flat, 40-acre site. **Program:** An additional school to accommodate the expanding student body of New Trier East. **Structural System:** Academic and Library Administration buildings of reinforced concrete, masonry infill. Gymnasium, Pool, and Music, Drama and Speech buildings, masonry bearing wall and structural steel. Roofs, concrete and structural steel. **Mechanical System:** Heating, low pressure steam converted to hot water. Cooling, refrigeration absorption liquid chilling. **Major Materials:** Exterior, face brick, exposed concrete framing. Interior, concrete block, glazed tile in restrooms. Ceilings, acoustic tile and plaster. Roofing, built-up tar and gravel. **Cost:** Construction, \$7,512,326. Equipment and furnishings, \$923,747. Site development, \$577,979. Public road improvement, \$83,719. Landscaping, \$76,227. **Consultants:** Mechanical and electrical engineers, Neiler, Rich & Bladen. Landscape Designer, Lawrence Zuelke. **Photography,** except as noted: Ezra Stoller.



SCHOOL



NEW TRIER WEST: THE BACKGROUND. New Trier West was not completed a moment too soon. On its dedication day, May 7, 1967, it already housed an enrollment of 1598 students, who had begun occupying the uncompleted campus nearly two years before.

The decision to build the new school was made after a survey that showed expanding enrollments would inundate existing facilities; it nearly did. The enrollment was 5100 for the 1964-65 school year in the existing school. The new school is located about two miles west of the old school, which makes it New Trier West to the original school's New Trier East,

logically enough.

According to the dedication press release, the two schools serve an area roughly the same as New Trier Township, whose median income level is one of the highest in the United States. The area is part of the 13th Congressional District of Illinois, the most affluent in the nation. It has never elected a Democratic Congressman.

Two-thirds of the adult residents of the township have attended college, and more than 95 per cent of the student body go on to college. It is reported that residents of the township provide much of the cultural, business, social, and educational leadership for the Chicago and metropolitan area, as well as the nation as a whole.

The dedication plaque, presented at the May 7 ceremony, reads: "Erected by the Citizens of New Trier Township, to Maintain and Advance Excellence in Public Education. Our Purpose is to Commit Minds to Inquiry, Hearts to Compassion, and Lives to the Service of Mankind."

Local Government and Finance

New Trier Township consists of five villages run on the caucus system of government. The caucus, composed of a group of representatives from all the important community organizations of the several villages, selects nominees for the township's seven-member Board of Education. The proposed slate of candidates is then submitted, at an annual election, to all residents eligible to vote.

As for finances: Ninety-five per cent of the Board of Education's budgetary requirements is covered by local property taxes; the remainder comes from other sources.

According to Dr. Cornog, school superintendent, the caucus voluntarily proposed a raise in taxes to continue the outstanding work of the school. "People move here and pay outlandish prices for houses to be in the school district," said a member of the school supervisory staff. Houses are expensive, with high real estate evaluations.

Village residents would rather put their money into New Trier than send their children away to school. There are almost no private schools in the district.

Curriculum

Educational programs at New Trier are constantly changing. In recent years, the school has participated in the development of two chemistry programs (CHEM Study and Chemical Bond Approach), and was one of the centers where a text in the new mathematics was first used. The school's Division of the Performing Arts is claimed to be the only one of its kind. A new social studies curriculum is being developed on a township-wide basis, in cooperation with the public elementary schools.

Each grade level is divided into four groups of students according to ability. A student may work at different levels in different subjects and may move up or down in level as warranted by his performance.

An advanced placement program is designed to meet the needs of the superior student. (New Trier was one of the first public high schools in the nation to offer college level courses, and many of the advanced placement students have been eligible to enter college as sophomores.)

There is also a Special Education department for students with learning problems. These include classes for the educable mentally handicapped students, who are eligible to attend until they are 21 years old. The program also includes a job-placement facility. The Special Education Department also offers a tutorial program for the emotionally disturbed and has arrangements for the orthopedically handicapped.

The pupil-teacher ratio is a little less than 15:1. Class enrollment is kept small: The average class size is 25, compared to about 48 in Chicago city schools. Students are assigned to a faculty advisor, who counsels them for their four years at New Trier. Each teacher has approximately 30 advisees. He counsels on educational programs, watches their progress, and visits both students and parents in their homes, serving as an important source of communication between the school and the community.

The school also has a professional psychologist on its staff, plus visiting adjustment counselors, who are psychiatric social workers to help students with special emotional problems. There is also a vocational counselor on the school staff. Since such a high percentage of students go on to college, the four college counselors are kept much busier than the one vocational counselor.

The School As Built

"No one architect could have done it alone," said Morton Hartman, project architect of the Perkins & Will Partnership. New Trier West involved complex planning. Although a design team was involved, the results are consistent. If the style were to be characterized, it would be termed TAC Flamboyant-Perkins & Will Restrained of the Cornog Era with pro-Hartman supervision.

The architects were amazed that a school this luxurious would cost \$18.10 per sq ft. "They are not buildings with Queen Ann fronts and Mary Ann behinds," said one of the designers. "They are good from all angles." One of the angles that made them so good was that there was a buyer's market when the project went to bid.

The architects benefited from a particularly fortuitous set of circumstances from the beginning. The designers from

Text continued on p. 114

Photo: Forrest Wilson



Photo: Hedrich-Blessing



Photo: Hedrich-Blessing

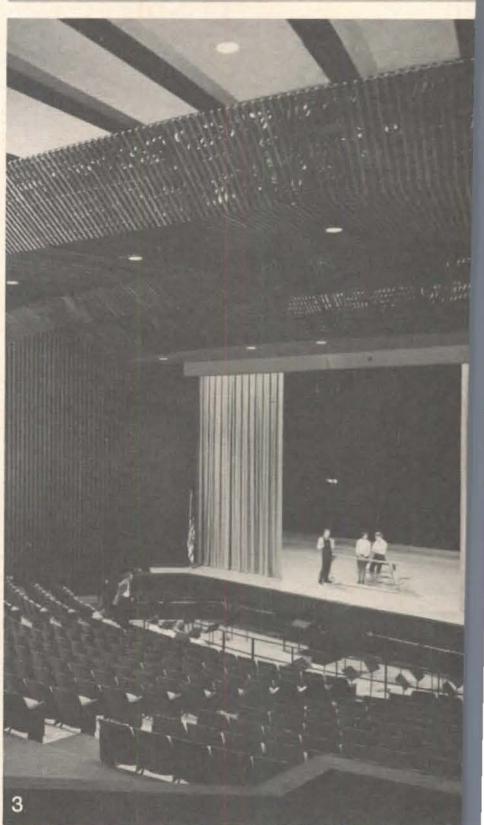
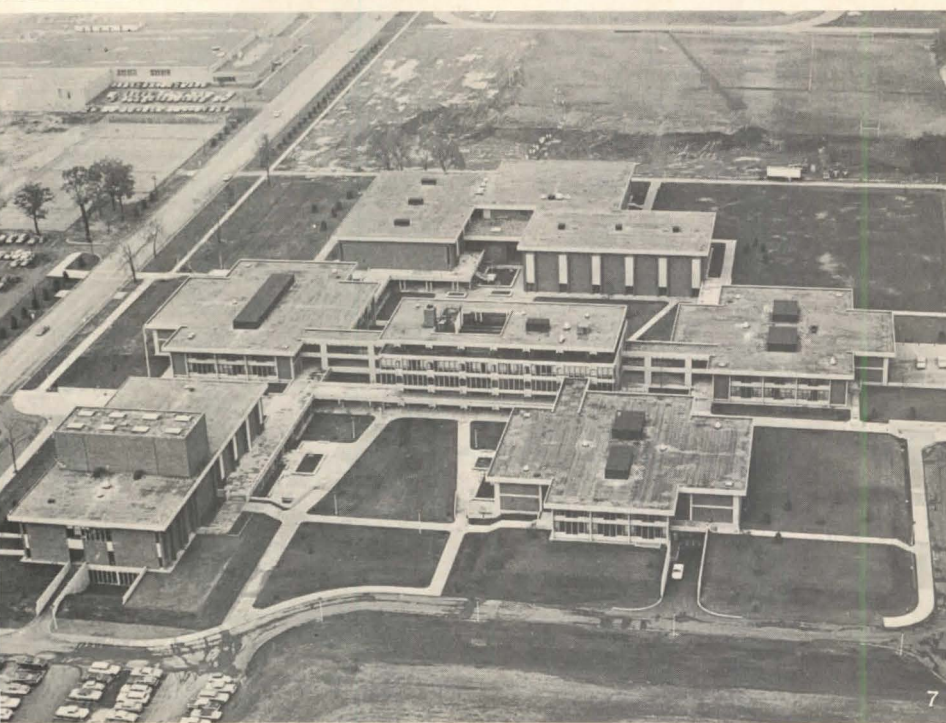


Photo: Forrest Wilson





Photo: Forrest Wilson



(1) Individual study carrels in language laboratory. (2) Study groups in library. (3) Rehearsal on auditorium stage. (4) Corridor at first level. (5, 6) Basketball and swimming instruction. (7) Aerial view of school just prior to completion and landscaping. (8) View from corner of English and Art Building, looking toward Science and Math Building across exterior court. (9) View into interior court. (10) Drama group in two-story theater-lecture room.



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Photo: Hedrich-Blessing

10



DESIGN FORMULATION

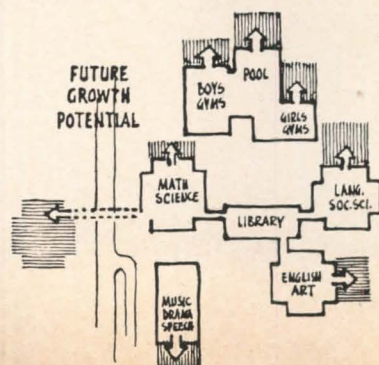
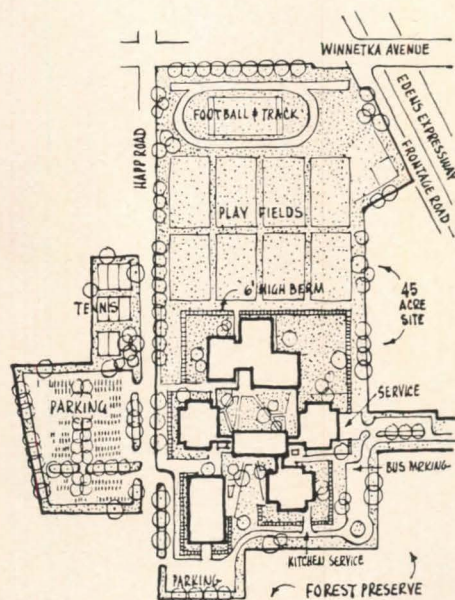
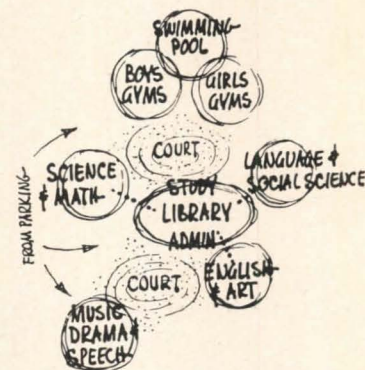
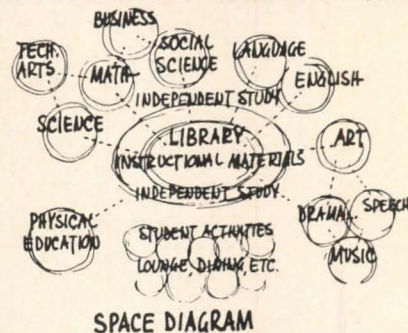
New Trier West is a structure within a structure. The structure within was shaped by the forms of academic discipline of which Dr. William Cornog, New Trier School Superintendent, was the chief architect. The structure without is the response of the designers of Perkins & Will and TAC to Cornog's program below:

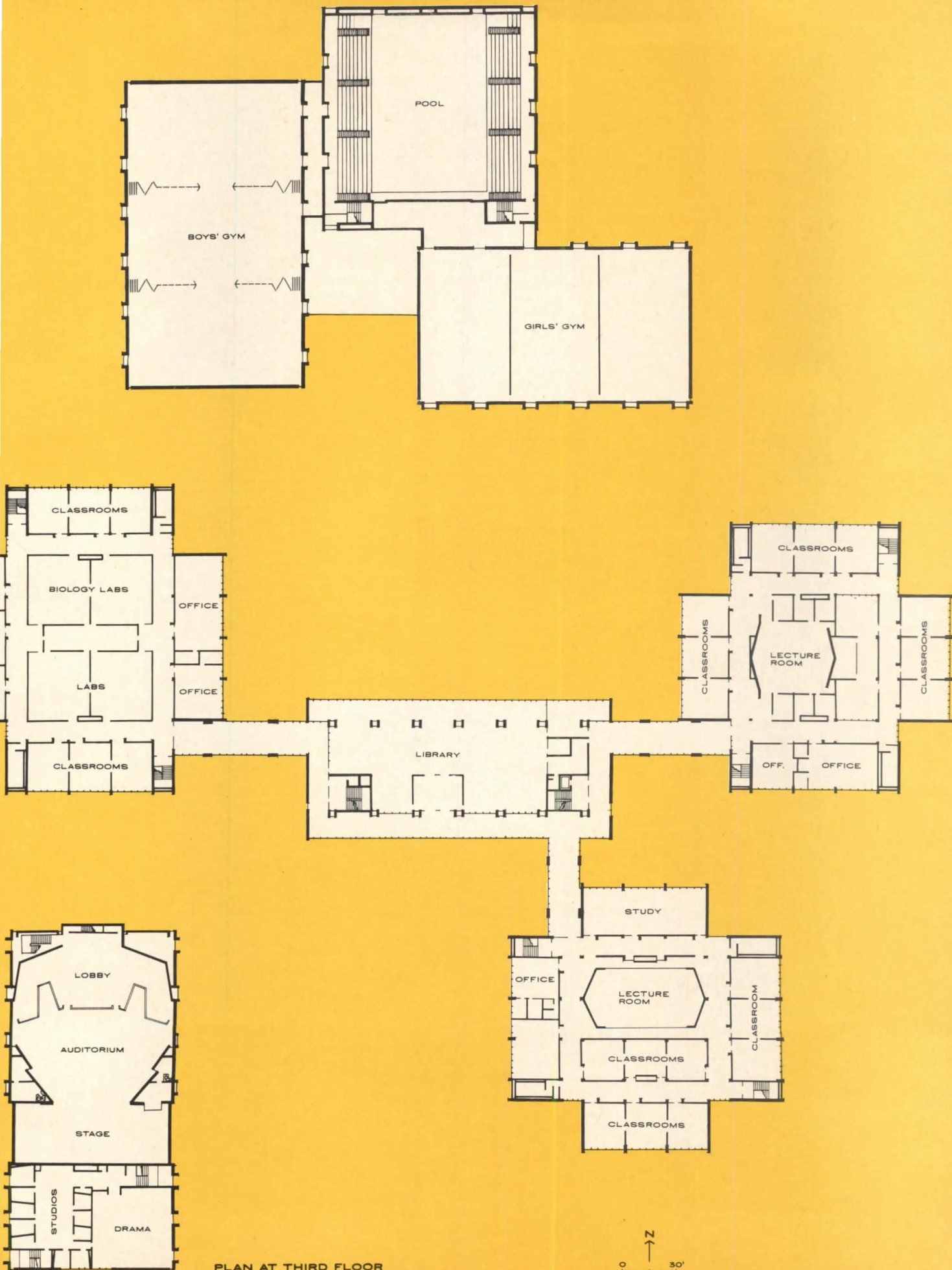
DR. CORNOG'S PROGRAM NOTES

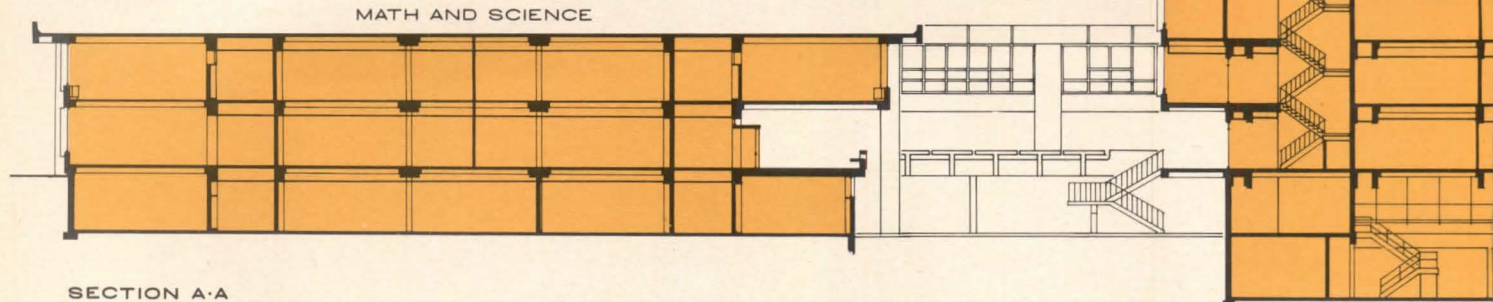
- **Flexibility:** No gimmicks, no erector sets, no clusters, no crustacea, no "chambered nautilus." What holiness now resides in hexagons? What sanctity in snails?
- **Dejuvenilize:** A place where students and teachers can lead appropriately mature lives.
- **Individuality:** A student society and a faculty society and exactly as many personal lives as there are students and teachers.
- **Space:** To inhale and exhale in.
- **An instrument:** To help teachers teach to the peak of their capabilities.
- **Walls:** In themselves, they do not make imagination.
- **Economy:** It is an illusion to cut corners in design.
- **Institution:** No.
- **Control:** Students supervise their own study-halls, library, and cafeteria. Each student society has its own commons room.
- **Classrooms:** Train youth in the use of the mind. We assume that this can still be done in boxlike classrooms.
- **P.S.:** Put the right people in the right boxes.
- **Center:** Subject-centered; the core of the intellectual life and academic organization is the library. (Sorry, we can't advertise that our library is bigger than our gym. We are consoled by the thought that Plato's probably wasn't either.)
- **Style:** Color it academic.



THE ARCHITECTS' DESIGN SOLUTION







SECTION A-A

both offices were able to submerge personal differences to produce a unified design. The program was clearly and forcibly stated. The client was knowledgeable and sympathetic, and the architects desired to do more than "just solve a conventional school problem." There was no outside interference. "No grants, no EFL, no government interference, except the fire marshal," said Dr. Cornog.

"The design is a uniquely successful campus plan with a connecting level below. Bridges at the third floor connect the academic buildings with the central library and administrative buildings. A luxurious — in terms of space — covered passageway meets at the third level connecting bridge of these buildings. A client other than Cornog might have demanded this space for additional classrooms. Gymnasium and swimming pool are at one end of the campus and the auditorium at the other. The school is used regularly by the community. The architects thought it best to separate the sports lovers from the formally attired music crowd.

The main entrance of New Trier West is on the second level. The central court was excavated and the fill banked against the ground level connecting passage walls. These walls act as retaining walls for the bermed earth.

In the language and social science building, six small seminar rooms surround a large lecture hall seating 120, making it possible for large classes to be broken up easily into discussion groups.

The boys' locker rooms are connected directly with the playing fields north of the school by a tunnel. Other facilities include a photographic laboratory, complete with darkroom, a radio station, dramatic workshops, a student commons lounge, and a host of other amenities.

Audio-visual equipment is highly sophisticated. A four-channel instructional system at New Trier East has a studio at New Trier West. It serves 25 township elementary schools and will shortly be fully operational at the West school.

The campus plan eliminates congestion normally found in school planning. Students are seldom seen in the corridors

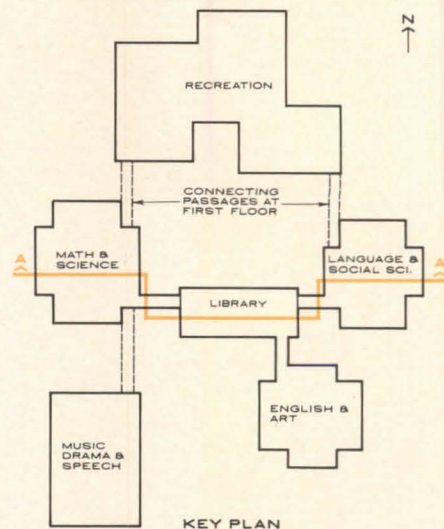
in numbers over normal class strength — 20 or 25. They have a choice of alternate routes to travel between classes: below grade by the connecting passages; on grade paths or barefoot through the grass; or the scenic route, three stories above the interior court. The corridors are commodious and may house future study carrels.

One of the goals of the school, as expressed by Dr. Cornog, was that student and faculty be allowed to "inhale and exhale in space and time." Inhaling, exhaling, and even panting can be accomplished easily in the 166 sq ft per student allotment, which is a little over 40 sq ft above the national average. As for time, that is provided by the students themselves. This observer, touring the school well after class hours, found groups of students working, gathering, discussing, dancing, and generally "studenting" at six o'clock in the evening.

The only space in the school that was not designed with absolute assurance was planned as a two-story experimental room. The space was given to the faculty and students to "see what they would do with it," says Dr. Cornog. The architects designed the framing around the room's second level for an additional floor load just in case they might decide to convert it later into two classrooms. At present, the room is a lecture room, theater-in-the-round, and provides for any number of imaginative additional functions. It seems extremely unlikely that the builders will be called back.

The dietitian, a pleasantly efficient Mrs. M. Reckitt, happily displayed her immaculate kitchen equipment. She is responsible for serving more than a million meals a year in the two schools. Four serving lines will serve 625 students each during four lunch periods when New Trier West reaches full enrollment. Mrs. Reckitt trains her own cooks and cooperates with academic programs in preparing and serving national dishes. When asked about the frozen food program being experimentally used at P.S. 45 in New York City (MARCH 1967 P/A), she replied that her guests were "too sophisticated for that."

For a school where more than 90 per



KEY PLAN

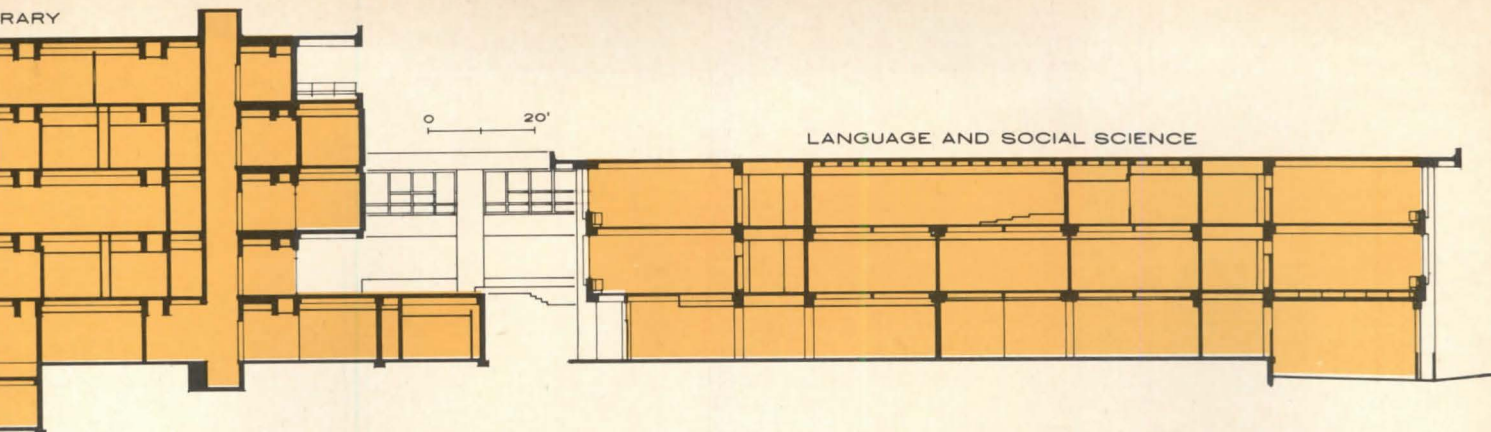
cent of the students go on to college, there was an impressive display of manual skill in the workshop classes. A number of architectural models, mostly of houses with swimming pools, displayed an unusual degree of competent dexterity. One of the most unusual projects was a full-size wood framing of a room, complete with electrical wiring, done by the students. The class instructor, found working well after class hours with six or seven students, was enthusiastic about forming of sheet plastic and discussed with animation a host of projects he hoped to inaugurate in his new facilities.

After visiting New Trier West, one must agree with Hartman that it is indeed "a happy ship."

The Mechanical System

They are proud of the mechanical system at New Trier West. They did not "color it academic," but they did color-code the piping and left a wall of glass for the students to watch its workings from the school's interior court.

The mechanical engineers probably enjoyed their spacious chases, shafts, and runways as much as the students do the open walkways of the campus planning. Fresh-air intake grills for exterior classroom units are integrated in the window detailing. Duct space is adequately provided between the twin beams and columns, with hung ceilings offering ade-



P/A COMMENTS ON THE PROGRAM

quate concealment for ducts and mechanical equipment.

Individual air-conditioning units, thermostatically controlled in each room, give maximum flexibility. Core units supply both heating and cooling. Perimeter units supply heating only, but cooling piping has been installed and space left in the boiler room for additional equipment to service the perimeter at a future date. Provision has been made for a future cooling tower.

All units are supplied by a hot-water system from low-pressure boilers for heating and chilled water from steam absorption chillers for cooling. Fresh outside air is drawn into the classrooms through air chases from air-handling units on the roof of each building for the core units. Surplus room air is exhausted through classroom door grills into corridors, where it is picked up by corridor grills and ducted to roof-mounted exhaust fans. Room air is passed directly into the unit for recirculation. Unit ventilators in core ceilings are flush mounted in acoustic ceilings. Air is supplied directly into sealed ceiling plenums, from which it passes to the room through perforated ceiling tile.

Control of perimeter rooms is provided by unit conditioners with fresh-air intakes located below the windows. Perimeter unit conditioners are specially designed in black with aluminum trim and black plastic laminate tops. All units, both core and perimeter, are equipped with roll filters.

The owner retained tight control of mechanical equipment. The mechanical contract was let separately and later combined with the general contract. Equipment brand names and cost of installation was written into bids. Samples of all equipment was submitted for rigorous testing by the owner's engineers.

Low-pressure, gas-fired boilers, automatically operated, eliminate the need for constant supervision by licensed operating engineers at an estimated cost saving of \$35,000 to \$40,000 per year.

Architectural detailing in relation to mechanical equipment throughout the six buildings has been executed with fine professionalism.

"It's like eating steak every day," said project architect Morton Hartman. New Trier West is a good solid main course bearing little resemblance to the chopped meat fed to the students of Inner City Chicago, Brooklyn, or other crowded urban centers. Fewer students are visible at change of classes in the corridors than might be found playing hooky around the corner from a city school.

The comparison is drawn not because New Trier students do not deserve such a school — all students do — but because other students fare so poorly in comparison. It is an excellent example of what a school can be when adequately designed by competent architects for educators who know what they want and for a community that can afford to pay for all of these things.

Its design cannot invite comparison with urban schools, because its program is unique. It has to be judged on its own terms. Dr. Cornog's concepts are undoubtedly excellent for New Trier West. Their validity has been proven by outstanding scholastic achievement nationally and excellence of school performance locally.

However, the New Trier West solution is not the only one for all schools. The flexibility that Dr. Cornog rejects so strongly in the design of New Trier West is, in fact, an ingenious solution that architects of urban schools were forced to devise. Flexibility is the tool of educators fighting desperately to solve problems that are well-nigh insoluble. Rooms for experimental teaching allow for the detection and isolation of mentally retarded children — a solution that is possible only with special facilities.

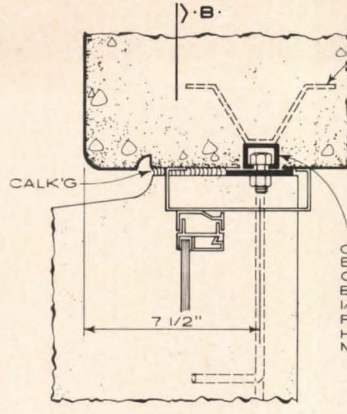
New Trier needs none of these architectural devices to solve its problems. Because it does not need them does not mean that they are wrong or that the architects who devise such expedients are less talented or less sensitive to educational problems than the architects of New Trier West. It means only that Dr. Cornog does not have these problems.

If leaders are needed "... to reshape our cities and do justice to Negro Americans and other unfortunate people in helping to solve the great crisis of our modern society," as John W. Gardner, Secretary of Health, Education, and Welfare, is reported to have said at the New Trier West dedication ceremony, it is doubtful that a better school or systems of education could be devised than that evolved by the educators at New Trier West, or a better building to house that activity than designed by the architects of Perkins & Will and TAC.

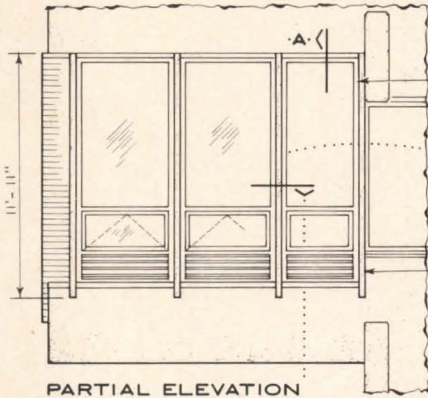
New Trier West will undoubtedly develop competent leaders with "hearts [dedicated] to compassion and lives to the service of mankind," as blazoned on the school's dedication plaque. However, one is reminded of the perceptive remark of a barefoot, illiterate Mexican, "Strong leaders make weak people." The speaker was Emiliano Zapata.

New Trier West is assuredly more "like eating steak" than tortillas and beans. It is a very rich meal indeed. Bon ap  tit. — FW

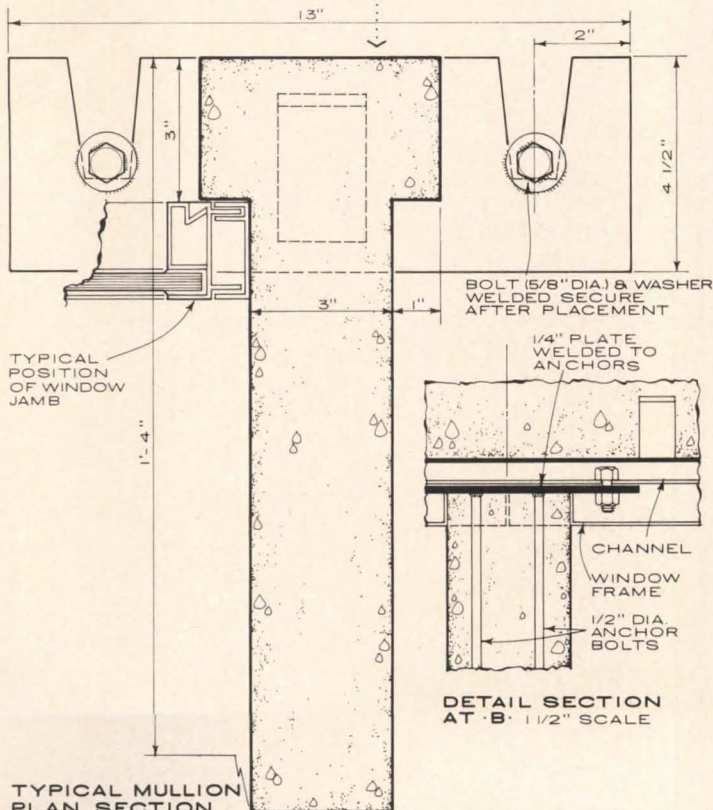
Photo: Miller Photography



HEAD DETAIL AT A
1 1/2" SCALE

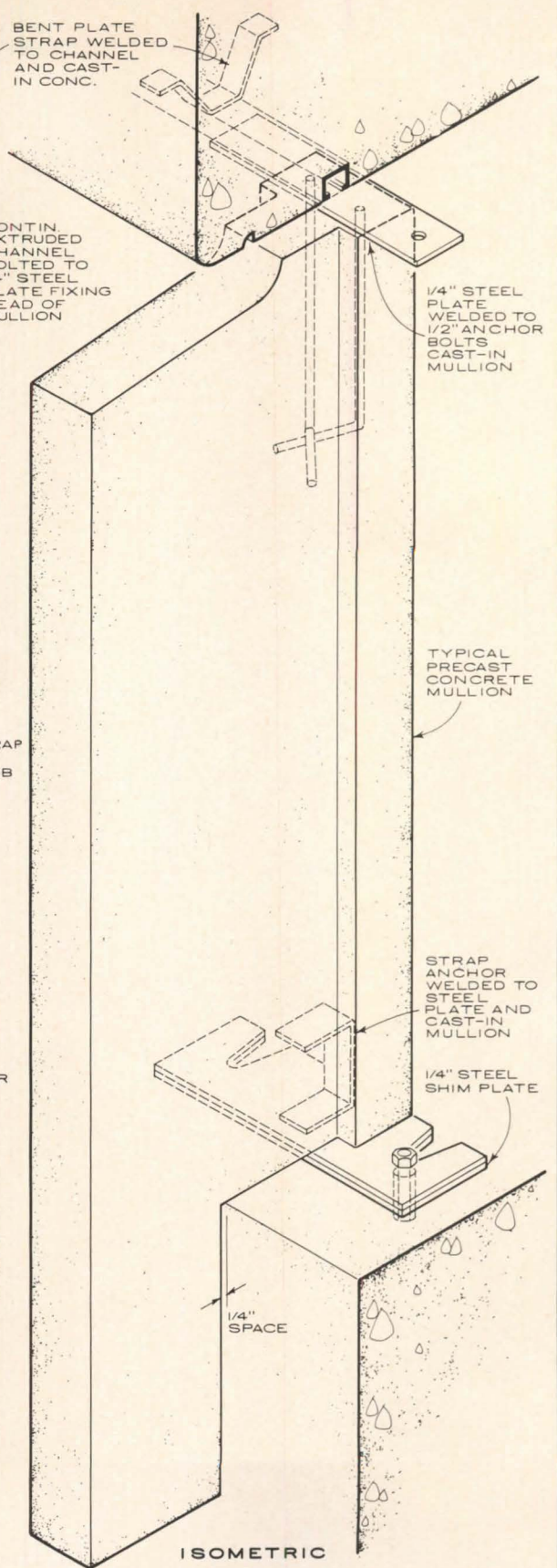


PARTIAL ELEVATION



TYPICAL MULLION
PLAN SECTION
3" SCALE

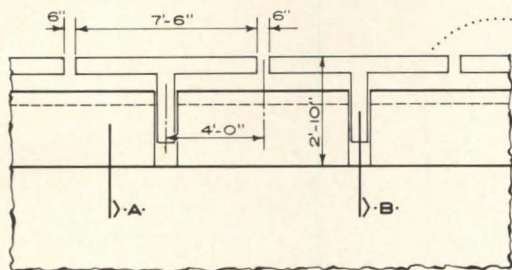
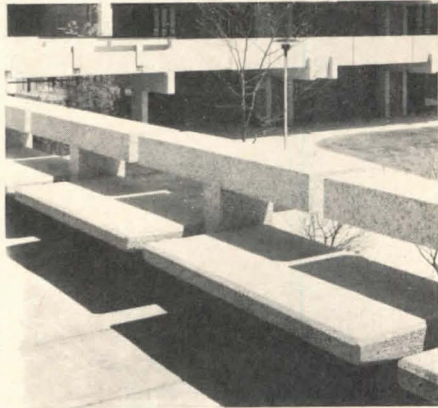
DETAIL SECTION
AT B 1 1/2" SCALE



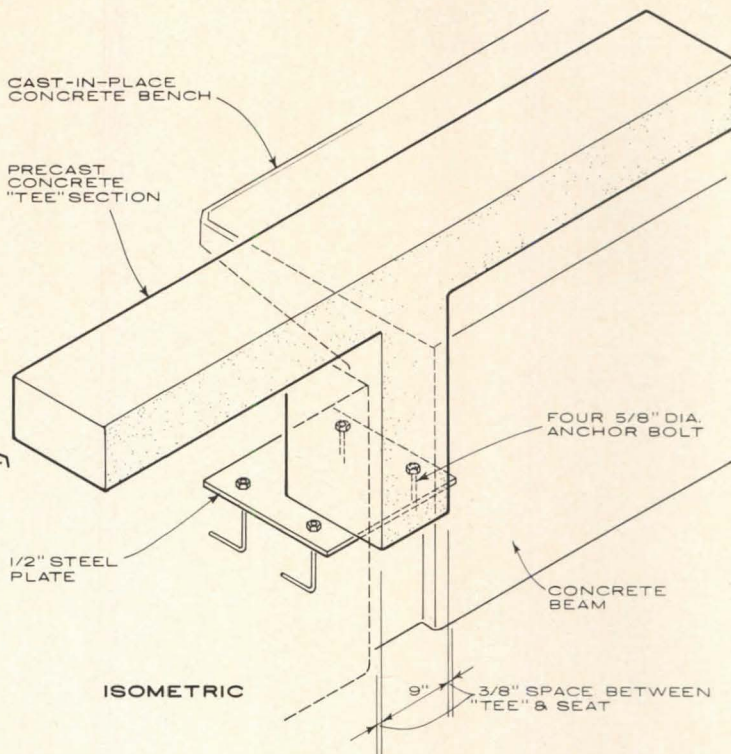
ISOMETRIC

NEW TRIER WEST HIGH SCHOOL: Northfield, Ill.
THE PERKINS & WILL PARTNERSHIP: Chicago, Ill., and
THE ARCHITECTS COLLABORATIVE: Cambridge, Mass., Associated Architects

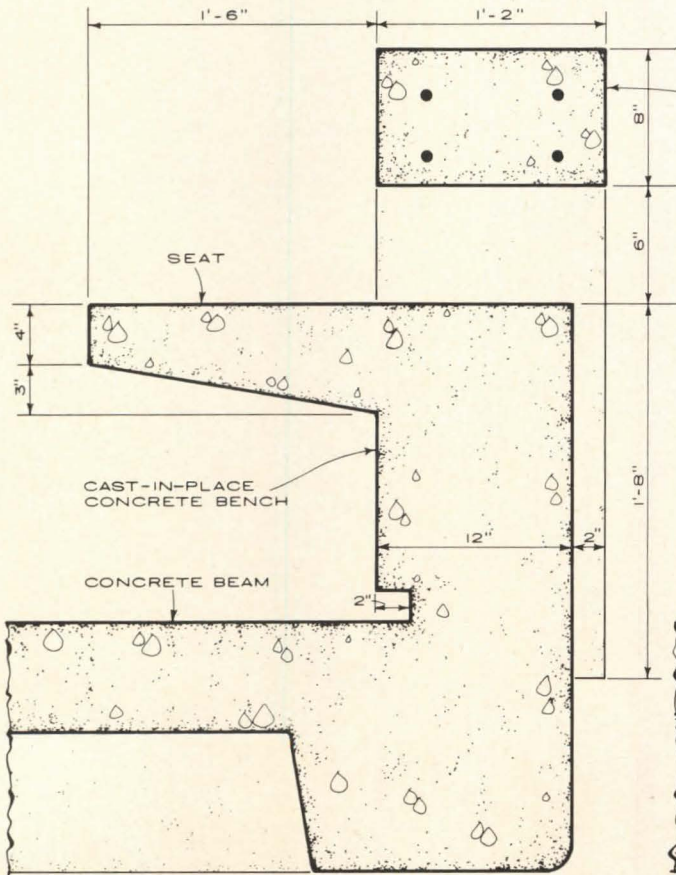
SELECTED DETAIL
PRECAST CONCRETE MULLION



TYPICAL ELEVATION 1/8" SCALE

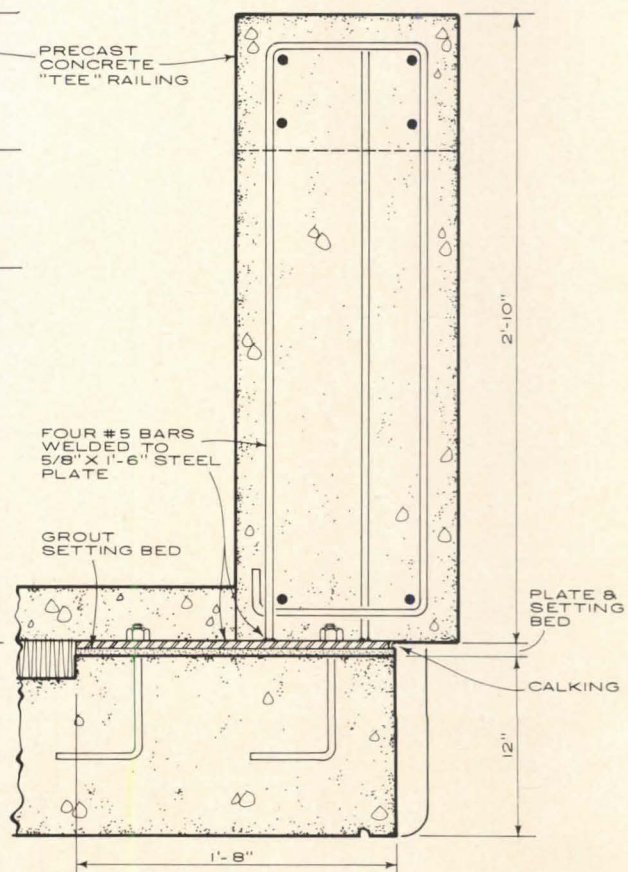


ISOMETRIC



VERTICAL SECTION AT 'A'

1" SCALE



VERTICAL SECTION AT 'B'

NEW TRIER WEST HIGH SCHOOL: Northfield, Ill.
 THE PERKINS & WILL PARTNERSHIP: Chicago, Ill., and
 THE ARCHITECTS COLLABORATIVE: Cambridge, Mass., Associated Architects

SELECTED DETAIL
 PRECAST BENCH & RAIL

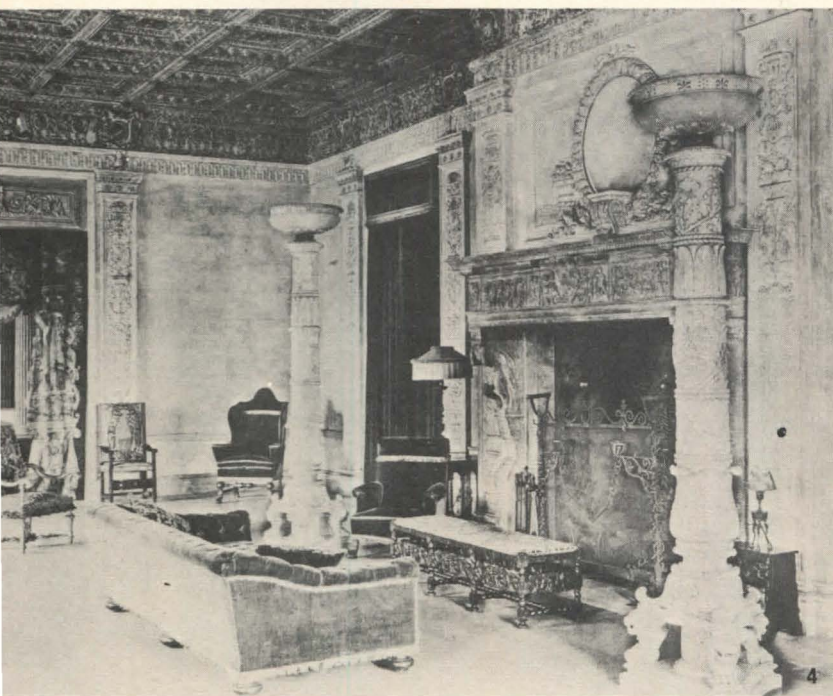
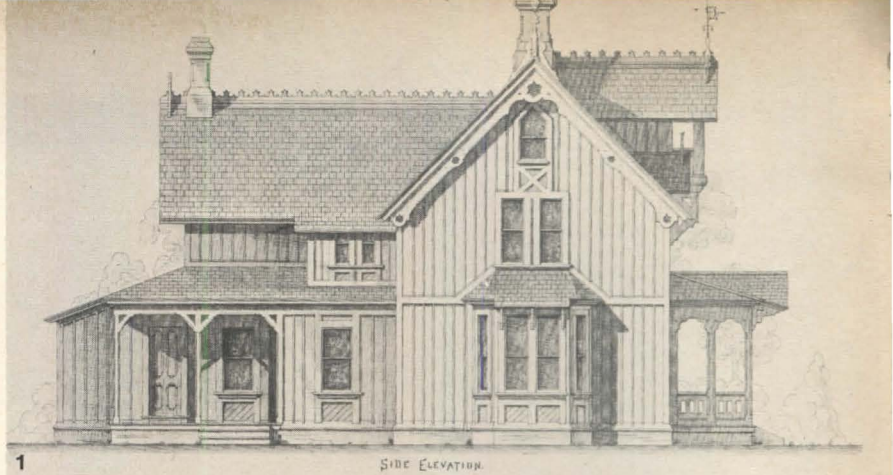
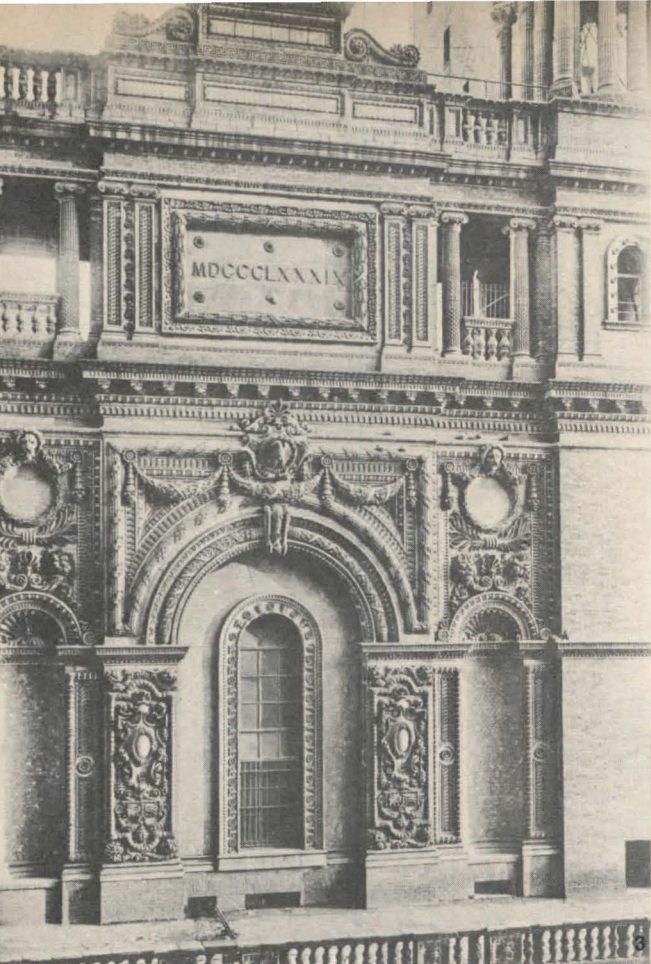


Another Look at ECLECTICISM

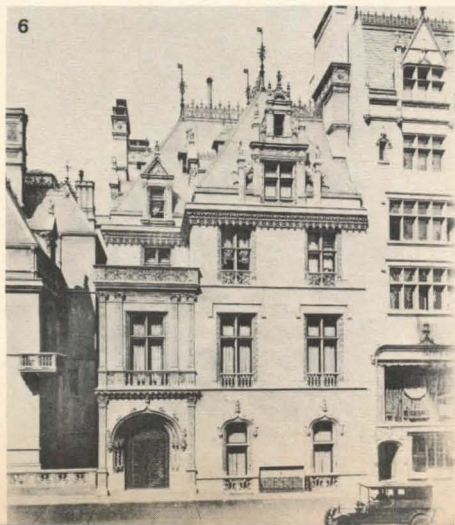
Eclecticism is the commonest term for that much abominated movement in American architecture that gave us so many Colonial houses, Gothic churches, Byzantine synagogues, Roman banks, and so on, between about 1880 and, say, 1940. To make a neat historical scheme for present purposes, we shall simply refer to the kind of architecture that prevailed at the beginning of the Eclectic movement as Victorian, and to the architecture that came into being toward its end, eschewing the use of "styles" as a fundamental principle, as Modern. Eclecticism had a little of each of the others in its make-up, but was different from both. Like Victorian architecture, it usually affected a recognizable style, commonly from the historic past. Like Modern architecture, it tended to have a light, open quality, free of the frowning harshness that was typical of much mid-Victorian work.

The evolution of Eclecticism was out of a relaxed, improvisatory early manner into ways more textbooky and "authentic," and doubtless lost somewhat in vitality as it gained in polish. What distinguished the true and accomplished Eclectic, as opposed to the contemporary camp-followers who took up the fashions he created, was his close attention to the composition, detailing, proportions, and surface qualities of his work.

An Eclectic building may have nothing that you can point to and call an ornament, and yet it will be ornamental, exquisitely tasteful in a rather soft way, utterly free of anything that can displease or startle. In a way it will look like a soft-pencil rendering of itself, because of the peculiar care that has been given to the composition of its shades and textures. Every detail will have the best of manners, inviting your attention in proportion to its hierarchical importance in the whole composition. You will never wonder why anything is the color it is, or the size it is, or why it is there in the first place. Today, in discussing this or that architect's new work, we frequently use the word "exciting." To an Eclectic, the presence of excitement would be a sign of bad taste and bad architecture, unless it came from a discreet furthering of the frontier of good taste, or the discovery of a new stylistic precedent. If sketches were published of heretofore unknown Italian farmhouses, this might be "exciting" in the Eclectic world; a suburban mansion based on the sketches would most definitely not be. It is this careful, even bland, good taste that distinguishes the true Eclectic building from the hackwork of its own time and the work good and bad that preceded and followed it. One might say that Victorian is like neat whiskey, Modern usually like a



(1, 2) Victorian rigor and Eclectic sensibility: house by George Woodward, c. 1870; house by Wilson Eyre, c. 1900. (3-7) Buildings by McKim, Mead & White: detail of Madison Square Garden, 1889; interior of a Long Island house, 1906; interior of the Morgan Library, New York, 1906; house on Fifth Avenue, New York, 1906; interior of a bank, 1909.

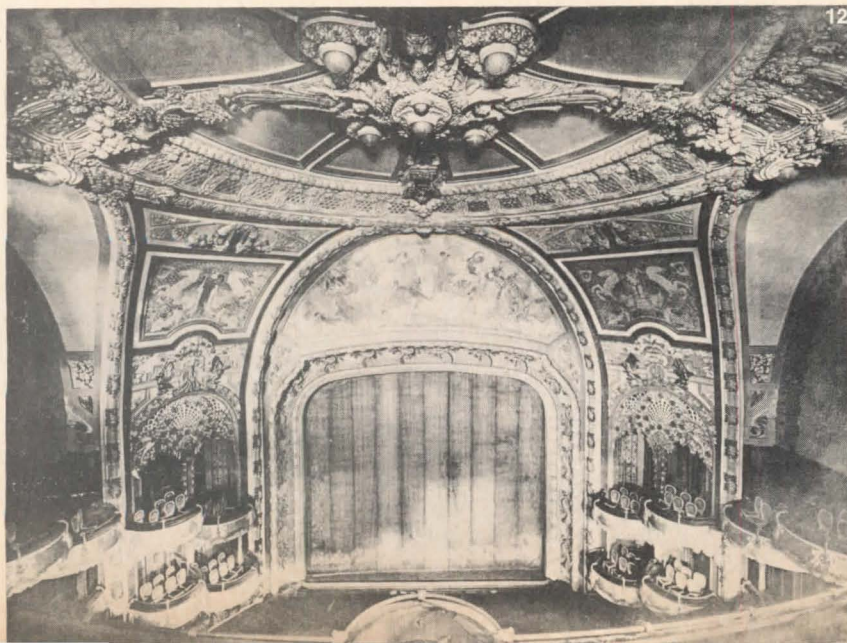




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(8) Entrance of a Park Avenue house. 1915. (9) "Africa," a group on the New York Custom House, by Daniel Chester French, c. 1905. (10) California church, c. 1925. (11) Fashionable New York restaurant, 1908. (12) New York theater, with detail of ornament, 1908.



12

very dry Martini, and Eclectic like the smoothest (and least potent) of punches.

Back Into Focus

Most architects practicing today have absorbed a body of doctrine in which Eclecticism is condemned as unsound in principle and is probably also condemned as utterly base in intention and circumstances. One of the forces that helped Modernism to its present ascendancy was a bitter school of polemic writers, architects and others, who goaded the public into a realization of what they regarded as its duty to itself and to the *Zeitgeist*. These propagandists were more or less seeking to do what Mother may have done, at some point, in tearing you away from the chocolate cherries and sitting you up to eat some nice, healthful breakfast food. Considerations of personal benefit were invoked—that is, not dissociated from a certain sense of moral obligation. There are, of course, rational arguments, and very good ones, against designing in the idiom of another place and time (all the bastard heraldry of the apartment houses), and against having the façade of a building deny categorically the facts of its construction. But, looking beyond these for ammunition, the Modernist sought also to attack the Eclectic as a human being. Thus, we have this from Sheldon Cheney in *The New World Architecture* of 1930:

"Eclecticism is the amiable name given to architectural incompetence in the period 1870–1920. Pickers and choosers from older forms of buildings, disputers for this or that style within the limits of impotency and imitativeness, tasteful roamers, cultured repeaters of other men's architectural phrases—Eclectics! . . . Here in America, in the period of McKim and White and their associates, we had *everything*—except honesty, courage, and creation."

