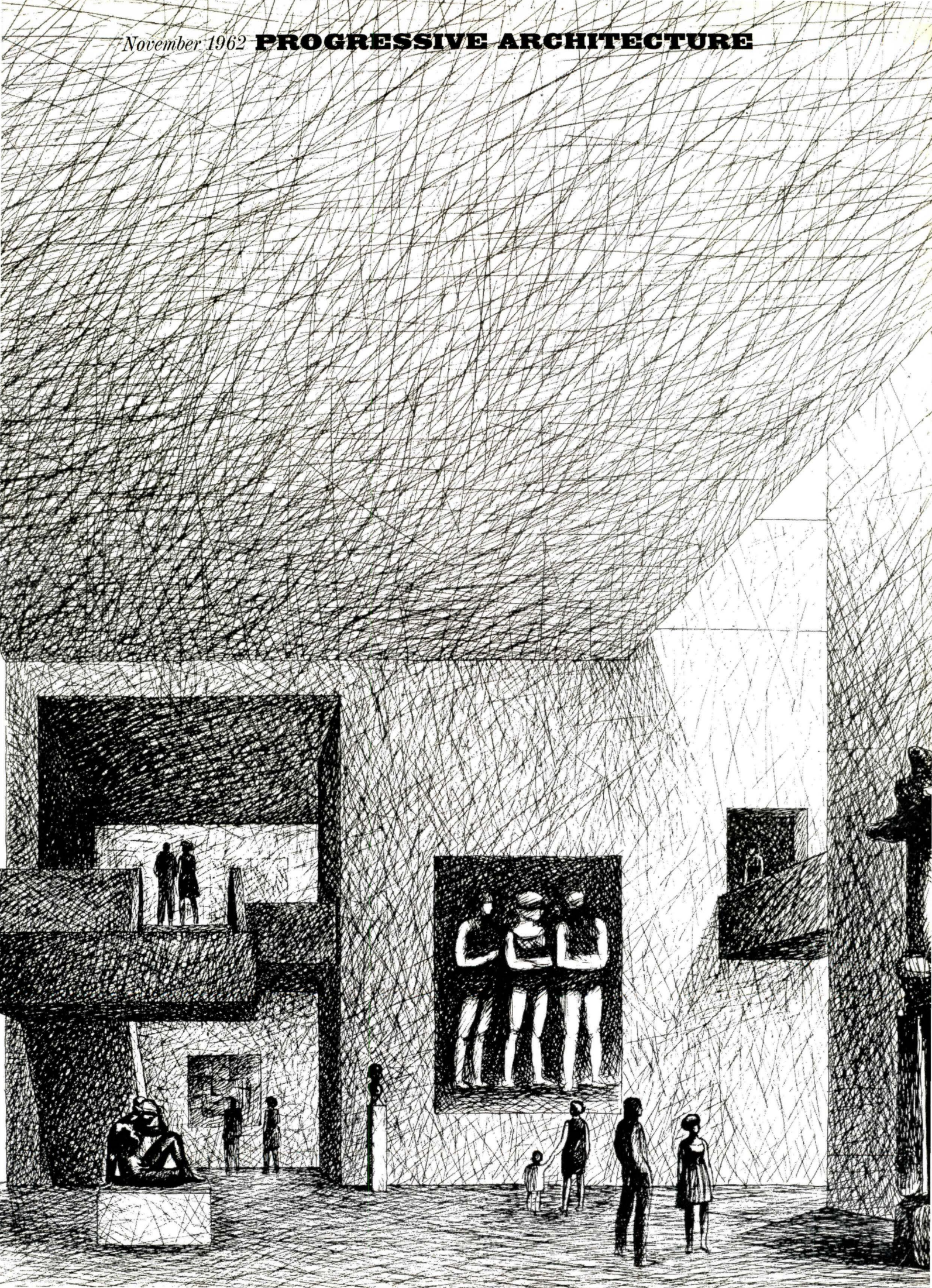

Colors: VM-461 Alabaster Gold with black feature strip

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

. . . because the travertine patterning is distributed through the full thickness of the tile. Premiere Series in Vina-Lux vinyl asbestos tile is a unique combination of subtle styling and rugged resistance to maximum traffic loads . . . delivers so much more value and performance than surface patterns . . . yet costs no more. Specify Vina-Lux Premiere Series, for installation over concrete — above, on or below grade, or over wood or plywood subfloors. Consult Sweet's Catalog — or let us send you samples, color charts and detailed architectural specifications. Azrock Floor Products Division, Uvalde Rock Asphalt Company, 526A Frost Building, San Antonio, Texas.

Magnified view shows pattern distribution through **full** thickness of tile. Available in 1/8", 3/32", 1/16" gauges.

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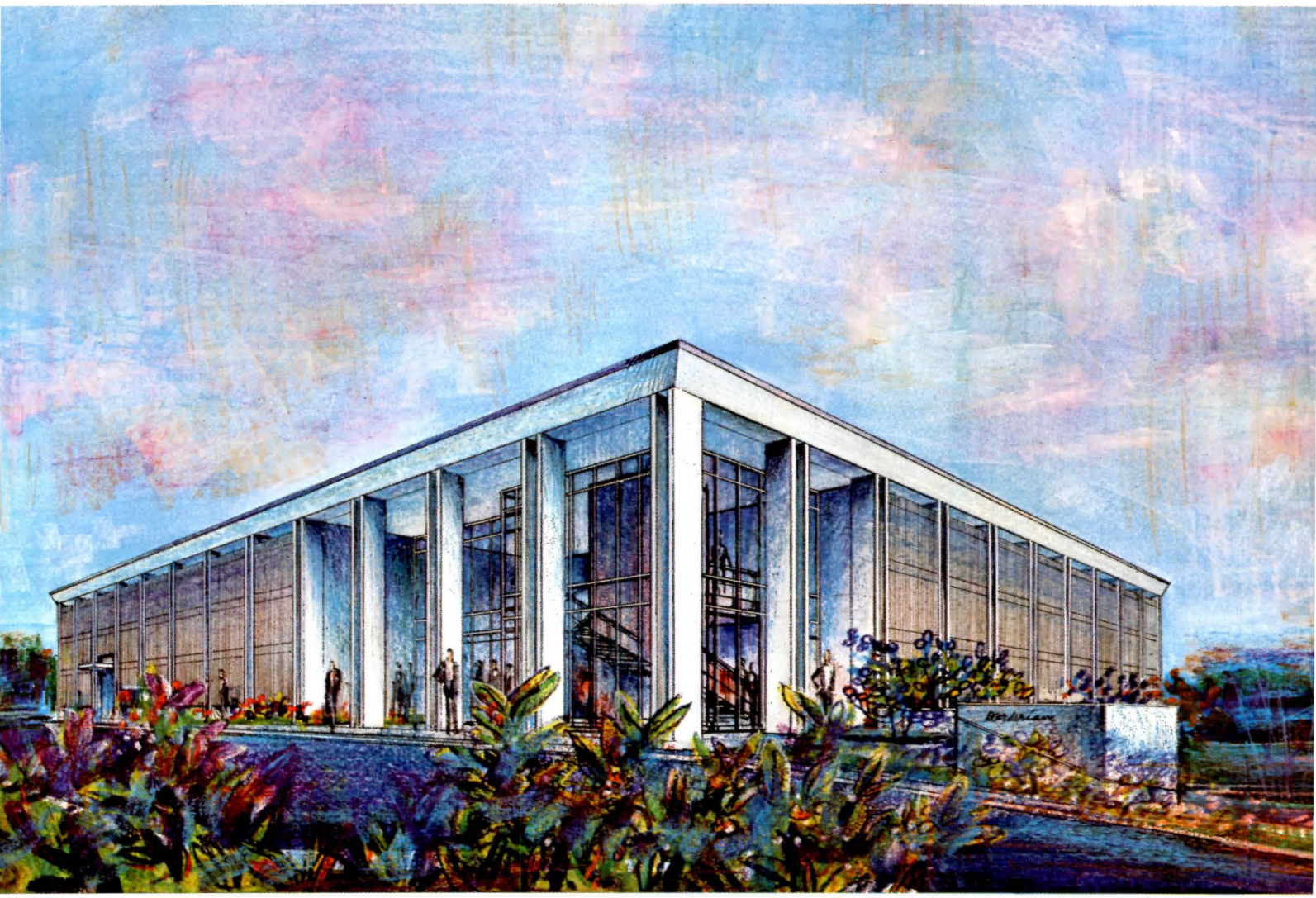
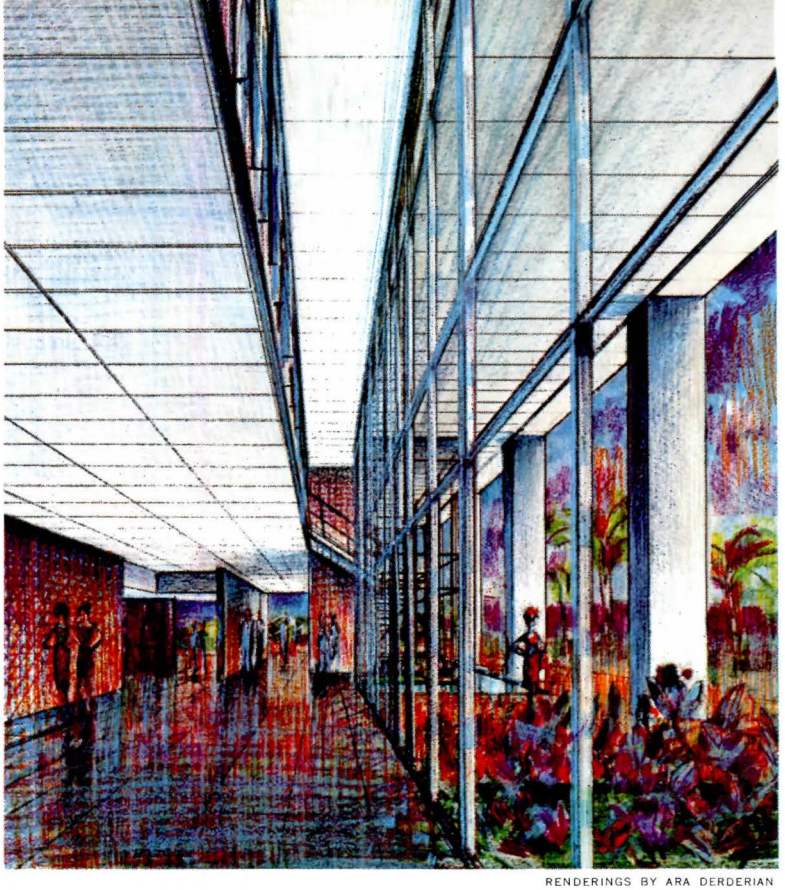


here a bold new building uses a old new idea: a ceiling that diffuses air



RENDERINGS BY ARA DERDERIAN

Armstrong ventilating ceilings he air condition these "Sunshine State" office comfortably, completely, and quiet

Comfortable air distribution and a clean, uncluttered appearance: these are the qualities which Armstrong Ventilating Ceilings bring to this new office building in Jacksonville, Florida. In character with its bold design, they present a smooth and monolithic surface. This handsome ceiling treatment offers another important advantage, too: lighting fixtures and partitions can easily be rearranged under the ceiling without affecting the ventilating function and without the delay and cost of moving ducts and diffusers. And the Armstrong Ventilating Ceiling system (in which the sealed plenum acts as room duct and the perforated ceiling as diffuser) insures that conditioned air circulates everywhere—evenly, thoroughly and efficiently—without drafts or stagnant spots.

DATA: Armstrong Ventilating Ceilings have been thoroughly lab- and job-tested to assure proper performance; are available in five materials (both tile and lay-in units), including Fire Guard, with three different patterns; and are compatible with all conventional supply-air systems. This ceiling system saves up to 30¢ per square foot by cutting supply ductwork and eliminating conventional diffusers. Ventilating Fire Guard offers one- to four-hour-rated fire protection for structural members; saves up to 30¢ per sq. ft. by eliminating intermediate fire protection, up to two months' construction time through dry installation; often earns lower insurance rates. Special plenum-engineering data is available, giving all factors and formulae for the correct design of this ventilating system, ensuring that it delivers the required cfm of conditioned air in the manner and quantity designated by the ventilating engineer. Contact your Armstrong Acoustical Contractor or Armstrong District Office. For general information about these ventilating ceilings, write Armstrong, 4211 Watson Street, Lancaster, Pa.

Koger Building, Boulevard Center, Jacksonville, Florida. Architects: Reynolds, Smith, and Hills, Jacksonville, Florida. General Contractor: O. P. Woodcock Co., Jacksonville, Florida. Mechanical Contractor: Thermodyne Corp., Jacksonville, Florida. Acoustical Contractor: Noise Reduction Corp., Jacksonville, Florida.

Armstrong CEILINGS / *acoustical fire-retardant ventilating*

THIS MONTH IN P/A

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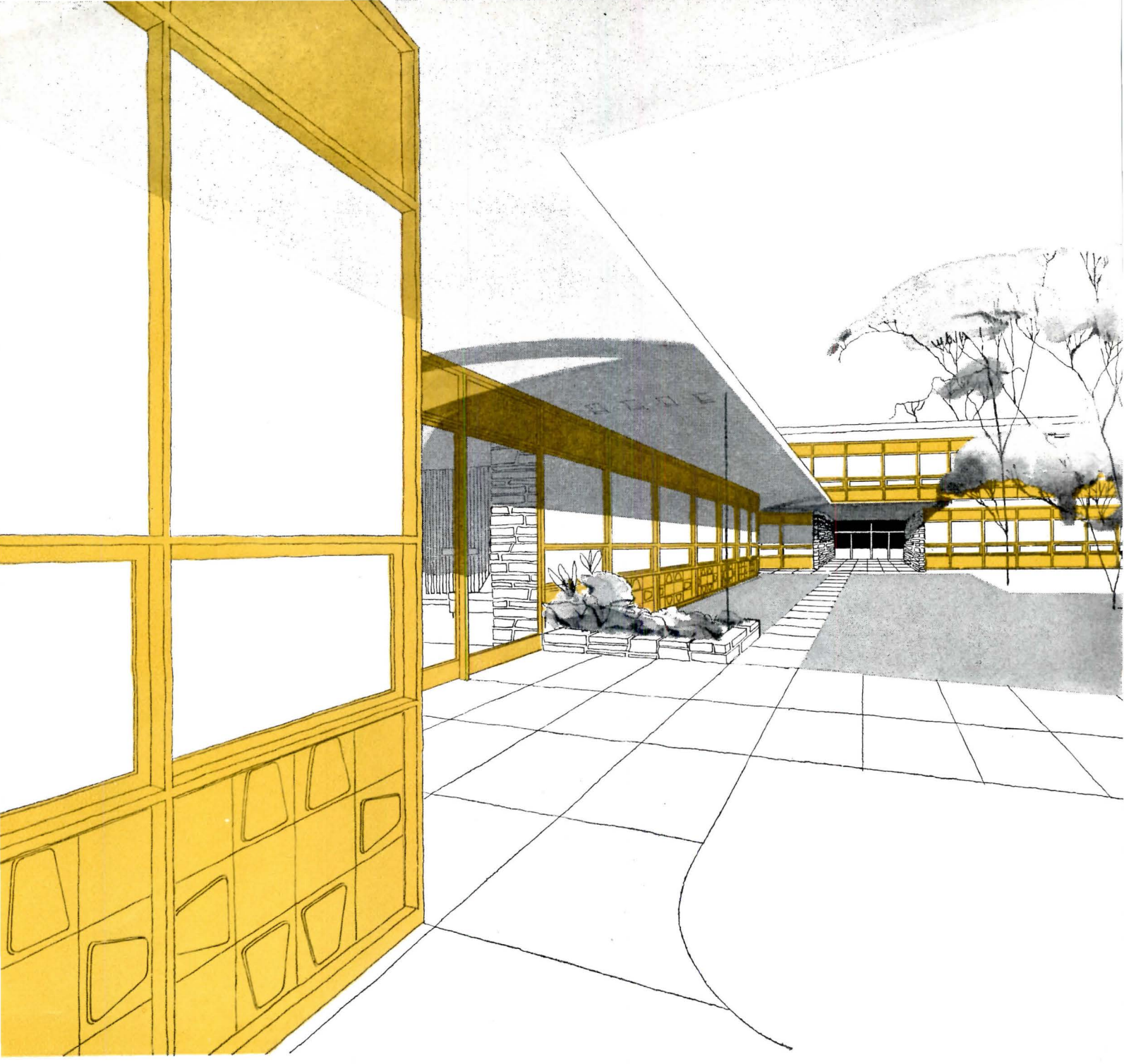

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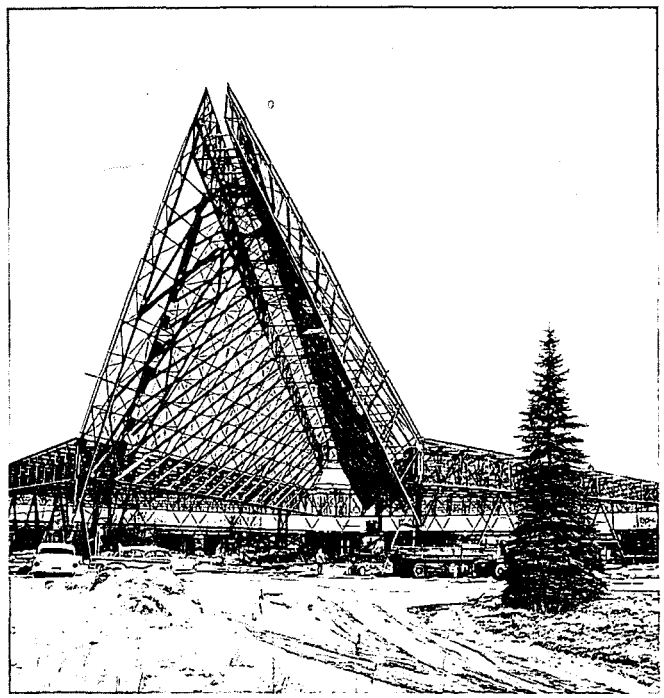
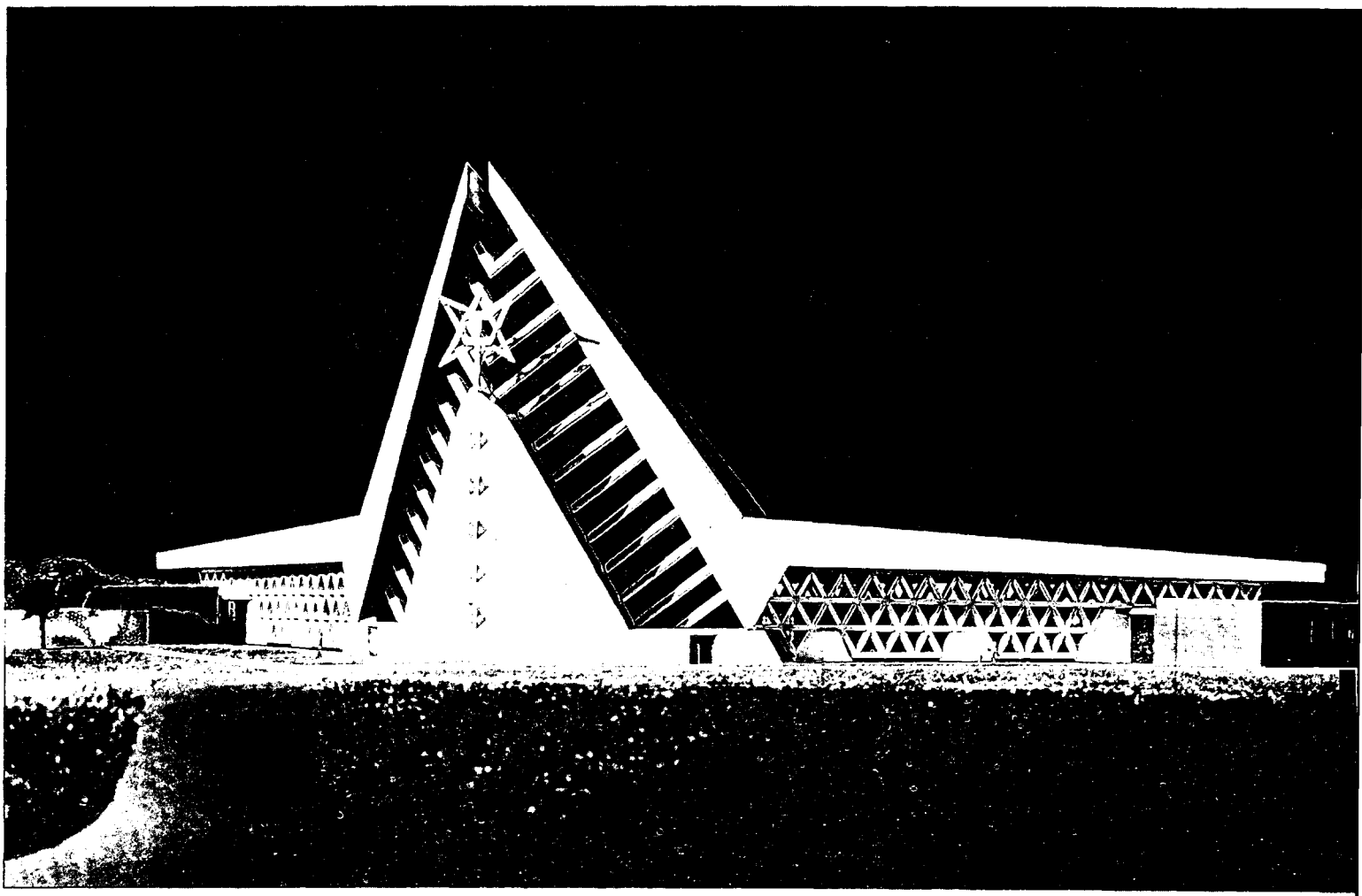
A House of Worship in Michigan

by Albert Kahn Associated Architects and Engineers, and Percival Goodman, F.A.I.A., Associate Architect

Synagogue of the Shaarey Zedek Congregation, Southfield, Michigan. This 100,000-sq-ft sanctuary seats 3,600 people—all within 120 ft of the Bema. 80 ft above grade at its highest point, the sanctuary is walled with precast concrete, and glass. Concrete was also considered for the structural frame, but steel was chosen, according to the designer, for its economy and because it was best suited to the general configuration.



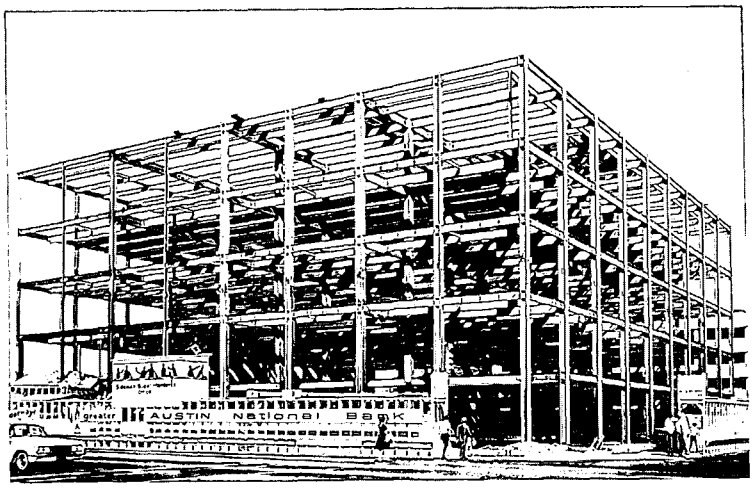


Architects and Engineers: Albert Kahn Associated Architects and Engineers.
Associate Architect: Percival Goodman, F.A.I.A.
General Contractor: O. W. Burke Co.
Steel Fabricator and Erector: Whitehead & Kales Company.
Steel for the 602-ton frame was supplied by Bethlehem (shapes and plates).

BETHLEHEM STEEL

A Bank Building in Texas

by Page, Southerland & Page



The Austin National Bank Building, Austin, Texas, is scheduled for completion in early 1963. This five-story structure will be sheathed with natural color aggregate sections and vertical metal sun shields.

It's the first multi-story structure in Austin in 20 years to be built on a steel frame, rather than on a reinforced concrete skeleton. Reasons for return to steel: (1) economy, thanks to higher-strength A36 steel, Bethlehem lightweight shapes, and a continuous, welded frame, (2) "thinner" steel columns, needed for maximum usable floor area in the future multi-story portion (three-column two-bay framing system), (3) the ease and economy of adding on to a steel structure in the future (in this case adding on 17 stories to 5).

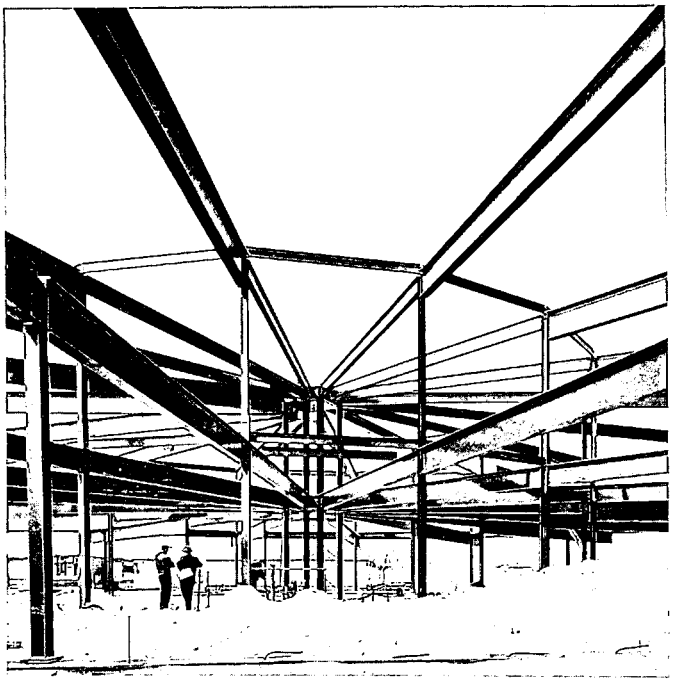
Architects: Page, Southerland & Page.
Associate Architects: Fehr and Granger.
General Contractor: Rex D. Kitchens Construction Co.
Fabricator: Tips Iron & Steel Co. (1,035 tons).
Erector: F. B. McIntire Erection Co., Inc.

BETHLEHEM STEEL

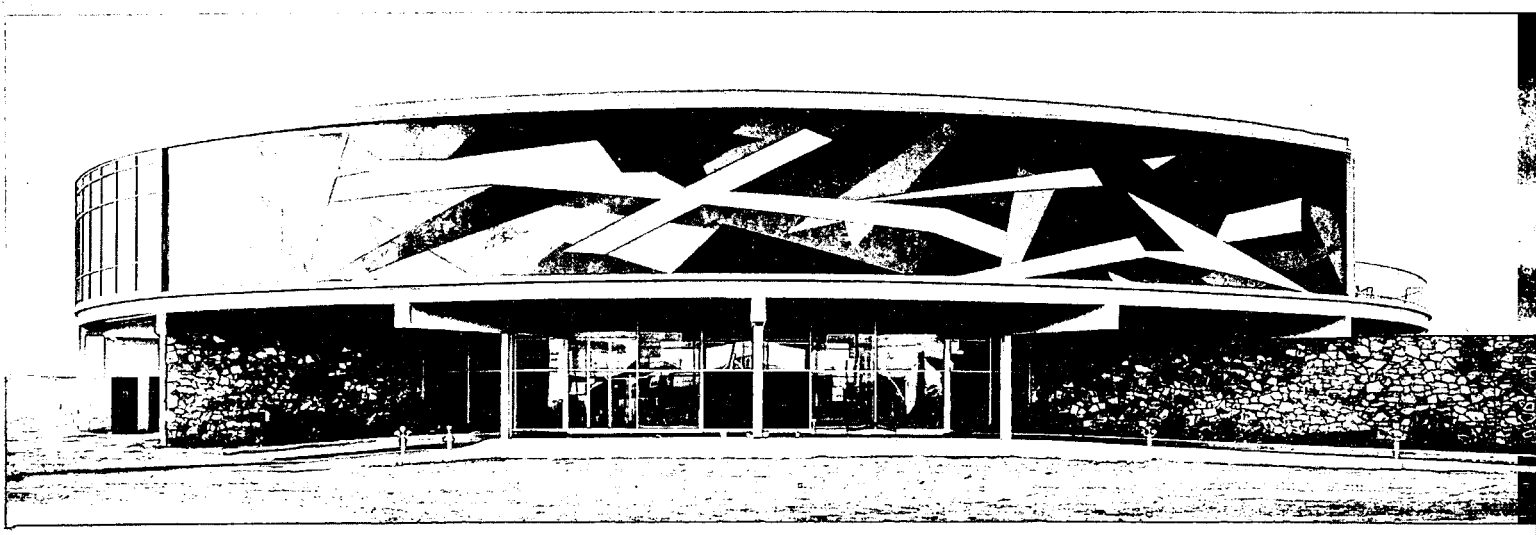
A Cabana Club in New York

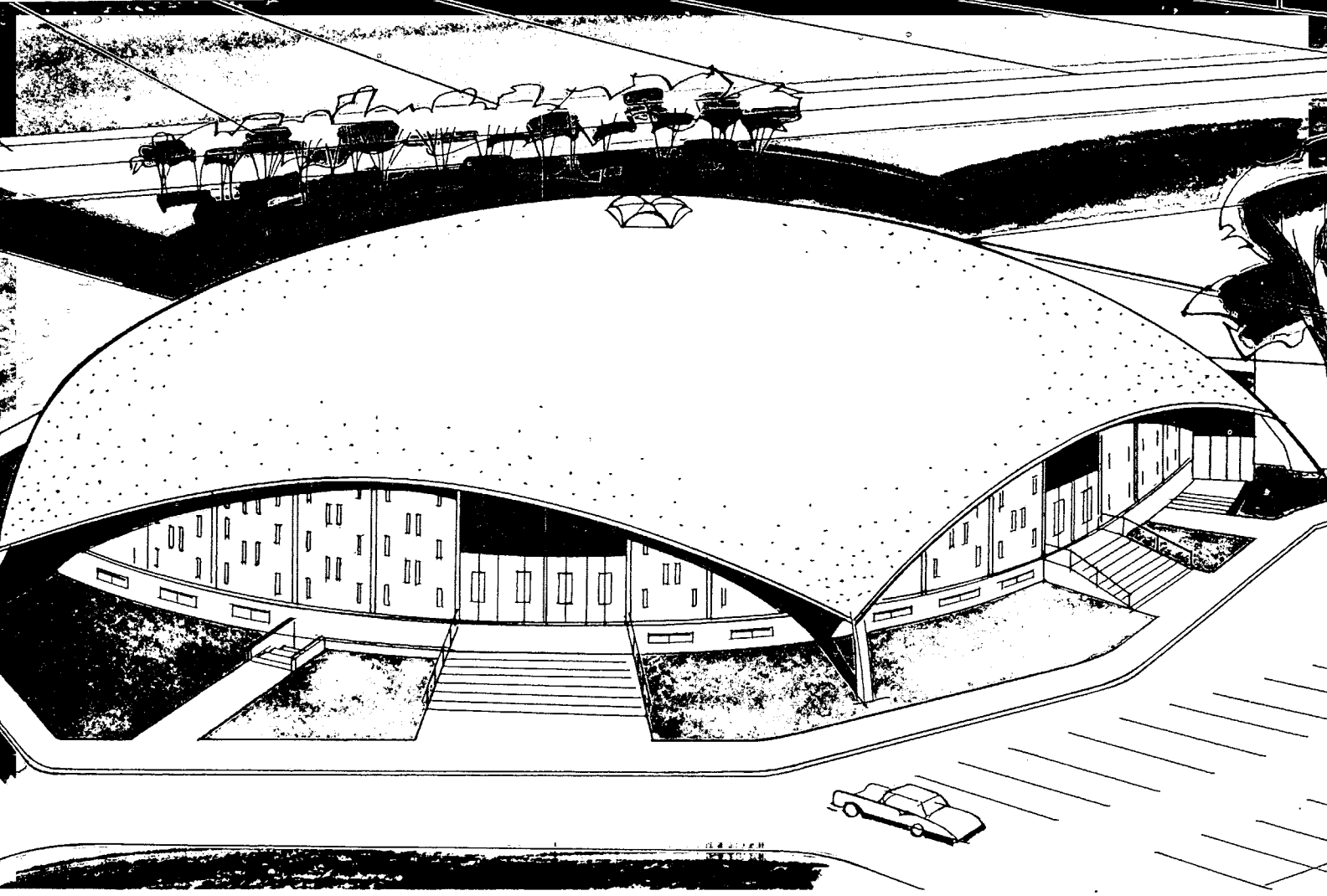
by Richard I. Pezenik

El Patio Cabana Club, Atlantic Beach, L.I., N.Y. Circular restaurant on second floor (22,000 sq ft per floor) can seat over 1,500 diners. Walled in tinted glass, except for a 200 x 20 ft mosaic-tile mural, it's cantilevered 20 ft in the front of the building and 10 ft in the back on steel beams. Central core, built around the four interior steel columns, contains the kitchen and all utilities. All dining rooms, readily accessible to the kitchen, are free of cluttering columns.



Consulting Engineer: Richard I. Pezenik.
General Contractor: Royal Land & Development Corp.
250 tons of Bethlehem structural steel were quickly fabricated and erected by *Standard Structural Steel* to help speed completion of this building needed to replace the previous building which burned down.





Field House, Walt Whitman High School, Bethesda, Md. Geodesic-dome design chosen by Montgomery County Board of Education when several advantages over alternate designs were noted in preliminary research studies conducted by Educational Facilities Laboratories, Inc., an agency of the Ford Foundation. Compared to a conventional box-shaped gymnasium, the dome provides (1) about 4,200 more sq ft of free interior, (2) no interior columns to block spectators' vision, (3) seating space for 1,200 more spectators, (4) a slightly lower cost.

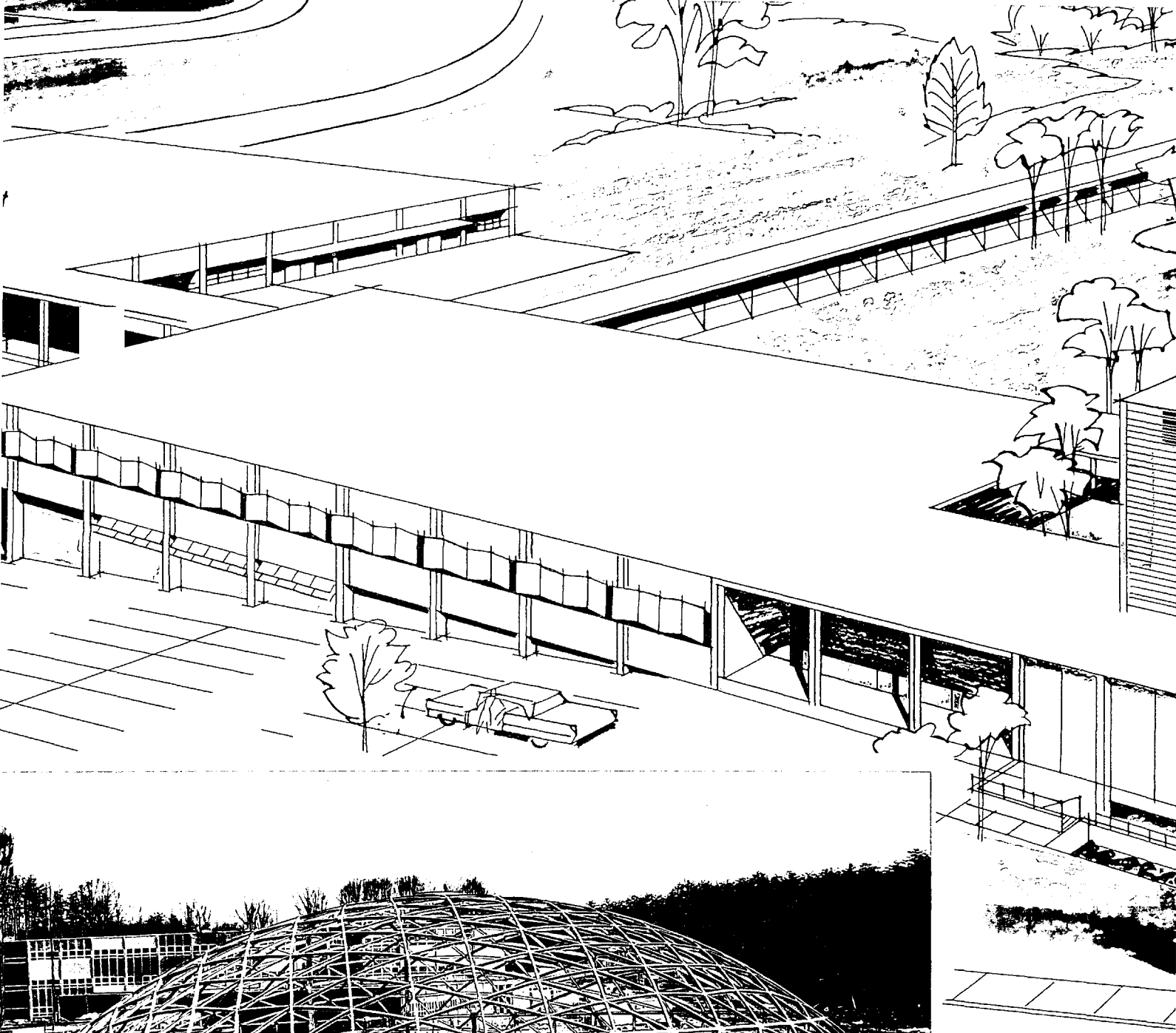
A Field House in Maryland

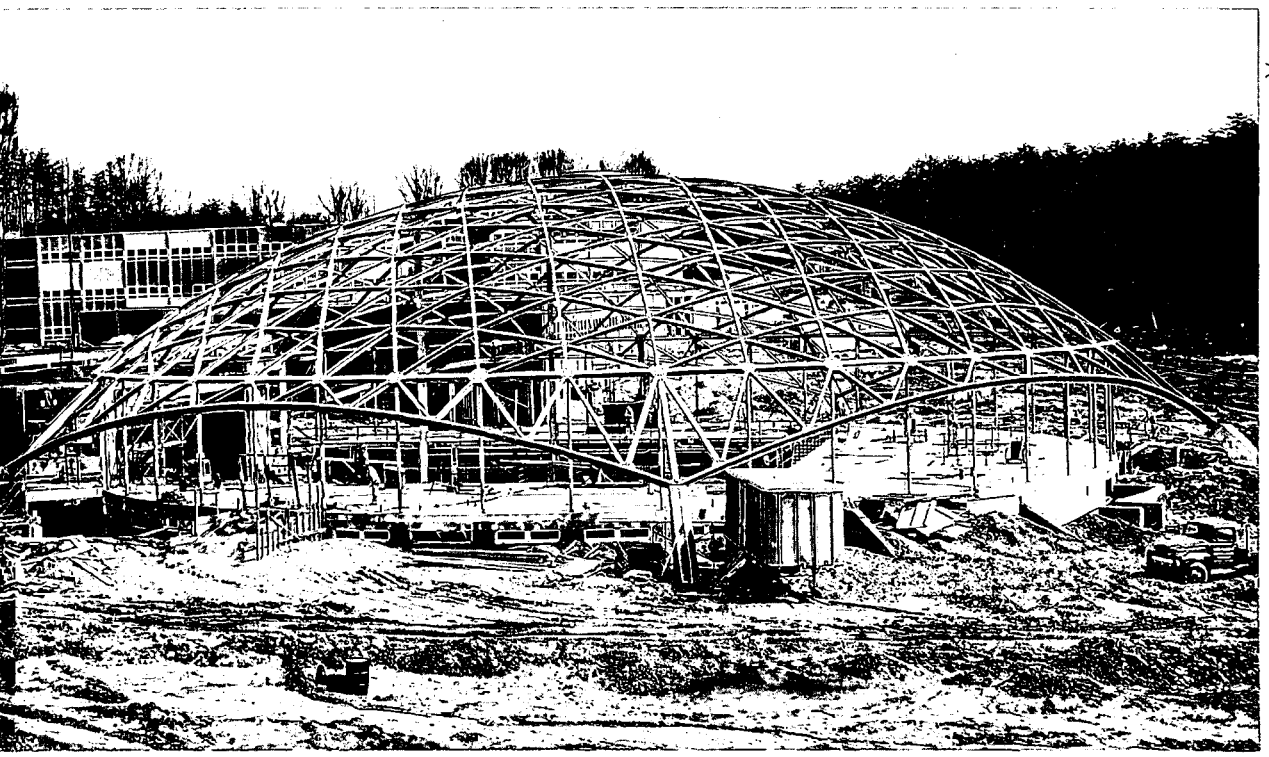
by McLeod and Ferrara

From the many design studies and cost analyses made by Synergetics, Inc., consultants for the design of the structural characteristics of the dome, the most practical and economical type of superstructure proved to be the combination of a structural steel framing system, covered with a gypsum roof deck and composition roof covering. The structural steel framing was left exposed on the underside of the roof, thus giving a honeycomb effect to the domed ceiling.

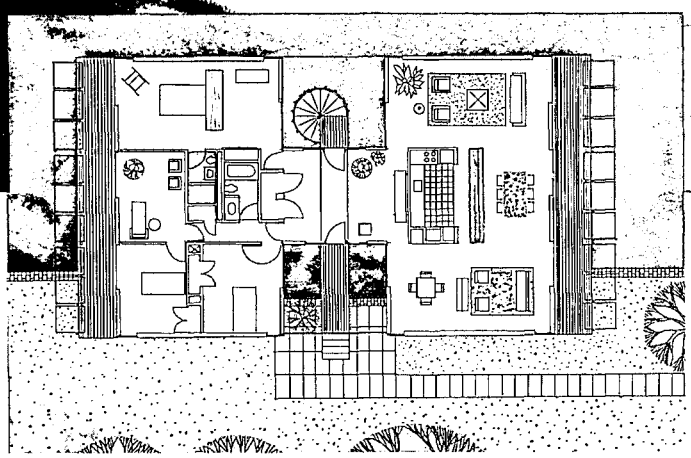
The slender steel frame rests on five concrete pylons around the base of the 157-ft-diam dome. Steel members were curved in the fabricating shops to speed erection, which took less than five weeks.

BETHLEHEM STEEL





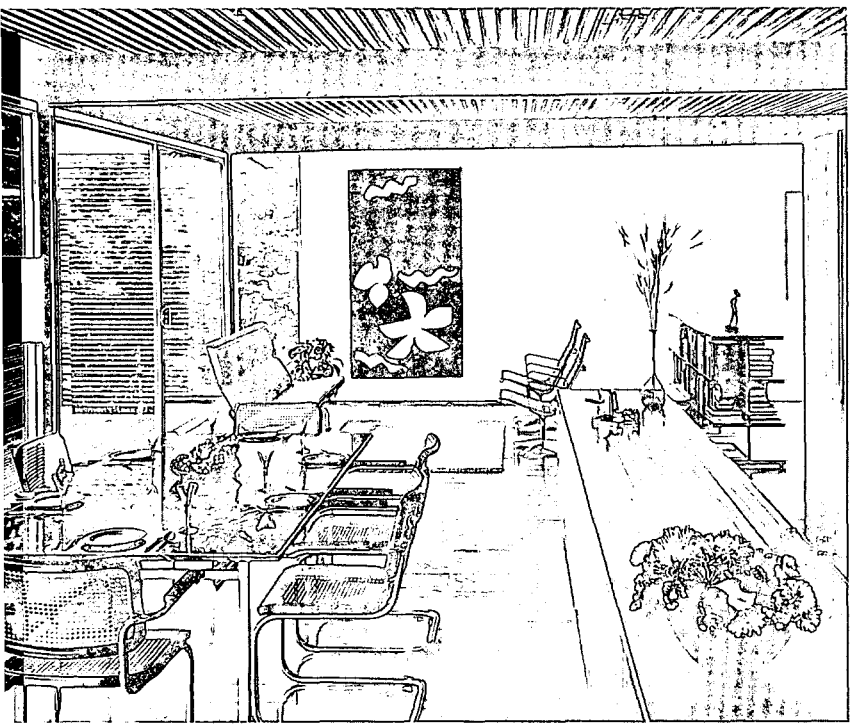
Architects: McLeod and Ferrara.
Consulting Engineers: Synergetics, Inc.
General Contractor: Merando Inc.
Steel Fabricator and Erector: Atlas Machine & Iron Works Inc.
150 tons of structural steel supplied by Bethlehem.



Two entry courts (small bridge crossing retaining wall, and circular stairway from carport), along with enclosed entry hall, divide the plan into two distinct parts—living areas to the east, bedrooms to the west.

A Home in New Jersey

by Davis, Brody & Wisniewski



Philip Drill house, West Orange, N.J., winner of a 1962 architectural award of excellence from the American Institute of Steel Construction.

Award jury praised the house for combining steel framing with other materials: glass window-walls; pivoted redwood grilles; exterior wall surfaces of oriental stucco; structural decking fabricated of alternate 1 x 4's and 2 x 5's, glued together; and interior panels of smooth plaster.

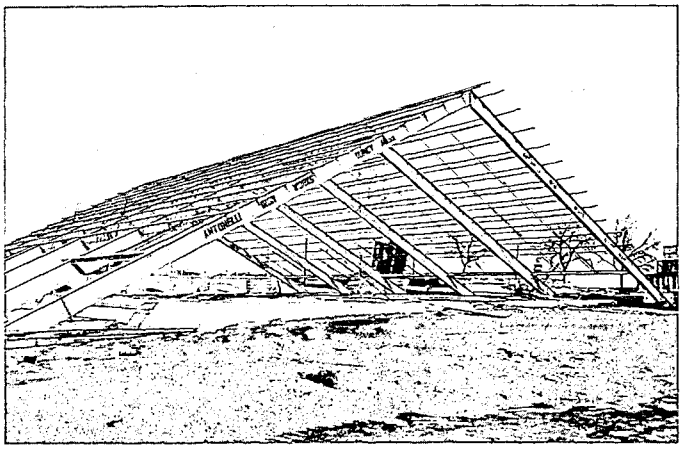
Bethlehem steel frame is composed of star columns, made up of four steel angles spaced two inches apart. Beams are built-up tubes of steel plates with continuous bar separators.

Architects: Davis, Brody & Wisniewski.
Structural Engineers: Wiesenfeld & Leon.
General Contractor: Max Drill, Inc.
Fabricator and Erector: Interstate Iron Works.

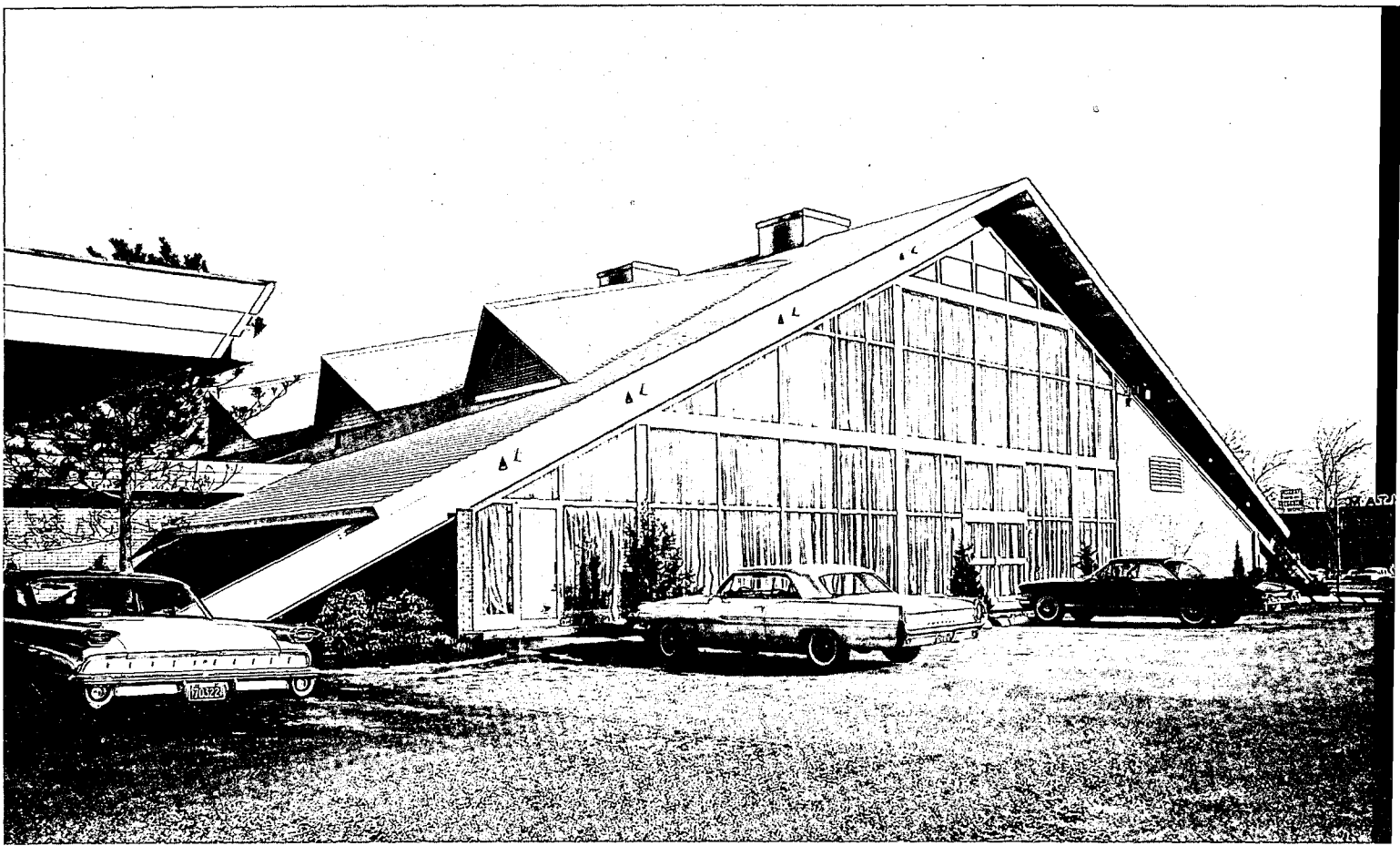
A Motor Hotel in Massachusetts

by Bedar & Alpers

Dolphin Motor Hotel, Quincy, Mass. This 120-ton steel tent frames a restaurant, cocktail lounge, and three multi-purpose rooms. It took just 3½ days to erect the steel A-frame, which is 37 ft high, 125 ft long, and 142 ft wide. Bethlehem supplied all the structural steel used in this and the second phase of the 104-unit motel's construction.



Architects: Bedar & Alpers.
General Contractor: Oxford Construction Corp.
Steel Fabricator: Antonelli Iron Works, Inc.
Steel Erector: Daniel Marr & Son Co.