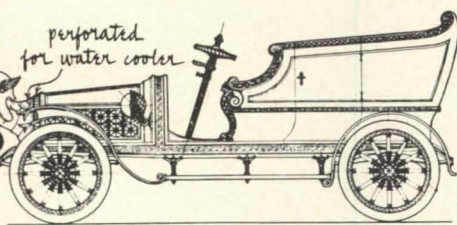
Or this from Louis Sullivan, writing in *The Autobiography of An Idea* about the use of classical styles at the Chicago fair of 1893:

"An imposition upon the people's eyesight, a naked exhibitionism of charlantry in the higher feudal and domineering culture, conjoined with expert salesmanship in the materials of decay . . . incredible vulgarity. . . a lewd exhibit of drooling imbecility and political debauchery . . . *impudently* thievish."

There was quite a lot of this verbiage in the years when Modernism was struggling for popularity, and the retrospective propaganda of popular art history has not been free from it by any means, although its tone may have softened somewhat. Burchard and Bush-Brown's well-known history of 1961, with its materialistic, sociologically-oriented account of the Eclectic period, admits qualities of

taste to persons like McKim and White, but scores them time and again for failing to design model tenements charily rather than mansions lavishly, to express the machine age, to commission Picasso and Utrillo—to be Modernists, in short. (Assignment: Imagine McKim and Utrillo discussing a set of murals over Madeira at Delmonico's; supply dialogue.) Even the fact that McKim and White indulged in horseplay in the amphitheatre at Arles is taken as a sign of their poverty of mind. From Modernist writings, then, comes a sort of composite picture of the Eclectic architect, going somewhat like this:

In the first place, the time is around 1925. Our Eclectic is very much the gen-



tleman, of a rather second-class sort, a haunter of the clubrooms and nineteenth holes where the first-class gentlemen with the long purses are to be fallen in with. He is just a bit of an artist, but perfectly sound, of course. As a matter of fact, he has not designed anything for years. But in his office are beautifully illustrated quartos and folios with photographs, measured drawings, and reproduced sketches of anything you want. By dipping into these, or, rather, causing dipping to be done by his large and talented staff, he can "do" Plateresque or Persian if you wish it. Behind him (if you can stand the cost) stand sculptors, muralists, modelers, cabinetmakers, stuccoists, furniture-distressers, and others, a smoothly functioning crew that will aid him in the realization of your cherished vision. So sit down at the Jacobean table under the wrought-iron electrolier and pour your heart out; for surely he (or his boys) can find the "precedent" whose composition and ornamental "vocabulary" can be squeezed and inflated to house you or your business becomingly. So nice to have met you, and please examine the sepia photographs in the outer office on your way out.

For lagniappe, here is a typical client, of the better sort, and his wife. He is a self-made man ("and worships his Creator"), does not know much about art, but wants the best, everything authentic. His wife, of a better class it seems, is a frail creature who has always loved beauty. She collects Sèvres and gives Louis XVI interiors to the Metropolitan and to Kimball's museum at Philadelphia.

One gets the further impression from Modernist writings that the consequences of the nauseous love-feast of Eclectic and client are not seriously regarded by any of the participants as works of art, but rather as permanent phantasms generated by an emotional state composed in varying proportions of nostalgia, snobbery, and etiquette of the black-tie, white-tie sort. That is, a situation that reminds one of something Sir Thomas Beecham is supposed to have said, that the English do not like music but they like the sound it makes. In the case of an Eclectic mansion, office building, or church, then, one sometimes has been led to suspect that it was the flashing of the correct social passport or the wearing of the correct garment in the form of a pointed arch or pediment that mattered, not any compositional harmony in which such features participated. (This writer remembers showing a very undemonstrative "modern" church to a conservative architect, suggesting that it was an acceptable design, and provoking the reaction—this was in 1949—"What if the minister came jitterbugging down the aisle?")

Such assumptions are implicit or explicit in all the variations of the standard *argumentum ad hominem* of the Modernist, which boils down eventually to the assertion that Eclectic architects are bad, bad, bad, and that their admirers are fools, fools, fools, and concludes that the products of such knavery and foolery had better be excluded from our vision.

And, as a matter of fact, they have been excluded from the vision of most of us. Until recently, at least. In New York, the signs of a revival of interest have been around for several years. That pickets should have protested demolition of the wafer-thin Roman architecture of Pennsylvania Station was an amazing cultural volte-face. And for some years now an institution called the Community Trust has been affixing descriptive plaques to quite a lot of ornate New York masonry that is much newer and thinner than it gives itself out to be. Just now, however, there is no acute flare-up of interest in the Eclectic; we are still with Art Nouveau. However, the prospects are favorable. A public that can love Art Nouveau can surely come to love anything, and the day may not be far off when the cultured herd will babble of squinches, crockets, and swags, guttate mutules, vermiculation, and even pulvinated zoophoroi (this writer saw a pulvinated zoophoros once; it is in Pittsburgh).

This venture into the meteorology of taste is merely by way of parenthesis. The actual purpose of this article is to demonstrate that Eclecticism actually *did* have a soul, that it came into being for reasons to which the imitation of "styles" was originally more of a means than an

An Eclectic Miscellany

Passages from the Writings of Eclectic Architects and Their Supporters

Henry Van Brunt applauds the decision to employ classical styles at the Chicago exposition of 1893:

It was considered that a series of pure classical models, in each case contrasting in character according to the personal equation of the architect, and according to the practical conditions to be accommodated in each, but uniform in respect to scale and language of form . . . would present to the profession here an object-lesson so impressive of the practical value of architectural scholarship and of strict subordination to the formulas of the schools, that it would serve as a timely corrective to the national tendency to experiments in design. . . . There are many uneducated and untrained men practicing as architects, and still maintaining . . . an impure and unhealthy vernacular, incapable of progress; men who have never seen a pure classic monument executed on a great scale, and who are ignorant of the emotions which it must excite in any breast accessible to the influence of art. To such it is hoped that these great models, inspired as they have been by a profound respect for the masters of classic art, will prove such a revelation that they will learn at last that true architecture cannot be based on undisciplined invention, illiterate originality, or, indeed, upon an audacity of ignorance."

From an article, "Architecture at the World's Columbian Exposition," that appeared in Century Magazine in 1892.

Joy Wheeler Dow discusses the grand tradition of American house architecture:

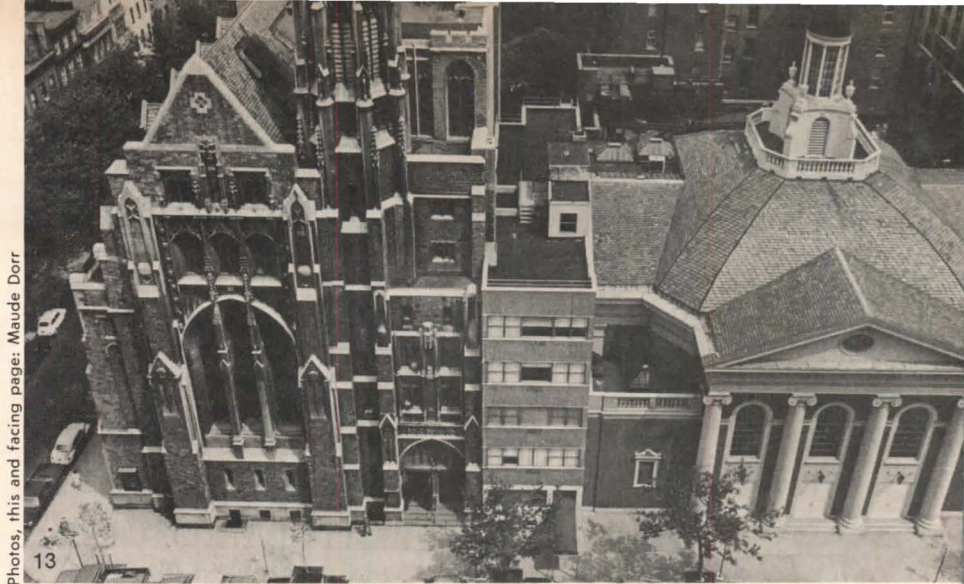
Veneration for ancestors, and for what ancestors knew, has not been regarded as an American virtue. Yet there was a time entirely beyond the memory of this generation when traditions were religiously handed down and respected in America. . . . Previous to [the] advent of rabid democracy there had lingered a vestige of a certain code of social restrictions which once regulated architecture almost as absolutely as it did the private affairs of every family in the land. . . . This abrogation of personal liberty bore rather roughly, perhaps, upon the individual; but it was the very salvation of architecture, being the censorship to which we are indebted for whatever true inspiration we are enabled to draw out of the Colonial exemplars. 'Precept' was the word upon which the American Renaissance was

end in itself. And to show this we will need a certain amount of history.

History

Beginning dates for movements are arbitrary, but those of 1872 and around 1874 were significant for the start of Eclecticism. During the first of these years, Charles Follen McKim remodeled a Newport interior in a very free Colonial style — the first drop of water oozing through the crumbling levee, as it were. In the latter year, whichever it was, H.H. Richardson's contractor for Trinity Church, Boston, informed him that the central tower as designed was unbuildable. Casting about for an alternative solution, Richardson turned up a photograph of a Romanesque tower in Salamanca and gave it to Stanford White, who was then in his office, to adapt. White produced the splendid design we all know, which did much to make Richardson's reputation. The significance of the episode lay not so much in the adaptation of the precedent, which was very free, but in the use of the photograph. Eclectic architecture may be called, without malice, an architecture of the soft pencil and the photograph. The various B class pencils give the richness of texture and the precise depth of shadow that the Eclectic delights in and have about them, too, a suggestion of the traveling student looking up from the sketch-pad on his knee to some vision of the Old-World quaintness. The photograph gives the exact form of a precedent under study, shows its third dimension, its proportions, details, and textures, and thus enables one to determine what local materials one might use to recapture the effect. Such media were essential to the success of the new movement, and not for cribbing purposes alone. To the early Eclectics, the architecture of their country was simply benighted, and not least of all because of its harshness of composition and surface quality. It was possible to find somewhat more culture and talent in a few architects than in the rest, but the standard at best was too low (the Eclectics thought), and a general re-education was vitally necessary; and that education had to include abundant exposure to the actual visual qualities of historic architecture and of the best contemporary foreign work.

The picture that one gets (and this is partly due to the Eclectic writers taking their turn in the historical pecking order) of the American architectural profession in 1870 is that of a motley group of architects, trained in offices rather than schools, tainted with commercialism, unsure of their status and responsibilities as professional men and not always regarded as such by the public. (The benighted state of American architecture around 1870 or 1880 is a standard subject for Eclectically slanted architectural



13

Photos, this and facing page: Maude Dorr

(13) Park Avenue block front, showing three styles in as many façades.

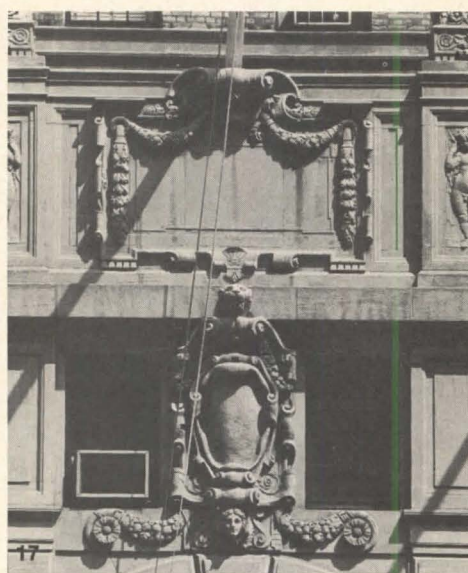
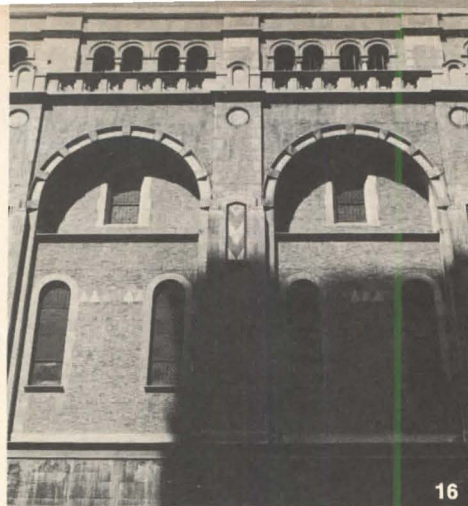
(14) Eclectic and Victorian Gothic, contrasted. (15) Intricate detailing of St. Vincent Ferrer, New York, by Bertram Goodhue. (16) New York church (for Baptists) by Ralph Adams Cram. (17) Detail of a New York hotel.



histories and biographies.) In their designing they sometimes maintain a fiction of reproducing this or that foreign style, but actually there is a great deal of originality — if only of the sort that Berenson called "the originality of incompetence" — in their work. Originality is to some extent thrust on them, in fact, by the inadequate means available for depicting works of historic architecture. If photographs become available toward the end of the mid-Victorian period, they are not yet present in enough variety to be of much use, and do not as yet appear in the architectural periodicals. Their ideas of European buildings, then, must be taken mostly from measured drawings, engravings, etchings, and paintings, which tend to give but a meager idea of the surface qualities of a building and/or its appearance in three dimensions. This seems to have been of no worry to the 1870 architect, however, who appears to have been content with a building technology and with building problems in which mass and texture were not likely to be highly developed. His typical problem was the erection of a single street façade in pressed brick or machine-finished stone, the sort of finish materials that industry could easily turn out, or of a frame house put together with machine-cut framing, siding, and millwork, plus a greater or lesser amount of jigsaw work in which the machine was again present,

though as a handicraft tool. The use of industrial methods encouraged the flat surface, the straight line, the rectangular opening, and the architect as generally content to accept these as the determinants of his design, eschewing texture in the sense of shallow relief although sometimes supplying it in the form of diaper patterns in his brickwork and slating. The ornamental flourishes, which could be quite gaudy in form, of course, were worked out in the same prosaic, economical materials that were present in the bare utilitarian carcass of the building, although the interiors might have a little carved marble and fancy woodwork to give the decorator a point of departure. In the best of the 1870 work a geometrical rigor prevailed, cowing potentially rebellious elements with some dominating rhythms or shapes, but in much of it what might be called the vignette mentality prevailed — that is, a tendency to work out details for their own sake, very handsomely but without due consideration to the way in which they would relate to the buildings as a whole.

Today, we have come to enjoy the Victorian hardness, flatness, and up-and-downness; even grotesques on tenement façades and eye-searing contrasts of white marble and red brick have found recent friends. But to Richardson and McKim, young designers who had studied



at the Beaux-Arts, these things meant rampant illiteracy and disgrace to the nation.

Richardson and the Revival of Taste

Both Modernists and Eclectics have been accustomed to think that everything good in modern (i.e., post-1880) American architecture started with H.H. Richardson. To the Modernists, he is the great simplifier, the bold user of materials, the man who wanted to design a grain elevator and the cabin of a river steamboat. To the Eclectics, he was the first person to become what they became, and, more importantly still, had the imagination and the persistence to begin to recruit or train the craftsmen who were necessary to the new way of building. John La-farge's decorative program for Trinity Church, Boston, was regarded as a return to the grand European tradition, a sign of the coming liberation from the commercial decorators who had finished off monumental buildings until then. Along with new standards and skills in craftsmanship went, of course, new materials. Richardson and other early Eclectics developed, rediscovered, or brought into new importance wrought iron, Roman brick, white and cream-colored "architectural" terra-cotta, shingles and other materials suited to building in the various manners that were then emerging.

A new awareness of the sensuous appeal possible to architecture was thus arising in the 1870's, and along with this came an awareness of two other things: America's colonial past and America's present cultural backwardness. The Centennial brought both into focus. Naturally, people in 1876 were inclined to think of the way that things had been a hundred or so years before, and to evoke concrete pictures of 18th-Century homes and streets. At the Centennial itself, foreign exhibitors showed us what they could do in various decorative media and this created a certain gnawing discontent with our own efforts. Coincidentally, subscribers to English architectural periodicals in the mid-1870's were being made aware of the work of Norman Shaw, which had recently evolved from picturesque Victorian Gothic into his famous Queen Anne style, a rambling, improvisatory, hedonistic affair in which practically any ornamental motif from the building vernaculars of the 17th and early 18th Centuries was welcome, if it had something lyrical or witty to say. Queen Anne was a style of such charm, with its informal classicism, its studied quaintness, that a number of American architects began designing in it too, folding Colonial motifs into the mix of motifs in increasing quantities until it at last evolved into a trim but informal suburban Colonial idiom and into the famous Shin-

founded. The Colonial builders build as they were taught to build, not as they may have wished to experiment."

From American Renaissance, by Joy Wheeler Dow (William T. Comstock, New York, 1904).

Ralph Adams Cram explains the role of Gothic in the Episcopal church:

To build a church rightly, it is necessary to . . . build in the only style we have any right to, and that has any kinship with the American branch of the Anglican communion of the Catholic Church . . . and that is Gothic, as it was when all art was destroyed at the time of the Reformation. But this is only the basis: from this starting-point we must advance, in order to prevent a dead archaism. We can't work in [earlier Gothic or some other style]. . . This would be affectation; but we can assume anything we like from these styles . . . so long as we assimilate them, make them integral parts of a great whole. But the base of it all, the primary architectural impulse, must be that of the last days of Gothic architecture in England; namely, the end of the 15th Century."

From Church Building, by Ralph Adams Cram (Marshall Jones Co., Boston, 1924).

Cram develops an academic style for Rice Institute, Houston, around 1910. After a firm rejection of Mission, Gothic, Georgian, "Spanish-Indian-Baroque," and the Modernist-functional" style which he "would not have used anyway where any cultural connotation was concerned," he decides to invent a new "though not too new" style:

I went at the problem thus: Gothic was the result of an enthusiastic and fertile union of Northern blood and monastic fervor superimposed on the everlasting but latent tradition of Greek and Roman civilization. Now, suppose the Northern factor had been eliminated and [that monastic fervor had acted on] the Mediterranean races, that so had become regenerate and dynamic — what would have happened in the way of architecture to compare with what actually took place? . . . I reassembled all the elements I could from southern France and Italy, Dalmatia, the Peloponnesus, Byzantium, Anatolia, Syria, Sicily, Spain, and set myself the task of creating a measurably new style that, while built on a classical basis, should have the Gothic romanticism, pictorial quality, and structural integrity."

Cram has reservations about "modern" architecture:

"Take domestic architecture, for example. The cubist, 'dimaxion' [sic] 'functional' house is a contradiction in terms — such, for instance, as the work of M. Le Corbusier in France or the new type of apartment house seen all over the Continent, the sort of thing that seems to have been the realization of the unquiet dreams of a mechanical engineer or an overworked mathematician. These things seem to me to be a betrayal of trust and wholesome society. . . . The home, as this came to be under the Christian dispensation, is a very definite, concrete, even sacramental thing; and its habitation from the beginning was, as always had been the case in antecedent times of peace and culture, a direct outgrowth of the life within. There

gle Style (which actually can include quite a lot of masonry), which gave us perhaps the very best domestic architecture we have ever had.

Historicism

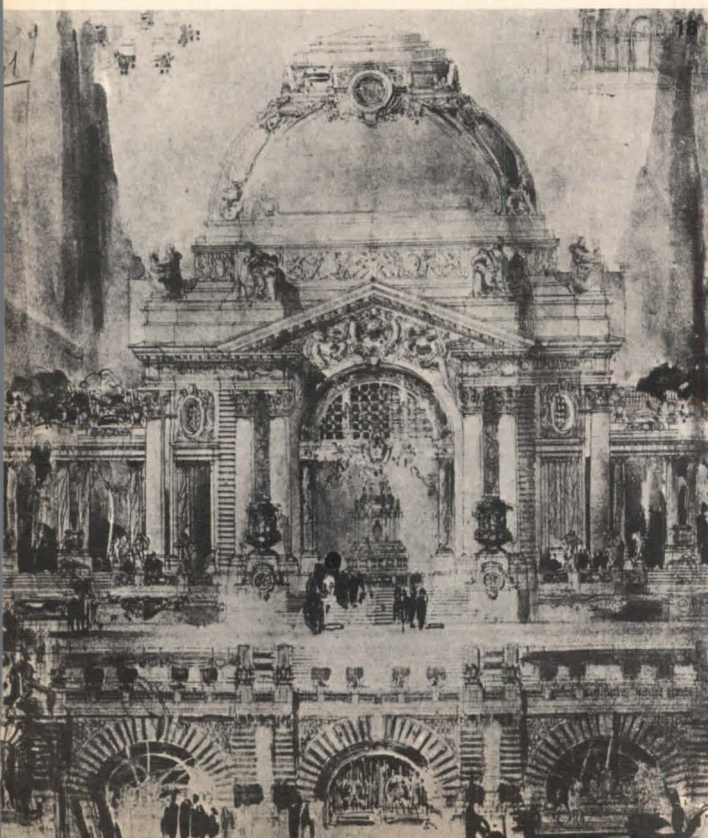
Around 1880, architecture, domestic architecture especially, had immense promise. The best new work, affecting no particular style, informal but disciplined in composition, formed a possible basis for an evolution into a gentle, undocinaire Modernism, in which ornamentation, even of a period sort, might have fitted very handsomely, naturally, and without snobbery. Public and commercial structures were less far advanced; essentially boxes on whose acknowledged fronts cultural conversation had to be made, they were much tougher problems, and even Richardson never quite managed to give the factual natures of such buildings straightforward and consistent architectural interpretation. Sullivan's commercial work, which was more sympathetic to and more admired by the Eclectics than is generally supposed, might under different circumstances have led to more than it did. Such gentle, en masse evolution was not to be, however. McKim and White, for instance, quickly developed a series of increasingly formal and more directly imitative manners to give the personalities of Big Business proper settings for work and play. Richard Morris Hunt, a Beaux-Arts graduate who had been working mainly in a strident mid-Victorian Stick Style through the 60's and 70's, suddenly turned to a Loire chateau idiom around 1880 and to various classical manners later for the Vanderbilts and others, and worked at these though with

gentle protestations of reluctance for the rest of his life. More obscure practitioners also gave up bit by bit their mild innovationism under the growing spell of precedent. For things were happening aplenty to make the architect more sophisticated, and increase the temptation to imitate. The first native architectural school, that at MIT, was founded in 1866; others followed quickly. The first successful native architectural magazine, *The American Architect*, was begun in 1876; it had some photographic illustrations from the start, along with carefully hatched line drawings. Other magazines followed. Students were encouraged with advice and money to study and sketch abroad. Books with measured drawings of Colonial and foreign work appeared. By the 90's, any architect could obtain a good idea of what had been done and was being done in any of the countries culturally associated with the United States. This wealth of information led, like the hand of fate, to the irresistible temptation to try one's hand at this or that idiom in its beautiful completeness. Thus, as we have seen, Hunt began to do chateaux for the rich early in the movement. A designer at McKim, Mead & White did the façades of the Villard houses of 1885 in Quattrocento, and White eagerly chimed in with appropriate interiors. In the same year, the same firm did the first formal Colonial Revival house, white woodwork on yellow clapboards, at Newport. In 1891 or thereabouts, architects of the East and Midwest met at Chicago to undo the shame of 1876, and talked themselves into the erection of a vast series of classical decorative screen façades, all white, with a 60-ft



cornice line. At the same time, Daniel Burnham, who has figured in history mostly as the Quisling of Chicago architecture, was playing Satan to that young Messiah, Frank Lloyd Wright, lifting him to the acroterion, I suppose, of a metaphorical classical temple and evoking the vision of Wright as a top architect in an America gone classical.

The rest of the story is too well known to need much repetition: The ambitious leisure class of Veblen and Edith Wharton and Charles Dana Gibson, demanding architectural ennoblement; the desire to beautify the conspicuous parts of American cities and adorn them with handsome public buildings; the brash imperialist yearnings; the pretensions of Big Business: all demanding architecture that was gigantic, sumptuous, and correct. At the same time, beginning in



(18) Beaux-Arts sketch problem: "Un Pavillon pour Une Source d'Eau Thermale."
(19) Beaux-Arts houses in New York. (20) Bank by Wilson Eyre, c. 1900.

the mid-1890's we were hit with the first works of the modern Beaux-Arts style, whose cheerful vulgarity, just right for O. Henry's New York, ascended the fronts of hotels, theaters, and office buildings like a variety of strangler fig, until more conservative architects wished audibly (as some had with the Queen Anne) that it would go away—which it did, some time around 1910.

By 1900 the Eclectic movement had won its ideological battle, and was beginning to concentrate upon the narrower goal of the adaptation of various styles to contemporary American needs. The archaisms of the 20's—the antiquing of murals with skim milk and of steps with grinding wheels—were not yet in evidence, and in fact there was nothing about the buildings designed in the 1900's that was literally imitative of specific precedents. Their ornamentation was redesigned, rescaled, and redistributed in a way that made them distinctively American, at least in that the look of such buildings bore no over-all resemblance to the look of the originals.

The Architecture of Association

The appeal of associative values had adhered to the Colonial Revival from the beginning, as we have seen, and such values were to cling as well to many of our naturalizations of foreign styles. If a building as abstractly classical as the Lincoln Memorial in Washington is intended to be a national ornament, a composition to be studied for its own sake, a Cotswold house in suburban Philadelphia is a somewhat more typical and more complex piece of “high” Eclectic architecture. The random slating of its

gabled roofs and the warm rubble-mortar of its walls are pleasant things in themselves, in an idyllic setting of old trees and rhododendrons; but bits of English ornament here and there suggest that the design of the house is *about* something rather than a self-sufficient composition—that it is a rhapsody, a poem, a story, a metaphor of domestic bliss and cultural continuity. We may distinguish qualitative levels in such associative architecture. Some of it is mere make-believe, and persuades us that the colorful background of a Rudolph Valentino film must have started a chain reaction from Mrs. Client to Mr. Client to the obliging architect. But, in other cases, there is evidence of an honest and deep feeling that the adopted style is a natural and quasi-eternal mode of expression for certain values, or for certain aspects of civilized American life, and that the presence or absence of modern building technology is relevant to the situation only as a help or hindrance.

To Ralph Adams Cram, for instance, devout Anglican that he was, Gothic architecture was still a living, breathing thing, charged with all the spiritual treasures of the Catholic Church, and therefore to be used as an integral part of an ecclesiastical *Gesamkunst* in which liturgy, music, and the various church furnishings and ornaments would all be combined in aid of worship. As has just been noted, the Colonial Revival had a similar privileged position with respect to domestic architecture. Perhaps Joy Wheeler Dow's book of 1904, *American Renaissance*, is worth a few lines in this connection. It is an amusing book, biased but clever and likeable, and it points up

was no self-conscious and affected imitation of the past, and, until the Renaissance, no deliberate invention of a “new style” imposed by authority on an unwilling and bewildered public; above all it was certainly *not* ‘a machine for living.’ . . . I suppose we have got to begin again—pick up something of the lost social tradition, something also of the lost architectural tradition. . . . The Eastern Seaboard and its hinterland have four or five precedents to offer, dating from the 17th and 18th Centuries; the Gulf States and the former Spanish territories one or two more. We might do worse than to use these as a basis to work on, and from.”

From My Life in Architecture, by Ralph Adams Cram (Little, Brown & Company, Boston, 1936).

John F. Harbeson counsels architectural students on “The Psychology of Success” in 1927:

We were all taught when we went to school that all men were born free and equal. However, we soon realized that the equality was lost after birth. . . . This is true in life; and true in architectural practice and the study of design. This study of design, especially as conducted by the Beaux-Arts Institute, is very much like athletics—the medals go to the men *who win the sprint*, who top the highest bar in the pole vault, who keep a fast, even pace for miles in the distance race, and *have something left for the final sprint to the tape.*”

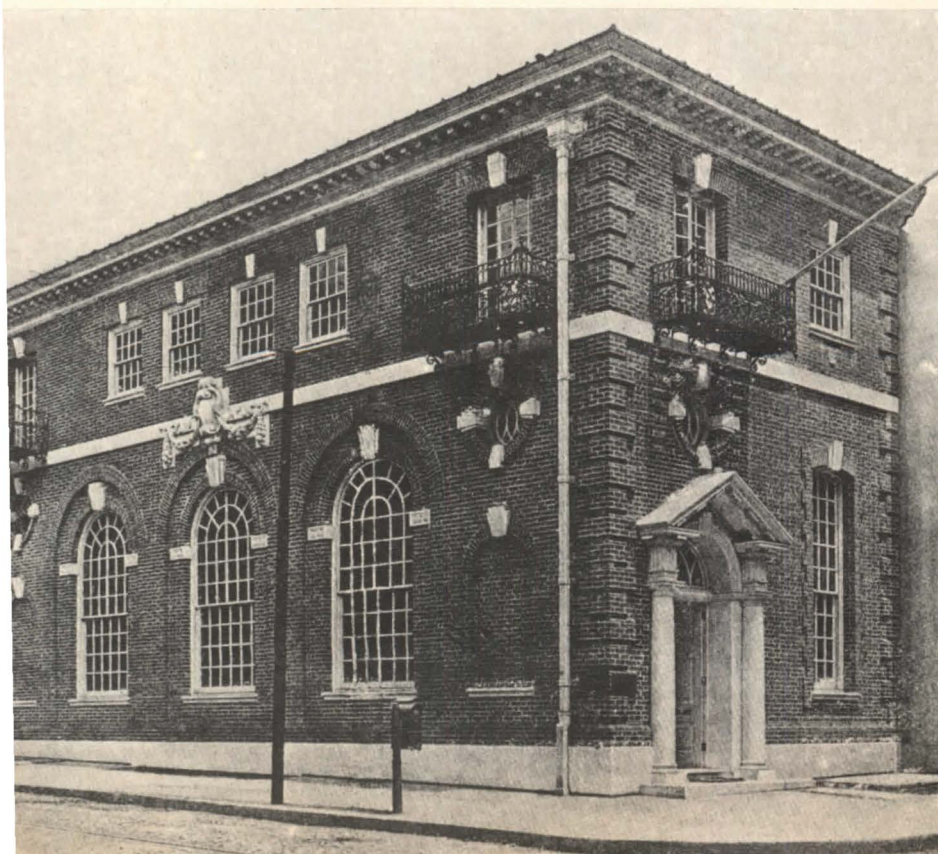
From John F. Harbeson, The Study of Architectural Design, revised edition. (The Pencil Points Press, Inc., New York, 1927).

Thomas E. Tallmadge, formerly a Prairie School architect, has undergone a change of attitude. From the vantage point of 1927, he looks back on his former associates:

Of this devoted band some have gone to the great atelier of the beyond, one or two are still working in their chosen style, a very few have advanced to more modern modes of secessionism, but most of them have returned to the faith of their fathers and the safe shelter of Classicism—their lives and their work certainly not less rich for their youthful adventures in slaying dragons and charging windmills.”

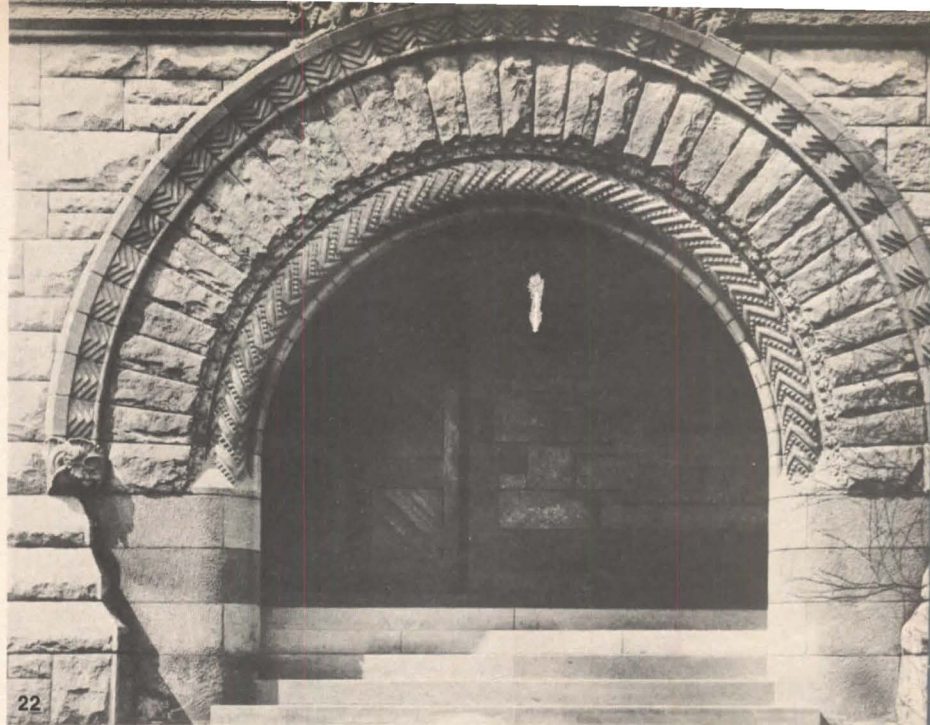
Tallmadge evokes a straw Modernist, who points to the unhampered advances of technology and asks “Why should the architects alone be reactionaries? Why should they alone wear the shackles when all the world walks free?” and answers:

“What is or should be the American Style? Surely, the style of architects that best reflects the culture and genius of America. But what is the culture and genius of America? It is European. We are not aborigines. We are nearly or remotely Europeans, and we are not only Europeans, but we are ancients as well. . . . If, then, it is true that we are co-heirs, with our brothers who have not yet emigrated, of the glory and grandeur that were Greece and Rome; if the same blood that joined thrust to thrust in the dizzy groins of Amiens, that hung the vault of St. Peter's so little below the firmament, that flecked the streets of London with the white fingers of Wren's churches—if this same blood flows in our





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(21) Entranceway at the Panama-Pacific Exposition of 1915. (22) Entrance of a library by H.H. Richardson. (23) Interior by H.H. Richardson. (24) Mildly innovative house in suburban New York, c. 1905.



23



something that a perusal of the written works of Cram does also — namely, the extent to which the recognizable forms of a historic style appeared to some of the Eclectics as the natural language of their culture in one or the other of its aspects. It is not extraordinary or perverse in them to have felt this way. If something about an architectural design is recognized as a piece of ornamentation, then it has the effect of a human utterance; the architect, the client, or the culture that they have between them are trying to say something. The Colonial style of a house whose walls and joinery have a tactile effect of weight and solidity can be a qualitatively different matter from the perfunctory Colonial of the respectable supermarket; it can be an attempt to say that this building, with its particular group of occupants, are part of a tradition, have roots in the past, that they belong to a way of things that did not be-

gin year before last. Thus, Dow talks about the promotion of "Anglo-Saxon home atmosphere," through design in the "American Renaissance" idiom (alias the Colonial Revival style), and gives in photographs two contrasting examples of houses to show exactly what he means. The first is a rather lame variation on Wright's Winslow house, presented as "The Newly Invented Architecture," and given the following "Analysis":

Moresque Spain	10 per cent
Moresque Algiers	10 per cent
Moresque California Mission	10 per cent
East Indian	5 per cent
Newly reclaimed land	10 per cent
Chinese ornament	5 per cent
Modern invention, pure	50 per cent
Anglo-Saxon home atmosphere	00 per cent

Then he repeats the analysis for an "American Renaissance" house, in this

instance a mid-Georgian one on Benefit Street, Providence, in which Anglo-Saxon home atmosphere is assessed at 100 per cent. To rub things in, he later shows a "doorway at Sharon, Conn.," which has a projecting porch with a delicate open pediment, supported on an attenuated Roman Doric order, sheltering a stoop with two benches. The walls are of white clapboards, and the windows are surmounted by delicate entablatures, except for that above the porch, which is "Palladian." There are also vines and the trunk of a handsome old tree. Below the caption, as an appendage to it, comes:

"By evening I was so tired of looking at fashionable architecture that my invitation to supper at Aunt Muriel's was grateful beyond words. We had sugarcured ham (cured on the place), homemade bread, toasted and buttered, Ceylon tea, brewed at table from an antique Dresden tea-caddie, old-fashioned raised

cake, and honey as put up by the bees."

What you see and what you eat and Aunt Muriel's restful company thus form a complex, rich experience of quiet pleasure. Small wonder that newer, more self-centered, more sternly principled architecture had a rough time finding favor, and that people who might have been more moderate in their attitudes if less directly affronted fled into stodginess, both architectural and intellectual, as an alternative.

The Quiet Modernists

Throughout the 90's and the two decades that followed, there were some architects whose Modernism, if not of form-giver tonnage, was nonetheless evident at least in that they avoided to some extent the partis and ornamentation of the recognized styles. A few, like Irving Gill, the Greene brothers, or Claude Bragdon, everyone knows about. Others, like Gustav Stickley of *The Craftsman* or Wilson Eyre, who might be called the Howard Pyle of architecture, are more obscure; and even more so are the designers of the bungalows, the suburban cottages of 1910 vintage, and the utilitarian buildings in which mild ornamental experiments could be made, or ornamentation wholly discarded. These people, some of whose work is very pleasant, have been neglected by architectural history, which tends to set up domino-chains of influence down the years and therefore to ignore things that lead nowhere beyond themselves. It is a pity; if some of this work could get published today, it might be possible to save more of it against the day when people's eyes would begin to focus upon it again.

We might take as symbol of the Eclectic movement at the height of its vitality the Panama-Pacific Exposition of 1915. Of this brief lyrical episode, there remains to us Maybeck's Palace of the Fine Arts, which was perhaps its best individual building complex. But old photographs show us that there was one grand court opening into another, full of light and shadow and muted color. An attempt was made to put the story of mankind up to the opening of the Panama Canal into a vast allegorical program, and the results are both droll and moving. No exposition before or since, except perhaps that in San Diego the next year, has come close to this poetic mood.

This writer must confess that he finds most of the Eclectic architecture beyond 1915 rather boring. There is something embalmed about it, reverently laid out, carefully rouged. And it is interesting to note that during the last great years of the Eclectic period, at least three architects whose success as Eclectics was as guaranteed as anything in this world — Bertram Goodhue, Raymond Hood, and George Howe — turned into Modernists

of one sort or another. For this matter, there was quite a bit of Modernistic ornament of one sort or another by the mid-20's. There seems to have been a general understanding around that time that buildings with connotations of Utility or Progress — power houses, warehouses, airport structures — should, or at least might, be done in some deraciné ornamental manner, although the over-all composition was to remain academic, whereas buildings with connotations of Culture, Civic Adornment, or the like, were to remain in one of the "styles."

In this matter of boredom, of course, one must be on one's guard against the provincialism of the moment, the attitude that what one, as a child of one's period, cannot see is not there to be seen. In time, Eclectic buildings of the 20's and 30's whose good taste we have always dully sensed in passing by may come to appear to us as brimming with vitality. Pending that happy day (for the more there is to enjoy, the more enjoyable life is likely to be), all we can do is retain as open a mind as possible.

Today and Tomorrow

Although perhaps the last great work of Eclecticism was the National Gallery in Washington, begun in 1938, Eclecticism is by no means dead. Magazines such as *Interiors* and *Antiques* are witnesses to the fact that educated, sophisticated people are not only happy to live with the relics of the past but are not averse, when they can afford it, to creating historic environments out of the whole cloth to inhabit. Henry Hope Reed, of course, has written *The Golden City*, a book intended to popularize and advocate the return to favor of the "American Renaissance" in its various idioms, domestic and foreign, especially with regard to public architecture. The project to take the Doric columns of Pennsylvania Station in New York and arrange them around Columbus Circle may have been an act of sentiment, but it may also have been a tribute to an architectural form whose "eternal" nature has never quite lost its hold. Reed predicts categorically that we will be classicists again, Orders and all, by 2000. This seems hardly to jibe with the economic forces acting upon the building industry — at first glance, at least. But this writer has often mused on the white plastic material out of which Clorox bottles are made, and the foam plastic in which hardware is sometimes packed, and out of this evolved a vision of a section of frowning cornice, 6 ft deep and 10 ft long, being lowered into place over some expedient cinder-block wall and secured by cotter pins — gleaming plastic mutules and corona, stuffed with foam to keep them firm; modern science at the service of timeless art. Who knows? — WALTER C. KIDNEY

veins, why should we give up this royal heritage? It is as much ours as theirs across the seas."

From Thomas E. Tallmadge, *The Story of Architecture in America* (W.W. Norton & Co., New York, 1927).

The University of Pittsburgh explains its 18 International Classrooms, each designed in a different national style:

The 18 International Classrooms which circle the vaulted Commons Room of the University of Pittsburgh's Cathedral of Learning are rooms with a view, a view which encompasses all mankind. Each was designed by an architect from the country whose people are represented: Chinese, Czechoslovak, English, French, German, Greek, Hungarian, Irish, Italian, Lithuanian, Norwegian, Polish, Romanian, Russian, Scottish, Swedish, Syrian-Lebanese, and Yugoslav."

Of the Swedish Classroom, the University says:

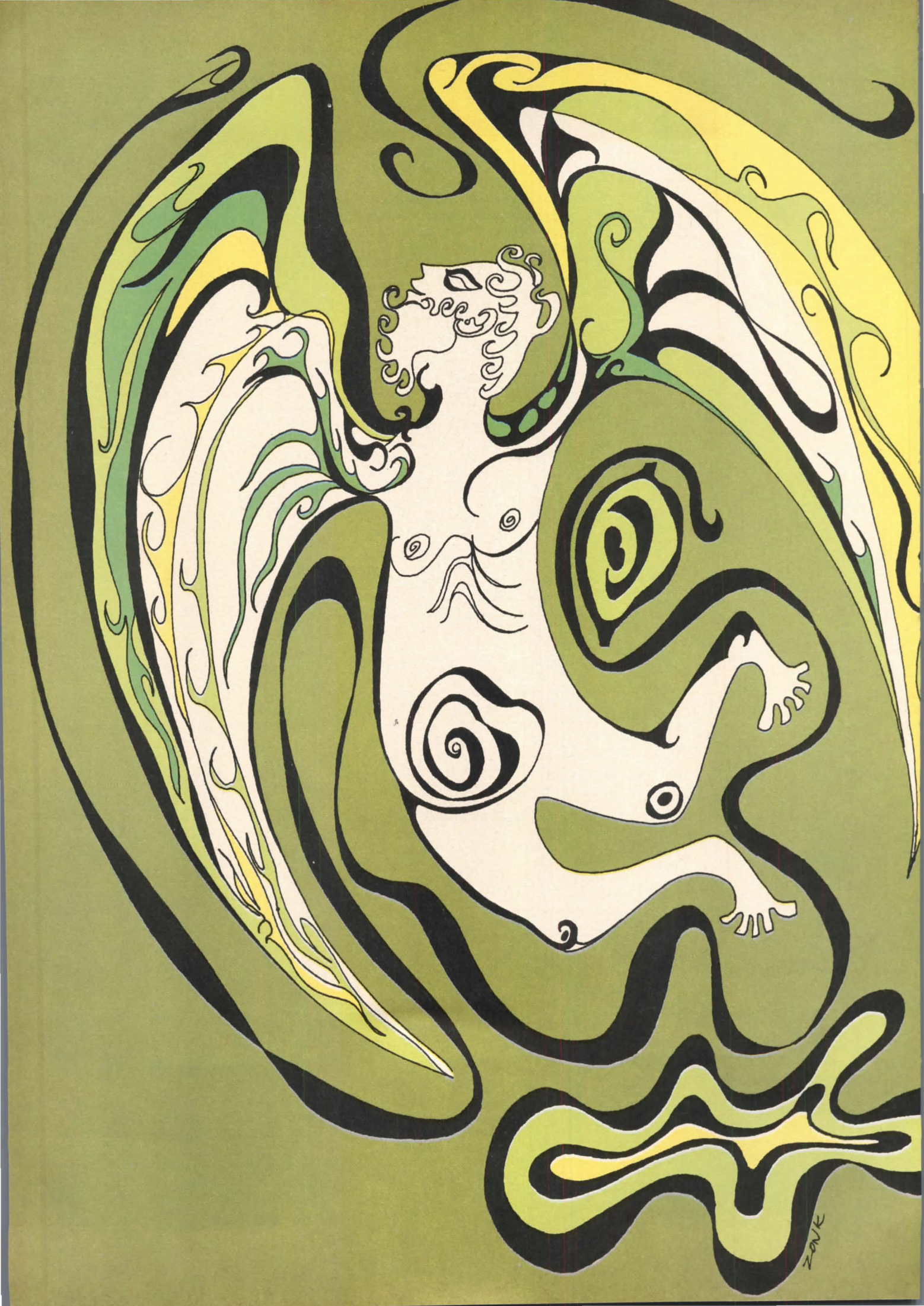
"Structural simplicity and dignity and soft, pleasing decorative effects are the basic elements in the design of the Swedish Classroom. The walls are built of 200-year-old bricks, covered with many coats of thin white plaster. Above, a wooden ceiling with sloping sides is painted with a rich but delicate feeling for color. . . . The prominent colors in the decorations are soft blue and yellow, pointed up with black. Three or four medallion panels depict colorful horsemen riding out into the world. They represent the Three Wise Men riding to Bethlehem to see the baby Jesus. . . . There is a hooded brick fireplace, elevated from the floor, and flanked with hand-wrought fire tools."

From University of Pittsburgh publications.

Henry Hope Reed predicts the return of classicism as a popular, living style:

In architecture, [classicism] means a style or styles whose visual rules are based on the Five Orders: Doric, Ionic, Corinthian, Composite, and Tuscan. It accepts the premise that painting, sculpture, stone carving, bronze work, wood carving, etc., have a place in a decorative composition, each with a role depending on the visual unity of the scheme. In painting and sculpture the human form divine has primacy of place. The classical is, above all, a form or art, public and urban, which achieves fulfillment in the decoration of cities. Secessionism [i.e., Modernism] properly identifies a style self-consciously rebellious against all past styles. It best describes the cult of aesthetic vivisection, of conscious brutalism, of visual nihilism with its attendant breakdown of artistic skills and standards. It is Secessionism that is destroying New York, and all other American cities for that matter. It is the Secessionist who is producing the cancer called the ugly American city. Once the current destruction is realized for what it is, then the scales slip from the eyes and the wonder that is called classical New York comes into full and glorious view. And let no one be mistaken. The classical is a living force, momentarily out of fashion, one which is bound to count again in the not-too-distant future."

From *The New York Spy*, Alan Rinzler, ed. (David White Company, New York, 1967).



COLOR T COLOR

Recent research has led to drastic reformulations of classical theories of color. The far-reaching implications to architects and designers are detailed in this article by Color Consultant Faber Birren.

Of all man's explorations these days, to the moon and beyond, perhaps none is more awesome than a journey into the limitless depths of his own psyche. Ask many a sophisticated youth and he will look upon a moon voyage as tedious and dull. He has within himself an infinity of space filled with wonders and terrors that defy description. And a speck of LSD on a cube of sugar will take him there without so much as having to stir himself. Yet he will soar farther than any astronaut and have his senses stimulated as no man confined or tied to a capsule can possibly imagine.

There is far more color within man than in the world beyond. While space-age scientists busy themselves with interplanetary travel, other scientists in psychological realms are equally occupied with inner space. Indeed, man's knowledge of himself, his perception, mind, spirit, has been increased vastly within recent years and vies in magnitude with enlightenment on the physical aspects of the universe.

From Newton to LSD

There is one phenomenon, color, which holds new meaning today and which deserves special attention in a modern world. In the old and venerable tradition of Newton, the wonders of color were said to be transmitted through molecules (and waves) of light showered upon man through the window of his eye. This classical notion was accepted for nearly three centuries but has now, within a decade, been found invalid. Within man, within his brain, his consciousness, is a world of color that seems to exist apart from an outer world of light energy. The experience of color can be induced in many ways, such as pressure on the eyeballs, or through reactions to certain drugs. Using light sources that contained no green or blue energy, Edwin D. Land, president of the Polaroid Corporation, was nonetheless able to induce sensations of them with pure red and yellow light only. As Land found, "We are forced to the astonishing conclusion that the rays (of light) are not in themselves color-making."

With psychedelic drugs (LSD, marijuana, mescaline) colors are turned on from the inside. The brain projects them out front, so to speak, and the spectacle may be an astounding one. Ordinary objects will take on the luster of gems. There may be spectral fountains, riotous hallucinations, and a fantastic interplay of sense responses in which colors, sounds, tastes, odors all become one animate kaleidoscope.

Reversing the procedure, psychedelic art and psychedelic discotheques using flashing lights, colors, fluid designs and patterns, roaring sounds, incense, attempt with fair success to blank out the real world for one of nightmarish fancy — without the taking of drugs. Let it be appreciated that, in clinical studies, flashing red lights have been found to induce seizures in epilepsy, while pulsating, stroboscopic lights are hypnotic, can produce headaches, nausea, and minor forms of a "nervous breakdown."

Quite on the other hand, if the sense of sight is *not* stimulated, reactions will take place anyhow. Prisoners in solitary confinement, ascetic monks in the seclusion of cells, are often visited by colorful apparitions for no external cause. Schizophrenia is like this. Withdrawn from humanity, hunched in a dark corner, the patient may leave his immediate world for a dream world of his own. As the psychologist R.L. Gregory states, "It seems that in the absence of sensory stimulation the brain can run wild and produce fantasies which may dominate." In the contemporary world, such hallucinations may become an occupational hazard for men who sit at automated machines or who travel into empty space confined to a crowded projectile. Colors and visions from inside them may block vision of their actual environment.

The dynamic qualities of color have occupied scientists in three realms: the physical (physiological), the visual, and the psychological, and an impressive fund of data has been assembled for each. There is little doubt that color holds great importance in life today, and the more man understands this the better will color serve his welfare and be put to beneficial use.

PHYSICAL ASPECTS OF COLOR

In a physical way, color has great influence over living things, plants, insects, animals and men. Plant life, for example, thrives on the visible rays of sunlight and will for the most part perish if exposed only to invisible or infrared or ultraviolet light. Visible red light, and, to a lesser extent, visible blue light, seem to be most favorable to plant growth, while green light is more or less neutral. However,



John Ott found that a small amount of ultraviolet light was necessary for the normal growth of corn and for apples to turn red. In a new horticultural science called phytoillumination, plants are grown entirely under artificial light and nourished with chemicals. Many a farm may one day be enclosed by a roof or dome and thus be freed of dependence on the caprices of nature.

With lower organisms, animals, and human beings, visible light is once again highly significant. Many creeping and crawling things move in and out of light as their need for survival requires. Ants placed in a box illuminated by a complete spectrum from one end to the other will move out of violet and ultraviolet and take refuge in red. Bees can be made to see the difference between yellow and blue. Red seems to interfere with the normal growth of cockroaches. Human flesh, too, is often made light sensitive. Skin eruptions may follow exposure to sunlight after the use of cosmetics and colognes. So-called strawberry rash and buckwheat rash may be traced to the eating of these foods; they make skin sensitive to light. Visible blue light, incidentally, has been therapeutically employed to arrest the injurious effects of extensive exposure to ultraviolet light.

How Insects React

To get back to the insects: Beetles and mosquitoes are more attracted to blue and ultraviolet energy than to red. Traps for Japanese beetles have yellow for a lure. Houseflies tend to be attracted to light colors and to yellow. Yet mosquitoes prefer dark blue, red, and brown. One investigator found that pink and yellow curtains and nets in malarial regions harbored fewer mosquitoes than dark blue and gray.

Some gelatinous organisms through which light tends to pass can be destroyed if they are colored with an inert dyestuff. What happens is that the dyestuff absorbs light and with light absorbed (including ultraviolet) they expire.

The World of Fish

Up the scale, fish, which have a fair sense of color, react to it in various ways. According to G.L. Walls, "Fishes generally seem either to shun red or to prefer it decidedly." When researcher Cora Reeves placed red glass over a tank of minnows, the fish were agitated and their respiration rate increased. In one odd instance, when fluorescent lights were installed as a replacement for incandescent lights in a New York State trout hatchery, death rate rose from 10 to 90 per cent, presumably because the violet and blue radi-

ation of fluorescent light was more lethal than the warmer yellow and orange rays of incandescent light.

In experiments with tropical fish, John Ott placed bluish fluorescent light over one aquarium and pinkish fluorescent light over another. With 9 hours exposure each day, no young were produced under the bluish light, whereas, under the pinkish light, 80 per cent of newborn were females and 20 per cent male.

In the Avlary

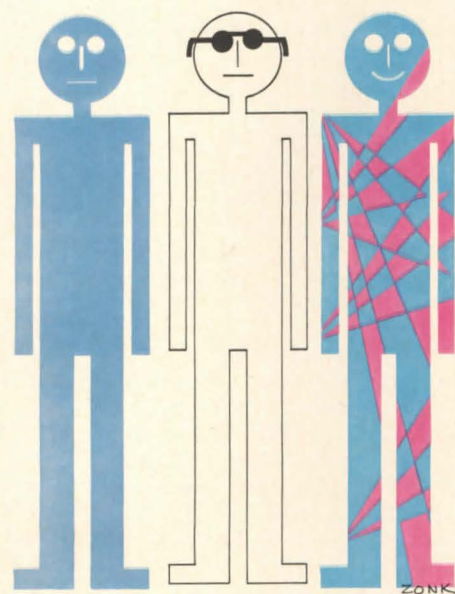
With birds, length of day causes glandular changes and may account for the urge to migrate. Supplementary light is commonly employed in poultry raising to stimulate egg production. However, eggs laid under bluish fluorescent light tend to be fertile, while those laid under pinkish fluorescent light tend to be infertile. Probably the rooster is more affected than the hen. Among starlings, males are sexually quiescent during winter. Glandular activity can be stimulated by red and white light. In the interest of science, Solly Zuckerman of England found that the starlings of Piccadilly Circus and Trafalgar Square—all exposed to brilliant artificial light—had active reproductive organs at a time (during winter) when the starlings of Oxford were sexually impotent. One has cause to wonder if the great white ways of big cities are indeed not generators of evil through the blaze of their lights and signs.

Animals and Color

With animals, as with birds, sexual activity can be controlled with light and duration of exposure to light. T.H. Bissonnette of America found that increased night light "induced cottontail rabbits to undergo sexual activity in winter." He was able to produce white winter fur coloration during summer in weasels, ferrets, and mink by reducing the duration of periods to which animals were exposed to light each day. Though a cow will give milk year around, goats will not. Hence, milk supply from goats will be irregular. According to Bissonnette, "Results indicate that breeding cycles in goats are controlled by daily periods of light in such a way that short days induce breeding while long days inhibit it."

Mammals for the most part, apes and man expected, do not see color. Yet they respond to it. Rats kept under blue light have had the same growth rate as rats reared under normal light. Under red light, however, appetite was increased and weight was accelerated. In experiments with mice, John Ott kept over 1000 in separate colonies under three conditions: bluish fluorescent light, pinkish

ZONK



fluorescent light, and natural daylight. Here were some of the results. The colony under natural daylight produced 50 per cent females and 50 per cent males. The colony under bluish fluorescent light produced 70 per cent females and about 30 per cent males. The colony under pinkish fluorescent light produced about 30 per cent females and 70 per cent males. Despite tradition, it would seem that blue is for girls and pink for boys.

Again according to Ott, breeders of chinchillas will have a relatively high percentage of males if the animals are kept under ordinary (warm) incandescent light, and a correspondingly high ratio of females if kept under daylight (bluish) incandescent illumination. Maybe the eternal problem of sex preference in babies will one day be encountered through the medium of colored light. At the moment, it would seem that kings who desire male heirs would do well to light the boudoir with pink bulbs.

Effect on Humans

To deal now with the physical and physiological effects of color on man himself, it is well to recognize that human beings will react whether they like color or not. Reason or emotion may not enter into the matter. In other words, responses are frequently involuntary and automatic.

The body of man has a radiation sense. If it did not, it would not turn red and tan under sunlight. Awareness of the existence of light and color has been noted in blind individuals. For example, there is a general "tonus" or reaction to light. As will be enlarged upon later, bright light and warmth of color tend to condition the body for physical action (like a sunny day), whereas subdued light and cool color

(like a cloudy or rainy day) are more conducive to moody reflection.

Optical stimulation through brilliance of light and warmth of color will cause a number of things to happen — and without human volition. First, there will be increased muscular tension. Second, there will be attraction to stimulus. That is, the outstretched arms and the body itself will tend to lead *toward* the bright light and vivid color. Third, there will be what is called general automatic arousal. Respiration rate will increase, so will heart action, while blood pressure will rise. Fourth, there will be increased cortical (brain) activity, which can be electronically recorded.

On the other hand, dim light and cool color will tend to have reverse effects. Muscular tension will relax. There will be an unconscious withdrawal from stimulation. Respiration rate, heart action and blood pressure will drop. Indeed, a person may well fall asleep.

All or most of this will take place independent of any mental opinions. Physical activity and crying in infants has been found to decline under the influence of blue light.

What this means in a broad sense is well expressed by Kurt Goldstein. "It is probably not a false statement if we say that a specific color stimulation is accompanied by a specific response pattern of the entire organism." With reference to red, Goldstein mentions the case of a woman with a cerebellar disease who had a tendency to fall unexpectedly. When she wore a red dress, such symptoms were more pronounced. He points out that tremor, torticollis (involuntary twitches of the muscles), "can at times be diminished in severity if the individuals are protected against red or yellow, if they wear, for instance, spectacles with green lenses."

VISUAL ASPECTS OF COLOR

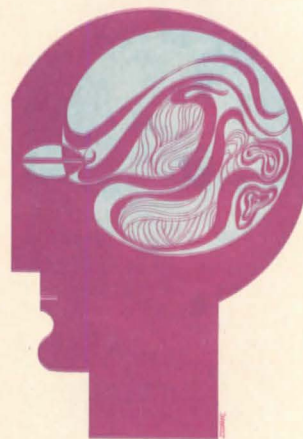
To shift now to the visual realm of color, light and brightness, scientists in the field of optics have in the past decade established a number of vital principles having to do with efficiency and comfort in the act of seeing. Much that has been concluded has been proved through instrumental means.

First of all, the eye obviously needs light in order to see. How much light is a matter of constant debate. By and large, seeing efficiency increases as light level is raised from total darkness to a level approaching that of an overcast daylight sky. If too little light will handicap vision, so will too much overtax it. There is a difference, for example, between casual seeing and critical seeing. A person can sit out in the sun, with or without sun-

glasses, or in twilight, and be perfectly at ease until called upon to perform some difficult eye task. Then the glare of sunlight or the dimness of evening will cause real distress and pain.

In general, abuse of the eyes can lead to fatigue, nervousness, irritability — and even to damage of the mechanism of the eye. Trouble is encountered where there is feeble light (under which seeing tasks must be performed), extensive glare, severe contrast in the field of view. The eye is a very worthy and durable organ. The retina, as a case in point, can be alternately exposed to moderately high or low brightness with remarkably little fatigue. However, where eye muscles are involved, fatigue may be rapid. One of the worst strains is to try to concentrate when exposed to glare. Another is to glance alternately at areas of high and low brightness, an action that puts the delicate muscles that control the pupil opening to undue stress.

Yet if severe contrast is bad, so is too much uniformity. The human body, all of it, is in a constant state of flux. Steady



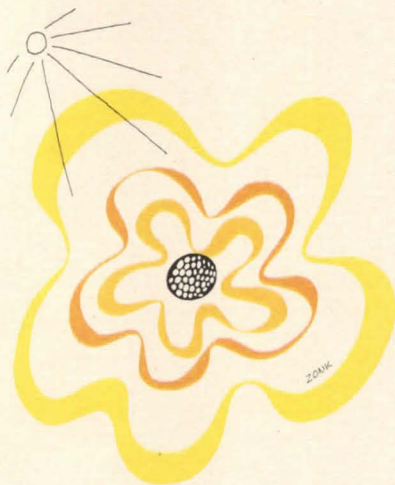
sounds will tend to fade in and out. Areas of stable brightness will tend to appear slightly lighter or slightly darker. Uniform room temperature will seem to vary. So it is that variety, with little doubt, is the spice of life — but if such variety is held within reason.

Some Color "Laws" for Designers

Here, then, are a few "laws" of color and brightness that may be well respected in designing comfortable seeing conditions. Bright light, high brightness, and warmth of color all tend to condition the body to an outward attraction. Such a combination is excellent for the performance of muscular tasks and to keep a person alert to his environment.

Softer brightness and cooler color (perhaps with ample illumination over tasks)

will tend to minimize the distractions of the environment and aid introspection, visual and mental tasks. As Kurt Goldstein has stated, "One could say red is inciting to activity and favorable for emotionally determined actions; green creates the condition of meditation and exact ful-



fillment of the task. Red may be suited to produce the background under which ideas and actions will emerge; in green, these ideas will be developed and the actions executed." Thus in an office, school, home, a person should advisedly stir up his ambitions in a red room and then proceed to a green room to carry them out.

Today, off-white is a fashionable color for walls. Although it may afford effective contrast and neutrality for the display of bright colors in furnishings, it is functionally objectionable. Off-white tends to create a glare condition, constrict the pupil opening of the eye, and give a foggy quality to vision. Because of brightness contrast with darker colors, as well as with human flesh, eye fatigue may be rapid (particularly where critical seeing tasks are undertaken), and human faces will look dull. It is well to remember that the eye adjusts rapidly to brightness and slowly to darkness. Thus, where a person is trying to concentrate, visually and mentally, off-white walls, which may be meaningless in the performance of duties, will hold an advantage over darker things and objects, which may constitute the job at hand. There may be pointless distraction, and visibility of details will be impaired.

PSYCHOLOGICAL ASPECTS OF COLOR

Now to the third realm of color, the most fascinating of all—the emotional and psychological. Felix Deutsch has pointed

out that "every action of light has in its influence physical as well as psychic components."

There is much that is "immediate" about color. Sensations of it seem to be profound in human experience and to lurk immediately under the thin membrane of consciousness. In the smoking of marijuana, in the taking of LSD drugs, in some cases of poisoning, and in many cases of mental disturbance, brilliant color is the first manifestation of a mind-shaking or mind-expanding state. No one yet has come up with a logical explanation of the phenomenon; it just exists.

The experience of color is more primitive and direct than the experience of form. In a very simple test devised by the psychologist David Katz, small children are given red, yellow, and blue colors in the forms of circles, triangles, and squares. When asked to put together those that look alike, they will promptly do this on the basis of color. Older persons, of course, will note the ambiguity and ask if sorting is to be done in terms of color or form. Small children are thus more "color dominant" than "form dominant," for, as Katz states, "Color, rather than shape, is more closely related to emotion."

Color is subjective, whereas form is objective. In other words, color strikes emotional chords that require no deliberation to enjoy. The appreciation of form involves mental processes.

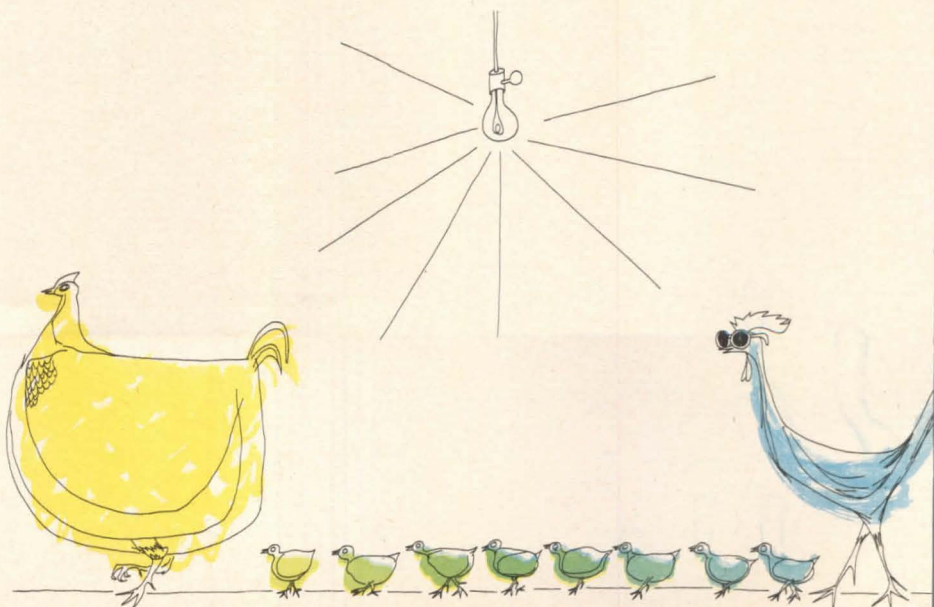
Influence of Specific Colors

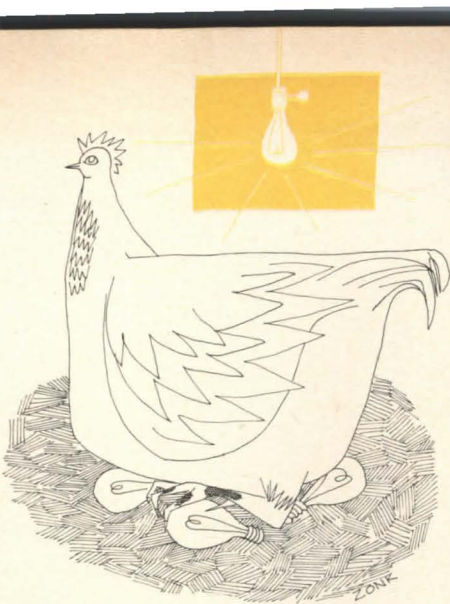
All colors, of course, are not alike in their appeal or influence. Where small children are concerned, preference for red in the use of paints and crayons indi-

cates a free and spontaneous nature. Blue and black indicates more self-control and the repression of emotion. Green shows balance of disposition and an uncomplicated nature, whereas yellow goes with infantile traits and dependence on adults. One begins to understand a relationship between emotional attitudes toward colors and their physiological effects. Where red stimulation brings increased bodily responses, so does a liking for it go with extroverted persons (which includes most children). On the other hand, where green and blue decrease or lessen bodily responses, so does a liking for them go with more introverted and deliberate persons.

Psychologists and psychiatrists have noted that, as colors are divided into warmth (red, orange, yellow) and coolness (green, blue, violet), so do persons by and large fall into two groups—those outwardly oriented and those inwardly directed. To quote from the conclusions of a Columbia University psychologist, "The warm color-dominant subjects are characterized by an intimate relation to the visually perceptible world. They are receptive and open to outside influences. They seem to submerge themselves rather readily in their social environment. Their emotional life is characterized by warm feelings, suggestibility, and strong effects. . . . The cold color dominant subjects . . . have a detached 'split-off' attitude to the outside world. They find it difficult to adapt themselves to new circumstances and to express themselves freely. Emotionally, they tend to be rather cold and reserved."

Racial types naturally fall in line with this, the brunets and Latins commonly





preferring warm colors, and the blondes and Nordic types preferring cool colors.

How the Mentally Ill React

Among the mentally ill, reaction to color is highly meaningful. In the Rorschach test, in which cards with abstract ink-blot patterns are used, favorable reaction to color will be observed in manic-depressive types. Others, however — mostly schizophrenic types — will be quite upset by color. They may reject it as an unwanted intrusion into their inner world. It would seem from much evidence that hysterical types of persons like green, perhaps as a symbol of peace in the greenness of nature and escape from their misery. Red becomes the choice of the manic and hypermanic patient, being a color that expresses their inner violence.

Dr. E.P. Moss has noted that "Yellow is the proper and intrinsic color of the morbid mind. Whenever we observe its accumulative appearance, we may be sure that we are dealing with deep-lying psychotic disturbances." Vincent van Gogh's attraction to yellow is well known. In writing of his painting of a reaper he declared, "In it, I have tackled the devilish problem of yellows again. . . I wanted to do the first one entirely in sulphurs." The abstract painter Wassily Kandinsky was fervid about the hue: "Yellow is the typically earthy color. It can never have a profound meaning. An intermixture of blue makes it a sickly color. It may be paralleled in human nature with madness, not with melancholy or hypochondriacal mania, but rather with violent, raving lunacy."

Blue may be associated with schizophrenia, an escape from earth to sky. Blue-green goes with narcissism, with fastidiousness. Brown goes with paranoia, obstinacy, delusions of persecution. In severe dejection and depression, colors may "black-out" entirely.

Practical Applications

To live and work with color, the observations and research presented above can be given practical application. If there is no such thing as direct color therapy — to cure disease, physical or mental —

one is not to doubt the *psychotherapeutic* value of the spectrum. A high percentage of human ills are of mental and emotional origin. In psychomatic medicine, science recognizes that man has a soul as well as a body, and that there is a difference between a live man and a newly dead one. It is never enough to deal with the body only, except perhaps in the case of a broken bone or an open wound. If through fear, worry, frustration, men contract ulcers, asthma, the hives, and what not, surgery will not effect a complete cure unless the causes of the trouble are not alleviated at the same time.

The simple fact is that color can be given a stellar role in life; its beauty and appeal offer an agreeable distraction from a man's inner world, deflecting it to his outer environment. In other words, it will help to take his mind off what may ail him. And, these days, people have anxieties as never before in history.

First, no one should live without color lest he lose himself to neurotic and psychotic derangement. And he perhaps should not overindulge himself either, lest he become distraught from overexcitation — like exposing himself to excessive noise, exertion, food, drink, or other form of dissipation. So here are a few conclusions.

Some Conclusions

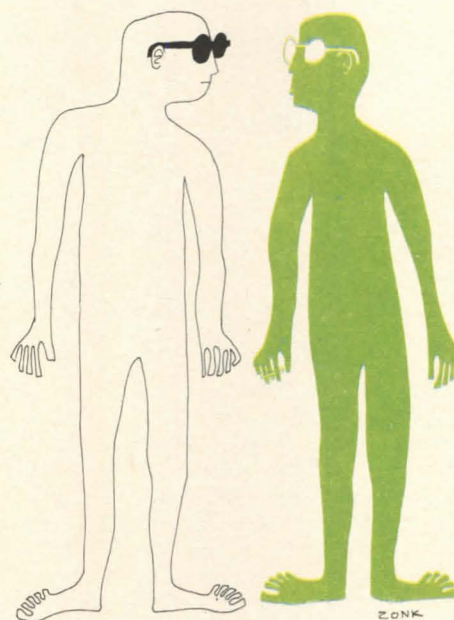
In the visual realm, there is in color and light what might be called a centrifugal action — away from the human organism to its environment. With high levels of illumination, warm and luminous colors in the surroundings (yellow, orange, pink), the body tends to direct its attention outward. There is increased activation in general, alertness, outward orientation. Such an environment is conducive to muscular effort, action, and cheerful spirit. It is a good setting for factories, schools, and homes where manual tasks are performed or where sports are engaged in.

On the other hand, color and light may have a centripetal action — away from the environment and toward the organism. With softer surroundings, cooler hues (gray, blue, green, turquoise) and lower brightness, there is less distraction and a person is better able to concentrate on difficult visual and mental tasks. Good inward orientation is furthered. Here is an appropriate setting for sedentary occupations requiring severe use of the eyes or brain — offices, study rooms, fine assembly in industry.

In the emotional realm, and among *normal* humans, it is a common error (often made by interior decorators) to recommend cool colors for excitable persons and warm colors for phlegmatic

ones. In small children, a pacific environment and pacific attitude may serve only to increase tension and prod irritability. Here, bright color may relieve nervousness by creating an outward stimulus to balance an inner and wholly natural fervor. On the other hand, in timid and shy humans, an attempt to "cheer up" a mood of dejection (through color or anything else) may serve merely to aggravate the misery and drive it even deeper. For most of us, at least, an extroverted temperament may be content in a bright and colorful environment, whereas an introverted temperament may find greatest peace in a more sedate and conservative setting.

Yet where neurotic and psychotic patients are concerned, the prescriptions may have to be reversed. Patients in a frantic and manic state may require sedation with color, blue and green tones, dim illumination. The extremely melancholic



may need a compensating warmth of hue and brightness of light.

The best way to live and work with color is to avoid rules for principles. Most persons have strong likes and dislikes regarding color, and what they feel may have the obstinate qualities of their views on religion and politics. The taste of a lover of tradition and antiques may seem stuffy to a fancier of the contemporary — and the other way around. With full allowance made for personal idiosyncrasies, the spectrum may be choicely or lavishly taken to heart for a better if not ideal existence.

S.O.M. DETAILS for the

What is probably the first example of Minimal Interiors (MARCH 1967 P/A) — Skidmore, Owings & Merrill's detailing of the penthouse floor atop the Banque Lambert in Brussels — occurs, paradoxically, in what may well be the last great palace of the International Style. And now that the Supermannerist idiom (MAY 1967 P/A) is launched in its permissive, free-wheeling orbit, it seems appropriate to recall the rigidly disciplined course of its immediate predecessor by way of contrast.

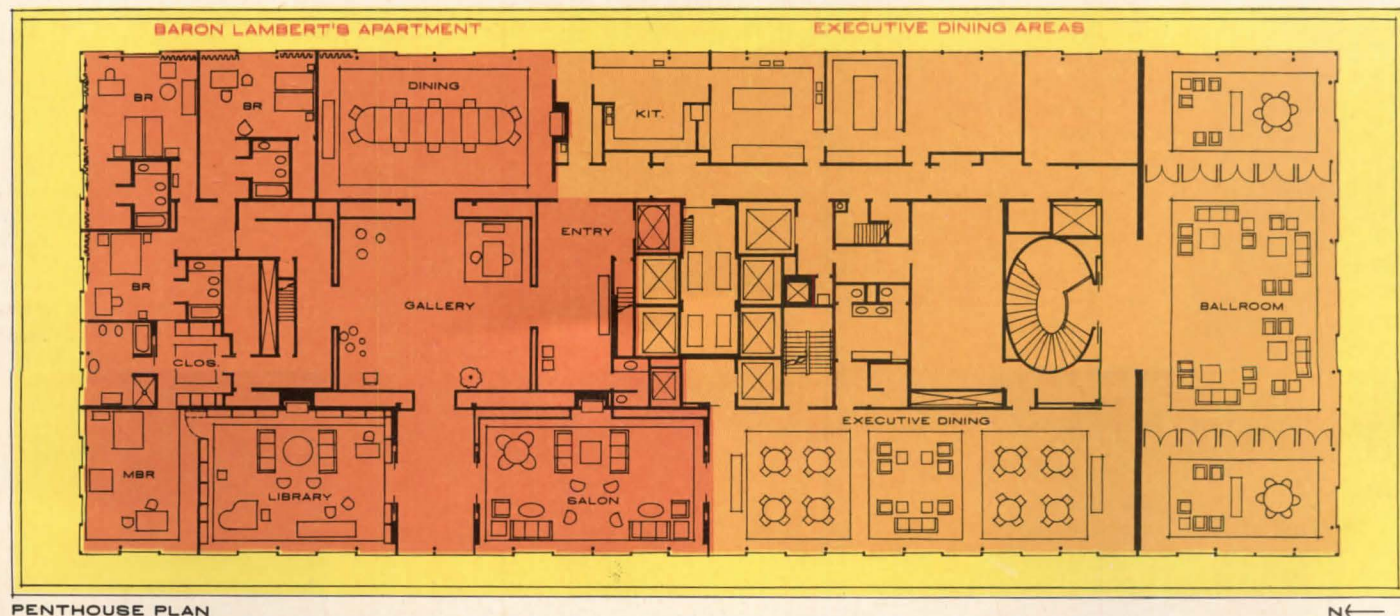
The interior of the Banque Lambert's penthouse, which was designed in 1961-62, has seemed the quintessence of

SOM's interior style since the executive dining areas were opened at one end of the floor and the Baron Léon Lambert took occupancy of the remainder two years ago. The architectural and furniture details, which have never been published before, remain provocative fare for designers and architects. For the discipline that produced Minimal Interiors, as we remember, is a kind of acrobatic, prestidigital manipulation that looks effortless and can easily pass unnoticed.

Inside the glass-walled penthouse, the effect is one of opulent simplicity. "Neutral backgrounds" were what SOM envisioned, but what they achieved, at least

so far as the envelopes are concerned, are simple white plaster boxes with reveal-less joints between the planes: no panel-and-spacer system is used. Flush, frameless door openings, a restricted use of materials, and a sparse elemental look are the components of the enclosures. Hidden swinging doors, invisible use of marble (facing page), and nearly infinitesimal door bucks are among the minimal architectural and cabinetwork details that make up spaces for "the simplest furnishings" — silk, velvet, tapestry, marquetry, ormolu, and so on.

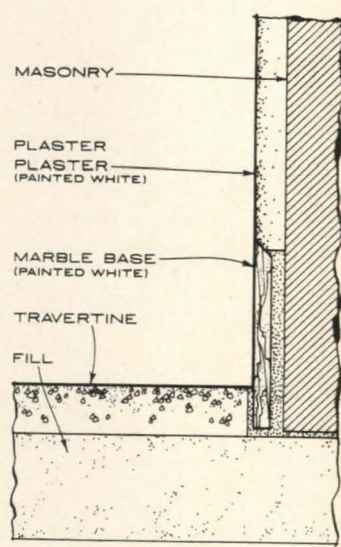
"If you do something for a real collector," says Gordon Bunshaft, architect



PENTHOUSE PLAN

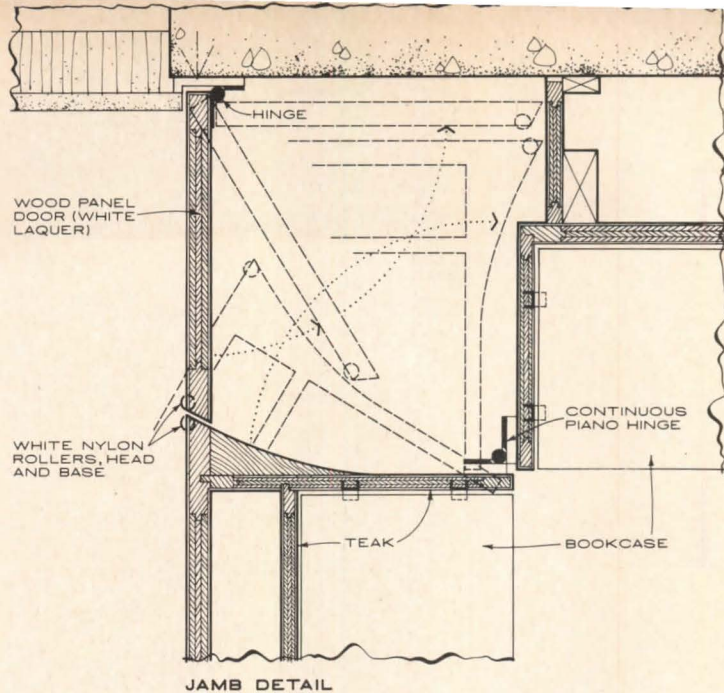
minimal age

Photos: Ezra Stoller. Courtesy, Banque Lambert

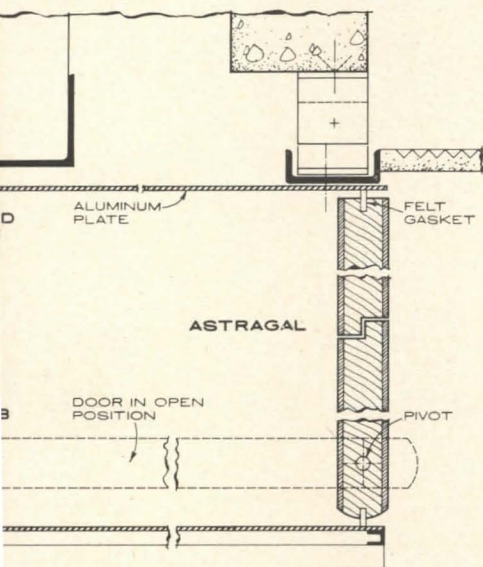
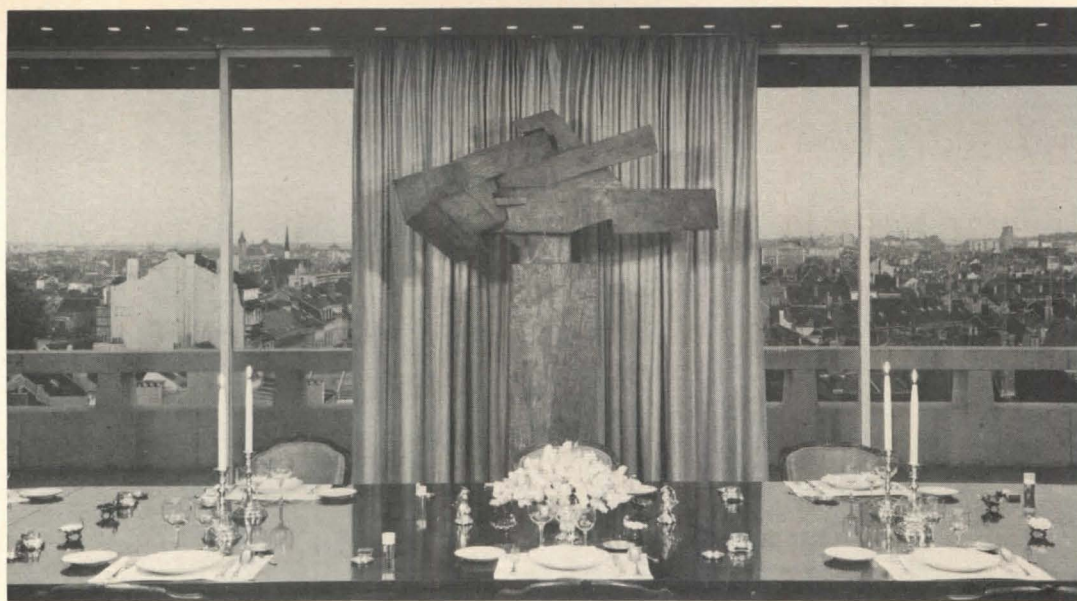


BASE DETAIL

*t*he invisible use of marble as the baseboard in the Banque Lambert's penthouse (left) is the most elaborately minimal detail (drawing, above). Why it was developed and how it works, as well as the aesthetic rationale, are explained in the text.



*t*he swiftest hidden door of them all is a corner section of the library bookcases that rolls back electrically to provide access to the Baron's bedroom (see plan). The bookcase is hinged at the corner of the cases on the library side (facing page, below). To negotiate the void that this leaves at the corner on the bedroom side, a filler panel swings into place to make "a clean line" when the bookcase/door is "closed" (drawing, above). To open it, the Baron pushes a button and the filler panel springs back so that the electrically operated bookcase/door can roll back flush against the bedroom wall. It is two swinging doors in one.



*n*early infinitesimal door headers are used throughout the penthouse so as not to interrupt the consistent 10-ft ceiling height. Between the 16-ft-high gallery and its surrounding lower spaces (middle), the narrow header detail (middle, left) shows at its most minimal.

of the entire building, "you make it as quiet as possible."

"The scheme is one of solid masonry walls," according to SOM's project interior designer Jack Dunbar, "and is treated very simply."

That such opulence could be created from "simplicity" and that such simplicity could be achieved by a complexity of detailing is one of the paradoxes of the Miesian and Minimal idioms. This paradox is one that the penthouse of the Banque Lambert epitomizes: in the elaborate means to hide mechanical and electrical functions, in the visual elimination of structural supports and joints, in the minimizing of all extraneous detail.

As the boldest illustration of this effort, the baseboard in the penthouse (see p. 135) is also the most subject to controversy. White plaster walls appear to come down to the travertine floor line "to express a simple masonry structure," Jack Dunbar says. The usual black base, SOM felt, was strictly for commercial buildings and inappropriate to a domestic interior. But since a plaster base would be impractical for cleaning, the baseboard is actually white marble — that is, white marble painted white to match the plaster wall. If the white paint chips, the white marble will show through and still appear continuous with the plaster wall.

More questionable highjinks than this minimal effect have been engaged in to preserve architectural consistency in the past, and it is, after all, in the nature of marble to be durable.

One more point about the baseboard: No scored line is used between plaster and marble to denote a change of materials; no spacer or recess connects baseboard to floor.

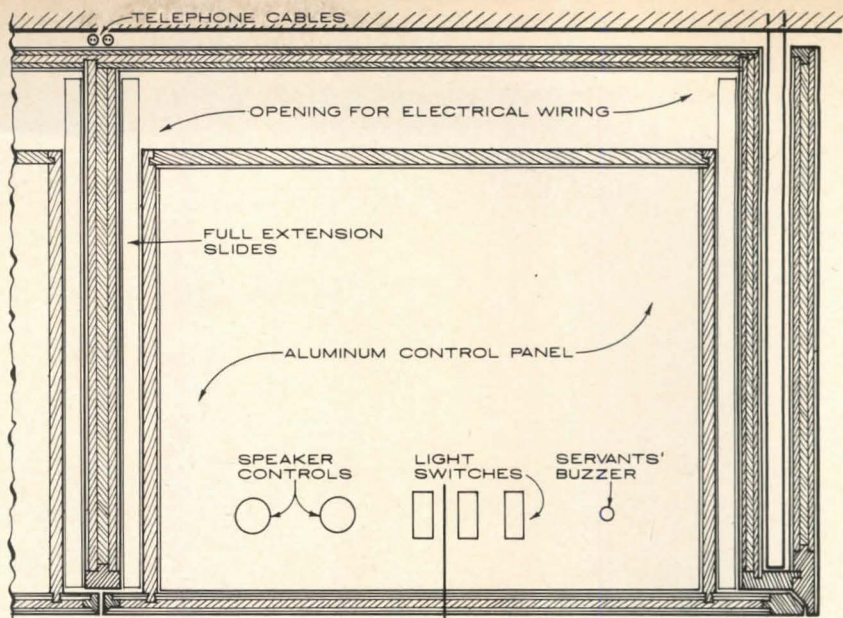
"Maybe in the past we used to have too many notches all over the place," Gordon Bunshaft muses. "But there is no need to give a name to this. It is just a plain wall."

"There are no great philosophical statements to make about interiors," he continues. "Picking the furniture and fabrics is not the same thing as making great spaces." Yet Bunshaft's concern for the totality of projects, his control of meticulous detailing and quality of craftsmanship, and his own previous designs for furniture, are sure enough indication of

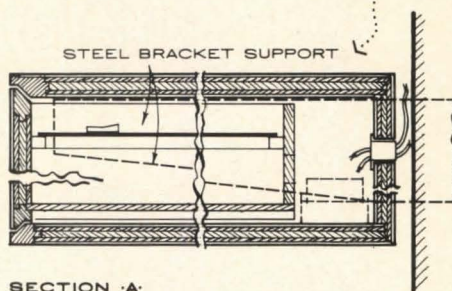


The executive dining rooms (this page) were designed with the idea of how many people could be served lunch intimately and elegantly. Flexibility is provided not only by various arrangements for fold-away tables, but also by the plan of the central space, which is used for dancing as well as dining. This ballroom (top and middle) can be closed off by doors sealed acoustically with screw-operated neoprene gaskets (drawing, facing page, bottom). The doors, neatly detailed, open as paired columns to produce a larger opening and a more continuous flexible space (middle). Colors in the ballroom are: gold curtains, dark gold rug, white furniture, black burl and tobacco brown tables, white chests, and white lacquer doors.

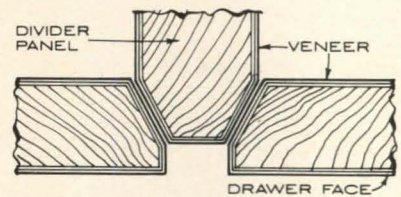




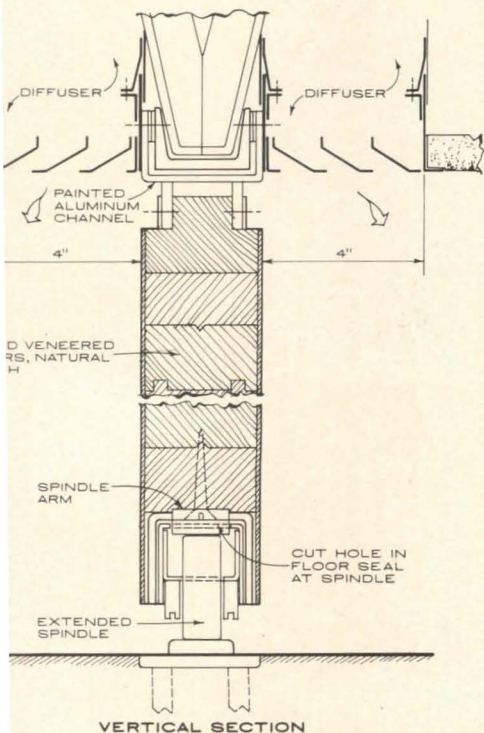
PLAN SECTION



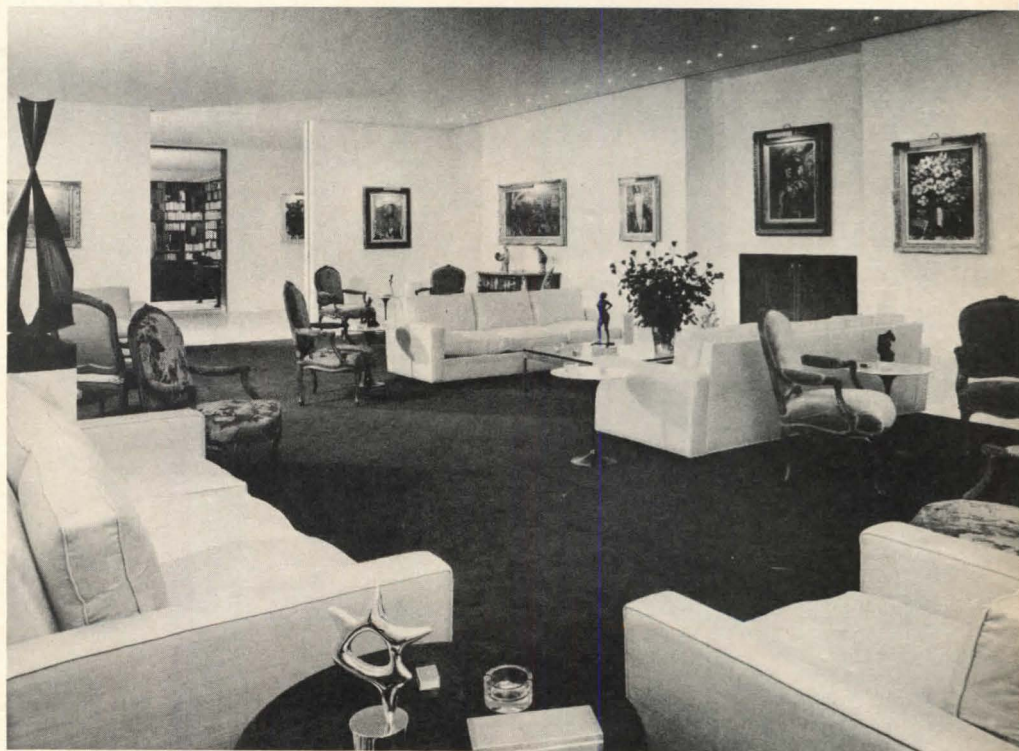
SECTION A-A
WALL HUNG CONTROL
CABINET DETAIL



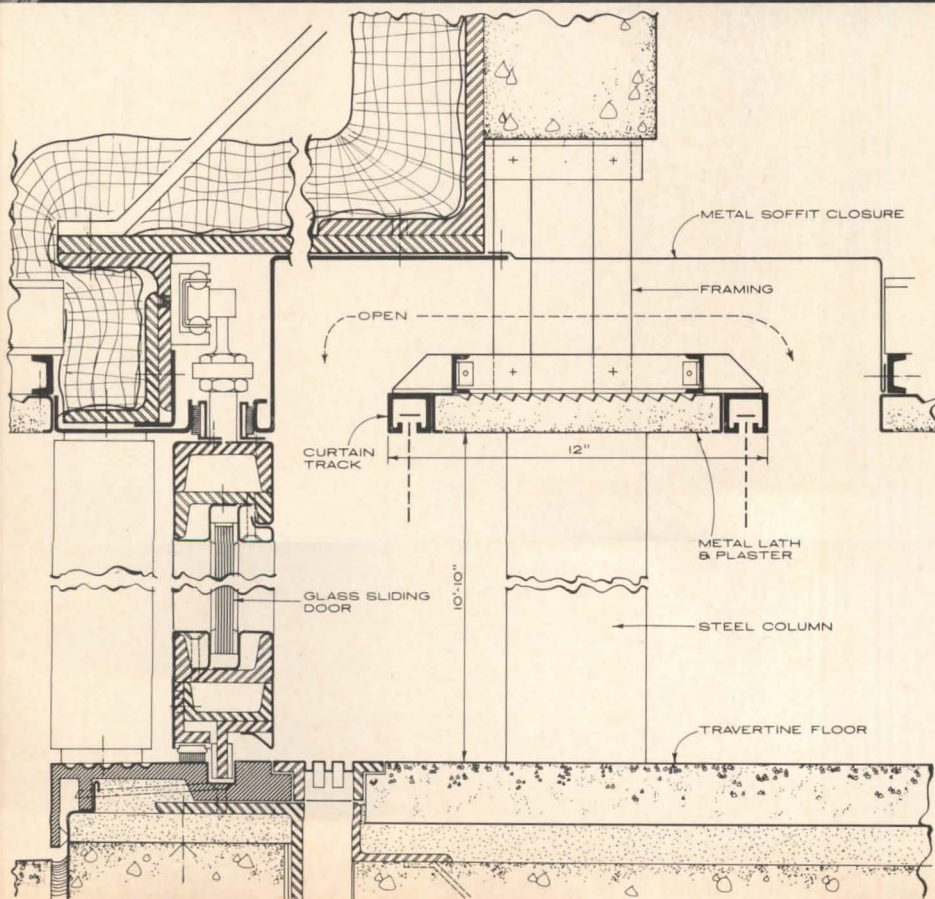
PLAN SECT. AT DRAWER EDGE
HI-FI CABINET DETAIL



VERTICAL SECTION



*t*he salon (above), a fairly traditional room, has white sofas against tobacco brown carpeting and Louis XV chairs done in needlepoint and velvet. The frameless, nearly buckless doors are prominent. The fireplace, reversing the traditional breast, is in a wall-high recess that reiterates the door openings on the long wall. The cabinetwork details (top) in the Baron Lambert's apartment illustrate both the Miesian rabbetted technique and the flush, unarticulated jointing technique. But always SOM details with precision, hiding the structural supports, wiring, hinges and mechanisms, and including a range of controls.



VERTICAL SECTION

At the windows, where two kinds of draperies are hung consistently throughout the penthouse, a section of the ceiling separating the two drapery tracks is suspended between two recesses (above). The clean-looking, intricate detail preserves the simplicity of the envelopes, in which the round columns also are envisioned as unobtrusive. Draperies are a lightweight wool casement with overdraperies of Thailand silk (varied in color for each space). The latter are lined with cotton and have an interlining of heavy black fabric. The silk seems to hang better than ever, Jack Dunbar observes.

the estimation he has of interior design and the detailing of interiors.

The plan of the penthouse demonstrates J.M. Richard's claim that SOM's recent precast peristyle buildings show a "harking back to neo-classical principles." Not only does the plan provide long axial vistas through spaces designed for what Jack Dunbar calls "massive, generous entertainment," but it introduces a small-large, small-large variation of volumes by linking each principal room to a smaller transitional one. For example, the gallery is surrounded on three sides by transitional spaces, and they are designed to set the scheme of axial vistas.

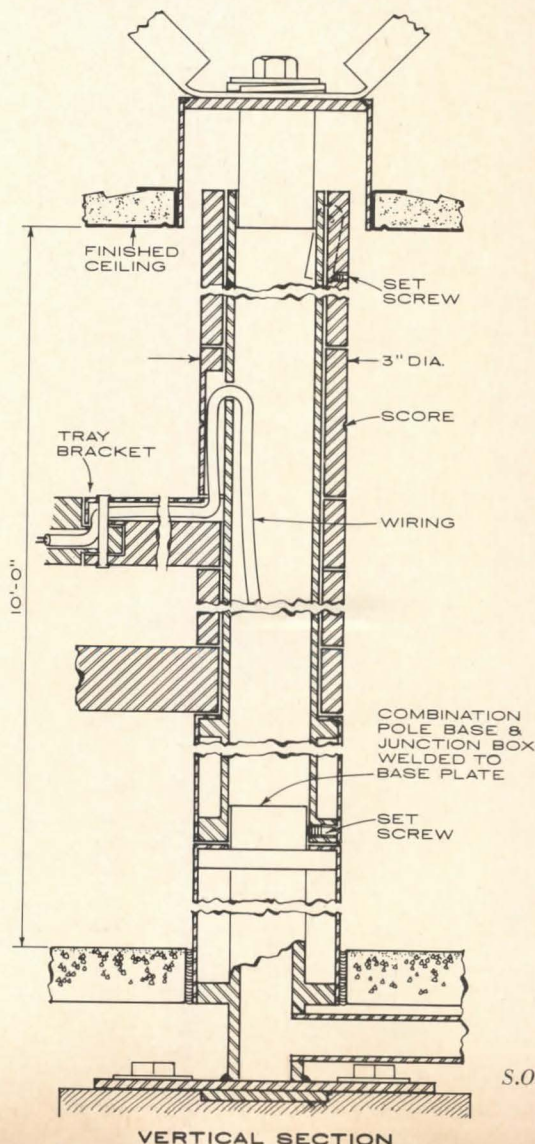
The gallery (p. 135) provides another variation in that its 16-ft-high skylighted grid is a vertical change in the otherwise consistent 10-ft ceiling height of the penthouse. Since it is a central crossing in the circulation pattern, its greater height provides a continuing variety.

Color preserves the consistency of the gallery's axial scheme on the fourth side, where one enters the dining room directly. There (p. 137), tobacco-gold draperies continue the browns-and-tans scheme in the vertical dimension, even though the axial view is crossed horizontally by a deep red carpet and lighter, rich red upholstery on the dining chairs.

Throughout the Baron's residence, color is more prominent and vibrant than one would ordinarily expect from SOM. The building was always thought of "as a background for a collection of art," but it was the Baron's feeling that the family collection of Picasso, Miro, Bonnard, Rouault, and Chagall paintings and of pre-Columbian, African, and Oriental sculpture was delicate in color and scale and that bolder expanses of color were called for elsewhere.

"A residential design is not like an office building," Bunshaft observes. "It should express the person who is going to live with it." And like most good residential interiors, this design, he continues, "was a joint venture between the owner and us as interior designers. It is the little varieties provided by an owner that enrich a scheme."

Clearly, many of the Baron's furnishings do that, and the juxtaposition of them with the spare envelope makes the one richer and the other sparer — more minimal. — CRS



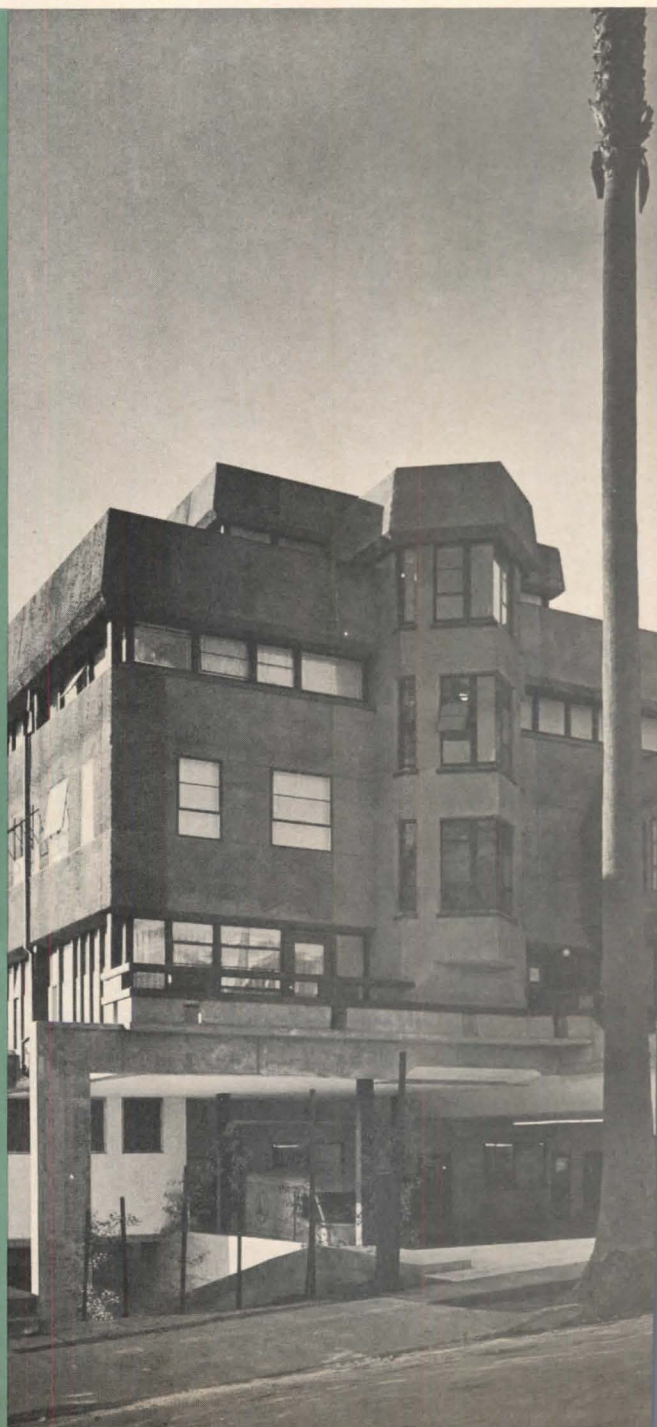
*t*he bath in the Baron's apartment is as sybaritic a machine for cleansing as one could imagine. Travertine and glass lined, it has a porcelain basin sunk into a large elliptical block of travertine; except for the recessed base and the top slab, the basin is one large piece of stone. Next to it is a stainless-steel accessory pole on which brackets can swivel into position two shelf tables, two towel racks, a mirror, and a pivoted sunlamp; an electric outlet and a service buzzer are also incorporated. Together, the lavatory and pole make up a minimal sculpture that is a deification of the machine age.

CO-OP BUILDS CO-ED

This new dormitory is cooperative, coeducational; and, as might be expected for so radical an item, it is located on the Berkeley campus of the University of California. Co-ops have been flourishing at the university since 1933, when 14 students set up housekeeping in an off-campus building in an effort to cut down on living expenses. Since those chaotic Depression days, the USCA-University Students Co-operative Association has grown into a full-fledged business organization that provides housing for more than 4 per cent of the Berkeley undergraduates and operates eight residence halls. This latest dormitory, the Ridge Project, is the association's first venture into new construction (formerly, it renovated or occupied existing buildings, but these are getting scarce) and it is the USCA's first experiment in co-educational living (five of the existing halls are for men, three for women). The dormitory has no sign-out books (who needs to go out?), there are no lockout regulations, and there are no housemothers (unless that formidable name can be applied to the resident counselor, a live-in graduate student who represents neither the university nor the Governor). Student members pay \$270 for one semester's room and board, and contribute five hours work a week.

The architects, Ratcliff, Slama, Cadwalader, contributed to the noninstitutional spirit of the project by attempting to make every room slightly different from the others: Windows and rooms are various sizes and shapes. The furniture, designed by Dick Palmer as his senior year thesis in architecture, is completely flexible and mobile, including the closet units.

The revolution may be more social than architectural, however. When one student was asked to comment on the building, he replied, "The best thing about the co-op is that it is co-ed. But now that we've lived here a year it seems tame, and I wonder if we went far enough with the idea. Why not have alternate floors of the opposite sex, alternate rooms? This could work perfectly well if the bathroom facilities were separate." Clearly, a new kind of programming for dormitory living is emerging on the West Coast: Students have become people rather than pupils, unless, of course, the Governor turns them all back into movie stars.