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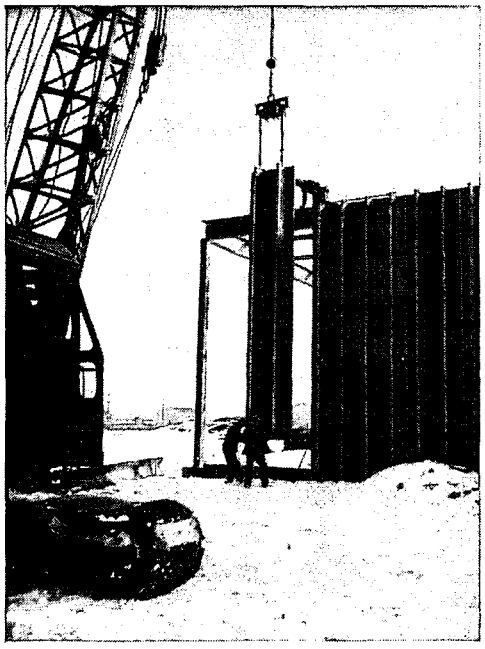
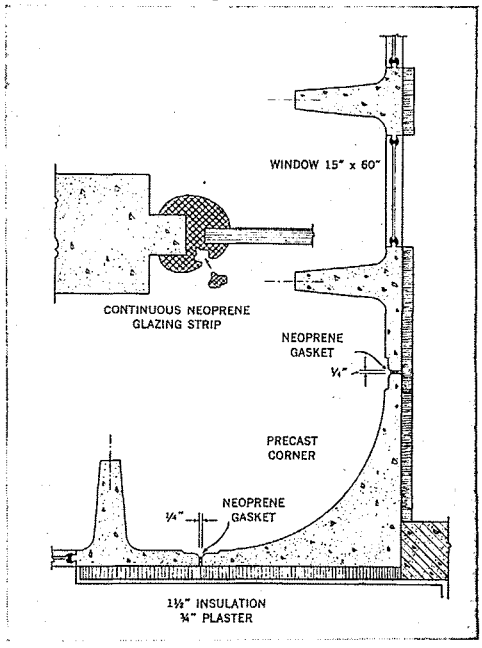
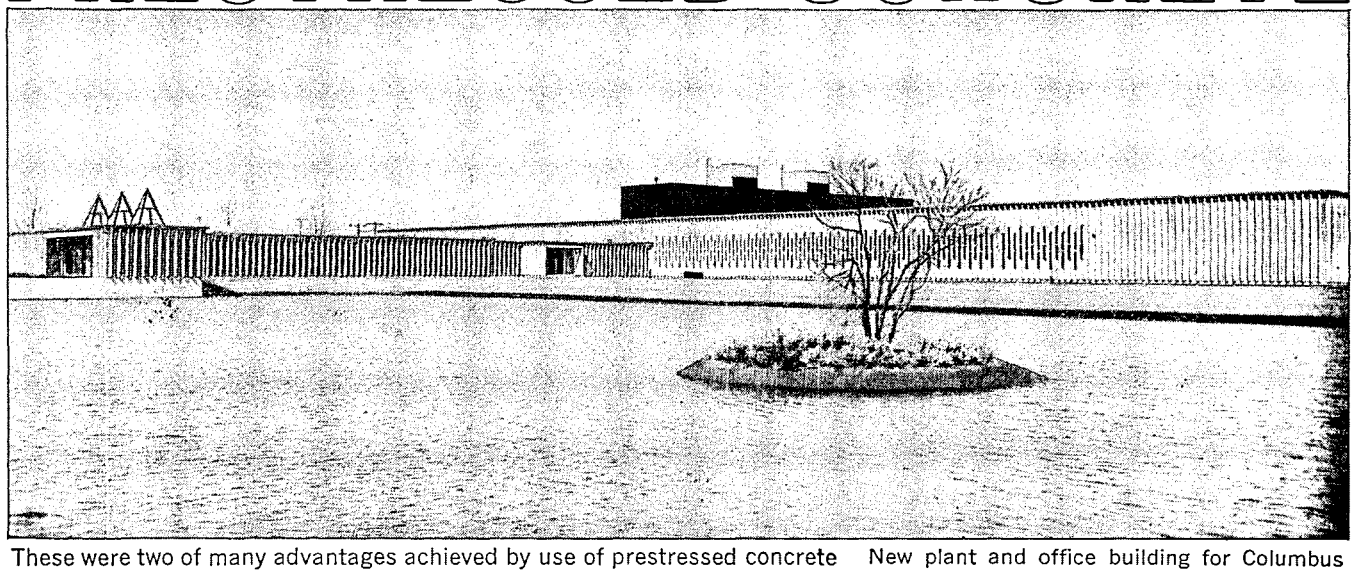
Mass produced in the least possible time, the prestressed concrete units were erected quickly and easily in winter weather. Double-Tees are bolted to metal bearing and ledger angles.



occupancy in shortest possible time at lowest possible cost with PRESTRESSED CONCRETE

Window openings were cored in the Double-Tee slabs and windows of double-strength glass were glazed with an extruded neoprene "zipper-type" glazing strip, fitting over and adhering to concrete tongue of cored section.





These were two of many advantages achieved by use of prestressed concrete Double-Tee units in the construction of this modern office-plant building.

With these units the architects also created a strikingly aesthetic and functional design with a strong vertical accent and an interesting window pattern that offers sunshade protection and helps reduce air-conditioning costs. Exterior painting and maintenance costs are virtually eliminated.

Furthermore, the prestressed Double-Tees, insulated, plastered or painted as required, offer the greatest amount of usable space and can be quickly and easily removed and reused as additional areas are needed.

This structure, covering a gross area of 106,000 square feet, was completed and occupied within 11 months — an outstanding application of functional design and construction concept for industrial buildings.

Ask Roebling, pioneer in prestressed concrete methods and leading producer of prestressing wire and strand, for technical information and the name of your nearest prestressed concrete fabricator. The Colorado Fuel and Iron Corp., Roebling Construction Materials Div., Trenton 2, New Jersey.

New plant and office building for Columbus Divisions of Thompson Ramo Wooldridge, Inc., at Worthington, Ohio. Architects: Brooks & Coddington, Columbus. Structural Engineers: Barber, Magee & Hoffman, Cleveland. General Contractor: The Albert M. Higley Co., Cleveland. **Prestressed Concrete Fabricator: Permacrete Products Corp., Columbus.**

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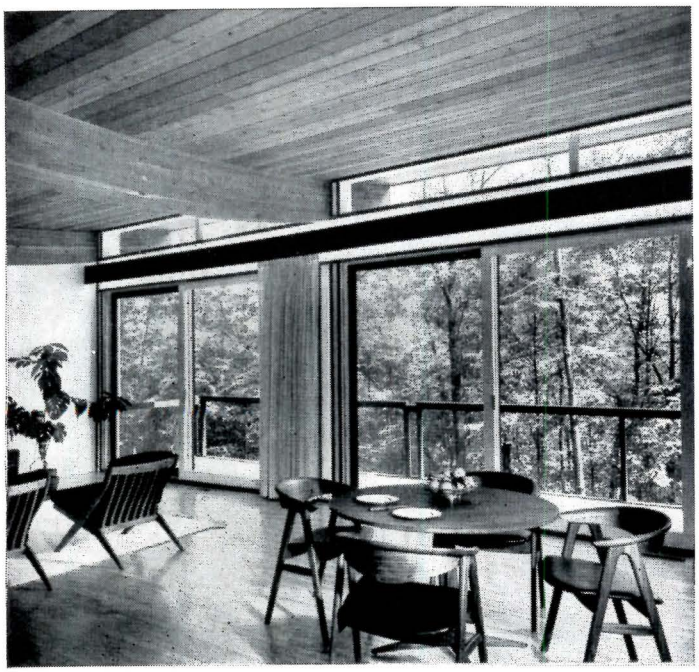

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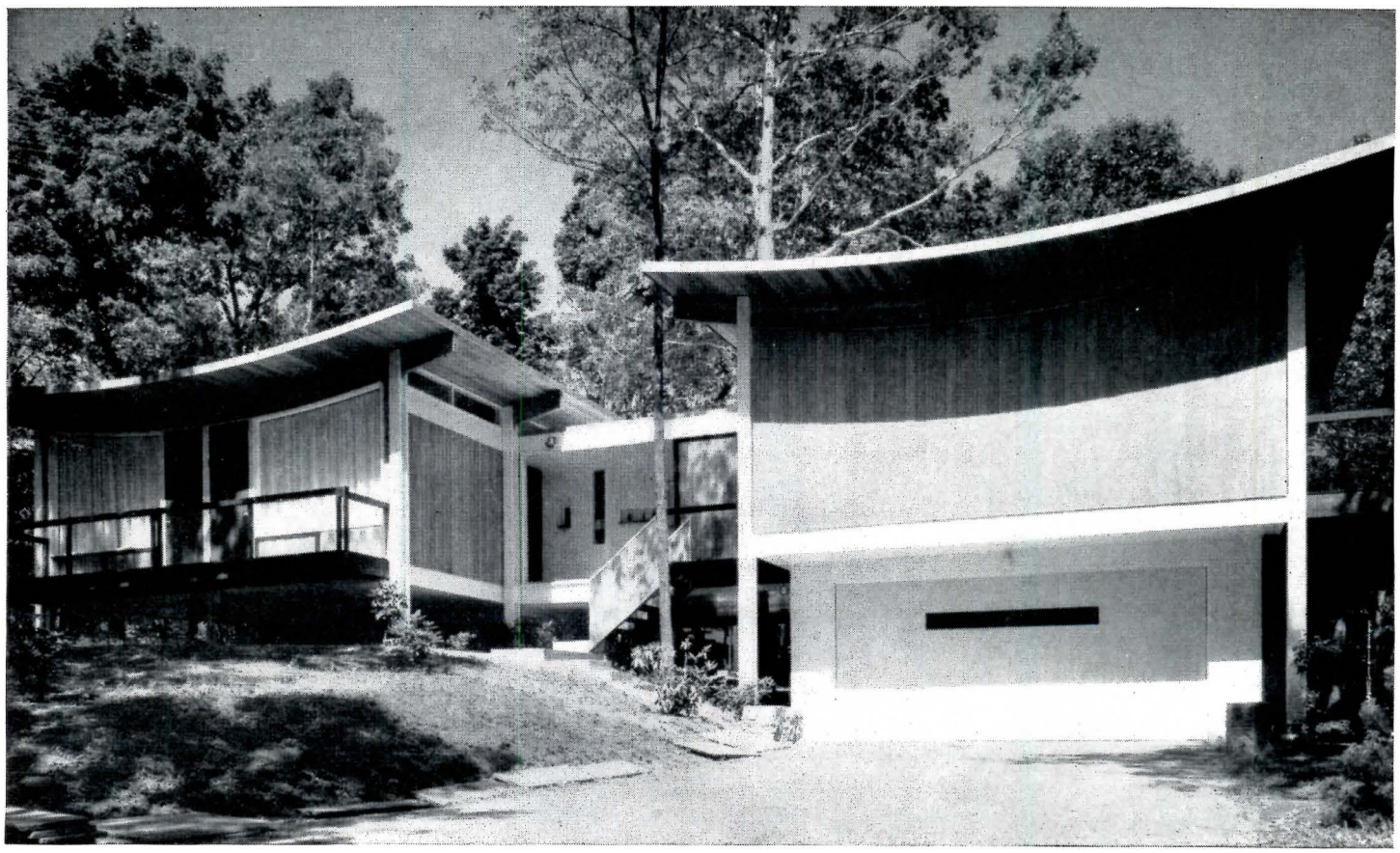
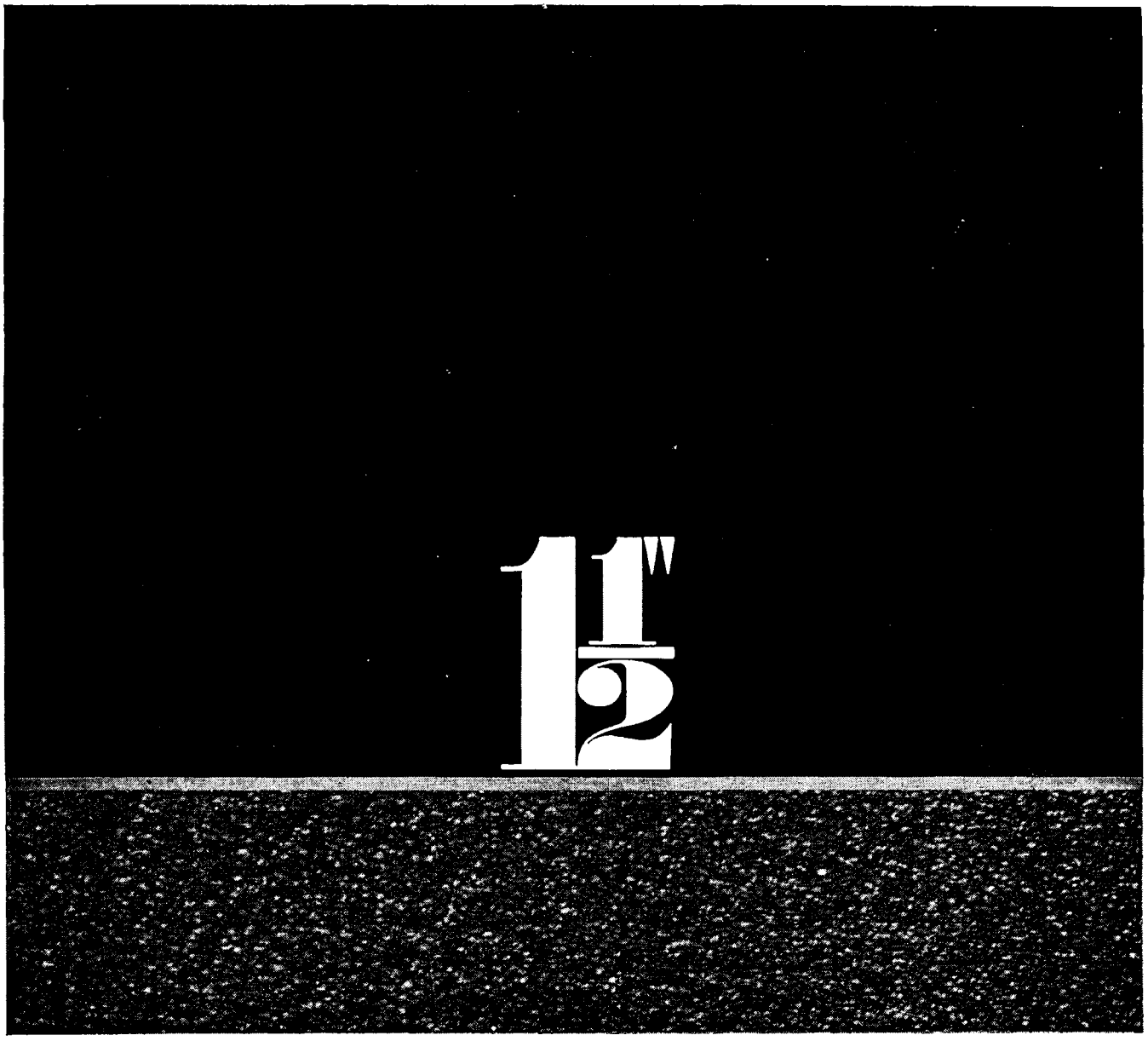
find the better way with **wood**



Wood bests any level, as demonstrated in this modern home topped with twin oriental-flared roofs gracefully supported by full-length laminated beams, double-posts bolted together, and siding solidly planked from corner to corner. This structure of striking simplicity was designed by Jay Fleishman, architect.



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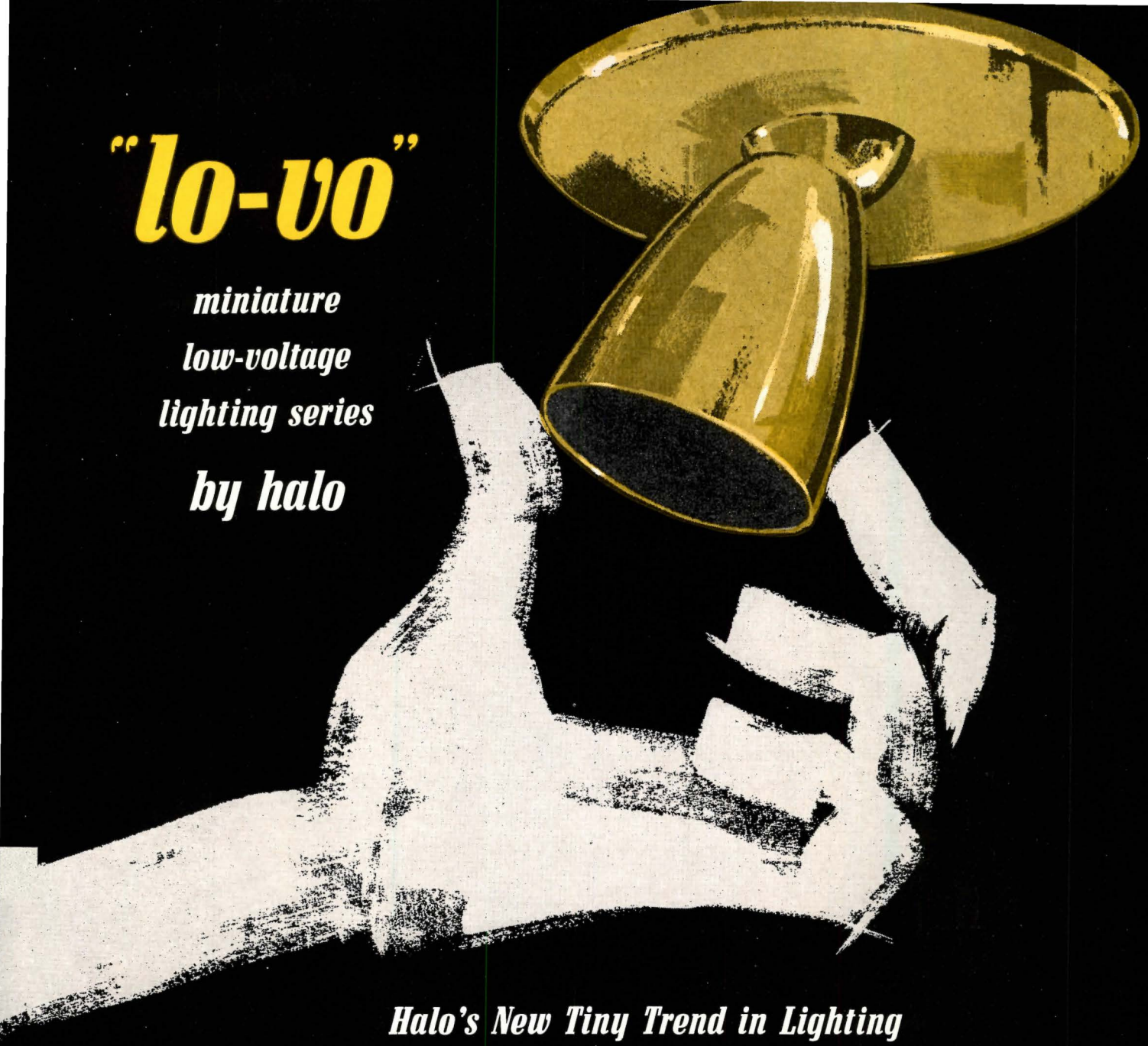
by halo



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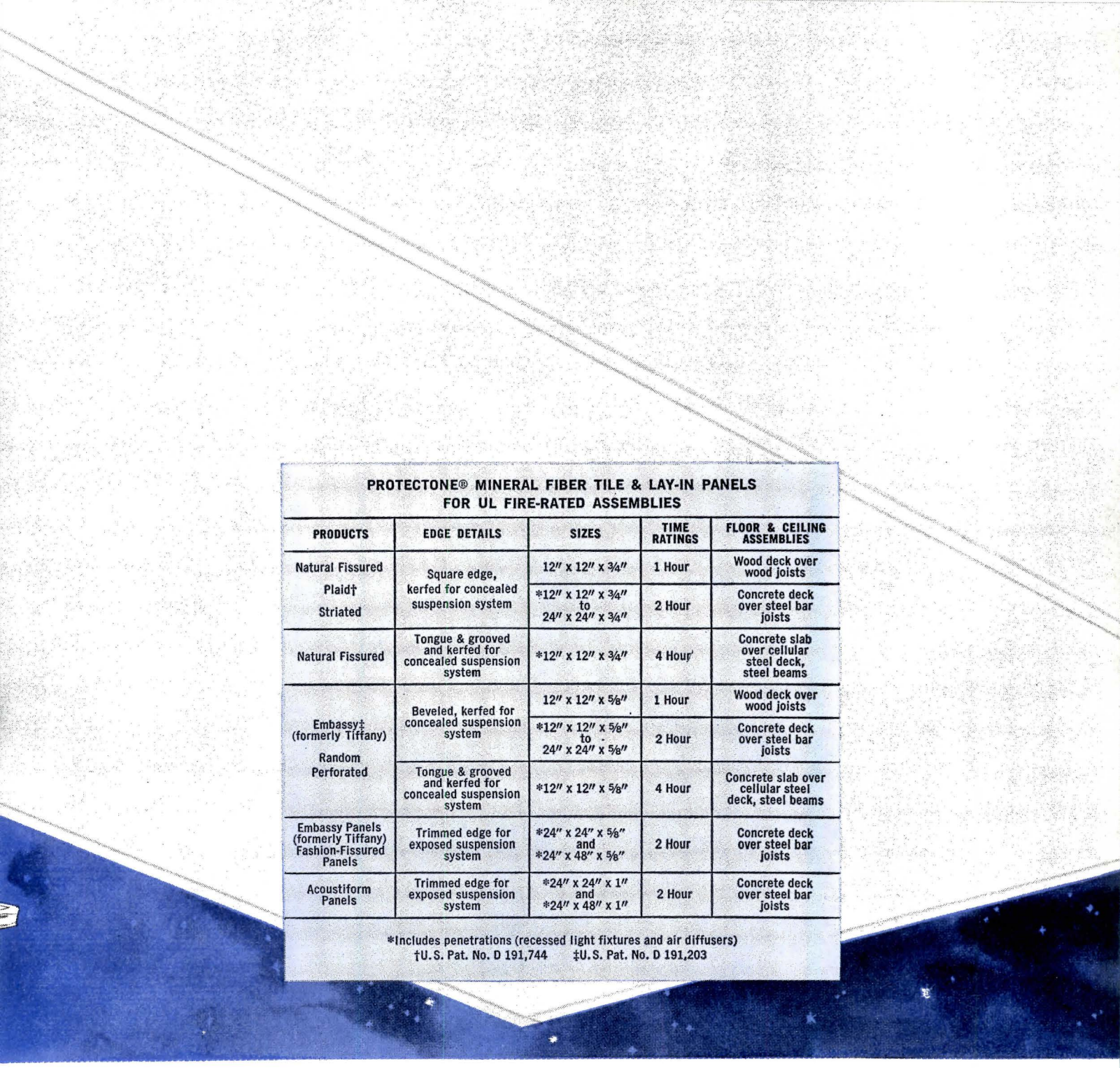

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		*12″ x 12″ x ⅝″ to 24″ x 24″ x ⅝″	2 Hour	Concrete deck over steel bar joists
	Tongue & grooved and kerfed for concealed suspension system	*12″ x 12″ x ⅝″	4 Hour	Concrete slab over cellular steel deck, steel beams
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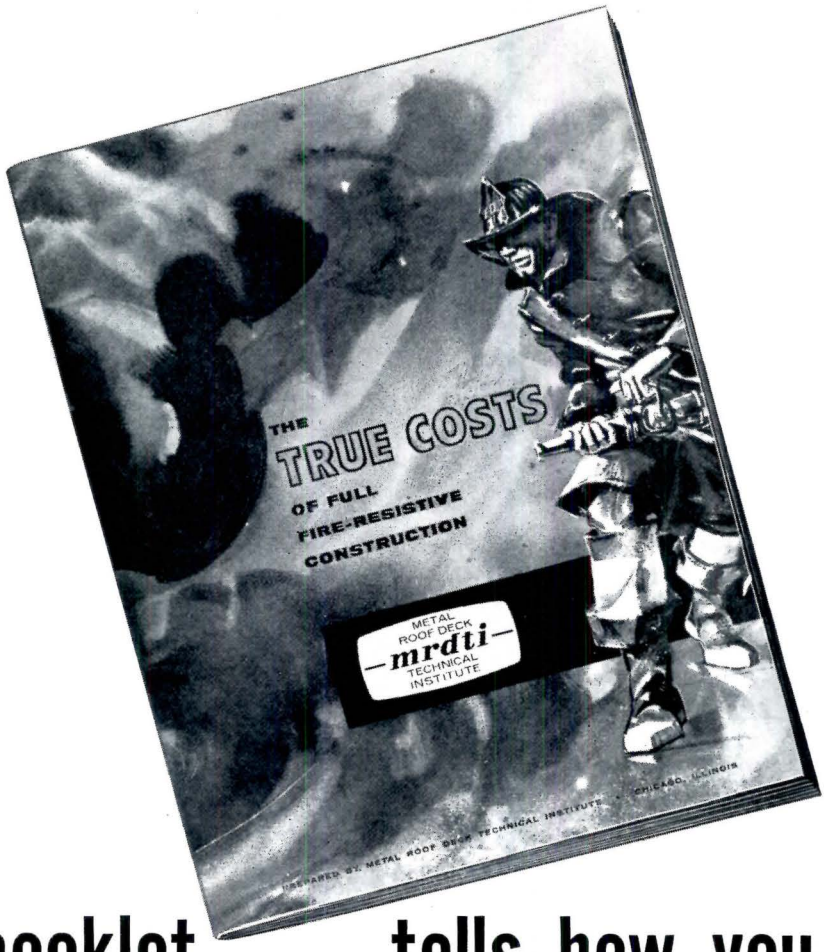

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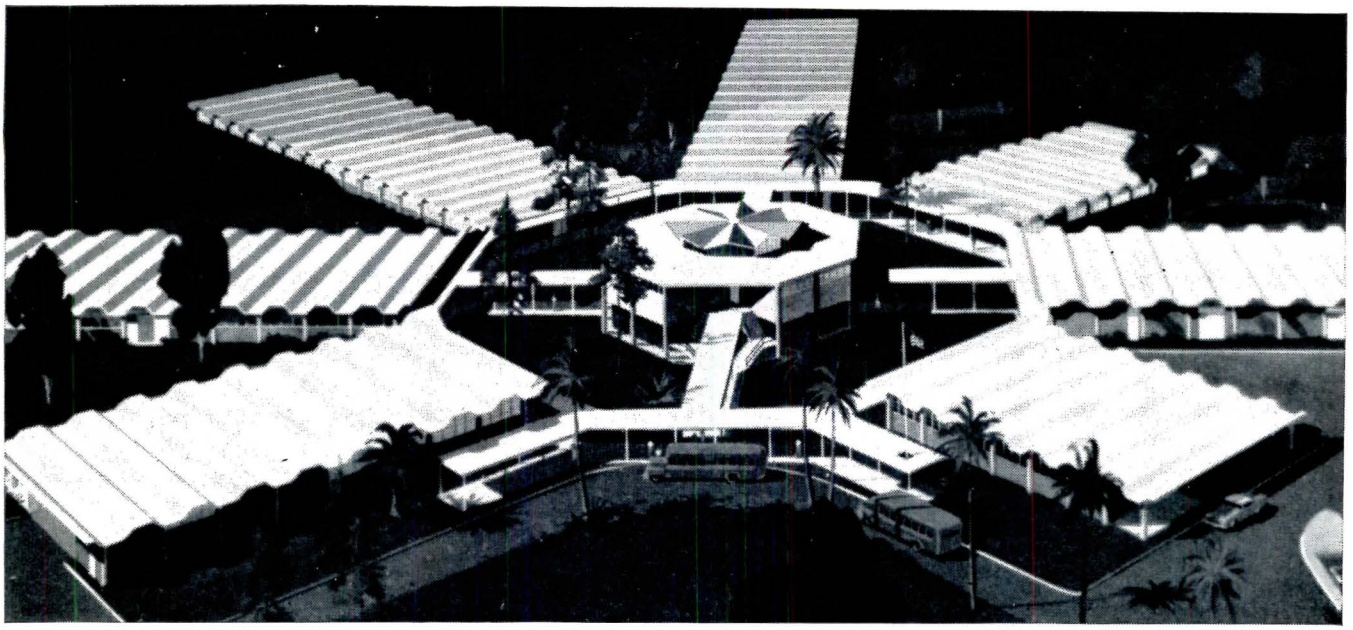

Charles City Community High School, Charles City, Iowa • Architect: The Griffith Company, Ft. Dodge, Iowa • Consulting Engineer: E. H. Pietsch, Des Moines, Iowa • General Contractor: Jens Oleson Construction Co., Waterloo, Iowa • Plumbing Contractor: E. L. Secory, Clear Lake, Iowa • Distributor: A. Y. McDonald Mfg. Co., Des Moines, Iowa

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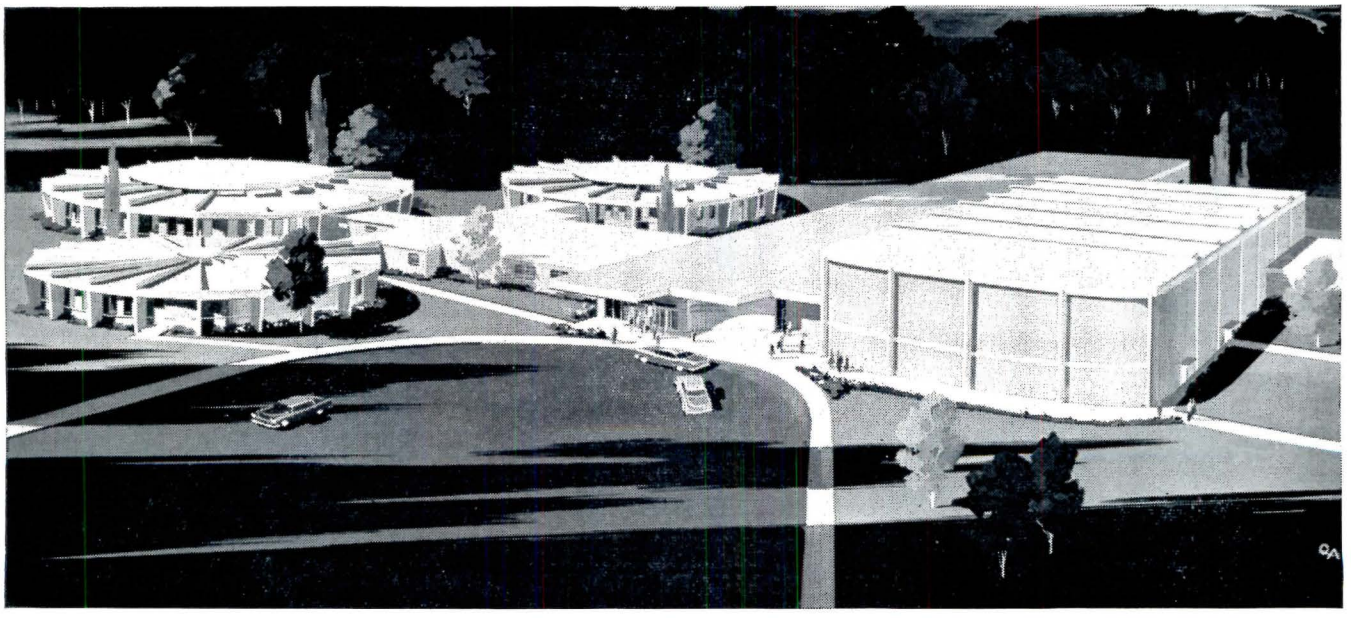

Forrest Senior High School #207, Duval County, Florida • Architect: Hardwick & Lee, Jacksonville, Florida • Engineer: Frank B. Wilder & Assoc., Jacksonville, Florida • General Contractor: Wesley of Florida, Inc., Jacksonville, Florida • Plumbing Contractor: Walter Denson, Inc., Jacksonville, Florida • Distributor: All State Pipe Supply Co., Inc., Jacksonville, Florida

NEWS REPORT

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

Photo: David Hirsch

Yale's Payne Whitney Gymnasium is framed in passage between dining halls of Saarinen's colleges.

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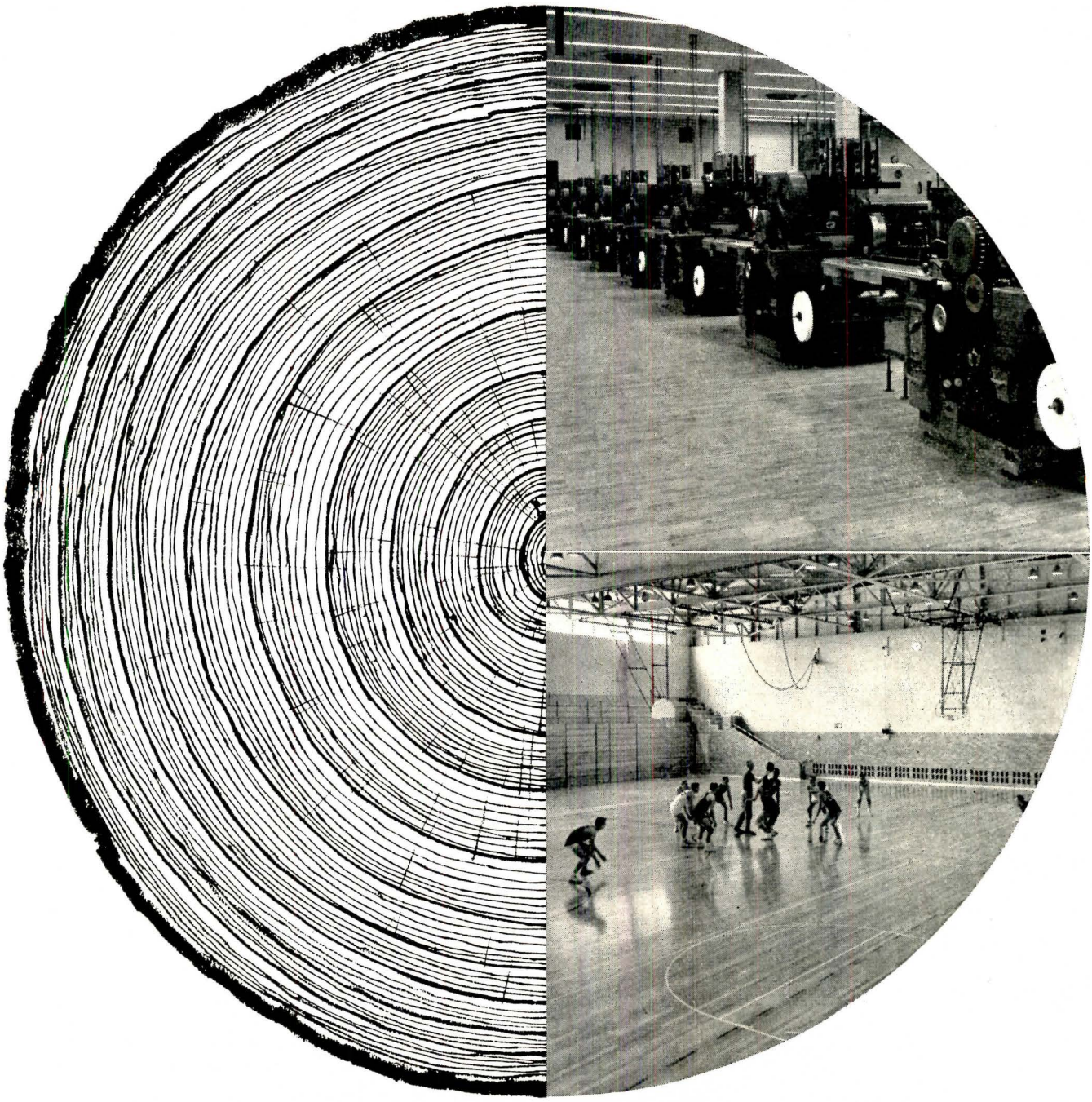

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SAARINEN COLLEGES IN SITU AT YALE

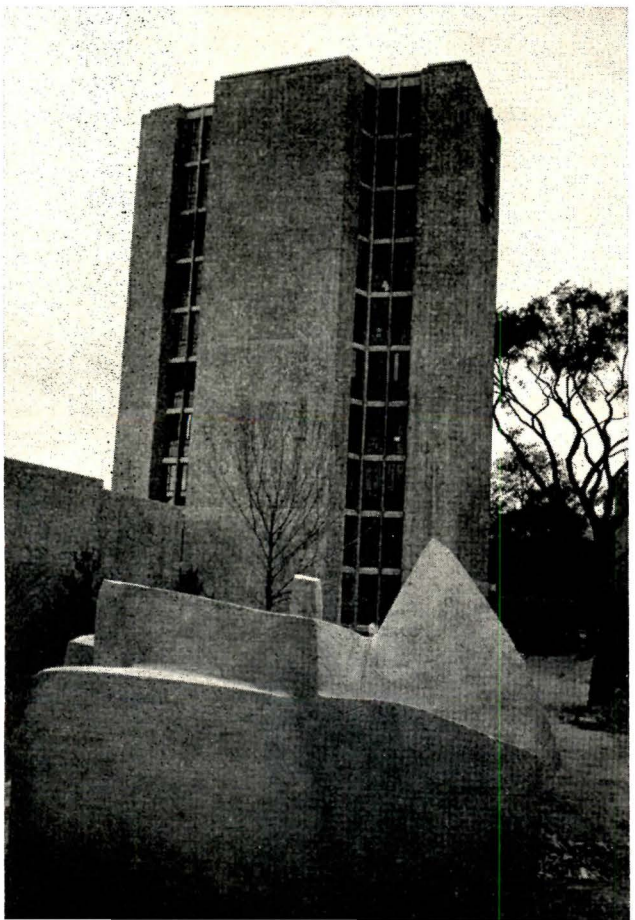
A walk through the older colleges and quadrangles of Yale University reveals buildings and vistas that are eminently "collegiate" in feeling: James Gamble Roger's eclectic Harkness Quadrangle and the rich grab-bag of the Old Campus, for instance.

To this New Haven scene have been added Eero Saarinen's Ezra Stiles College and Morse College. Situated on a cater-cornered site between the neo-Gothic Payne Whitney Gymnasium and the equally neo-Gothic Graduate School, the colleges are a triumph of (1) exploration of new forms for collegiate living, and (2) blending of an exciting new concept with older styles for an admirable homogeneity. The buildings, which on casual viewing might seem a somewhat histrionic *tour de force,* are really a most carefully thought-out design that has already become of a piece with its surrounding, more traditional milieu. That this solution should appear decidedly "in place" and yet bear the unmistakable mark of its talented creator is not surprising in view of the fact that, after fundamental education in the atelier of his father Eliel, Saarinen went to Yale, and was acquainted with its warmth and charm.

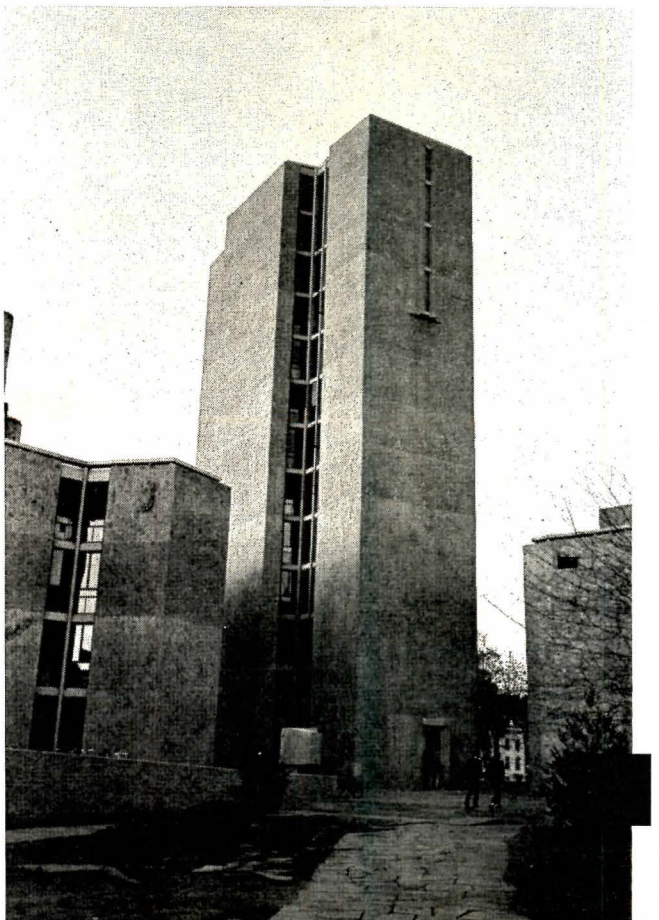
In writing about the Stiles-Morse project during the design phase, Saarinen said, "Somehow, the architecture had to declare them as *colleges,* not as dormitories. The more we studied and thought about their function and purpose, the more convinced we became that their emphasis as colleges must be clearly on the individual as an individual, not as an anonymous integer in a group." This emphasis has been realized in grouping the

Continued on page 60

Morse College tower.



Stiles College tower.



Photos: David Hirsch

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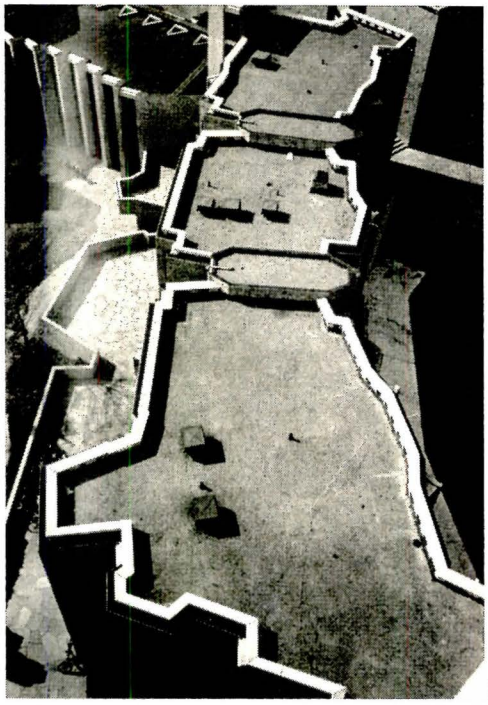

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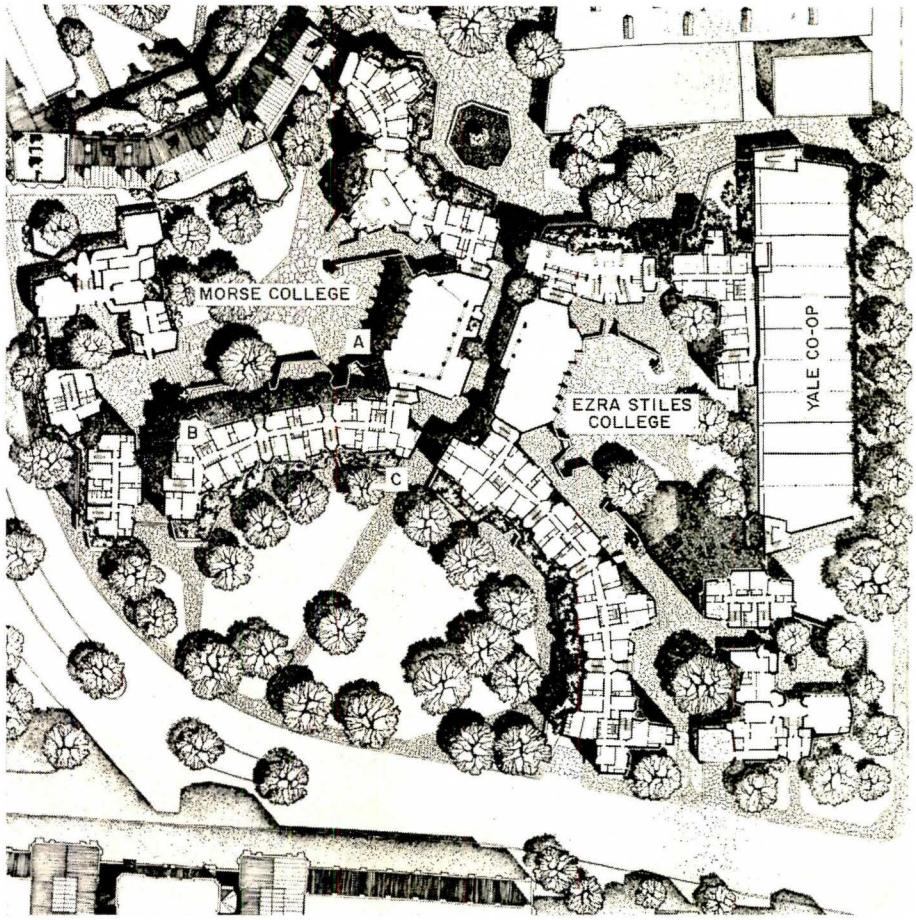

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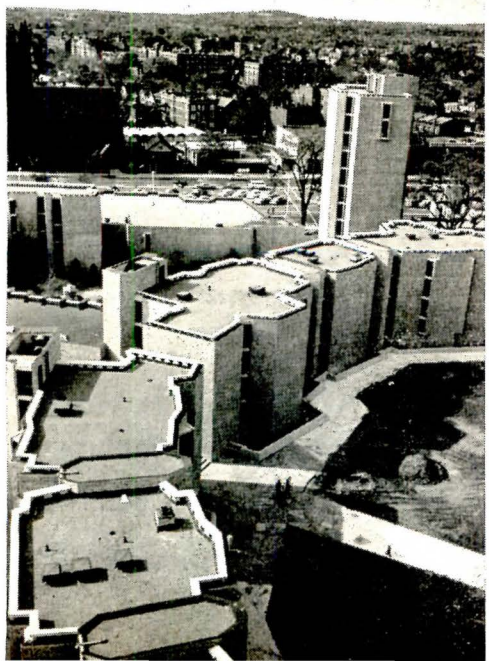
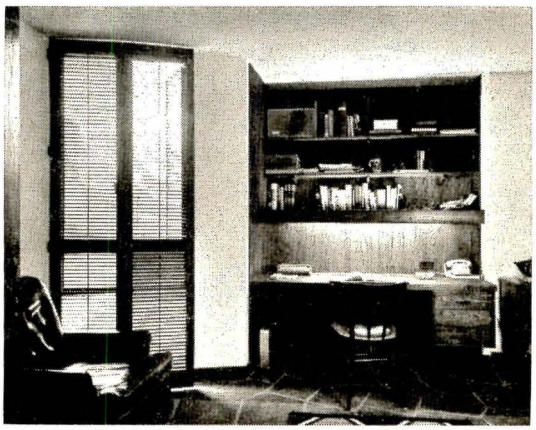
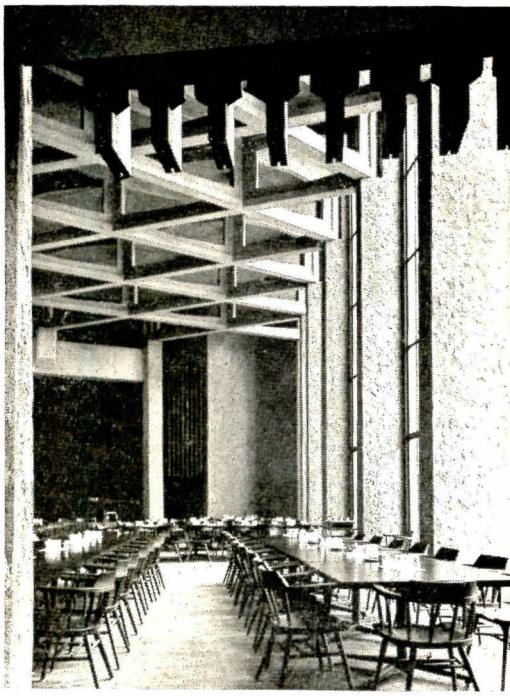


Saarinen's plan for Ezra Stiles and Morse colleges joins them in a giant arc facing Payne Whitney Gymnasium. At the center of the plan, the two dining halls share a common, underground kitchen. Each college has a tall dormitory building, conforming to the Yale tradition of a tower or belfry for each building group. Saarinen stated that "it seemed right that these two colleges should also raise their heads high." Occurring close by the towers at either end of the crescent are buildings containing offices and living quarters for the masters of the colleges. The new Yale Co-op store is situated at the rear of the site on Broadway. Saarinen thought that if Tower Parkway, between the colleges and the gymnasium, is ever closed, a third college could be placed near Morse College to extend the great arc. Plan is from the new Yale University Press book Eero Saarinen on His Work, *edited by Aline B. Saarinen. Photographs at left are keyed in the plan.*

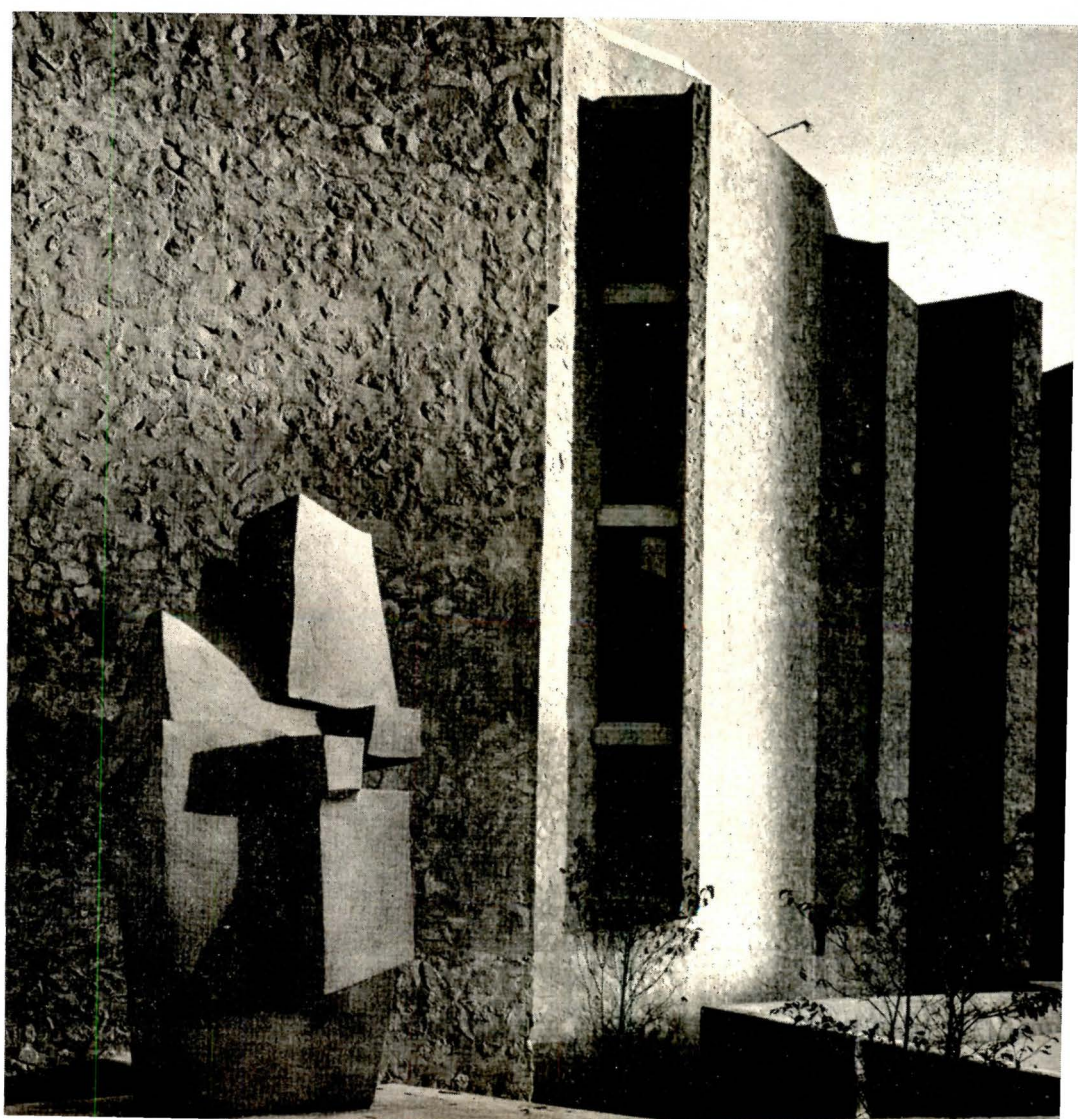
Study rooms or libraries use the major materials of all interiors at the colleges: stone, plaster, and wood. Furniture consists of segmented study desks, modified "captain's" chairs, and the occasional grace note of a tufted leather Eames lounge chair. Lighting is by ceiling spots and chandeliers.