DORMITORY

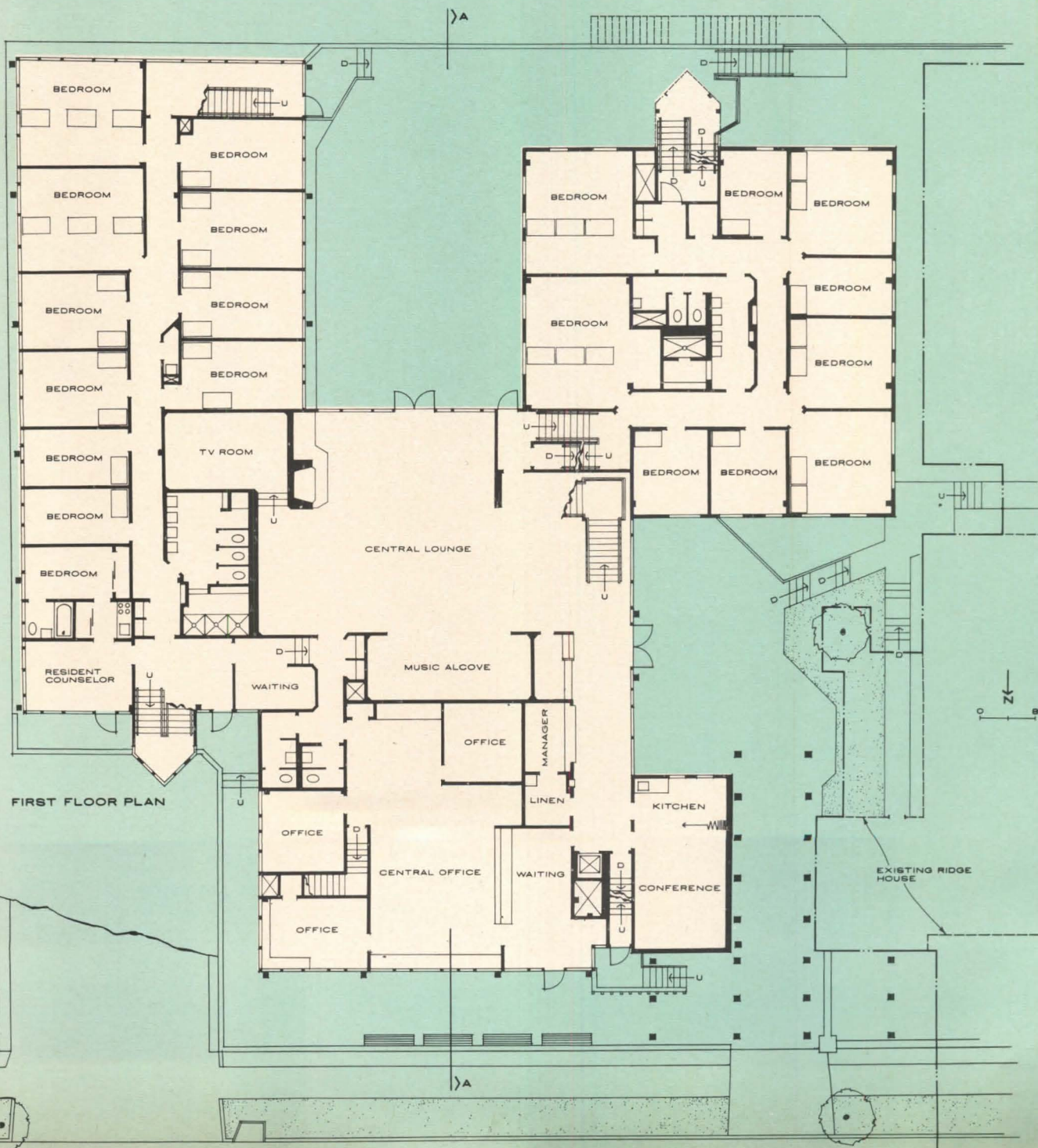
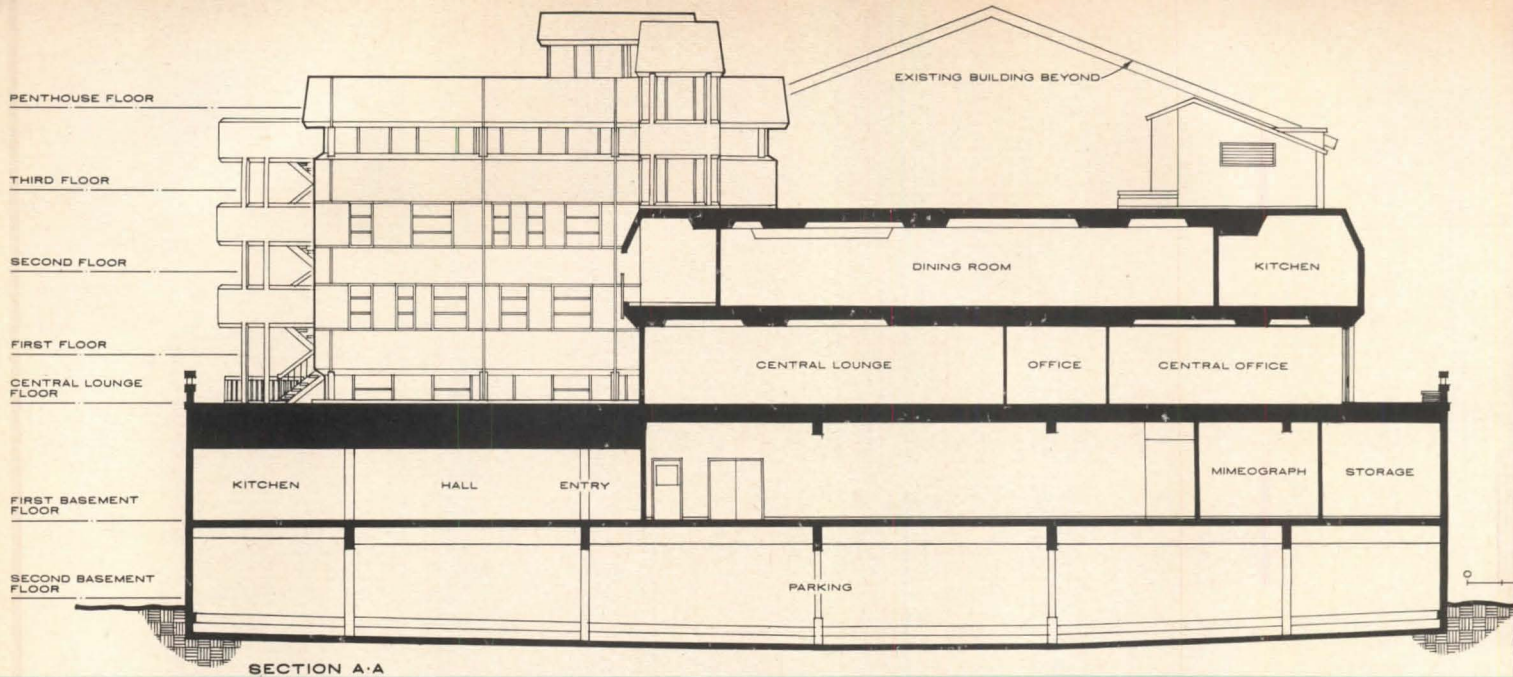


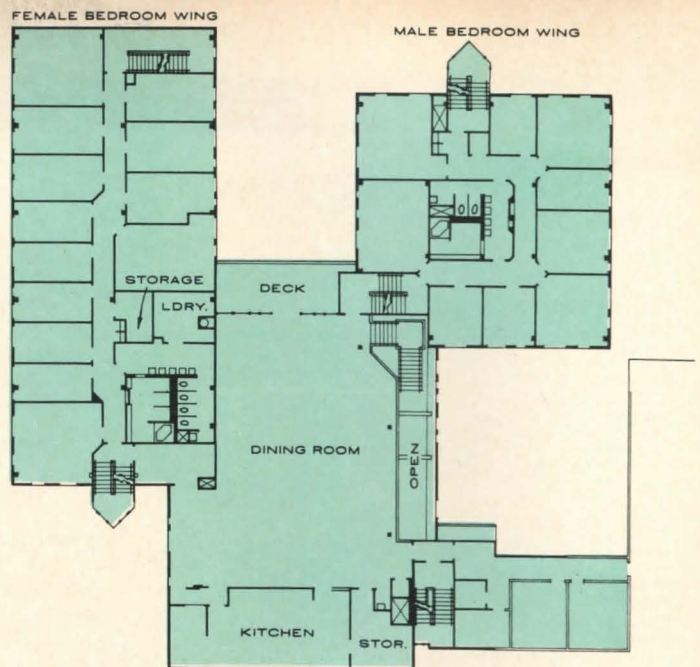
RIDGE PROJECT *Cooperative Dormitory, University of California, Berkeley, California.*
Architects: Ratcliff, Slama, Cadwalader.
Consultants: Kasin, Guttman & Associates, Mechanical. Allan McKay, Structural. **Photography:** Joshua Freiwald.

USCA's program called for a dormitory housing approximately 100 students, a central kitchen, warehouse, delivery and storage area capable of processing 2000 meals for all co-op facilities; an office, off-the-street parking and outdoor activity areas. The housing was *not* supposed to look like the usual university dormitory, but was to be smaller in scale and have a feeling of "intimacy, variety, and visual delight." It was to be designed to make maximum use of the site, and fit in with an existing dormitory next door — the Ridge House.

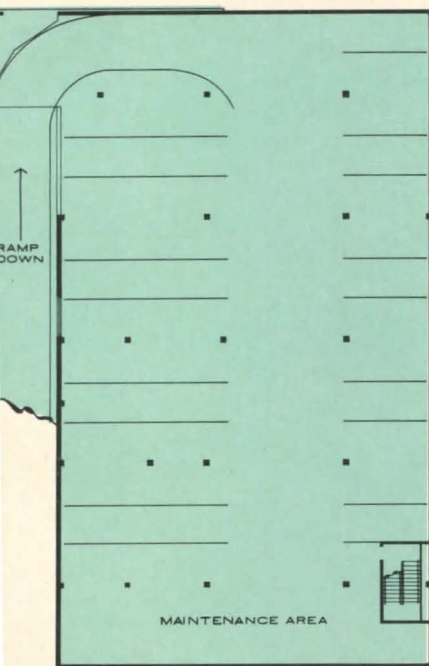
The architects' solution is a multi-layered building. Two basements, which contain parking and kitchen facilities, form the platform for three structures above: a women's wing containing three floors and housing 71 students, a smaller men's wing with four floors for 57 students, and a central core containing the office, dining facilities, and lounge. The spaces between the masses become courtyards for outdoor use, and two penthouses on top of the dormitory wings provide additional entertainment-lounging areas. The latter are segregated, whereas the dining rooms and central lounges are co-educational. By skillfully rearranging windows, room sizes, and furniture, the architects have avoided having any two rooms look alike.

The structure and plan of the building is in large part determined by fire and building codes, which are strict where a multiple use building is concerned. To iso-

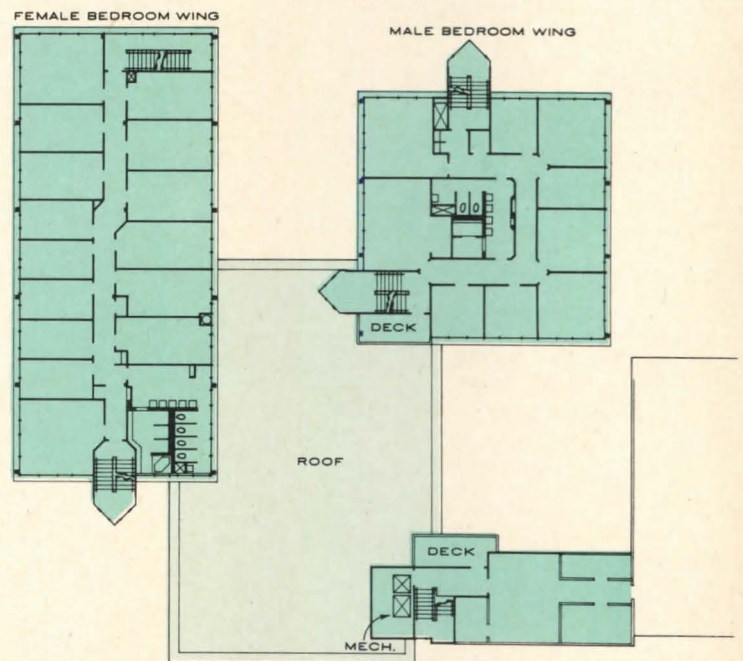




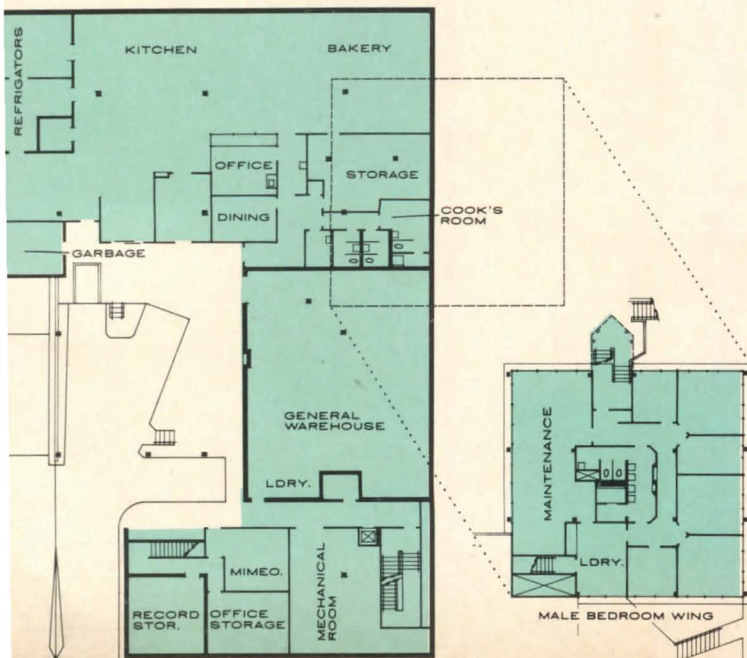
SECOND FLOOR PLAN



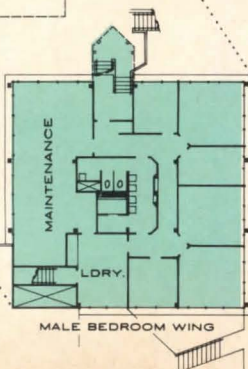
SECOND BASEMENT FLOOR PLAN



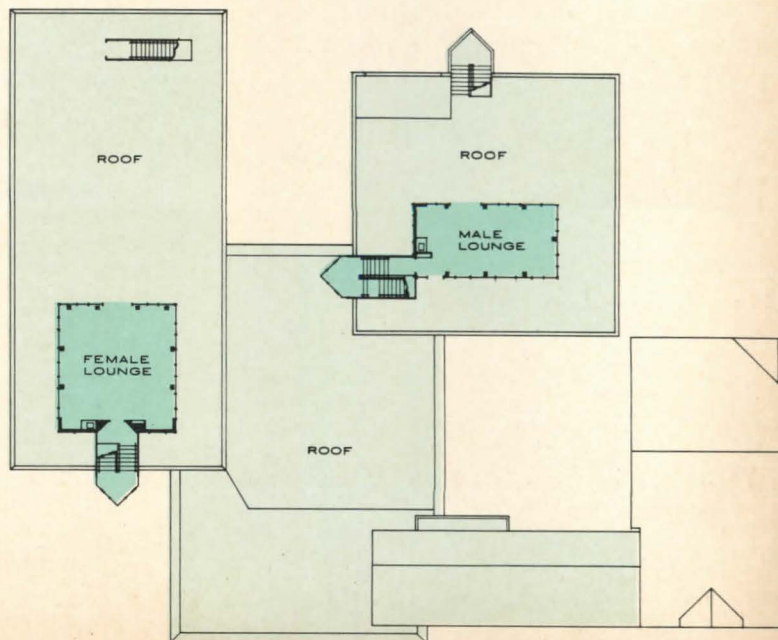
THIRD FLOOR PLAN



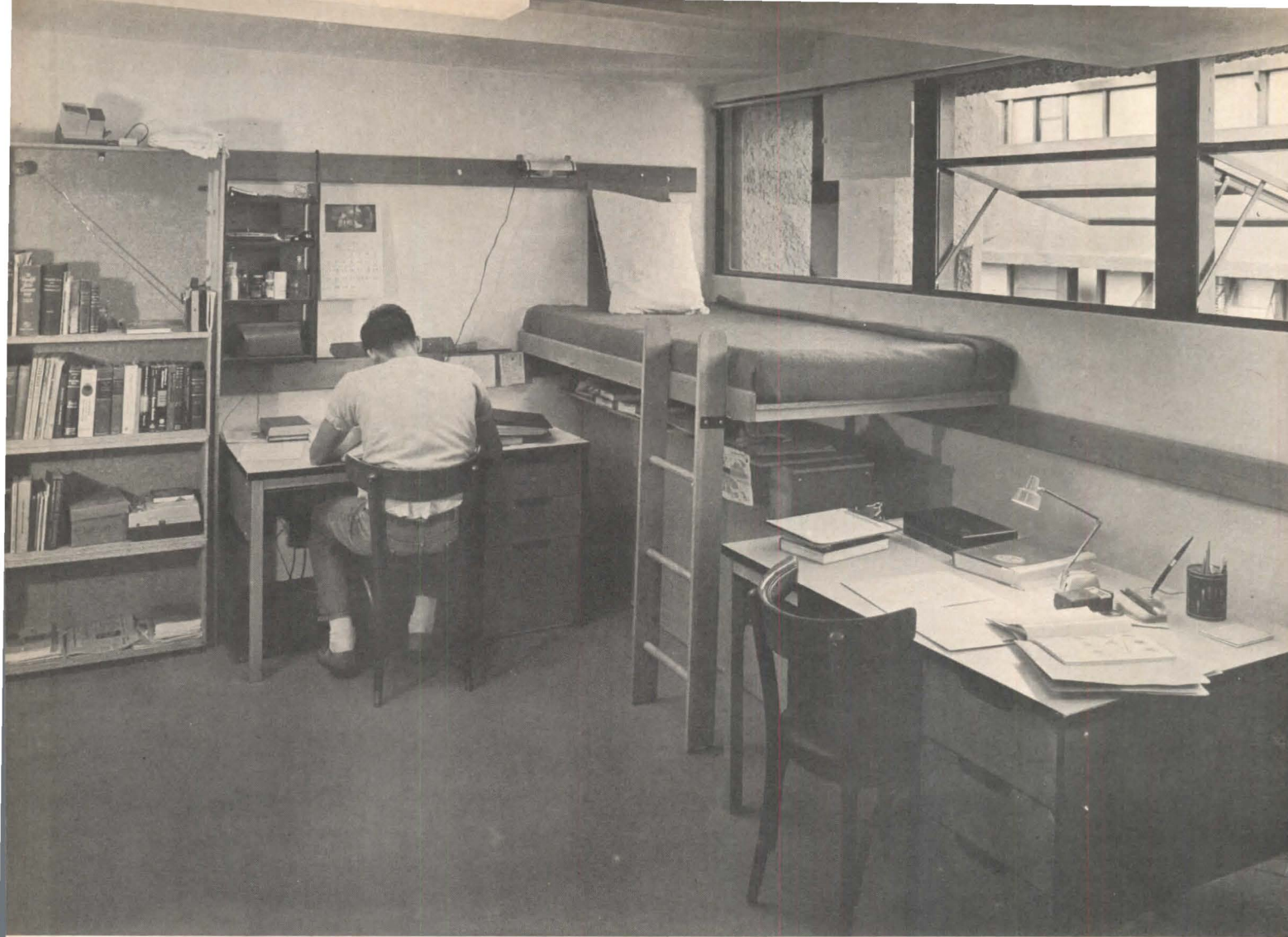
FIRST BASEMENT FLOOR PLAN



MEZZANINE FL. PLAN



PENTHOUSE & ROOF PLAN

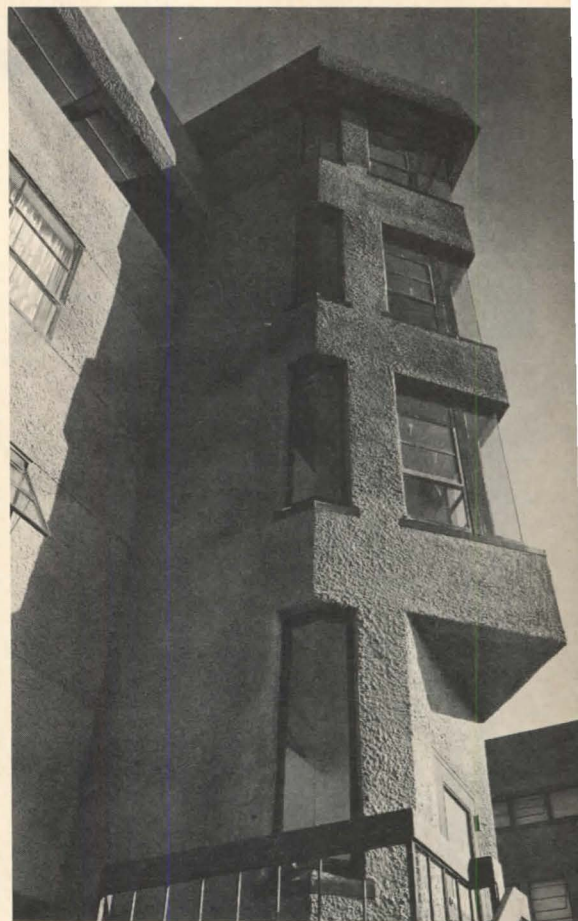
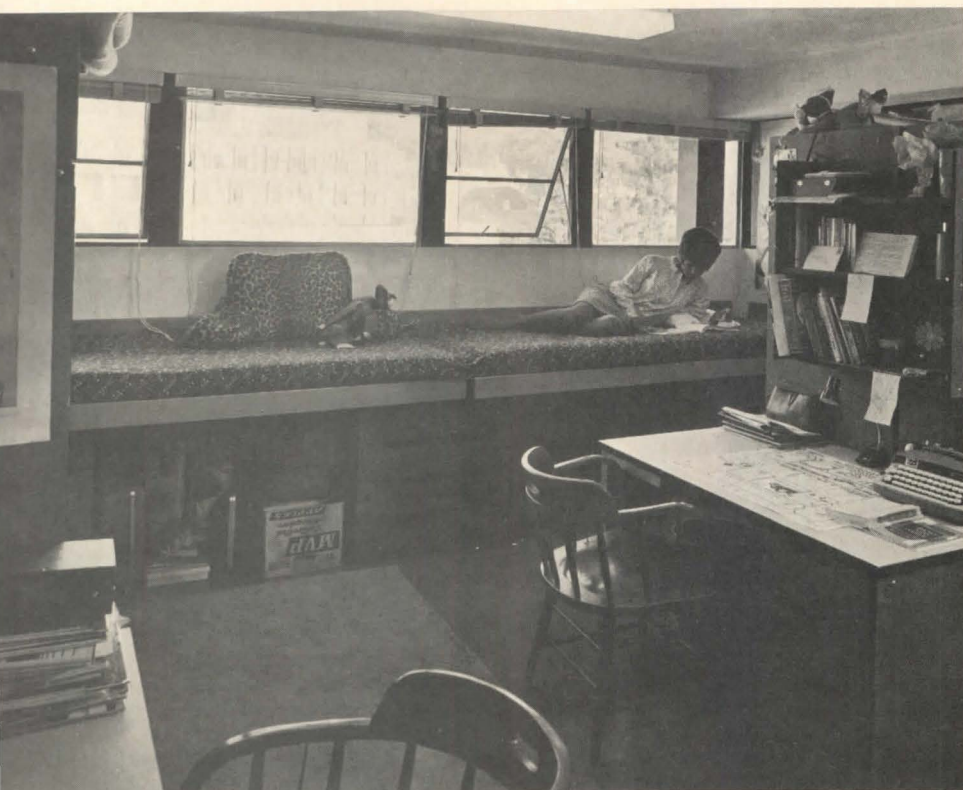


late the kitchen and warehouse areas from the rest of the structure, the building is divided vertically into two sections. The complexity of the program made a steel frame a logical choice. The lower parking level is framed in 26-ft bays with transfer framing to accommodate smaller and more varied bay spacing in the living areas above. All structural steel is type A 36, with major rolled beams up to 36-in. in depth. All beams are cantilevered for maximum efficiency and to simplify connections. Composite construction with welded studs is also used in certain areas for efficiency. The lower two floors are concrete slabs; upper levels are constructed with high strength bar joints and 3-in. concrete decking.

Most materials are left unfinished for economy's sake. Steel is used throughout the building for decorative as well as functional reasons. Interior walls are non-bearing metal studs, which support the finished wall material. Exterior walls are finished with heavy dash stucco; and most of the interior walls are plastered.

Planning of interior spaces is char-

acterized by both flexibility and diversity. From the main lounge, students have access to both dormitory wings, the south patio and dining room. Along the south wall is a fireplace and at the north end a music alcove. One student commented that the "stereo alcove is very effective in getting people together to listen to music, but it has a limitation: If people don't care for the music that is more often played, they are inclined not to use it at all." In the dining room, the walls are sloped and skylights framed in recessed wells. The dormitory rooms, however, are very successful. "The versatility of the rooms is great," comments one student. "I like to be able to move the furniture around and I like having a bed that can be raised to window level to see the view. The wardrobes sometimes present a problem because they are so large and obvious. Maybe it would have been better if they had been built into the wall." An ingenious feature is the heavy horizontal batten that runs along the wall supporting bookshelves, paintings, and posters of such celebrities as the Beatles, Bogie, and Charlie Chaplin.



WEATHERING STEELS BECOME LOADBEARING

The weathering steels — those that form a dense, tightly adherent oxide film on exposure to moisture and air — have been available for about 30 years. They were developed to meet the requirements of railroads for low-maintenance rolling stock. But the use of these steels architecturally has, for the most part, been limited to decorative and nonstructural applications.

In Chicago's Civic Center building, the largest building finished in weathering steel, what appear to be exposed columns and spandrels are in fact thin cover plates applied over conventional fireproofed steel. The need for fireproofing structural steel in buildings has thwarted architects' attempts to make full use of this remarkable material.

One well-known building whose structural elements are exposed and unpainted is the headquarters building for Deere & Company in Moline, Ill. But this building hardly served as a model for future construction since it was a special case; because of its size and location, the local code required no fireproofing at all, a situation seldom found where multistory buildings are erected.

Recently, however, two buildings have been designed for which the architects have contrived ingenious structural systems that include exposed, unpainted structural steel members with no external fireproofing. Both are within code jurisdictions that normally would demand fireproofing. The buildings are these:

- The Knights of Columbus building, a 23-story insurance building for New Haven. The architects are Kevin Roche, John Dinkeloo & Assoc., of Hamden, Conn.; the structural consultants, Henry A. Pfisterer & Associates, of New Haven, Conn.

- A triangular, 64-story building for United States Steel Company in Pittsburgh, Pa. The architects are Harrison, Abramovitz & Abbe, of New York; the structural consultants, Skilling, Christianson, Helle & Robertson of Seattle, Wash.

Evolution of a Concept

The Knights of Columbus building is the latest in a series of buildings by the same designers that exploit exposed structural steel as an important design element. Earlier buildings include the headquarters building for Deere & Company, a factory building for Cummins Engine Company,

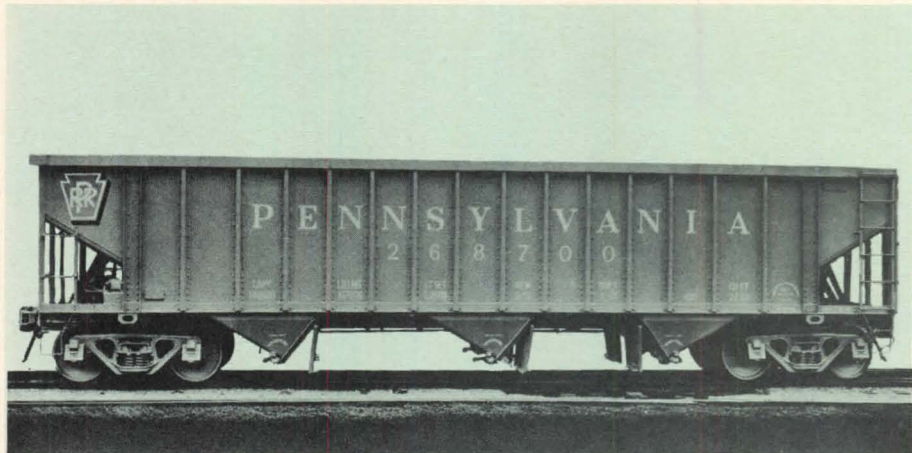


Photo: Courtesy, Pennsylvania Railroad

Railroad hopper cars are exposed to the atmosphere and because they are continually loaded with abrasive materials it is impractical to protect them against corrosion with paint. The railroads asked the steel industry to develop a material to withstand these conditions. It did so and the result was a family of steels designed to meet an American Society for Testing and Materials specification called A-242. These steels have come to be called the weathering steels. The ASTM specification requires that steel conforming to it have a resistance to atmospheric corrosion equal to or greater than that of carbon steel with added copper. Weathering steels for architecture are manufactured by a number of producers; they are marketed as type A-242 steel, but in most cases their corrosion resistance actually considerably exceeds the required minimum, some manufacturers claiming corrosion resistance better than twice that set forth in the specification.

in Darlington, England, and the Ford Foundation headquarters, now being erected in Manhattan.

In the Knights of Columbus building, all the vertical loads are carried on four great circular piers at the corners and a central elevator core, all of slip-formed concrete. But the horizontal structural members are steel, and all of them are exposed both inside and outside the building. The designers took note of some fairly recent European research suggesting that steel outside the building envelope — that is, outside the enclosure that might contain a fire — is immune to damage from fire originating inside the building.

Each floor is carried on 30-in.-deep beams notched into the circular piers. Secondary steel spans from the 30-in. spandrels to the core structure. Atop this steel is a 5-in.-thick concrete slab. Every floor is completely sprinklered, and the sprinkler system is equipped with pressure sensors that warn if the water pressure falls off. The reasoning used to convince the

New Haven building officials that the steel need not be fireproofed was this:

- Sprinklers, which are not usually included in office buildings, should extinguish any fire before it could damage the structure.

- The heavy concrete floor slabs should confine any fire to the floor on which it originates.

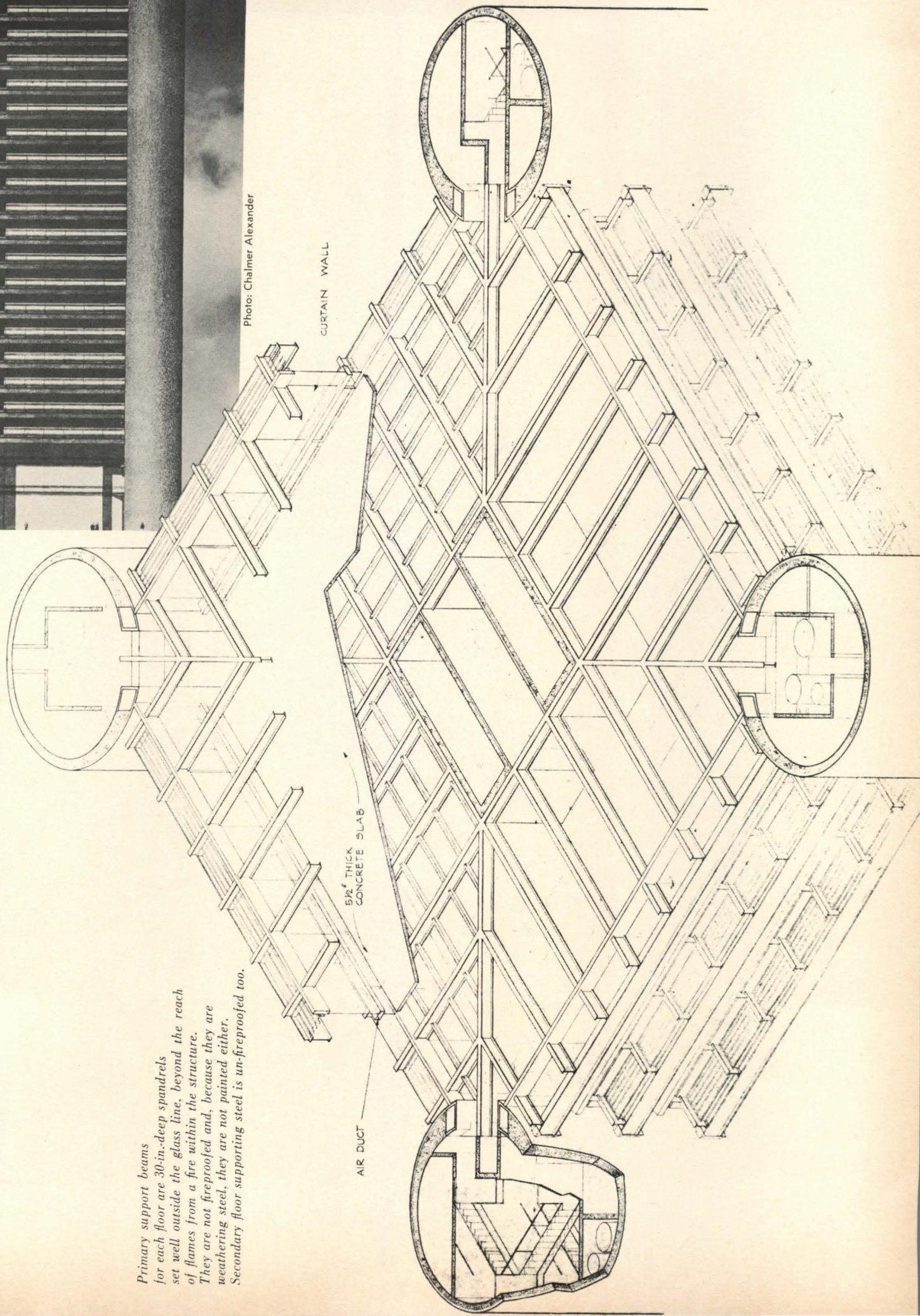
- The main spandrel beams are well outside the building envelope and thus are not subject to damage from a fire within. (The building is free-standing, so there is no chance of damage from fire outside the building.)

- The concrete vertical members are inherently fire-resistant.

Taken together, these factors allow the building to be thought of as a series of one-story buildings stacked one above the other. Damage to any one floor would not be transmitted to an adjacent floor, since the only connection between the two is through the fireproof piers and core. Thus, in the unlikely event that a fire got beyond

For the Knights of Columbus building, New Haven, Conn., four circular piers surfaced in silo tile will support exposed floor framing.

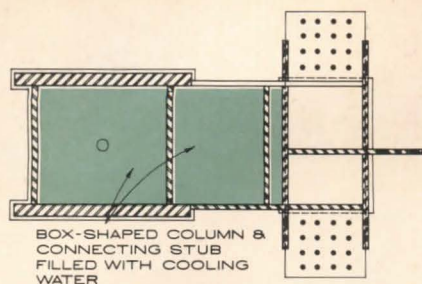
Photo: Chalmer Alexander



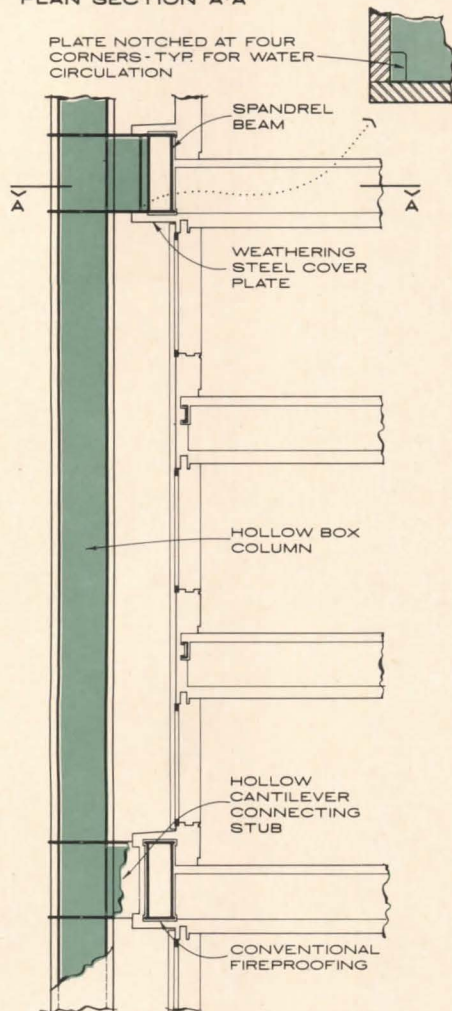
Primary support beams for each floor are 30-in.-deep spandrels set well outside the glass line, beyond the reach of flames from a fire within the structure. They are not fireproofed and, because they are weathering steel, they are not painted either. Secondary floor supporting steel is un-fireproofed too.

AIR DUCT

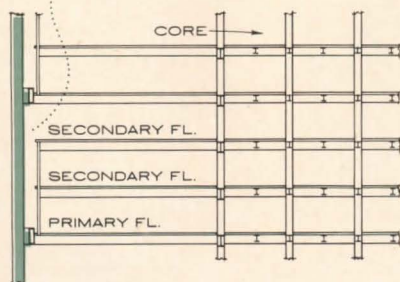
5/8" THICK CONCRETE SLAB



PLAN SECTION A-A



EXTERIOR COLUMN DETAIL



PARTIAL CROSS SECTION THRU STEEL FRAME

UNITED STATES STEEL HEADQUARTERS: Massive, box-section columns and the cantilevered stubs that connect to the spandrel beams have no externally applied fireproofing. Instead, they are filled with water that would serve as a heat sink to prevent excessive temperature rise in case of fire.



the control of the sprinklers systems, any damage to the structure would be focal, and would not threaten the structure as a whole.

Showcase for Steel

U.S. Steel's new building is a mammoth undertaking. When it is completed in 1970, it will contain nearly 3 million sq ft of office and parking space—more than all the new construction put in place in Pittsburgh in the last 15 years.

Understandably, U.S. Steel wanted the building to be an unmistakable expression of its product's capabilities. The company was well aware of the experiments in Europe indicating that steel placed outside the glass line of a building is unlikely to rise to a temperature at which its strength is adversely affected. The designers were advised of this research in the hope that it might suggest a design in which at least a part of the building's steel frame could be of weathering steel, exposed, unpainted, and uncluttered by applied trim. It did.

In the final design, all the building's vertical loads are carried on a triangular interior core of braced steel and three rows of massive columns, six along each of the three sides.

The exterior columns, which are set 3 ft outside the window line, are hollow box sections of weathering steel, as are the cantilevered stubs that transfer floor loads to the columns at every third story. Neither will have external fireproofing; instead,

the designers have arranged to fill the hollow members with chemically treated water that will act as a heat sink to hold the temperature of the steel down, should the columns be exposed to fire. The cooling liquid is free to circulate by convection, carrying heat away from the site of a fire.

The building's metal curtain wall is also of weathering steel. It is an adaptation of a design U.S. Steel itself developed to market stainless steel for curtain walls. For this building, weathering steel replaces stainless for all but the horizontally pivoted sash.

Inside the window line the structural steel, including the deep spandrel beams at every third floor, is protected by conventional applied insulation.

Trial or Trend

In both cases, exposing the raw steel frame introduced design complications that probably offset any savings that might have been accomplished by eliminating applied external fireproofing. But the designers have produced a steel structure that reads true. Until now, architects, including Mies, the author of this school, have had to resort to applied decoration to suggest the form of the underlying frame.

The reasoning used to defend these departures from conventional fire protection rules is at least as good as that behind the rules themselves. Perhaps these two prestigious examples will encourage similar innovations elsewhere.

URETHANE FOAM FILLS A VOID

The owners of the Potomac Plaza Apartments, in Washington, D.C., who are also the occupants of that cooperative building, found that they had an untenable situation on their hands. The air-conditioning ducts and the chilled water lines that fed the building's induction system had been installed in chimney-like spaces between the building's exterior brick wall and the reinforced concrete columns.

■ Because the pipes were inadequately insulated, moisture condensed on the cold water lines, dripped off, and leaked into the apartments; repairs averaged \$50 per unit and did not promise to stay the ultimate damage that the condensation was likely to do to the installed piping.

■ The vertical pipe and duct spaces that connected with under-the-window induction units, provided a path for noise and odor between adjacent apartments.

■ The lack of proper insulation on chilled water lines feeding the air-conditioning apparatus was seriously undercutting the system's efficiency.

Nash Love & Associates, engineering consultants of Washington, D.C., were retained to devise a solution. The investigation disclosed that the building had 93 vertical pipe and duct spaces—all uninsulated, all connected directly to metal stools under the windows that housed the building's induction units. Roughly half of the vertical chases contained chilled-water supply and return lines, the others

contained primary-air supply ducts. The consultants spent about a year researching possible remedies. Among the ideas that were considered but discarded were these:

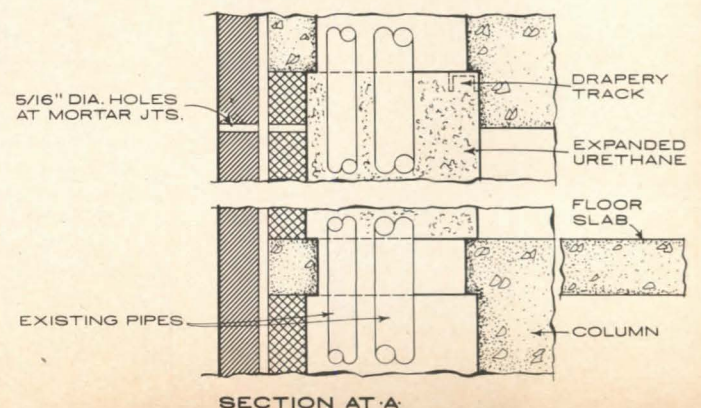
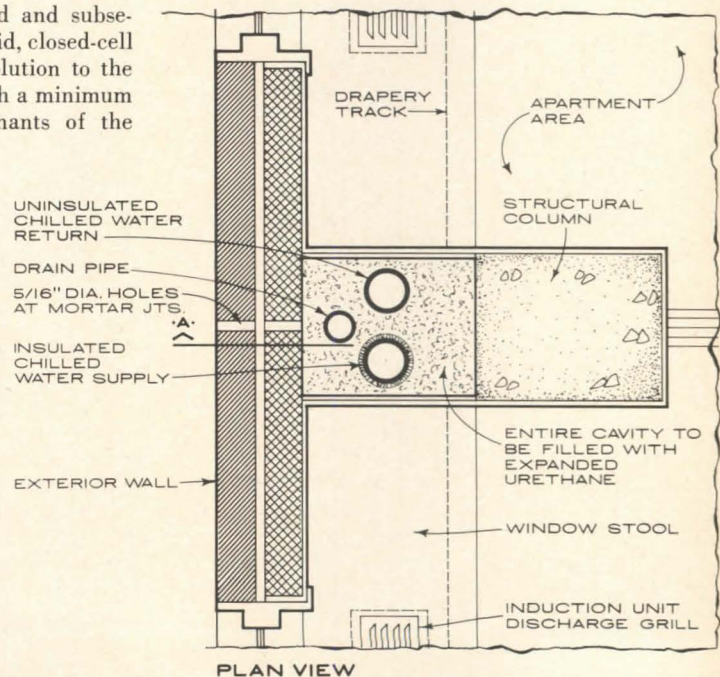
■ Solid preformed insulation materials that would have required extensive work inside the building. Besides inconveniencing the tenants, the installation of preformed insulation would have solved only a part of the problem. Although it would have taken care of the condensation and system inefficiency, it would have done nothing to block the passage of sound and odor between dwelling units.

■ Lightweight granular insulation. This was tried on a limited scale, but it was found that the material abraded, forming a fine dust that eventually worked its way into the apartments, causing nearly as much annoyance as the condensation had.

Finally, a chemical manufacturer in Newark, N.J., the Nopco Chemical Co., suggested that the consultants try a foamed-in-place urethane. Urethane foams are well known for their thermal insulating value, which is about twice that of most other commercially available insulators. Moreover, the foamed-in-place installation technique, in which the urethane is injected into place as a liquid and subsequently expands to form a rigid, closed-cell sponge, seemed to offer a solution to the sound and odor problems with a minimum of inconvenience to the tenants of the building.

Bianchini Bros., renovation and restoration contractors of Philadelphia, Pa., won the contract to insulate the building's air-conditioning system with urethane foam. Working from an exterior scaffold, they drilled $\frac{5}{16}$ -in. holes through the brick façade, penetrating the pipe and duct chases. Plastic tubing, inserted through these holes, fed the liquid urethane into the chases, where it expanded to fill the vertical voids and block the openings between the vertical chases and the under-the-window metal stools.

Total cost to recondition the air-conditioning system, including new fans and filters, was \$108,000, considerably less than the estimated cost of \$150,000 that would have been incurred just to replace the piping had the condensation continued unchecked. In addition, the owner-tenants got the acoustic privacy they had been denied before, increased the efficiency of their cooling system by about 40 per cent, blocked the transmission of cooking odors, and probably reduced the fire hazard in the building substantially by closing off the vertical pipe chases.



THE HELIODON: Sunshine in the Cellar

A heliodon, to quote Webster, is "a device . . . used to simulate sun and shadow orientation for any latitude and day of the year for a proposed building." Kansas State University, at Manhattan, Kansas, now has one, the only such device in the country, and it can do a good deal more than the dictionary definition suggests. It is a remarkable dome that can:

- Reproduce the effect of sunlight (both direct and indirect) on scale models of buildings (either proposed or historical).
- By means of high-capacity heating and cooling units, it creates a wide variety of psychrometric conditions so that students may evaluate the relationship between temperature, humidity, and comfort.
- Because of its shape and hard, reflecting surfaces, it also serves as an object lesson in not-so-good acoustics.
- And it adds to the school's facilities a 50-seat teaching amphitheater.

The heliodon, which was designed by Henry Wright, Regents' Distinguished Professor of Environmental Technology, was built in the basement of KSU's Seaton Hall. It is a 36-ft diameter hemisphere framed with standard 18-ft-radius wood barn rafters that support a wire lath and plaster ceiling that simulates the sky.

Fifty-seven spotlights recessed into the ceiling represent positions of the sun at different times of day and seasons of the year. The lights are arranged in five bands that correspond to the summer solstice, the winter solstice, the equinoxes, and the days midway between these solar events. The arrangement of lamps along each band depicts the hourly progression of the sun across the sky.

All the narrow-beam spotlights focus on a single point a few feet above the floor, so an architectural model placed on a drafting table at the center of the room reacts to the lamps substantially the same way a full-scale building would react to the sun. The elevation of the bands of lamps above the horizon corresponds to the elevation of the sun in the sky over Manhattan, Kans., which is at latitude 39° North. To reproduce the conditions at other latitudes, where the elevation of the sun is different, the table on which the model is placed must be tilted.

Besides the spotlights, which reproduce the effect of direct sunlight, the heliodon

is equipped with a ring of fluorescent and incandescent lamps, mounted in a trough around the perimeter of the dome. These project a fairly even illumination over the entire ceiling surface to produce a general sky brightness that counterbalances, to some extent, the simulated direct sunrays. The peripheral lamps are all connected to dimmers, so the ratio of direct sunlight to sky brightness can be adjusted to correspond with the natural differences between bright and hazy days.

The primary purpose of the heliodon is to test architectural models. One recent student project illustrates its usefulness: The building was an art museum for which it was believed that an inverted monitor might be a good way to provide diffused daylight for the paintings on display. A model was built and subjected to simulated daylighting conditions in the heliodon. Meter readings indicated that the top strip of the wall was too bright to permit the paintings to be comfortably viewed. Exposure of the problem

suggested a solution: A strip of dark color was applied to the top part of the room walls and subsequent meter readings showed that the objectionable contrast in brightness had been eliminated.

The variable intensity lamps that provide general illumination for the dome enable students to experience a wide range of indoor lighting levels and see how these relate to the ease or difficulty of performing typical visual tasks. And, it is possible to observe the differences in the quality of incandescent and fluorescent illumination.

To control temperatures in the heliodon, which has a lighting load of about 16,000 Btuh and an additional load of 26,000 Btuh when its 50 seats are filled, the designers included a 3¾-ton refrigeration unit to which they added a pair of 34,000 Btuh reheat coils. The generously proportioned equipment can swing the psychrometric conditions in the heliodon through a wide range very quickly. A wall-mounted recording indicator lets

Photos, except as noted: Ezra Stoller





students read the numerical value of both temperature and humidity and see how they relate to comfort.

Because of its hemispherical shape and acoustically hard plaster finish, it has some very complex acoustic problems built into it. A pronounced echo renders unamplified speech almost unintelligible. Installing carpeting on the floor and on the low wall that forms the perimeter light trough improved this somewhat, but not enough. Now the instructor's voice is amplified and projected through eight loudspeakers mounted in the light trough. The acoustics still leave something to be desired, but the designers view this as a challenge; they consider the heliodon to be an acoustic laboratory in which they can evaluate a variety of experimental solutions.

Professors at the school hope the heliodon will be useful to practicing architects, too. They will encourage architects to bring or send models to the heliodon for evaluation, and for photographing.



Photo: Courtesy, Kansas State University

*If a rod is mounted normal to the surface of a drafting table (left), and the table is tilted to correspond to latitude of a particular site, the shadows cast by the rod when the sun is at various positions in the sky will trace on the surface of the board a series of curves known as a cotangent diagram. Such a diagram is useful for several purposes—among them, determining the patterns of light and shade cast by a proposed building into the surrounding streets and onto adjacent buildings (A fairly complete description of the uses of the cotangent diagram has been published by the Royal Institute of British Architects under the title *The Orientation of Buildings*.)*

CALKS AND SEALANTS: How Do They Compare?

The proliferation of new joint sealing and filling materials has complicated the task of selecting the right one.

By Oscar L. Vaughan, of Charles A. Maguire & Associates, architects-engineers, Boston, Mass., and C. Arlen Hile, of J.T. Baker Co., Phillipsburg, N.J.

As recently as 10 years ago, it was a simple task to specify calking for building construction. Then, only one material was widely available — oil-base putty, a material known today as an oleoresinous calking compound.

In its time, it served its function quite well. Most buildings were of massive construction, with thick, masonry walls. Joints to be calked were usually between masonry and steel or between masonry and wood, and were always rabbetted, thus providing a weather stop and solid back up for the calking. Even so, exterior calking eventually dried out, became brittle, and cracked, and had to be replaced at regular intervals. In spite of its recognized limitations for exterior use, oleoresinous compound is still successfully and widely used for interior calking.

But modern building components, embodying new (and sometimes unfamiliar) materials, demanded a new and more effective construction sealant. For large-panel wall systems, a material had to be developed that would bond to the joint surfaces and remain elastic enough, after years of exposure to the elements, to move with the joint as it opened and closed with thermal expansion and contraction. A material was needed that would be resilient, compressible, tough, have good adhesion to substrates, be nonstaining and nonshrinking, and, finally, weatherable.

These requirements led to the development of a number of new materials, among them, the butyls, the acrylics, the polyurethanes, the polysulfides, and the silicones. To better understand these materials, one should have a background in chemistry, which few architects or engineers possess. With these new calks and sealants now available, the specifier must endeavor to select the best materials to do the most efficient job at the most economical cost for any number of different conditions. The

specifier must rely largely on the manufacturer's literature to tell him, not only where but where not to use a particular product. Too few manufacturers are willing to set forth the limitations of their products in their literature and so the specifier must, too often, learn by trial and error of what, when, where, and how. Here, then, are a few basic guidelines to assist the specifier in selecting the proper calking or sealant material and a brief discussion of their advantages and disadvantages.

Basically, today's calking and sealing materials can be divided into two general categories:

- Sealants: exterior or interior use, elastomeric, outstanding weatherability.
- Calks: limited exterior use, better for interior use, non-elastomeric, limited weatherability.

After establishing the above divisions, selection of materials becomes a matter of degree, based on the specific joint requirements on a given project.

Joint Types

Before discussing the various calking and sealing materials and their particular applications, the types of joints requiring sealing or calking should be considered. Generally, there are two basic joint types, with some variations within each type.

Working joints are joints that change shape and dimension with thermal variations or other building movement. Proper sealing of this type of joint is most critical, and an elastomeric sealant *must* be specified. The successful performance of a material in this type of joint depends on adhesion to the joint in the proper manner. To obtain good adhesion, a clean, dry surface is necessary. Instructions to this end must be clear and explicit.

Non-working joints, as the name implies, are fixed joints with very little or no movement. Although this type of joint does not normally require an elastomeric material, its exposure to the elements may require adhesive and weatherability properties found only in elastomeric compounds.

There are three basic joint forms, which may be working or non-working. There is the butt joint, the lap joint, and the combination butt and lap joint. In the butt joint, the sealant is subjected to alternating tensile and compressive forces. In the lap joint, the sealant is subject to shearing forces. In the combination joint, the seal-

ant may be subject to all three forces, separately or together. The adhesive properties of the sealant become critical where subject to tensile or shearing forces.

Joint Design

All building joints are vulnerable to movement and change of dimension due to fluctuation of temperature. Low temperatures will cause the joints to open; conversely, high temperatures will cause the joints to narrow.

Poor joint design will place unnecessarily severe stresses on many products available and make the choice of the proper product more difficult for the specifier. The joint design will determine the shape of the joint material bead, which in turn will dictate the performance of the material used. Although all materials are affected in some degree by thermal variations, their mass is not changed with extension or compression. Only the shape of the bead will vary with this movement. The dimensional changes can be predicted. These factors require the specifier to pay particular attention to the joint design details, which will determine the choice of the proper calking or sealant material. Special care must be taken not to specify a material for a joint that is either too narrow or too wide, too deep or too shallow, to allow the chosen product to function properly.

The joint width should never be less than $\frac{1}{8}$ in. The depth of sealant in a working joint should be in accordance with manufacturer's instructions. All joints should be kept in alignment both vertically and horizontally, and accessible for inspection or repair.

Failure Types

Other than the improper choice of compounds and poor joint design, most failures result from one or more of the following:

- Applying compounds over unsound or unclean surfaces.
- Failure to prime or careless priming.
- Applying compound when condensation or frost exists within the joint.
- Not tooling the compound into the joint.

There are numerous types of failures, and it is well to be familiar with them and their causes. *Adhesive failure* is when a compound pulls away from the surface. The causes are excessive movement or improper preparation of the joint surfaces or

Base	Oleoresinous	Butyl	Acrylic	Polyurethane	Polysulfide	Silicone
Use	Calk	Calk	Calk	Sealant	Sealant	Sealant
Package	1 part	1 part	1 part	1 and 2 part	1 and 2 part	1 part
Approximate Cost/gal	\$4-6	\$8-10	\$12-14	\$16-18 (2 part) \$20-22 (1 part)	\$15-17 (2 part) \$20-24 (1 part)	\$27-30
Federal Specification¹	TT-C-598	TT-C-598	TT-C-598	TT-S-00227 ²	TT-S-00227 TT-S-00230 ³	Canadian Gov. 19GP 9 ⁴
Application Temperature	30F to 120F	30F to 120F	40F to 120F ⁵	40F to 120F	40F to 100F (2 part) 60F to 100F (1 part)	-20F to 160F
Service Temperature	-20F to 150F	-25F to 225F	-20F to 200F	-20F to 200F	-40F to 220F	-65F to 250F
Primer Required	No ⁶	No ⁶	No ⁶	Some	Yes	Some
Life Expectancy	1-5 years	5-8 years	10 years	15-20 years	20 years	30 years plus
Advantages	Low cost, familiar, paintable	Slightly better than putty, low cost, paintable	Better than butyls, no mixing, adheres well	Weathers fairly well, good resiliency and adhesion	Bonds well to many substrates, weathers well, successful history, well known to industry	Very best weatherability, widest application temperature range, bonds well to many substrates, not a formulated material
Disadvantages	Not resilient, little or no adhesion, high shrinkage, hardens with age	Stains masonry, poor elongation, high shrinkage, hardens with age	Not elastomeric, not very resilient, shrinks 15%, surface hardens on weathering, very hard in cold weather	Slow cure at low temp., tends to be toxic, moisture may interfere with cure. Sometimes bubbles during cure	Many formulators resulting in varying quality. Some colors change on exposure to sunlight, alligators with age, poor recovery from compression	Most expensive to purchase, not good for horizontal traffic bearing joints, some dirt pick-up problem, not good for water immersed joints

¹Federal specifications set minimum acceptable standards only.

²No suitable specification for 1-part polyurethanes available.

³Suitable for 1-part polysulfides only.

⁴No U.S. Federal specification for silicone-based materials available. General Electric Co.'s specification CDS-602 is the only U.S. specification written specifically for silicones.

⁵Material must be heated to 110F prior to application.

⁶No primer needed but clean, dry surface is required.

both. *Cohesive failure* is the rupture of the compound. It is caused by improper application of the compound, or sealant fatigue from excessive joint movement. *Excessive shrinking* is when the applied bead loses volume. It is caused by evaporation or by absorption into adjacent surfaces of liquids in the compound. This causes adhesive and cohesive failures.

Compound Selection

In the selection of a proper compound, it is first necessary to determine the conditions under which the compound must function. The lowest possible service temperature should be used as a basis for selecting the compound. As the temperature falls, the force required to stretch the sealant increases. Different coefficients of thermal expansion of building materials add to the problem. Also, the rate of heat absorption and transfer will vary in different materials. An excellent oleoresinous product may well be superior to a poor elastomeric product. When a product is

marginal in its properties for a given application, the next higher quality compound available should be specified to insure proper joint performance.

Calk and Sealant Bases

After determining the type and design of the joints, the next step is the choice of the materials with the characteristics required to properly calk or seal the building. If a sealant is required, the choice of what to specify is limited to the polyurethanes, the polysulfides, and the silicones, the only three materials available today that meet the stipulated requirements for a good sealant. Of these three, silicone materials will last longer on exposure to the degrading effects of the sun (ultraviolet rays), atmosphere (ozone attack), and temperature.

The polysulfide-based products are also good for external use if one remembers they are produced by many formulating manufacturers and often in varying grades by the same formulator. Basically, the

product containing the larger percentage of liquid polysulfide polymer will have the better weatherability. The Thiokol Chemical Corporation, which manufactures and sells to the many formulators, periodically inspects the sealants based on their product. The products that pass their inspections are given a seal of approval and are included on an approved product list, issued by Thiokol Chemical Corporation, in an attempt to assure specifiers and applicators that they are using one of the best polysulfide-based products on the market.

Polyurethane-based products are the hardest to classify in either of the two categories, primarily because of their newness to the industry. Products based on polyurethane should have good abrasion resistance, good ozone- and sunlight-resistance, and high tear strength. However, in a relatively high temperature and in the presence of moisture, polyurethane will tend to lose its mechanical properties.

Butyl compounds tend to stain masonry

surfaces and have a high shrinkage factor. Their low weatherability characteristics result in an expected life of approximately five years when exposed to atmospheric conditions of ozone and sunlight.

Acrylic-based materials are not true elastomers. Prior to applying, these products must be heated to approximately 110F. Some shrinkage occurs during cure. At high temperatures, it sags considerably in vertical joints. At low temperatures, acrylic sealants become quite hard and somewhat brittle. However, they are available in a wide color range, and have good adhesion qualities.

Oleoresinous-based products are the least expensive calks on the market. However, they are also the furthest removed products from a true sealant. They have little or no adhesion, high shrinkage, and an exposed life expectancy of less than five years.

After deciding what base material is required or desired, the specifications writer must be sure not to call for a different base material for the same type joint in the same application area. (The reference comparison chart shown on these pages will assist in material selection.)

Essential Properties of Elastomeric Compounds

The successful performance of an elastomeric sealant depends upon good adhesion to the joint surfaces. The "wetting" ability of the sealant is essential to a good seal.

A high-grade elastomeric sealing compound should be flexible at low temperatures, have sufficient tensile strength to prevent failure under tension, and be capable of almost complete recovery from compression. It should retain these properties for many years.

Newer sealants cure as a result of a chemical reaction known as cross-linking. A low compression-set material recovers almost to its original size when relieved of compression. Silicones are superior in this respect. The volume of an elastomeric sealant remains constant throughout the movement cycle, as noted by the fact that a joint will extrude or bulge when force is applied. A good sealant should be capable of being compressed at least 25 per cent without permanently extruding or bulging from the joint opening.

Bond Breakers

Bond breakers should be employed at the back surfaces with all elastomeric sealants. To prevent bonding to the back surface, a membrane barrier, such as polyethylene film, should be placed in the back of the joint before sealing.

Sealants should never be permitted to bond to the back of the joint. Such a bond will interfere with the expansion and contraction of the seal when the joint moves, and will cause the seal to tear at the sides and back corners. Although a tight bond to

the sides of the joint is essential, it is especially important that the sealant *not* be permitted to bond to the back of the joint.

Back-Up Materials

The prime function of any back-up material is to insure an adequate cross-section of the sealant with regard to shape and depth, for reasons of maximum performance and economy. Back-up materials also serve as bond breakers to free the sealant from the back of the joints, and to save the amount of sealant in large joints.

Back-up material should *not* adhere to the sealant, and should be compressible so that when it is compressed it will not tend to force the sealant out. It should be compatible with the sealant and should be approximately 50 per cent wider than the joint, so that it will exert continuous pressure against the sides of the joint.

Oily materials, and materials impregnated with asphaltic or bituminous compounds, should never be used as joint fillers. Hot sunlight can draw this impregnation through the sealant, causing deterioration and loss of adhesion. Oily materials will also cause stains.

Black butyl sponge rubber and various types of neoprene sponge generally are not compatible. Some will bond to the sealant, and others may cause discoloration. The choice of back-up material is important.

The better back-up materials are the closed-cell variety such as expanded polystyrene and polyethylene foam, which are square or round in section. Glass fibers and mats, cork, mop yarn, treated oakum and untreated oakum are also available. Rope type or bead foam fillers such as expanded polyethylene or expanded polyurethane are the best types. Check with the sealant manufacturer for his recommendations.

Primers (Sealers)

A tight bond to the sides of the joint is essential to a good seal. To insure this, primers are almost always required before the sealant is applied. Use of the wrong primer can undermine all the care used in selecting the sealant. Correct application information and practice is essential to a good calking job. Failure to use a primer as recommended can result in the loss of adhesion, staining, or other problems. In some cases, the use of a primer where the manufacturer recommends none can cause failure, too.

Manufacturers of joint material expend a great deal of research money and effort to find the one or two primers to be used with their product that will insure the best possible bond between the joint surface and the material being employed. Since many sealants that appear to have excellent adhesive characteristics without priming will fail under a water soak or a heat-aging test when no primer has been used, the specifications writer must stipulate that the proper primer, from the same firm

that supplies the calking or sealant material, be used.

Joint Preparation

Manufacturers' advertising notwithstanding, all materials available for use today require a clean, dry, joint for best performance. And, with few exceptions, the elastomeric materials need a properly primed surface as well. Most failures occur during the first year or two after the material is applied and are a direct result of applying compounds over unsound or unclean surfaces or when condensation or frost conditions exist within the joint.

The specifier must be explicit in requiring all joints to be free of dust, oil, grease, dew, paint, lacquer, old sealant, concrete curing agents, imperfect mortar or concrete surfaces, scum and other latent deposits, and other foreign materials. In addition, the specifier must stipulate that, after the joint has been cleaned, the proper primer, recommended by the manufacturer of the calking or sealant material, be applied in accordance with the manufacturer's instructions.

Compound Application

To insure the proper function of joint compounds, correct application procedures must be employed.

Compounds may be applied using hard pointing tools, pressure guns, reciprocal pumps and hoses, or cradle type calking gun. Obviously, power equipment is faster. The compound should flow into the joint until contact is made with the back-up material, and then spread against the joint walls, leaving no voids.

All compounds must be tooled to insure proper adhesion. This will also eliminate air pockets, give the proper concave surfaces, and reduce strain on the bond.

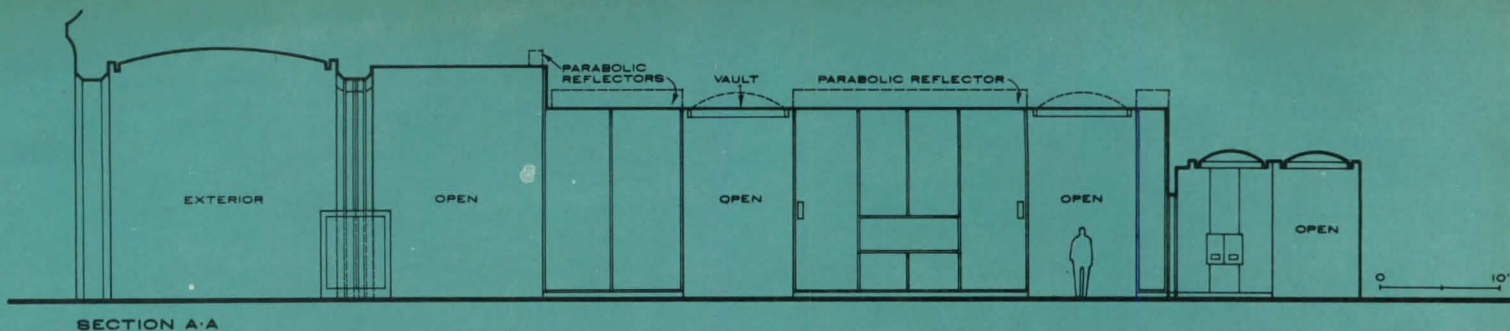
As a general rule, foreign materials should not be applied to the uncured surface of the joint bead, since adherence to them by the compound may prevent proper joint function. If the compound cannot perform by "necking down" when the joint widens, the compound will rupture.

The objective of calk and sealant manufacturers is to produce a material that can be used on dirty, damp, non-primed surfaces. This goal has not yet been achieved by any manufacturer to date, but extensive research toward this end is under way and the goal is in sight.

Do not play chemist on the job. Correct application information and practice is essential to a good calking job. Follow the instructions of the manufacturer.

Manufacturers spend many thousands of dollars in researching primers, and their findings are embodied in their instructions. This research is valuable. Use it.

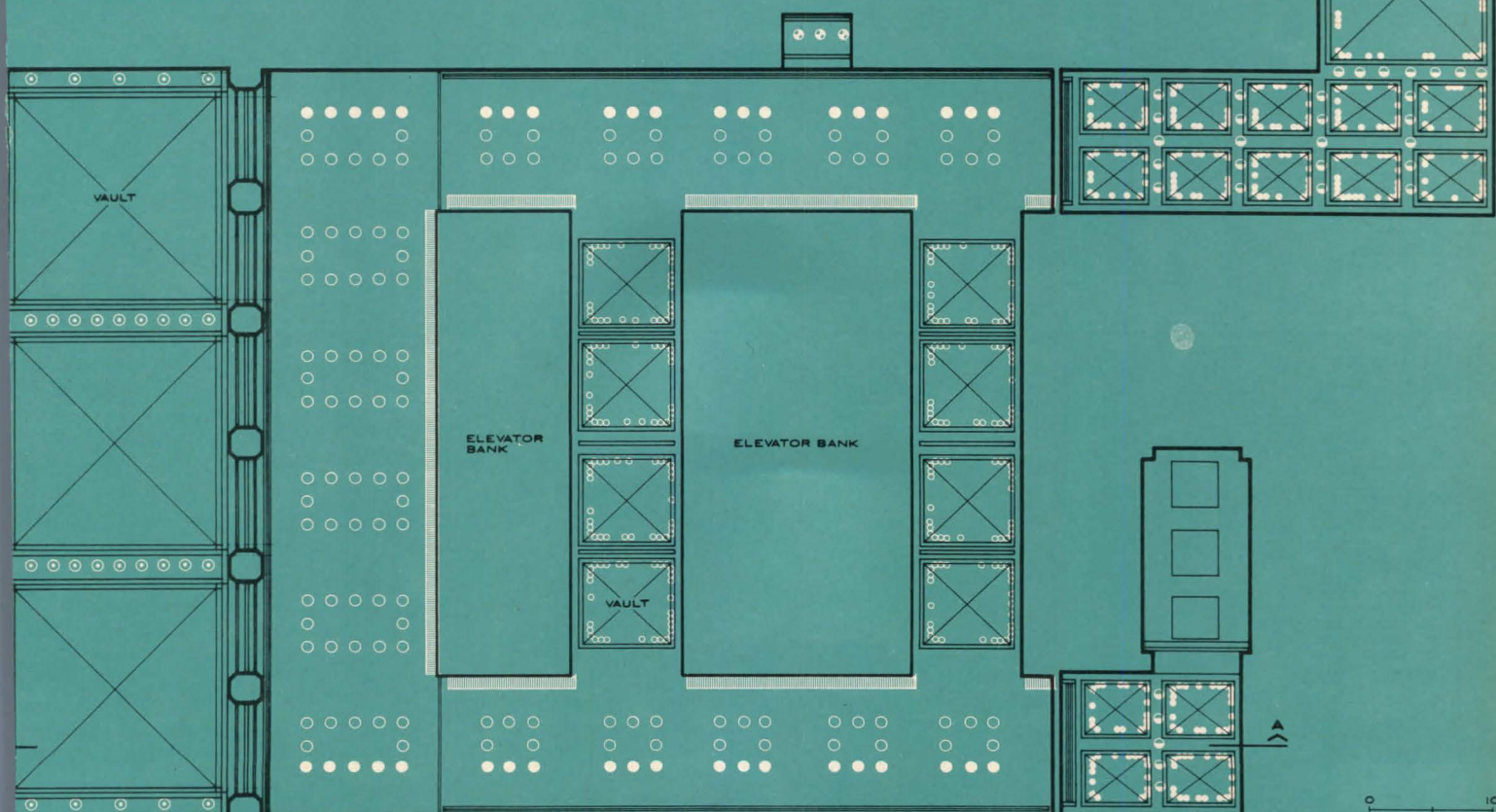
Because of the lack of reference standards, the use of proprietary names appears to be the only feasible means of specifying compounds. However, most products are available under different brand names.



DESIGNING LIGHTING FIXTURES

Light is shed on fixture design by lighting designer Howard Brandston in describing the illumination of a 38-story office building. How the lighting design was solved and the fixtures detailed for performance and competitive bidding is shown on working and shop drawings.

ECTED CEILING PLAN



● 250-w quartz parabolic reflector. High-intensity, long-life source. Lamp angled into groined vault openings to illuminate pedestrians. Brandston says he prefers angled lighting to rid the face of harsh shadows. Lighting alternately angled into vaults from soffits.

○ 150-w parabolic reflector downlights.

● 250-w quartz parabolic reflectors for high-intensity light cast onto floor which will be reflected in black granite wall finish.

● 150-w parabolic reflectors in

lower ceiling soffits.

■ 150-w wall washers for pre-cast concrete wall finishes at elevator core.

○ 25-w clear bulbs G 40 for lighting of interior of groined vaults.

● 25-w clear bulbs G 25 lighting of interiors of groined vaults in lower ceilings.

● 75-w parabolic reflector downlights in entranceway soffit from lobby to bank.

Notes: Lighting designed for maximum flexibility. Downlights to be adjusted directionally and

all fixtures on dimmers. Vault lights (●○) to be dimmed to provide a dull glow, giving the appearance of a light source. Ceiling heights determine lamp intensity.

Extreme contrast between elevator core and lobby side walls is handled by reversing light source direction. The light, pre-cast, textured concrete elevator walls are washed; the black specular polished side walls reflect floor light. Light from elevator core walls light the floor; light from floor lights the side walls.

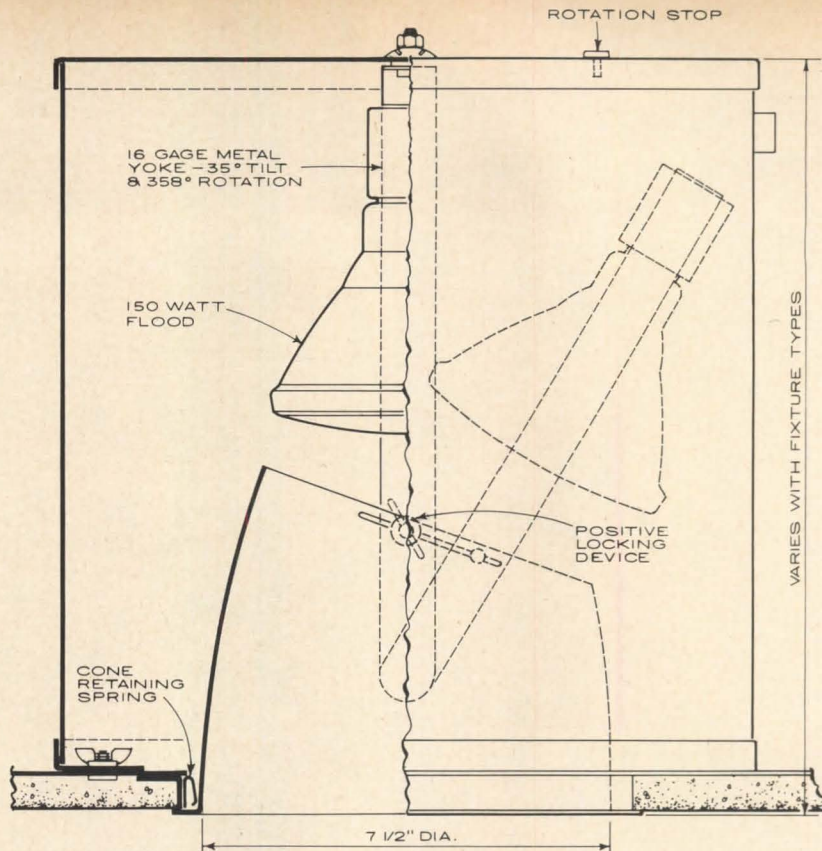
DRAWINGS FOR MANUFACTURING FIXTURES



Drawing incorporating standard metal and aluminum parts that could be manufactured by any sheet metal fabricator. Drawing intent is to furnish sufficient detail without including patented or proprietary items to favor any bidder on the one hand or unduly prejudice the use of proprietary items within the extent of the specifications.

The cone is the only specially designed feature. It provides a 55° cutoff rather than the standard 45°. Brandston felt the 55° cutoff was necessary due to the tendency of people to look directly into the lighting fixtures of high ceilings.

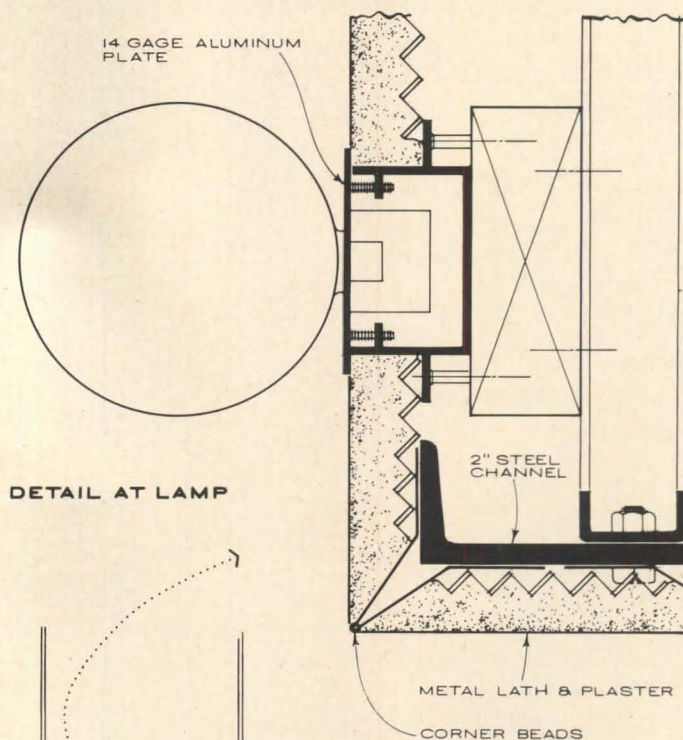
Chucks for spinning special cones such as this one are not justifiable, in Brandston's opinion, for runs of under 100 fixtures. The tilt lock is a special feature that allows adjustment to job conditions after installation. Bracket is rotational at top. The tilt arm is set with a locknut. Set is permanent after initial adjustment so that re-adjustment is not necessary after relamping.



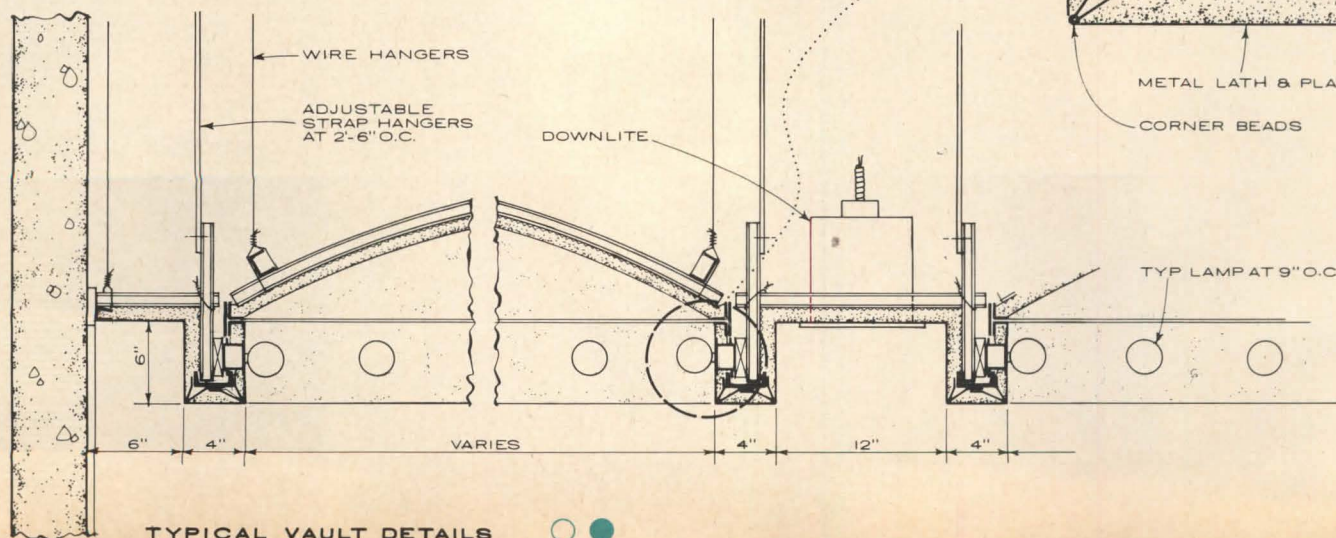
DESIGNER'S DETAIL

DRAWINGS FOR ARCHITECTURAL CONDITIONS

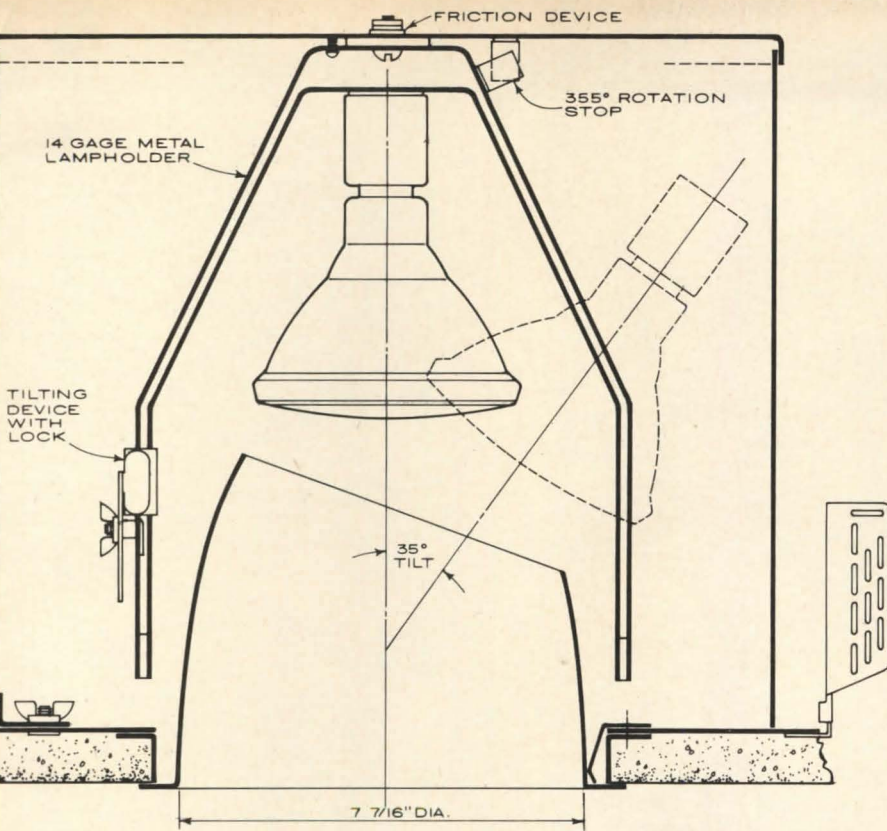
Architectural drawings from which the contractor bid on standardized elements adapted to architectural conditions.



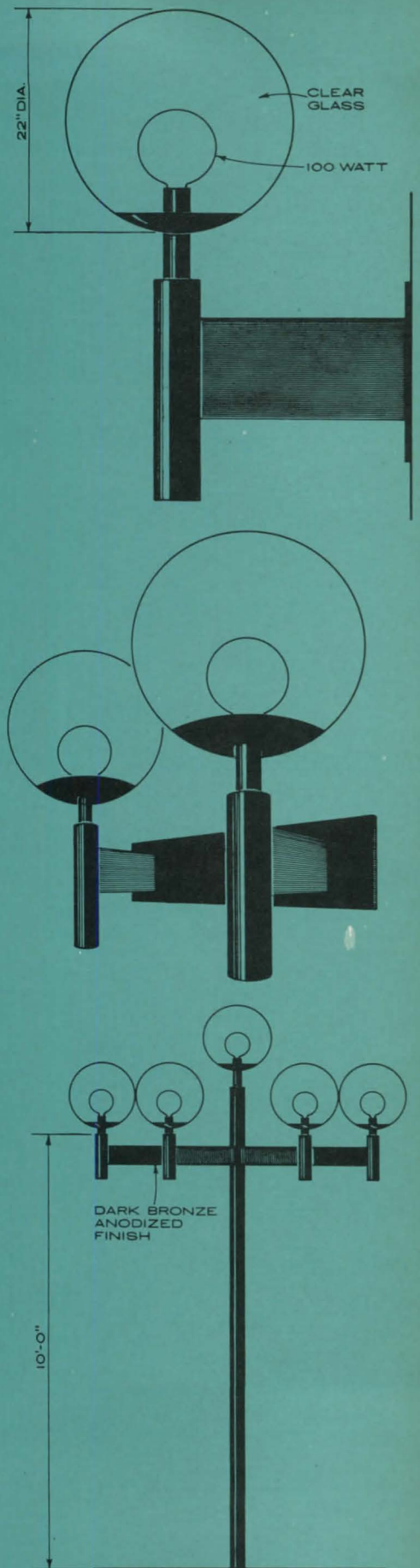
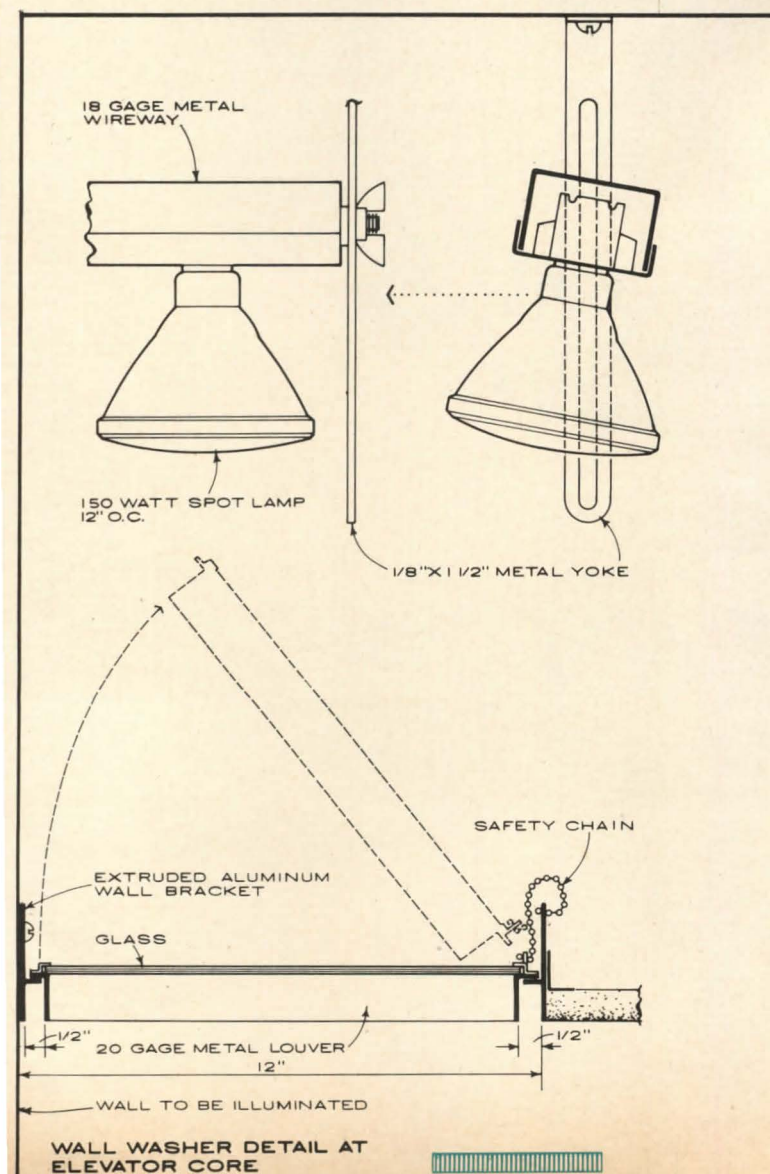
DETAIL AT LAMP



TYPICAL VAULT DETAILS

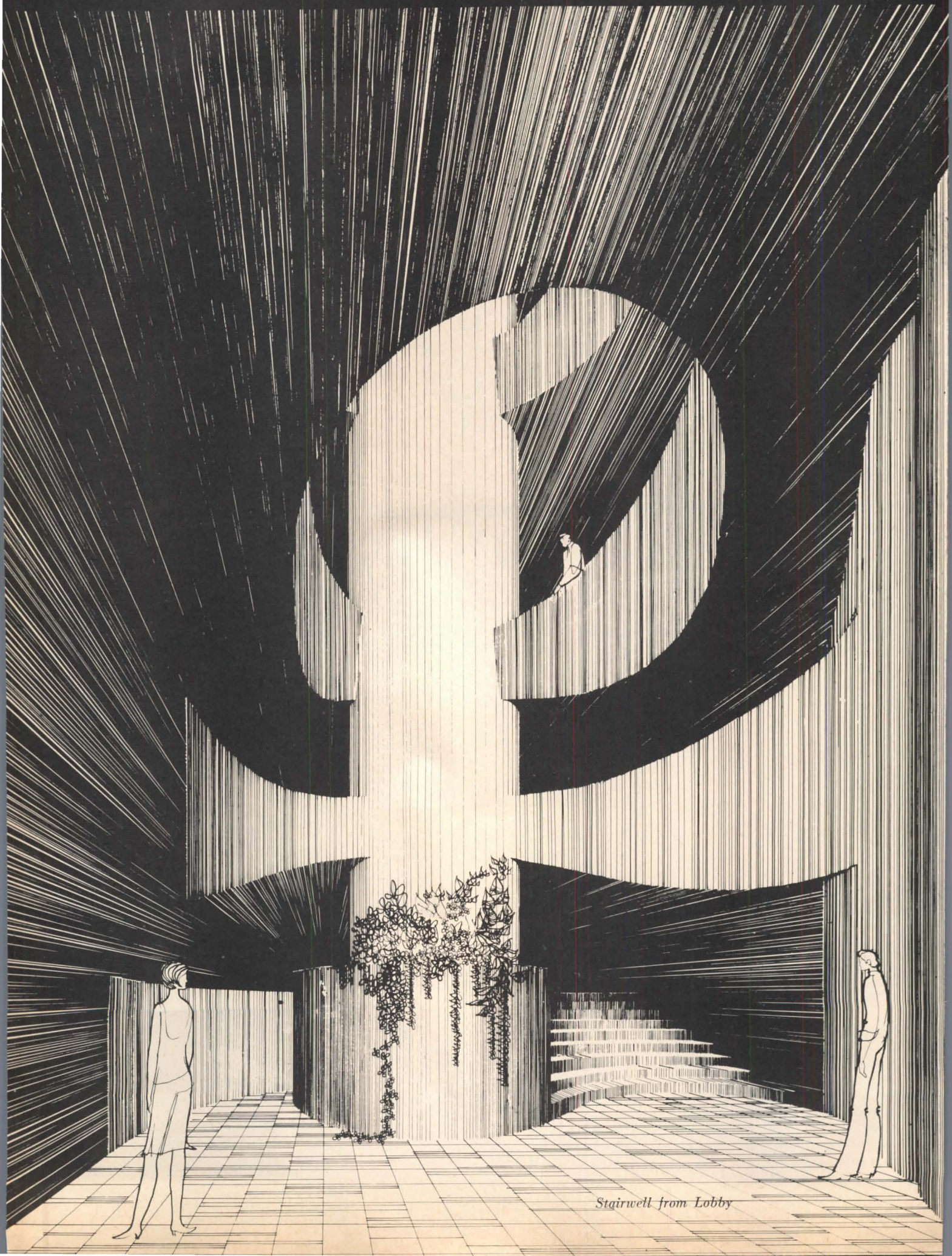


CONTRACTOR'S DETAIL



DRAWINGS FOR STANDARD ELEMENTS

Standard manufactured parts selected and combined into design drawing. Manufacturers' bids submitted with their shop drawings, weld samples, and sample parts.



Stairwell from Lobby

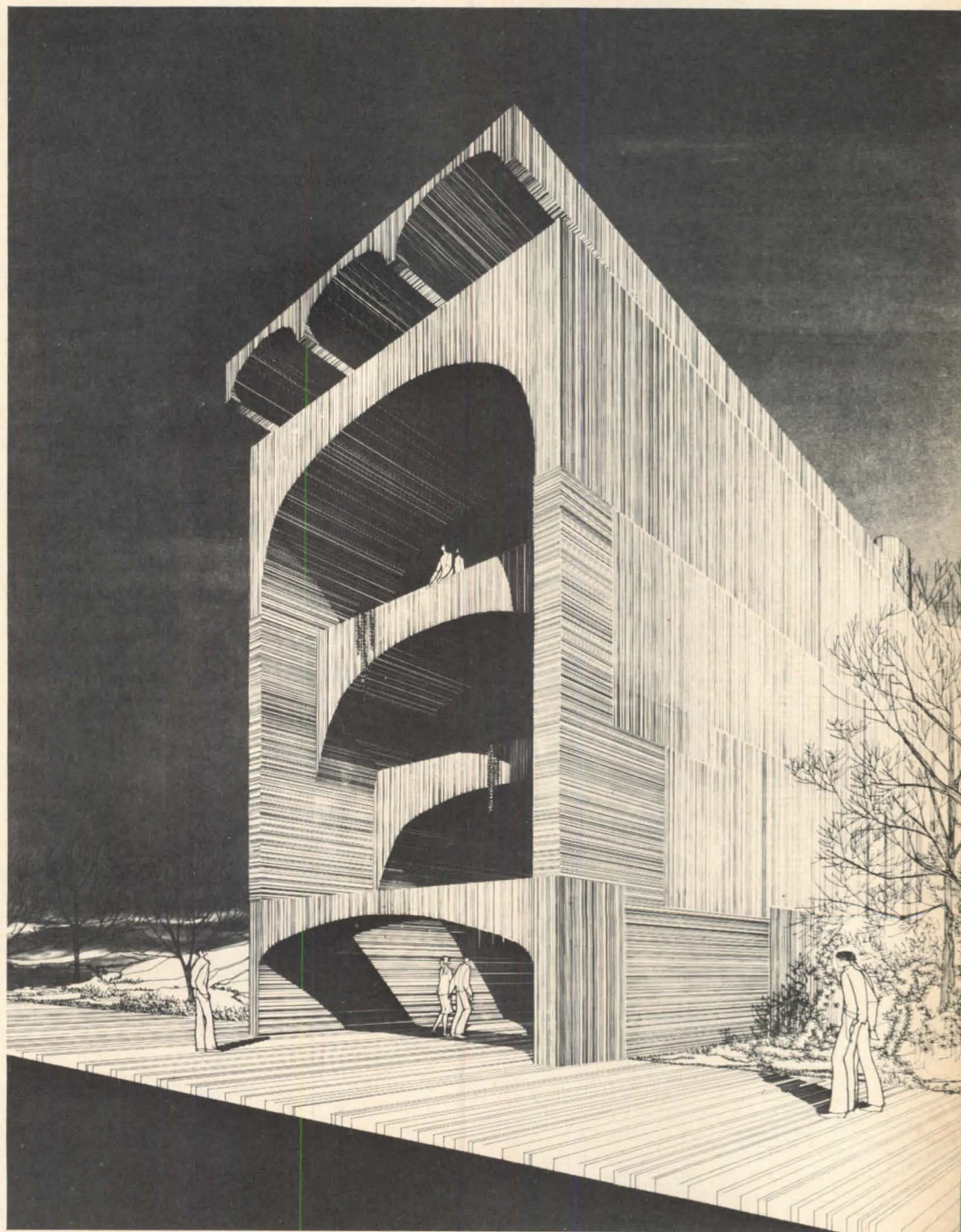
Getting an exciting arrangement of spaces, levels, and events onto a rather small (33 ft x 166 ft) plot of ground in Rio de Janeiro's Ipanema section has been the aim of architect Paulo Hamilton Casé in designing the Cultural Center for Young People for IBEC, the Brazilian Institute of Education, Science, and Culture (a representative organization of UNESCO in Brazil).

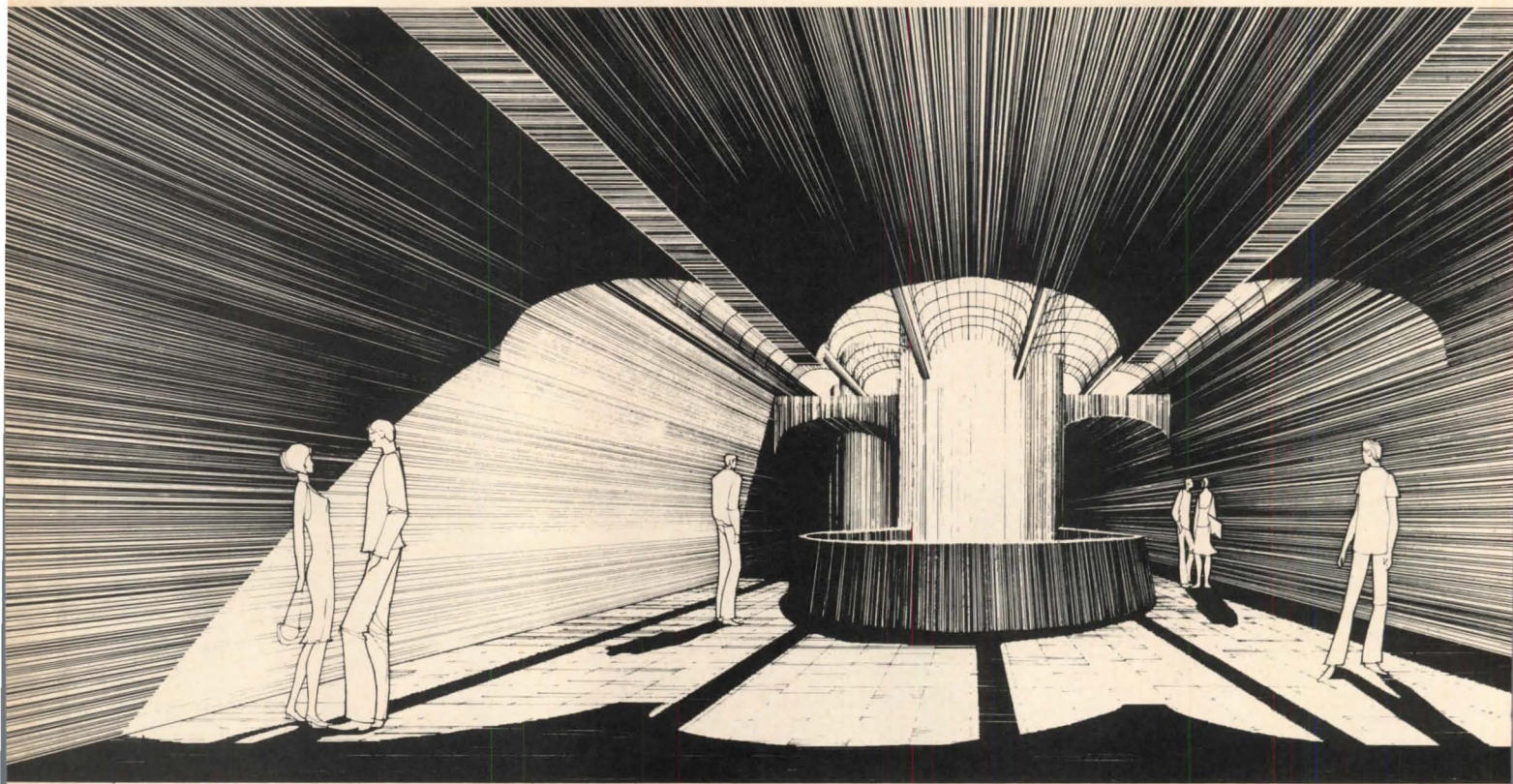
In Ipanema, which includes both upper-middle-class youth and the inhabitants of *favelas* (shanties) on a nearby hill, there is a new group of young people who are not content today to loll away the day on that famous beach or wait around for carnival time. They have become a community force because of their growing interest in social matters and a participating impulse toward culture and art. Their force can be seen in the donation by the Brazilian Ministry of Education and Culture of the site, which lies in a section of apartment houses and small houses soon to be torn down. Casé says that "one can rely on the neighborhood soon being taken over by real estate speculators; local regulations are few and monotony-developing: maximum (average 70 per cent) occupation, maximum building height four 10-ft floors plus basement, entry, and terrace." Thus, a vivid sort of building was needed not only to serve its cultural and social purpose, but also to create a beacon in an architecturally forgettable landscape (the natural landscape is, of course, anything but forgettable).

Casé (and his associate architect, Luiz Antonio M. Rangel; his structural engineer, Humberto Mauro Filho; and his mechanical engineer, Julio Meda), conceived a structure consisting of a succession of tri-articulated reinforced, cast-in-place concrete arches linked together by the exterior walls and the internal vaulting, also of concrete. Floors will rest on steel joists tied to the arches. Electrical and mechanical raceways will be in the space between arches and floors and in the wall cavities. Concrete will be exposed inside and out; other materials will be aluminum-framed windows, wood floors except for granite in the main hall, and interior partitions of Brazilian rosewood and glass.

Within this system, the designers have proposed housing a program based on the general policies of UNESCO for the cultural and artistic development of senior high school and college-age youth. In its small precincts, the building will contain an art gallery, auditorium, and library for members and the general public, and music, plastic arts, photography,

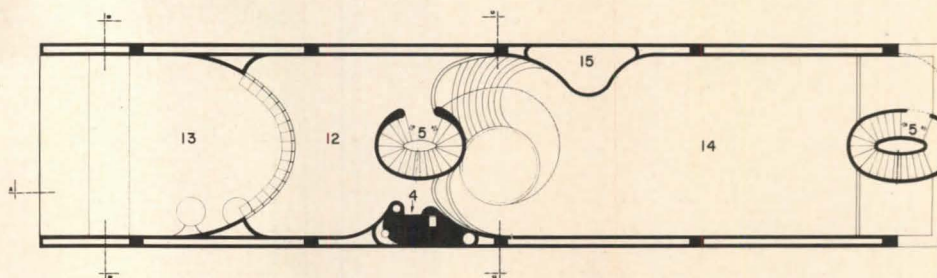
SWINGING IN IPANEMA



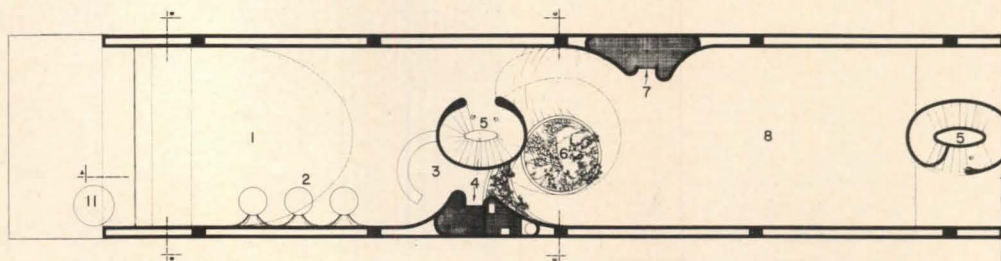


Third-Floor Hall, toward Coffee Shop

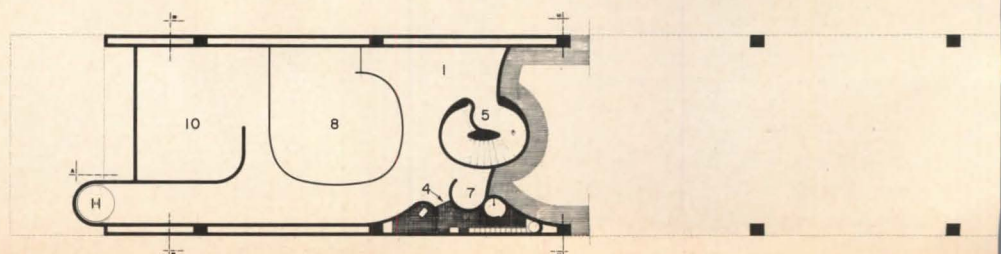
Mezzanine: (4) toilet; (5) stairs; (12) administration; (13) upper part of hall; (14) upper part of gallery.



Ground floor: (1) hall; (2) showcases; (3) reception; (4) toilet; (5) stairs; (6) garden; (7) storage; (8) gallery; (11) loading platform (to basement).



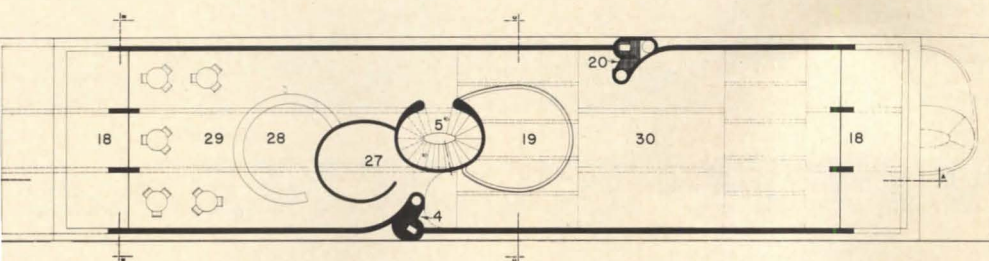
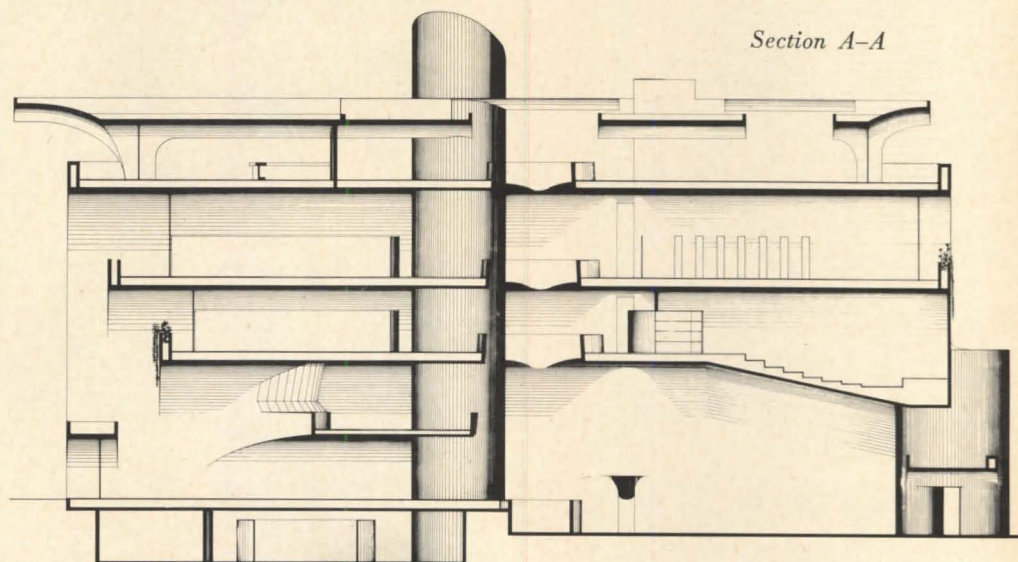
Basement floor: (1) hall; (4) toilet; (5) stairs; (7) storage; (8/10) circulation; (8/10) workshops; (11) loading platform.



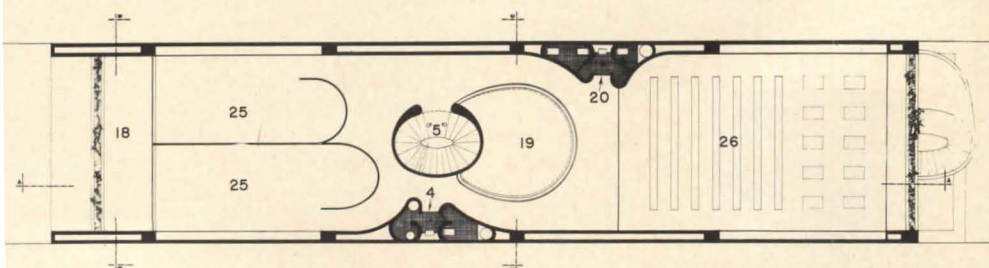
and language (audio-visual) studios for members alone, plus workshops, cafeteria, and offices. This has been done by playing a varying series of levels and interior and exterior terraces against the dramatic vertical emphasis of a roof-high stairtower and skylighted court. The young people and general public are to be drawn into an impressive three-story-high entrance, past the lobby, and into the art gallery slightly depressed on the ground floor, then up to the auditorium above the gallery on the second floor. Public attendance should end here, the rest of the building being devoted to studios, shops, and lecture and practice rooms — the girls and boys always passing by the spatial up-and-down, dark-into-light effect of the central stairwell.

Despite the social and cultural intensity Casé attributes to some of the youngsters who will be using his building, there is always the Ipanema beach exerting its powerful allure right next door. The architect realizes this, and says he has tried to provide a "living place for the gath-

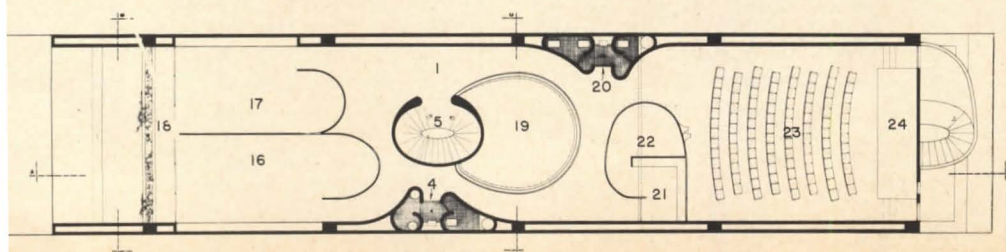
ering of young people, where they may in a humanistic way complement their regular education, and divert their energies from the healthy but sometimes all too demanding sports and club activities of the neighborhood." From the exciting views he has given us of the cultural center in these accomplished drawings, we predict a success.



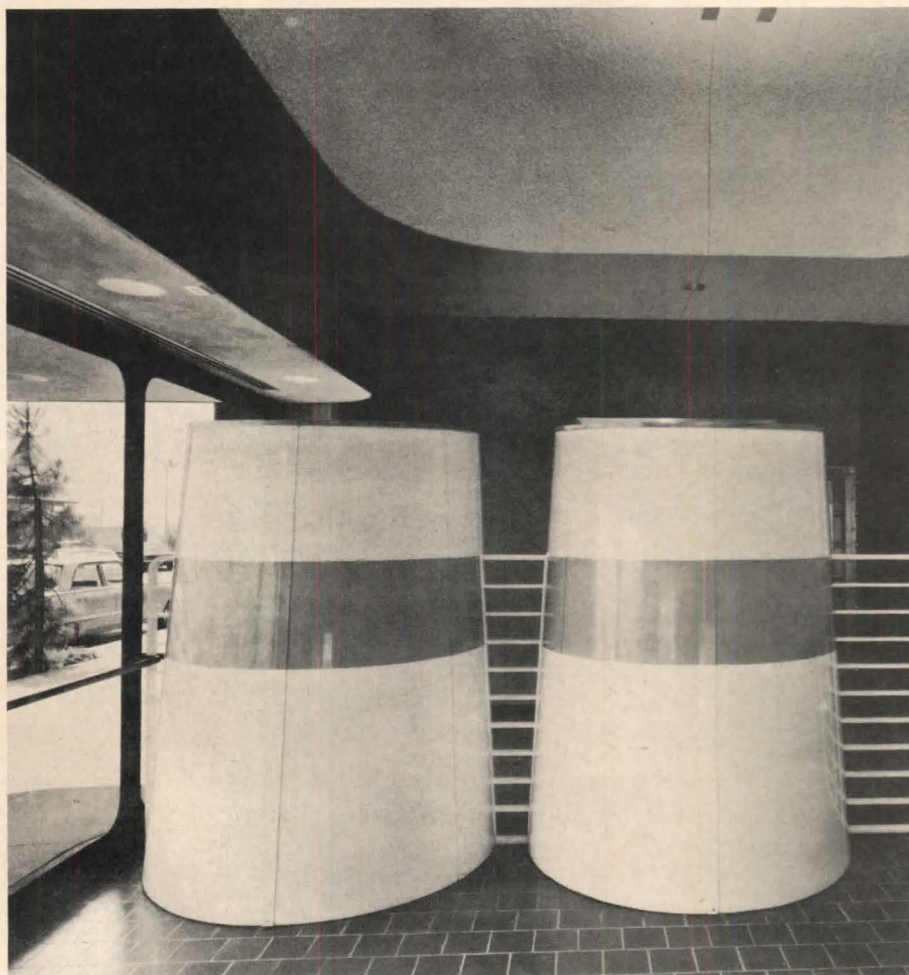
Fourth floor: (1) hall; (4) boys' toilet; (5) stairs; (18) terrace; (19) void; (20) girls' toilet; (27) kitchen; (28) bar; (29) coffee shop; (30) painting and sculpture.