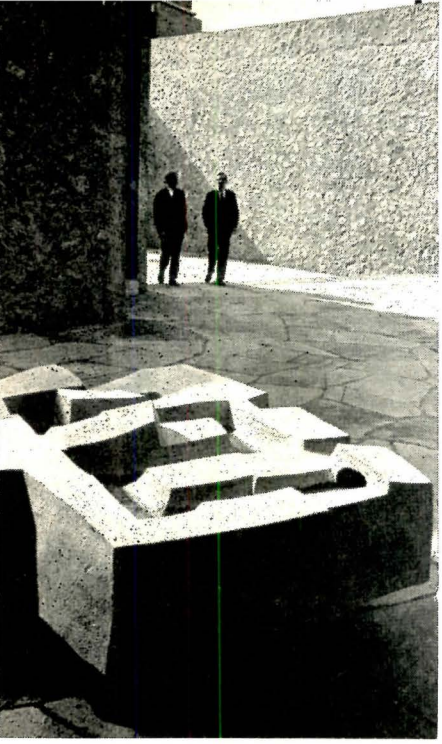
The majority of the rooms are for single occupancy. They all view one of the three courts or the main plaza through ceiling-high, narrow slit windows equipped with dark-stained, slatted wooden shutters. Saarinen sought for a variety of individual room shapes, "as random as those in an old inn."

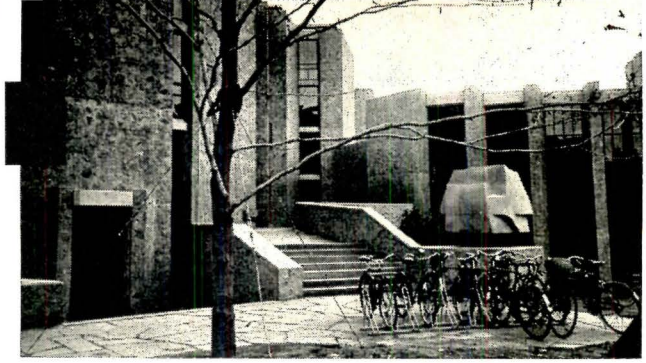


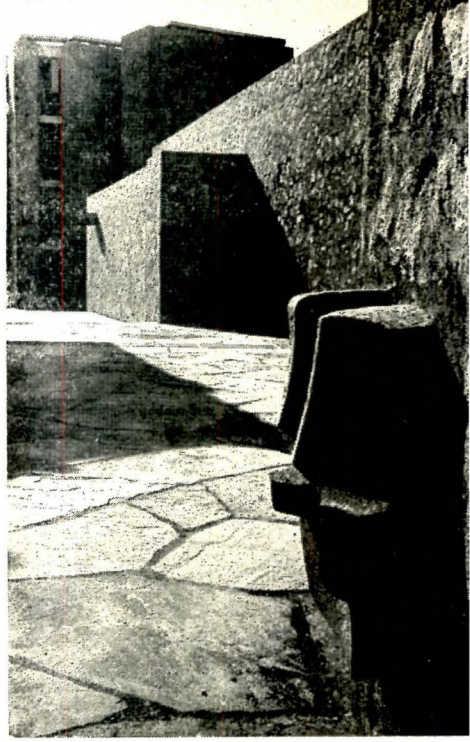
Ceilings of the lofty dining halls are an exposed concrete grid. Saarinen's notes indicated that he intended chandeliers to be designed by a sculptor. The dining halls face out onto the private courts of the respective colleges through ceiling-high glass window walls interrupted by stone piers.



Detail photograph of wall and window shows the interesting texture Saarinen achieved with his stone-in-concrete technique. He intended ivy to be planted to grow over these walls as in the older Yale colleges. The sculpture, as is all sculpture and exterior light screening at the colleges (p. 60), is by Costantino Nivola.



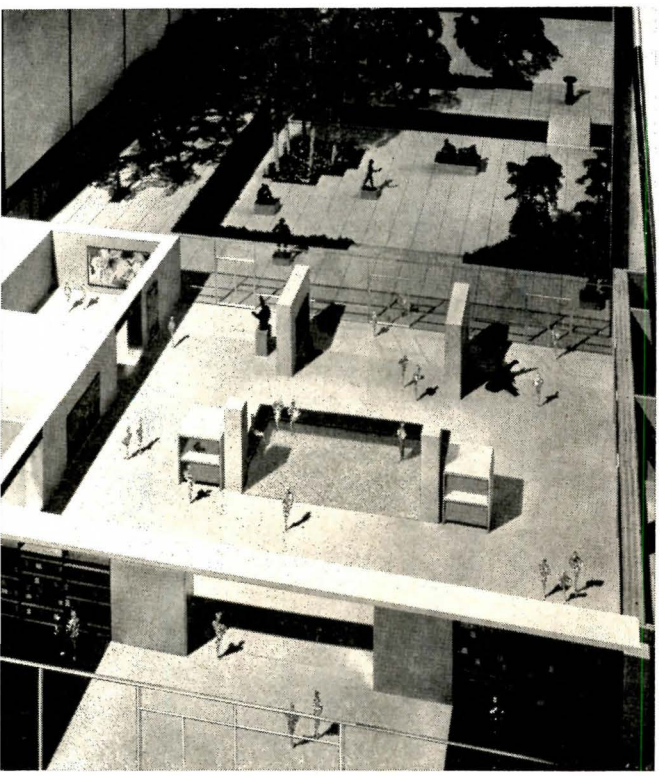


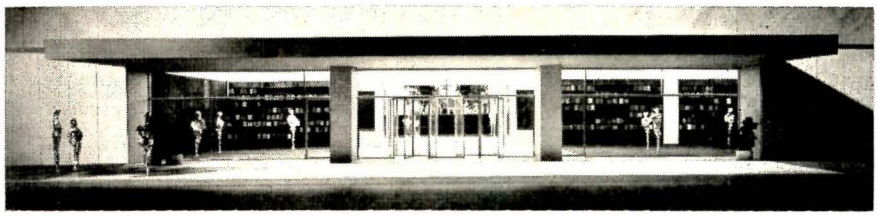


Continued from page 57

rooms in long buildings, short buildings, medium-tall buildings, and two tower buildings, using a varying plan of polygonal spaces. Most rooms are single, four grouped on either side of an interior toilet and shower area. Masters of the colleges occupy their own structures containing apartments and offices at either end of the long axis of the site. The colleges meet at the center of the site to form a long crescent facing Payne Whitney Gymnasium. The approach between them, past the respective dining halls, to the rear court, evinces the spontaneous exclamation, "San Gimignano!"; and the feeling is indeed there, with rough stone-in-concrete walls on rising and falling levels pierced by narrow windows. Students have already realized the informal, "village" aspects of living in Stiles-Morse. We observed one student enter his ground-floor room by casually stepping through the window. In addition to the common, rear courtyard, each college envelopes its own court, the one at Morse relating to the rear of the Graduate School and the Stiles court forming its own, cloistered expression. At the rear of the site is Broadway, a main access street into New Haven, and here Saarinen has placed the new, more simply designed Yale Co-op.

Walking through these unique spaces, one feels more than ever the great loss to architecture of Saarinen. To this viewer, the colleges stand as one of his very finest achievements, and it is good to know that, in one of his last comments on them, he said, "The colleges are looking strong, as I had hoped they would, and they really work with the other buildings."





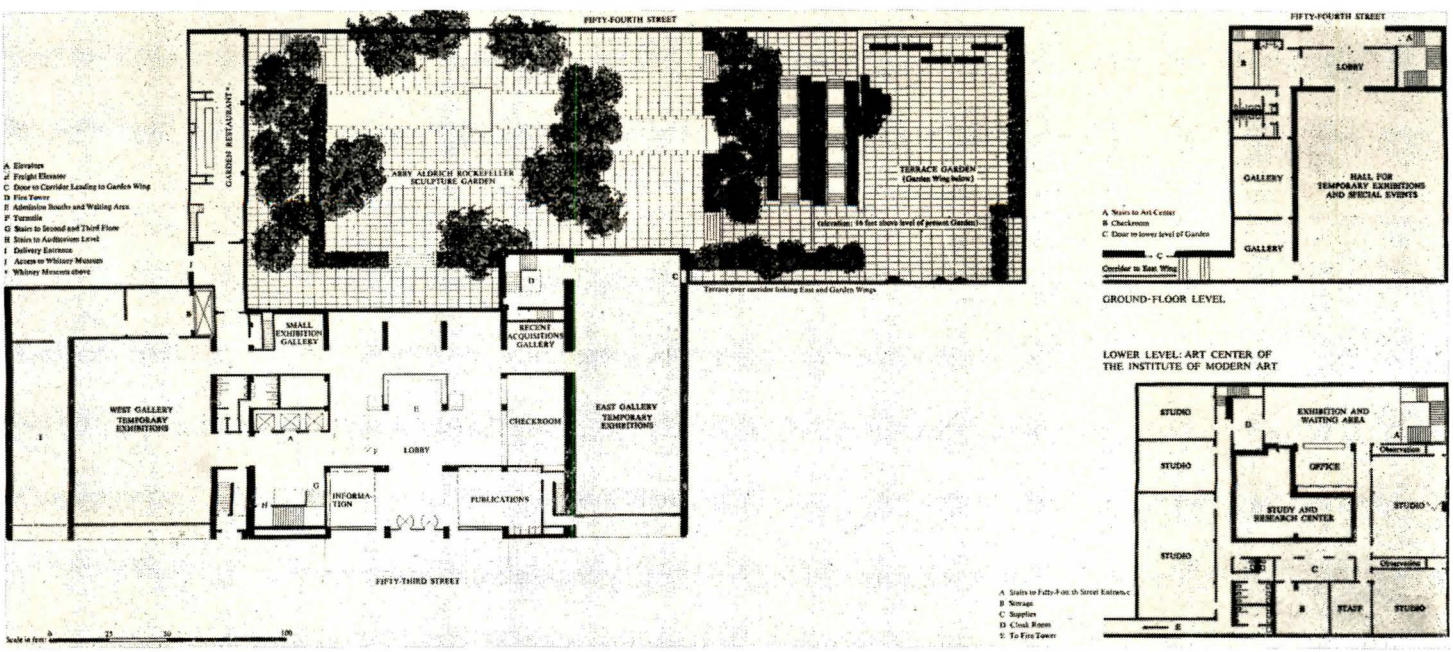
Ground Is Broken for Museum of Modern Art Addition

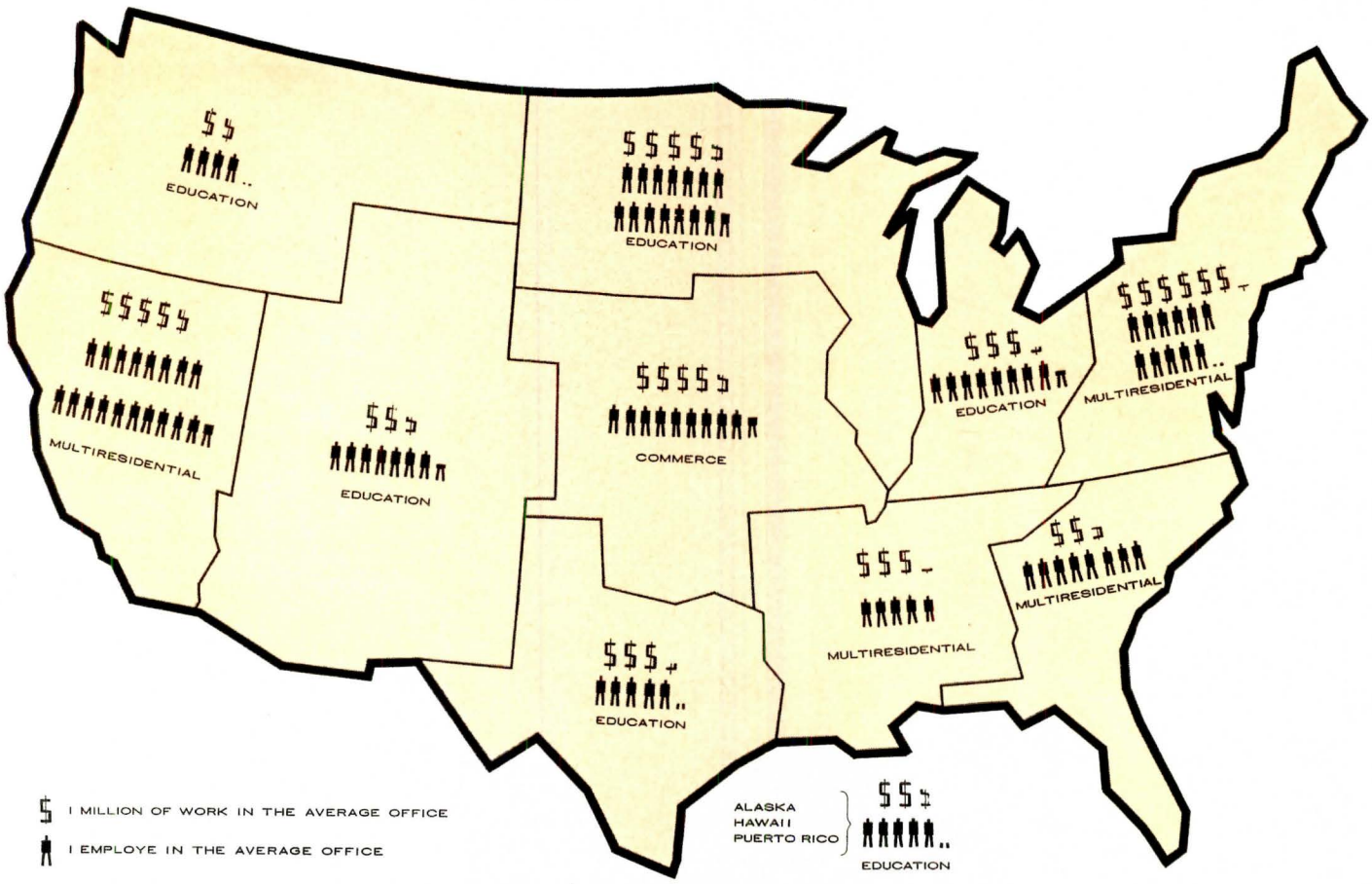
NEW YORK, N.Y. Two new wings and an enlarged sculpture garden sheltering a studio and study center have been designed for the Museum of Modern Art by Philip Johnson Associates (superceding his preliminary design: p. 73, DECEMBER 1959 P/A). Ground is being broken this month for the first phase of building: the east wing and the garden wing. Since current activities in museum properties to the west of the present museum will be shifted to the garden wing, construction of the west wing must wait until it has been finished.

The garden wing (*above, top right*) will have two levels, one underground and containing studios and study and research spaces, the other containing galleries and a hall for temporary exhibits. The roof of this building will be developed as an extension of the sculpture garden and will be approached via a long flight of stairs up the west façade. This building will be the quarters of the Art Center of the Institute of Modern Art, a school for 800 children and adults that is affiliated with the museum.

With the construction of the 50′ wide east wing and the 100′ wide west wing, the museum will have a completely redesigned entrance (*above*) and immensely increased floor space. The ground floor will contain a glass-walled lobby, permitting the visitor to see through from the 53rd Street entrance to the sculpture garden, two large galleries for temporary exhibitions, two small galleries, publications desk, and service facilities. Collections will occupy the second and third floors, and libraries and archives will be on the fourth. Administrative offices will be on the fifth floor; members' facilities on the sixth.

The expanded Architecture and Design collection will be housed in its own gallery, named the Philip L. Goodwin Gallery in honor of the late architect who designed the present museum (with Edward D. Stone) and was chairman of its Department of Architecture and Design, 1935–40.





Architectural Business Seen Holding for 1963

The year 1963 should bring good but not fabulous business to architects, according to the results of PROGRESSIVE ARCHITECTURE's annual business survey. In the largest return of business questionnaires to date—1460—respondents indicated that work currently on the boards to be built next year will represent a levelling off, at least in the early months, from the upward leaps reported in the past two surveys. That this occasions no cause for alarm can be seen by considering the average dollar volume per office since 1956, a year some economists consider the beginning of the development of the current building economic picture and also the first year the P/A study was reported in its present form. This eight-year average figure comes to slightly over $4.6 million per average office. Comparing it to the average dollar volume per office of $4,636,007 expected in 1963, it will be seen that a comfortably profitable year can be forecast.

After two years, building for education regains its position as the top earner in the average office. In 1961, commerce was the leader, and projects for multiple residences showed an amazing rise in the 1962 survey (in 1963, multiresidential will return to normal as the third most profitable type, after commerce). Categories which will show increases in 1963 are health, urban design, industry, and defense. This augurs well for a possible increase in business in the latter part of 1963, since each of these is a category requiring large outlays.

Education not only represents the highest dollar-volume in the average office, but it also is the leading category in six out of the ten (plus

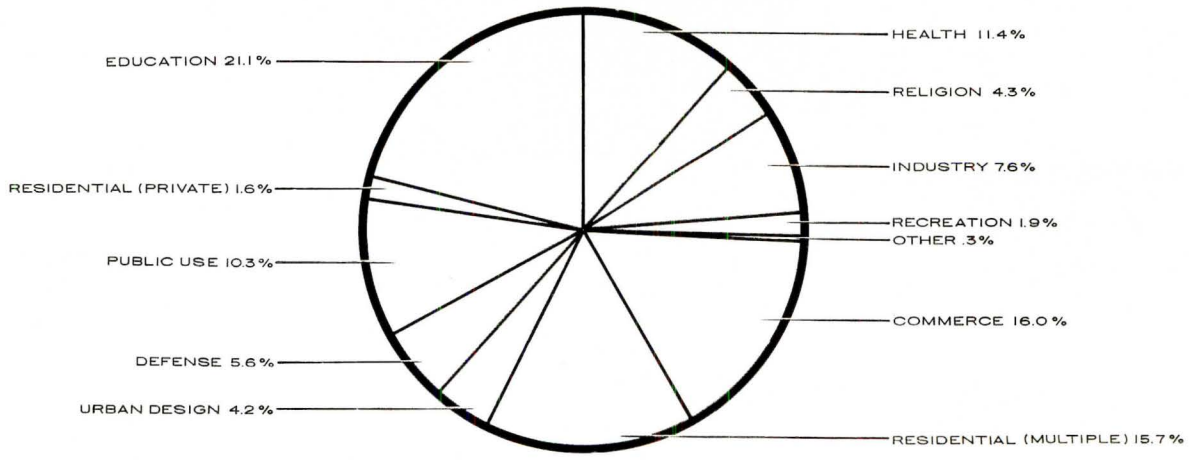


TABLE 1

Number of firms reporting and regional distribution

Region	% of Firms
Northwest	4.6
North Central	10.8
Great Lakes	8.8
Northeast	26.3
Southeast	10.0
Gulf States	7.2
Central States	6.3
Texas	6.7
Western Mountain	5.5
California-Nevada	12.8
Alaska-Hawaii-Puerto Rico	1.0
Total Returns: 1460	100.0

Regional spread remains about the same as in past, indicating nationwide distribution of architectural practitioners.

TABLE 2

Average dollar volume by regions

Region	Average $ Volume
Northwest	$1,861,806
North Central	4,937,949
Great Lakes	3,851,372
Northeast	6,951,785
Southeast	2,846,780
Gulf States	3,189,065
Central States	4,681,098
Texas	3,311,402
Western Mountain	2,889,100
California-Nevada	4,923,575
Alaska-Hawaii-Puerto Rico	2,875,667
National Average	$4,636,007

Regional $ volume lead returns to the Northeast after a year on West Coast.

TABLE 3

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

Type	% of Average Firm's Work	$ Volume in Average Office
Education	21.1	$ 976,936
Commerce	16.0	744,933
Residential (Multiple)	15.7	728,930
Health	11.4	528,090
Public Use	10.3	476,499
Industry	7.6	351,687
Defense	5.6	258,382
Religion	4.3	198,923
Urban Design	4.2	194,066
Recreation	1.9	89,593
Residential (Private	1.6	74,304
Other	.3	13,664
Total (average of all regions)	100.0	$4,636,007

Education regains lead. Health, urban design, defense, and industry gain.

TABLE 4

Activity of architectural firms in types of buildings

Types of Buildings	% Firms Reporting Current Work
Commerce	49.9
Education	47.6
Religion	39.0
Residential (Private)	38.2
Residential (Multiple)	34.2
Health	28.8
Public Use	25.9
Industry	21.2
Recreation	15.1
Urban Design	6.7
Defense	6.6
Other	1.6

Most U.S. practices have several types of projects on the board, as indicated by activity percentages.

TABLE 5

Specialization of architectural firms

Types of Buildings	% of Firms Doing Only This Type
Education	3.3
Commerce	2.7
Residential (Private)	1.8
Residential (Multiple)	1.4
Religion	1.4
Health	1.1
Industry	.6
Public Use	.5
Recreation	.1
Defense	.1
Urban Design	.07
Total	12.87

Specialization has decreased since last forecast, but all types are represented.

TABLE 6

Sizes of architectural firms

Size of Firm by Number	% of National Total
Up to 4 employees	45.7
4-9 employees	32.9
10-19 employees	10.7
20-39 employees	5.9
40-100 employees	3.2
Over 100 employees	1.6
	100.0
(Total response: 1255)	

Size of Firm by $ Volume of Work on Boards	% of National Total
Under $1 million	35.7
$1-10 million	55.1
$10-50 million	7.8
Over $50 million	1.4
	100.0

Small to medium-sized firms doing up to $10 million are in the majority.

Alaska-Hawaii-Puerto Rico) regions. Commerce leads in the Central States, and multiresidential is the top type in the Northeast, Southeast, Gulf States, and California-Nevada. Dollar signs on the map *(facing page)* indicate the dollar volume per average office in each region; the human figures represent the number of employees in the average firm. The pie-chart at the bottom of the page gives the percentage distribution of design categories on the boards of the average office.

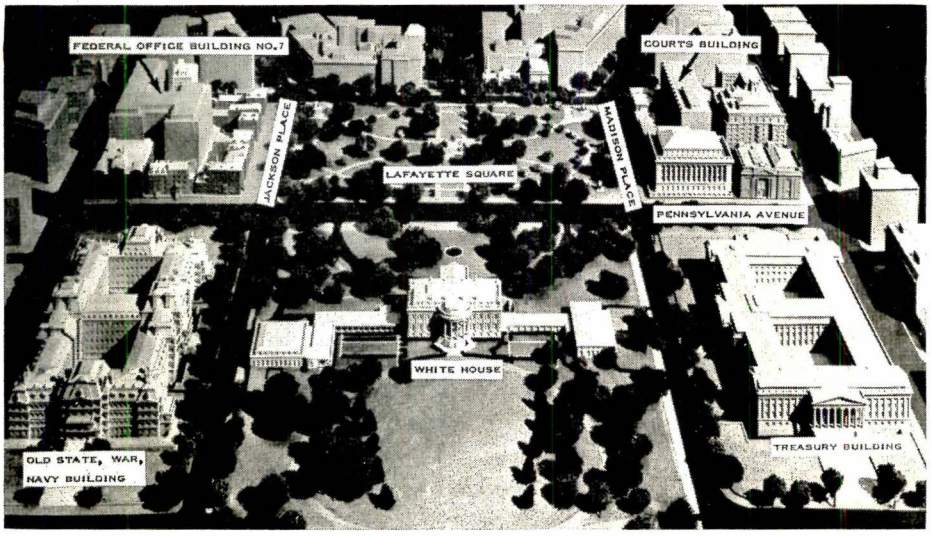
Work for private clients will account for 64.8% in the average office in 1963, and public work, 35.2%. This represents a rise for public work, conceivably because of the increases in defense, health, and urban design work. Status of work in preliminary design and that in working drawings is practically half-and-half, preliminaries accounting for 50.7% of the dollars, and working drawings for the remaining 49.3%.

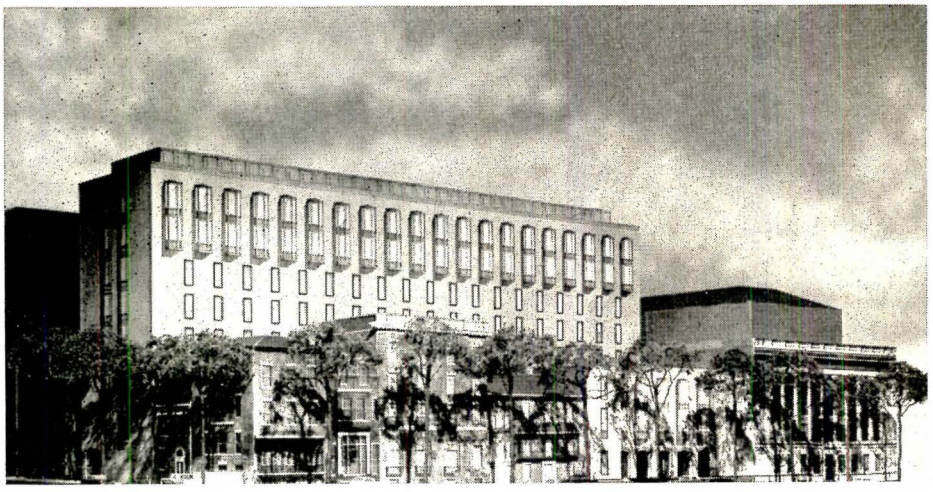
Architects specializing in one category of design will represent 12.87% of total firms (as compared to 1962's 14.78%). All categories will be represented by specialists, urban design being the latest addition to the list.

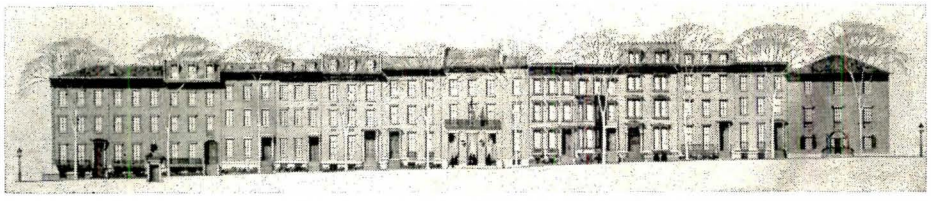
As in the past, firms employing up to nine employees with work of up to $10 million will make up the majority of offices. However, percentages on offices of *all* sizes have increased.

Factors which will affect architectural practice in 1963 — as opined by respondents to the survey — include, first and foremost, the general economic picture and availability of money, costs of materials and labor, and Government support of construction projects. Other factors named were expanding architectural practice as described at the last AIA Convention, the continuing threat of package dealers in some regions, better architectural public relations, revised tax laws, and availability of materials. Amazingly, the world picture did not come in for much mention.

Considerations likely to influence future design led off with a strong vote for concrete in its many plastic forms: prestressed, precast, reinforced. Sculptural forms and more embellishment on buildings came in for praise, as did the design possibilities of new and improved materials and application techniques. According to those answering the survey, clients are becoming more and more design conscious, making it simpler to do a good job with less time wasted in client education. Architects see new dimensions in design opening through urban planning and design — the design of the "total environment." Lastly, the "sensual" design trend still leads the "box" group by a ratio of about five to three.







Lafayette Square Development Set

WASHINGTON, D.C. The General Services Administration has unveiled John Carl Warnecke's designs for the redevelopment of Lafayette Square to the accompaniment of cheers from President Kennedy.

Chief aim of the plan has been to preserve the scale of the 18th- and early-19th-Century buildings which face the square on its Madison Place and Jackson Place sides, while at the same time providing two large new buildings—one for executive office space and one for the Court of Claims and the Court of Customs and Patent Appeals. These buildings, on either side of the square, will be set in garden courts behind the old residential-type buildings that line the square. Warnecke has deliberately kept the architecture "anonymous" so as not to overpower the older structures. Approach to the new buildings will be, for the executive office building, from 17th Street and from a court at the rear of the houses on Jackson Place; for the courts building, through a new arched structure on Madison Place. Whenever new structures are required on the square, Warnecke has tried to "match" them with existing buildings (see Jackson Square façade sketch above). Entrance to the new buildings can be made through these structures.

Commenting on the preliminary designs, the President wrote GSA, "I am particularly pleased that . . . [GSA] and the architects were able to express in the new buildings the architecture of our times in a contemporary manner that harmonizes with the historic buildings."

Cincinnati Result: No Awards Given

The jury for the Cincinnatus Competition met last month in Cincinnati to judge approximately 60 submissions for that city's proposed riverfront memorial [p. 63, APRIL 1962 P/A]. After a day's deliberation, the judges announced that there would be no first, second, or third prizes, or honorable mentions. In a prepared statement, the jury said that it "unanimously agreed that none of the submissions met the quality of design expected by them as an interpretation of the program." Jurors included P/A Editor Thomas H. Creighton, Jury Chairman; Architects Gordon Bunshaft and Douglas Orr; Paul Rudolph, Chairman, Department of Architecture, Yale University; Ernest F. Pickering, Dean, College of Design, Architecture and Art, University of Cincinnati; Grady Clay, author and journalist; and Cornelius J. Hauck, President, Cincinnati Board of Park Commissioners.

Jury members were reluctant to discuss the unexpected result beyond the prepared statement, to which they had agreed. However, there are suggestions that among the difficulties that brought down the number of final submissions—and apparently also lowered their quality—were the closeness of the site to proposed additional new buildings as yet unplanned; the inability of competitors, following the program literally, to use the waterfront in any important way; and the indefiniteness of the subject of the symbol that was required ("the character of the present city and its future," the program said).

There have been other recent national competitions the results of which have been controversial, but it is believed that this is the first in which there have been no prizes awarded.

Major Interiors Exhibit

Decoration and Design 1963, the interior furnishings exhibition sponsored by the American Institute of Interior Designers, the Resources Council, and *The New York Herald Tribune*, was on view for 11 days in New York last month. This third presentation of the annual event was generally saner and less frivolous than its predecessors and gave promise of becoming the nation's most important interior design exhibition.

Around 100 room settings, vignettes, and displays were arranged in the

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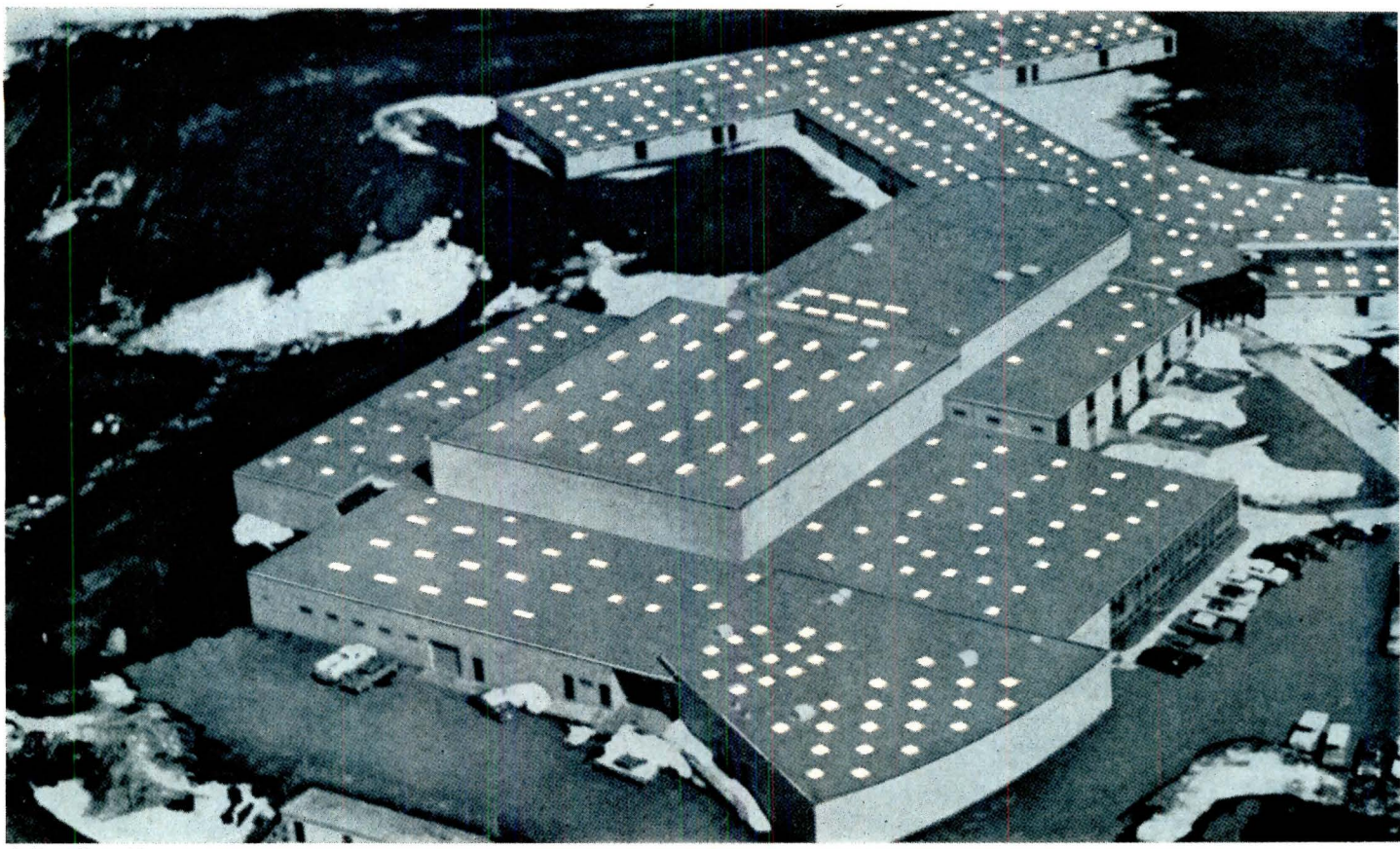
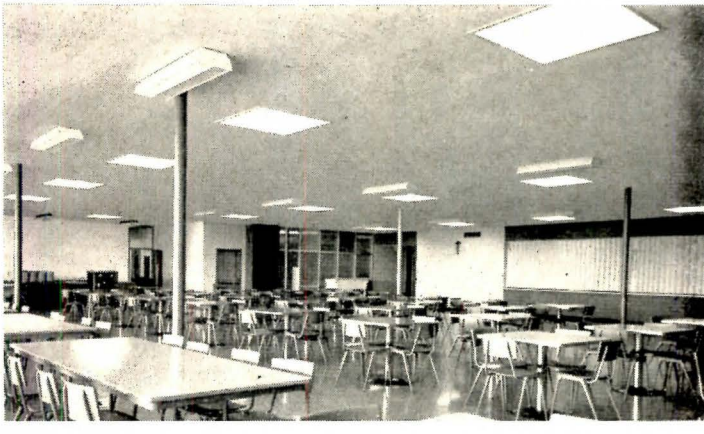
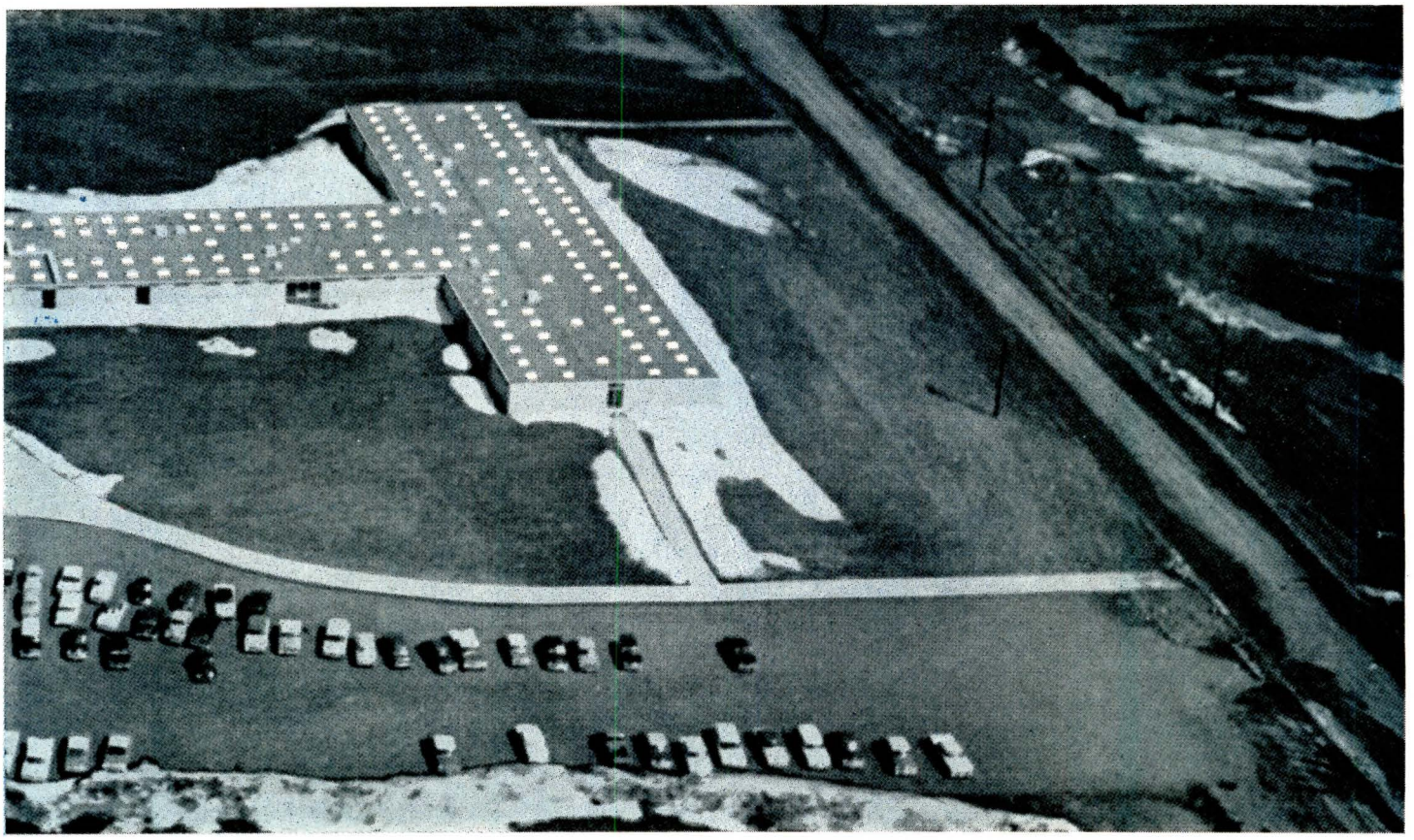


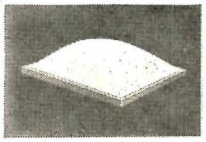
Architect: Howard Parezo and Associates, AIA, Sioux Falls

Quality lighting and operating economy w





570 Dome Skylights of PLEXIGLAS®



Dome skylights of PLEXIGLAS acrylic plastic provide natural lighting of the highest quality at the O'Gorman High School, Sioux Falls, South Dakota. In classrooms, corridors, gymnasium, auditorium, cafeteria, library and lobby, the high-level daylighting is uniform in distribution and free of glare. In addition, an appreciable saving in electric power costs is realized because the school's incandescent and fluorescent lighting is needed only on the relatively few days when the sky is totally cloudy.

This daylighting installation was engineered to control the sky and sun conditions of its geographical location —through selection of the proper density of white translucent PLEXIGLAS for the diffusing domes of the skylights. *Five densities of white translucent* PLEXIGLAS *are available for skylights*, a choice that insures successful daylighting under any sky and solar conditions.

Through the use of the proper density of white translucent PLEXIGLAS, the following interior lighting goals were achieved at O'Gorman High School:

- The predetermined light level for the visual task involved—an average reading of 60 foot candles in the case of classrooms—is attained during at least 75% of the school year through the skylights alone.
- Daylight is distributed uniformly throughout the skylighted areas.
- Brightness of the light source—the skylight opening in the ceiling—is controlled to insure visual comfort.
- Output of heat per foot candle is lower with the skylights than the output produced by either incandescent or fluorescent light alone.

You can obtain these advantages through Daylight Engineering with dome skylights of PLEXIGLAS. Our engineering services and those of skylight manufacturers are available to help you. We will be pleased to send you the names of dome skylight manufacturers who use PLEXIGLAS.

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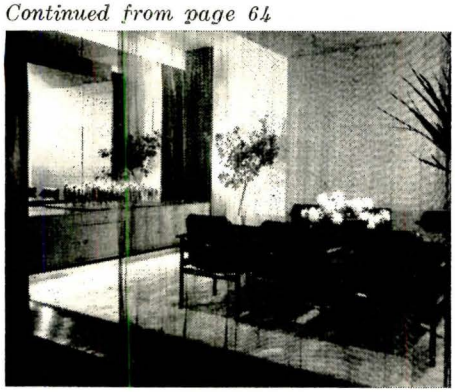
Continued from page 64



Seventh Regiment Armory. Quality of design was not consistent, but the quality of execution was generally professional. Comparatively few displays of modern furnishings in modern settings were to be seen, as usual. The most successful was the beautifully lighted and sensitively controlled dining room setting by Virginia Whitmore Kelly for Dux, Inc. (*shown*). Also in this idiom, Edward Wormley designed an office for Dunbar Furniture, Jens Risom a game room, and George Tanier displayed Verner Panton's steel wire furniture.

Otherwise, the exhibition comprised traditional room settings redolent of historicism, which came in for some straightforward words by Margaret Hockaday of Hockaday Advertising at a preview luncheon for the press, the Resources Council, and AID members.

If the "battle of the styles" is to be won for our time, the manufacturers of modern furnishings had better get into exhibitions such as the D&D show to illustrate to the traditionalists how comfortable the designs of our time can look when used by progressive interior designers and architects.

Conferees See Expanding Construction of Shells

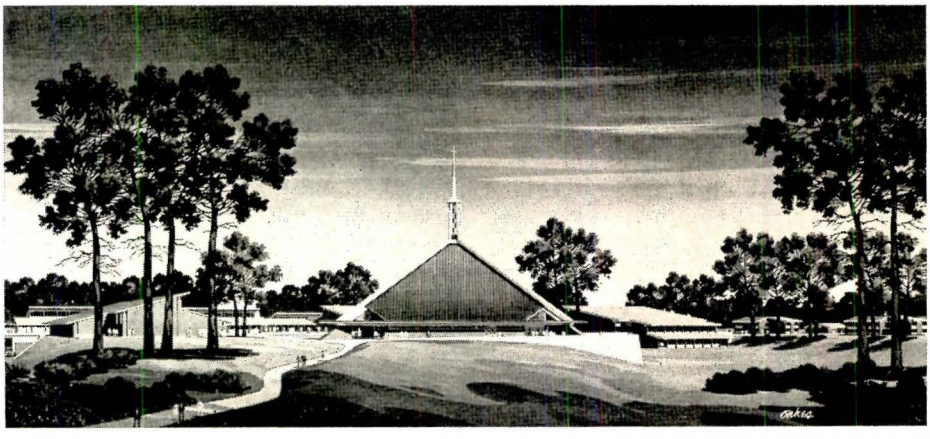
Over 700 enthusiasts of shell construction crowded the Grand Ballroom of the Sheraton-Palace Hotel in San Francisco last month to exchange up-to-minute knowledge of topical developments in this method of building. Sponsored by the University of California, BRAB of the National Academy of Sciences–National Research Council, and the International Association for Shell Structures, participants at this conference represented at least two dozen countries. They presented more than 60 papers on the theory, design, environment, computation and analysis, construction, and economics of shells in four consecutive days of intensive sessions.

The need for a World Conference on Shell Structures was suggested by the late Eduardo Torroja, three or so years ago, while on his last visit to the University of California. Although he was unable to share in the success of this meeting, he would undoubtedly have agreed with A. M. Haas, President of the International Association for Shell Structures, who in the opening ceremonies said that its purpose was "to understand as well as to help to inspire." Even though the depth of material presented at the sessions reflected a tremendous growth in the knowledge of shells, A. L. Parme, Vice-President of IASS, reminded the conferees that "we are but at the threshold of this construction system."

The renowned Brazilian architect Oscar Niemeyer was forced to cancel his visit at the last minute. However, Frei Otto, Felix Candela, Mario Salvadori, Anton Tedesko, Milo S. Ketchum, Boyd G. Anderson, J. A. Torroja, and Robert B. Newman were among many other internationally known professionals connected with the building of shells who were in attendance.

Most of the presentations were made from papers, Candela's being a refreshing exception as he extemporaneously explained that in his opinion "too many papers and books have already been written by too many people." Most of the deliveries, however, were flexible and the speakers freely applauded or contradicted comments that preceded their own. For example, Candela questioned Otto's philosophical explanation that "structures were developed by similar methods found in nature"; and, in his turn, William Caudill took exception to Candela's "nonfunctional approach to shells." Caudill predicted that "shells for future use in schools will be limited to one large unit, taking maximum advantage of visual space separators." Uniquely, one of the most analytical presentations was by an architect, Seymour Rutkin of New York, who spoke on "A Shell of Variable Thickness with a Middle Surface Not Expressible Analytically." Although almost all of the discussions were concerned with the application of concrete to shells, there were also reviews of timber, plywood, steel, ceramic, and plastic shells.

An expanding acceptance and use of shells was the inescapable consensus of this eminently successful conference, which was chairmaned by Prof. E. P. Popov, of the University of California. Proceedings of all discussions will be published.



Triangular Chapel Focal Point of School

The new Concordia Lutheran Junior College, now under construction on the Huron River five miles from downtown Ann Arbor, Michigan, will be organized in three segments. The central, academic area will be clustered around the focal chapel and will include classrooms, laboratories, art studios, library, offices, gym, and dining hall. On either side of this group will be student residence hall groups for 450 students—one for boys and one for girls. Dormitories will group quarters for 32 students around a central, skylighted study area. The triangular chapel will dominate the site with its height of 64′ plus a 54′ belfry and spire. The altar will be located in the apex of the triangle. Roof structure will be a poured-in-place concrete paired-girder system on brick corner piers and restrained at the eave by a post-tensioned concrete ring. Vincent G. Kling is the architect.

SKIDMORE DIES

Following a long illness, Louis Skidmore, FAIA, a founding partner of Skidmore, Owings & Merrill, died in Winter Haven, Florida, on September 27. He founded the firm with his brother-in-law Nathaniel A. Owings in 1935, and they were joined by John

Incor® Shortens Construction Time for Longest Single-Span Folded Plate Roof

Concrete with 2 to 2½-inch slump is placed from ¾-yard bucket on forms for folded plate roof. Roof is made up of 8 V-sections 26 ft wide and 11½ ft deep, each post-tensioned with 12 tendons.

INDIANA STATE COLLEGE PHYSICAL EDUCATION BUILDING, Terre Haute, Indiana ■ Architect: MILLER, VRYDAGH & MILLER, Terre Haute ■ Structural Engineer: HOMER HOWE, Terre Haute ■ General Contractor: J. L. SIMMONS CO., INC., Indianapolis ■ Ready Mixed Concrete supplied by TERRE HAUTE CONCRETE SUPPLY CORP., Terre Haute ■ Masonry Mortar supplied by ACME COAL & LIME CO., Terre Haute.

The longest single-span folded plate roof ever constructed in the United States is Indiana State College's answer to the need for column-free space in its spectacular new gymnasium.

The contractor's answer to the problem of fabricating the giant 157½-ft post-tensioned members was an ingenious combination of advanced handling techniques and "Incor" high early strength portland cement. As one section of concrete cured, supporting scaffolds were skidded ahead, leaving forms hanging from the ceiling. Forms were then lowered to the ground by crane with lines worked through blocked out holes in the concrete, then cleaned and raised again to the next position. With 7 sacks of "Incor" cement per yard, the concrete attained a strength of 4000 psi in 4 days. For all other concrete requirements, Lone Star Portland Cement was used.

Whether it's a case of putting expensive forms to most profitable use or expediting for faster follow-up operations to meet an early deadline, wrap up your problems quickly with "Incor" —the nation's first high early strength portland cement.

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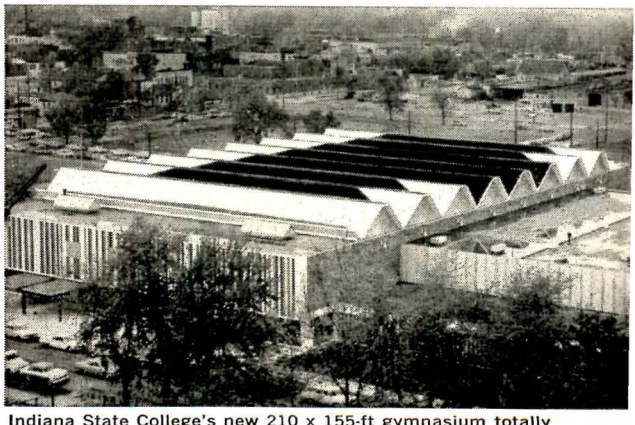
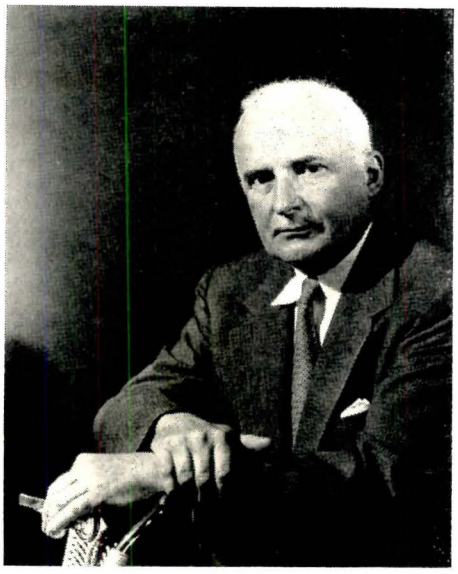


Indiana State College's new 210 x 155-ft gymnasium totally eliminates interior columns and view-obstructing supports.

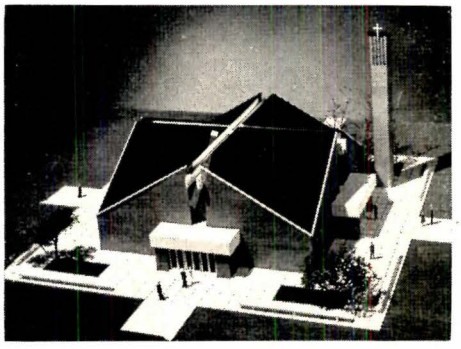
INCOR® 24-HOUR CEMENT



O. Merrill in 1936. Skidmore received the Gold Medal of the American Institute of Architects (1957), the Medal of Honor of the New York Chapter AIA (1949), and an honorary Ll.D from Bradley University (1952). Among his notable works are the town site for the Atomic Energy Commission at Oak Ridge, Tennessee; the Creole Petroleum town site in Amuay Bay, Venezuela; Terrace Plaza Hotel in Cincinnati; and the H. J. Heinz Building, Pittsburgh. He co-authored *Tudor Architecture in England* with Samuel Chamberlain.

New Design for Boston Anglo-American Project

Pearl Street Associates, the combine of architects and engineers designing the British-owned 50 Pearl Street, Boston, has advanced a new design making the project bigger and taller than it was when first shown [p. 88, MARCH 1962 P/A]. PSA is composed of Hugh Stubbins & Associates, F. A. Stahl & Associates, and William J. LeMessurier & Associates. Twenty-six office floors will rise from a two-story base having four projections providing space for stores, banks, and other public-use areas. Terraces will occur atop these sections, and there will be a rooftop terrace and restaurant. Use of major cantilever beams will provide large, column-free interior spaces.

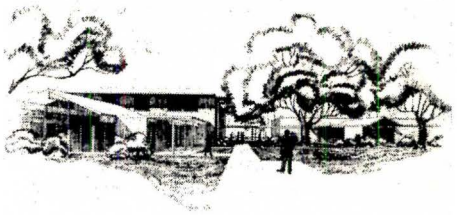


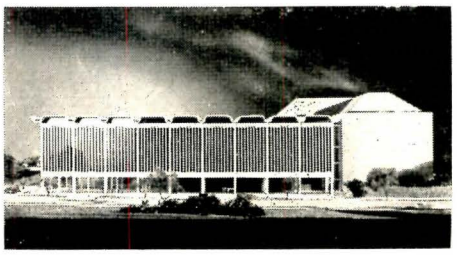
Placid and Profound

Christ Church Episcopal in Whitehaven, Tennessee, by Wadlington & Marshall of Memphis, will be a structure at once dignified and imaginative. The structure will feature brown brick walls with white stone edging and entrance roof facings, with a dark roof. The interior will have a central altar plan, the altar being surrounded on six of its octagonal sides by the congregation and on the rest back-stopped by the choir. Parallel concrete roof beams will intersect over the altar. Natural lighting will come from translucent clerestories and from recessed colored glass panels over each entrance. Lighting of the choir screen will control the congregation's view of the singers.

Stanford's Computer Center

Architect Claude Oakland has designed the proposed Stanford University Computation Center for Eichler Homes, Inc., the builder. IBM 7090-1401 and Burroughs B5000 computers will be housed in one of two related buildings having a total of 33,000 sq ft. The other building, a two-story unit, will contain offices and conference rooms. Outdoor courts and patios designed by Royston, Hanamoto & Mayes will enhance the project, and there will be parking for 172 automobiles.





Library Addition for Civic Center

Major public library addition for Grand Rapids, Michigan, features a roof pleated on the edges of both its long sides. The 800,000-volume capacity structure will be part of the new Grand Rapids Civic Center development. Public areas and open shelves will be on the first two floors; stacks will be in the basement and on the third floor; fourth floor will house book repair and service departments plus mechanical equipment. There will be a 300-seat auditorium at street level with its own separate entrance. Architect: Ralph R. Calder & Associates; Associate Architect: Robinson, Campau & Crowe, Inc.

Caribbean Condominium

What is said by the architect to be the first FHA condominium to be built in the U.S. under the new FHA Section 234 will be erected in San Juan, Puerto Rico. Designed by E. William Thun, the Torre Alta will be a 14-story building containing 70 apartments. Prices of the apartments begin at $16,500. Martinez & Costa is Structural Consultant, and Fred S. Dubin & Associates is Plumbing and Electrical Consultant.

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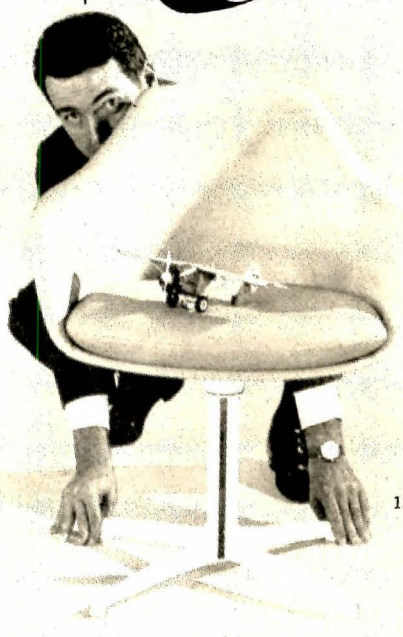
BURKE, INC.

136-806

A chair . . .



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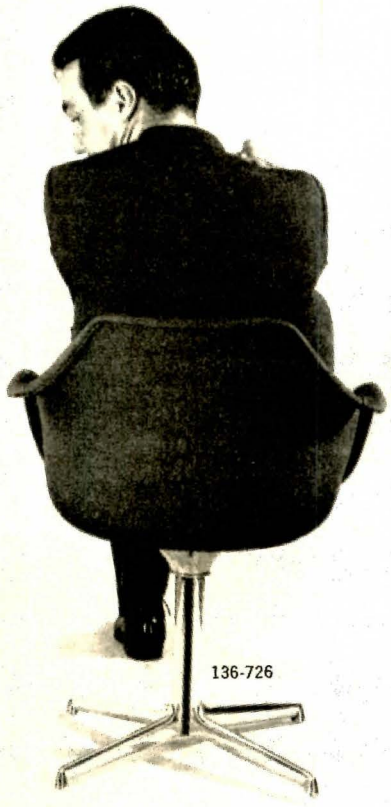


136-726

in the Sargent house . . .

133-601

the airport in Rio . . .

Burke designs a variety of fully upholstered chairs

(featuring shells covered in a selection of duPont Kensington or Torino fabric in decorator colors on bases of coated epoxy or polished aluminum. Literature on request.)

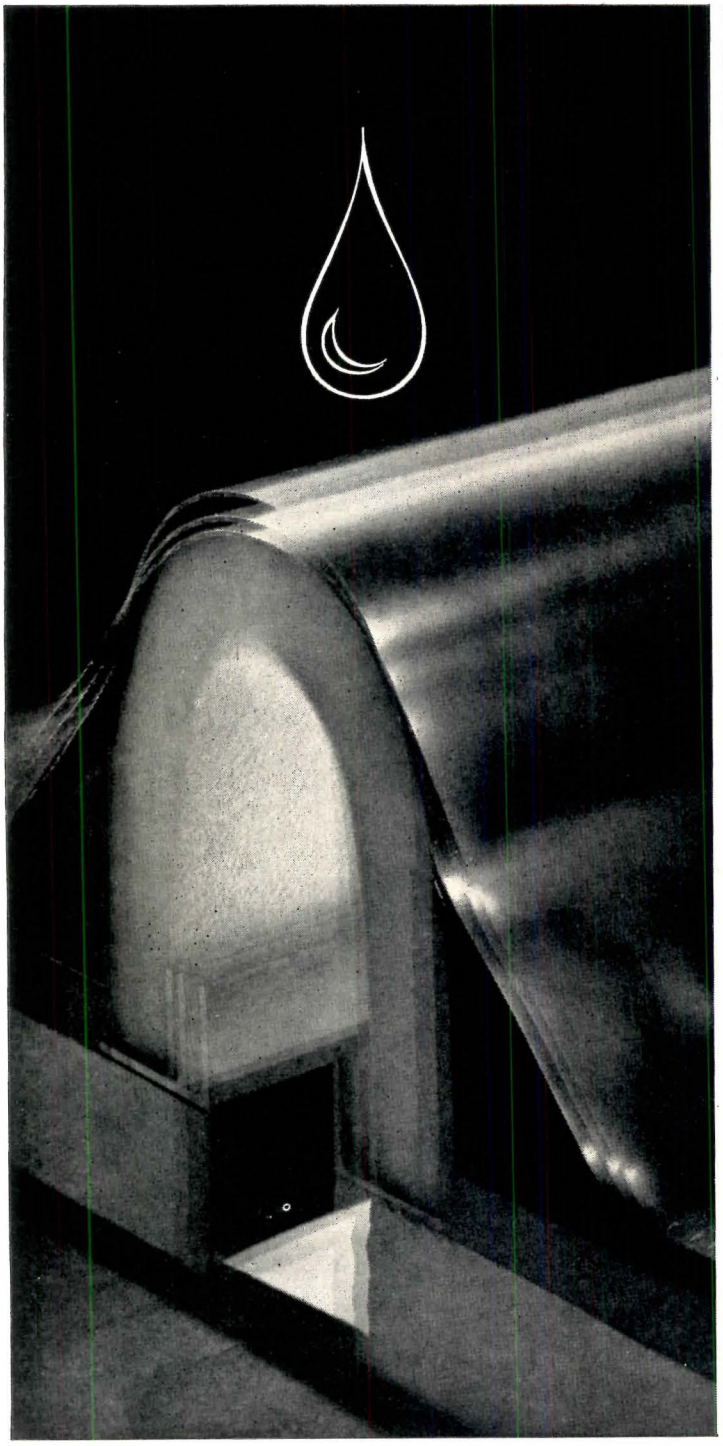
to tempt you to design buildings around them.

133-802

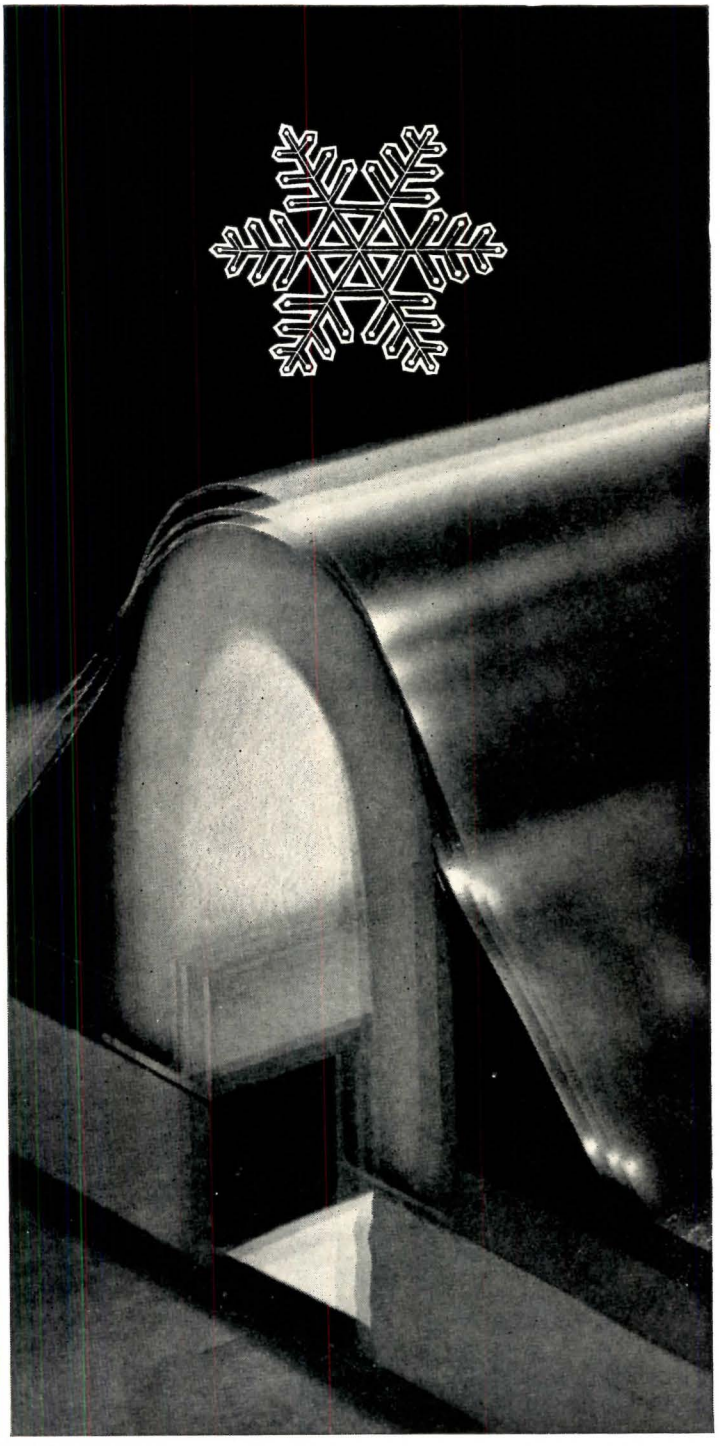
and . . .

135-806

this one for my study.



Flex!



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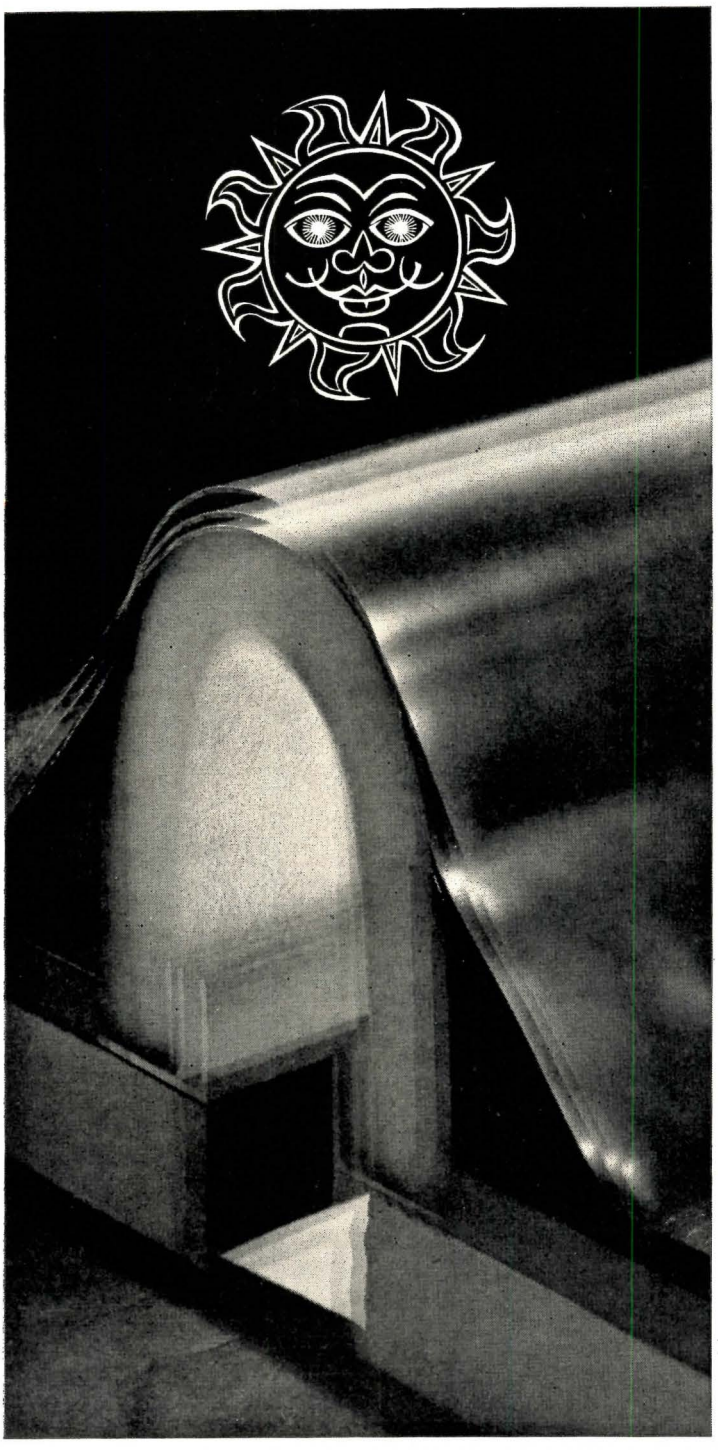

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It's Saraloy 400 and Ethafoam!

This insulated expansion joint handles the tough ones without leaking—even continuous large movements between building sections. It's field-fabricated quickly, economically, with Saraloy® 400 elastic flashing and Ethafoam® polyethylene foam.

Saraloy 400 flashing conforms to any contour, adheres or fastens to most building materials—metal, glass, masonry, wood. It flexes year after year without failing; won't crack, peel, chip or check. And Saraloy 400 flashing is workable. It's cut with a roofing knife or scissors, fitted and installed in minutes. No preforming!

Insulating the joint is Ethafoam closed-cell expanded polyethylene. It's flexible over a wide temperature range, nonabsorbent and an excellent vapor barrier. Lightweight Ethafoam is easy to handle, cut and use. Virtually inert, it's long-lasting.

You no longer need adapt your design to the limitations of conventional flashings. Whatever the contour or the building components, Saraloy 400 tailors flashing performance to design—by itself or used with other materials. For technical Data Sheet 7-2 on roof expansion joints, or details about Saraloy 400, write us in Midland, c/o Plastics Sales Department 1303EB11.

THE DOW CHEMICAL COMPANY DOW Midland, Michigan

$1250 Tax Exemption for Retirement Funds

By E. E. Halmos, Jr.

After years of debate, Congressional action approving tax-exemptions for the self-employed (HR 10) may prove to be the most important news of the final session of the 87th Congress, so far as architects' businesses are concerned.

In a nutshell, the bill permits a self-employed person to deduct half the cost of a self-financed retirement program (up to $2500) directly from his income for tax purposes. Thus, if an architect contributes to a bona fide retirement plan for himself, he could deduct a total of $1250 for his contributions to the plan, plus the standard $600 personal exemption—a total of $1850 in all—before computing the taxes he owes the Federal Government.

Congress hedged the provision slightly, stipulating that, among other things, retirement plans must be provided for certain employees as well as the owner. But in general, it is intended to give the self-employed some of the advantages that have accrued for many years to officers of major corporations with respect to corporate retirement programs.

Passage of the new measure wasn't achieved without some bitter opposition, though it didn't show in the lopsided votes favoring the bill. Opponents argued that extending this deduction to the estimated 7 million self-employed (architects weren't mentioned, though doctors and lawyers were) was, in effect, extending help to "those who don't need it."

In deference to this opposition and the Treasury's fears of a major loss of revenue, the deductible amount was cut from an original maximum of $2500 to the approved $1250. Even so, potential loss to the Treasury is estimated at about $125 million.

Up Technology

If it carries out in detail the directives of Congress, that new Commission on Science and Technology could do some good for architects and the construction industry, after all.

As you may know, Congress okayed the appointment of the twelve-man commission (to include four members appointed by the President, eight by Congress). Six members would have Government (or political) backgrounds as qualifications; six would be "eminent in one or more fields of science or engineering or be qualified by reason of administrative work. . . ."

Make no mistake about the general purposes: Congress is thinking most about the "glamor" sciences like astronautics, physics, and chemistry.

But there's a provision that the new Commission may appoint an advisory panel—including members of the "scientific and technical communities" of the U.S.—to serve as consultants. Conceivably, these could include some architects.

One objective of the Commission: Reorganization of Federal departments that finance, operate, or conduct scientific programs or basic research in science and technology; conservation and utilization of scientific manpower.

FDR Report

Working under forced draft as the remaining days of the session were gradually dwindling away, the House was in no mood for another round in the long and often bitter battle over the prize-winning Pedersen-Tilney design for a Franklin D. Roosevelt Memorial on the banks of the Potomac.

After listening to Rep. James Roosevelt say that his family would have no objection to a restudy, the House adopted a watered-down resolution that gave the Memorial Commission another $25,000, and told it, in effect, to have another look at the design, see if one of the other designs considered in the final judging wouldn't be more suitable, or at least if the design couldn't be modified for the Fine Arts Commission.

Architectural Washington

Washington's own private architectural pot—long on the back burner as national issues overshadowed it—was again coming to a boil.

For one thing, the General Services Administration said it would develop what will be the umpteenth "comprehensive plan" for development of Lafayette Square—the block of park and its surrounding buildings that face the north portico of the White House. The new plan is to be developed by the San Francisco firm of John Carl Warnecke & Associates, which will design two projects scheduled for construction facing the square (The Executive Office Building and the Court of Claims), attempt to maintain the historic character of the square, nevertheless.

Second, the House District Committee approved bills that would give the staid Fine Arts Commission new authority to "preserve the old Federal City character" of fashionable Georgetown by requiring the city's government to follow Commission recommendations in issuing permits for demolition, new construction, or alteration of buildings in the Georgetown area.

Third, President Kennedy ended a long battle over construction of a "Junior Pentagon"—a $42 million structure flanking both sides of the new Tenth Street Mall in the Southwest redevelopment area. Private developers had fought the building (which will also bridge the Mall at upper levels) as a "Chinese Wall" that would block their works.

And the House of Representatives opened itself up for a new economy debate, when it was revealed that the $100-million-plus Third House Office Building (the Sam Rayburn Building) will include a plush marble swimming pool, and gymnasium.

FINANCIAL

With the exception of private, nonfarm housing (which held to a sudden gain), construction industry indicators remained at a virtual plateau as of the beginning of October.

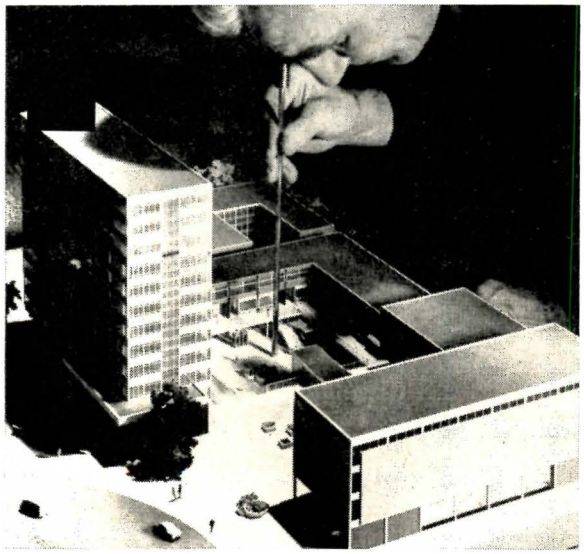
Housing, so it appeared, was holding up the rest of the construction economy.

In September, the Department of Commerce estimated that the value of total new construction put in place was $5.9 billion — practically unchanged from August. Total new public construction spending was $1.8 billion—same as August, but up 2 per cent over a year ago. Total private construction spending also matched August, at about $4.1 billion.

But housing, which took a 15 per cent jump over the previous year in August, continued to run at that level: an expenditure of about $2.3 billion to maintain a rate of 1,521,000 units on a seasonally-adjusted basis.

Passage by Congress of the long-argued tax revision bill, which includes an added 7 per cent credit to business for investment in new equipment (but not new buildings), wasn't expected to have much effect on the construction market.

Many financial experts, noting the plateau on which business seemed to have levelled out, thought that the November elections would be a better indicator of the trend of future investment than most normal statistics.



New viewing instrument, customarily used in medical examinations and surgery, finds a use in architecture. "Modelscope" is ideal for viewing architectural models from "eye level," to simulate the feeling of being *in* the project. The instrument is composed of a wide-angle lens of short focal length at the end of a slim repeater-system telescope. Modelscope is also appropriate for photographic attachment, to take pictures within a model. Special styles of greater or shorter length than the standard 12″ instrument are also available. D. A. Bruce & Co., Inc., 11 Broadway, New York, N. Y.

On Free Data Card, Circle **100**

Peter Muller-Munk has designed a new all-glass building unit having central recessed areas of translucent pattern glass surrounded by a textured finish with a fired-on opaque concrete-gray ceramic color. The blocks, which provide exterior and interior finishes simultaneously, have an insulation value equal to 12″ of concrete. There are four patterns: three in 8″-sq units and one 8″ x 4″. All are 4″ thick. Pittsburgh Corning Corp., 1 Gateway Center, Pittsburgh 22, Pa.

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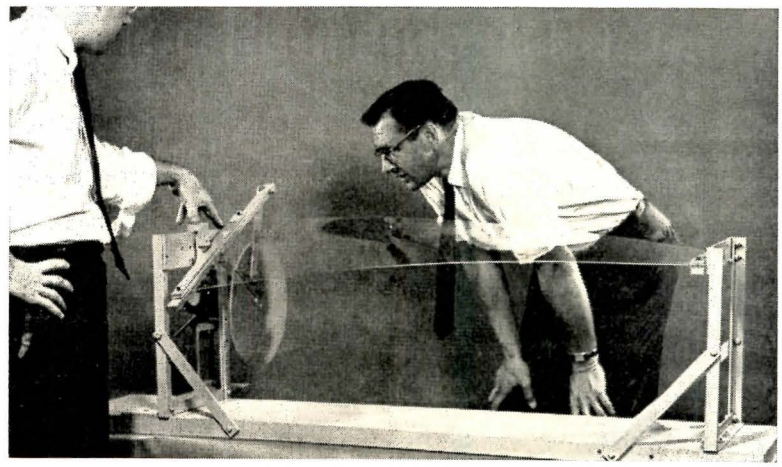
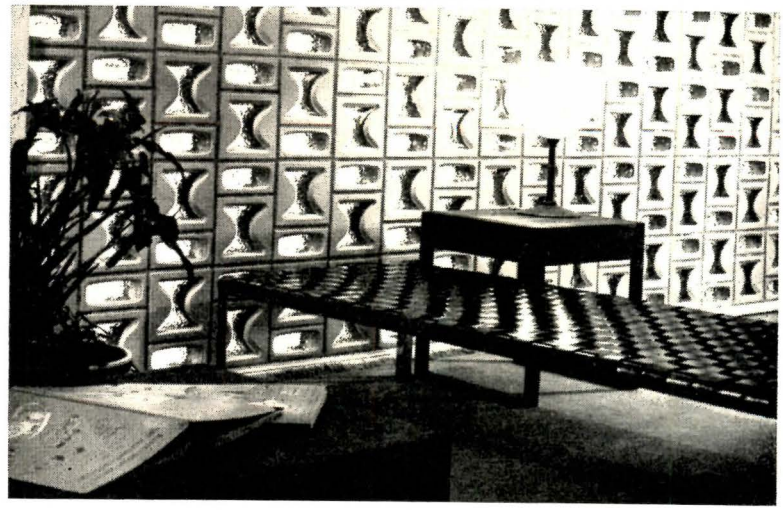
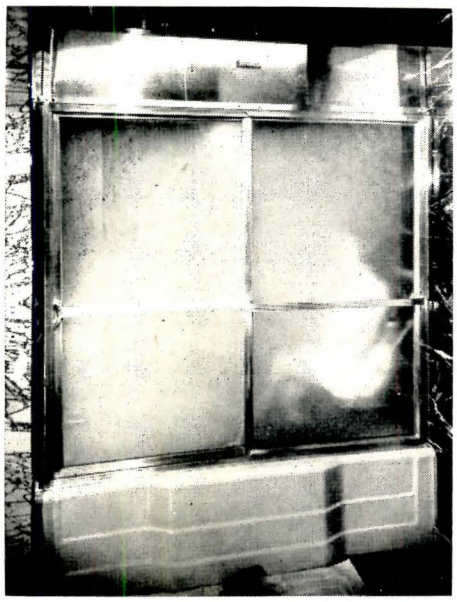


Glass that can do the twist has been announced by Corning. A new process called "Chemcor," which involves the application to special glass compositions of a broad system of different chemical strengthening solutions, produces glass sheets that can be repeatedly bent in a short radius without failure; glass rods with flexural strength up to 100,000 psi (as compared to 20,000 psi in tempered rods); and glass containers that can be dropped 100′ onto a steel plate without breakage. Corning Glass Works, Corning, N. Y.

On Free Data Card, Circle **102**





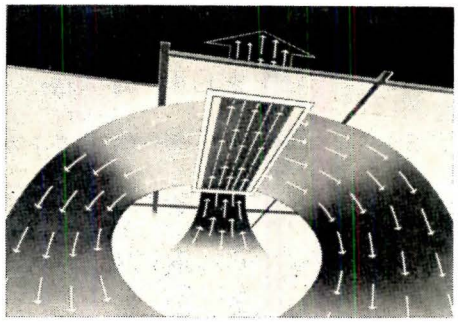
Luxurious Steam Bath at Low Cost

New "Thermasol" unit transforms any bathtub or stall shower (new or existing) into a complete steam room without altering ordinary use of these fixtures. The steam-generating unit is a compact 20″ x 8″ x 11″, to be concealed above a stainless-steel ceiling in tub or shower stall, or to be installed at any convenient spot for remote-control operation. Enclosure of the cabinet is completed with specially designed glass doors that slide or hinge on special track. Steam cannot escape from the enclosure; bathroom walls remain dry and mirrors unclouded. Inside the cabinet are a fold-away wall bench, recessed ceiling light, and waterproof switches (UL-approved) to regulate flow of steam. Cost of the unit is a low $400-600, depending upon type of installation. Thermasol units are currently featured in homes, apartments, motels, executive offices, clubs, and institutions. Thermasol, Ltd., 702 E. 12th St., New York 9, N.Y.

On Free Data Card, Circle **103**

Thermal Control with High-Level Lighting

Three years in development, new "Clymatron" fluorescent fixture provides simultaneous air supply and return, exhaust of fixture heat before it enters room, and increased lighting efficiency. By removing the heat generated by fluorescent lamps and ballasts before it can enter the room, the Clymatron: (1) makes it possible to double or triple the present average lighting level without overburdening air-conditioning systems; (2) provides approximately 15% more light and greater color stability of lamps; (3) cuts equipment and operating costs of heating-cooling systems; and (4) provides greater flexibility and economy in



modular planning. "In effect," say the manufacturers, "the Clymatron reverses the energy-distribution pattern of conventional troffers. More light energy, but less heat—radiant, convected, and conducted — enters the room. The conditioned space receives only ⅓ of the heat energy normally introduced into it, while receiving approximately 15% more light." Day-Brite Lighting, Inc., 6260 N. Broadway, St. Louis 15, Mo.

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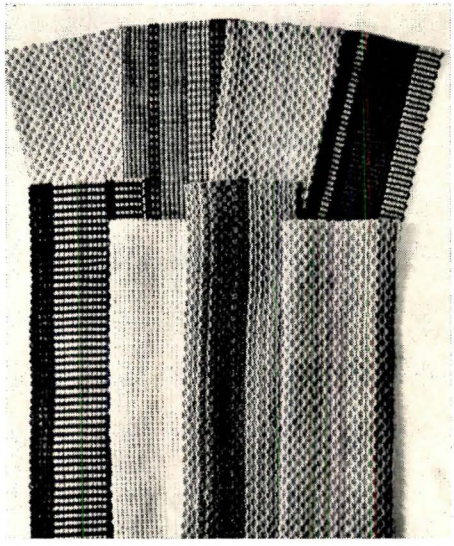

New Impulse for Vertical Blinds

A greater variety in vertical blind installations is made possible by a collection of new weaves and colors in vertical louvers designed by Matias Lozano. One group is woven with a double face: inside of Roman-striped wool, outside of U.S. Rubber's natural colored asbestos-glass fiber, which is sun resistant and prevents colors from fading. Other louvers are of a vinyl coated glass yarn by Owens-Corning Fiberglas, and Rovana plastic yarn by Dow Chemical. Both can be wiped clean with a damp cloth. Broad stripes in earth tones might be the solution for a copy study with a glass wall. Verti-Color Blinds, Inc., 64 E. 55 St., New York 22, N.Y.

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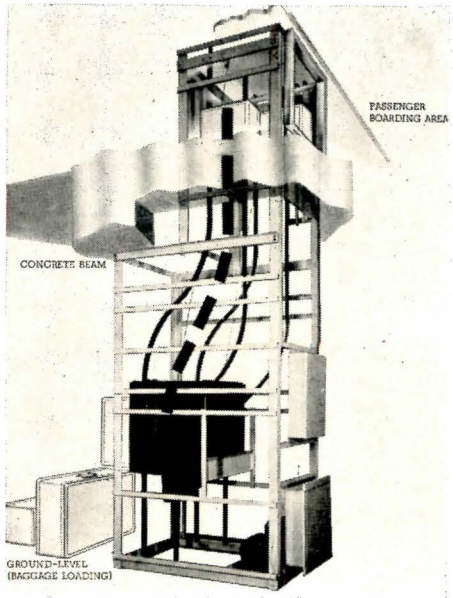

Curvy Dumbwaiter

Exigencies of the unique construction of Saarinen's TWA Terminal at New York's Idlewild Airport, require the dumbwaiter carrying luggage to jets from the boarding level to curve around a huge reinforced concrete beam. Two separate sets of guide-rails lead the dumbwaiter around the beam, keeping the car platform level and preventing baggage spillage. This is thought to be the first dumbwaiter of this nature ever designed. D. A. Matot, Inc., 1533 W. Altgeld St., Chicago 14, Ill.

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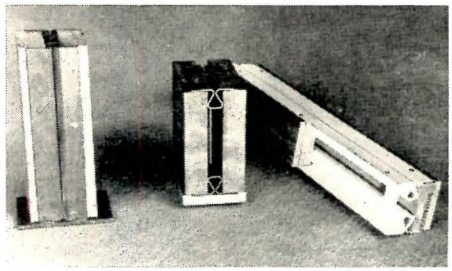

Composite Beam of Steel and Wood

New beam of steel and wood makes it possible to increase load-bearing capacity of ridge beams, floor and roof joists, and columns without increasing lumber size. A special cold-formed steel core is faced with 2″ lumber in depths from 4″ to 14″, giving the

appearance of a conventional wood member but with the strength of steel. The wood is nailed securely in place through prepunched holes. At bearing points, ¼" steel plate is welded between steel chords so that full bearing load is on steel members. The "Chase Composite Beam" utilizes the full structural value of the wood, and because of the steel core, the progressive sagging common to wood supports is eliminated. The Chase Foundry & Manufacturing Co., 2319 Parsons Ave., Columbus 7, Ohio.

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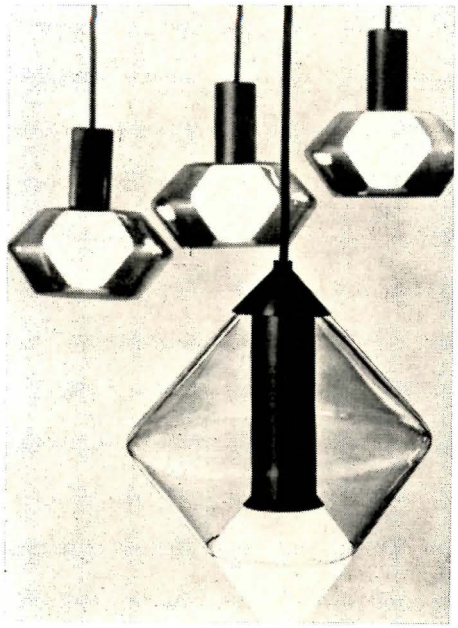


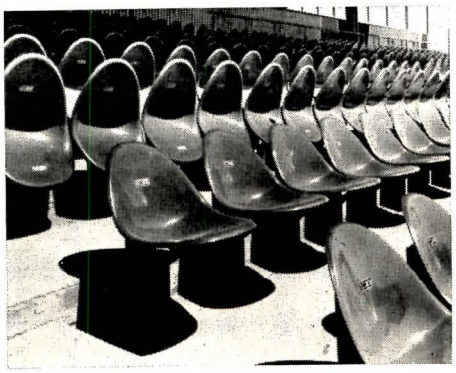
New Light Bulb Shape in Finnish Fixtures

Tapio Wirkkala of Helsinki has designed an interesting line of 26 fixtures utilizing lamps in unusual squat or elongated conical shapes. Fixtures are lightly tinted clear glass in shades of blue, mauve, and smoke. They are combined with variously shaped metal sleeves. Lamps, which have an interior diffusing coating, fit standard American 110-120 v sockets and come in 40 and 60 w intensities. Intercontinental Sales and Service Co., 14615 Grand River Ave., Detroit 27, Mich.

On Free Data Card, Circle **108**

Tilt-Up Seating

New "Contours" seat, making a first appearance at the new Finger Lakes Race Track in Canandiagua, N. Y., is a colorful all-weather plastic chair with an exclusive tilt-up action that adds valuable space between rows. Selected by Architect Arthur Froehlich, the chairs are of molded glass-fiber, integrally colored, for durability and

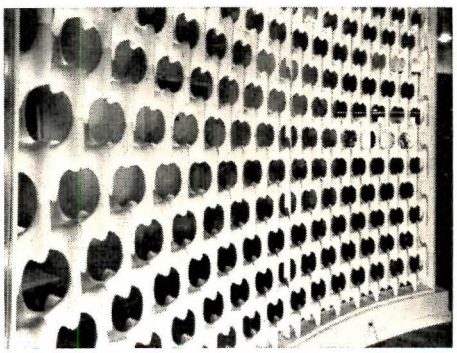


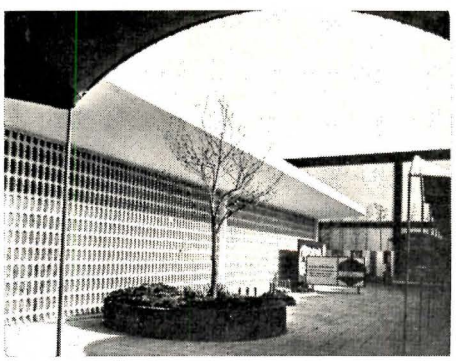
easy maintenance. In addition to the basic model, the Contours seat is available with padded seats, padded seats and backs, and with single or double arms. Applications other than stadiums would include auditoriums, schools, gymnasiums, and convention halls. Pacific Seating Corp., 13924 South Western Ave., Gardena, Calif.

On Free Data Card, Circle **109**

Plastic Grilles for Interior and Exterior

Dividers and grilles molded from "Tenite" butyrate plastic lend themselves to both interior and exterior applications. The high-impact-resistant material was used as a room divider at a motel in Virginia Beach in a design by Harvey Design Workshops. The screen weighs 1 psf, as compared with 15 or 20 psf for concrete. For a demountable pavilion used to display U.S. products in foreign trade fairs, Charles Dean of the Office of International Trade Fairs designed a wall



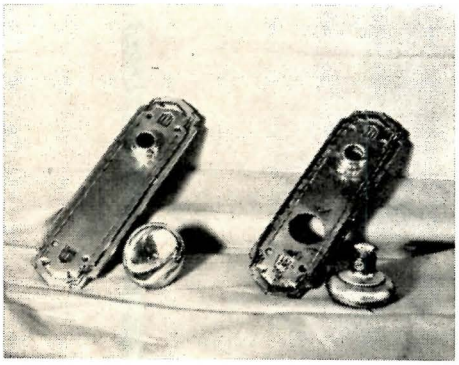


of turquoise-painted plywood faced with a modular repetition of white butyrate plastic grillework units. Units can be unscrewed from walls when pavilion is disassembled, and nested inside each other to save space. Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Co., Kingsport, Tenn.

On Free Data Card, Circle **110**

Superior Protection Against Corrosion

A series of silicone metal protectants to prevent corrosion and tarnish on a variety of metals has been developed by Union Carbide. The general-purpose protectant, "UCAR 101," has a number

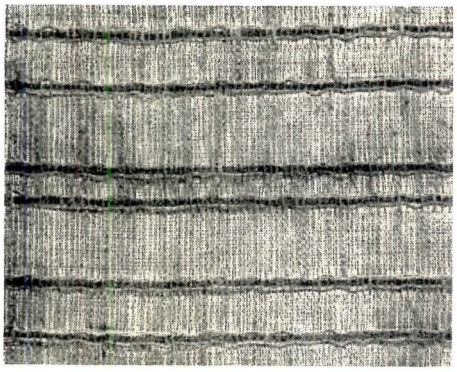


of outstanding qualities. It provides long-lasting protection on any type of metal (bronze, copper, brass, aluminum, etc.); it adheres to metal with unusual tenacity, forming a stronger bond than any organic film-to-metal bond yet observed; it is highly resistant to corrosive attack in various atmospheres; it is particularly inert to the common contaminants, whether in liquid, solid, or gaseous form; it makes an extremely thin film (1/10,000 in.) that does not affect the color of the substrate; and it gives a surface that is pin-hole free and impermeable, thereby resisting underfilm corrosion. A high-temperature version, "UCAR 104," is also available. Silicones Div., Union Carbide Corp., 270 Park Ave., New York 17, N. Y.

On Free Data Card, Circle **111**

New from Thaibok

Thaibok, long known for its elegant, handwoven silks from Siam, also has a growing collection of American textures for upholstery and drapery. The striated casement cloth (*illustrated*) is a natural-color mixture of linen, cotton, rayon, and goats' hair. A wicker-weave upholstery of all nylon is available in basic shades of blue,



brown, gold, beige, olive, and orange; the orange colorway is laced with dull mustard to achieve a vibrant effect. Also in the firm's line is the Thaibok-Mauretania Collection, a group of handwoven drapery and upholstery fabrics—silks and wools—from North Africa. Thaibok Fabrics Ltd., 16 E. 52 St., New York 22, N.Y.

On Free Data Card, Circle **112**

Trowelled Marble

Marble applied by a trowel, said to be "neither an imitation nor a man-made synthetic" but an "entirely new form of real marble," has recently been introduced here after some years of use in Europe. "Granolux" is available in a large range of colors and allegedly has the permanence, beauty, and utility of solid marble slabs. This installation is a new shopping center in Pontiac, Mich. Granolux Div., Cement Enamel Development, Inc., 18656 Fitzpatrick St., Detroit 28, Mich.

On Free Data Card, Circle **113**

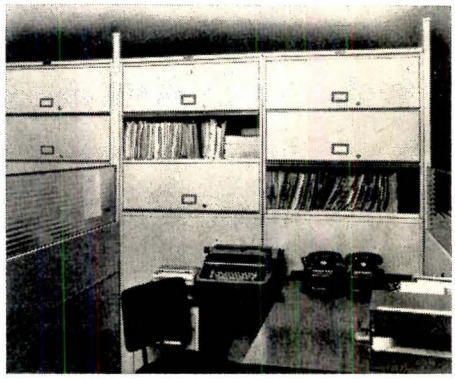
Gray Glass Block

"Royal Gray" is the latest addition to Owens-Illinois's line of color-in-the-glass blocks, joining "Shade Aqua" and "Shade Green." Glare-reduction properties are notable, O-I claiming that, "This product achieves the lowest brightness level ever produced in building glass." Available in 12″-sq size, in both clear and patterned glass. Kimble Glass Co., subsidiary of Owens-Illinois, Toledo 1, Ohio.

On Free Data Card, Circle **114**

Filing Units Save Space

"Verti-File" shelf filing system takes only 3.7″ of aisle space per filing inch as compared to the 8.4″ per filing inch taken by standard four-drawer files. System is appropriate for all types of filing from "live" to "dead," comes in



five different heights for secondary use as room divider, credenza, work surface, back-to-back files. Neat lines and clean, flush sides, plus variety of colors available, makes Verti-File desirable for many types of commercial installation. Royalmetal Corp., 1 Park Ave., New York 16, N. Y.

On Free Data Card, Circle **115**

Luminous Ceiling with Swing-Down Features

"Infiniflex," a luminous ceiling system which presents an undisturbed appearance when in place, actually permits each panel to swing down for cleaning and/or relamping. Using noncombustible metals and self-extinguishing plastics, the ceiling should pass most stringent fire codes. The panels are supported by a T-bar grid, and have concealed joints on the under side. Color inserts, new shapes, and textures and contours add to the design flexibility of the system. Integrated Ceilings and Grilleworks, Inc., 11766 W. Pico Blvd., Los Angeles 64, Calif.

On Free Data Card, Circle **116**

Space Needle Plastics

Decorating the elevator cabs in Seattle's Space Needle are translucent fiber glass reinforced plastic panels featuring a variety of embedments and textured effects. The designer and manufacturer of the panels, employing hand-decorated "Glacite," achieves a number of effects suitable for room dividers, ceilings, wall panels, screens, lighted murals, and doors and windows. Material is manufactured in panels up to 3′ 10″ x 8′ 0″; larger panels are available at an extra 20% charge. Favrex Designs, 97 State St. S., Hackensack, N. J.

On Free Data Card, Circle **117**

Electronic Switchboard Is Lightweight, Compact

A commercially feasible electronic private automatic telephone exchange—it is competitive in price with existing equipment—weighing about 400 pounds and measuring 71″ high x 27″ wide x 17¾″ deep has been introduced. The fully transistorized switchboard is about ½ as large as the smallest electromechanical equipment now available. Having no moving parts, gears, or contact points, and relying on an easily replaceable printed circuit board, the system can be maintained by switchboard operator or office secretary. Installation time is approximately $\frac{1}{10}$ that of current methods. "Kelex" system has provisions for connection to public address systems, for telephone conferences numbering more than two, for automatic paging via visible and/or audible signals, restricted service on some lines, and stand-by service. International Telephone and Telegraph Corp., 320 Park Ave., New York 22, N. Y.

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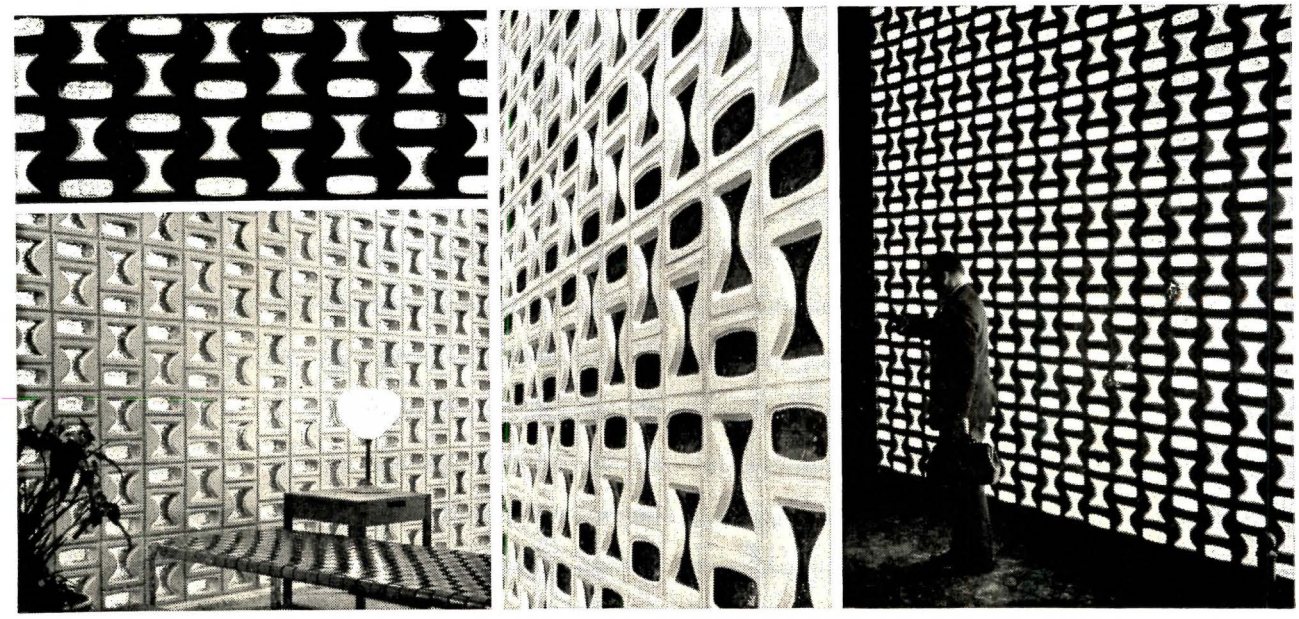
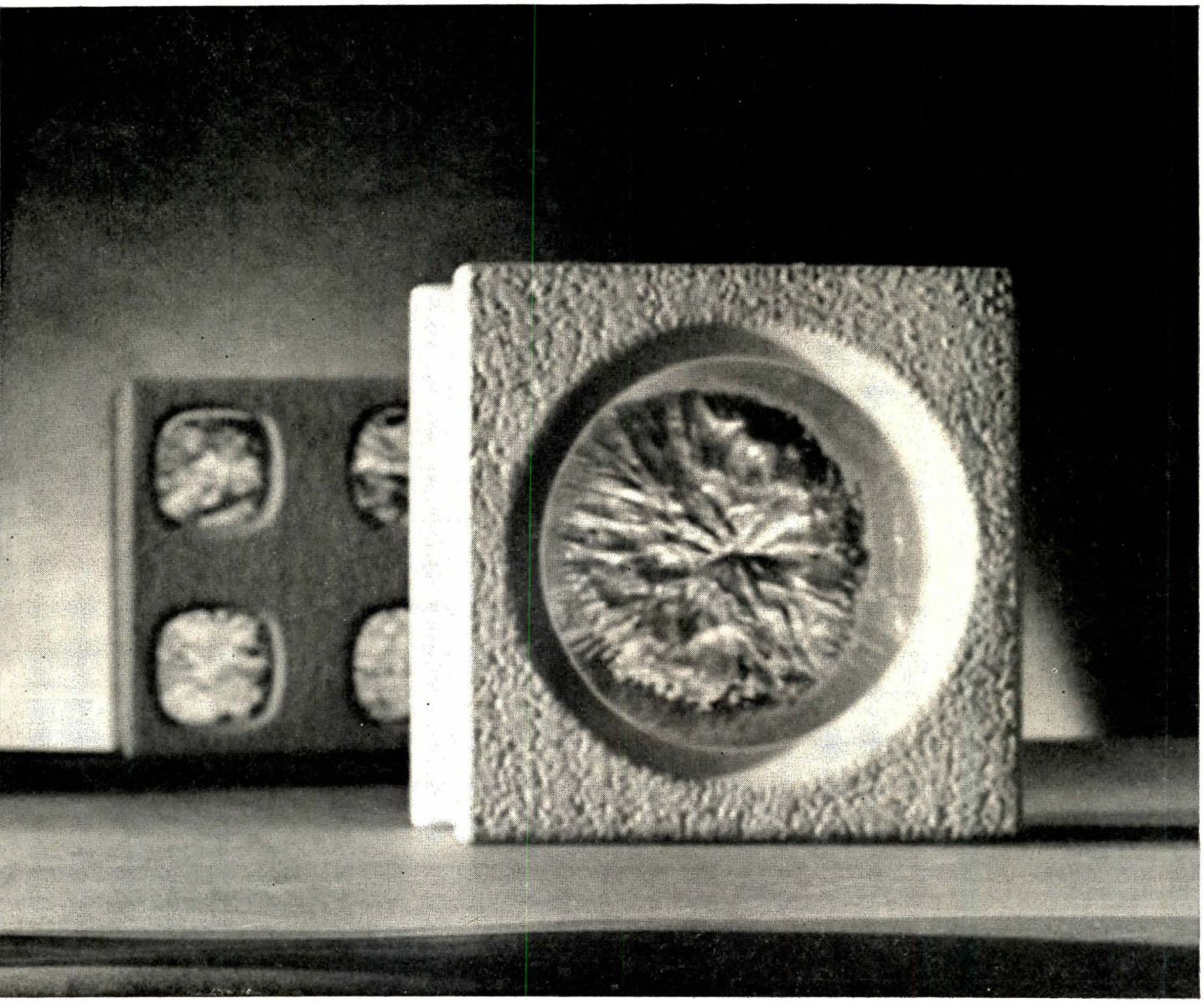




For more information, turn to Reader Service card, circle No. 339

AIR/TEMPERATURE

Heat Exchanger Reclaims 80% of Wasted Heat

"Therm-O-Wheel" rotary air-to-air heat exchanger, as described in new 8-page bulletin, is a rotating cylinder packed with a heat-absorbing metal fabric that transfers heat from a contaminated exhaust-air stream to an adjacent fresh-air or make-up air stream. It reclaims up to 80% of the thermal energy normally wasted by exhaust air. Potential applications exist wherever air is thrown away and replaced by air of another temperature. Bulletin discusses major benefits—savings in fuel and/or power, reduction in boiler-capacity requirements, etc. Performance data and specifications are included. Therm-O-Wheel Dept., Continental Copper & Steel Industries, Inc., 100 E. 42 St., New York 17, N. Y.

On Free Data Card, Circle **200**

Linear Diffusers Support Ceiling

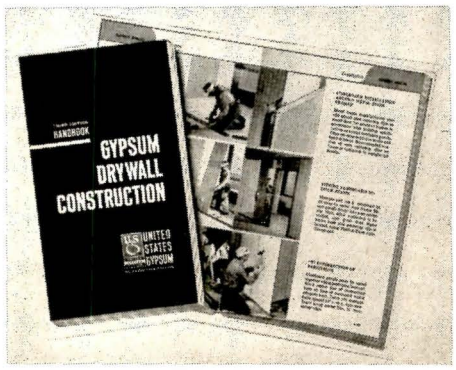
Anemostat's new "Airmodule" combines three ceiling functions—air distribution, structural support, and design—with basic advantages of efficiency of air diffusion, variety of application, versatility of function, adaptability to space, and flexibility of design. The diffuser extrusions are supplied in 2′, 3′, 4′, 5′, and 6′ lengths and can be incorporated into most suspended ceiling systems, including plaster. Two major economies are possible, states 6-page folder, because Airmodule avoids having to cut holes in ceiling panels to accommodate diffusers, and Airmodule takes the place of conventional structural support for the ceiling. Anemostat Corp. of America, 25 W. 43 St., New York 36, N.Y.