Third floor: (1) hall; (4) boys' toilet; (5) stairs; (18) terrace; (19) void; (20) girls' toilet; (25) classrooms; (26) library.



Second floor: (1) hall; (4) boys' toilet; (5) stairs; (16/17) classrooms; (18) terrace; (19) void; (20) girls' toilet; (21) film storage; (22) projection; (23) auditorium; (24) platform or screen.



FUN WITH FUNNELS

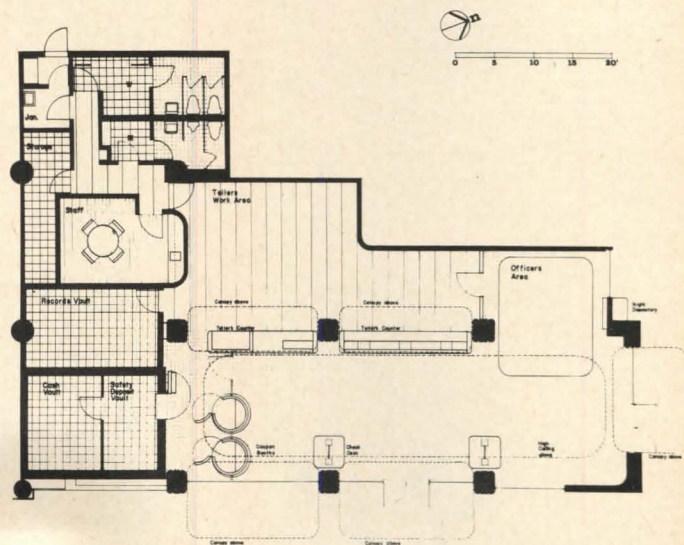
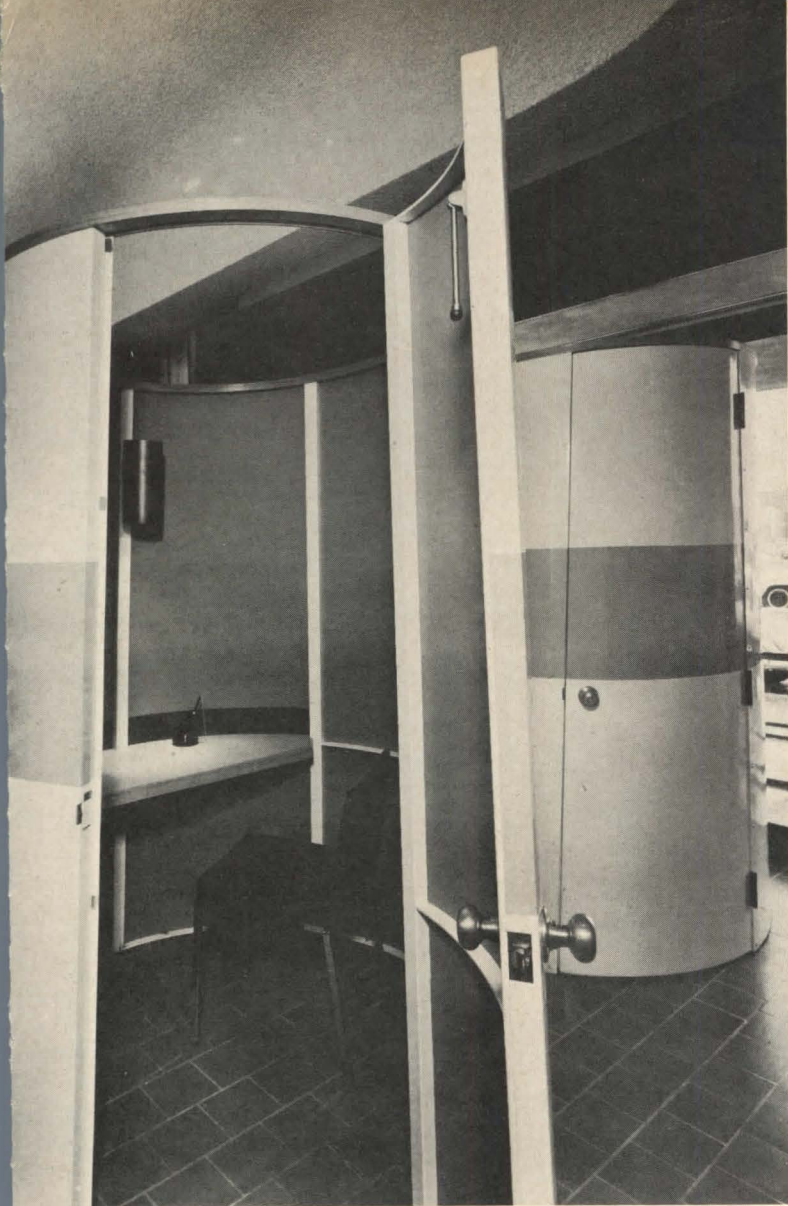
Since the new Bank of America branch in Oakland, California, is in an area facing Oakland Inner Harbor, the architects, Lee & Roberson (Darryl T. Roberson, partner-in-charge; Eugene Lew, design associate) of San Francisco, emphasized maritime themes when designing it. The difference between the marine influence here and a lot of the obvious nautical hokum on nearby Jack London Square, a private redevelopment area of the waterfront, is that the bank's design has been done with taste and a sense of fun.

The nautical themes are not the phony anchors, ropes, and bollards to be found on the Square, but rather subtle references to the elements found in ship design: forms with rounded corners, spar-varnished wood, sheet metal detailing, and bright, slickly painted (or laminated) surfaces.

The bank is a remodelled part of

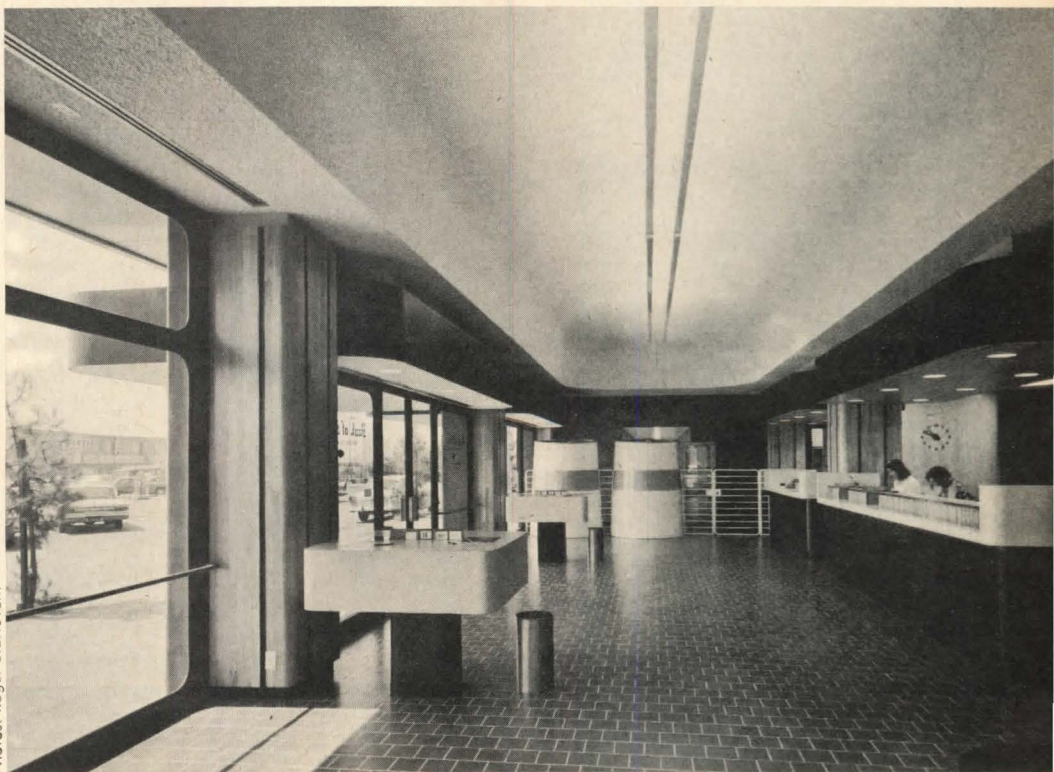
an old reinforced concrete warehouse (there is an active warehouse and produce mart section just to the northeast). Curved, steel-faced canopies extending into the banking hall occur under the shallow canopies of the existing building in order to distinguish the bank entrances. One-quarter-in. solar gray plate glass windows set in one-piece steel frames with curved corners give views in and out of the public space. Inside, the curvilinear theme is continued in straightforward materials: varnished wood column covers; plastic-laminate check writing desks on pedestals; more curved canopies over the tellers' stalls "to establish at the point where the public transacts its business with the bank a more intimately scaled space than the main banking hall"; and a coved ceiling of acoustical plaster over the main hall. Wax-finished clay tile, sisal matting, and walls of rift cut white





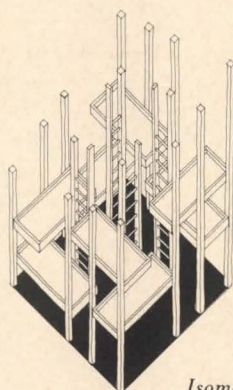
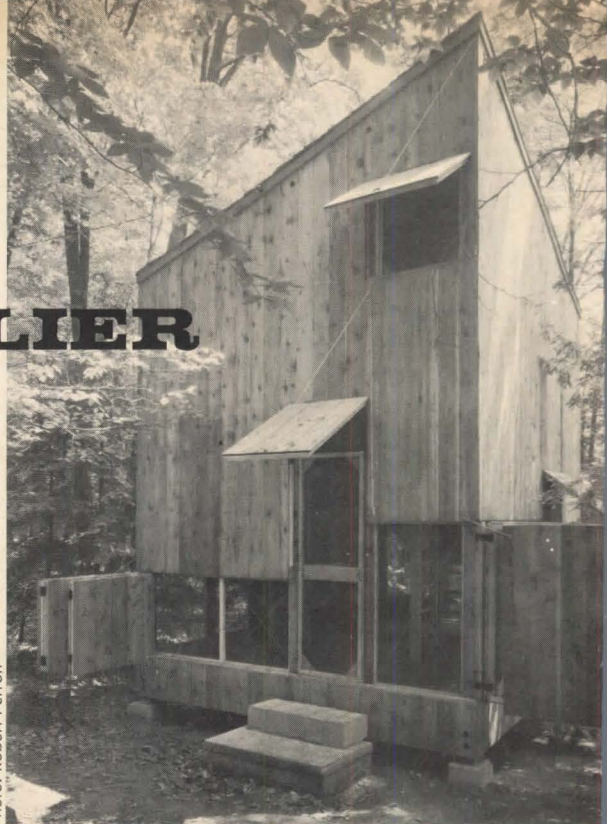
oak with random, matched face veneer and grooveless, butt joints complete the effect of an elegant performance. All except for the two coupon booths that stand as sentinels at the entrance to the vaults. Here, the architects decided to have a little fun and add a bit of colorful whimsy. The booths are almost literal references to steamship funnels, being truncated cones cased in cold-rolled steel with sheet metal batts and self-tapping screws exposed, all lacquered in gleaming white with a bright orange stripe. This is quite successful and adds just the light-hearted touch that an otherwise rather retiring interior needs. It also reflects the many good architectural and planning happenings in Oakland (SOM's new arena, Kevin Roche & John Dinke-
loo's art center, Okamoto & Lis-kamm's proposal for center city) much better than the tacky, touristy stuff over at Jack London Square.

Photos: Roger Sturtevant

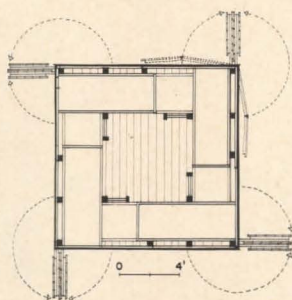


OUT OF THE ATELIER AND INTO REALITY

Photo: Robert Perron



Isometric



Cabin Plan

The cabin is a single volume in which eight bunks step around a central space in an interlocking manner to create a variety of semi-private subspaces for dressing, sleeping, storage, entering, and playing. Exterior walls between beds lift in panels and fan outward, allowing the forest to enter. In winter, the walls are battened down to present an extremely buttoned-up face to elements and vandals. Structurally, the cabin is a bolted cage of posts, single and double girts, and diagonal bracing members sheathed vertically with rough-and-smooth sawn cedar. The outer columns are integral with interior ladders to form "towers" from which the bunks cantilever. The double girts serve on the interior as frames around plywood platforms on which the mattresses are supported, and on the exterior as the skeleton for siding. The four corner posts extend down to rest on concrete piers. Cost of the 159-sq-ft, 2230-cu-ft cabin was \$1200.

Since the appointment of Charles W. Moore as Chairman of the Department of Architecture at Yale, things have been taking on a decidedly non-ivory-tower aspect. Not that such illustrious predecessors as Rudolph, Schweikher, and Howe were any slouches at leading and inspiring, but Moore's technique these days seems to be to get the students right out of the New Haven atmosphere and right down to the heady atmosphere of the client argument, the less-than-glamorous activities of figuring budgets and scheduling construction, and the hands-in-the-dirt experience of pouring foundations and putting up siding.

This started as an elaboration of the customary design problem and jury crit process, *plus* the added dimension of a real building for a real client to be built by the students. William P. Hersey, now a thesis student working in Moore's New Haven office, recalls that his 1965 problem (under critics Peter Millard, Ralph Drury, and Paul Mitarachi) was to design and construct a simple cabin for counselor and seven campers at Camp Farnam, a summer camp for underprivileged children in Connecticut. The first design crit saw the unveiling of as many "personal statements" as there were designers. The client, who was acting as a jury member, walked out. Drury said, "We asked for a hot dog, and got food until midnight. This isn't the universe, you know." Back to the old drawing board went the students, to emerge with simplified, more realistic solutions to fit the

\$1200 budget. Hersey's scheme was selected and footings were poured before the first frost of 1965. On the return of buildable weather, the cabin was finished (with the aid of a fluctuating team of classmates), and proved to be immensely popular with the campers. "They loved it so much they had to have drawings to see who would stay in it," says Hersey. Although this was to be a prototypical design, Camp Farnam has not repeated it in other units yet, despite its popularity. The \$1200 budget was met, despite the students' being "taken" by a lumber supplier ("one of the lessons," Hersey says philosophically).

The designers-builders did not just walk away when the project was completed; they have been in touch with opinions (good) and developments (not so good — in the name of maintenance and "organization" protection) since. "The enormous virtue of constructing student designs allows for feedback of information on how the building is used," according to Hersey. "This kind of information can never be derived from the usual school 'paper-architecture.' The opportunity for this to happen is invaluable, and requires that the student not go around beating his brow about the terrible mistakes he made, but rather to be observant in a non-neurotic way to how he might have done things better."

This past summer saw the completion of another student project, this one for the first year, with a more extensive social background and of greater complexity than the

summer cabin. Alberto Lau, a member of the team that designed and built the community center of New Zion, Ky., tells how it happened:

NEW ZION COMMUNITY CENTER: A NEW EXPERIENCE IN ARCHITECTURAL EDUCATION

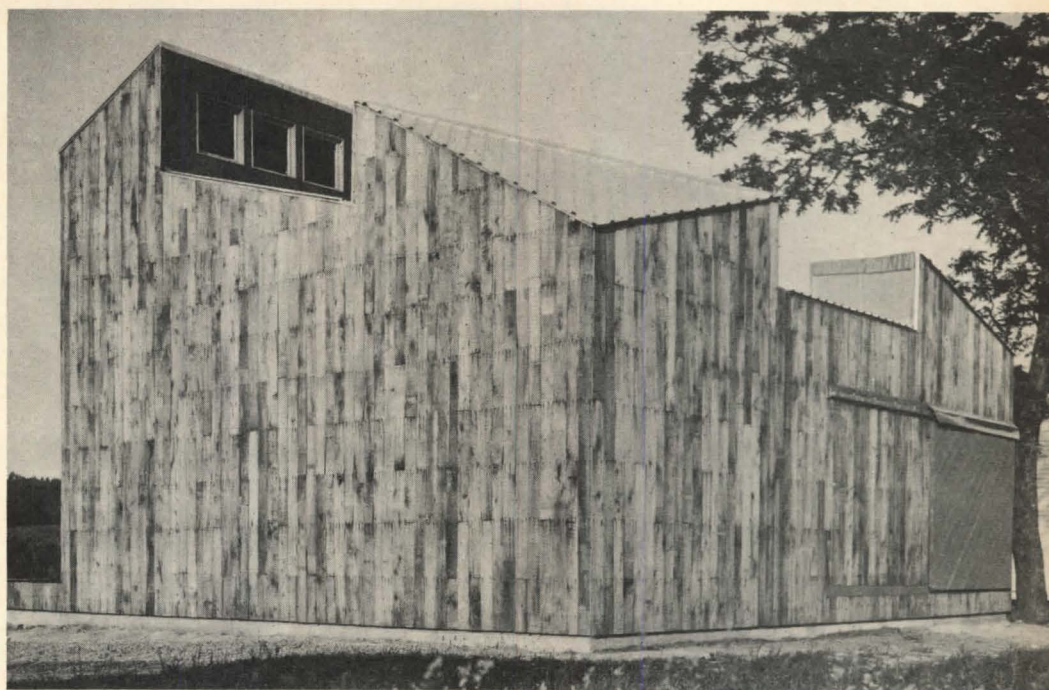
Architects are among the few in the arts who do not deal directly with their medium. Strictly speaking, few architects build the buildings they design; they have somebody else do it for them.

Students of architecture are in a doubly difficult position. Like the professional architect, students employ substitutions (drawings, models) for the real thing. But for the student the "real thing" — building, city, or landscape — is more frequently imaginary than real. The usual way of teaching architecture is to set up an artificial problem and work out an imaginary solution.

There is another parallel problem. Up to now, the training of architects has dealt only marginally with social problems. But as a group of students at Yale has put it, there is now "a new social sensitivity and awareness." Architecture students are no longer satisfied with becoming involved solely in design problems; they also want to participate in real social processes.

A number of coincidences at the Yale Department of Architecture made possible an approach to these problems. First, the appointment of Charles W. Moore as Chairman of the Architecture Department in June 1965. Moore resigned from the chairmanship at Berkeley to come to Yale, and was the successor to Paul M. Rudolph. Moore is interested in an ecological approach to architecture. Thus, he was very sympathetic to the student's concern for dealing with social problems.

Second, there was a group of students in last year's first-year class who were determined to get involved with the problems that exist in our society. Bob Swenson, one of the students, had done some work in political organization in Kentucky. He knew Father Ralph Beiting, Director of Christian Appalachia Project, Inc. Father Beiting introduced the students to a low-cost private housing project in eastern Kentucky. The students decided to spend the summer working on this project. They named themselves "Group Nine," and soon discovered two other architectural projects in the area. One was a housing relocation project in Carr's Creek, Knott County. The other was a community center for the New Zion Community



Association. "Group Nine" decided to concentrate on the first two projects and leave the New Zion community center for the new first-year class.

Thus the problem was waiting for us by the time we came to school last September. Moore had decided to include the New Zion project in the curriculum rather than let it go as an extracurricular activity. He also decided to teach the first-year class himself, an unusual burden for someone with the responsibilities of the chairmanship. (Furthermore, he decided to relieve "Group Nine" of the usual academic requirements for their second year, and let them pursue their own interests. One of the members of "Group Nine," Tom Cary, became so interested in what was going on in that part of Kentucky that he decided to take the year off and stay there. He was of great assistance to us in coordinating our efforts.)

We were to design this community center in consultation with the New Zion Community Association (NZCA) and then go down in the spring and build it ourselves. We sent small delegations of students to talk with the people of New Zion to find out what their community needs were. NZCA was formed by people in New Zion to elicit community action. Their application for money from the Office of Economic Opportunity to build a community center was rejected, but they managed to buy a half acre of land anyway.

According to Hal Simmons, a resident of New Zion, about 24 families

have been participating actively in NZCA. They were reticent to speak out during the design process, and it soon became obvious that they were giving us a lot of leeway in terms of both program and design. The only real change in program initiated by them was the elimination of a crop shed because the location of the site was inadequate for trucks. I personally wish that, programmatically, they could have helped us more. But the distance between New Zion and New Haven made it difficult to have continuous communications.

The final design selection for the community center was decided on through a competition among groups in the class. There were six groups ranging in size from four to nine students each. At first, the groups had names of specific building technologies, such as "Stud and Skin," "Plug-In," "Land Formation," "Heavy Timber." Some groups preserved their exotic names, others changed them due to the unfeasibility of their particular building technology. "Plug-In," for instance, became "Group-Group" [which seems no less abstruse. — Ed.].

Three of the six solutions were chosen by the faculty as representing those qualities desirable in a building of this type. One of them was finally chosen by the students. This was "Group-Group."

It was felt that the building should present the image of something new and fun and exciting. It was important that the scale of the building be "undomestic," and for it to promote the happening of unexpected things.

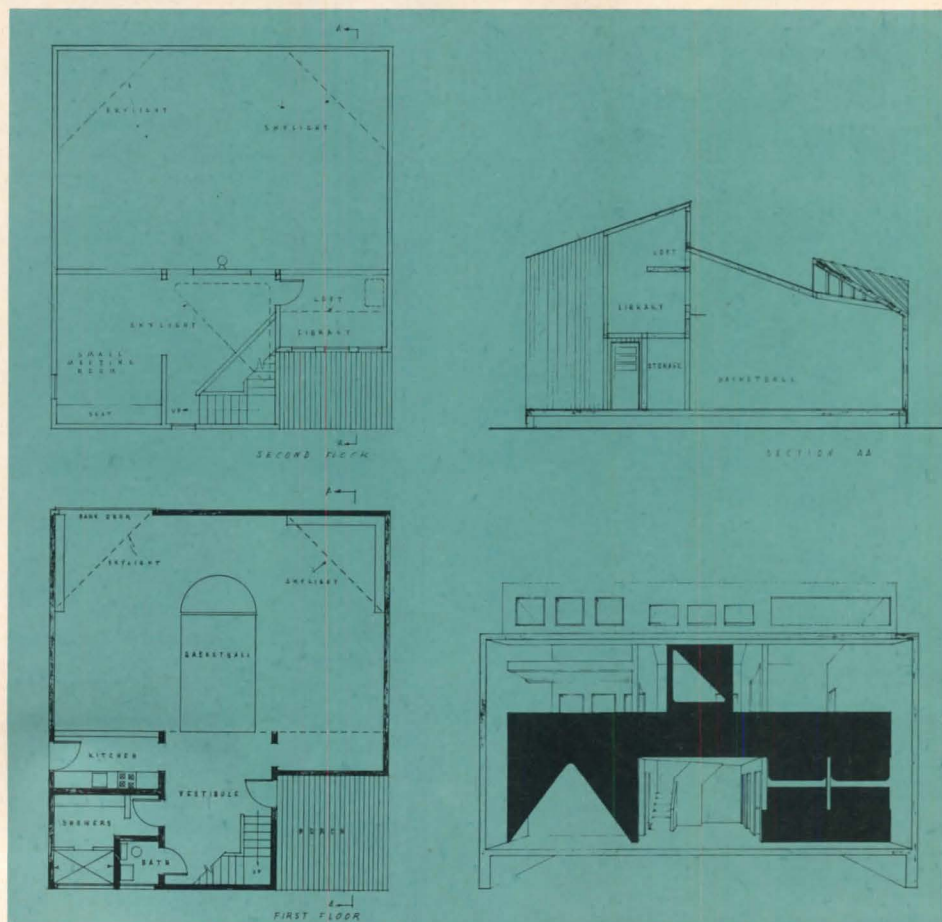


To a great extent, the success of the community center is dependent on the involvement of the young people of New Zion.

The program called for a number of small spaces — kitchen, toilets, shower, stairs, small meeting room, library, storage — and a large multipurpose room. This large space will be used primarily for meetings and basketball, but it can also serve as dance floor and dining room. It seemed appropriate that the small spaces look into the large space and to the outside, so that the users could observe the activity around them. This established the south interior wall of the large space as a wall full of goodies, with the basketball ring on it, the small spaces with their variety of functions behind it, and light streaming from the triangular skylight at the top. In this same spirit of fun and excitement, we provided a small loft and a barn door. The loft provides the opportunity to experience the height of the building from the interior and gives a view to the north. The barn door gives access to the most spectacular view on the site. A window, while providing year-round access to the view, would have been difficult to protect from basketball attacks. The barn door is a major event because of its size. It also provides easy ventilation and free access to the outside during the summer.

The building is lit by three skylights and a few small windows. The triangular skylight over the stairs, made of corrugated glass fiber, was a simple and efficient way to provide light for the vertical circulation and the entrance below. The corner skylights, which we call "ears," were a response to two needs. First the requirement of a large amount of indirect light for basketball with a protected glazed surface. Second, the need to enhance the large basketball space so as to be able to perceive it as something other than a large space without compromising its flexibility. The corners offered conditions that could take advantage of the variation in light from morning to late afternoon.

A critical path method (CPM) was developed to aid us in determining the construction schedule and to allocate manpower. As planned, we were to spend only 18 days on the



site with the 30 students of the first-year class participating. There was a group of eight students who worked on the foundation the first week. Then we all drove down and joined them to finish the building. During the next 11 days, we planned to do the structure, the roof, and the exterior walls. We also wanted to do the interior walls, the plumbing, and the electricity, but did not intend to do any interior finishing.

Arriving on the site early one Saturday morning was like a miracle. The group of students who had come down for the first week had already laid down the perimeter foundation and some floor joists. By noon that same day, we had finished the first-floor rough flooring. At that time, in spite of having started a day late on the foundation, we were a day and a half ahead of schedule. Our problems came later.

In general, we were ahead of the schedule indicated by CPM during the first two weeks. Then a set of converging factors set us back. It rained almost every other day, and

Mount Zion photos: Alberto Lau





once it poured continuously for two days.

We made a miscalculation in determining when, during construction, we could use *all* 30 hands. When we were all there, there just were not enough jobs to go around. People would stand around like vultures, nail and hammer in claw, ready to pounce on the next stud. Near the end, when most of the building was up and a diversification of tasks was possible, we were undermanned because some of us left to meet other commitments back in New Haven. Thus, things such as putting the oak siding up took a long time.

Strictly speaking, for a building of this size, CPM was unnecessary. But it was helpful to students in giving instant information on how the building was proceeding. Except for the error noted above, it was useful in allocating manpower. For a situation such as ours, in which there was abundant manpower but little time, it certainly was a helpful organizing tool. We ended staying a week and a half more than expected,

but, considering that it rained for half of that time, we were not too far over in our expectations.

We did not do certain things that we had planned to do, however. We gave up putting in the plumbing because of unforeseen soil conditions. The surface of the site is almost pure clay, and immediately underneath it is sedimentary rock. To dig a hole 5 ft in diameter and 8 ft deep for the septic tank we had to use dynamite. The morning after the night's rain we found it full of muddy water, with frogs swimming in it.

We did not have time to finish the interior. A few of the students, however, are planning to go back during the summer and do some work.

Faculty involvement during the design process was mainly through criticism. The construction of the building was totally student-run. Peter Woerner, one of the students, appointed himself job captain. His favorite command was, "Tear that down and do it again!" Most of the faculty, including Chairman Moore, came to visit for a few days and were put immediately to work.

For us, the educational value of this building was very great, more than any other project done in school. First, we were dealing with a special kind of client. We had to deal with people who are normally distrustful of outsiders due to frequent disillusionment. One of the abiding facts about this building is that we fulfilled our promise to them. As a resident of New Zion said, "What's important is that you boys said you would do it and did it."

We learned a lot through coming in direct contact with construction. Design decisions were made with the consideration in mind that this building was to be built by the class, not by master carpenters, with a limited budget. The building ended up costing about \$4000, materials only. It would have been more, but some manufacturers kindly gave us their products, and others offered substantial reductions.

Living with families in New Zion was also a great experience. We came to understand their way of life and their way of thinking. The community center will have value if it can be adapted to their living, and, hopefully, if it is capable of changing their way of life, in some small way, for the better.

(In addition to Alberto Lau, members of this design group included Andy Burr, Tom Dryer, Tom Platt, Peter Rose, Budge Upton, Jerry Wagner, and Peter Woerner. The entire class was in on the construction.)

By way of conclusion, P/A asked Yale Department of Architecture Chairman Charles W. Moore his observations on the learning-and-doing process. His remarks follow:

Not surprisingly, one of the best ways of discovering the problems of building a building (and the joys) is to build one. Even a small, simple structure poses difficult problems of organization and logistics, as well as design, and serves as a basis for illuminating the importance of and the difficulties posed by systems (plumbing, electrical, etc.) other than the visual and structural systems that show up on paper designs.

The only issues bright students will deal with, as Roger Montgomery once pointed out, are moral issues; and the morality of bright students in the 60's is certainly a morality of *involvement*. The New Zion Community Center, which was altogether designed by the first-year students, is, I think, an extraordinarily handsome structure, with sophisticated shapes that admit light artfully. But much more important than that, it is an artifact that has brought about a complicated and powerful set of involvements, of class members with the citizens of New Zion, as they worried together about the site and hammered out a program, and as the New Zionists accepted them into their midst; and of class members with each other, as they planned the building, and overcame each others' resistances, as they organized to build it, and then as they built it together, very quickly. A student visiting from Penn delighted me by noticing with pleased astonishment that he had not heard anybody in the class say "I." Everybody kept talking about what "we" were doing. The building, the artifact, I like to think, reflects all that: It is not only a place to play (marbles or basketball or whatever), it is in the best and most useful sense itself a toy.

The New Zion Community Center had several precursors. The camp structure built by Hersey, Golz, and others in Ralph Drury's building problem (itself based on a set of precursors from Carnegie Tech) is an excellent example of the process at work. The New Zion building goes several steps further, since its very program developed from a continuing dialogue between the community and the first-year students, and since the building of the building (almost miraculously) was done by all 30 students in the class, not just by a few leaders or hustlers. The scary part for me is *next* year's first year. We'll do it again; and it's hard to imagine that things could work this well twice.

AS YE SEW, SO SHALL THEY REAP

Singer tower, 1908.

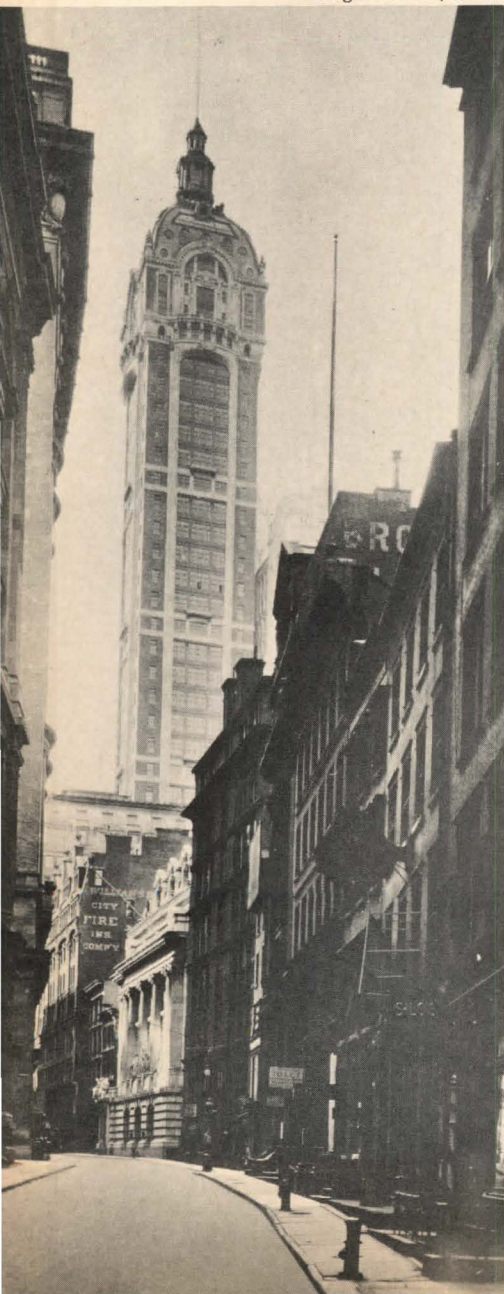


Photo: The Bettman Archive



In the heart of lower Manhattan's financial district, the Singer Building—the first skyscraper to alter radically the view from New York harbor, and the one whose rise caused by far the greatest sensation—stands vacant, awaiting demolition, as observers of the city's changing skyline await with mixed awe and dread the appearance of the World Trade Center's twin towers.

Over 60 years ago, the Singer Building's single spire of steel-frame construction was a design innovation of such importance that it received extensive coverage in scientific journals as well as the popular press, and was hailed as "a modern engineering miracle." If the tower's crossed diagonal wind bracing and unprecedented height (612 ft and 47 stories) were indeed novel, architect Ernest Flag's stylistic treatment of the exterior with brick and limestone infill was more conventional than the earlier, structurally more expressive, but smaller Singer Building further uptown, which Flag completed in 1898.

When the Singer tower opened in 1908, however, it was as impressive for its richly decorated interiors and wealth of conveniences as it was for

sheer height. From the heavy, bronze grille entrance at 149 Broadway, a series of glass-domed vaults, supported on piers of Pavonazza marble set in silver-gray Montarenti Sienna, extended back to the broad, marble staircase, on the landing of which stood a great, bronze master clock. Bronze was used also for handrails and newel heads on all staircases, for the four-fold doors of 16 elevators and for the beaded trim of the soaring piers. Exterior balconies and fascias were of cast iron, with wrought iron mullions and jambs. Cast and wrought iron was used extensively throughout the building: on elevator fronts, stairs and the original lighting fixtures, all designed by the architect.

Offices below the fourteenth floor were finished with oak trim, moldings, and partitions. Above the thirteenth floor, walls painted a light green contrasted handsomely with the wood-grain appearance of the metal trim.

Until U.S. Steel acquired the property in 1964, "the Singer people," as the *New Yorker* magazine put it, "were wise enough to leave magnificence alone." Minor changes have, of course, been made over the years.

Artificial lighting fixtures (below) have replaced original glass domes in main corridors (facing page).



Photo: Joe Covello



*Transom clock marks Broadway entrance to Singer tower (left).
Typical executive office (below).*



The old revolving doors are gone, the glass-saucer domes have been replaced by masonry, and the lighting fixtures have been changed five times since 1908. In 1957, Singer spent more than \$1 million on new, self-service elevators, and some offices have been air conditioned. But the original system of individually controlled thermostats in every office is still in satisfactory operation.

Since 1964, the building has been allowed to deteriorate. Its present owner plans, with the aid of a zoning amendment, to raze the tower and clear a two-block site bounded by Broadway, Church, Cedar, and Cortlandt Streets to make way for a 50-story, SOM-designed office structure. The new building will occupy only half the site, with a pedestrian plaza covering the block south of Liberty Street. Perhaps the change will benefit the area by bringing more light and air into the dark and narrow corridors of lower Broadway, but there is a touch of irony in the thought. Ernest Flagg was, after all, the first to recognize the advantages of a set-back height limitation for skyscrapers, and his Singer tower set the example for codifiers of New York's zoning laws in 1916. — JP

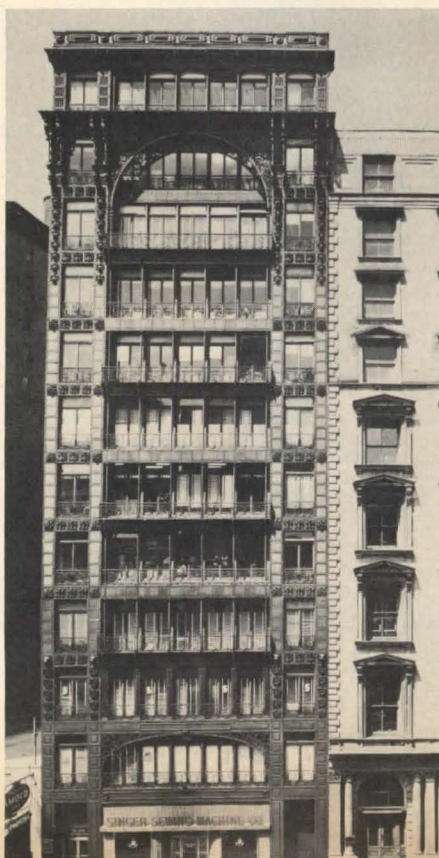


Photo: John Ebstel



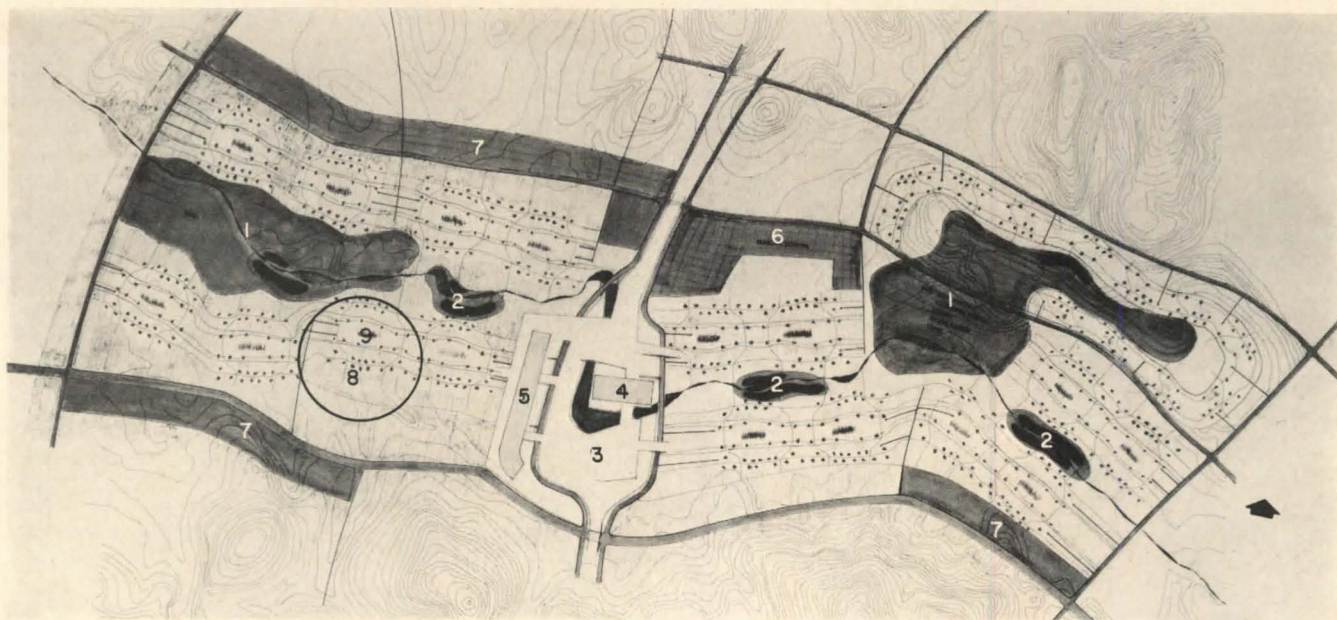
Photo: Joe Covello

*Iron grillework remains despite installation of self-service elevators (above).
Singer Building on Prince Street, 1898 (left).*



NIGERIAN NEW TOWN





Master plan: (1) educational park; (2) elementary schools and religious places; (3) main vegetable market; (4) community buildings; (5) stores; (6) municipal hospital; (7) greenways; (8) neighborhood colony (circled); (9) neighborhood market. Each dot in residential areas represents cluster of five dwellings.

Unrest and dissension have sadly affected Nigeria, one of the largest developing nations of Africa. The significant progress this country has made in the past hopefully will not be greatly set back by its present problems. If a rising group of young professionals can overcome inter-regional and intertribal disputes, perhaps a unified Nigeria can emerge.

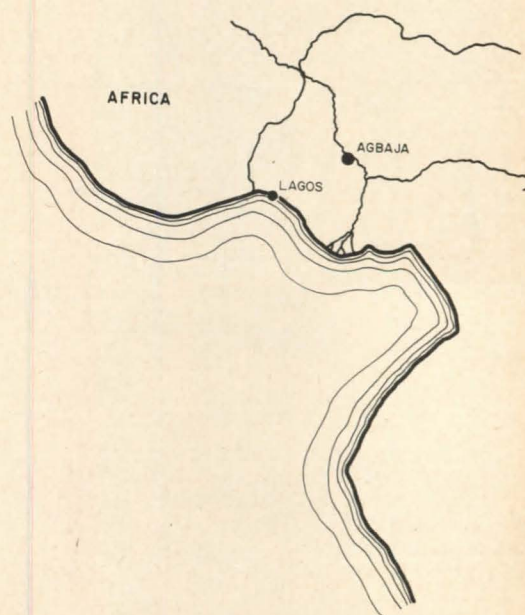
An example of the new Nigerian is David Olatunde Aradeon, who recently graduated from Columbia University School of Architecture and is currently working with the respected New York firm of Oppenheimer, Brady & Lehrecke. Aradeon chose as his thesis project at Columbia a proposal he says can achieve actual realization in his country, and which has, indeed, already occasioned interest on the part of some officials. This is the development from the status of a tiny bush village to a populous community around an iron ore operation of the present hamlet of Agbaja in east central Nigeria.

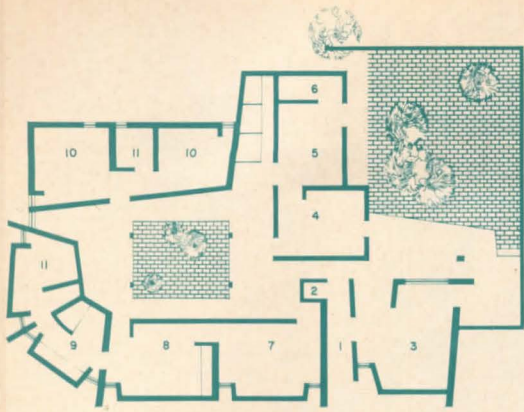
Agbaja is in reality in an area currently being developed by Nigeria, together with various foreign consortiums, for iron-ore mining. Aradeon's concern in fashioning a growth plan for Agbaja was "precisely how can iron-ore mining activities be integrated into a traditional society such as Nigeria's without 'bulldozing' the pattern of life in the country?" In other words, his thesis project mirrors in microcosm the problem of bringing a somewhat

"primitive" area into the mainstream of contemporary life without sacrificing the continuity of certain traditional ways of life.

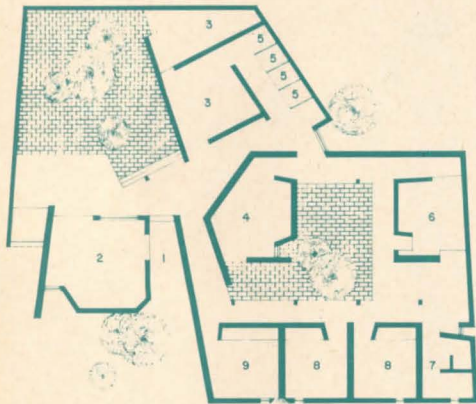
In Nigeria, according to Aradeon, the individual owes allegiance in varying degrees to the tribe, the "larger family" (second and third cousins, and so on), the state, and its industrial complexes. But the extended family and its institutions still form the social matrix on which Nigerian life is based; even in cities, where this concept has been intruded upon by social mobility and other contemporary social and economic factors, the people continue to show preference for the neighborhood family. The new industrial society of the country, the designer says, will be 72 per cent low-income, nonskilled people; 22 per cent middle-income, white collar; and 5 to 6 per cent high-income, professional and executive people. This breakdown is shown in the plan for Agbaja, but Aradeon has attempted to provide a social and economic integration in his community — the extension of the family system — by focusing on the larger problem, then taking it down in smaller and smaller cluster arrangements, always preserving the "mix" of people from different walks of life.

Agbaja, presently numbering 1500 people, is in a valley 700 ft above sea level. Its current facilities are those of the usual rural settlement with a farm economy: school, dispensary,

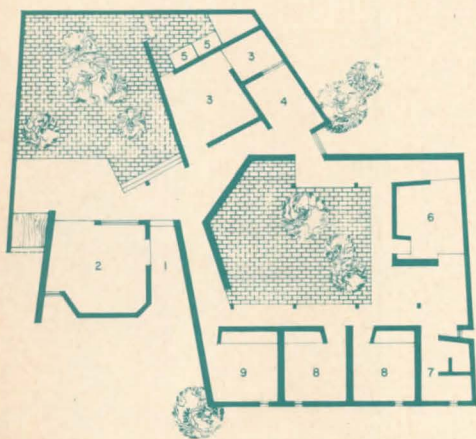




High-income housing: (1) entry; (2) closet; (3) living space; (4) dining; (5) kitchen; (6) storage; (7) study; (8) master bedroom; (9) dressing room; (10) children's bedroom; (11) bathroom.



Middle-income housing: (1) entry; (2) living space; (3) kitchen and kitchen yard; (4) dining; (5) chicken coops; (6) master bedroom; (7) bathroom; (8) bedroom, wives no. one and two; (9) children's bedroom.



Low-income housing: (1) entry; (2) living space; (3) kitchen and kitchen yard; (4) dining; (5) chicken coops; (6) master bedroom; (7) bathroom; (8) bedroom, wives no. one and two; (9) children's bedroom.

post office, a government rest house, and four isolated living compounds. The iron mine site is three miles northeast. In this area, extending three miles east-west and one mile north-south, Aradeon plans in the first 15-year phase to build the eastern part of the valley for 20,800 people. In the next 10 years, the western part of the valley and the civic center would be built, accommodating 12,600 people. Subsequent population increases would take place in a green belt ringing the site. Development would be linear, along a small river threading the valley floor. There would be two "educational parks" — one in the eastern and one in the western part of the town. They would each contain one vocational and one academic high school, a library, a clinic, and sports facilities. Elementary schools and places of worship would be spotted along the linear pattern, generally near the river.

Circulation would separate pedestrian (32 per cent), bicycle and motorbike (60 per cent), and automotive (5–8 per cent). A major vehicular four-lane road would run east-west through the town, connecting with ancillary two-lane roads extending to living compounds. Two spines would run through the middle of the site to the northeast at the mine site; these would also service the vegetable market and civic center. Bicycle paths would run east-west and feed into the peripheral road system, paralleling it. Pedestrian paths would run both east-west and north-south, bridging wherever they crossed a vehicular road.

The eventual civic center would be the commercial and governmental node of the town, containing the main open-air vegetable market that meets twice a week, a new supermarket, municipal and government buildings, and a social center. The river would be developed to furnish a strong visual focus here.

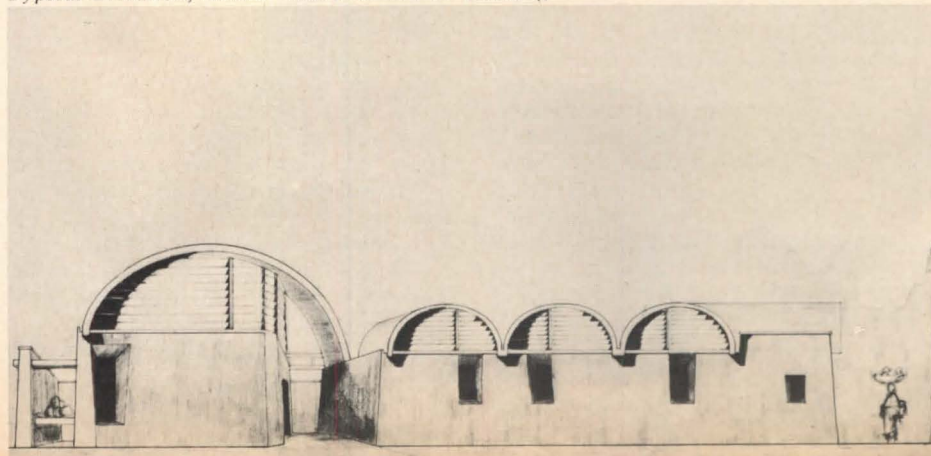
The principal element of the Agbaja plan, however, is the neighborhood colony and its subsidiary units.

This is where the preservation of Nigeria's emphasis on the larger family is strongest. Each colony would consist of 208 households, a total of 1600–1664 people. It would cover about 52.3 acres, being served by its own local marketplace and an elementary school and places of worship. Households would be clustered in groups of five within the colonies (each dot on the master plan represents a cluster). Four neighborhood units of 11 household clusters each would comprise every colony: units consisting of 52 households, or 416 people. There would be a neighborhood plaza for pedestrian activities and street selling, a laundry place, public conveniences, and a 1-acre park and playground.

Middle-income groups would provide linkage economically, socially, culturally (African-East-West), and, in plan, even physically between high-income and low-income families within the clusters. The neighborhood is so planned as to be socially and economically integrated, and, according to Aradeon, "help generate more easily a feeling of neighborliness." The high-income housing would have more facilities (carports, etc.) unnecessary in the others. Middle- and lower-income housing would be similar, with more room in the former, presumably because more of the "larger family" would be housed (in Nigeria, relatives traditionally can count on the hospitality of the householder for periods extending into years). Both middle- and lower-income houses would have store space for the retailing activities of the housewife, a Nigerian custom Aradeon recalls his mother pursuing.

The cluster space would be an open compound whose walls and trees would serve the purposes the walls and trees of traditional compounds have always served: as a meeting place and refuge from the heat. Within his over-all plan, the designer has included several changes in the arrangement of these spaces. Neighborhood units rather than individual houses have been situated to create

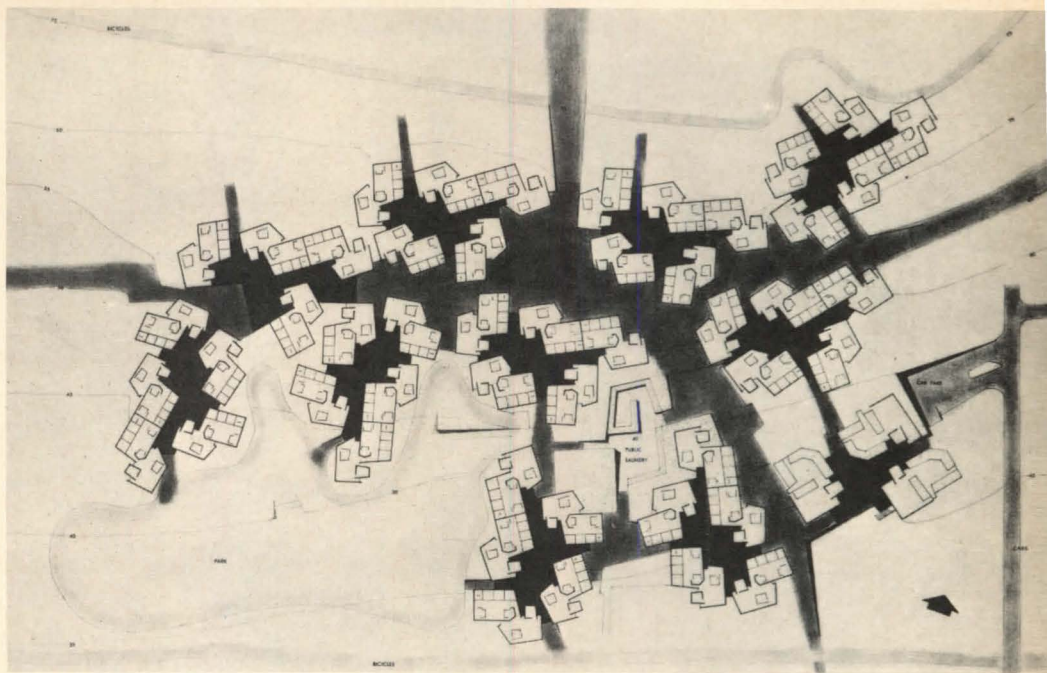
Typical Elevation, Middle- and Low-Income Housing



cross-currents of air through entire complexes. Roof louvers, courtyards, and kitchen yards would promote circulation in the houses themselves.

Construction would be monolithic terracrete (earth stabilized with portland cement). Bedrooms and living rooms would be roofed with bamboo-reinforced terracrete poured on site. Other spaces would be roofed with wood beams and terracrete with bamboo reinforcing. Courtyard floors would be brick; others, terracrete. Openings would consist of screens, adjustable wood louvers, and adjustable metal-framed glass louvers for windows.