On Free Data Card, Circle **201**

CONSTRUCTION

Gypsum Pocketbook

Third edition of the *Gypsum Drywall Construction Handbook*, 216 pages, looks for all the world like a smart reprint of any bestseller. Pocket-sized and plastic-covered, the handbook presents all phases of drywall application. The newest systems, products, and techniques are discussed. Clear, concise illustrations are provided throughout. With pages keyed at the upper



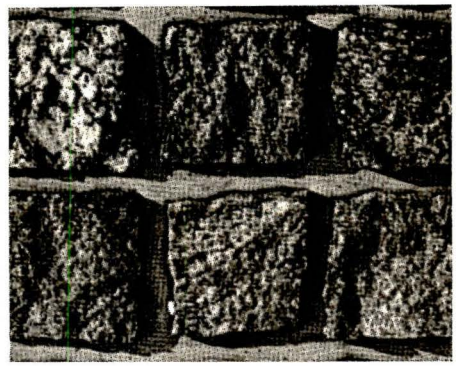
corner, and with adequate indexing and cross-referencing, the volume is a handy manual for use in the office or on the job site. Dept. DCI-26, United States Gypsum Co., 300 W. Adams St., Chicago 6, Ill.

On Free Data Card, Circle **202**

Fireproofing with Expanded Perlite

Economic fireproofing with "Permalite" plaster aggregate is described in new 8-page brochure. Fire ratings available with these expanded-perlite plasters are given for 38 typical constructions — among them structural-steel columns, curtain walls, partitions, floors, roofs, and ceilings. Construction diagrams illustrate each situation. A major advantage of the material is that it weighs less than half as much as ordinary sanded plaster, permitting a large reduction in dead weight. Thermal insulation is excellent because of the sealed cells of the expanded-perlite particles. Perma Products Dept., Great Lakes Carbon Corp., 612 S. Flower St., Los Angeles 17, Calif.

On Free Data Card, Circle **203**



Handsome Stonework

Five handsome bulletins present the products of Cold Spring Granite Co.—granite mosaic, tumbled stone and broken ashlar, module block, split-face ashlar, and split-joint and broken-joint flooring. A full-color photo appears on the cover of each 4-page bulletin, and several uses by outstanding architects are also shown. Typical general details are drawn, with full dimensions, and a complete specification for the work is spelled out. Cold Spring Granite Co., Cold Spring, Minn.

On Free Data Card, Circle **204**

Quality-Control Program

Quality Standards for Laminated-Timber Construction, 4-page folder, explains the AITC's new quality control and inspection program for structural glued laminated timber. By a system of licensing qualified laminators, and periodically inspecting the quality of their work, the Institute insures that all labeled work will conform to the Commercial Standard recently proposed. A guide form for specifying glued laminated construction under the new quality-control program is included. American Institute of Timber Construction, 1757 K St., N.W., Washington 6, D.C.

On Free Data Card, Circle **205**

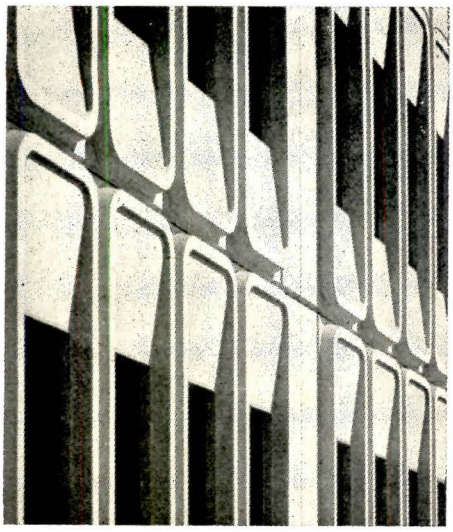
Curtain-Wall Panels Faced with Ceramic Tile

Folder, 6 pages, shows series of insulated curtain-wall panels that are faced with ceramic tile and can be fabricated to fit any curtain-wall system. Thicknesses are from ⅝″ to 4¼″; "U" values are as low as .08. Skins are available in a choice of concrete, aluminum, steel, asbestos-cement board, or plywood, and there are four types of insulating cores. Tiles are grouted with a specially formulated, flexible grout for durability and weather resistance. For a finished interior, panels can be fabricated with tile on both sides. Atlantic Panels, Inc., 199 Dexter Ave., Watertown 72, Mass.

On Free Data Card, Circle **206**

Precast Elements of Outstanding Quality

Brochure, 4 pages, gives complete specifications for Schokbeton precast-concrete elements. According to the brochure (and verified by an editor of P/A who had occasion to visit the Schokbeton plant), quality and appearance of the units are excellent. The exclusive process, originally developed in Holland, places a scientifically designed zero-slump mix into molds of intricate form. This is accomplished by a low-frequency vertical "shock" or impact, which consolidates without segregation. Since the entire element is simultaneously processed, conflict-



ing impulses are nonexistent. The results are high strength, exact tolerances, sharp arrises, great density, low water absorption—"the ultimate in attractiveness combined with maximum durability." Brochure shows several recent buildings employing a variety of precast designs. Schokbeton Products Corp., 18 E. 41 St., New York 17, N.Y.

On Free Data Card, Circle **207**

AISI Steel Manual

Fourth edition of AISI's *Light-Gage Cold-Formed Steel Design Manual* has been published, with revisions that reflect recent developments and continuing research, particularly those relating to the utilization of as-formed strength. The 127-page book consists of a "Specification for the Design of Light-Gage Cold-Formed Steel Structural Members," a section entitled "Supplementary Information," 20 illustrative examples, and 30 charts and tables of structural properties. The Specification was first published in 1946 and is now accepted as the definitive standard by almost all national and local building codes in the U.S. Write to: American Iron & Steel Institute, 150 E. 42 St., New York 17, N.Y.

DOORS/WINDOWS

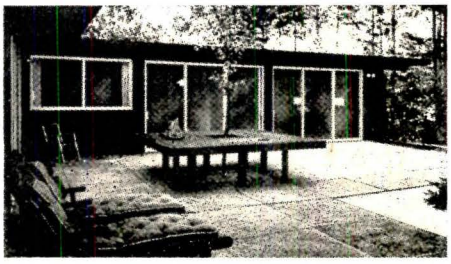
Glazing Recommendations

Glazing Specifications for Vision Glass, 12 pages, provides a basis for selecting the glazing sealants for any job. Brochure outlines the principal causes of glazing failures and the factors governing selection and placement of sealants. Minimum standards are spelled out for glazing aluminum sash; and recommendations are provided for glazing aluminum, steel, and wood sash. The properties and purposes of Tremco products are briefly described. The Tremco Manufacturing Co., 10701 Shaker Blvd., Cleveland 4, Ohio.

On Free Data Card, Circle **208**

First Industry Specs for Sliding Glass Doors

The first industry-wide specifications for sliding glass doors has been published, the result of 4 years' work by the Sliding Glass Door & Window Institute and the Aluminum Window



Manufacturers Assn., who merged early this year to form the AAMA. The 16-page publication gives general requirements applicable to all aluminum sliding glass doors, plus specific requirements applicable to particular types of doors (for regular residential and limited commercial use, for applications where increased size or better performance is a factor, and for hurricane conditions). A short-form specification is also included. Architectural Aluminum Manufactuers Assn., 35 E. Wacker Dr., Chicago 1, Ill.

On Free Data Card, Circle **209**

Entrances Defined

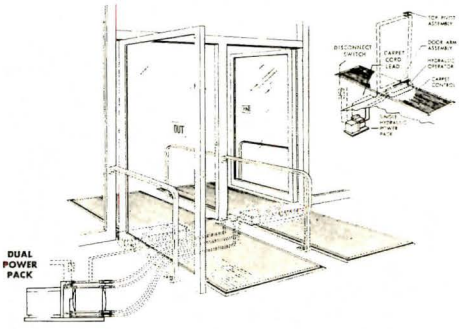
Brochure entitled *The Narrow-Stile Package Entrance and the Custom Metal-and-Glass Entrance* has been published by the NAAMM. In concise form, the 4-page brochure defines package entrances and custom entrances, and details typical package entrances. In general terms, it outlines all factors to be considered in specifying package or custom entrances. Store Front & Entrance Div., National Assn. of Architectural Metal Manufacturers, 228 N. La Salle St., Chicago 1, Ill.

On Free Data Card, Circle **210**

Rolling Doors, Grilles

The broad line of Kinnear rolling doors in steel or aluminum is presented in new 36-page catalog. Construction features, types of operation, sizes, clearances, and specifications are given; detail drawings and photographs are extensively used. Among the many door types available are rolling service doors, fire doors, rolling counter shutters, rolling grilles, sectional overhead doors, and bi-folding doors. Kinnear Manufacturing Co., 1860 Fields Ave., Columbus 16, Ohio.

On Free Data Card, Circle **211**



Automatic Door Operators

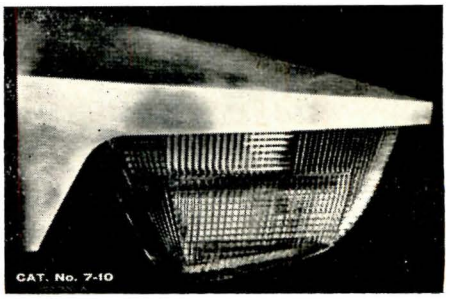
Complete *Fact File* on automatic door-operating equipment is available from Stanley. Detail drawings at quarter scale show the three types of "Magic-Door" equipment—hydraulic, electric, and pneumatic—designed to meet any requirement of doors that swing, slide, or fold. A 22-page catalog describes the various models, and full specifications are provided. The Stanley Works, 195 Lake St., New Britain, Conn.

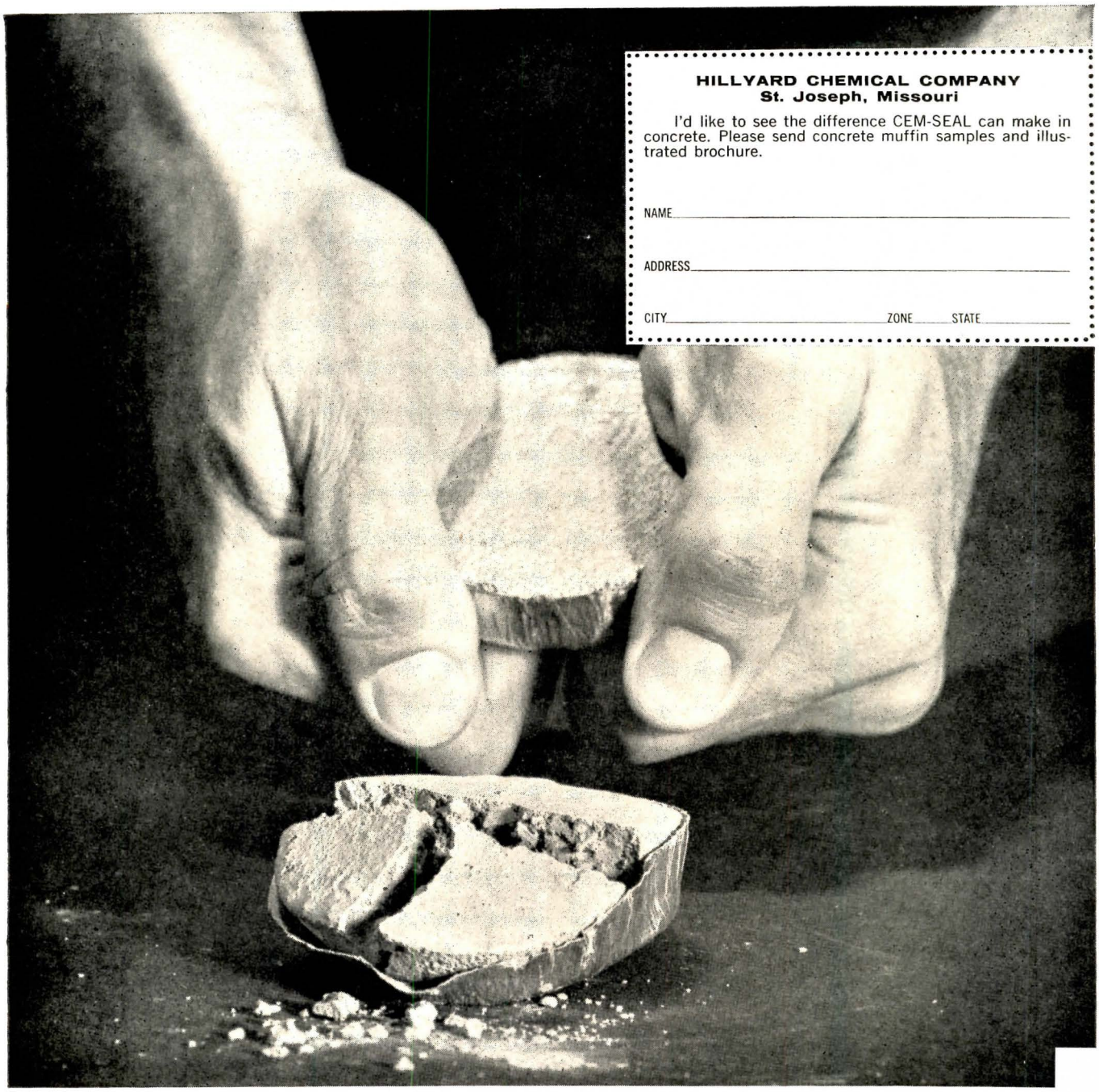
On Free Data Card, Circle **212**

ELECTRICAL EQUIPMENT

Exterior Wall Bracket

Exclusive quality features of McPhilben's new "Delta 7" exterior wall bracket are illustrated in a 4-page brochure. The fixture is fully enclosed and gasketed for weathertight, vaportight, and bugtight operation. The prismatic refractor is impact-resistant and heat-resistant, and is designed to exact efficiency and performance characteristics. Housing is corrosion-resistant aluminum, satin-finished, with a weather-resistant protective coating.





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St. Joseph, Missouri

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HILLYARD CEM-SEAL makes concrete denser, stronger. CEM-SEAL works three ways: Retards evaporation of moisture to prolong curing time... prevents dusting which occurs when moisture evaporates too rapidly... protects against staining during construction.

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FLOOR TREATMENTS
St. Joseph, Missouri, U.S.A.
Passaic, New Jersey
San Jose, California

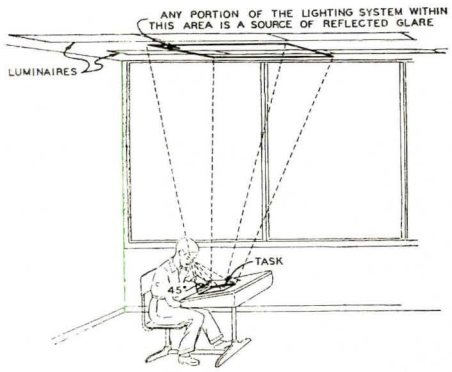
"On your staff, not your payroll" / **PROPRIETARY CHEMISTS SINCE 1907**

An integral cast guard is available for locations where added protection against vandalism is needed. Brochure lists suggested applications (interior and exterior), and gives optical data. McPhilben Manufacturing Co., Inc., 1329 Willoughby Ave., Brooklyn 37, N.Y.

On Free Data Card, Circle 213

School Lighting Data

American Standard Guide for School Lighting, 40 pages, is available from the IES for 50¢. Other sponsors of the work are the AIA and the National Council on Schoolhouse Construction. The new Guide, replacing the 1948 *American Standard Practice,* sets forth much new knowledge concerning light

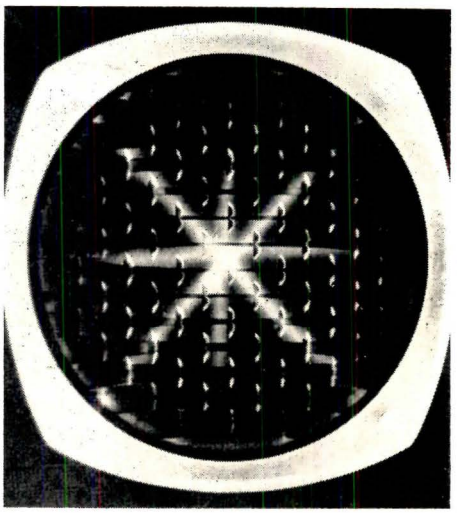


and vision. Sections discuss variables of visibility and their implications, systems of illumination, maintenance, and special applications. Not highly technical, the Guide is intended for use by school boards and educators as well as architects and engineers.

Also published by the IES, at 20¢, is *School Lighting Application Data,* 20 pages. This booklet is intended for those who are professionally concerned with the design of lighting systems—illuminating engineers, lighting specialists, consulting engineers, etc. The material has been extracted from the *IES Lighting Handbook* and gives a detailed treatment of subjects which the designer must consider. Write (enclosing money) to: Illuminating Engineering Society, 345 E. 47 St., New York 17, N.Y.

Safety Lighting for Underwater

Planning guide for underwater lighting installations is available from Stonco Electric Products Co. Included in the 24-page catalog are diagrams and charts on wiring methods, circuit sizes, and voltage supply; also layouts and application ideas for the complete



Stonco line of fountain lights, swimming-pool lights, deck boxes, and low-voltage transformers. Stonco Electric Products Co., 333 Monroe Ave., Kenilworth, N.J.

On Free Data Card, Circle 214

FINISHERS/PROTECTORS

Silicone Treatments for Exterior Masonry

Folder, 6 pages, presents improved "Dehydratine No. 22" and "Dehydratine No. 25"—silicone water-repellent treatments for use on above-grade exterior masonry. The invisible barriers perform six functions simultaneously: they reduce efflorescence, repel water, reduce spalling, reduce staining, reduce interior dampness, and allow masonry to breath. Catalog discusses the use of these products in new construction and in caulking and repointing of joints. A. C. Horn Div., Sun Chemical Corp., 2133 85th St., North Bergen, N.J.

On Free Data Card, Circle 215

INSULATION

Blend of Mineral Fibers

New "Mineral-Glass" batts and blankets are described in 8-page brochure. A blend of mineral fibers, the insulating material provides as much as 38% more insulation value than conventional lightweight glass-fiber products, according to manufacturer. Brochure gives thermal-resistance factors, suggested specifications, application information, and a heating-cooling cost analyis of typical residential construction. United States Mineral Wool Co., Stanhope, N.J.

On Free Data Card, Circle 216

Sound-Tranmission Loss Explained on Record

Prepared through the co-operation of Riverbank Acoustical Laboratories, a special 33-rpm recording explains how sound-transmission loss is measured and reported. Recorded office noise, speech, and music are treated to acous-

tical isolation at various noise levels from 20 to 40 db. Accompanying the recording is a booklet. *Freedom from Distraction,* that provides a concise report on the new ASTM acoustical standard and serves as a guide for effective acoustical performance specifications. For free booklet, and opportunity to hear recording, write to: Hough Manufacturing Corp., 1023–1059 So. Jackson St., Janesville, Wis.

Duct Material Insulates Against Heat, Noise

Johns-Manville's "Micro-Aire," a new preformed glass-fiber duct systems, is described in 8-page booklet. The all-in-one material provides thermal insulation, vapor barrier, and acoustical absorption in one product; an exclusive slip-joint construction requires a minimum of field-assembly work. Properties and advantages are outlined in the booklet. Box DOC-11, Johns-Manville, 22 E. 40 St., New York 16, N.Y.

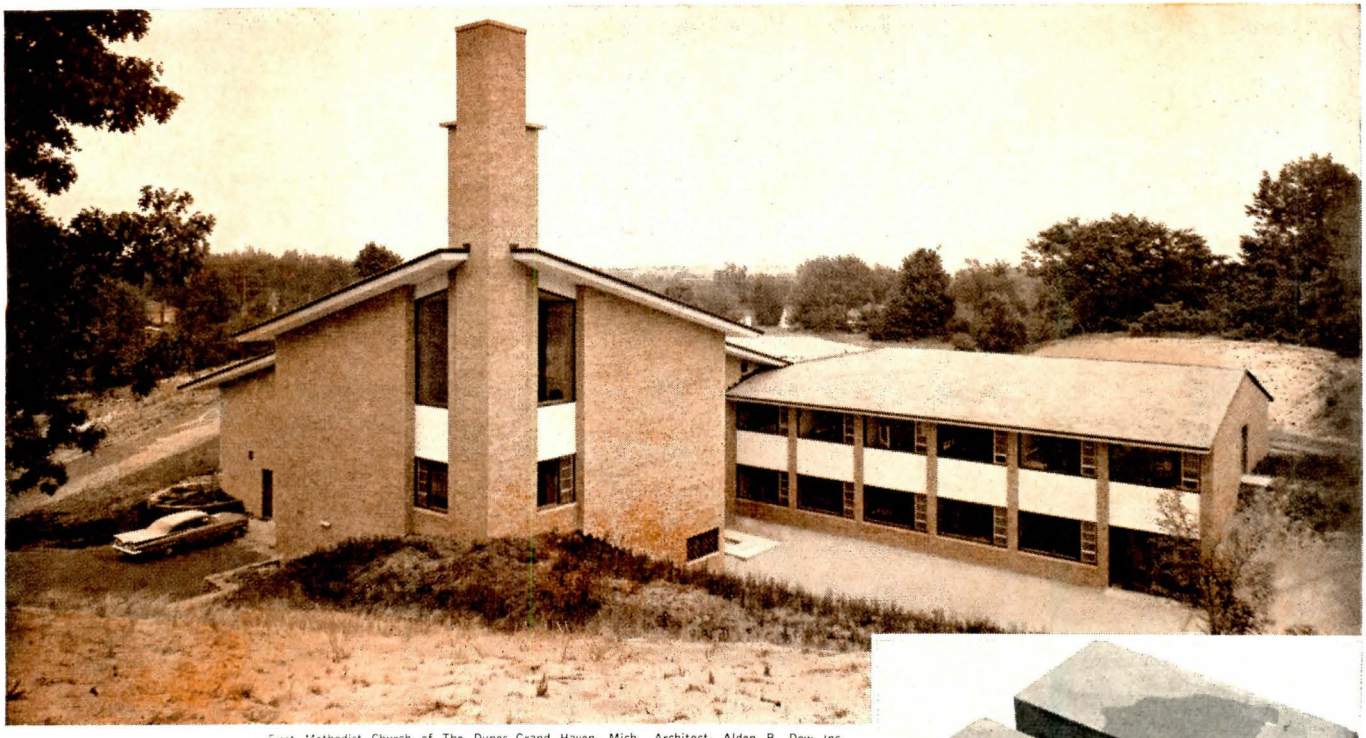
On Free Data Card, Circle 217

Insulating Board

New 12-page catalog, entitled *Insulating Board Products,* contains complete technical information and specifications on Simpson's line of structural insulating board, roof insulation, and acoustical insulating roof deck. Appli-

BUILDING PRODUCTS NEWS from Dow Corning

The enduring beauty of brick



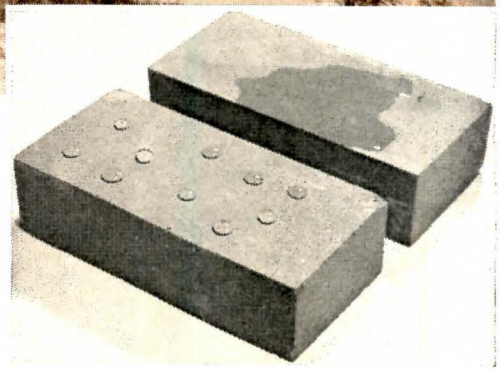
First Methodist Church of The Dunes Grand Haven, Mich. Architect: Alden B. Dow Inc.

Silaneal® preserves it against efflorescence, dirt staining

The mellow charm of the brick specified for this distinguished new church won't be marred by unsightly discoloration from dirt, rain or efflorescence. The architect's assurance: this brick was factory-treated with Silaneal, the sodium siliconate treatment that so effectively helps brick repel water.

Silaneal Preserves Your Concept Light and pastel shades of brick are being specified more than ever before. Many such brick, however, have high suction rates and offer little resistance to water penetration. And water discolors brick by carrying dirt *into* the brick, causing its color to dull and darken: and by leaching water-soluble salts *out* of brick, causing ugly efflorescence. But Silaneal treatment slows and *controls* the absorption rate of even highest suction brick . . . dirt is kept outside, where it's rain-washed away, and efflorescence caused by leaching is minimized.

Walls Go Up Easier, Stay Stronger Brick treated with Silaneal don't require time-consuming soaking at the job site; water absorption rate is *already* controlled. This also permits proper mortar hydration; the fresh mortar dries more slowly, without leaving hairline shrinkage cracks at the brick-mortar interface. Transverse pressure tests—and tests simulating wind-driven rain—have demonstrated repeatedly that wall sections built of Silaneal-treated high suction brick prove stronger and resist leakage better than similar, but untreated, brick.



Note revealing contrast in water penetration of these two high suction rate brick. Water dropped on Silaneal-treated brick, at left, beads up without penetration. Same amount of water has spread rapidly across untreated brick, will be totally absorbed within seconds.

To Get More Information Wouldn't it be wise to have on hand more detailed information about brick-improving Silaneal treatment? Just write Dow Corning, Dept. 8711, for further data including a list of brick manufacturers who supply Silaneal-treated brick.

SILANEAL®
keeps brick clean

Dow Corning CORPORATION
MIDLAND, MICHIGAN

cation details complement the descriptive data. Simpson Timber Co., 2041S-R Washington Bldg., Seattle 1, Wash.
On Free Data Card, Circle 218

SANITATION/PLUMBING

Epoxy Pipe

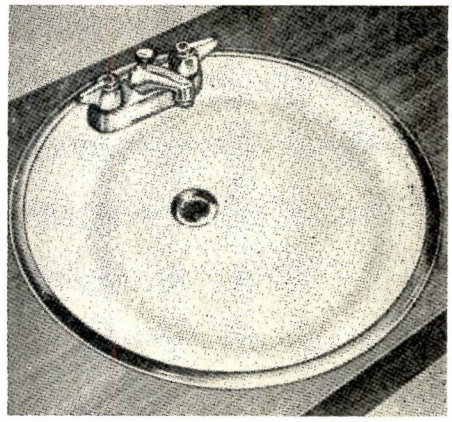
"Resistochem" epoxy pipe for chemical-process systems installs at a lower cost than stainless steel, tempered glass, and many other corrosion-resistant materials, manufacturer states. A 12-page catalog lists properties, dimensions, weights, and resistances to a lengthy list of chemicals. Resisto Chemical, Inc., Box 1945, Wilmington 99, Del.
On Free Data Card, Circle 219

Safe Shower Systems

Product specifications and roughing-in layouts for thermostatically controlled shower systems are contained in new *Engineer's Manual*. Basic to all the shower systems is the "Hydroguard" thermostatic water controller, which keeps bath and shower water at a safe temperature even when accidentally turned to full hot. Hydroguard immediately senses and corrects fluctuations in temperature or pressure; a special safety feature cuts off water delivery if hot or cold water supply fails. The 40-page manual includes information on tub-shower combinations, group showers, progressive showers, multiple showers, coin-operated showers, and group wash fountains. Installations with either concealed or exposed piping are presented. Dept. PA-10, The Powers Regulator Co., 3400 Oakton St., Skokie, Ill.
On Free Data Card, Circle 220

Plumbing Fixtures and Fittings

Residential, commercial, and institutional plumbing fixtures by Crane are illustrated in new 44-page catalog. Products shown are those most frequently used in the majority of installations and do not encompass the entire Crane line of specialized equipment. Catalog includes a number of new fixtures catalogued for the first time—8 new lavatories, 5 new baths, and 3 new water closets. The three different lines of plumbing trim (for



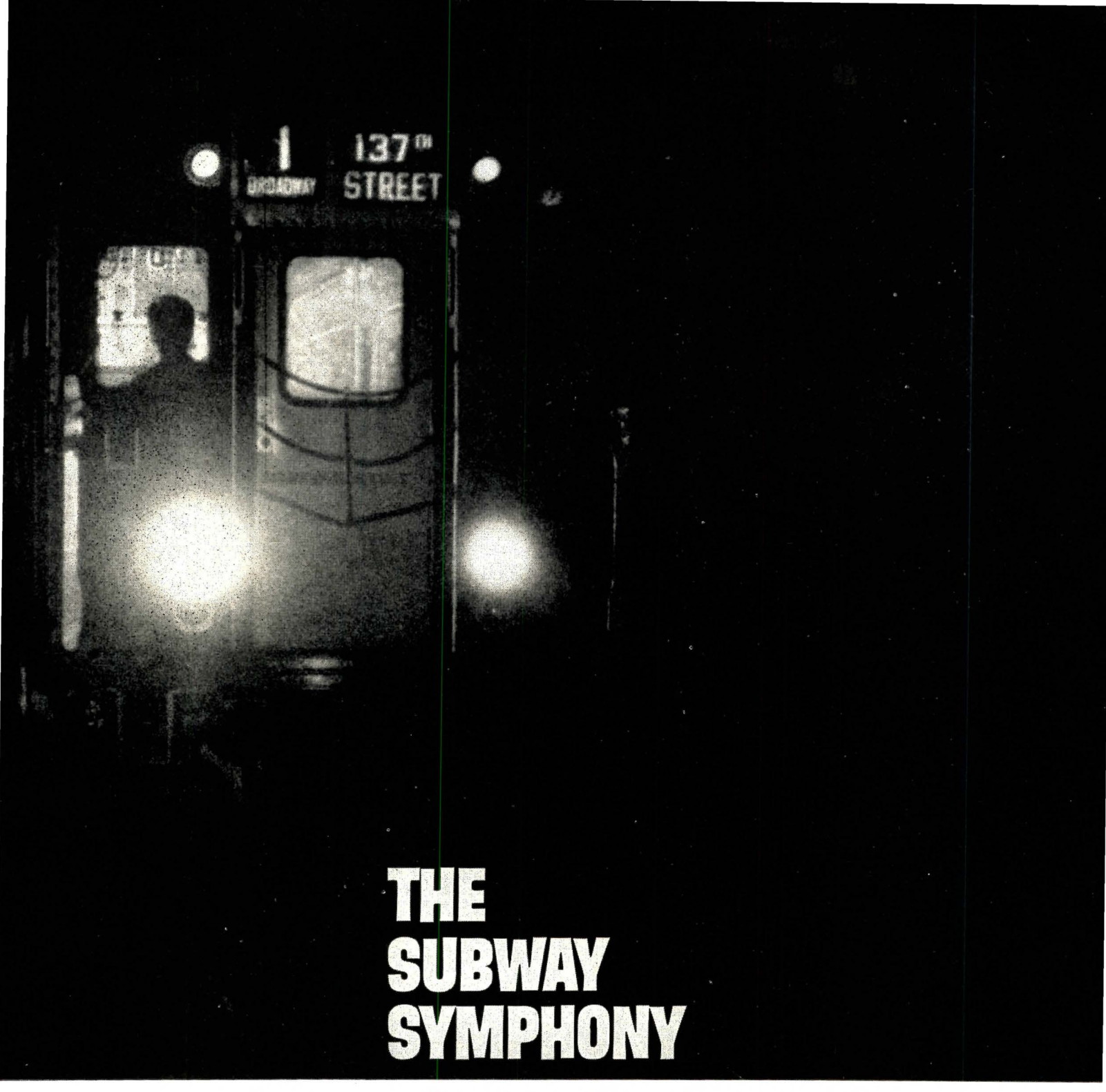
luxury, quality, or economy installations) also appear for the first time. Plumbing-Heating-Air Conditioning Group, Crane Co., Johnstown, Pa.
On Free Data Card, Circle 221

SPECIAL EQUIPMENT

Hospital Casework

Complete catalog on hospital casework and laboratory furniture by Blickman is available. The 40-page booklet de-

Continued on page 95



THE SUBWAY SYMPHONY

will not be heard tonight...or ever at Philharmonic Hall

The story behind the conquest of sound and vibration at Lincoln Center's Philharmonic Hall lies in acoustical research. Before the foundations were laid, the firm of acoustical engineers, Bolt Beranek & Newman Inc., intensively surveyed the area to record underground vibration levels. Acting on their recommendations, lead-asbestos pads were installed at the base of the hall's supporting columns. Acting as vibration isolators, these pads help to block out all but a subaudible trickle of the groundborne ruckus from a subway only 65 feet away. Similar lead pads help solve the same problem for a host of new buildings. In New York alone, the Pan Am Building, Union Carbide Building, Motel City and others rest on lead. All silently testify to lead's outstanding capacity to effectively eliminate noise and vibration. And lead offers more. It bears up under the heaviest loads, costs relatively little, lasts forever. If you are anxious to keep in tune with modern, economical, and permanent solutions to the problems of vibration suppression or sound attenuation—in architecture or heavy machine design—definitely look into lead.

Architects: Harrison, Abramovitz & Harris • General Contractors: Fuller-Turner-Walsh-Slattery
Engineers: Ammann & Whitney • Acoustical Consultants: Bolt Beranek & Newman Inc.

LEAD INDUSTRIES ASSOCIATION, INC.

Dept. V-11, 292 Madison Avenue, New York 17, N. Y.

Look Ahead with Lead

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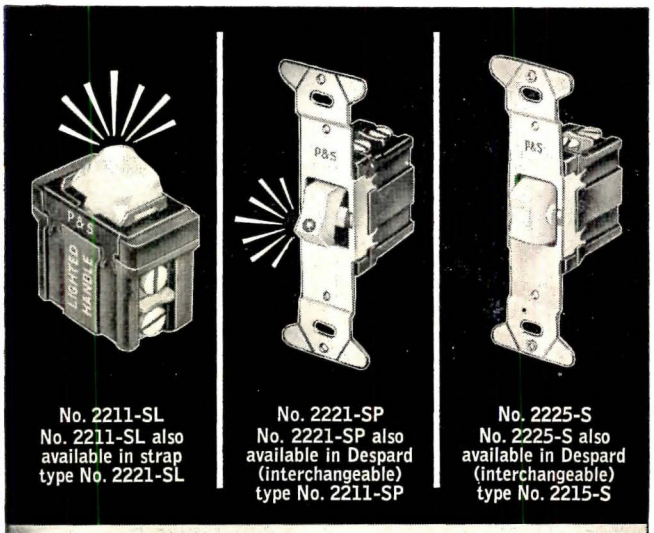
NOW!
3 NEW
P&S ROCKER-GLO SWITCHES!



No. 2211-SL
No. 2211-SL also available in strap type No. 2221-SL

No. 2221-SP
No. 2221-SP also available in Despard (interchangeable) type No. 2211-SP

No. 2225-S
No. 2225-S also available in Despard (interchangeable) type No. 2215-S

1

LIGHTED HANDLE ROCKER-GLO

Pinpoints switch location in darkened rooms or hallways. Tiny, long-life neon lamp softly glows in OFF position only. Single pole or three-way. Rating: 15 Amperes, 120 Volts, A.C.

2

PILOT LIGHT HANDLE ROCKER-GLO

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3

REMOTE CONTROL ROCKER-GLO

Momentary contact, center "off" switch. Designed especially for low voltage remote control applications — controlling large banks of lighting, operating stage curtains, etc. Single pole, double throw. Rating: 10 Amperes, 48 Volts, A.C.

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SYRACUSE 9, NEW YORK

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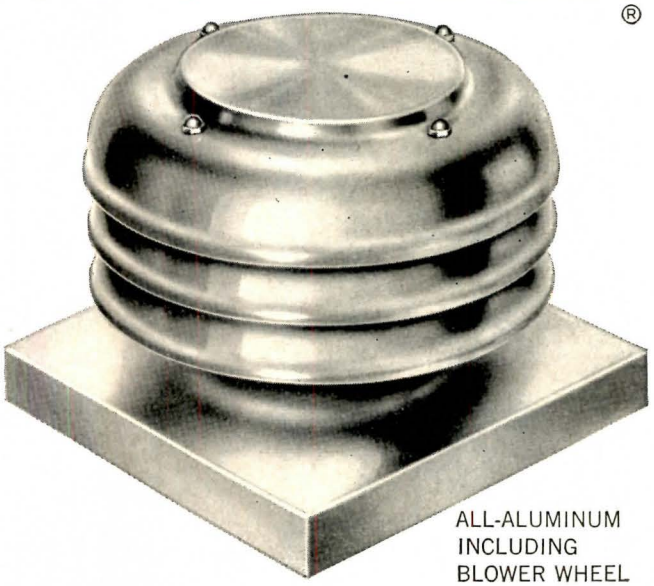
For more information, turn to Reader Service card, circle No. 372

LOREN COOK PRESENTS...

SPUN-TIER®



ALL-ALUMINUM INCLUDING BLOWER WHEEL

A NEW FAMILY OF ROOF VENTILATOR STYLES DESIGNED FOR HARMONIOUS APPEARANCE

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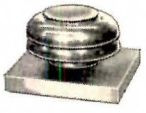
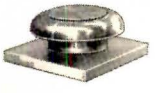
Centrifugal, direct or belt drive
1,000 to 24,000 CFM

3-TIER
Centrifugal, direct drive
100 to 24,000 CFM



2-TIER
Propeller, direct or belt drive
200 to 33,000 CFM



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They look alike in every size and style

SPUN-TIER* . . designed for good looks and improved performance. Top tiers supply ample air to cool separate motor chamber and reduce static at discharge. New airfoil aluminum wheel design is more efficient. Reduced overall height. Positive anti-backdraft at inlet.

WRITE FOR FREE 32-PAGE CATALOG. See Sweet's 1963 Architectural File after January.

THE LOREN COOK COMPANY
BEREA, OHIO
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Cook SPUN-TIER

*Patent Pending

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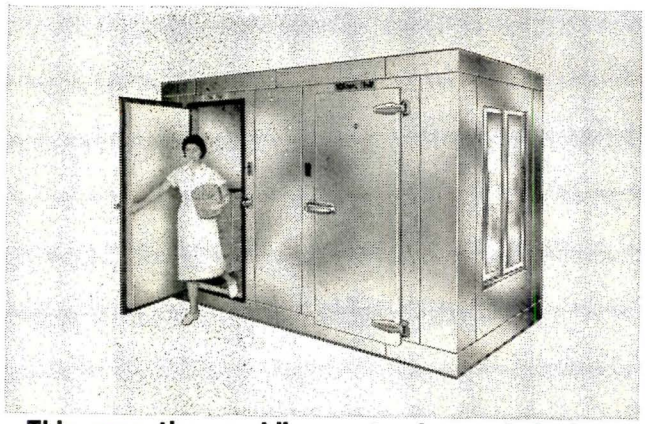
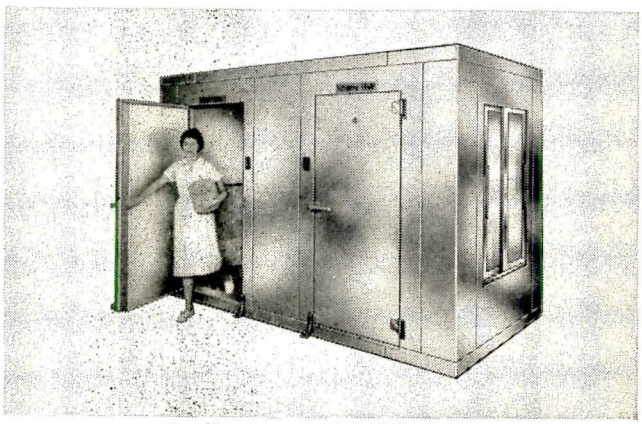


This was the world's most advanced design.



Until we made this one.

Bally Walk-In Coolers and Freezers are now made with science's wonder insulation... Urethane "foamed-in-place"

The advantages of this new insulation represent a major design achievement that obsoletes all conventional insulated Walk-Ins ♦ With 97% closed cells it cannot absorb moisture . . . maintains peak efficiency, indoors or outdoors ♦ Insulating value is double . . . Bally 4" urethane equals 8½" of conventional insulation. Standard models ideal for use as minus 30° freezers ♦ Urethane, poured as a liquid, foams in place and binds tenaciously to the metal for great strength. Eliminates need for structural members. Replaces that space with insulation ♦ Lightweight urethane reduces weight to one-third for big freight savings . . . makes erection fast and easy ♦ Foamed door is extremely light in weight to open and close with little effort. Magnetic gasket provides positive seal ♦ Thinner walls increase usable space.

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Write for free Architect's Fact File, complete with new Specification Guide, descriptive literature and technical booklet. Also see Sweet's Architect File 25a/Ba.

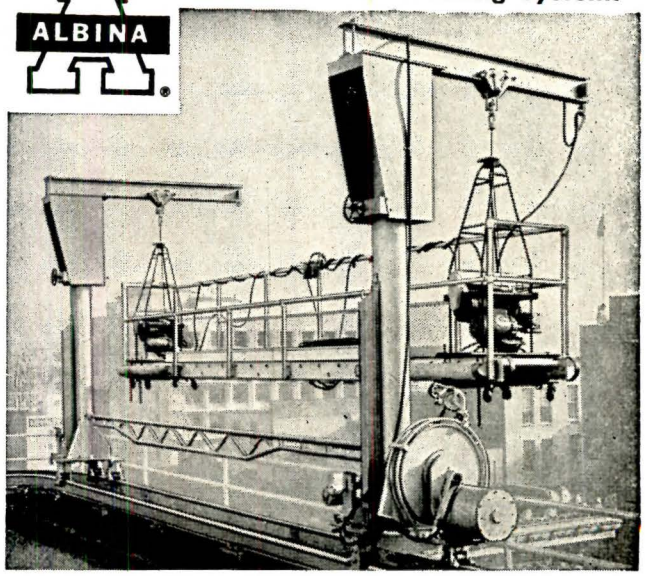
Bally

Bally Case and Cooler, Inc.
Bally, Pennsylvania
Write Department PA

For more information, turn to Reader Service card, circle No. 329

ALBINA

Window Washing Systems



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

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

ALBINA ENGINE & MACHINE WKS.
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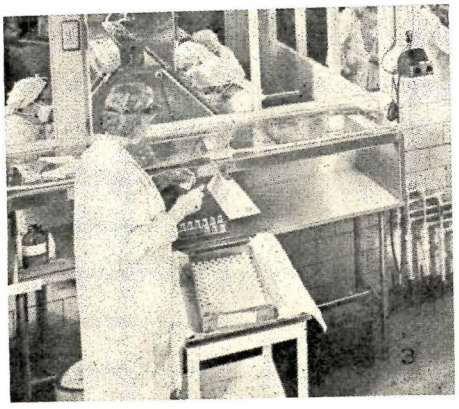
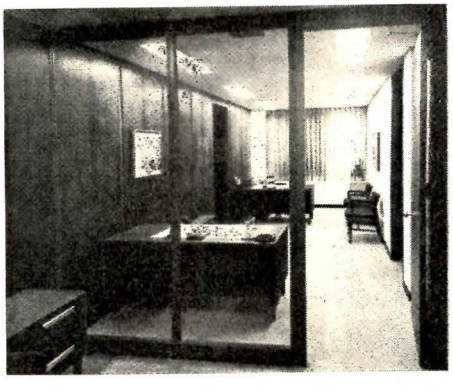
REINHOLD BOOK DIVISION Dept. M-208, 430 Park Ave., N. Y. 22

Continued from page 90



scribes stainless-steel and enameled-steel construction, gives general specifications, and shows dimensions and features of all items. A number of representative floor plans suggest the elements that should be considered in planning various departments of a typical 100-bed hospital. S. Blickman, Inc., 534 Gregory Ave., Weehawken, N.J.

On Free Data Card, Circle 222



Partitioning Systems

New catalog of the "Aetnawall" line of movable partitions has been published. The catalog, 32 pages, illustrates and details six basic partitioning types—three standard, three custom. General information is also given on special components, door types, hardware, and wiring. Specifications and detailed sound-control data are included. Aetnawall Dept., Aetna Steel Products Corp., 730 Fifth Ave., New York 19, N. Y.

On Free Data Card, Circle 223

PROGRESSIVE ARCHITECTURE
NEWS REPORT

REINHOLD PUBLISHING CORPORATION
430 PARK AVENUE NEW YORK 22, N.Y.
Publisher.....D. Bradford Wilkin
Editor.....Thomas H. Creighton
News Editor.....James T. Burns, Jr.

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WONG

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160 Tulsa Municipal Airport Terminal Building: Murray-Jones-Murray, Architect; David R. Graham & Associates, Consulting Engineers

CHARETTE MEETING

on the Community College

Ten outstanding architects and fifty students of architecture from nine universities gathered at Rice University in Houston in June to take part in a unique experiment in architectural design and education. All of the participants lived and worked together for ten days and nights in a concentrated effort to develop new concepts for college buildings at the junior and community college level.

Officially known as the Rice University Design Fete, the meeting was actually a combination conference and charette, in which meal-time discussions and bull sessions took the place of speeches, and design presentations took the place of reports.

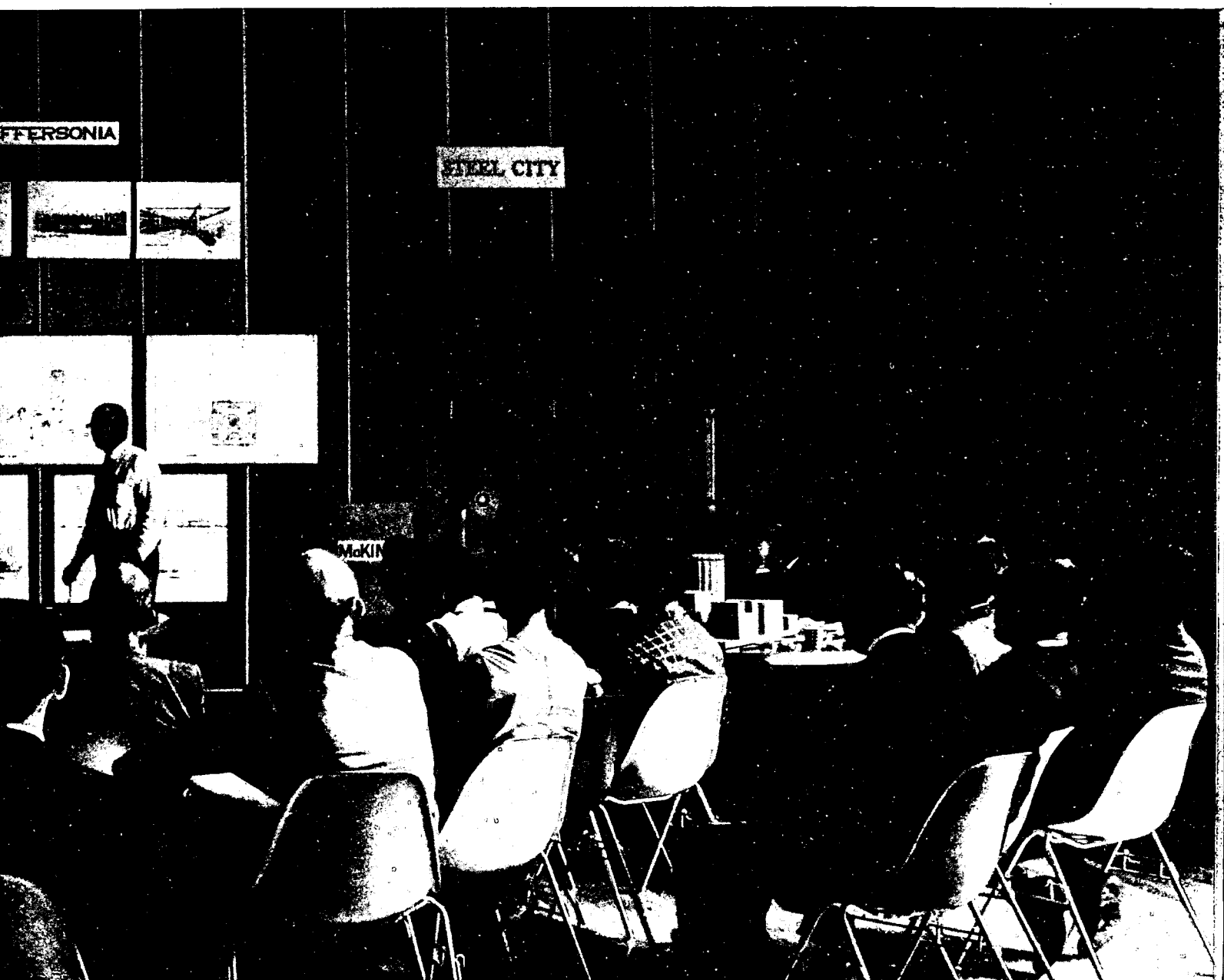
Each architect was assigned a team of five students—four students from the third, fourth, or fifth year and a fifth-year or graduate-school team captain. The architects developed the concepts, and the teams translated the ideas and sketches into finished presentations.

William W. Caudill, Chairman of the Rice Department of Architecture, originated the idea of the meeting. Bill L. Lacy, his Assistant Chairman, served as its director. The Educational Facilities Laboratory of the Ford Foundation sponsored the event. Dr. Harold B. Gores, President of E.F.L., Jonathan King, Secretary, and John Beynon, Staff Associate, served as educational consultants at the meeting.

Dr. Edmund J. Gleazer, Jr., Executive Director of the American Association of Junior Colleges, compiled the programs. Ben Evans, Research Architect of the Texas Engineering Experiment Station, provided climatological data. Other consultants, in fields from structural engineering to psychology, were available on a 24-hour alert.

Ten programs were drawn up, all of them hypothetical. The sites—some urban, some suburban, others rural—were assumed to be in widely scattered parts of the

PHOTO: JIM CULBERSON



country. The ten designers drew lots upon arrival for their sites and programs.

Each problem had to be solved and presented on the final day to a jury composed of the participants. There were no comparative judgments, only evaluations. Visual presentations were backed with calculations and graphs showing projected growth patterns.

Dr. Gleazer outlined for the participants the purpose and requirements of the community college. The principal points of his discussion are summarized below.

What Is a Community College? More and more residents of every community in the country want to go to college. The rapid changes in technology, family, and economic patterns and the availability of higher education have created a new market for learning. People now want more social status. Mothers wish to bring themselves up-to-date after the semi-isolation of rearing their families; men want to pursue their interests and get broader educations for personal rather than occupational reasons; young people need good schools close to home which can meet their financial and educational needs; and many wish to acquire an education that was denied them when they were younger. This opportunity is now being made available in community colleges, to which people can go without disrupting their family life or sources of livelihood.

By the end of 1961, there were over 700 so-called junior colleges; 407 were publicly owned and operated by school districts or junior college districts, and about 400 more were owned privately or by religious groups. Junior colleges are now being established at a phenomenal rate—about twenty a year, and increasing—and are filling a need for adult education, technological retraining, and basic education for those hoping to specialize at the university level. California is planning to spend $360 million over the next decade to extend and expand her already extensive system of community colleges [*see* SEPTEMBER 1962 P/A, p. 136]; New Jersey is planning a similar network. Florida is pioneering in establishing a system in which students, graduated from junior college, enter a university that starts at the third-year level. The junior college idea is now an American export.

Comprehensive community colleges offer general education to all students. In addition they offer programs, usually two years in length, which have a close relationship to the economic needs of the community: they prepare electronics technicians, draftsmen, nurses, dental assistants, medical secretaries, and engineering aides. These programs, designed to lead directly into a vocation and also to assumption of civic and family responsibilities, can be coupled with opportunities for continuing education throughout adulthood. Other courses are offered which contribute to creative expression in the arts, or appreciation of some field of interest, or increasing civic awareness.

An Identity of Its Own. A good community college has an identity of its own. It can be most productive when viewed as an institution in its own right—and not simply as the first two years of a baccalaureate degree program, or the equivalent of grades thirteen and fourteen of the local high school. This college serves as a link between the high school and the university, or between a man and his livelihood.

Community college teachers will have a new challenge. They will have to have a depth of understanding in several fields, as contrasted with the narrow specialization appropriate to university assignments. The teacher must understand the increasing importance of counseling and guidance. The comprehensive community college program must provide adequate guidance services, up-to-date equipment for laboratories and shops, rich resources for instruction, i.e., library, facilities, a cultural center, and facilities for physical activity. All this must be done efficiently within the resources of the community, so that the student can attend without great personal expense.

A good community college is in and of the community. The community is used as an extension of classroom and laboratory. Drawing upon the history, traditions, personnel, problems, assets, and liabilities of the community, it declares its role and finds this accepted and understood by faculty, administration, students, and the citizenry. Among its offerings are short courses, institutes, conferences, clinics, forums, concerts, exhibits, studies, basic college work, vocational-technical courses, continuing education—all of them related to community needs.

To further assure an indigenous institution, local citizens would be chosen to serve as trustees and on advisory committees. It should not be subject to the control of state universities or departments of instruction within them. A state agency, however, should provide professional supervision and consultation to insure effectiveness in meeting community needs and in maintaining standards of instruction and student achievement.

Accessible and Recognizable. The physical plant must be accessible and recognizable. It must be accessible in terms of travel time rather than distance. Although usually started as an educational appendage of other institutions, it is important that the college operate its own plant—not only for the functional value, but also for its symbolic value. The buildings should adequately represent the cultural aspiration of the community.

The community college is an American social invention. It is an instrument of tremendous potential. It can motivate youth who have had little hope for an education beyond the high-school level. It can lift the sights and strengthen the efforts of new generations to go beyond the achievements of the old. It can stimulate creativity and latent interests in adults. It can provide the means for training that lead to a higher level of employment. It can train for the new skills demanded by a changing technology. It can serve as a focal point for community identification. Oriented toward the community, controlled by the community, it can play a vital role in the rehabilitation of our cities, the advancement of our social and economic life, and the refinement of our cultural traditions.

MODEL PHOTO: MAURICE MILLER

Shallow Well

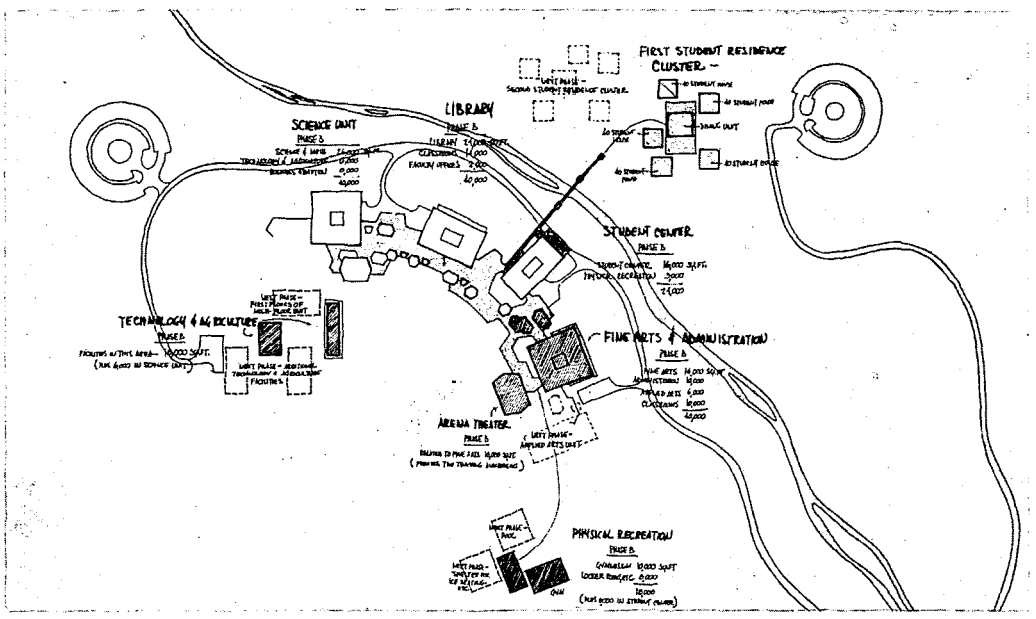
The Chicago area was represented by ***Charles William Brubaker****, a partner in the firm of Perkins & Will. As a designer, he has helped the firm to earn its reputation in the school and college field. He studied engineering at Purdue and earned his architecture degree at the University of Texas.*

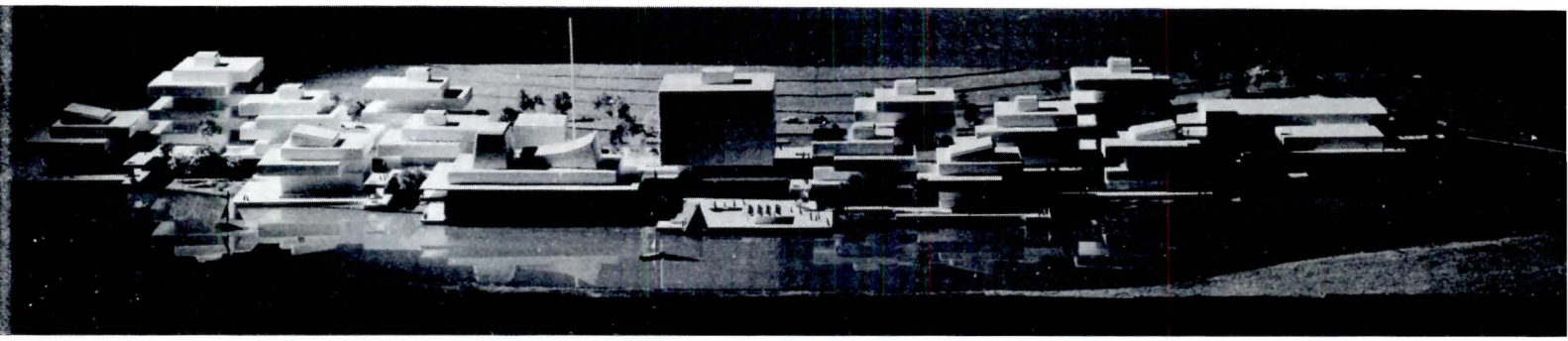
Speaking of his design for a hypothetical Midwestern agricultural area, Brubaker said that "the trees are more important than the building." The five-county college district extends 60 miles out from Shallow Well and includes no existing facilities for higher education. Although the district is trying to attract some industry to offset the emigration of its young people, it is still almost completely devoted to farming. Accordingly, agricultural techniques will take a major place in the curriculum, whereas the arts, science, and technology will be developed gradually. A 200-acre tract has been set aside for the college to allow a sufficient area for agricultural study.

The limited resources of the area will restrict the rate of growth of the college. The initial enrollment of 500–600 is expected to expand to 1200 in three years, but it is unlikely ever to exceed 3000.

The college center will be developed in a wooded area along a small river that cuts diagonally across the site, so that it will not occupy potential agricultural acreage. The construction will be densest along the river bank and will extend away from the river in a looser pattern. The library at the center will be unusually large, since it will serve as a source of instructional materials for dispersed adult education courses. In the initial stages it will function in addition as a student center.

The surrounding buildings will contain flexible teaching spaces and "studios" for faculty members. The area directly across the river will be devoted to clusters of student residences that will accommodate the significant proportion of the students for whom commuting is not feasible.





Worsted

***Linn Smith** worked alternately with Bill Demiene of his Birmingham, Michigan, office, (Linn Smith Associates). Smith and the student team worked out the educational and architectural concepts and Demiene worked with the team on presentation drawings and a model. Smith has been concerned with educational architecture and educational concepts for many years. He is a Fellow of the AIA and just finished a term as a director of the Institute.*

Worsted is a fictitious New England textile city with a population of 45,000, which has experienced a decline of its major industry. New light industry has been attracted to the area, however, assuring it a gradual but steady growth. The community college is intended to play a major role in the revitalization of Worsted.

The campus will be a cultural center for the city, part of a larger urban redevelopment project that will include an adjacent civic center and a park along the opposite shore of the river. The college library will serve as the principal public library and its auditorium will be the civic auditorium. Benefits to the college, on the other hand, will include special laboratories and shops supported by local business and industry.

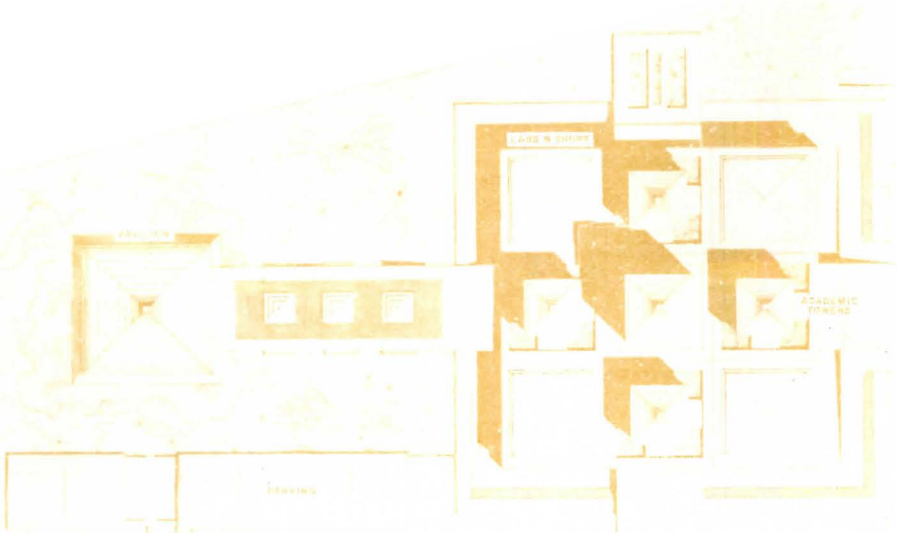
The 9-acre site will be developed with a series of small buildings situated on plazas at two different levels. This plan will permit orderly growth from an initial capacity of 1000 to a potential 4000, both by adding new buildings and by expanding earlier ones. Beneath the upper plaza there will be a parking garage accommodating one car for every two students.

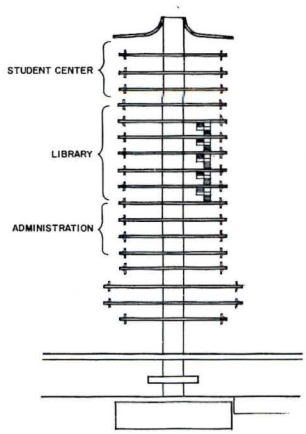
Educational spaces within the buildings are designed in response to new techniques and potentialities. The flexible interiors will provide individual study spaces (one for every full-time student), conference spaces, seminar rooms, teachers' offices, and work spaces. Maximum use of electronic teaching equipment is anticipated, as developments in the field make it available.

Palmopolis

*The students working under **Gin Wong** tried to make him feel at home by decorating his work space with a lamp and rug similar to those in his Los Angeles office* (see frontispiece). *Wong is a partner in the firm of William L. Pereira & Associates, with which he has been associated since 1950. He is an alumnus of the University of Southern California, Los Angeles City College, and James Milliken University.*

Palmopolis, an imaginary Florida metropolis, has experienced a steady influx of retired people and a recent surge of immigration from Cuba. The city is supported by light





1 TECHNOLOGY
2 SCIENCE
3 ADMINISTRATION
4 AUDITORIUM
5 LIBRARY
6 STUDENT CENTER AREA
7 HUMANITIES
8 COMMERCIAL
9 PHYSICAL EDUCATION
10 FUTURE CIVIC CENTER
11 FUTURE PARK

industry and service functions and the resort activity of the surrounding area. A 6.5-acre site in the center of the city is to be developed as a community college.

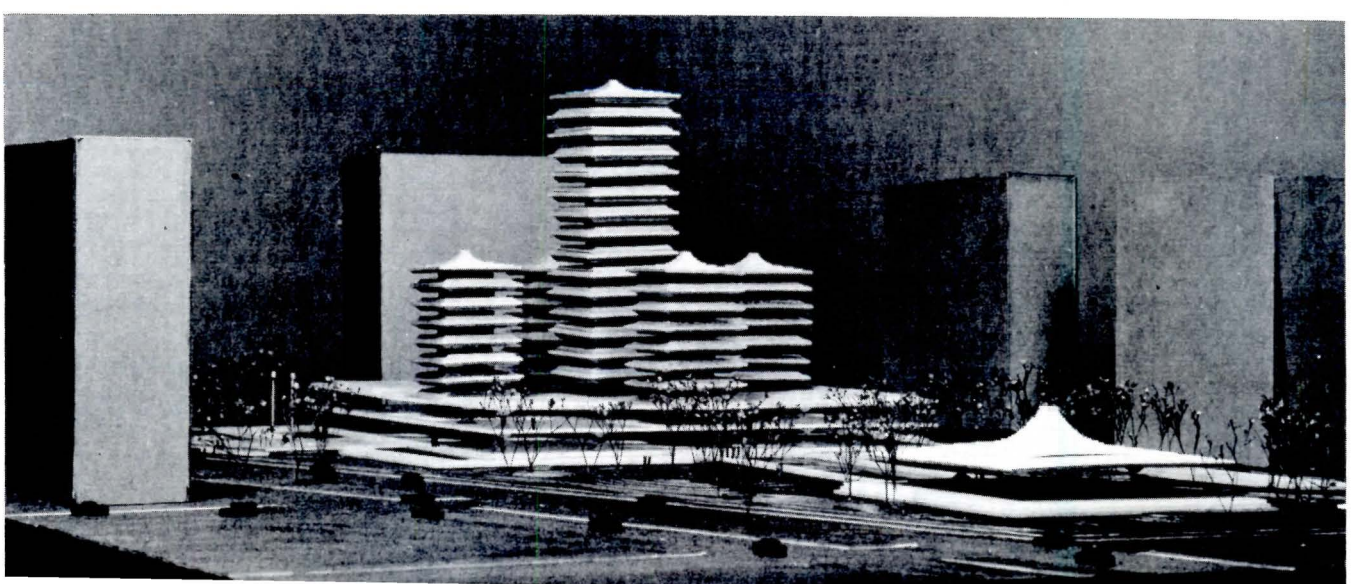
By the end of two years, the college can expect an enrollment of 2800 full-time students, 1200 part-time, and an attendance of 2000 in adult evening courses, which will be particularly appealing for the older residents of the area.

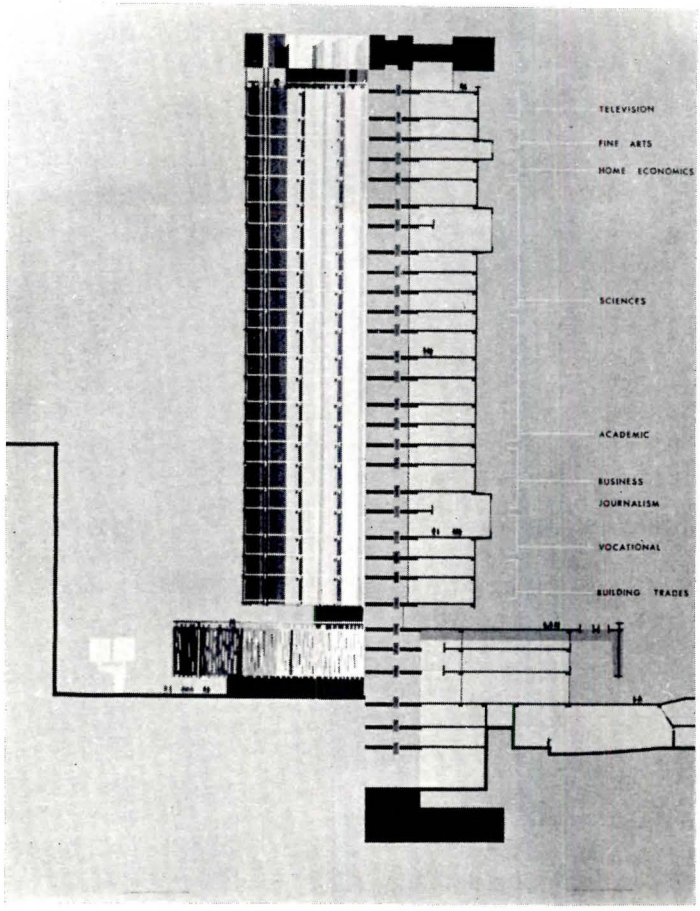
The site, along the major downtown boulevard, borders a city park and is surrounded on the other sides by buildings of 10-to-20 stories. One of the first objectives of the designers was to extend the greenery of the park through the site, to provide welcome relief from the dense construction of the area and encourage part-time students to spend more of their leisure and individual time on campus.

The buildings themselves are designed to give the college a strong, recognizable image. The central tower contains the major functions serving the entire college: dining facilities, the central library, the main student lounge (opening out onto the landscaped plaza), and the administrative offices. Each of the four academic towers houses flexible teaching space, a top-floor student lounge, a study and reference library, and faculty offices and lounges. The lower laboratory-shop structures contain loft space with 90-ft clear spans.

The auditorium and exhibition spaces in a pavilion at the center of the campus green area will accommodate community as well as college functions. The parking structure has been placed underground because of the shortage of land area and the prevalence of severe storms.

The buildings are to be constructed of reinforced concrete, with a basic 30-ft-square structural module. A local coral aggregate will give a pleasing texture to exterior surfaces; bronze window frames and copper roofing will provide maximum weather protection.




TELEVISION
FINE ARTS
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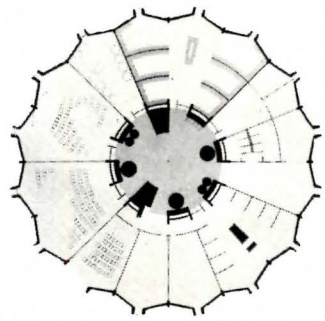
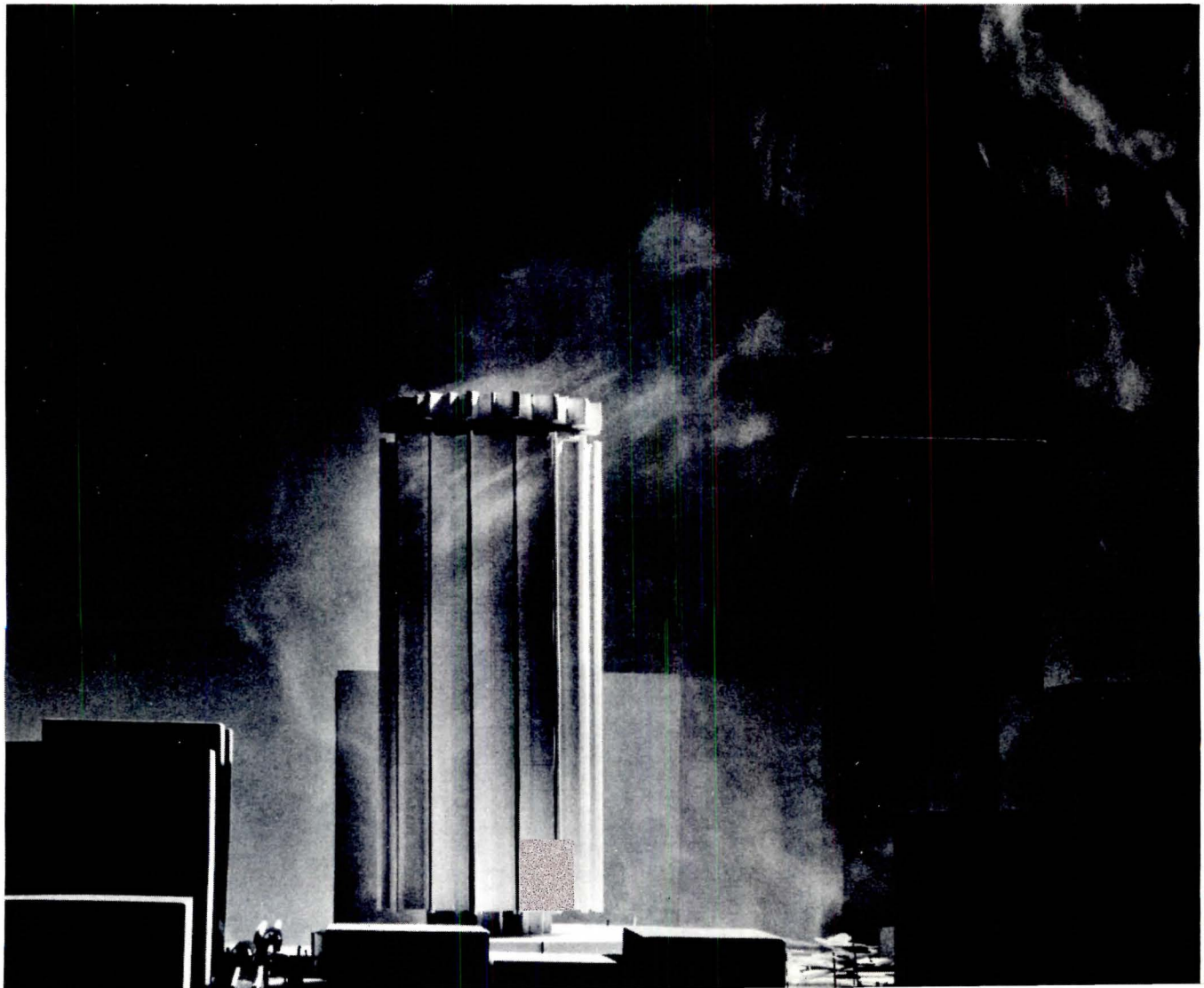
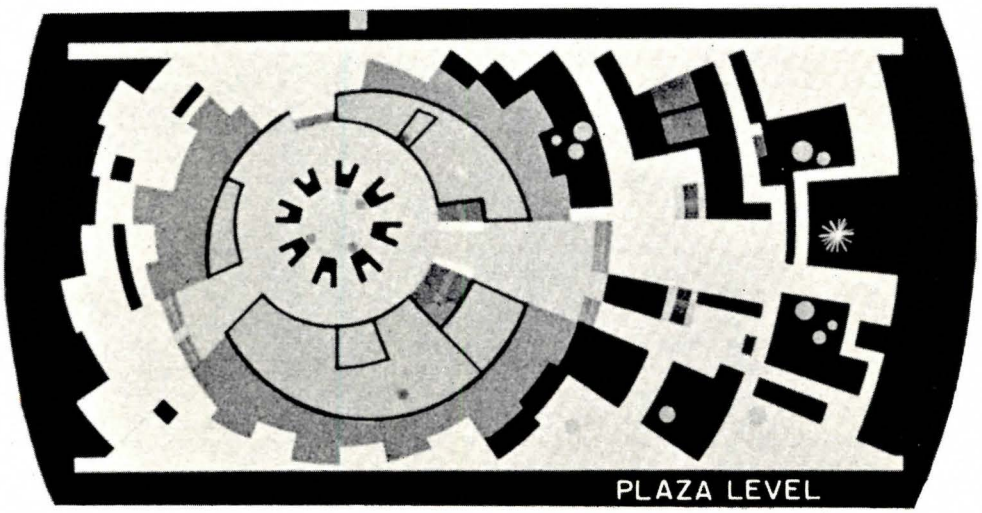
VOCATIONAL
BUILDING TRADES







Steel City

The Northwest was represented by ***David A. McKinley, Jr.,*** *youngest partner of Kirk Wallace McKinley Associates of Seattle. He claims to teach a course entitled "A Sense of Humor in Architecture" at his alma mater, the University of Washington. His humor and enthusiasm survived the test imposed by the most constricted urban site of any of the programs.*

"The Steel City Metropolitan College should be a beautiful flower that grows in the crevice of the city's concrete canyons—elegant in stature, inviting in nature, stimulating in character—a stepping-stone to higher education, an impetus for businessmen, a training and practice field for technicians." So says McKinley in setting forth his approach to the problem of the college in the urban core.

Steel City is described as a large northern industrial city with the population characteristics of Chicago, Detroit, Cleveland, or Pittsburgh. The city's population has been declining slowly in recent years, while the suburbs have continued to grow. The college is intended to play an important role in the fight against deterioration of the city core.

The college is designed for a maximum enrollment of 4000 day students, with the possibility of an equal number of night students. Pressure for expansion of the enrollment will be met by establishing additional colleges in other districts, where they can also play a valuable role in urban renewal.

Besides its conventional role, this college would also carry out a program of television instruction that would serve 2500 people in addition to the enrolled students. Television could also play a large part in the regular curriculum.

The constricted site includes one entire 250-ft-square city block and frontage on two adjacent blocks. The design proposes to use one of the two half-blocks for a combined parking and office structure. Its 10 floors of parking (5 below ground) and 17 floors of rentable office space will produce an income to support both construction and operation of the college. Although public transportation is well developed, it was felt that convenient parking was essential, especially for part-time students with tight schedules.

The major part of the site will be developed as an open plaza, beneath which a multilevel complex will house all activities requiring heavy equipment or producing noise, such as athletics, building services, and machine rooms.

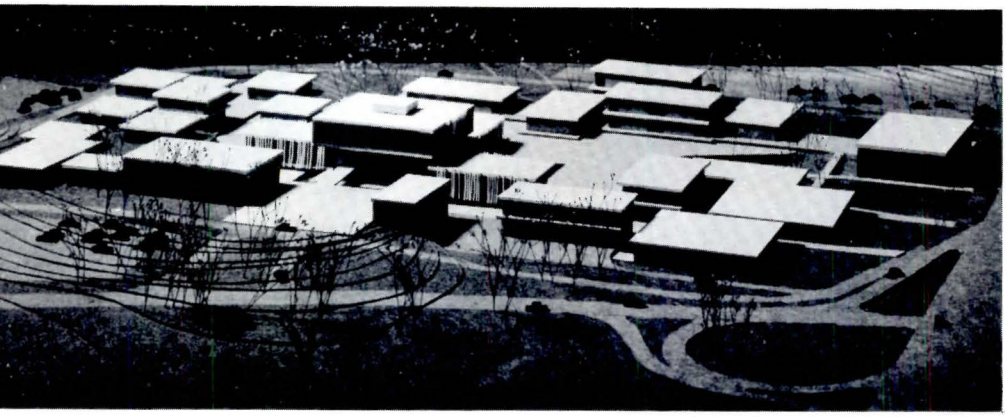
Above the plaza there will be a single tower housing all other academic, administrative, and student facilities. To replace the close relationship of indoor and outdoor spaces that is possible in lower buildings, the floors of the tower will be interrupted occasionally by student lounges, libraries, meeting rooms, or departmental administration offices penetrating and interrelating several levels.

The tower will be organized around a vertical circulation core. A "studalator" system is proposed to supplement high-speed elevators in handling the movement of large numbers of students. These devices would consist of clear plastic tubes, moving slowly and continuously, that would carry two or three students in each segment. A system of service elevators would also be required.

A ring of structural columns surrounding this transportation core will rise through all floors of the college, terminating in a flower form above the roof that will express the termination of the tower and carry all of its 25 floors by means of a suspension system. The precast wall panels range from solid ones without windows for controlled spaces to open ones for balconies that penetrate the tower.

The floors of the tower can be divided into petal-shaped areas by movable partitions. These areas can accommodate about 30 students apiece; or, when two or three areas are combined, 66–100 students.

The problem of individual study would be solved in this design by the provision of "mood tubes," cylindrical mobile carrels containing a desk, television, and other equipment, which could be plugged into necessary service and communication outlets. These isolation booths, connected electronically to central information sources, would give the student a chance for "real concentration."



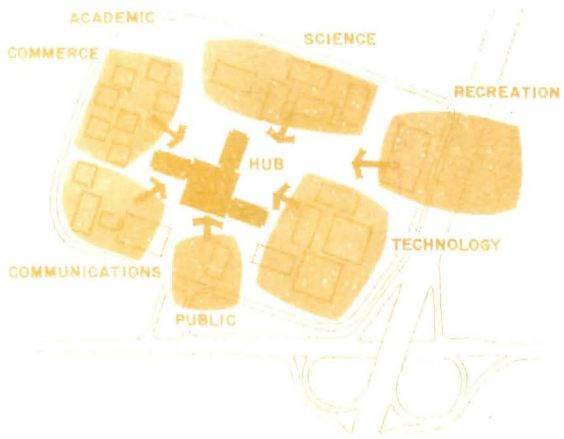
Jeffersonia

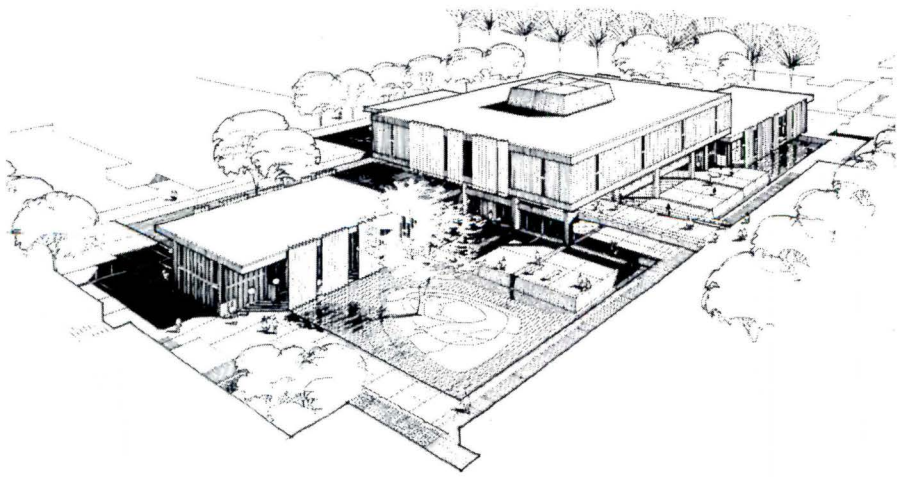
As a partner in the Atlanta firm of Finch, Alexander, Barnes, Rothschild & Paschal, ***James H. Finch*** *directs a practice that has encompassed both commercial and educational projects. He also teaches at his alma mater, Georgia Tech. His career has not been confined to the practice of architecture, but has included excursions into journalism as well.*

Located within 12 miles of Washington, D.C., in a fictional suburban county, the town of Jeffersonia has expanded fivefold in the past ten years to a population of 32,000. The growth of research in nuclear energy, health, and other fields promises a continued rapid increase in the population of the area.

The college is expected to expand steadily to an ultimate student body of 4000 in eight years. An additional enrollment of 3000 in evening adult courses is anticipated. The college will be divided into three distinct branches: Humanities, Technology, and Science.

The 30-acre site is split by a freeway now under construction. The library building will be the campus center in every sense. At its lowest level, it will have student facilities and dining rooms overlooking the surrounding pond. The three dining rooms—one for each academic branch—will be used for study and relaxation, as in the traditional "eating club." The library, on the upper levels, will be similarly organized, with branch libraries radiating from a core control area.





San Los

As a partner in the firm of Caudill, Rowlett & Scott, ***Frank D. Lawyer*** *has had considerable experience with the "squatters" technique pioneered by the firm, in which design is executed in a brief period of concentrated effort, in close contact with client and consultants. He also brought to this task his experience as chief designer of several award-winning schools for his firm. Lawyer is a graduate of Oklahoma State University and Cranbrook Academy of Art and has taught at Texas A & M College.*

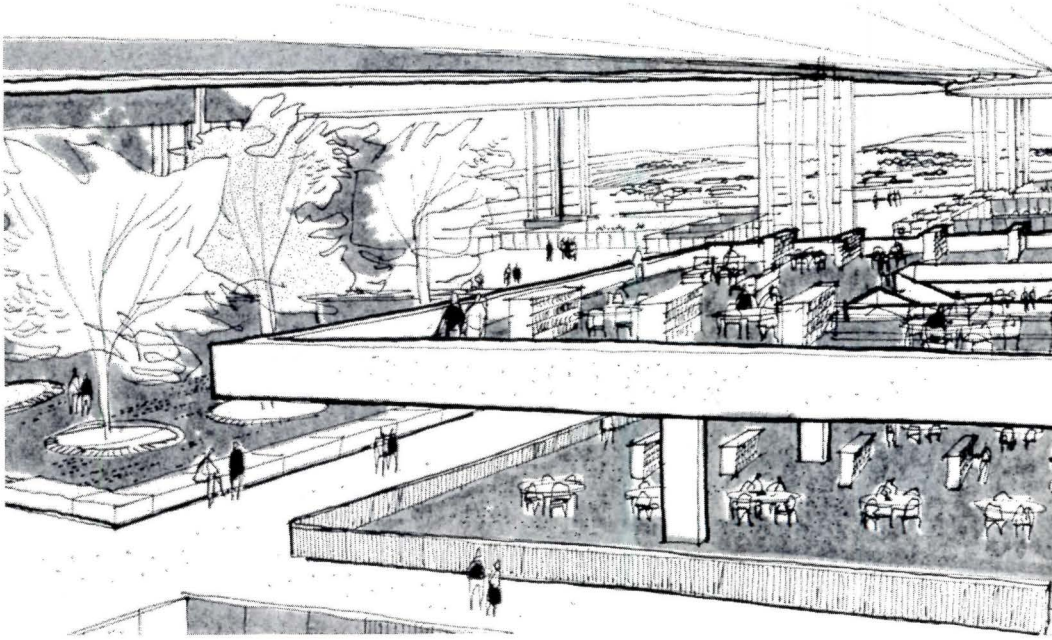
"The community of San Los could probably live like early American Indians, without significant buildings for protection." This evaluation of the temperate, snowless, almost rainless climate, included in the program for the college, became the keynote of the design. The activities of the college take place under a single vast shelter, rather than within it. Of the 8½ acres of floor area provided, 6 acres are practically column-free, to allow maximum flexibility in adjusting to unkonwn future needs.

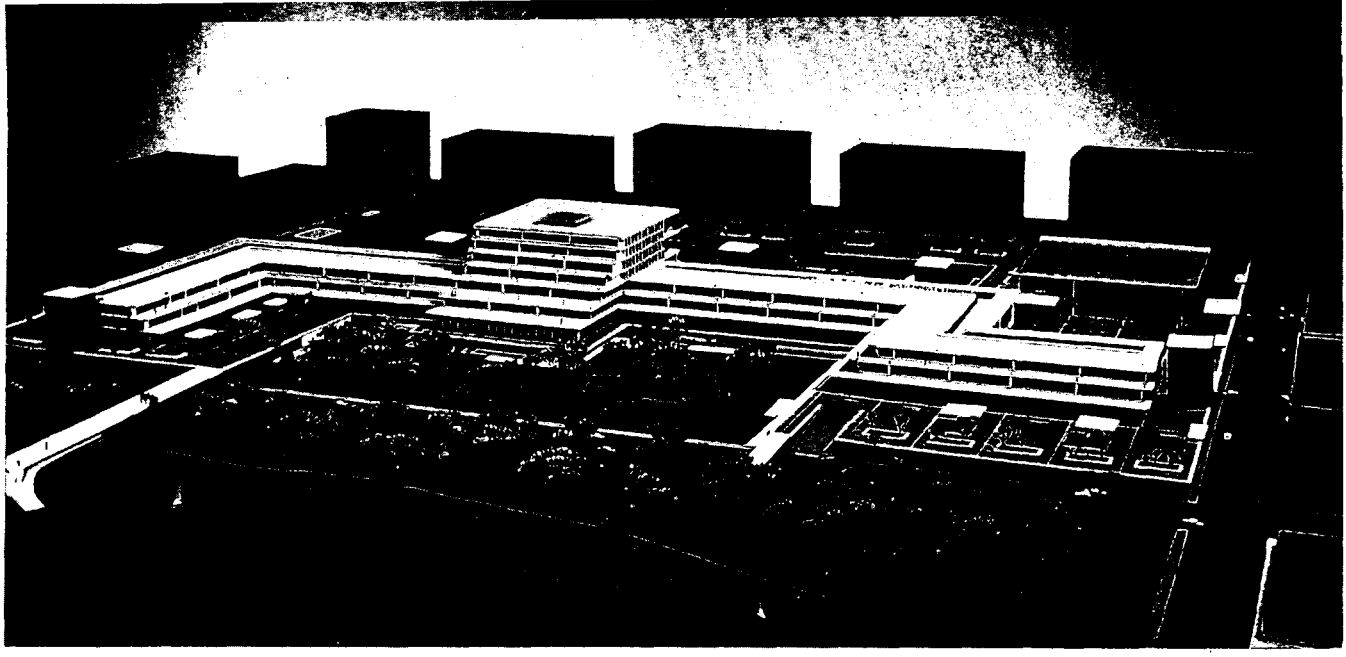
San Los is described as a community of 400,000, near a larger West Coast metropolitan concentration. The prosperous surrounding area is in transition from an agricultural and suburban status to one that includes light industry and business, mainly in the fields of insurance, publications, electronics, and research.

The initial construction is based on an enrollment of 2700, of whom two-thirds will be preparing for further education. Within three years the school will have to accommodate 3600 day students and 4000 adult night students. The lack of public transportation will necessitate dependence on private cars. The design includes a parking garage beneath the entire structure.

The 120-ft-square structural bays are spanned by a cable and tension-ring system, covered by a translucent nylon fabric roof. Artificial lighting concealed between two layers of fabric will give nighttime illumination similar in effect to diffused daylight.

Classrooms are defined by removable 7-ft-high partitions, above which the lofty space is uninterrupted. A few special areas, such as the library (*right*), have mezzanines; the auditorium and administrative offices are enclosed and mechanically ventilated. Service spaces and stairways are housed in the 16-ft-square space within each cluster of columns. Spaces such as shops and laboratories have all been located on the main floor, so that piping, ducts, and conduits can be left exposed on the ceiling of the garage beneath.





Mobilia

***Gyo Obata** is the partner in charge of design of Hellmuth, Obata & Kassabaum in St. Louis, a firm known for its campus planning and dormitory design. One of HOK's designers, Jim Henrekin, also worked on Obata's team. Educated at the University of California and Washington University in St. Louis, Obata received his Masters in Urban Design at Cranbrook.*

Mobilia is characterized as an industrial city with a population stabilized at about 120,000. Although it is the site of one of America's largest automobile companies, it is not a one-industry town. The predominantly middle-class community has a traditionally high standard in educational facilities, which has been sustained by its high tax base.

The 18-acre college site is surrounded on three sides by the built-up central area of the city, but to the north it overlooks a park fronting on Lake Michigan.

The community college will have a highly flexible program, and will operate from 8 A.M. until 10:30 P.M. throughout the year. The college will expand very rapidly, reaching an enrollment of 10,000 in its second year, of whom 7000 will be part-time students. An additional 6000 will be attending noncredited adult education programs. By that time, over 30 per cent of Mobilia's high school graduates will be attending the college. Emphasis on training for technicians and skilled workers will result in a high average age for the student body.

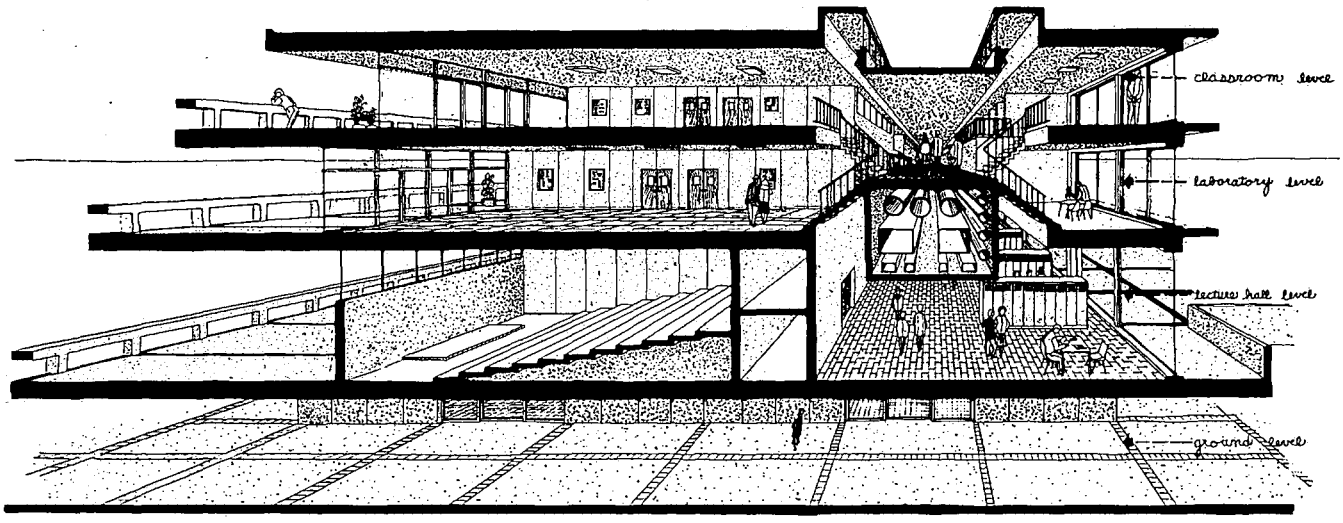
The design of the college was based to a large extent on the magnificent view of the lake. The buildings have been laid out for maximum exposure to the view and have promenades at every level that may be used as alternate routes of circulation. The need for open, landscaped areas at the heart of the city was another major consideration in the design.

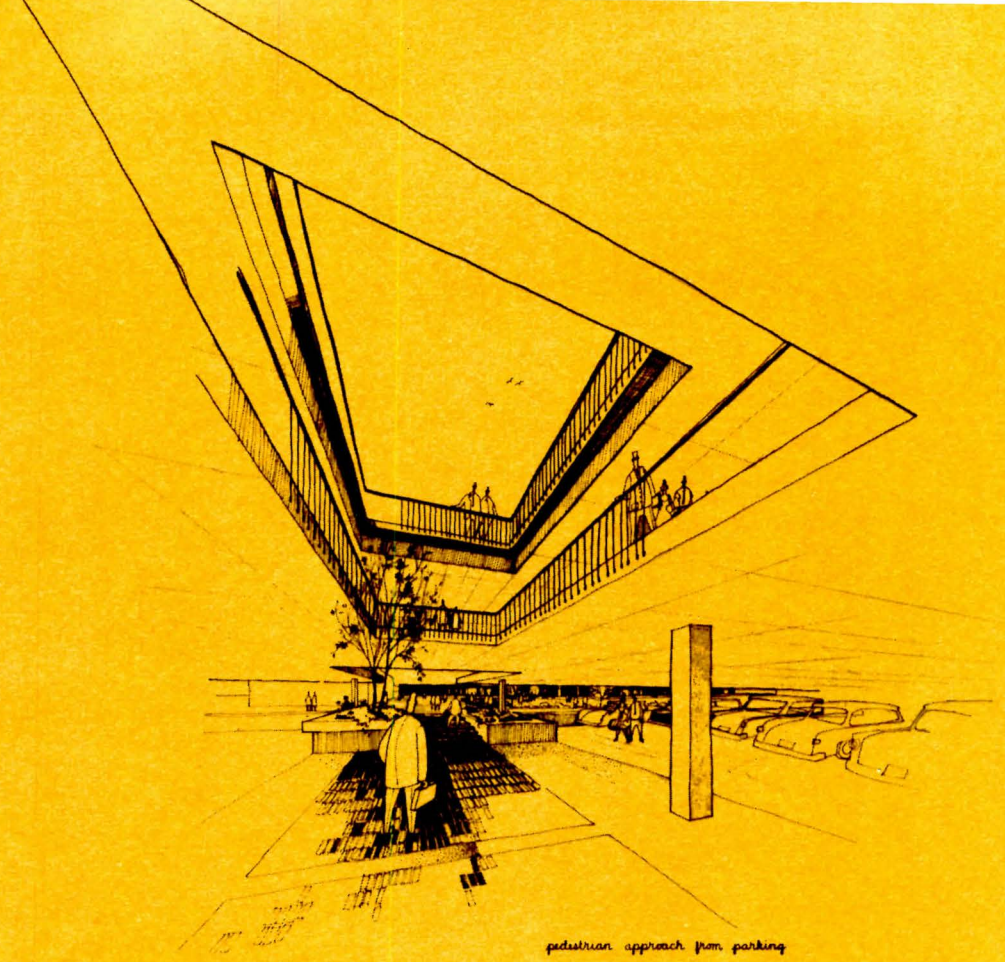
Automobile traffic entering the campus will flow into two garages at the east and west sides. The pedestrian approach from the garages or the street passes through gardens and skylighted walkways. A shopping arcade that will serve both the students and the city has been included to discourage uncontrolled commercial development around the campus.

The dominant position of the centralized library will symbolize the mission of the college. The library will occupy the top four floors of the central block. Since all access will be from below, an open stack arrangement can be applied to the entire library without prohibitive control problems. The wide variety of study spaces will include open decks. The levels below the library will be devoted to an administrative center, a food center, and a two-level student center to meet the needs of the all-commuter student body.

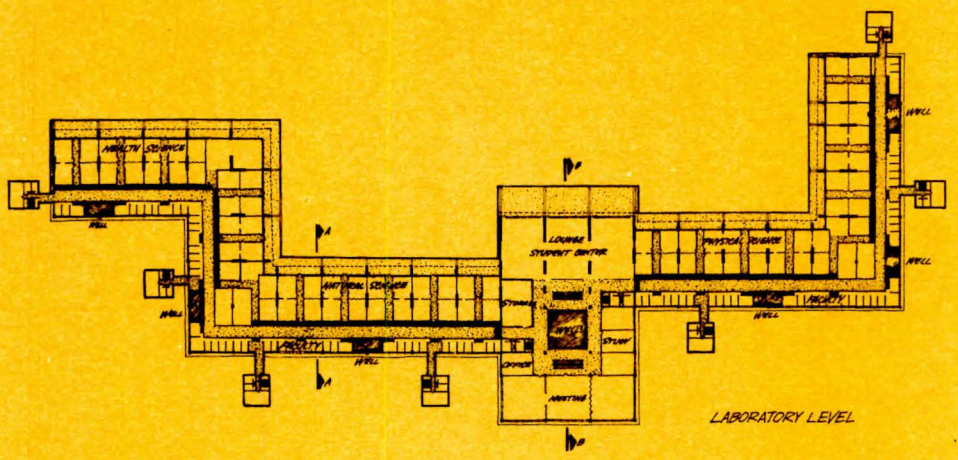
Since the curriculum will be ever-changing, instructional areas will be flexible, with movable partitions except where high acoustical separation is required. Fixed elements, such as stairs, toilets, elevators and mechanical shafts, have been grouped in towers outside the teaching areas. Instructional spaces have been separated vertically according to characteristic space requirements: lecture halls are on the lowest level, specialized instructional areas on the second, and nonspecialized teaching space on the top level. Small units such as offices and seminar rooms are included on the two upper floors. Laboratories have convenient access to a horizontal utility shaft under the corridor.

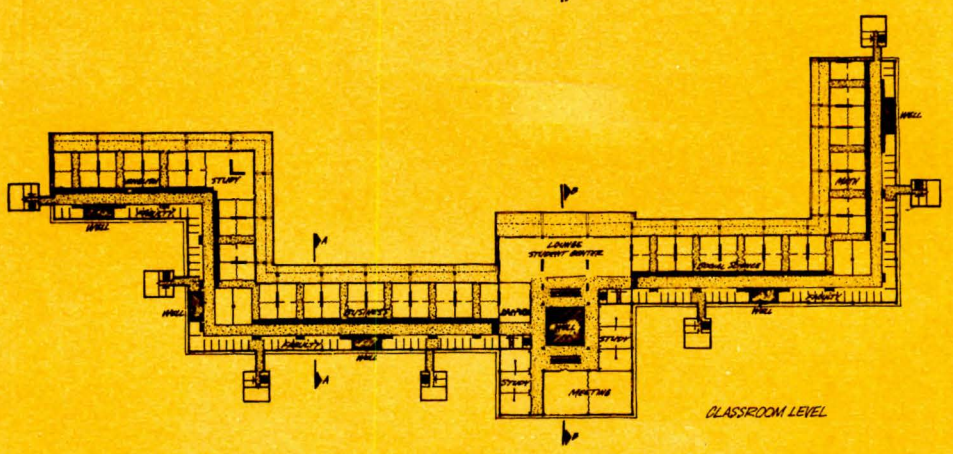
The 60-ft-square structural bays are divided into mechanically self-sufficient 5-ft-square modules. Partitions can be attached to the suspended ceilings according to this module. Utility towers and the horizontal utility shafts will accommodate components of the year-round air-conditioning system.





pedestrian approach from parking





NORTH

FLOOR PLANS

Flatland

Having just completed his second year as visiting professor at Cornell, French architect ***Edmond Lay*** *arrived at the meeting accompanied by Dick Loarie, one of his erstwhile graduate students. He has designed schools in France, housing in Algeria, and a bank in Cairo. His drawing techniques demanded a 16-ft table and crayons and chalk instead of pencils. Language was no barrier to the communication of his intense enthusiasm.*

Flatland is a hypothetical community of 1000 population, located in farm country 15 miles from Memphis, Tennessee. The economy of the area is shifting from a dependence on cotton to a more diversified base including beef cattle, forest products, and some industry. The rising trend of per capita income and the need to retrain workers displaced from agriculture have generated a need for the college.

The initial student body of 600, three-quarters of it full-time, will be drawn from an area 60 miles in radius. Adult courses will be introduced later. The college is expected to expand rapidly as the character of the area continues to change.

The 80-acre site, sandwiched between a railroad and a major highway, is relatively level except for a 10-ft depression near the center. The town borders the campus at the north end, and farms and woods surround it on the other sides.

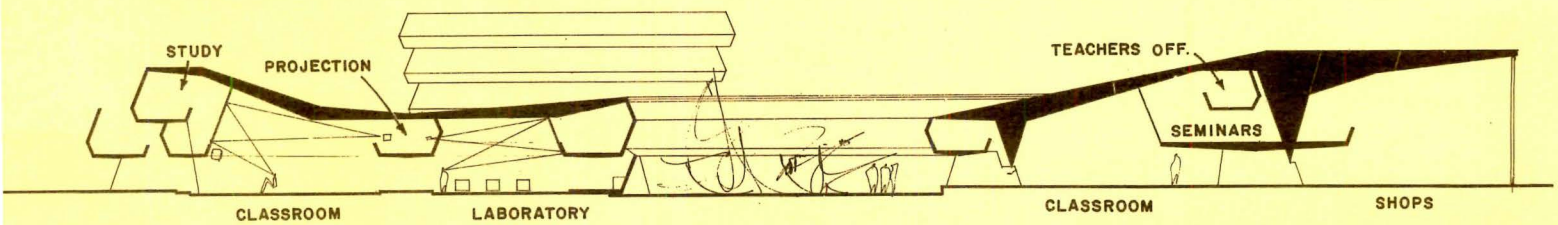
The buildings follow the contours of the land and are sited so that existing groves of trees will be spared. The college center will be linked to the town by a mall, yet it will have the character of a retreat.

The designer feels that the community should feel a close identity with the college but he maintains that learning is an individual effort. Accordingly, he has based his design on individual study units, thus "returning education to its proper status," in which the "basic values . . . are concentration, effort, self-mastery, and independence."

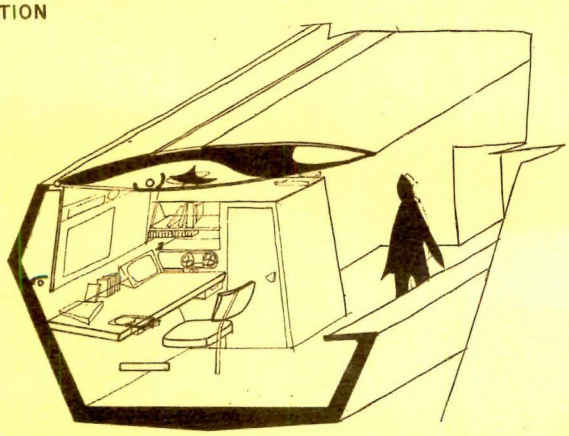
He finds in the individual unit a stable, secure element in contrast to the fluid, insecure character of the flexible spaces so much in demand today. "We have tried to give the student an impression of security, hoping to diminish the tendency to make security an aim." This tendency, he says, builds up fear and isolation, stifling creativity.

This return to individual study in a personal sanctuary will be made possible by the use of electronic means of recording, storing, and recalling information. Such systems will not be perfected overnight, but they will be planned for.