"We must anticipate the social consequences of industrialization," says Aradeon of his iron-ore town plan. If his countrymen could turn from internal strife to the potentialities for social and industrial progress illustrated by this proposal, Nigeria could become a major contributory nation.



Neighborhood unit: 11 clusters.



Detail photo of model showing clusters and mutual open spaces.

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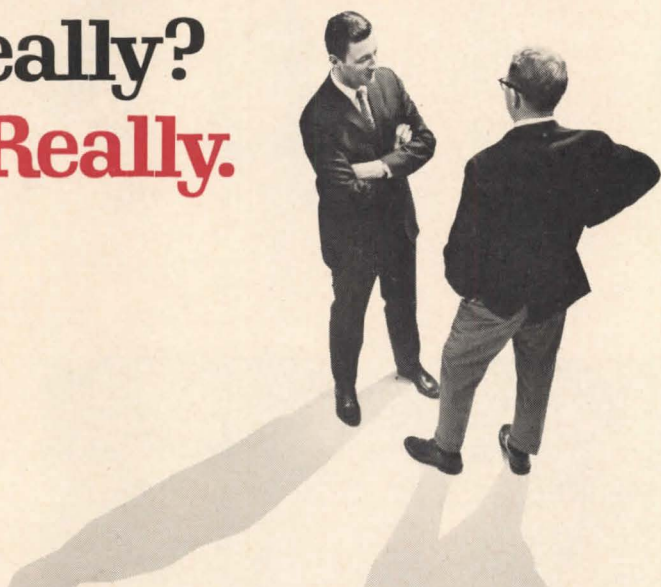
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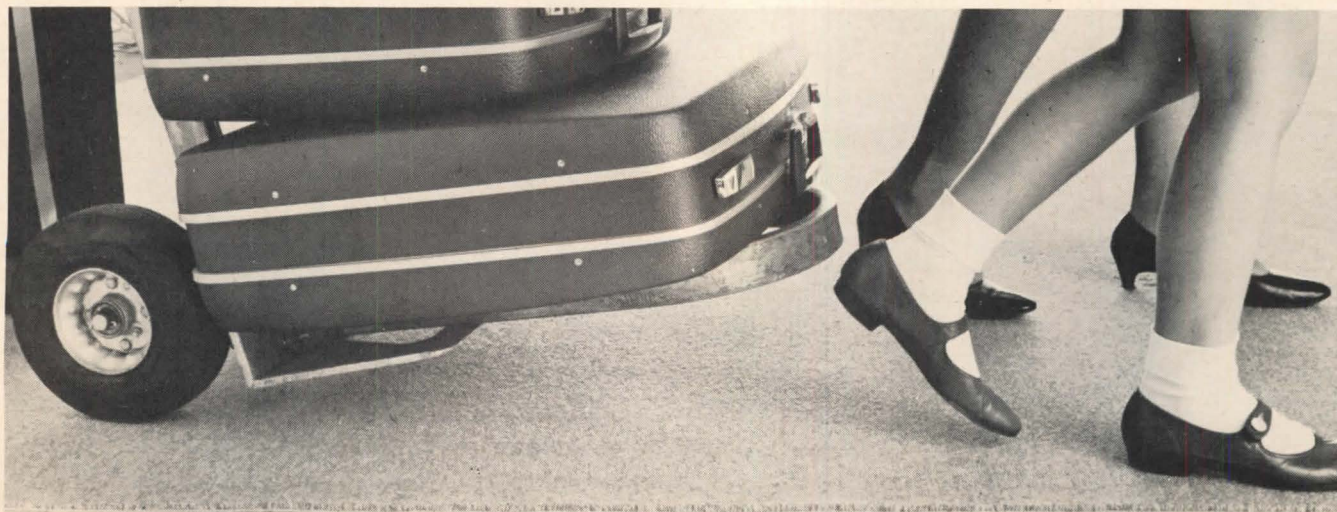
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REPORT GUIDES DECISION FOR TOTAL ENERGY

BY WM. J. MCGUINNESS

Under favorable conditions, some schools can now generate their own electric power and save money. McGuinness is a practicing engineer in New York City.

A recent technical report by Educational Facilities Laboratories, Inc. (EFL), is an invaluable aid to the administrators of schools and colleges and to their architects, who must judge the feasibility of total energy installations for proposed educational buildings.

Total energy is a method of on-site electric power generation that also provides for year-round air conditioning, (heating and cooling) and domestic hot water. This type of installation, operating on gas or fuel oil, is independent of local electric utility companies, and affords, under appropriate circumstances, great savings. It is presently in use in many educational buildings, nine of which are described in this report. These descriptions, together with eight pages of charts, simplify the preparation of preliminary feasibility studies.

If the results of the preliminary study suggest that a total energy system may be appropriate, then an engineer should be consulted to confirm the decision, and, if indicated,

prepare detailed designs. The latter half of the report is an aid to the engineer in the design of the system.

History of Total Energy

The generation of electrical power at the building site is not new. At the turn of the century, it was a very common practice; many buildings produced their own direct current. Later, when the increasing use of alternating current facilitated the long-distance distribution of power with low power loss, the development of the central electric power companies increased. Beginning in the 1930's, buildings removed their private generators and tied into public utility lines.

To some extent, this trend is now reversing. There are specific and new reasons for this. Notable among these are the greatly increased use of air conditioning, recently developed means for recovering the energy formerly lost in the hot exhaust of small gas- and oil-fired generators, and the ability to use that energy to provide summer cooling.

Thus, total energy has been born and finds its uses not only in educational buildings but in many other applications, among them supermarkets and industrial buildings.

Favorable Conditions

Total energy is likely to be feasible when:

- Electric power demand is high and fairly constant

throughout the day and throughout the entire year.

- Comfort cooling is included.
- The building's demand for heating or cooling and its demand for electric power coincide.
- Utility electric rates are high.
- Fuel oil or gas costs are low.

Schools and college buildings often meet the first three of these conditions. The type of school most likely to be found suitable for total energy would have the following program:

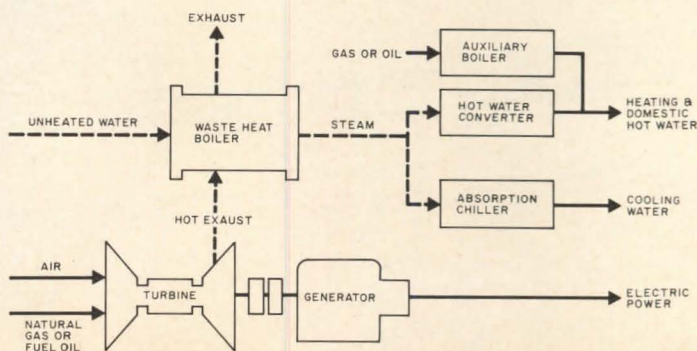
- A 12-months school year.
- Classes five days per week.
- Occupancy from 8 A.M. through 4 P.M.
- Evening classes four nights per week: 6 P.M. through 11

A type of school least likely to be suitable for total energy would have the following program:

- A nine-months school year with summer recess.
- Classes five days per week.
- Occupancy 8 A.M. through 4 P.M.
- No evening programs.

How Total Energy Operates

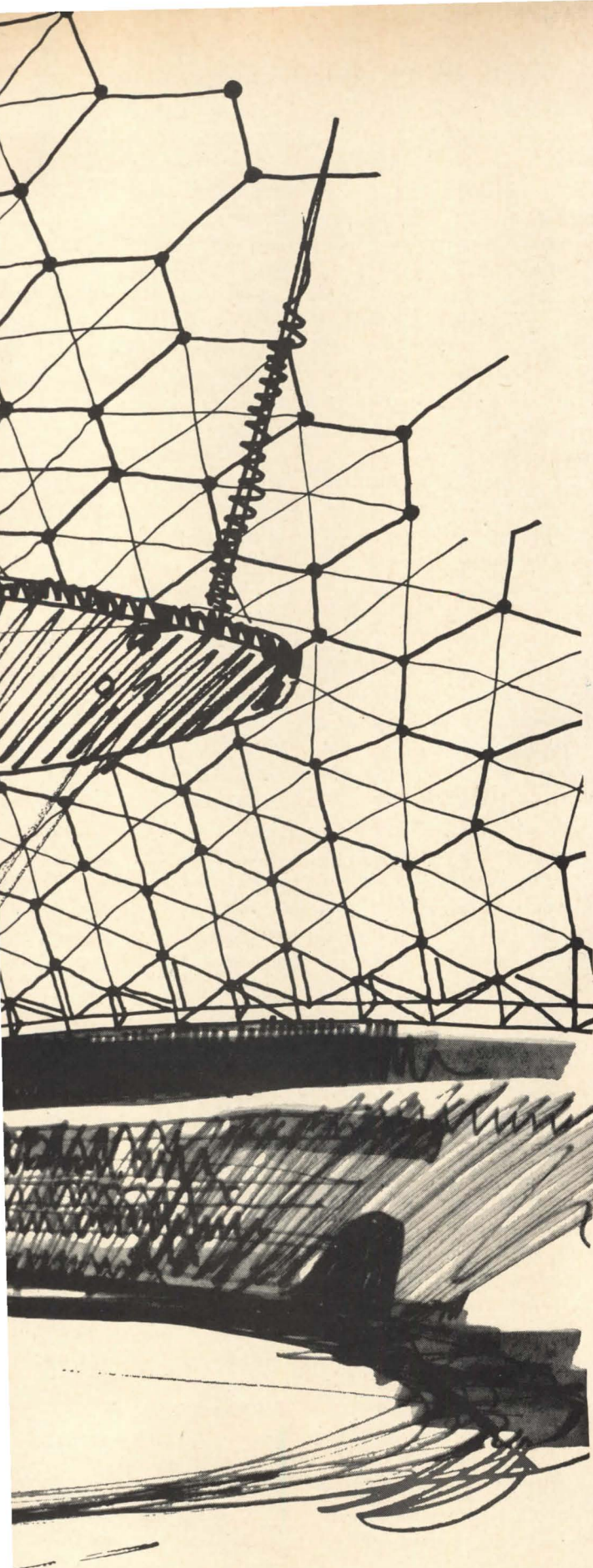
An electric generator is powered by gas or fuel oil in a turbine or reciprocating engine. Exhaust heat rejected by the turbine or engine is reclaimed in the form of either steam or hot water. It is then used for heating and domestic hot water or, through an absorption-type refrigeration machine, for cooling.





SYMBOL OF
TODAY'S BEST BUY





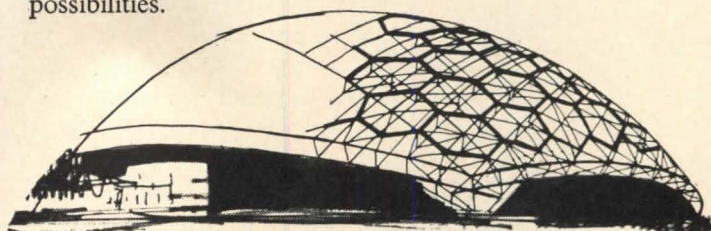
No columns to spoil the view. Five support points for this geodesic dome are at outside ground level. Built over a natural depression or excavated, the below-ground interior adds height to the structure. The suspended grid houses lighting and other equipment.

A theater-in-the-round, year 'round. Here's an idea that works— with J&L A-36 pipe.

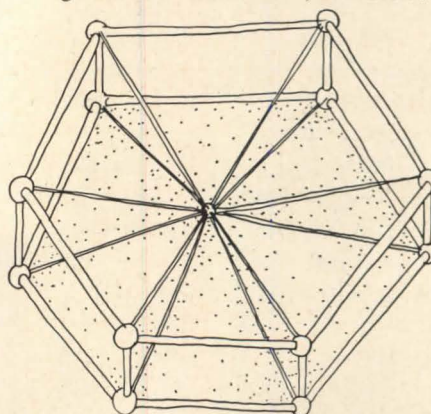
Now steel pipe is entirely practical for use in domes of all types. The reason is A-36 pipe. Developed by Jones & Laughlin, this steel pipe was designed specifically for construction use. It's strong, easy to work with, and costs less than other structural metals.

A-36 pipe meets the chemical composition and mechanical property requirements of ASTM A-36 and has good weldability. Its strength — 36,000 psi minimum yield and 58,000 psi minimum tensile — permits the use of higher unit stresses for more economical design. Yet this higher strength costs no more than ASTM specifications such as A-120 or A-53.

This new product from J&L is an ideal choice for many types of structures. Space frames, bridges, industrial and commercial buildings, towers. You'll find many suggestions for good use of A-36 steel pipe, plus engineering data, in our new A-36 Construction Pipe Catalog. Send for a copy today. It could open up a whole new world of design possibilities.



Big top with steel ribs. The strong architectural form of the geodesic dome invites recognition and adds interest, both inside and outside.



Make a good connection. The use of hemisphere connectors simplifies unit assembly by eliminating the need for coping. Roof covering can be translucent or opaque, suspended from the bottom as shown, hung between or put on top.

Architectural concept: Outcalt-Guenther-Rode and Bonebrake
Engineering consultants: Barber & Hoffman

Jones & Laughlin Steel Corporation
3 Gateway Center, Pittsburgh, Pennsylvania 15230



MAXIMS OF SPECIFICA- TIONS WRITING: PART 2

BY HAROLD J. ROSEN

The second of two articles discussing useful guidelines for better specifications writing. Rosen is Chief Specifications Writer for Skidmore, Owings & Merrill, New York.

This column continues its presentation of maxims for specifications writers by E. Griffith Edwards, an architect and authority on specifications:

Maxim No. 3—Use Simple and Clear Language: Be specific. Avoid the use of indefinite words or clauses. Under this maxim, there are the following submaxims:

(a) Use *shall* in connection with acts of the contractor, but use of the simple imperative mood is even better. For example: (Poor): Brick will be laid in running bond. (Better): Brick shall be laid in running bond. (Best): Lay brick in running bond.

(b) Avoid the use of *must* and *is to* and substitute *shall*

or the simple imperative mood to prevent the inference of different degrees of obligation. For example: (Poor): Each joint must be filled solid with mortar. (Poor): Each joint is to be filled solid with mortar. (Better): Each joint shall be filled solid with mortar. (Best): Fill each joint solid with mortar.

(c) Do not use *any* when a choice is not intended, since *any* implies a choice. For example: (Poor): Any materials rejected shall be removed. (Better): Materials rejected shall be removed. (Best): Remove rejected materials.

(d) Do not use *either* when a choice is not intended. For example: (Poor): Glass panels shall be installed on either side of main entrance. (Better): Glass panels shall be installed on both sides of main entrance. (Best): Install glass panels on both sides of main entrance.

(e) Do not use *same* as a pronoun. For example: (Poor): If materials are rejected, the contractor shall replace same at no additional cost. (Better): Replace rejected materials at no additional cost.

Maxim No. 4—Write Specifications Directed to the Contractor. The contractor always sublets most of the work. Efforts should be made to separate properly the requirements under appropriate technical sections to facilitate this. Avoid the use of "mechanical contractor," "plumbing contractor," "heating contractor," and similar designations. For example: (Poor): The electrical contractor shall provide high-voltage control wiring, and the heating contractor shall provide low-voltage control wiring. (Better): High-voltage control wiring is specified in Electrical Section. Low-voltage control wiring shall be provided under this Section.

Maxim No. 5—Make Specifications a Reference Text. A logical arrangement of date covered by the specifica-

tions becomes mandatory to facilitate reference.

(a) Arrange Sections under CSI Format.

(b) Arrange articles and paragraphs within a Section in a logical order.

(c) Arrange sentences within a paragraph in a logical order.

(d) Provide titles for all articles. Accomplish this by choosing key words reflecting the contents.

(e) Capitalize for easy reference: e.g., Owner, Contractor, Architect, Agreement, General Conditions. [Not done elsewhere in this article, since it is not P/A style. — Ed.]

(f) Do not use long articles covering several phases of one subject. Instead, break the article into paragraphs and give titles for ready reference and better comprehension as follows. For example:

(Poor): "Tests: Materials used in this work shall be tested by the manufacturer before shipment. Drainage and vent piping shall be tested before fixtures are installed by capping or plugging the openings, filling the entire system with water and allowing it to stand thus filled for three hours. Water-supply piping and hot-water tanks and heaters inside the building shall be tested by capping or plugging the openings, connecting up a test pump, filling the system with water and applying a hydrostatic pressure of 150 psi. Water piping may be tested before fixtures or faucets are connected. Each fixture shall be tested for soundness, stability of support, and satisfactory operation of all its parts. Piping shall be absolutely tight under test.

(Better): Tests: Materials used in this work shall be tested by the manufacturer before shipment.

(a) Drainage and vent piping shall be tested before fixtures are installed by capping or plugging the openings, filling the entire system with wa-

ter and allowing it to stand thus filled for three hours.

(b) Water-supply piping and the hot-water tanks and heaters inside the building shall be tested by capping or plugging the openings, connecting up a test pump, filling the system with water and applying a hydrostatic pressure of 150 psi. Water piping may be tested before the fixtures or faucets are connected.

(c) Fixtures: Each fixture shall be tested for soundness, stability of support, and satisfactory operation of all its parts.

(d) Piping shall be absolutely tight under test.

Maxim No. 6—Use "Or Equal" Sparingly. There are several alternatives.

(a) Do not use "or equal" when a proprietary product is really desired.

(b) Specify the composition, quality, or performance required and accept any brand meeting the requirements.

(c) Specify standard products by reference to an applicable standard specification when they exist.

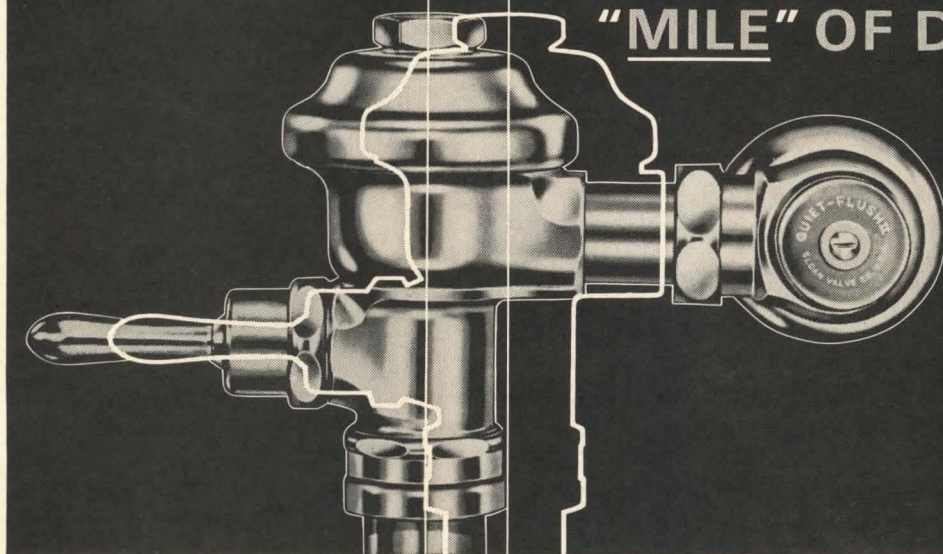
(d) Specify two or more brand names acceptable to the architect.

Maxim No. 7—Specify Stock Articles and Sizes Wherever Possible. Stock articles and sizes are more easily obtained, since they take advantage of assembly line production and are less expensive than nonstandard items.

Maxim No. 8—Do Not Specify Anything Not Intended To Be Enforced.

Maxim No. 9—Include All Items of Work. General contractors sublet work by reference to specifications sections. Therefore, each item of work should be placed in its proper section, even if the details on the drawings are complete enough to require no further specifics, if no more than the following, for example: *Metal Hand Rails* shall be provided under this Section.

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"MILE" OF DIFFERENCE

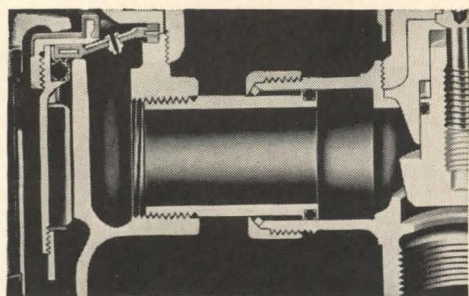


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AESTHETICS AND THE LAW: PART 2

BY BERNARD TOMSON
AND NORMAN COPLAN

P/A's legal team concludes its discussion of recent court decisions favoring aesthetics as a valid legal basis for regulatory ordinances.

In discussing the case of *Cromwell v. Ferrier* last month, we pointed out that aesthetic bases for zoning or other regulatory ordinances are progressively finding more favor with the courts. The *Cromwell* case involved the construction of a billboard to advertise a service station and restaurant that were located on a different lot from the billboard. The zoning ordinance of the Town of Walkill, N.Y., prohibited "nonaccessory" signs, and when the town authorities ordered the billboard removed, the constitutionality of the statute was challenged on the ground that it was based solely on aesthetic considerations. The highest court of New York upheld the constitutionality of the statute, ruling that a zoning law "is not necessarily invalid because its primary, if not its exclusive, objective is the aesthetic enhancement of the particular area involved."

In reaching its conclusion, the New York court re-exam-

ined a leading earlier case (*Mid-State Adv. Corp'n v. Bond*). In the *Bond* case, a statute was ruled unconstitutional for prohibiting billboards anywhere in the community — except signs erected on buildings three stories or more in height. In rejecting the application of the earlier case, the Court relied upon a determination made in 1963 in the case of *People v. Stover* (see IT'S THE LAW, SEPTEMBER 1963 P/A) in which a city ordinance prohibiting the erection of clotheslines in certain areas of residential districts was held valid even though the obvious purpose of the ordinance was almost exclusively aesthetic. The Court in the *Stover* case stated:

"Once it be conceded that aesthetics is a valid subject of legislative concern, the conclusion seems inescapable that reasonable legislation designed to promote that end is a valid and permissible exercise of the police power."

This ruling was deemed important by the Court in the *Cromwell* case, not only because the primary objective of an anti-billboard ordinance is aesthetic, but also because it undermined the binding effect of the earlier decisions, such as the *Bond* case, which struck down statutes directed toward aesthetic objectives.

The Court, in conceding that aesthetics was a valid subject of legislative concern, pointed out that it would still have to consider whether the ordinance in question was a reasonable exercise of the legislative function to achieve the aesthetic objective, stating:

"Insofar as the *Bond* holding was predicated on the now discarded notion that aesthetic objectives alone will not support a zoning ordinance, it may no longer be a valid precedent. But, as pointed out in *Stover*, the question remains whether such an ordinance should still be voided because it constitutes

an 'unreasonable device of implementing community policy.' . . .

"In this respect, petitioner argues that the legislative distinction between identification signs and nonaccessory signs is unreasonable and discriminatory. . . . In nearly all, zoning ordinances which have distinguished between accessory and nonaccessory signs have been upheld, providing that the distinctions were applied in a reasonable manner. . . . It has long been settled that the unique nature of outdoor advertising and the nuisances fostered by billboards and similar outdoor structures located by persons in the business of outdoor advertising justify the separate classification of such structures for the purposes of governmental regulation and restriction.

"While the proliferation of nonaccessory signs or billboards was a burgeoning problem in 1937, when the *Bond* case was decided, since that time the amounts expended on outdoor advertising have increased nearly fourfold. It is, of course, unnecessary to discuss at length the effect that this blight has had upon the national landscape; suffice it to say that it has probably exceeded the most pessimistic forecasts of the pre-World War II years. . . .

"The attitude of the courts both in the general field of economic regulation as well as in the specific area under discussion here has . . . changed with the passage of time."

In concluding that the ordinance before it was constitutional, the Court expressly pointed out that it did not intend to enunciate a rule that any aesthetic consideration would be sufficient to justify a statutory prohibition. The zoning ordinance based on aesthetic consideration must bear directly on the economic, social, or cultural patterns of the community. The Court said:

"The exercise of the police power should not extend to

every artistic conformity or nonconformity. Rather, what is involved are those aesthetic considerations which bear substantially on the economic, social, and cultural patterns of a community or district. Advertising signs and billboards, if misplaced, often are egregious examples of ugliness, distraction, and deterioration. They are just as much subject to reasonable controls, including prohibition, as enterprises which emit offensive noises, odors or debris. The eye is entitled to as much recognition as the other senses, but of course the offense to the eye must be substantial and be deemed to have material effect on the community or district pattern."

The philosophy of the New York court in the *Cromwell* case is representative of the general judicial trend throughout the United States. The acceptance by the courts of aesthetic objectives as a valid legal basis for statutory regulation and prohibition of acts that offend the social or cultural pattern of the community should be particularly welcomed by the design professional as a recognition, at least in one area of our society, of the importance of aesthetics to the general welfare.



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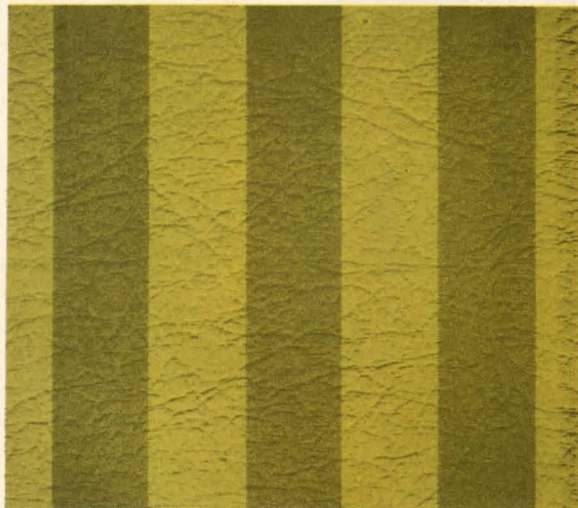
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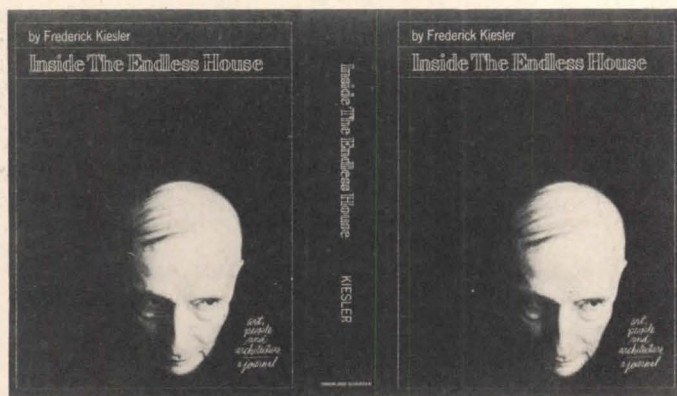
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THE NAIVE CYNIC

BY LEONARD K. EATON
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ART, PEOPLE, AND ARCHITECTURE:
A JOURNAL. By Frederick Kiesler. Simon & Schuster,
630 Fifth Ave., New York,
N.Y., 1966. 575 pp., illus., \$15.
The reviewer is Professor of
Architecture at the University
of Michigan.



This large, beautifully produced volume will undoubtedly become a kind of memorial to its author. The late Frederick Kiesler, who was undoubtedly one of the most complex and creative spirits on the American architectural scene in recent times, kept a journal for the last few years of his life,

and it is this document which is here offered to us in a format designed entirely by the author. Illustrated with many of his handsome free-hand drawings and a few photographs, it is an intriguing combination of narrative, gossip, poetry, and philosophical comment. It will obviously become a major source for anyone interested in Kiesler in time to come. As autobiography, however, it covers only a small portion of an extremely significant career.

Coming to the United States from his native Vienna as a young man in the late 1920's, Kiesler encountered the hostility experienced by many members of the European avant-garde in America during the 30's and 40's. In this respect, his career resembles those of Richard Neutra and William Lescaze. The difference is that while Neutra and Lescaze were able to establish substantial American practices after a certain amount of struggle, Kiesler never knew prosperity until the 1950's. Apparently, he existed in New York on a hand-to-mouth basis, deriving a scanty income

from teaching appointments at Columbia and the Juilliard School of Music, where he was in charge of stage design. His situation was not improved by the fact that he was extremely witty, sharp tongued, and more or less automatically an enemy of the pompous members of the establishment who had

rich commissions to bestow. Like many men of genius and small physical stature, he did not suffer fools gladly, and he himself suffered as a consequence. He found his patrons among a few tolerant and far-seeing men and women like Peggy Guggenheim, for whom he designed the famous interior of her gallery, "Art of this Century." Kiesler's somewhat abrasive personality should, of course, not blind us to the nature of his very real contributions.

What was the nature of these contributions? It is a bit difficult to say because they were so varied. In theatre design, he was perhaps the major figure in the first half of the 20th Century. It is no exaggeration to say that almost every innovation in theatres built in Western Europe and the United States since the Second World War was proposed at one time or another by Kiesler. This book contains excellent material on his designs in this field, especially the Universal Theatre, done as a prototype for the Ford Foundation in 1961. Secondly, Kiesler was a sculptor of great talent. To review the catalogue of his show at the Guggenheim Museum in 1959 is a sobering experience. Indeed, he may very well have been one of those artists whose approach to his work was basically sculptural. His Endless House is probably best understood as a gigantic piece of sculpture. There is a great deal about his development of this fascinating concept in the book.

Finally, Kiesler proved himself a major architect in a handful of important buildings done at the end of his life. Of these, the most significant was unquestionably The Shrine of the Book, built to house the Dead Sea Scrolls in Israel. His account of the problems of its conception and execution is, for this writer, a classic, and by far the finest

thing in the volume. It is comparable to Frank Lloyd Wright's well-known chapter on "Designing Unity Temple" in *An Autobiography*. In this large project, Kiesler inevitably came into conflict with businessmen, politicians, contractors, and consultants of all varieties, but in spite of all these obstacles he carried it through. One of his bitterest battles was fought with the contractor over the question of air conditioning. Kiesler wanted to eliminate it on two counts: "To add mechanized dehydration and fridity to the air would be a sheer waste of equipment and money, and, worst of all, artificial in this atmosphere of antiquity. Churches, synagogues, mosques—domes of any sort throughout the ages in the East, the West, the North, the South—these man-built coves have been the very natural refuges from the confinement of the summer heat." The episode is extremely revealing. A master of advanced technology, Kiesler was nonetheless skeptical about its generalized application. In this respect, he set an example to the profession.

It is clear that the success the Shrine of the Book brought to Kiesler was a shock. He had become so accustomed to a precarious existence that he could not bring himself to believe that the world had finally recognized his talent. Hence, much of this journal has a charming quality of surprised naïveté, though Kiesler was evidently one of the least naive of men. Accompanying a group of dignitaries, he flies to Brasilia for the dedication of the city, makes a speech, and frankly records his delight at the applause. People were at last ready to listen to him.

In sum, this volume provides an excellent insight into the achievement and personality

Continued on page 189

Continued from page 184

of a man who contributed greatly to American culture in many fields. We cannot help concluding that Kiesler himself would have been delighted with it.

Urbanizing Urbino

BY TIZIANA HARDY

URBINO. By Giancarlo De Carlo. Marsilio Editori, Padova, Italy. Available in the U.S. from G. Wittenborn, 1018 Madison Ave., New York, N.Y. 259 pp., illus., \$17.50. Tiziana and Hugh Hardy practice architecture in New York on a "separate but equal basis." Educated in Venice at the Institute d'Architettura, Mrs. Hardy has designed highways and housing here and abroad.

Giancarlo De Carlo's publication of his General Redevelopment Plan for Urbino would at first glance seem to be of parochial interest only to those given to the study of old Italian hill towns. In fact, however, the text and generous illustrations discuss ideas about the nature of planning and the uses of history that are highly relevant to the problems of American cities. The book also provides the background of thought from which De Carlo generated his masterful complex for the University College of Urbino, sited on a neighboring hill.

Urbino is visually rich, but visual beauty was not sufficient to insulate this classic Renaissance urban structure from decay. A shift in both industrial concentration and transportation networks caused by the unification of Italy favored coastal cities, and Urbino became weakened by a creeping paralysis and disintegration. The former coherence and vitality of the city was not attacked by age but by the disuse and dis-interest of its citizens. Migration of the industrious to more promising regions left those with less incentive who were content with a subsistence level of activity. Of these, the more inactive and transient inhabited the beautiful central historical district, Centro Storico; ironically, the more enterprising populated the random sprawl that surrounds it. The Free University is one of the most ancient institutions and has grown to dominate the town (10,000 students, 7000 townspeople), and it is the university, together with prospects of increasing tourism, which give hope for renewal.

Urbino has had its share of horse-doe-remedies. Even before the U.S. attempted her wipe-out schemes of urban "renewal," Urbino was threatened by the misguided surgery of the Italian Academy. In 1933, a grand scheme of axes

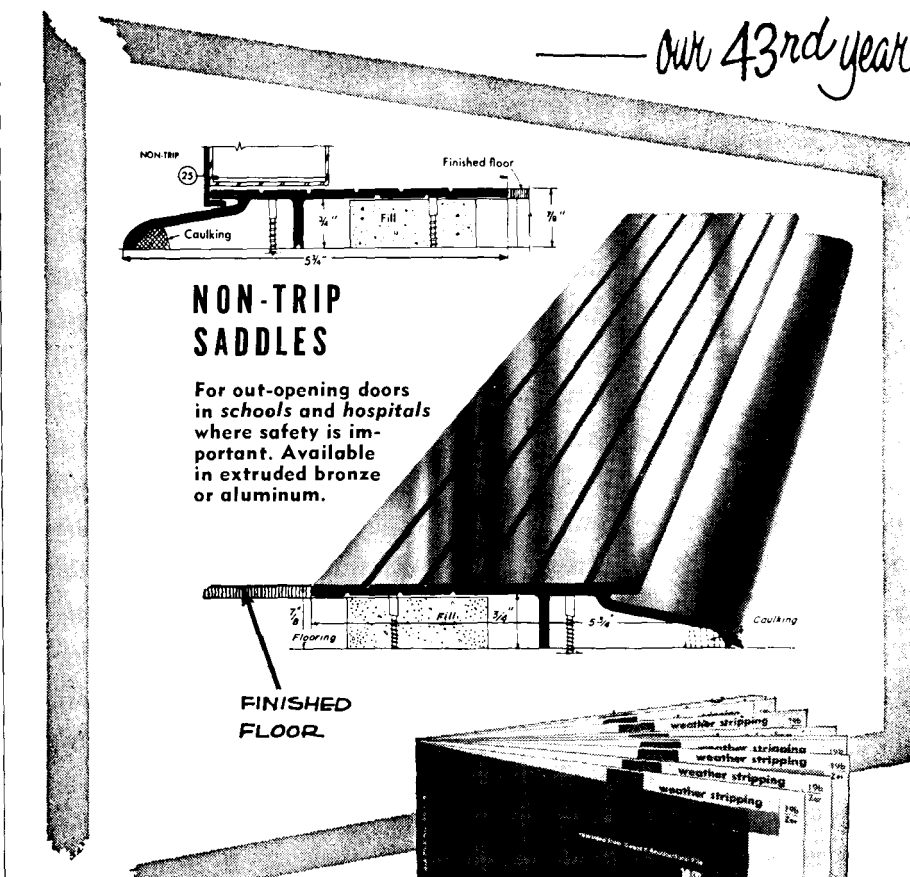
and superbldings was proposed in order to emphasize ancient glories. This solution to blight was designed by a "celebrated contriver of monumental muddles" and denied both history and topography. A surgical alteration conceived from the flat vista of an official drawing board, this scheme would have all but destroyed coherence and split the urban pattern along its longitudinal axis. A further grand gesture would demolish, raze, and fill in order to connect the Centro Storica (Central Historical District) with an immense new Forum dedicated to Mussolini. (We do it slightly differently in a democratic society by proposing that the fabric of

New York be torn up in a grand monumental axis connecting the trees of Central Park with the formalism of Lincoln Center.) Urbino has escaped formalist improvements, but it is now victim of the more insidious isolation that De Carlo's plan seeks to prevent.

De Carlo does not choose the selective historical wipe-out that has both neatened up and emasculated central Philadelphia in the image of an 18th Century that never was. Nor does he choose the bottled preserve of a Latin Williamsburg. De Carlo's plan seeks to integrate Urbino and its region with the modern world, "to give

Continued on page 193

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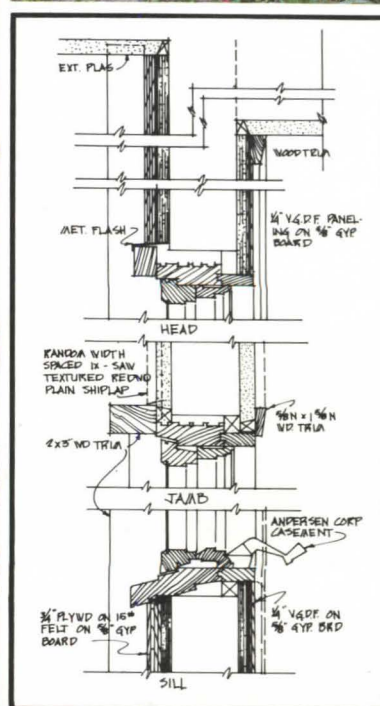
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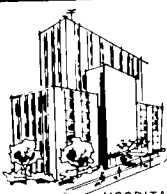
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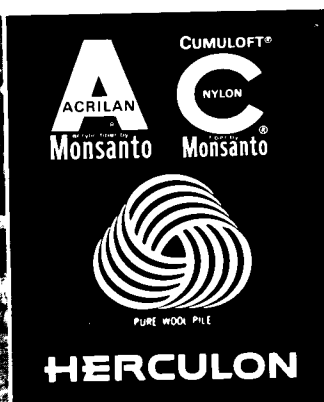


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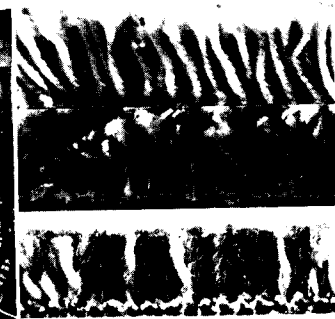


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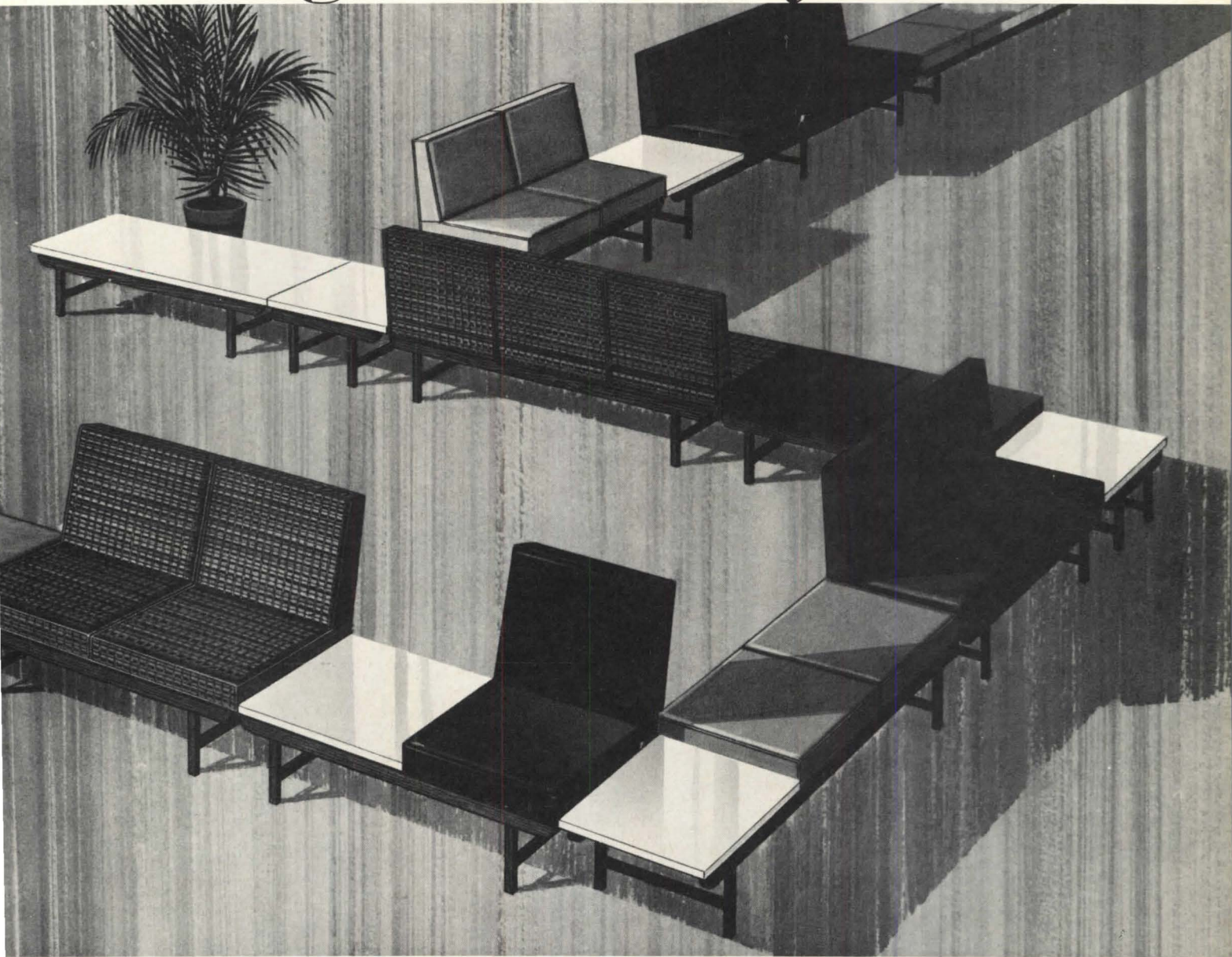
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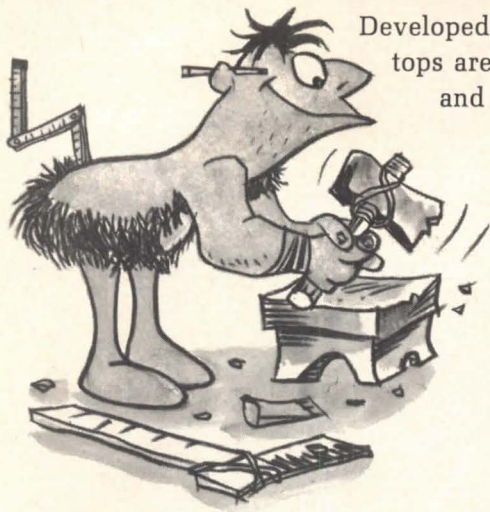
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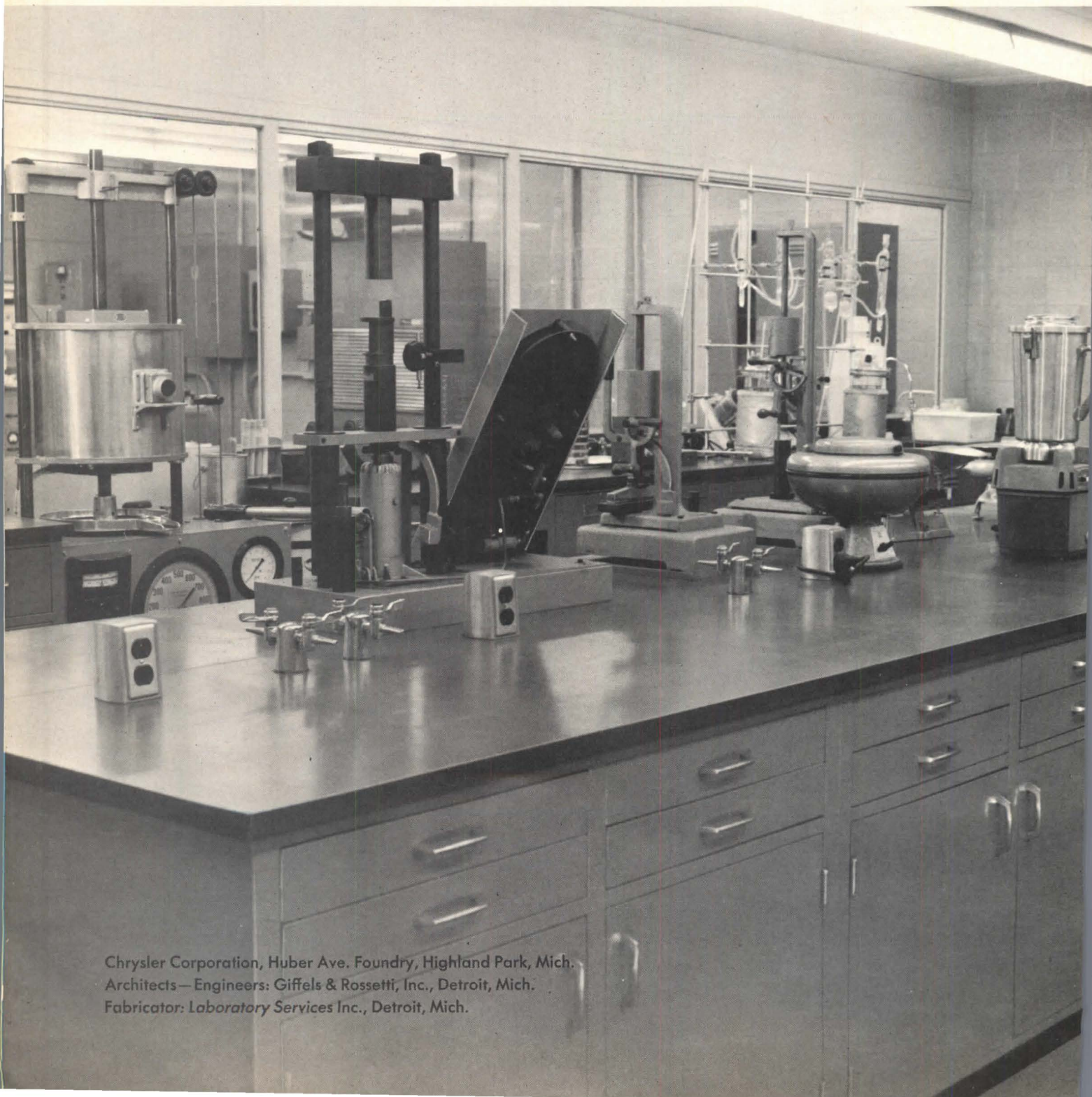
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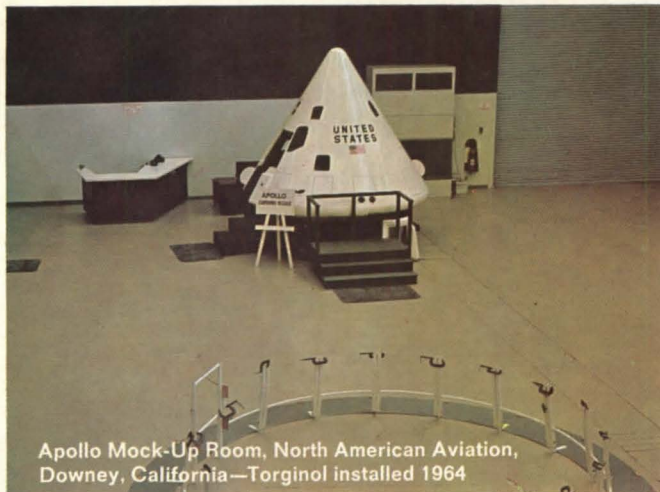
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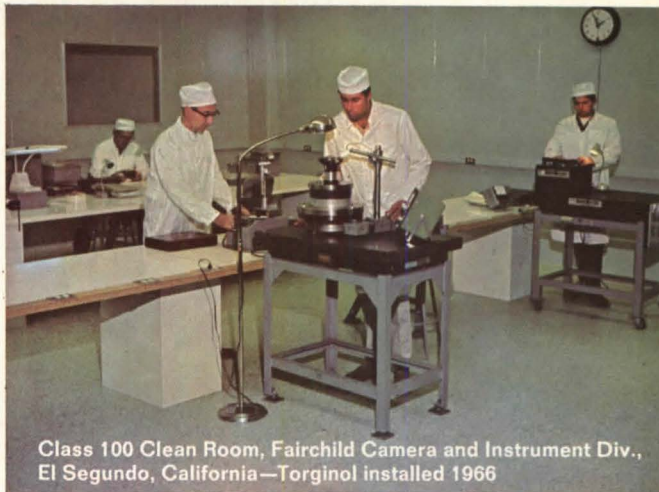
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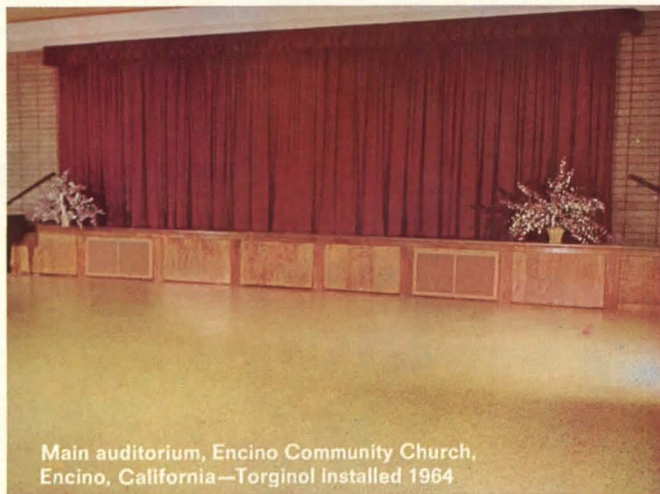
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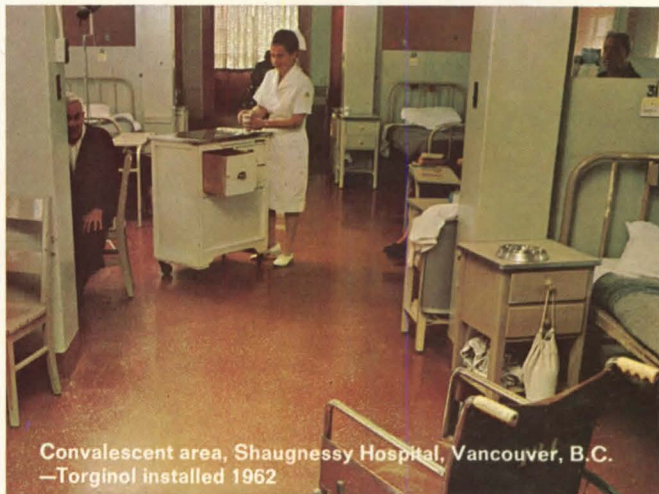
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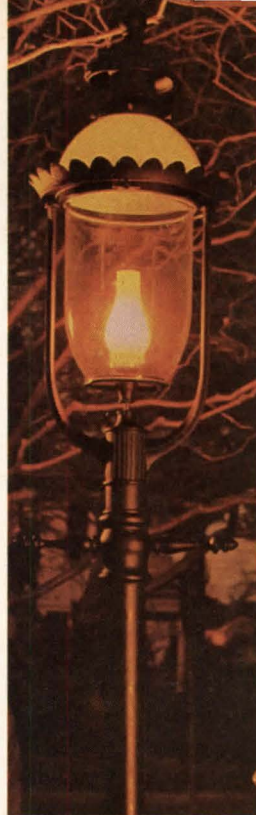
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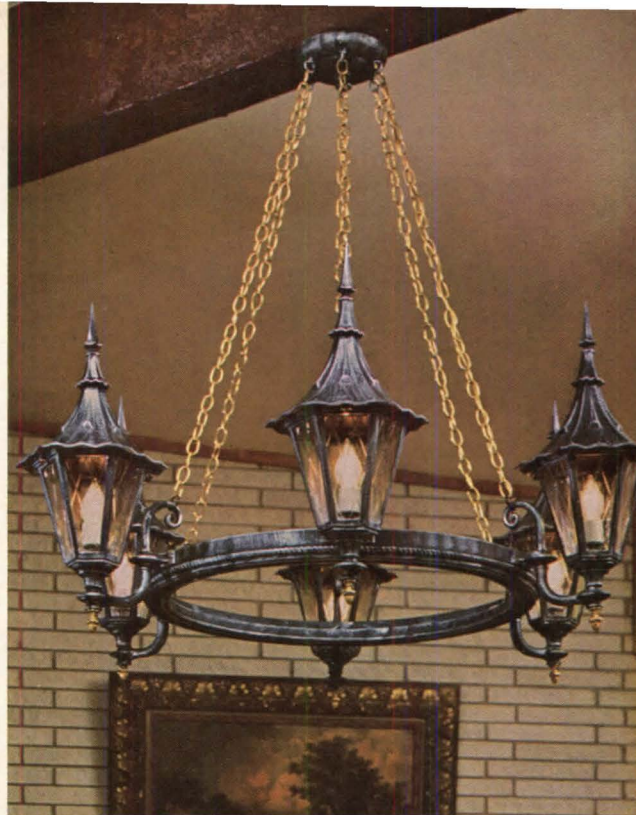




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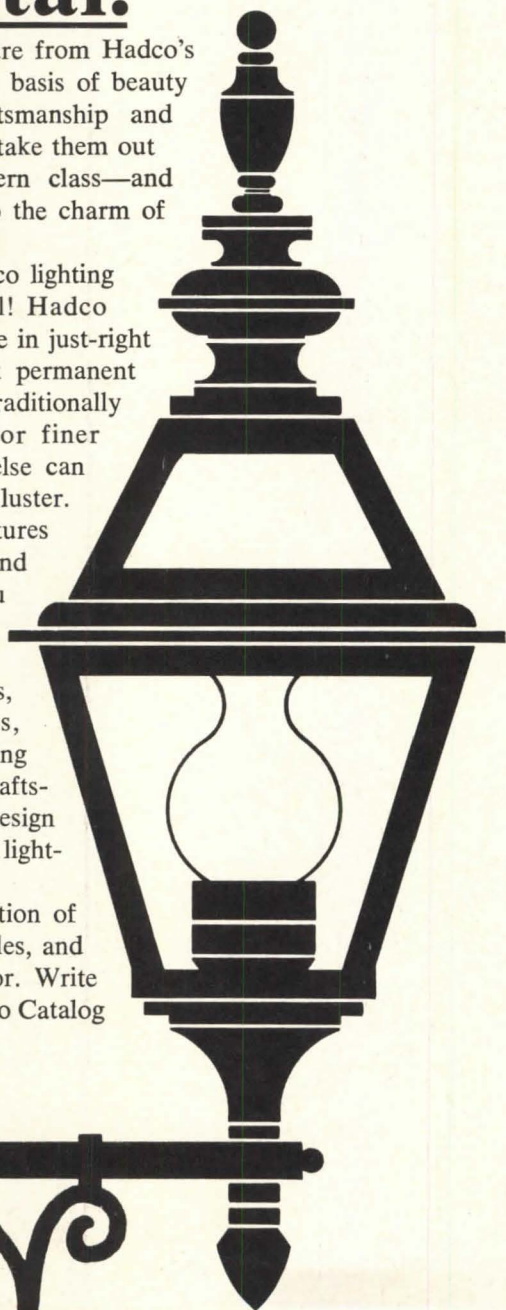
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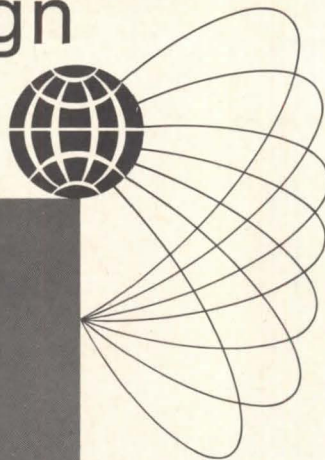
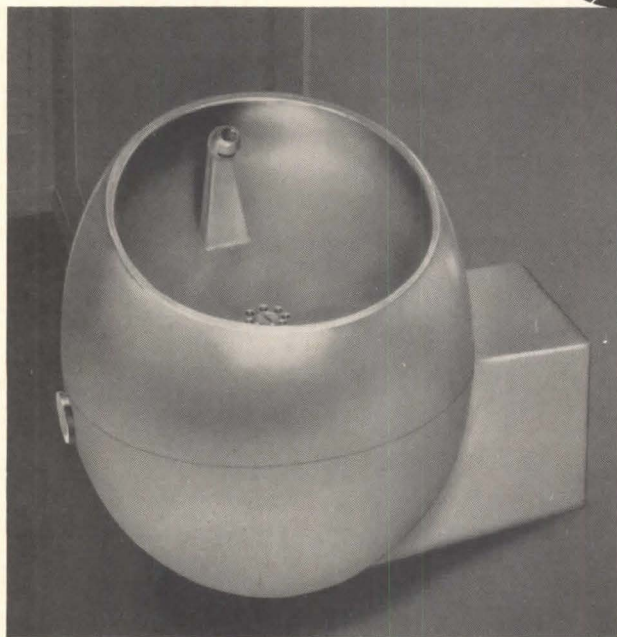
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Continued from page 189

the artistic treasure and natural beauty of the area a social role and context so that they can act as stimulus to further development." The form of the Centro Storico is therefore to be preserved not by mummification but by the injection of contemporary activities chosen to complement those existing. A small-scale example of such an idea is Joseph Papp's intelligent transformation of the Astor Library into a multitheater complex. Here, the important aspects of form are preserved by the introduction of a complementary social use. De Carlo seeks to integrate Urbino with the contemporary environment by means of selective controls that will integrate the expanding demands of education and tourism with existing forms. He states: "Form is the solution of a problem, and it can never be, and never create, the problem itself." He calls for an interaction between the present and the future, which avoids "the nonsense idea that form can generate a function." Vital cities require more than new buildings to bring them to functioning life. De Carlo believes the importance of urban planning lies beyond the furniture arrangement of building shapes. Cities live in their use, and their form is intrinsic to their activities. He therefore seeks to reinforce the existing activities by perceiving and developing the existing society.

The book is provided with an appended English summary, as well as English captions for all visual materials. However, the richness and completeness of the investigation make it difficult to read without a working knowledge of Italian, since constant reference between English appendix and illustrations is required. But this should not prevent exploration of a work by a man whose concern for the social structures of architecture gives rare insight.

Amusing and Objective

BY EDWARD K. CARPENTER

LOS ANGELES, THE ULTIMATE CITY. By Christopher Rand. Oxford University Press, 417 Fifth Ave., New York, N.Y., 1967. 205 pp., \$5.00. The reviewer is an Associate Editor of P/A.

In 1923, my uncle set out for southern California from Cleveland in a Model T. As he recalls it, much of the road through the Southwest consisted of twin ruts stretching across the desert. He had to carry cans of water and gas strapped to the side of his car. Although he went for reasons of health, he liked cars and he

Continued on page 208

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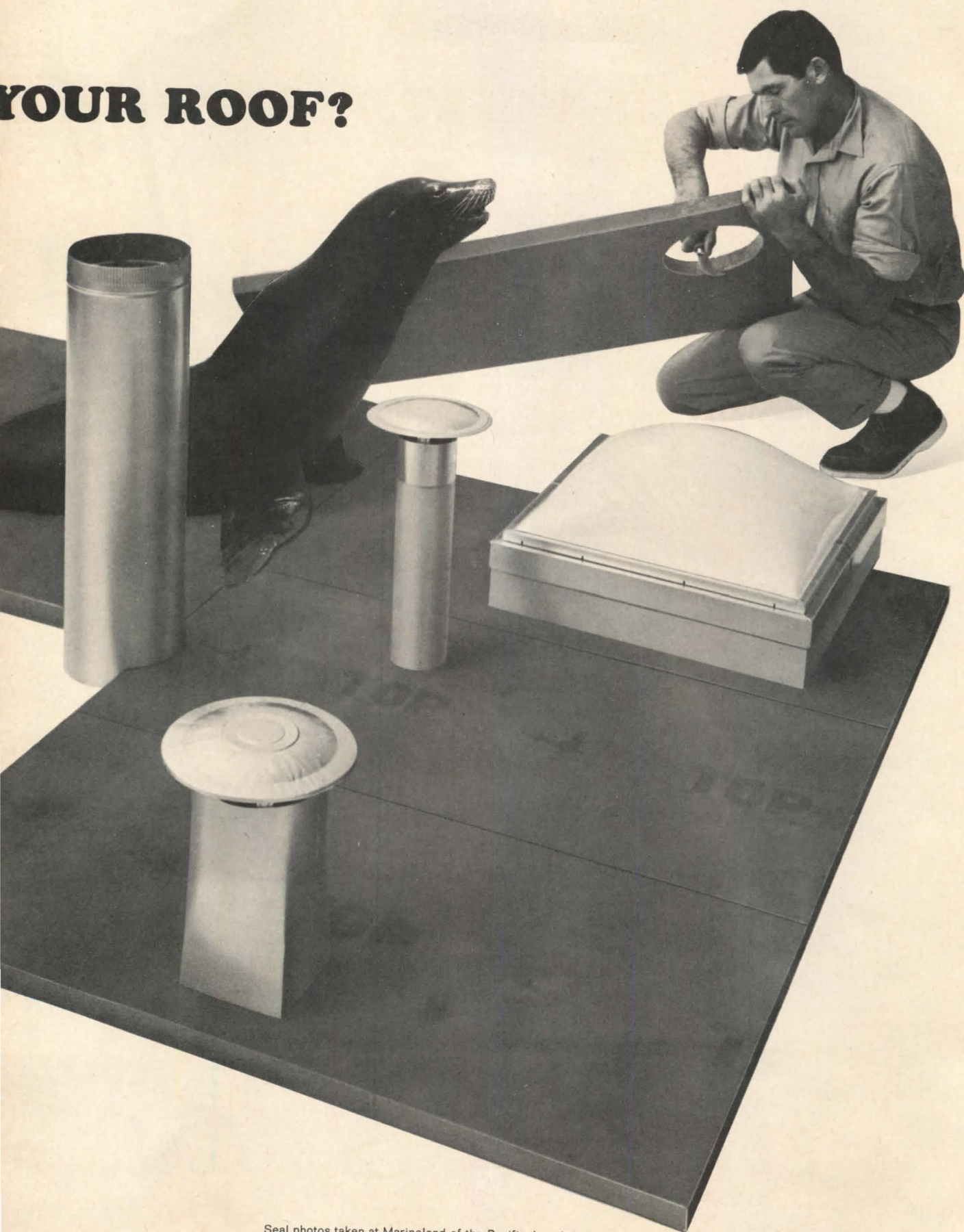


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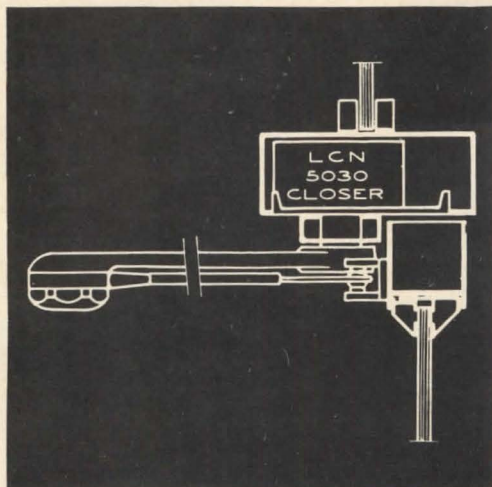


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GREIDIN, KLEIMAN, KELLEHER, Architects, 342 Madison Ave., New York, N.Y. 10017.

GRESHAM & SMITH, Architects, 535 Church St., Nashville, Tenn. 37219.

THOMAS J. HOLZBOG & ASSOCIATES, Architects and Planners, 19 Mt. Auburn St., Cambridge, Mass. 02138.

CHRISTOPHER H.L. OWEN, Architect, 33 E. 61 St., New York, N.Y.

Continued on page 230

Notices 227

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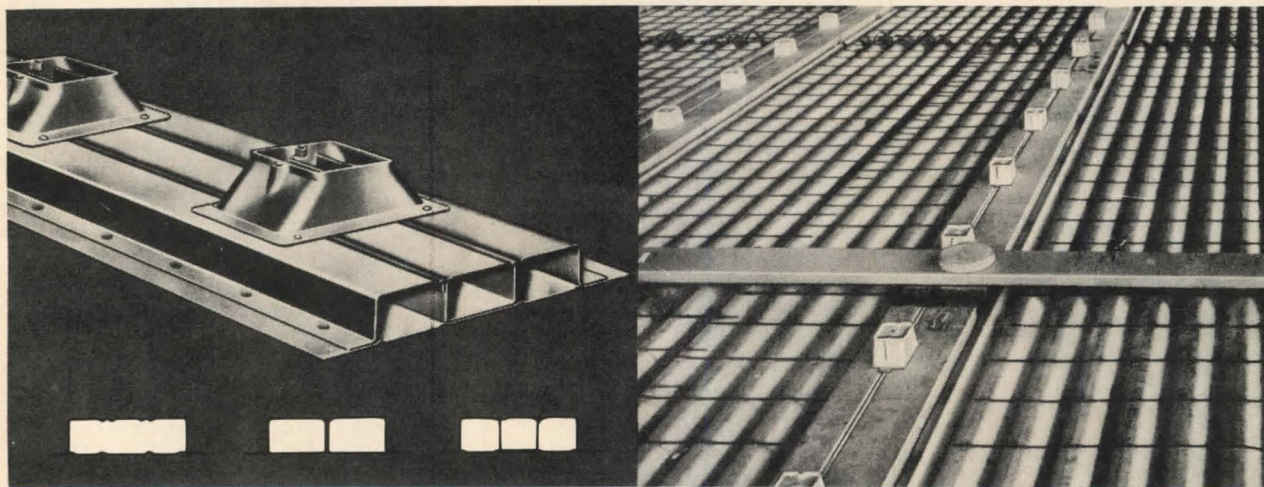
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Continued from page 227

RICHARD W. ROSE, Architect, 35 S. Raymond Ave., Pasadena, Calif.

ALBIN H. ROTHE, Architect and Construction Management Consultant, 7 Oak Dr., Upper Saddle River, N.J. 07458.

SAUER & DEVITO, Architects, 2011 Chancellor St., Philadelphia, Pa.

HOWARD FRANCIS SIMS, Architect, 321 S. Main St., Ann Arbor, Mich.

ANTON TEDESKO, Consulting Engineer, 26 Brookside Circle, Bronxville, N.Y. 10708.

New Partners, Associates

BURNS & McDONNEL, Engineers, Architects, Consultants, Kansas City, Mo., an-

nounce the admission of WALTER R. GIESE as a new partner.

LEE CRABTREE ASSOCIATES, Architects, Hartford, Conn., have named IRENEUS HARASYMIAK an associate.

DE SINA & PELLEGRINO, Architects, New York, N.Y., announce that NATALE R. ANZELMO has joined the firm as an associate.

FAULKNER, STENHOUSE, FRYER, & FAULKNER, Architects, have named WALLACE J. NICHOLS an associate.

HEERY & HEERY, Architects and Engineers, Atlanta, Ga., have named the following partners: WILTON LINDSAY FERGUSON, EDWARD MENEFFEE, LOUIS NASSIR

MALOOF, EDWARD CLAY WUNDRAM, and JOHN ARNOLD WURZ.

J. AUBREY KIRBY ASSOCIATES, Architects and Interior Designers, Winston-Salem, N.C., have named FRED K. GARVEY, JR., an associate.

LARSON, PLAYTER, SMITH & ASSOCIATES announce the appointment of DENNIS F. D'JOCK and KENNETH E. ZIEHR as associates.

YOSH NAKAZAWA & ASSOCIATES, INC., has announced the appointment of WILLIAM B. COBB, WALTER S. HALLAN, JR., DONALD H. GARBOWITZ, and HARRY E. PATTERSON as associates.

NARAMORE, BAIN, BRADY & JOHANSON, Architects, Seattle, Wash., have named DAVID C. HOEDEMAEKER, GUNNAR R. LIE, and ROBERT E. MESSER as senior associates. The firm has also named the following associates: JAMES W. EVANS, JAMES O. JONASSEN, ALVIN S. MARSDEN, DON E. MARTIN, WILLIAM A. RITZENMALER, THEODORUS RUYS, JAMES J. SANDERS, and FRANK M. SMITH, JR.

A.G. ODELL, JR. & ASSOCIATES, Architects, Charlotte, N.C., have named as associates DAVID E. HIPPI, JR., WILLIAM EARL JONES, III, and JAMES W. LESSLIE, III.

OKAMOTO/LISKAMM, Architects, San Francisco, Calif., announce the appointment of RODERICK T. FREEBAIRN-SMITH as associate for design.

ROUSE, DUBIN & VENTURA, Architects and Engineers, New York, N.Y., have appointed DAVID SCHWERD, SAUNDER SCHAEVITZ, and JOSEPH P. NAPOLITANO junior partners.

MARTIN B. SCHAEFFER ASSOCIATES, Architects, Chicago, Ill., have named ANTHONY A. BONAVALONTA and MELVILLE W. WENDELL senior associates.

EBERLE M. SMITH ASSOCIATES, INC., Architects and Engineers, Detroit, Mich., announce that ALBERT EDWARDS MARGETTS, JR., has joined the firm.

ADRIAN WILSON ASSOCIATES, Architects and Engineers, Los Angeles, Calif., announce the appointment of JOSEPH L. AMESTOY as an associate.

Elections, Appointments

BENHAM-BLAIR & AFFILIATES, INC., Los Angeles, Calif., announce that GEORGE E. FISCHER has joined the firm as executive vice-president.

DESIGNS FOR BUSINESS, Interior Designers and Space Planners, New York, N.Y., have appointed DAVID J. LIVINGSTON vice-president.

DONALD DESKEY ASSOCIATES, Industrial Design Consultants, New York, N.Y., have appointed RUSSELL G. HESTON, JR., a vice-president.

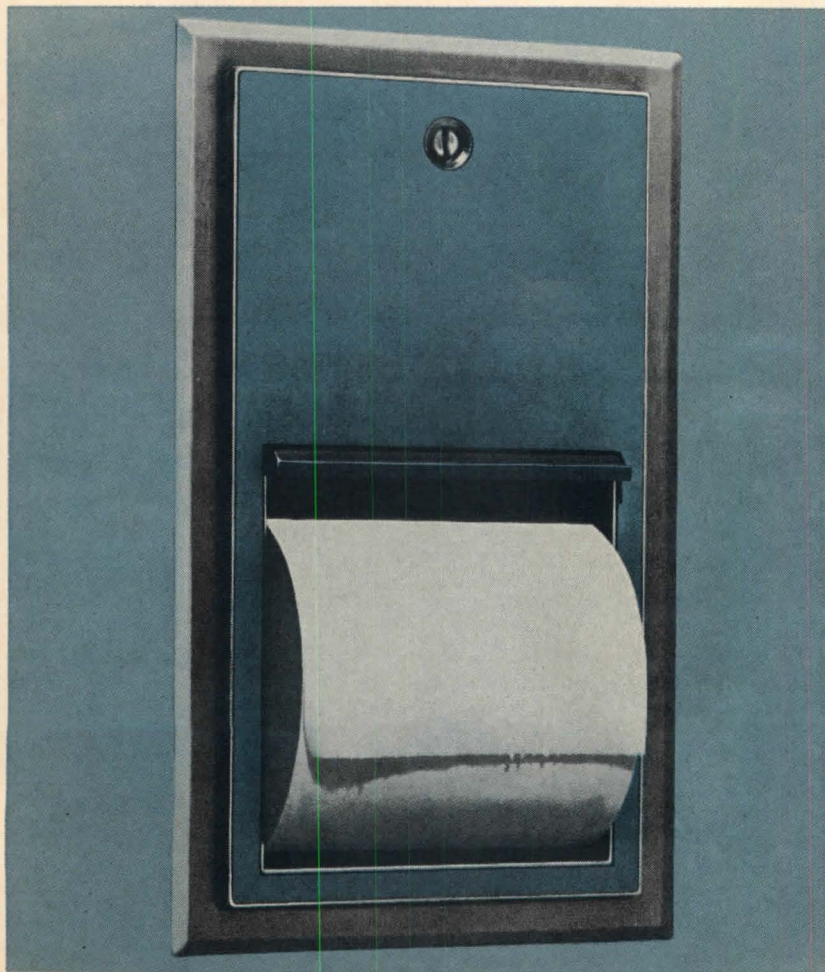
A. EPSTEIN & SONS, INC., Architects and Engineers, Chicago, Ill., announce that LESTER R. SEILER has become a vice-president.

Continued on page 232

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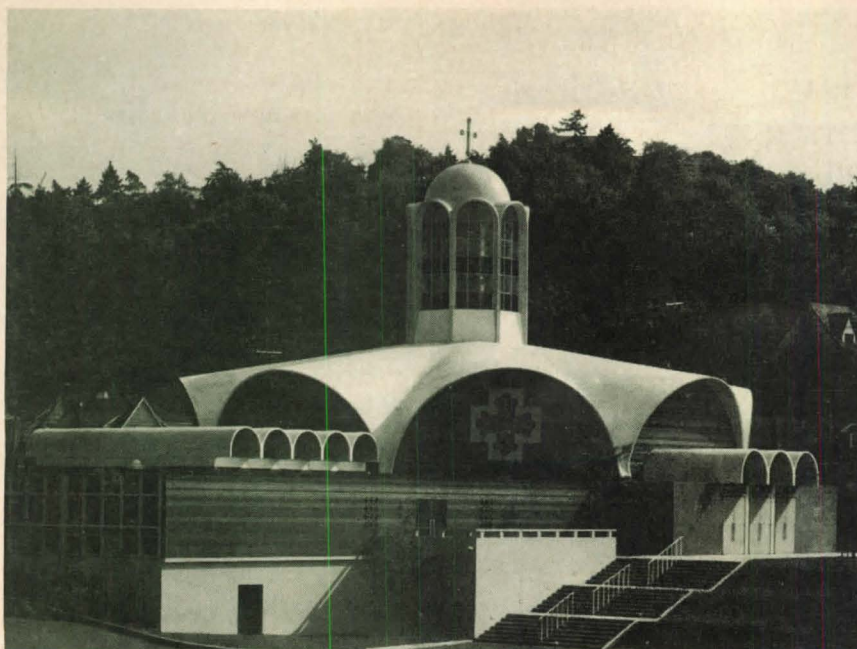
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HAMMEL GREEN & ABRAHAMSON, INC., Architects, St. Paul, Minn., have named six vice-presidents and associates. They are: ROBERT S. TAKAICHI, KENNETH C. SCHULTZ, BRIAN R. MORGAN, THEODORE R. BUTLER, WESLEY E. SORESENSEN, and RICHARD D. BABCOCK.

GALE A. HILL, Architect, St. Louis, Mo., has announced that ROBERT E. SUDBRING has joined the firm.

CHARLES LUCKMAN ASSOCIATES, INC., Planners and Architects, New York, N.Y., have appointed HERBERT K. HOPP to the staff.

JOHNSON & JOHNSON, Engineers and Architects, Chicago, Ill., have appointed J.G. CAPPOZZO as production manager of the firm.

ALBERT C. MARTIN & ASSOCIATES, Architects, Planners, and Engineers, Los Angeles, Calif., recently named LAURENCE G. FARRANT to the position of resident construction advisor. The firm has also designated ROBERT D. DAVIS, ALAN L. GALLION, and ALVIN FICKS as associates.

Name Changes

ALEXANDER & MOSKOWITZ, INC., Planners, New York, N.Y., upon a merger; formerly, LAURENCE A. ALEXANDER & CO. and HARVEY S. MOSKOWITZ & ASSOCIATES.

BERGER-FIELD ARCHITECTS, INC., St. Louis, Mo., upon the resignation of HAROLD J. LANDRUM; formerly, BERGER-LANDRUM-FIELD ARCHITECTS, INC.

DORMAN/MUNSELLE ASSOCIATES, Architects and Planners, Beverly Hills, Calif., upon the formation of a partnership; formerly, RICHARD L. DORMAN & ASSOCIATES, ARCHITECTS.

JANSONS & ROBERTS ARCHITECTS, Falls Church, Va., upon the formation of a partnership; formerly, JURIS JANSONS.

KENNEDY, BROWN & TRUEBLOOD, Architects, Indianapolis, Ind.; formerly, KENNEDY, BROWN & ASSOCIATES.

ISRAEL NIGROSH ASSOCIATES, Architects, with new offices at 23 Miner St., Boston, Mass. 02215; formerly, DAVID J. ABRAHAMSON & ASSOCIATES.

SIEGEL, STEED & HAMMOND, Architects, Hamilton, Ohio, upon the admission of GERALD S. HAMMOND to partnership; formerly, SIEGEL & STEED.

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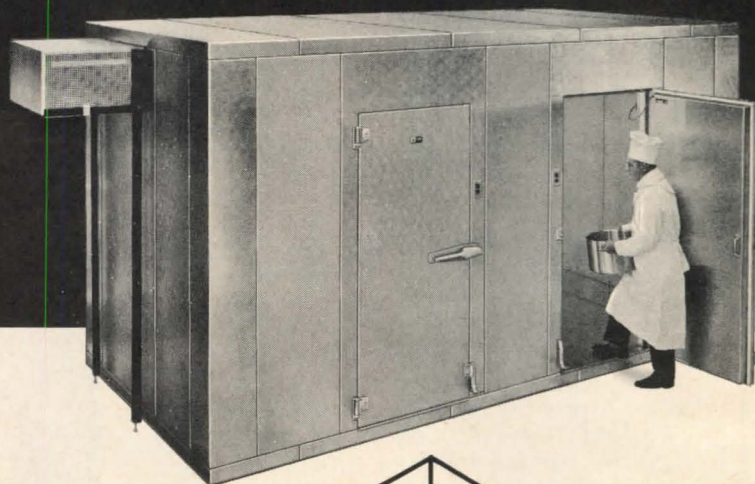
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ARCHITECT-DESIGNER—NCARB. Eleven years comprehensive experience including positions as chief designer, production chief. Illinois graduate. 37. Desire responsible position, associateship or partnership in ethical firm interested in producing best contemporary architecture. Prefer Rocky Mountain areas. Consider others. Include description of firm, position, with request for resume. Box #476. PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL ENGINEER—P.E. Experienced chief engineer as principal in architectural firm, responsible for office management, employee and public relations, contract negotiations, administration and project supervision. Seek responsible and challenging position leading to partner-

ship. Resume upon request. Box #477, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL GRADUATE—31, family, fluent Spanish, desires position in Spain. 3 years practical experience in U.S.A. and Puerto Rico, plus university teaching experience. Architect, 9 Gonzalo Marin Street, Arecibo, Puerto Rico.

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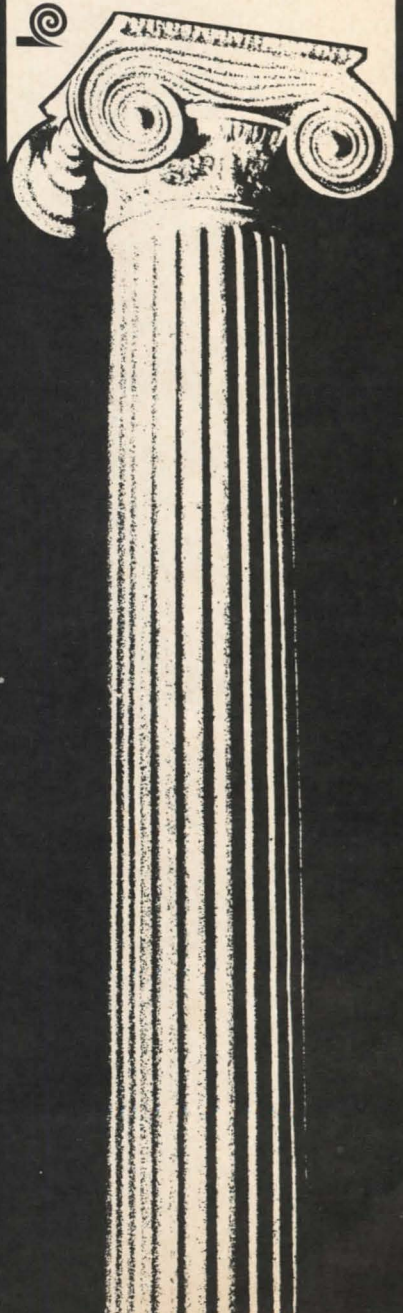
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American Saint Gobain Corp..... 200, 201 <i>Turner & Feeney, Inc.</i>	Gates Engineering Company 232 <i>John T. Hall & Company</i>	Maintenance, Inc. 222 <i>Palm & Patterson, Inc.</i>
Ametek, Inc., Troy Laundry Machinery.... 82 <i>Basford, Inc.</i>	Gaylord Industries 80 <i>Kendon Advertising</i>	Maple Flooring Mfrs. Assn. 98 <i>Geer-Murray, Inc.</i>
Andersen Corporation..... 190, 191 <i>Campbell-Mithum, Inc.</i>	General Electric Co., Silicone Prod. Dept. .. 94 <i>Ross Roy, Inc.</i>	Marble/Imperial Furniture Company 65
Ansul Company..... 45 <i>Robert Voegel, Inc.</i>	Georgia-Pacific Corporation 43, 44 <i>McCann-Erickson, Inc.</i>	McDonald Products Corporation 18 <i>Stahlka, Fallor & Klenk</i>
Armstrong Cork Co., Ceilings Systems..... 67 <i>Batten, Barton, Durstine & Osborn, Inc.</i>	Georgia-Pacific Corp. — Bestwal Div. 87, 88 <i>McCann-Erickson, Inc.</i>	McKinney Sales Company 33 <i>Gann-Dawson, Inc.</i>
Art Metal, Inc..... 209 <i>The Zlowe Company</i>	Glynn-Johnson Corporation 27 <i>Edwin E. Geiger Advertising</i>	Michaels Art Bronze Company 235 <i>Seery & Company</i>
Azrock Floor Products Div..... 2nd Cover <i>Glenn Advertising, Inc.</i>	Granco Steel Products Company 228, 229 <i>Batz-Hodgson-Neuwoehner, Inc.</i>	Modern Partitions, Inc. 99 <i>Aves Advertising, Inc.</i>
Bally Case & Cooler, Inc..... 233 <i>Beaumont, Heller & Sperling, Inc.</i>	Grant Pulley & Hardware Corp. 11 <i>Bernard Cooper Advertising, Inc.</i>	Monarch Carpet Mills 176 <i>Tucker Wayne & Company</i>
Bethlehem Steel Corporation..... 216, 217 <i>Van Brunt & Co.</i>	Grefco, Inc., Bldg. Prod. Div. 224, 225 <i>Boylhart, Lovett & Dean, Inc.</i>	Monsanto Company, Textiles Division 3rd Cover <i>Doyle, Dane & Bernbach, Inc.</i>
The Bobrick Corporation..... 14 <i>Len Woolf Company</i>	Hadco Products, Inc., Subs. Esquire, Inc. 196, 197 <i>Ritchie Advertising Agency</i>	Mo-Sai Institute, Inc. 52, 53 <i>David W. Evans & Associates</i>
Brunswick Corp., School Equip. Div..... 78, 79 <i>Garfield-Linn & Company</i>	Hall-Mack Company 218 <i>Smith-Klitten, Inc.</i>	Musson, R.C. Company 202 <i>Fred Bock Advertising Company</i>
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Clark Door Company..... 82 <i>J. M. Kesslinger & Associates</i>	Haws Drinking Faucet Co. 198 <i>Pacific Advertising Staff</i>	Natcor Co. 28 <i>Buntin, Cook Harmon, Smith, Inc.</i>
DAP, Inc..... 34, 35 <i>Kircher, Helton & Collett, Inc.</i>	Holophane Company, Inc. 12, 13 <i>Turner & Feeney, Inc.</i>	National Concrete Masonry Assn. 202 <i>Harpham Company</i>
Desco International Association..... 21 <i>Lavenson Bureau of Advertising, Inc.</i>	Hope's Windows, Inc. 36 <i>Moss-Chase Company</i>	National Electrical Contractors Assn. 32 <i>Henry J. Kaufman & Associates</i>
Detex Corporation..... 77 <i>J. M. Kesslinger & Associates</i>	Jones & Laughlin Steel Corp 178, 179 <i>Griswold-Eshleman Company</i>	National Gypsum Company 100, 101 <i>Fuller, Smith & Ross, Inc.</i>
Dow Chemical Company..... 75 <i>MacManus, John & Adams, Inc.</i>	Kaiser Aluminum & Chemical Corp. 92, 93 <i>Young & Rubicam, Inc.</i>	Nicolet Industries, Inc. 194 <i>O. S. Tyson & Co., Inc.</i>
Downs Carpet Company..... 192 <i>Fien & Schwerin, Inc.</i>	Kawneer Company 220, 221 <i>Peitscher, Janda/Associates</i>	Overhead Door Corporation 204, 205, 206 <i>Glenn Advertising, Inc.</i>
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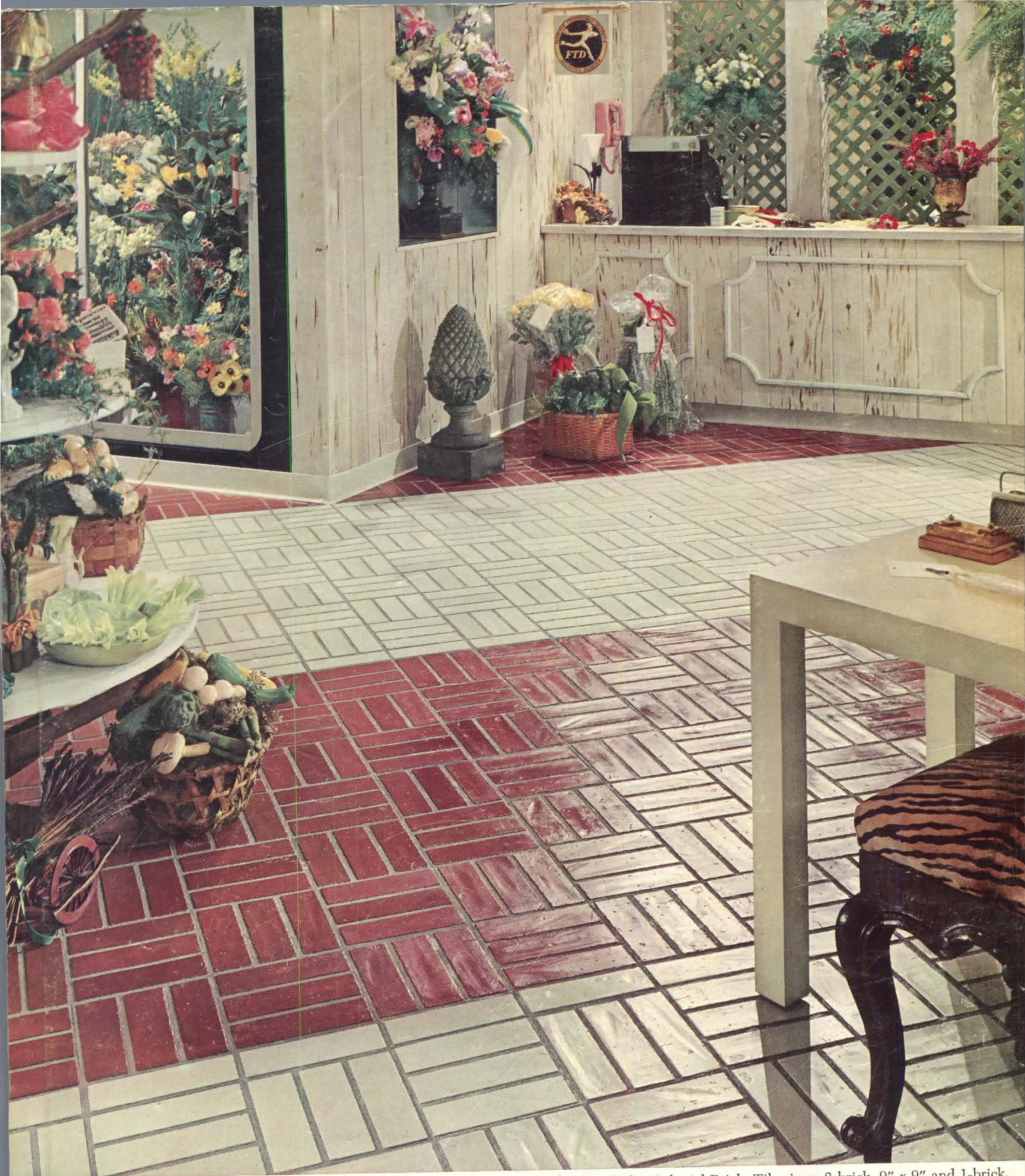
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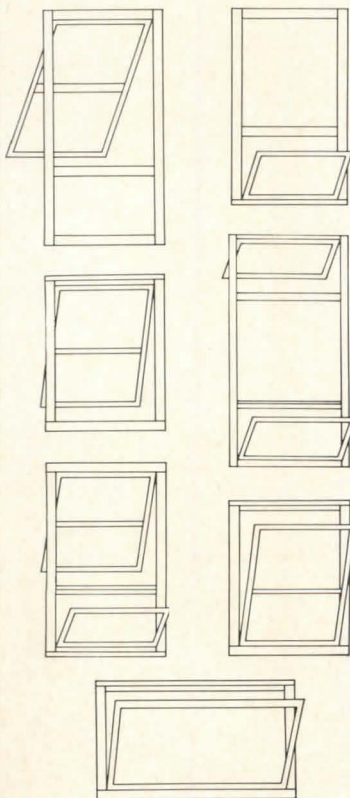
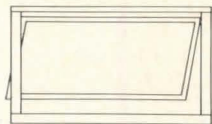
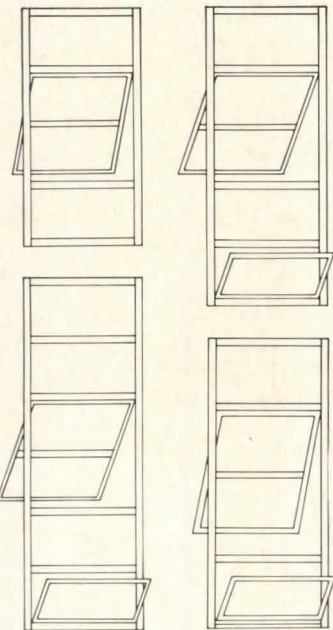
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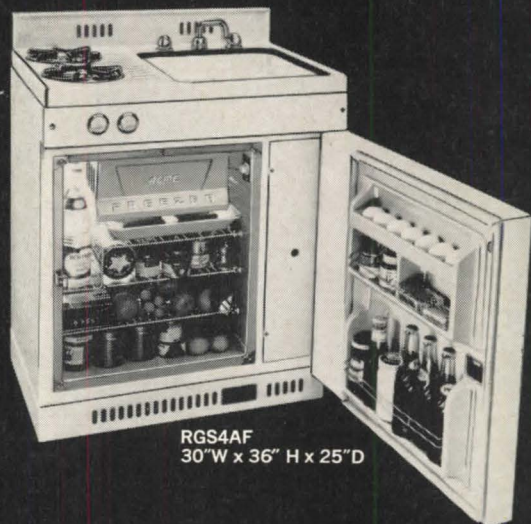
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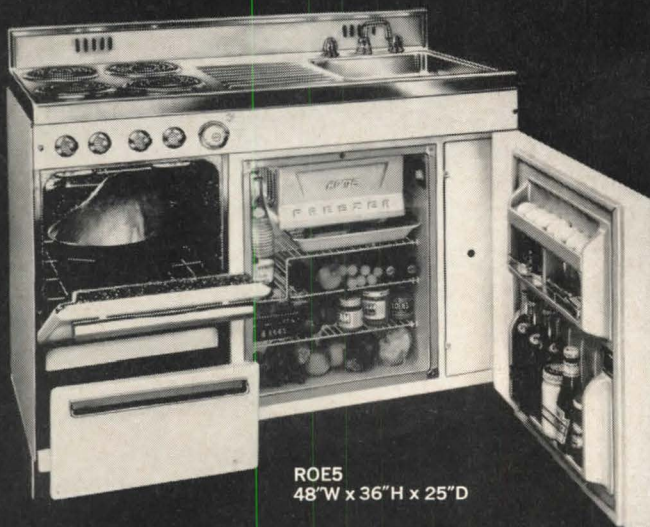
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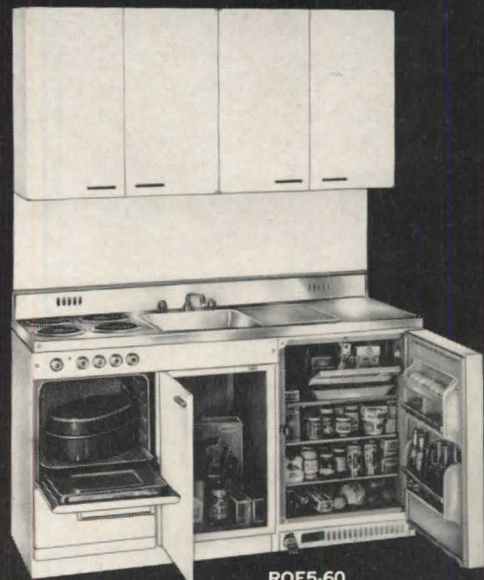
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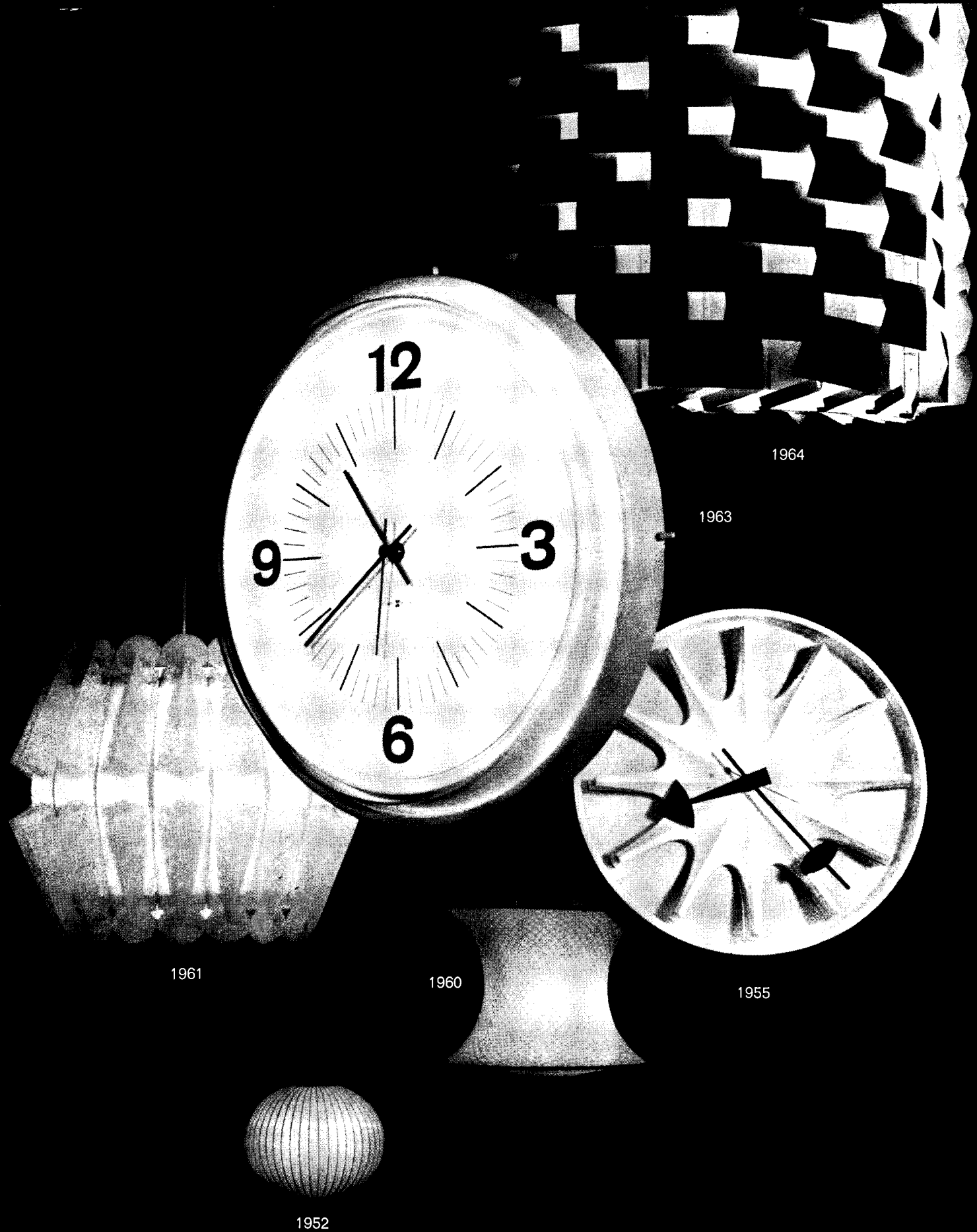
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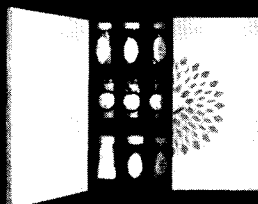
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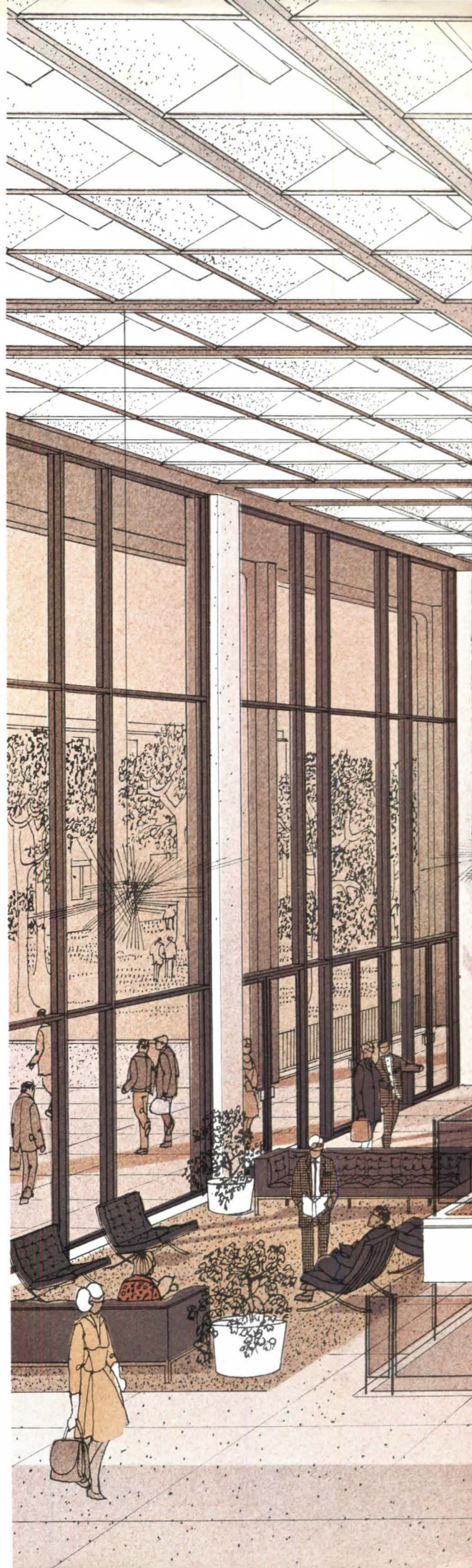
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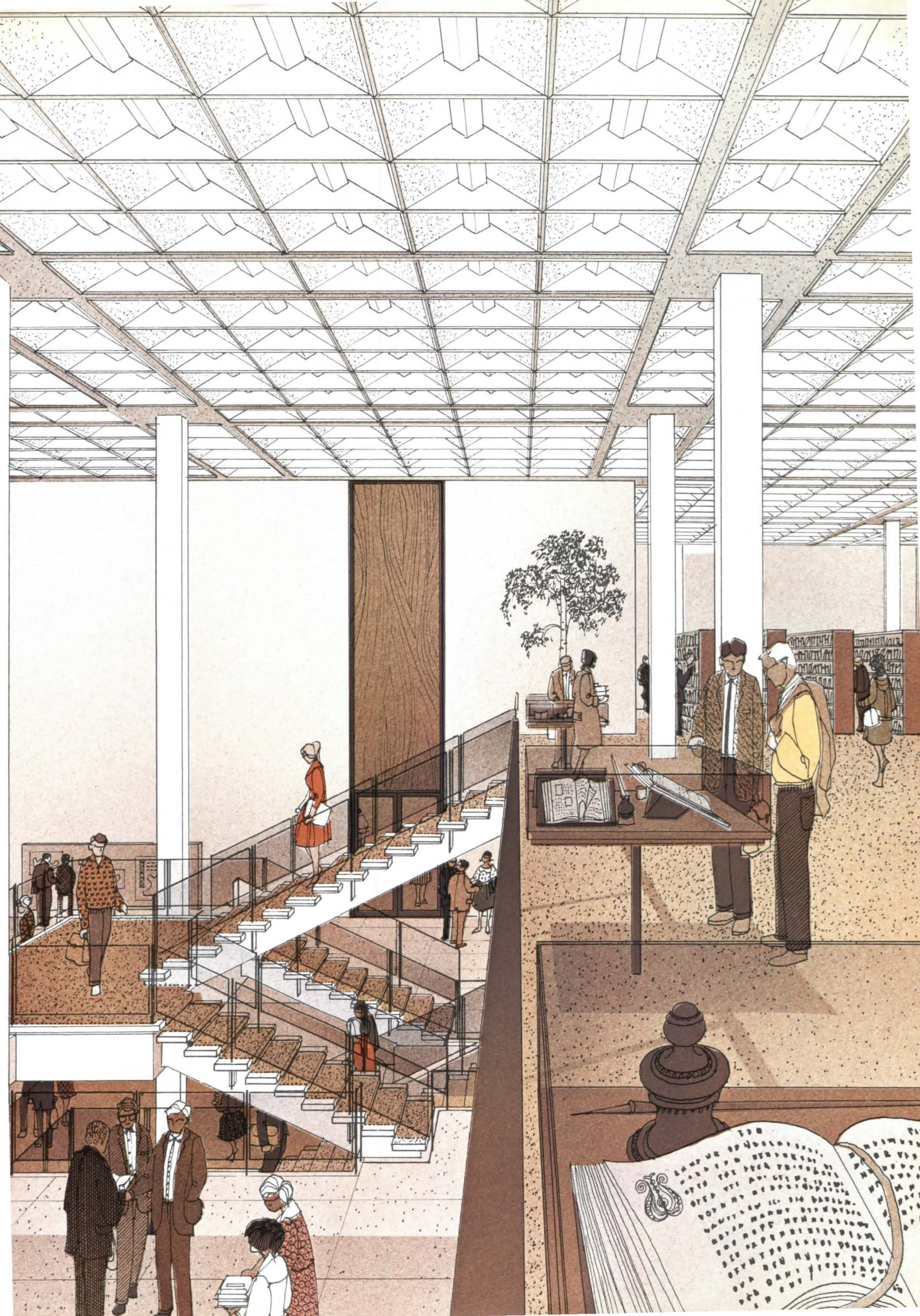
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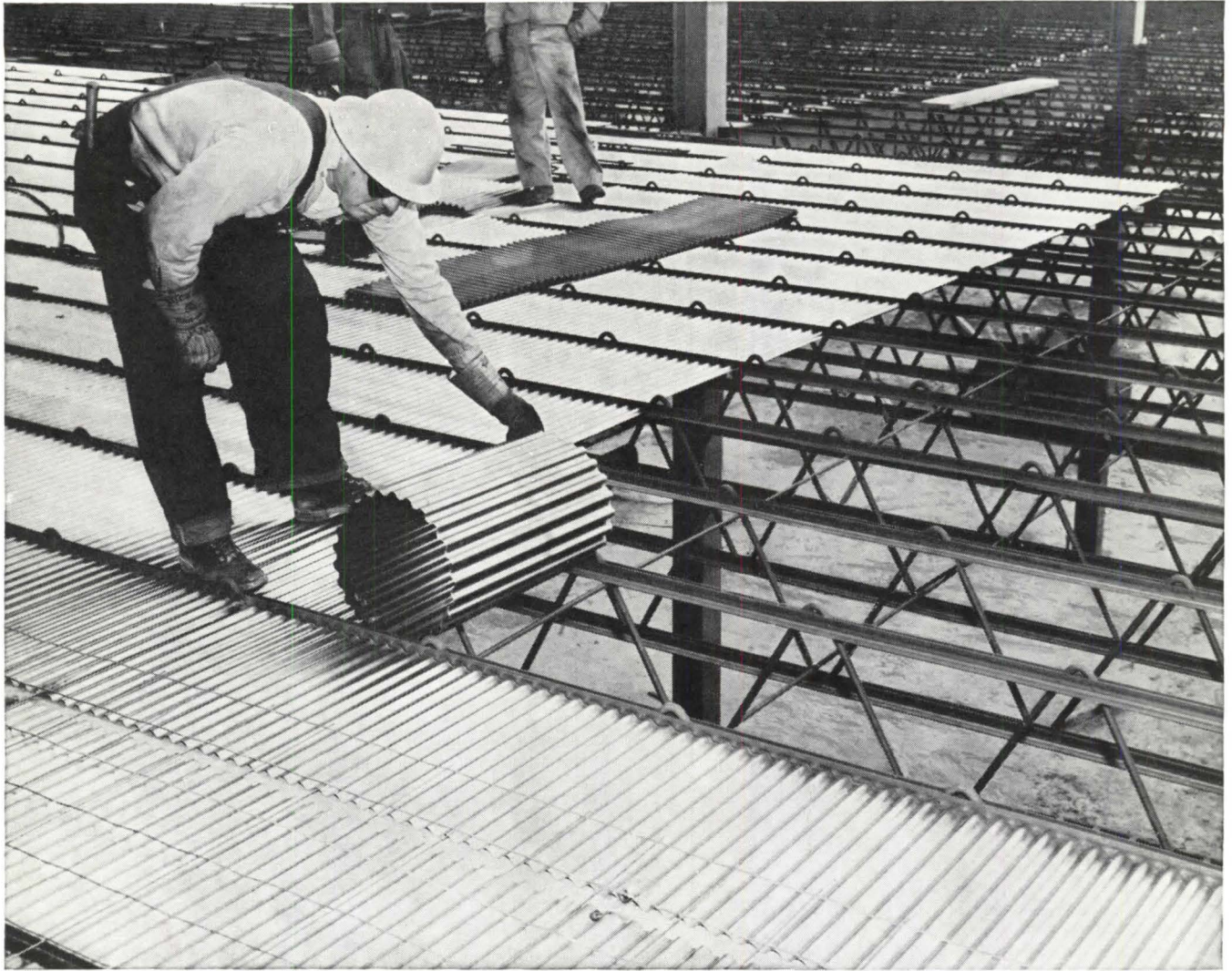
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