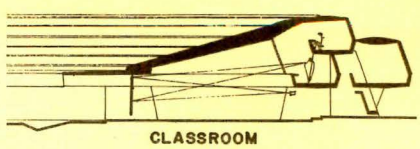
Lay feels that "an enormous amount of human energy is wasted" in our current educational methods, based on "two crumbling pillars," the book and the teacher, "both turned out by mass production." Most important, electronic methods eliminate the element of chance: the good student need never suffer from poor instruction, nor the exceptional teacher waste time on trivia.

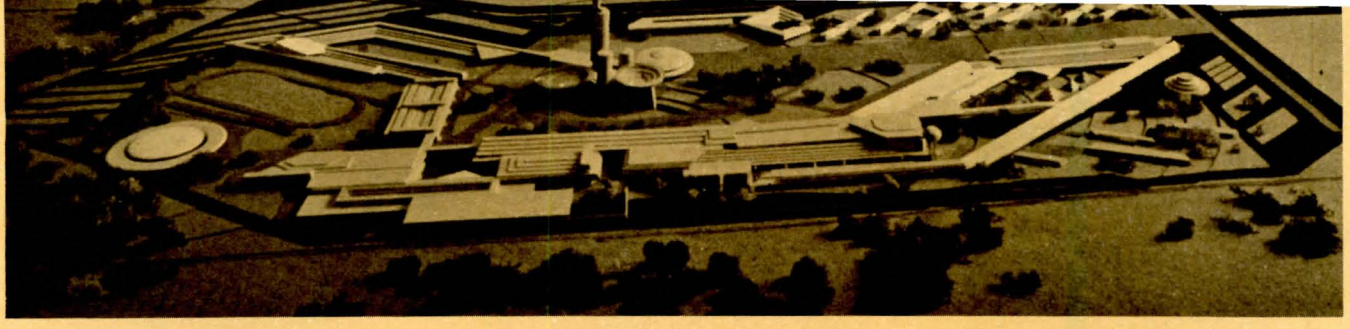


TYPICAL SECTION



INDIVIDUAL STUDY BOOTH





Effort can then be concentrated on improving courses and on individual consultation.

The individual study booths are designed to fit together in a wide variety of arrangements and fulfill many functions. Their standardized form will be used to give architectural unity to the campus and lower costs.

The booth is an integral part of a beam element 64-ft long. The eight booths in each element are served by vertical circulation at the center. These same elements, in various combinations, can be used for seminars, offices, circulation, projection booths, or service rooms for equipment.

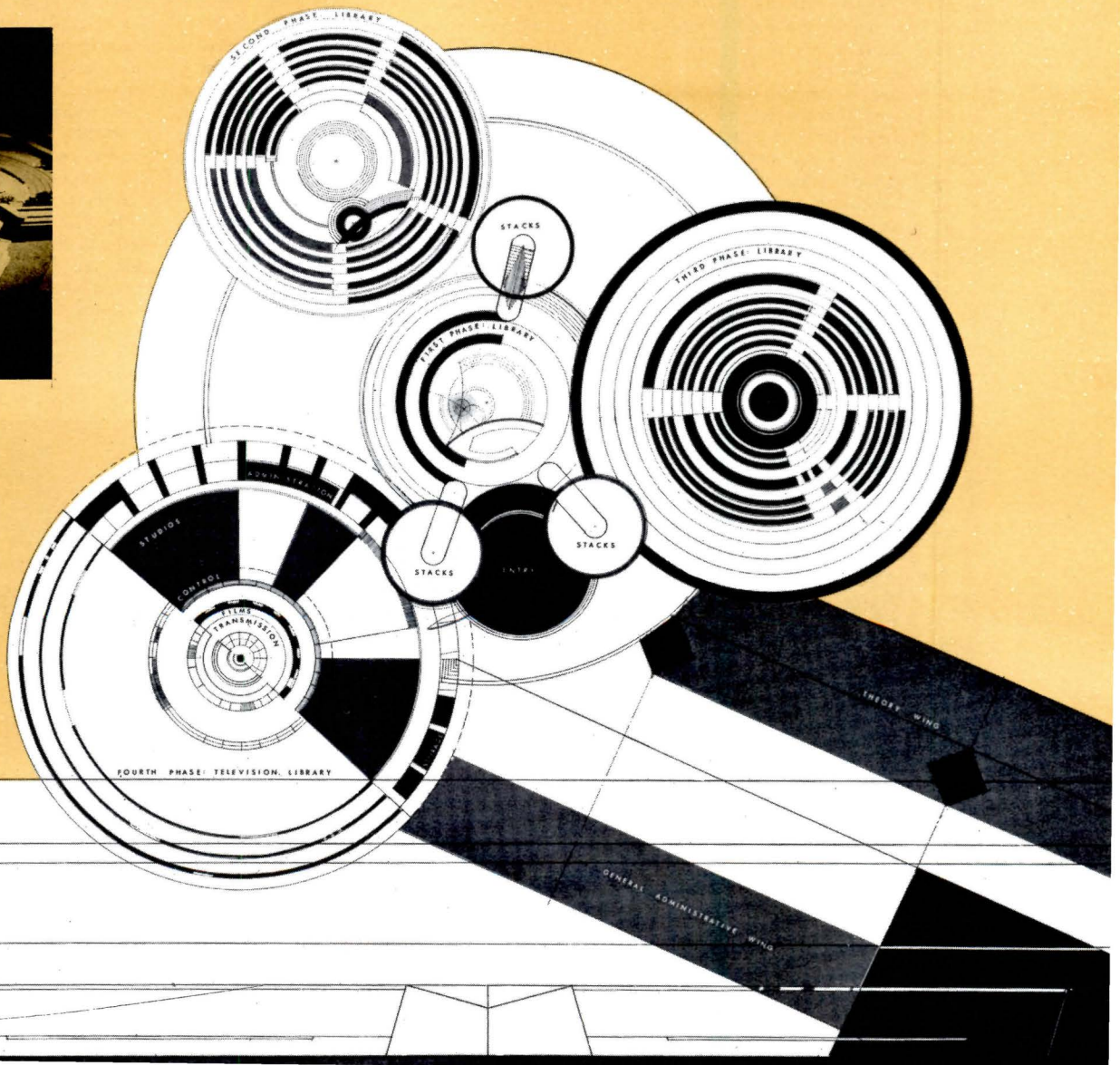
Scattered in key locations throughout the college are special spaces for live demonstrations and experiments. Even here use will be made of television to give the spectators several simultaneous views, from various angles and ranges, of the demonstrations.

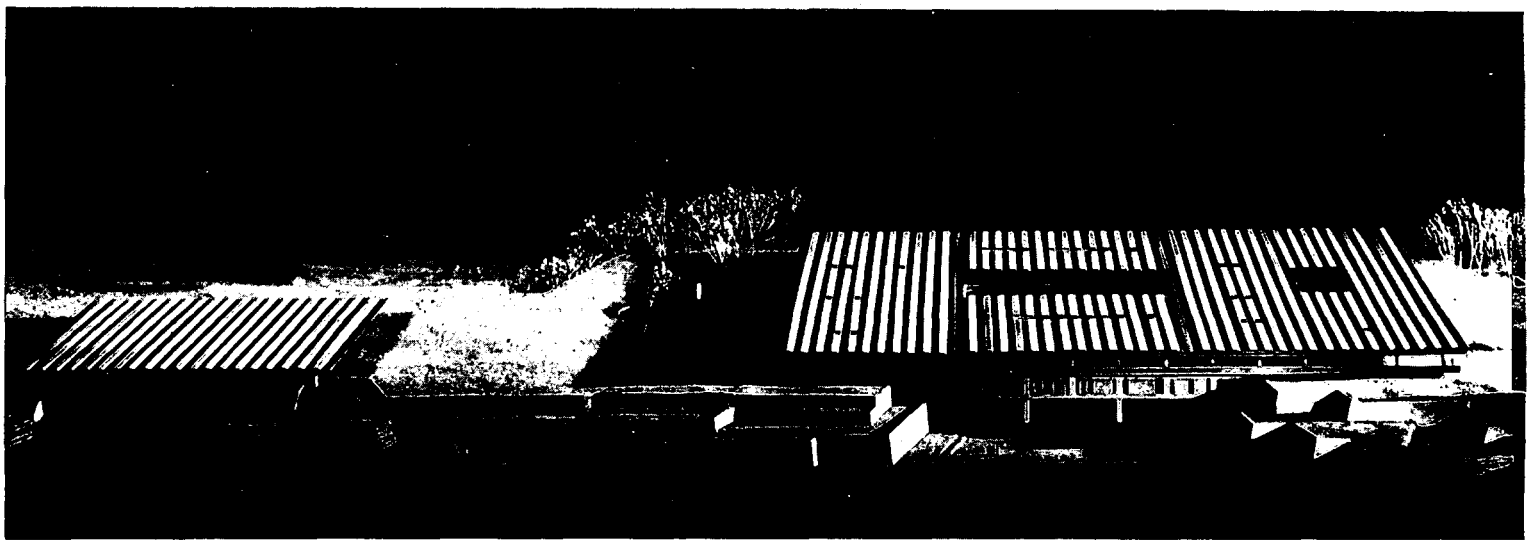
A library, a television center, and exhibition halls comprise the symbolic core of the college. The vertical storage elements, which provide a counterpoint to the predominantly horizontal building forms, will hold reserve stocks of audio-visual materials. Reading and study rooms and a production center, where courses are prepared, are housed in bowl-shaped elements set among the towers. The depressed area beneath them will provide spaces where students can gather and theatrical performances can be presented.

Automobile traffic will be limited to the peripheral areas of the campus. To avoid enormous parking areas as the college expands, Lay suggests special one-seat vehicles, which the college might rent to the student. Automatically controlled locomotion would free the student to study along the way.

The buildings are designed to operate without air conditioning even in the critical months of late summer by utilizing prevailing breezes for cross-ventilation. The roof has been designed as a double envelope wing. Sunlight will be reflected into the interior from slats that form a part of the roof; these will be painted red and blue in a studied geometric pattern to produce a light quality that will serve to counterbalance the temperature variation between seasons.

Lay proposes that the whole community participate in the construction of the buildings. "Utilizing a maximum of prefabricated elements . . . the community can construct the roof elements and the study booths from kits, for it is no more difficult to build a concrete beam when all the materials and information are supplied than it is to put together a TV set, a boat, or a piece of furniture." The contractor would distribute the materials and the forms. Individual families would assemble the forms by following detailed instructions; after inspection of the forms and reinforcing, the contractor would pour the concrete (to insure uniformity); later the family would break down the forms and the contractor would carry away the finished element. This system would serve to "develop community awareness of an important project."





Dry Well

Joseph J. Schiffer *has a private practice in Concord, Massachusetts, and is on the faculty of the MIT Department of Architecture, where he is in charge of the Experimental School. His youthful, friendly manner inspired remarkable diligence among the students on his team, who completed a detailed model, 6′ x 8′, in three days.*

This college is assumed to be located in a medium-sized Texas town and is designed to serve an agricultural area 60 miles in radius. The size of the commuting area and the location of the campus outside the town itself make it necessary to include some faculty housing and a dormitory for about 10 per cent of the initial enrollment.

The college itself is to be concentrated in a single structure in the center of its 60-acre site, in order to "effectively increase the contact opportunities" for students commuting from widely dispersed points. The building has been sited along a ridge, with its lower two levels cutting through the ridge and a third level above it. This scheme allows the lower floors to be irregular in plan, reflecting specific space requirements. Each level has direct egress at grade to meet emergency requirements. The separate physical education facility is a sheltered outdoor space, cut into the ridge to close out unfavorable winds.

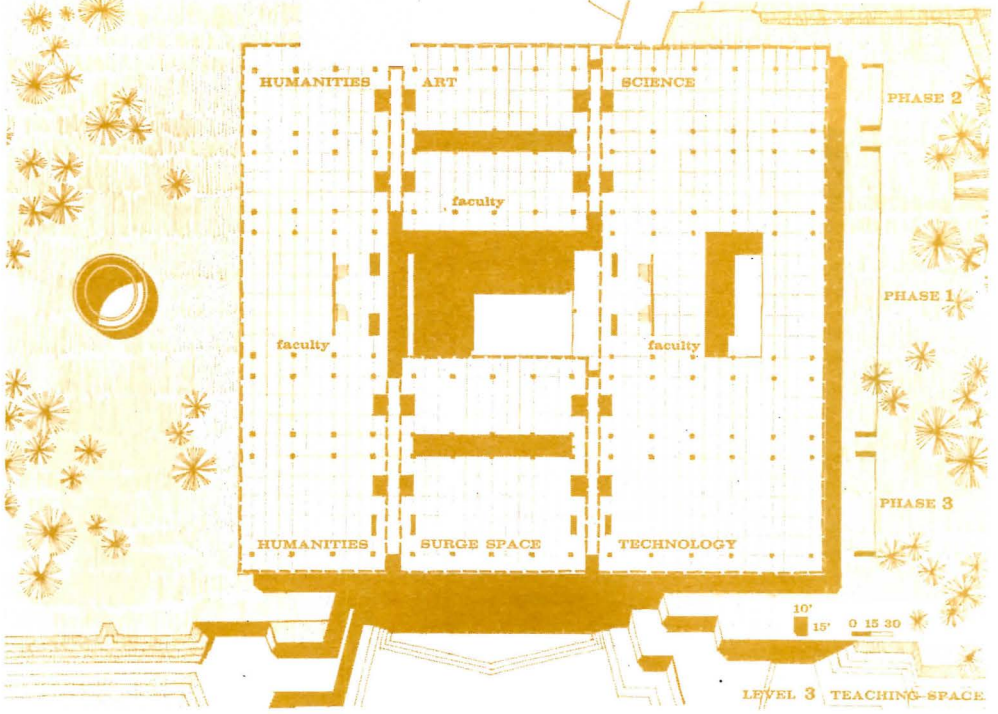
Eight story-height trusses span the cut through the ridge, supporting the deep precast concrete floor system of the upper two levels. The roof structure is composed of 10′ x 15′ precast units, which form folded plates spanning 45 to 90 ft.

The interior of the building is highly adaptable to changes in curricula, with unassigned "surge" space between departmental areas. Within the loftlike spaces, classrooms can be enclosed by removable partitions on a 10′ x 15′ module.

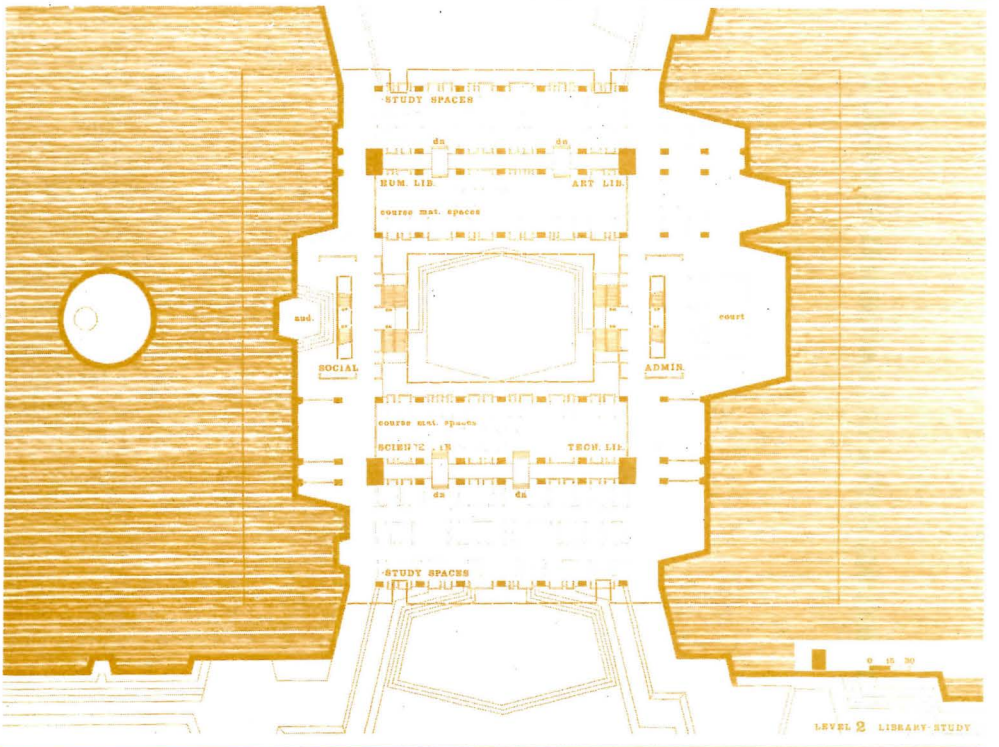
In the varied educational program, there will be some emphasis on technology and related technical skills. Spaces for the technical-terminal courses have been given special design treatment in an effort to counterbalance the higher status usually attributed to transfer courses.

The college has benefited from the support of wealthy local citizens, who have made possible generous library, athletic, and creative arts facilities, a faculty lounge, a guidance center, and a nondenominational chapel.

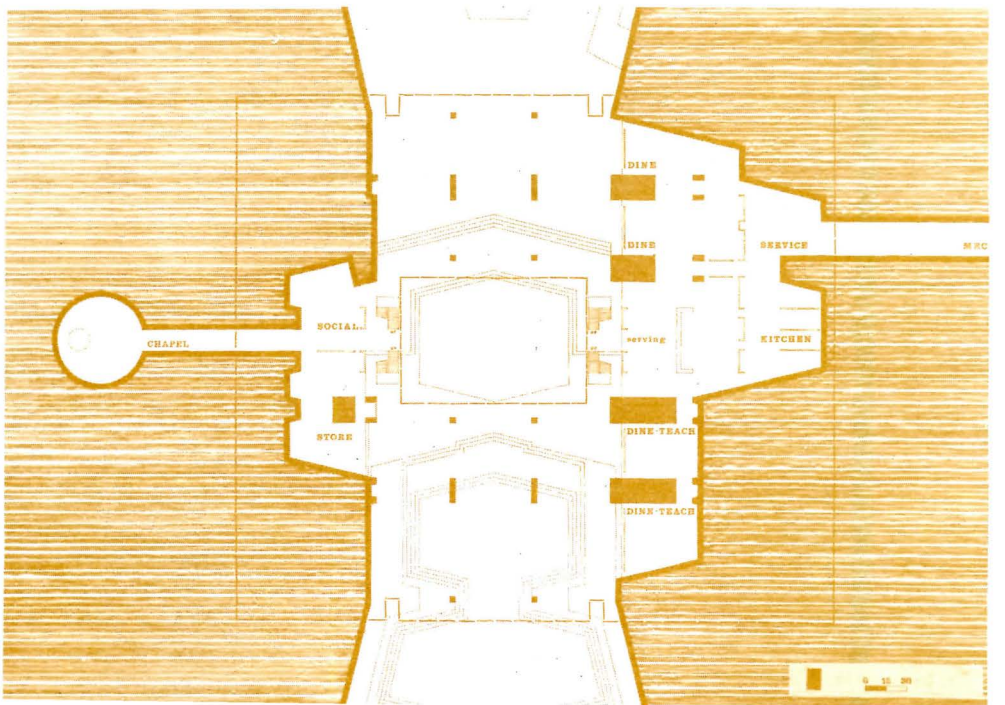
Planning is based on an initial capacity of 1600 and expansion in stages to accommodate 2400 and 3600 students. Each facility will expand at an independent rate as the need develops.



LEVEL 3 TEACHING SPACE



LEVEL 2 LIBRARY-STUDY



Growit Yourself

The nonconformist among the architects was ***Donald Barthelme****, who relied more on words than on drawings to explain his unconventional concepts. A Fellow of the AIA, with a private practice in Houston, Barthelme has served as professor or visiting critic at architectural schools all over the United States. At the meeting, he dismissed the idea of teamwork, allowing each of his students to work independently on one aspect of the problem. He even discarded the fictitious community name, substituting a name descriptive of his concept. The excerpts below, from his voluminous text, give some indication of his thinking.*

We were given a problem involving the design of a community college on a 29-acre site for a hypothetical Amsterdam County, New York. We were to begin with a student complement of 1000, which was expected to increase to 4000 in a few years.

We took as our major concern certain aspects of the problem which were implicit but unstated in the program, perhaps best outlined by a series of questions: How do people learn? Basically, what *do* the individual and the community seek from education? With what fixed notions are both architecture and education getting in peoples' way? What real gain can architecture offer when faced with an educational opportunity?

Our proposal begins with a road, or street. The street, one of the oldest human principles of organization, has always been the lifeline of human intercourse, a medium of social exchange and of circulation, echoing the passages contrived by nature, from rivers and streams to the human circulatory system. It is only recently that the street, in providing efficiency and speed for the automobile, has become too dangerous to perform its original function.

The street we show is the main hall of the college, but no corridor; its limits are imperceptible and extend ultimately to include all of the functions of the college except those specially adapted to certain disciplines. Vehicles as well as people use this street, but the twists and sharp turns, the drops and narrow passages force them to a slow pace that evens the score for pedestrians.

The street begins with a small knoll at each highway entrance and this slight rise in grade marks a change from the everyday world. With a bit of judicious cut and fill, we create a valley, whose gently falling slopes anticipate the river below. We have constructed an armature for an architecture that can become alive with the bustle and commotion of people and vehicles.

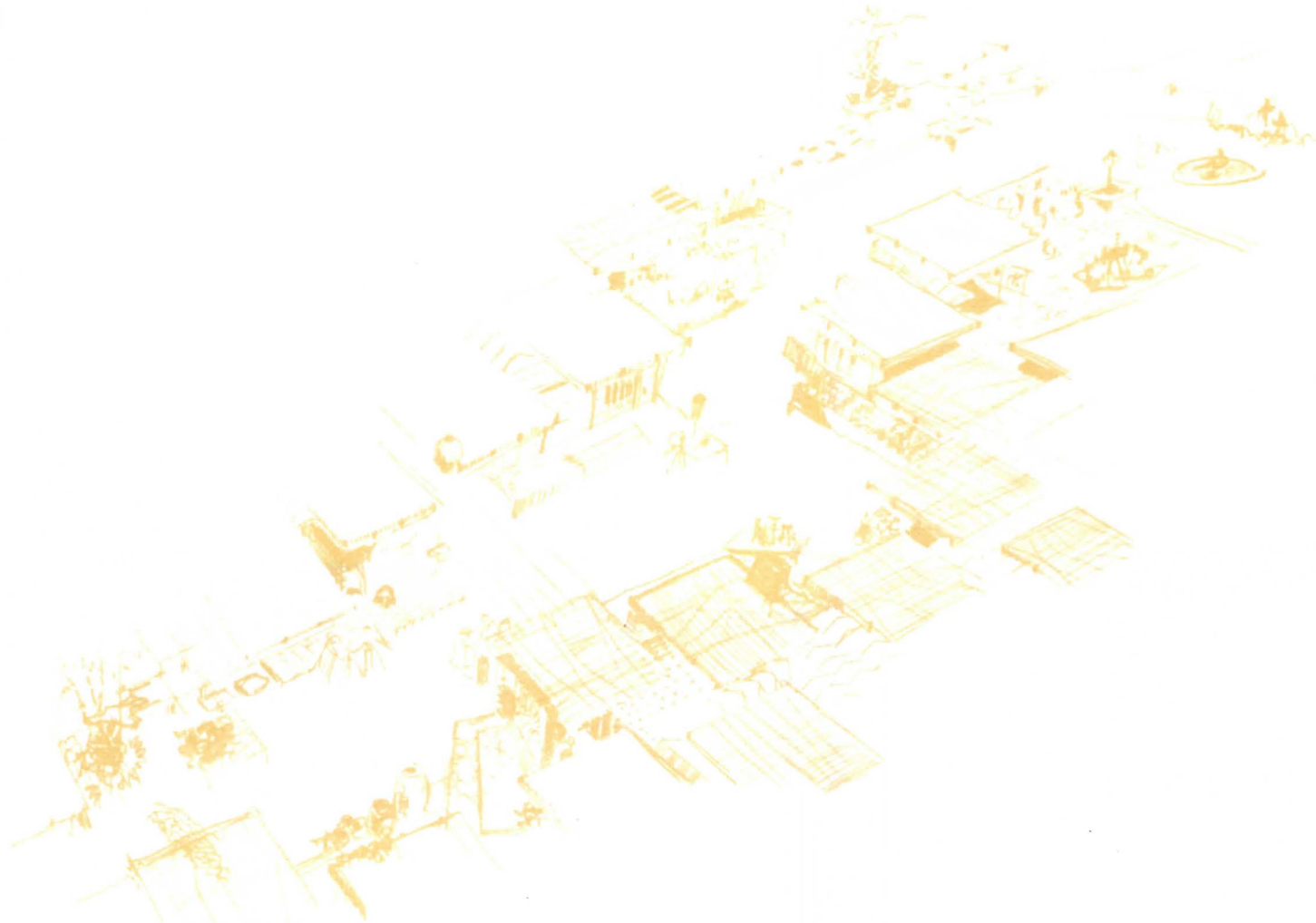
The street, varying from cobblestone to brick, expands to include terraces stepped down and up, balustraded and open, shaded and unshaded. Vases and fountains, street lamps and sculpture mix casually with stone colors and textures, with the warp and woof of brick, with the wandering grain of wood panels and mosaics. Among these things we propose a kind of educational bazaar, a place where every kind of knowledge is presented to every kind of learner without isolating a given specialty from the total of human knowledge.

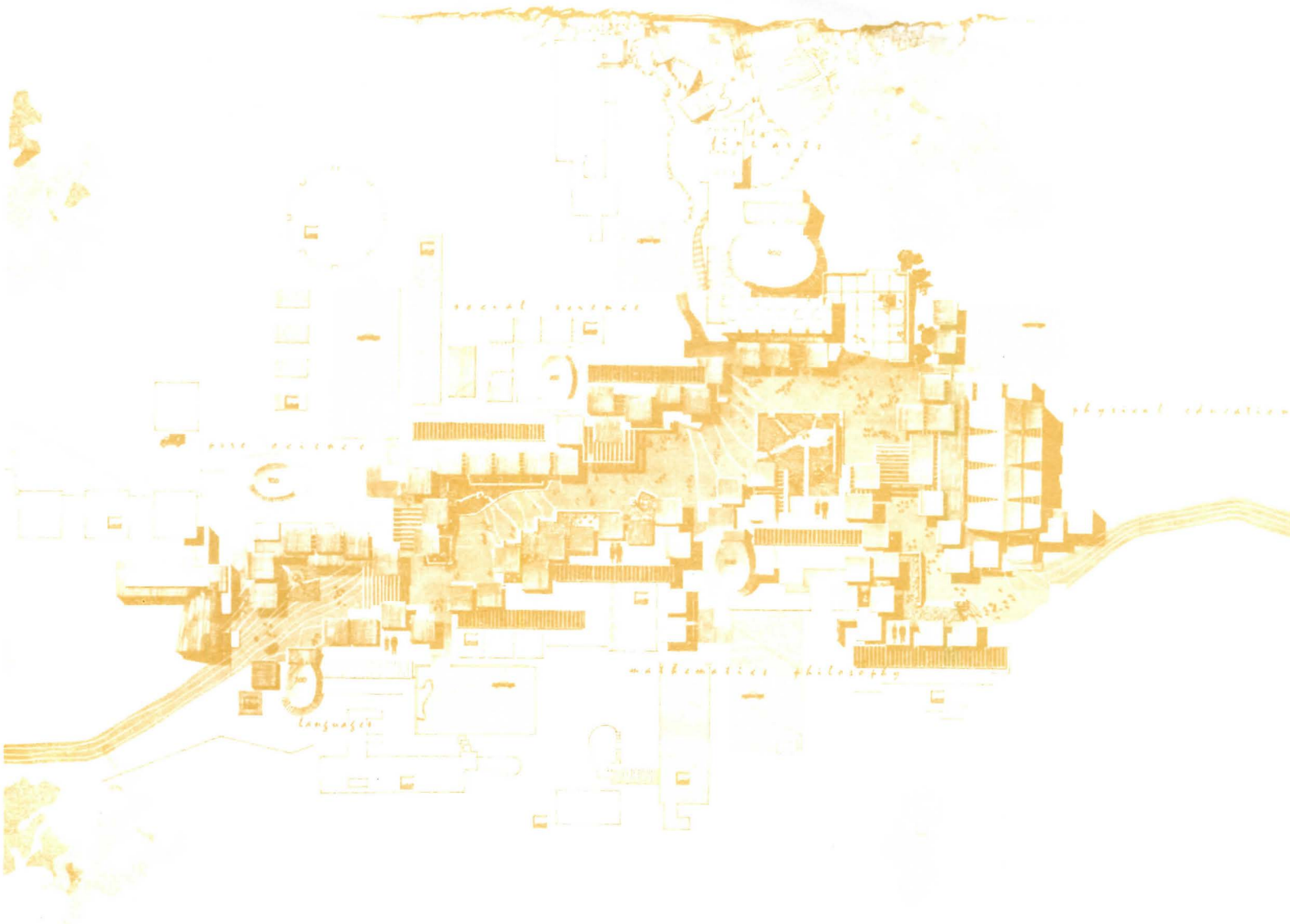
Snack bars and soda fountains replace the central concentrated student union, with the aid of the concessionaire's mobility. These become small, intimately scaled eating clubs where learning proceeds as easily as in the classroom. Toilets and student lounges fall into place easily; dime lockers of the type found in railroad stations, but here grouped into low banks the size of furniture, punctuate the area. Meeting halls become the hinges on which the spaces turn, and grouped with them are the staff lounges and the control stations for the libraries.

The line of libraries and meeting halls ends the previous pattern and begins the specialized spaces with equipment for concentration in a given field. We are calling these workshops, and workshops are precisely what we intend. We believe that in these spaces the designer's aims should give way to the specialists' knowledge and the technician's know-how. As a logical development, we suggest that community interests and industries can here enter the college framework, leasing ground and building their own workshops.

No real workshop can function without a yard, and a backyard is even better. So our site beyond the workshops becomes a series of these, overlapping and meshing, moving where they will.

Now for some of the routine problems—

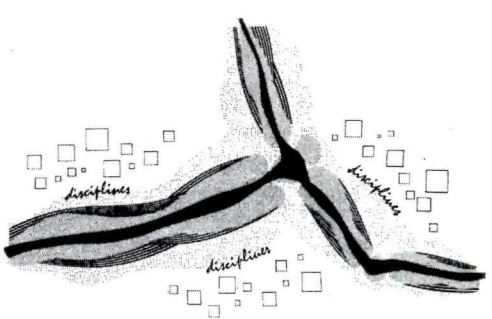




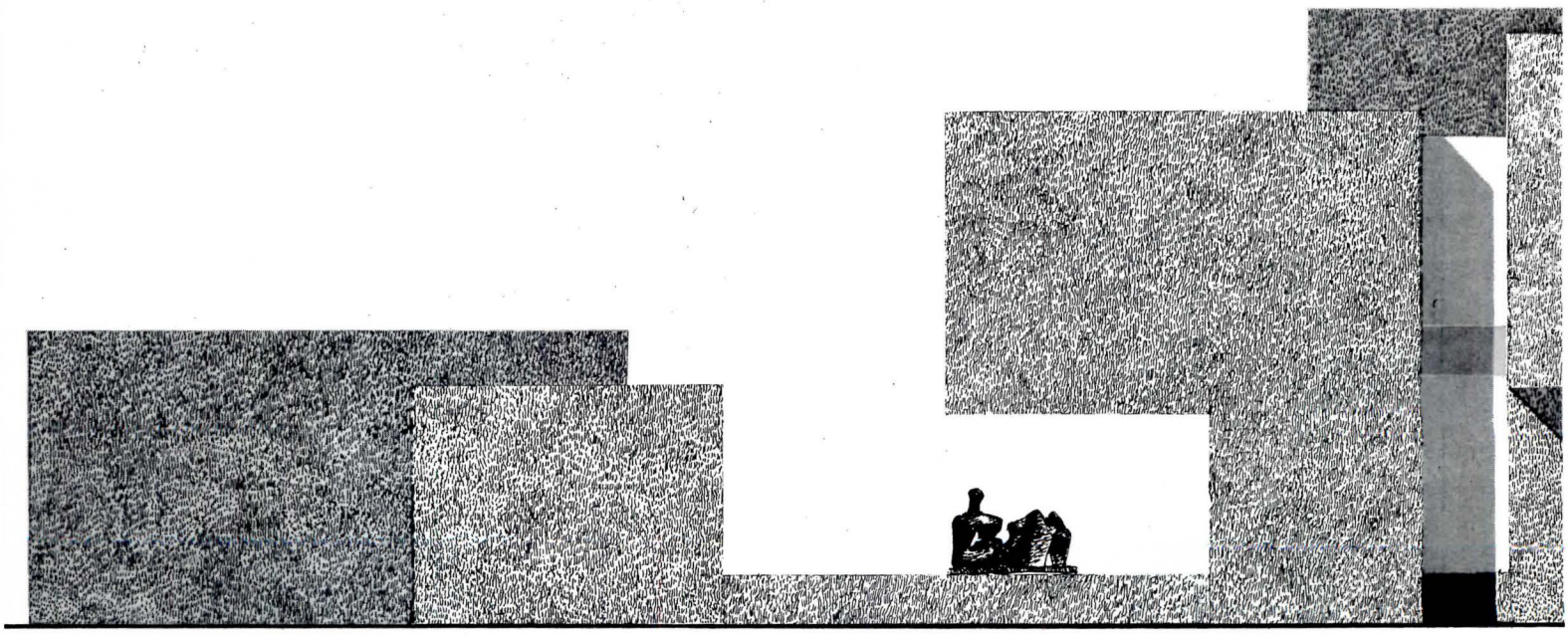
parking, for example. We see no particular reason why the educational plant should be burdened with warehousing the private possessions of the student. When you consider that this particular possession occupies 54 times the volume of the student himself, the absurdity is multiplied by the accrued absurdities—the paving, the fumes, the dangers, the breakdowns, the policing, the servicing, *ad ridiculatum*. Parking a few automobiles on a campus is no problem—our proposal includes a few areas for staff and other personnel, for visitors and even the random student—but multiply the number two and three thousand times and parking on campus becomes a travesty on reason. We suggest instead that the college give to a concessionaire the right to operate a shuttle service making pickups at designated existing parking lots in the communities served. Although we would agree that 100 shuttles present a horrible picture, we suggest that it is nevertheless a significant improvement over the even more horrible picture of 4000 personal automobiles converging on the campus from various directions. If the wrath of the administrators can be contained, staggering of classes will divide this problem by two, four, or six; nonscheduled systems would solve it entirely.

Apparently growth has become a great problem in architectural design; it has developed into a separate and distinct aspect for which a solution must be found. Elaborate schemes are worked out with carefully scheduled stages and often as not discarded as unforeseen factors mutilate the precepts on which they are based. True solutions, however, include inherent patterns of growth.

Our plant grows along the street and into its backyards, as towns do. The layers on each side simply extend and are serviced with additional snack bars, lounges, libraries, and meeting places. Development in depth of facilities for the disciplines proceeds into the yards, and areas are exchanged or merged as the case may require. The scheme remains unchanged and site limits set a healthy bar against unchecked multiplication.



Museum of Art



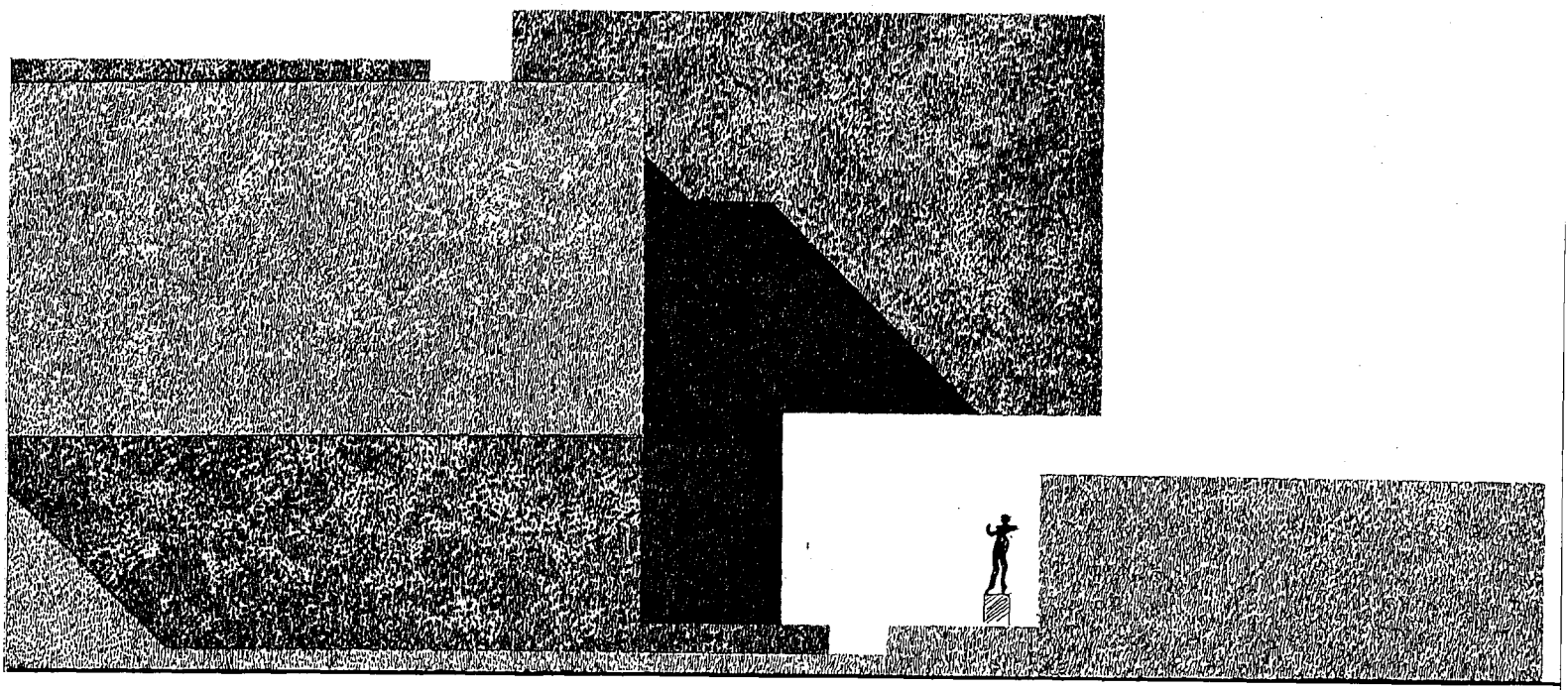
EVERSON MUSEUM OF ART • SYRACUSE, NEW YORK • I. M. PEI & ASSOCIATES, ARCHITECTS AND PLANNERS • PEDERSON, HUEBER, HARES & GLAVIN, ASSOCIATED ARCHITECTS

Syracuse is presently undertaking a revitalization of its downtown. Key element in this process is a plan for a civic and cultural center. The Museum of Art will be one of the new buildings within this redevelopment area (*see site plan overpage*).

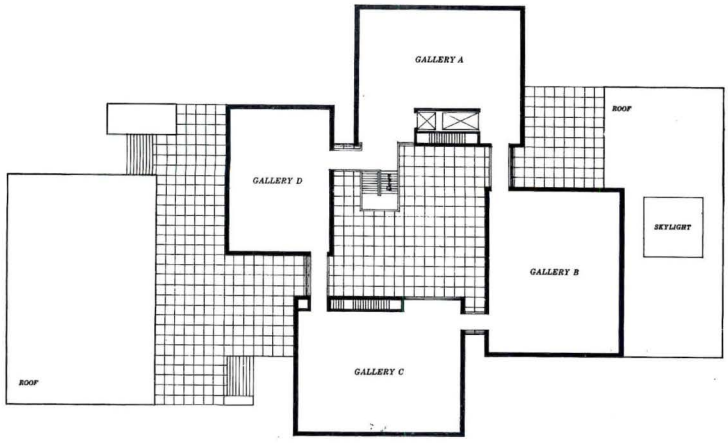
The present director of the Museum, Max W. Sullivan, considers flexible, anonymous spaces not in character with a relatively small and intimate museum suitable for a city the size of Syracuse. He therefore requested that exhibition areas should be individual spaces with personalities of their own. This was one design problem faced by the architects. The second design problem was the presence of large, overpowering buildings in the vicinity of the museum's site. (Among the immediate neighbors of the museum will be a county auditorium and an existing steam-generating plant with an 80 ft smokestack.) Therefore, to give more prominence to the comparatively small structure, the building was designed on a podium within which are housed subsidiary functions and minor gallery spaces. Above the podium, the major exhibition spaces, a series of boxlike galleries, are grouped around a two-story central sculpture court. Continuous circulation from gallery to gallery is accomplished by four catwalks, located at the four corners of the court, which bridge the spaces between the galleries. The sequence of movement, then, is always via the central court, which thus serves not only as a focal point to all the spaces but also as a constant reference point.

Besides the four cantilevered galleries which hover over the podium, two other raised elements complete the massing composition: the upper parts of the auditorium and the administration wing. These also serve as space dividers for an entrance plaza on the west and a semiprivate sculpture court on the east.

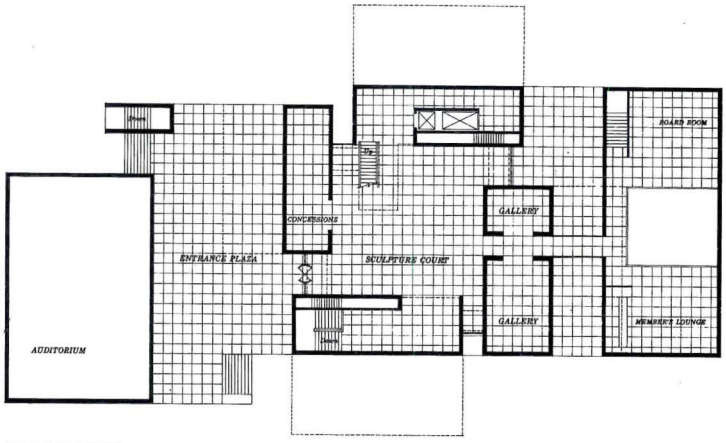
Concrete will be the predominating building material. All exterior surfaces



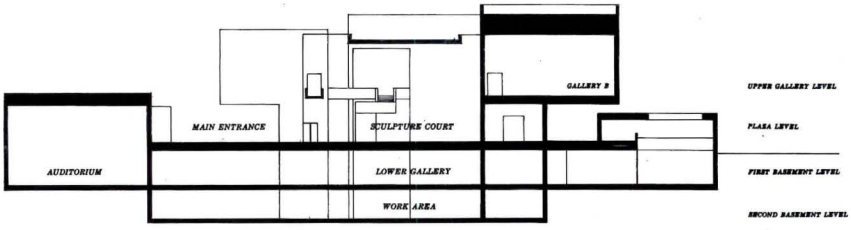
DRAWING BY DALE BYRD

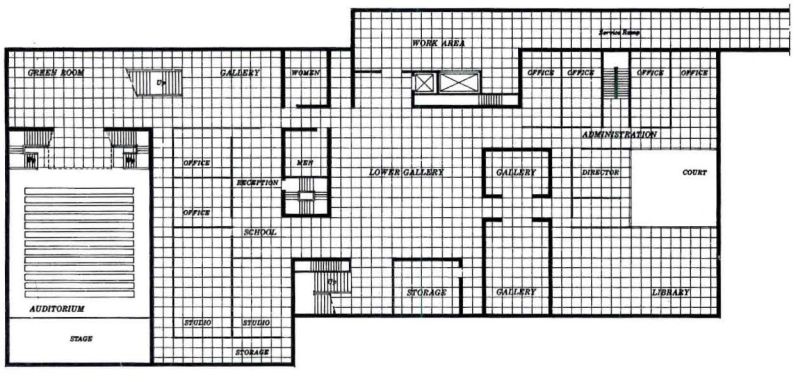


SECOND FLOOR PLAN

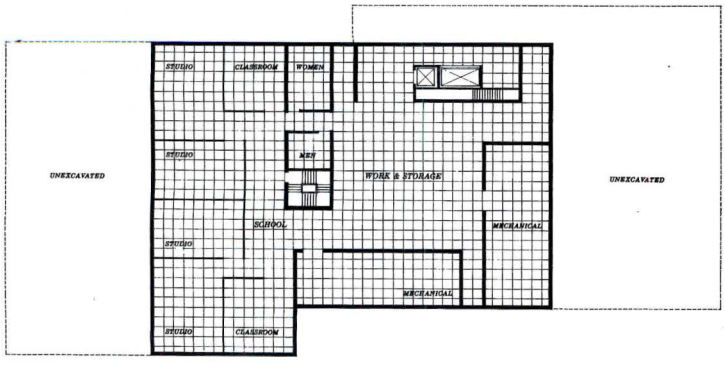


PLAZA LEVEL FLOOR PLAN



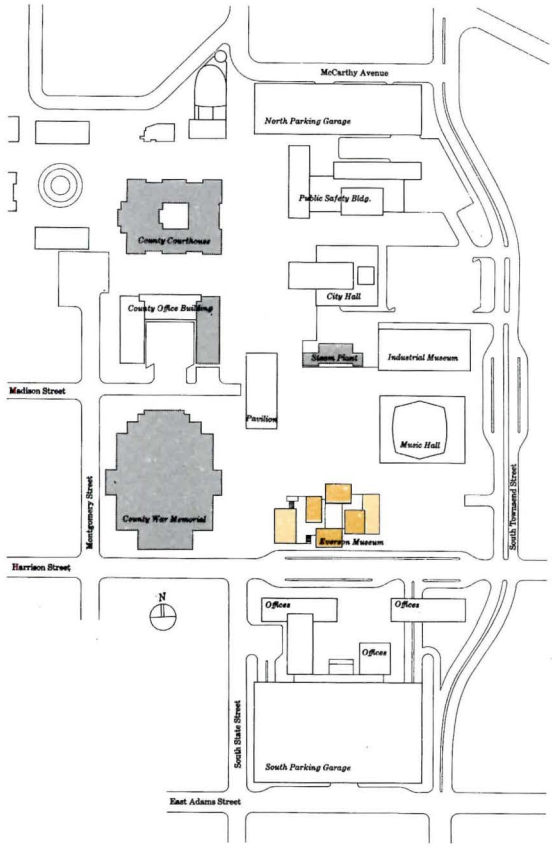


FIRST LEVEL BASEMENT PLAN



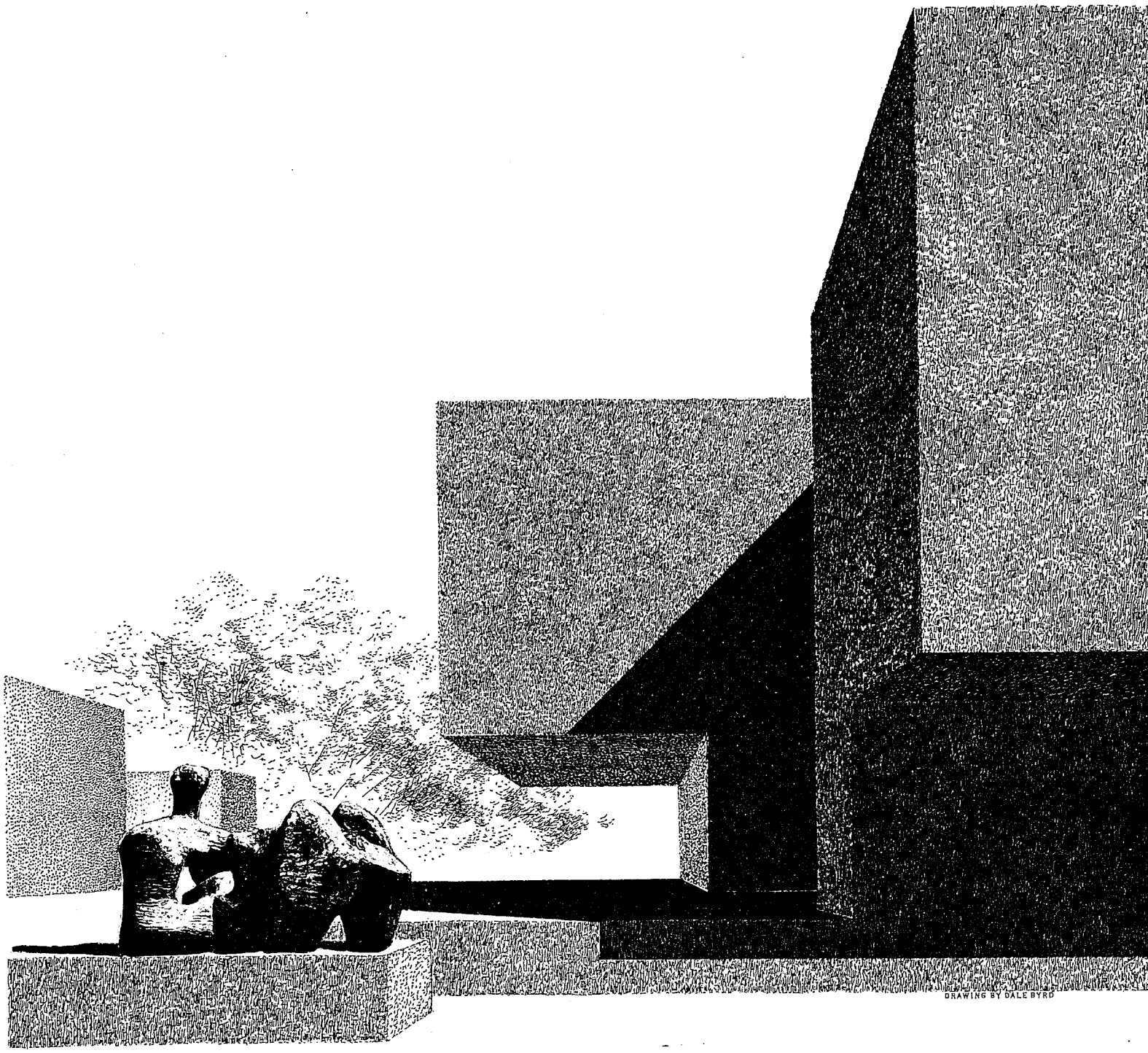
SECOND BASEMENT LEVEL PLAN

"will be treated as a product of a sculptor's tool" and have a rough, bush-hammered finish. This texture will also be used on the interior as much as practicable. Horizontal paving surfaces will be of concrete of the same matrix as the

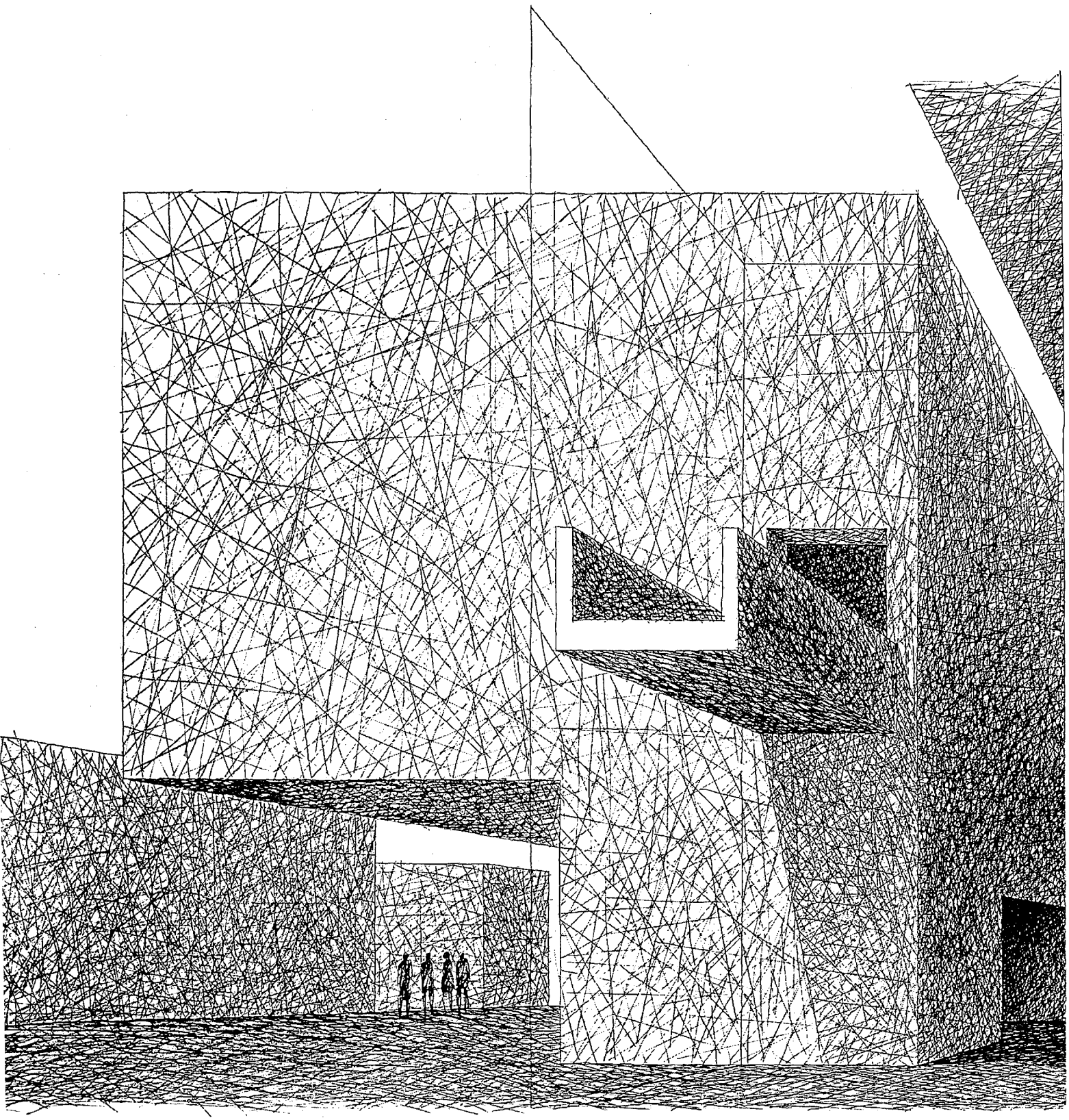


vertical wall surfaces. When exposed to the elements, the surface will be acid-etched to bring out the aggregate; when used on the interior it will be polished, to give a terrazzo effect. Walls on which art work is hung will be surfaced with composition board covered with grass cloth. Other interior materials will be white plaster, teak wood panels, and polished bronze.

Obviously, this museum is one of the strongest statements yet to come out of Pei's office. It is quite consciously a piece of abstract sculpture placed within a civic plaza setting—a sort of sculpture to house sculpture, one might say—a work of art for other works of art.



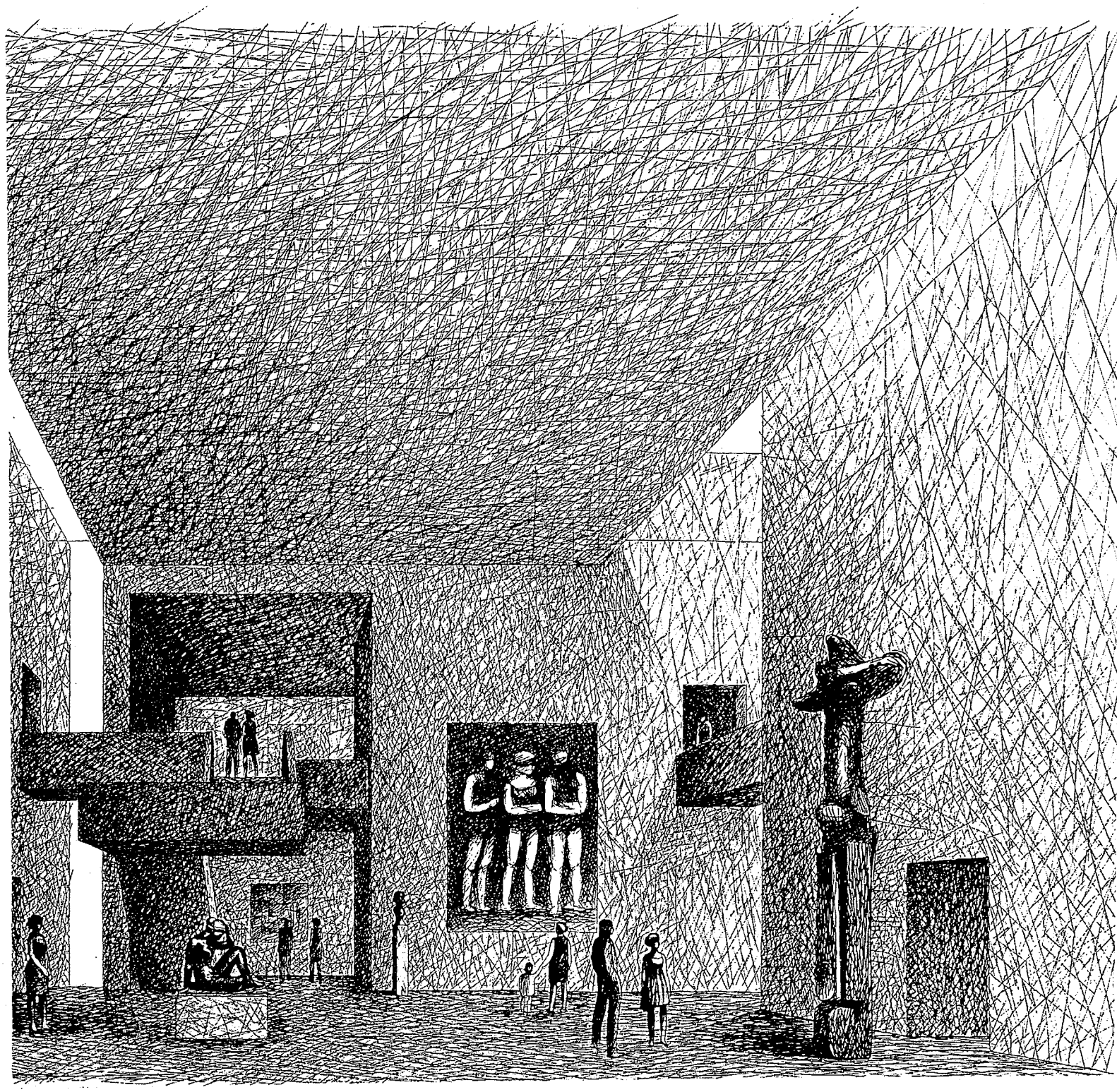
DRAWING BY DALE BYRD



DRAWING BY WILLIAM HENDERSON

The roof of the central sculpture court will be of prestressed concrete elements

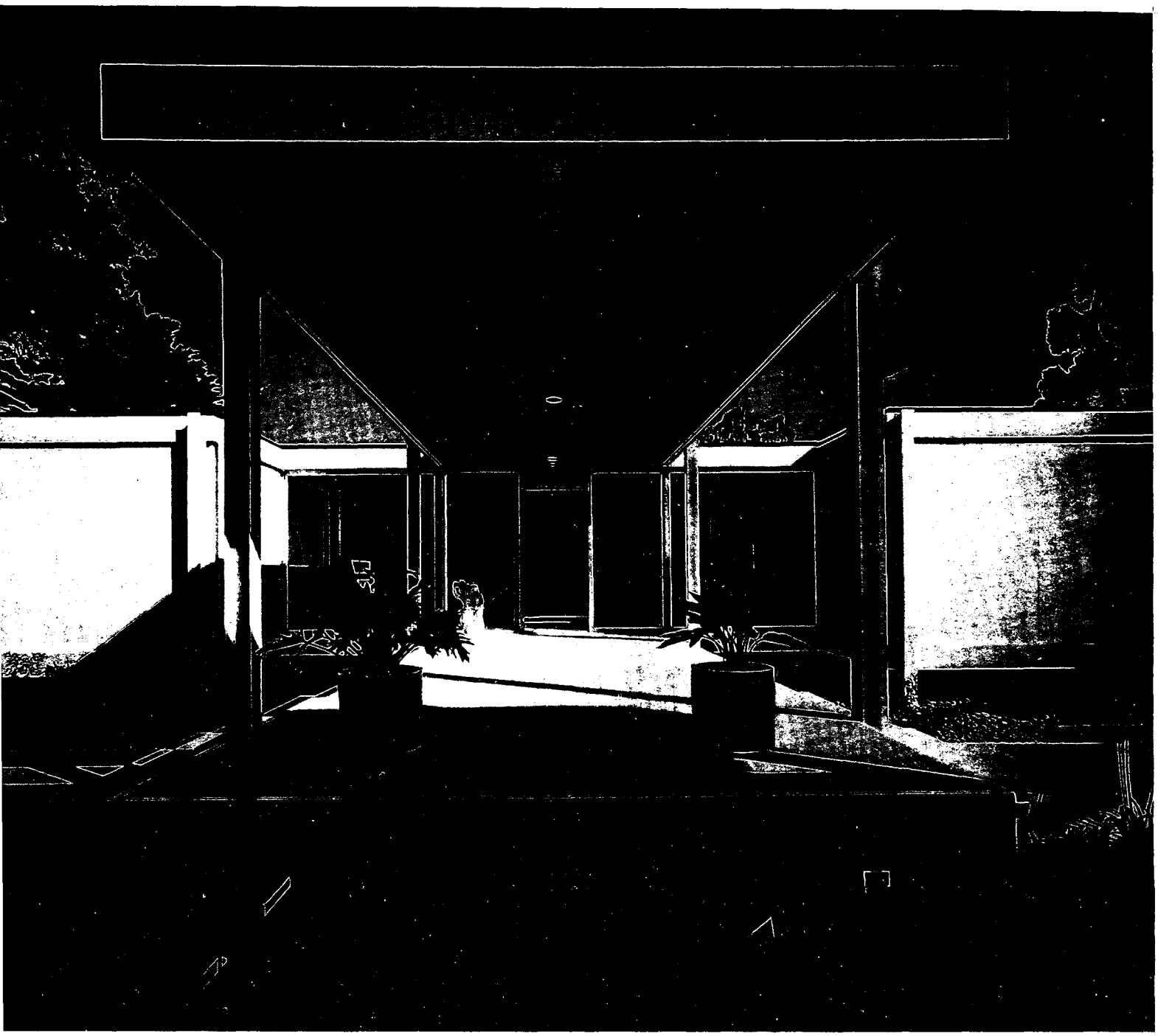
the resulting skylights, glazed with continuous strips of glass,



resting on the walls of the two facing gallery boxes but kept clear of the other two;

will introduce natural light into the interior of the museum.

MAN-MADE OBJECT



HOUSE AT HILLSBOROUGH, CALIFORNIA • CRAIG ELLWOOD, DESIGNER • ROBERT MARKS, CONSULTING STRUCTURAL ENGINEER

"A house is an artifact—a man-made object," says Craig Ellwood. He rejects the idea of houses growing out of the ground, seeing them instead as complementary to the landscape. This house, in the suburbs of San Francisco, has been designed as a pavilion hovering above the ground on steel columns.

The half-acre site is small for a house of this size, but is isolated effectively from its neighbors by trees and other plantings. A golf course bordering it to the north provides an expansive outlook. The family, which includes four daughters, prefers to live informally without servants. Since members of the family swim almost every day, a large pool was a major element in the program.

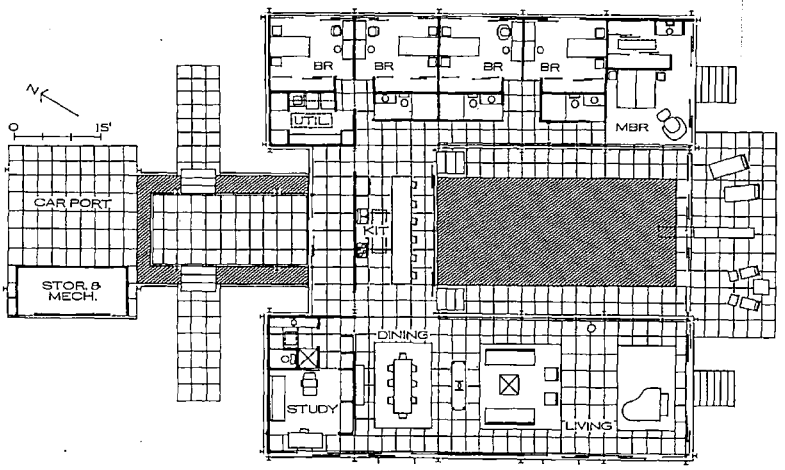
The entire house is supported on 32 steel columns (6WF15.5) located on 14-ft centers around the perimeter. The 25 tons of structural steel used in the framing were welded into 28-ft sections, which were erected on the site in only three days.

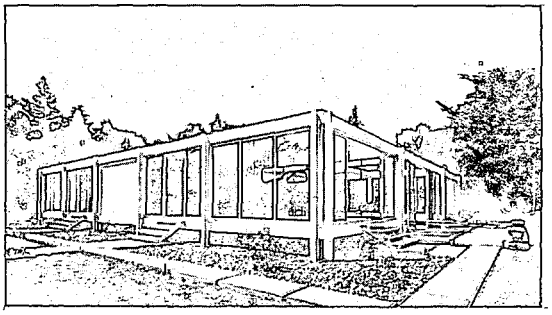
Wood roof joists frame into the 12-in. channel fascias. The floor is a concrete slab poured on compacted fill, which cantilevers 3 ft out from the foundation and frames into 12-in. channels at the sill.

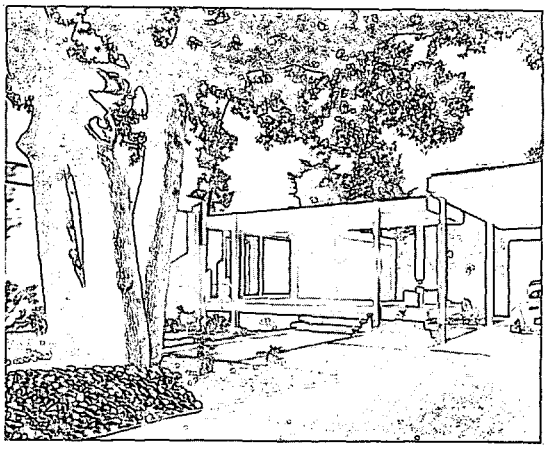
Elevating the floor and recessing the foundation have strengthened the rationale of the design by giving the sill beam an apparent structural function and clarifying the role of the columns. The constricted feeling of the lot is mitigated by the illusion that the surface of the golf course continues without interruption under the house. The elevation of the house above the pool deck has practical advantages: it makes the pool furniture and equipment unobtrusive from inside and allows the deck to be hosed down without spattering the windows.

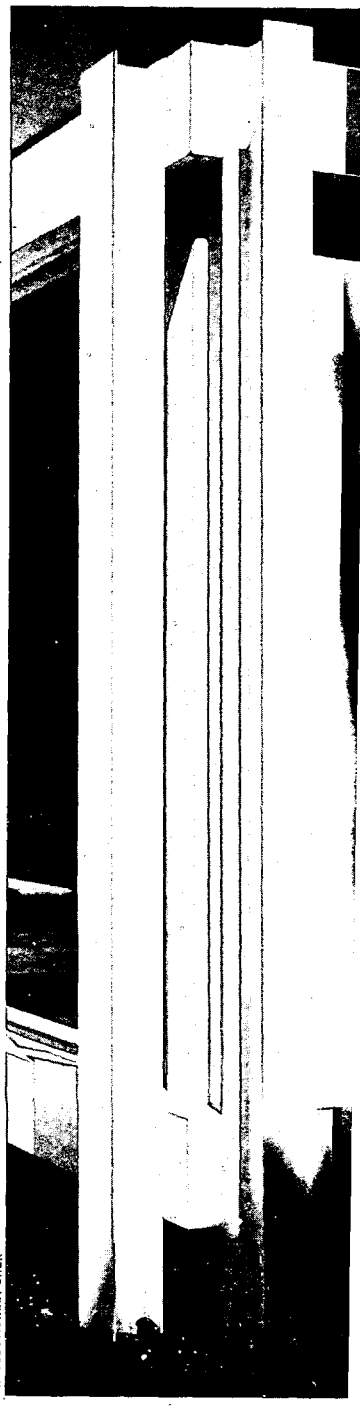
The walls are recessed 7 in. behind the columns, so that the structural frame casts shadows and reflections on them (*detail photo, right*). The wall materials are gray glass, white Pentelic marble, and white plaster. Seen from the golf course, the gray glass reflects the sky and trees by day, reinforcing the illusion of an open pavilion. The inner face of the glass walls can be covered by conventional draperies in the bedrooms and by 14-ft panels of drapery that slide around the perimeter of the living/dining space.

The deck around the pool was the only outdoor activity space required. A local ordinance limiting the ratio of building to lot area made it impossible to enclose the pool, as originally intended. Framing for

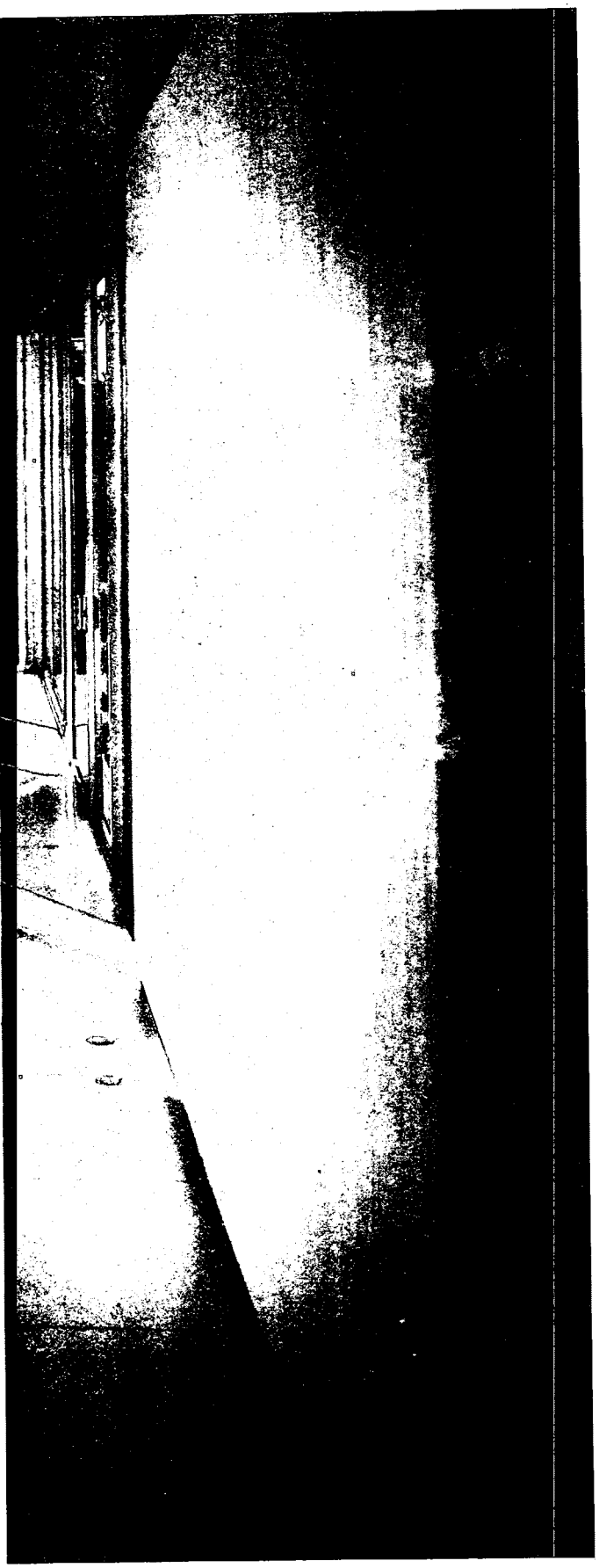


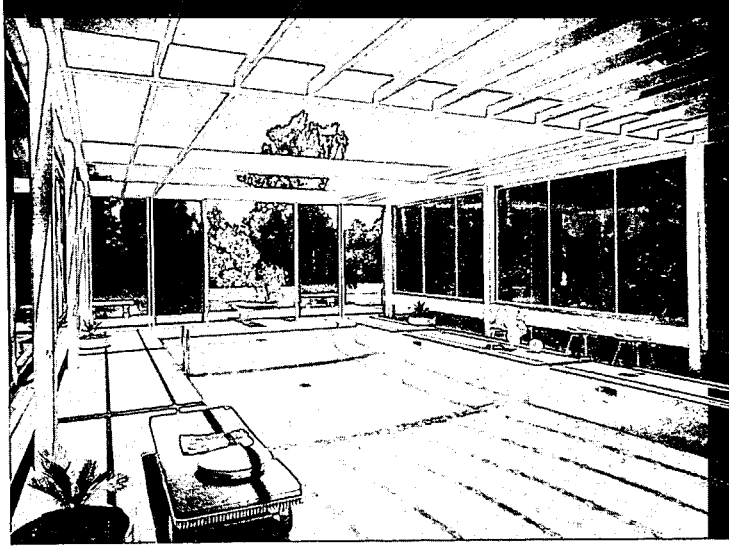






PHOTOS: MORLEY BAER

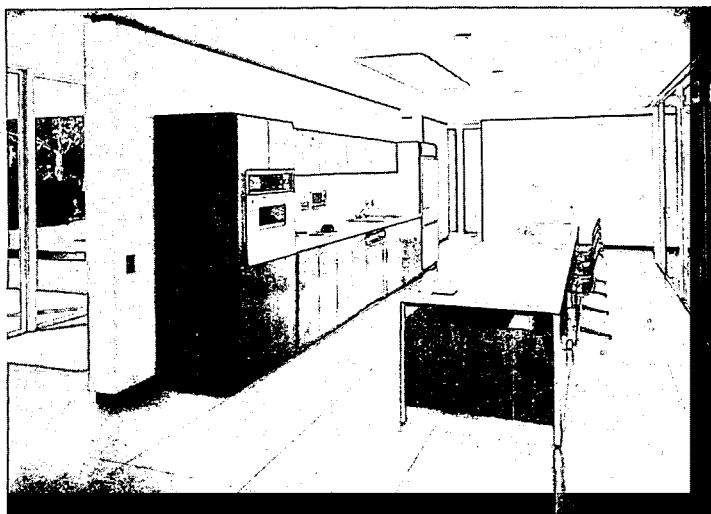


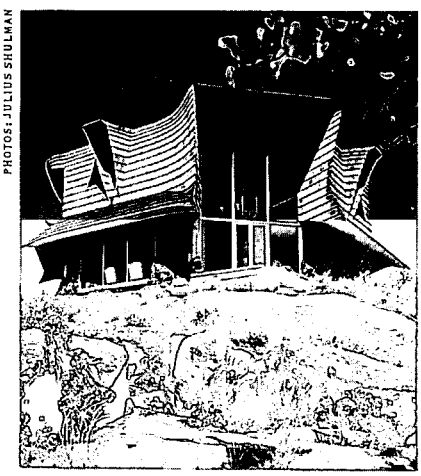


a partial canopy of glass or plastic has been included in the structure, however (*above*).

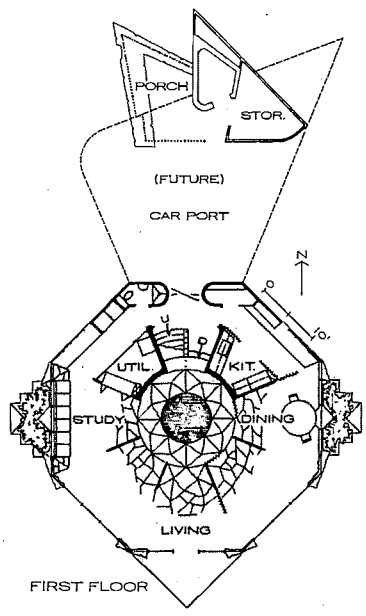
Since Ellwood feels that independent landscape architects tend to "overdesign," his own office handled the landscaping. The structure is set on an island of pebbles. The several tons of stones, which vary from 2 to 6 in. in diameter, were imported from Mexico in order to obtain the blackness and texture desired as a foil for the white building. Small plants grow out of the pebbles at random locations. Beyond the walk that confines the pebbles, there is a ground cover of ivy. The reflecting pool at the entrance appears to be a continuation of the central swimming pool.

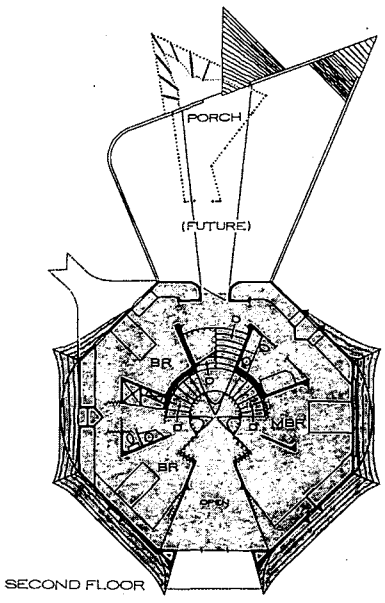
Interiors were also designed by Ellwood's office, in line with his belief in "total design by the architect." Floors of white terrazzo, walls of Pentelic marble, plastic laminate, and white plaster, and ceilings of white acoustic plaster serve as a setting for free-standing furniture of distinct form and color. Throughout the main living area, the furniture has chromium plated steel framing (*left*). Upholstery is of black leather or vividly colored fabrics. Walnut paneling and cabinets have been introduced in the kitchen (*below*) and the dining area.





PHOTOS: JULIUS SHULMAN





SPIRIT IMAGE

HOUSE AT SNYDER, OKLAHOMA • HERB GREENE, ARCHITECT

Rising among the boulders of a granite quarry, the house suggests the image of a primitive deity. The cedar-shingled roof swoops down toward the ground, diminishing to a thin edge. Its canted cupola, browlike sunshades, and projecting rainspout give it the appearance of a fantastic owl nestling among the rocks.

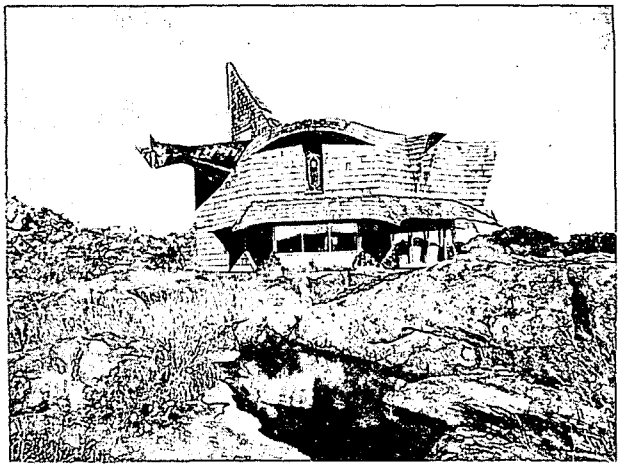
The owners are collectors of Victorian furniture, stained-glass windows, and Swedish and American Indian objects. The architect's job was to create a setting for these diverse possessions, without producing an "architectural rag-bag." Greene sees in his solution reminders of the steep, low-eaved roofs of Scandinavia, the shingled extravaganzas of Victorian times, and the design forms of the native Indians.

The character of the rocky, wind-swept site is also reflected in the design. The house is built on a granite ledge 25 ft above an expanse of farmland. Although the site is part of a tract that includes houses, shops, and offices related to the quarry, this house stands quite isolated. Speaking of his highly individualistic design, Greene says, "You wouldn't do this in a community of houses."

Sweeping views on all sides suggested the omnidirectional plan. The design was conceived as growing outward from the axis of the central stairwell, one of the features desired by the clients. The symmetrical over-all form yielded some of the economies of compactness and repetitive structure. Prominent asymmetrical elements, however, provide "an escape from symmetrical finality."

On the interior, both floors are designed as single open spaces. Since wall-space for furniture and other objects was an important requirement, fixed radial partitions have been introduced to subdivide the spaces. Folding wood partitions are used to enclose private areas for the parents and the two children.

While the lower floor is fully glazed on the south, east, and west, the upper floor has a variety of fenestration, depending on interior requirements. There are narrow windows between the closets



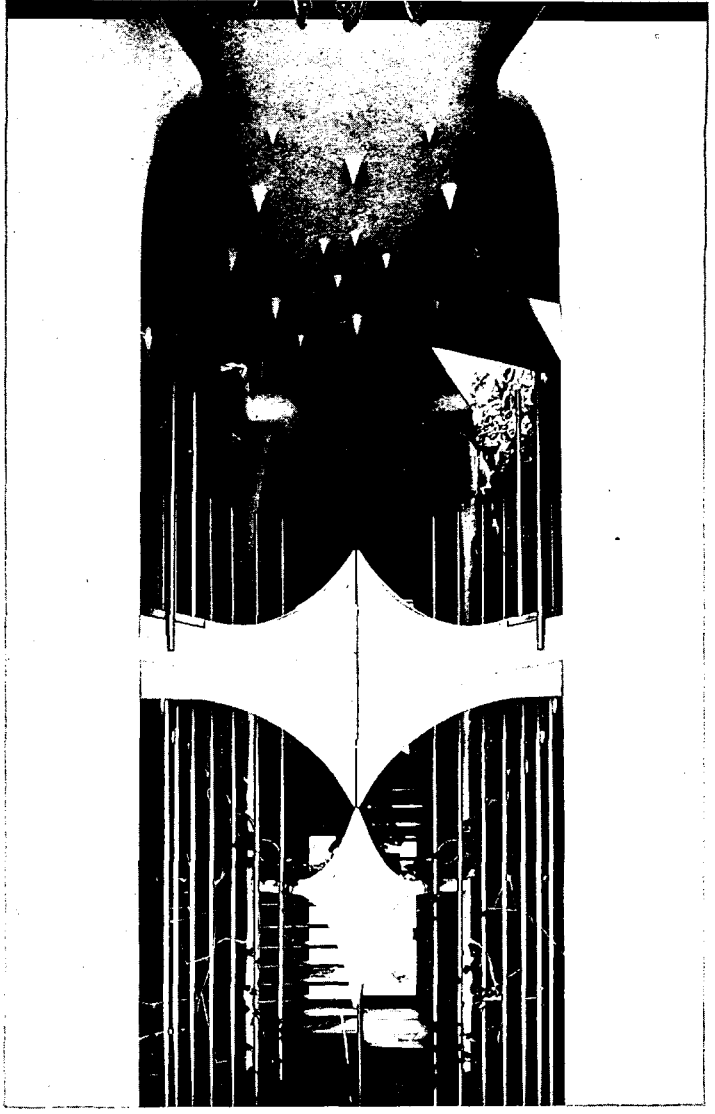
(*below*) and high ones above beds. Artificial lighting is concealed in the tops of storage units and partitions. Reflections from the white plaster interior surfaces afford good over-all illumination.

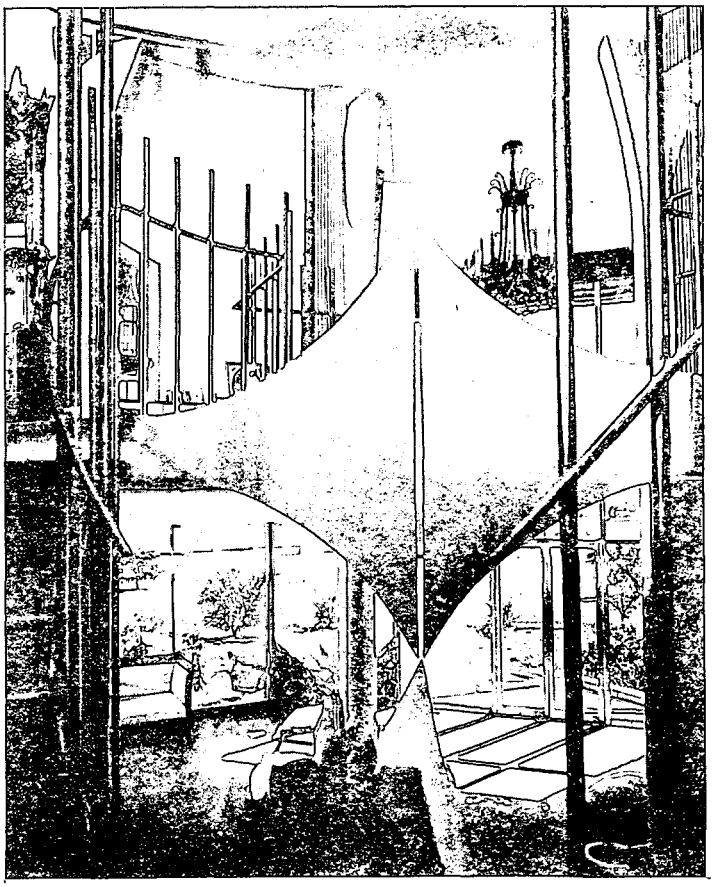
A platform of random granite slabs establishes a base for the house, extending beyond the exterior walls on all sides to form a terrace (*facing page*). A sloping apron at the periphery will be constructed to ease the transition to the natural rock. Low walls of blue-green glass chunks at the base of the window walls and around the central pool are related visually to both the rocks and the water.

Many items from the owners' collection have been built into the house: 15 stained cut-glass windows, several chandeliers, two wrought-iron gates (at the entrances to the kitchen and study), a few carved wood doors (to the bedrooms), and parts of an ornate confessional booth (incorporated into the master bathroom). The plain white plaster finish of the interior serves as a unifying background for these built-in elements and furnishings collected by the clients (*right, above and below*).

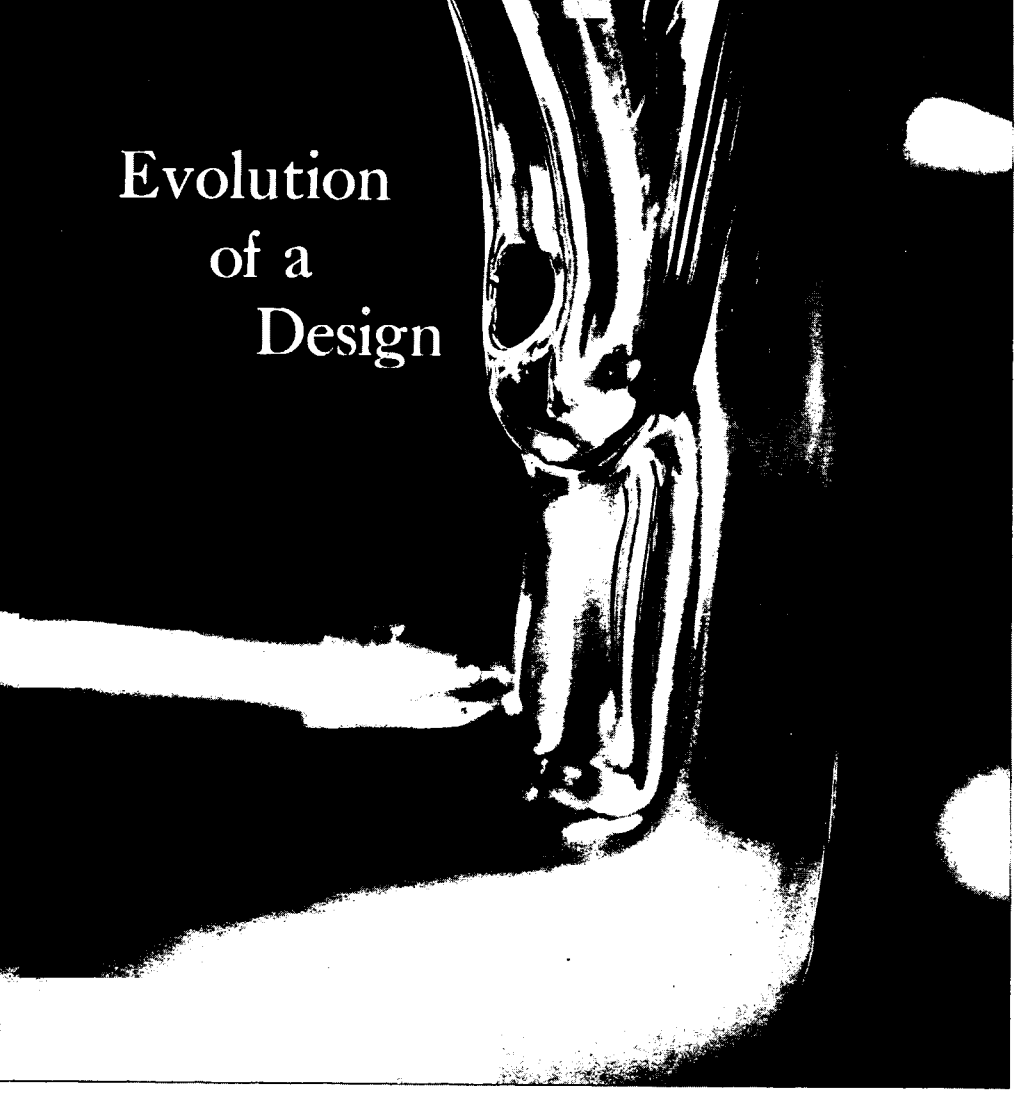
The house is being built over a long period, partly as a "do-it-yourself" project. Both labor and materials from the quarry were available to the clients. Wood and pipe were obtained from the salvage of an old school. A large part of the skilled work has been done by the craftsman who originally brought Greene's work to the clients' attention.

The wing containing the carport, porch, and deck, which has not yet been built, will visually anchor the house to the land, dispelling the impression that it is merely perched there. Eventual site work will include a board terrace rambling among the rocks of the upper slope and a rock-cut stair leading to the foot of the hill.

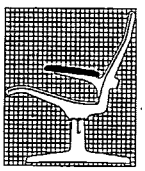




Evolution of a Design



PHOTOS: CHARLES EAMES



INTERIOR DESIGN DATA
TANDEM SEATING
CHARLES EAMES, DESIGNER

In January of this year, two new terminal buildings were opened at Chicago's O'Hare International Airport. At present, O'Hare handles about 1000 operations every day (a scheduled landing or take-off every 83 seconds); traffic totals nearly 33,000 passengers daily. It is estimated that by the end of the year 10 million people will have used O'Hare and that it will be the "world's busiest airport."

C. F. Murphy Associates (formerly Naess & Murphy), the architects of the terminal buildings, were as concerned with interior details as they were with the larger considerations of airport planning and design. One of the interior elements they carefully explored and defined was public seating. Through a collaboration with Charles Eames and the Special Products Division of Herman Miller, Inc., the architects achieved a unique new design that may alter the accepted standards for comfort and appearance in public seating.

P/A presents the background of this three-way collaboration in the words of the design team—the architects, the consultant specializing in furniture design, and the manufacturer—as a further illustration of the questions raised concerning special furniture in the Symposium on Interior Design [OCTOBER 1962 P/A]. Function, aesthetics, budget, testing, maintenance, and replacement are discussed to show how careful collaboration can enhance the quality of architectural performance.

Carter H. Manny, Jr. (Partner-in-Charge of the O'Hare Project for C. F. Murphy Associates): From our analysis of traffic, we knew that O'Hare had a passenger service problem unlike any other terminal in the country. More than 25 per cent of all passengers who deplane at O'Hare continue their trips on flights with other airlines. Quite often, many passengers must wait up to two and three hours between planes. This pointed up the necessity for soft seating; comfort became an objective of prime importance.

Having spent countless hours ourselves waiting in airline terminals, it was obvious to us that most of the public seating used in such places was inconsistent with the image of comfort and service that the airlines attempted to portray. In a final presentation to executives of the several airlines using O'Hare, we emphasized that their responsibility of providing comfort and service to the passenger did not end with the termination of a flight: it included

the furnishing of comfortable seating for the traveler who might have to wait several hours in the terminal between flights. Too often the advantages of jet travel end as soon as the plane touches down on the runway.

We knew also that cost would play a major role in presenting any new ideas to our clients—not only the initial cost, which had to be within a range experienced at other airports, but maintenance and replacement costs as well. We therefore evolved objectives for the structural strength of the seating, its durability, resistance to wear, and the ease of replacing parts.

As architects, we were concerned with the beauty of the seating when used individually and in groups. We were also concerned with the aesthetics of relating blocks of seating units to interior spaces. Like most architects, we rebel at the thought of cluttering up building interiors with a lot of furniture. In our planning of the interior spaces at O'Hare, we wanted to keep the furniture as anonymous as possible.

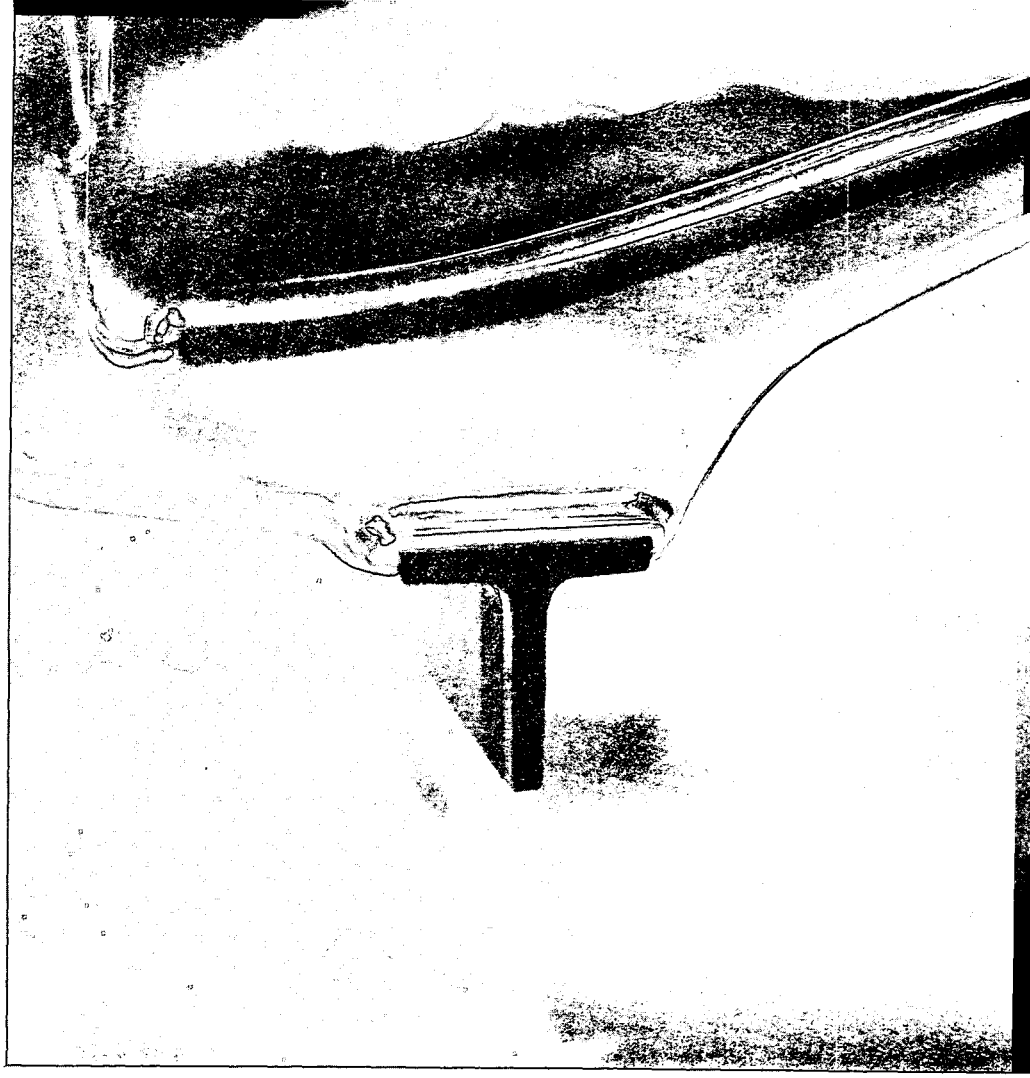
At one time, our own staff considered developing the new design, but concluded that it would be better to draw on the experience of firms who made a full-time profession of seating design and manufacture.

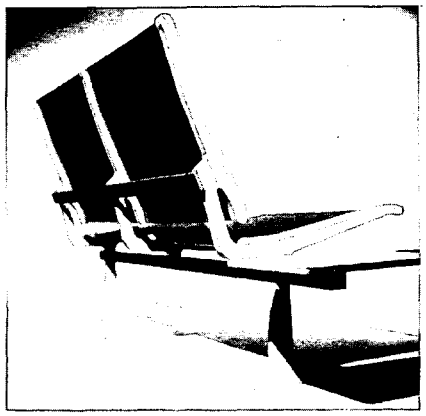
Harvey Stubsjoen (Project Designer of the O'Hare interiors for C. F. Murphy Associates) : After we had established the program for the seating and determined quantity and placement, we were ready to examine designs themselves. We approached several suppliers, were in turn sought out by others, and, in the end, conferred with seven different manufacturers. To our surprise, we found most of them very co-operative and willing to modify their present designs to answer the specific requirements we had laid down. We felt, however, that the problem called for more than simply a variation on an existing design.

One of the suppliers to submit samples was Herman Miller. We were familiar with the Eames Aluminum Group and suggested that the construction and scale of these pieces might be applied to a new multiple unit for public seating.

As it turned out, Eames had been thinking along the lines of developing public seating based on the concept of suspended upholstery, and was happy to continue in this direction.

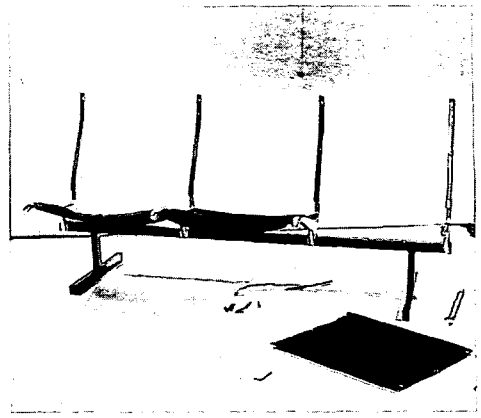
Charles Eames: Occasionally we work on a piece of furniture without any specific application in mind—but that is the exception. Usually, the development of a design is triggered by some real and im-





Eames' plywood mock-up.

Assembly: frames secured to tee beam.



Installation of seat pads.

mediate need—a need of our own, or that of a friend, or a building or a situation. In the case of Tandem Seating, C. F. Murphy Associates, via O'Hare, provided the trigger. Our response could not, however, be completely impersonal—not with the amount of air travel we do these days.

Specific applications, such as O'Hare, have deadlines, and deadlines require definite statements to be made by a definite time. This is one of the things that makes product design different from research in the same field. It also makes such design a kind of architecture in miniature—sometimes hair-raising, but not without its pleasures.

The role of the manufacturer in such an endeavor is interesting. In the early stages of development, Herman Miller kept a flow of information going between the architects and our office, and vice versa.

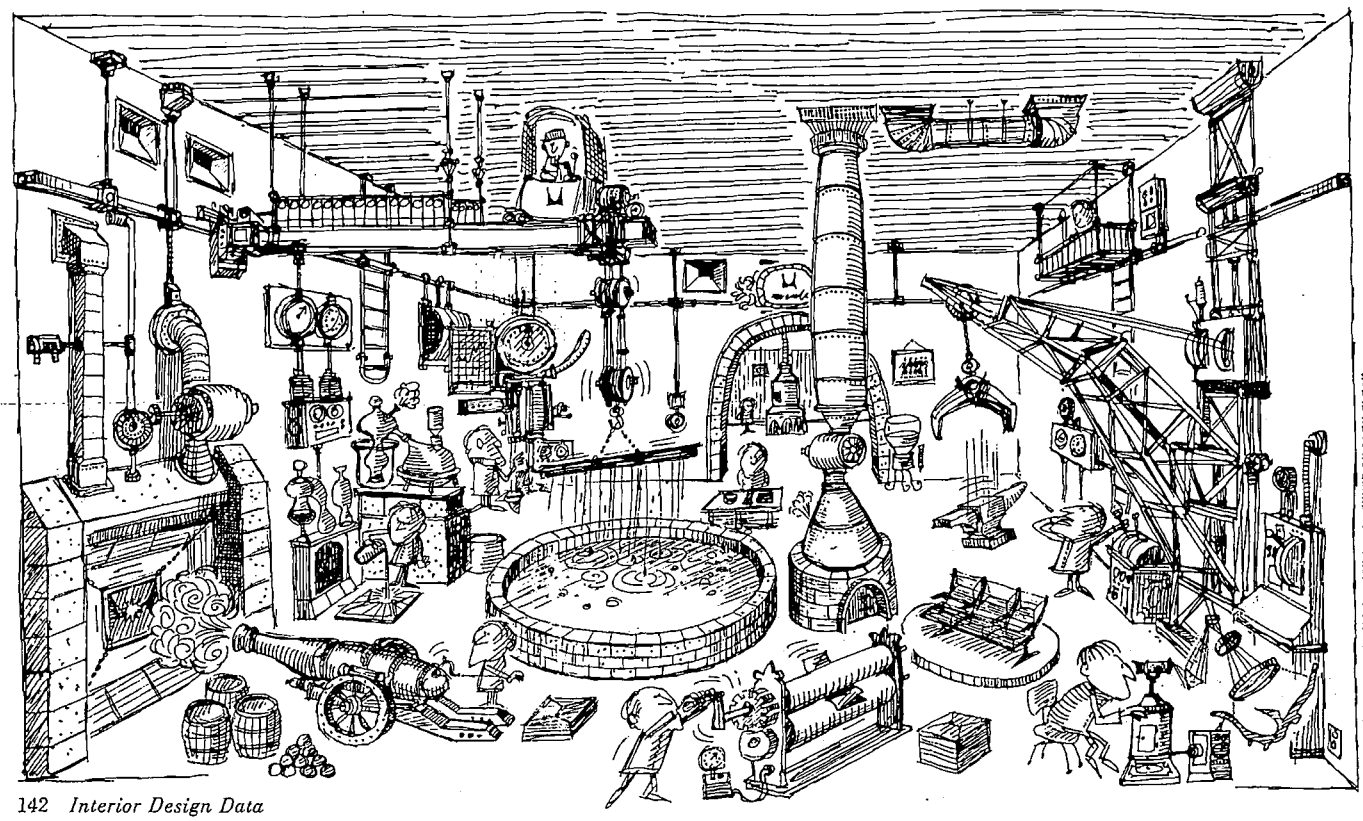
Hugh De Pree (President, Herman Miller, Inc.): Upon completion of a mock-up, then a prototype, the Eames office put the seating through basic tests. Herman Miller's Technical Center subjected this prototype to the following tests: a 100-lb padded weight was dropped in a 5-in. free-fall onto a seat pad 15,000 times; arm, seat, and back-pad materials were subjected to 100,000 cycles on a Wyzenbeek abrasive test machine; seat and back-pad material was chilled at –15F for 30 minutes, then folded and run through a wringer; seat and back-pad material was exposed to 120 hours of ultraviolet light, 65–70 per cent relative humidity, and to 105F ambient temperature.

Carter H. Manny, Jr.: The exhaustive, accelerated testing the Eames design was given indicated that it was very durable and would require little maintenance over the years of hard wear that lie ahead.

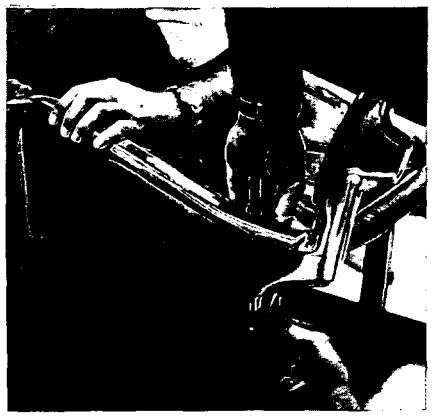
Charles Eames: As the project progressed, Herman Miller began treating the complete O'Hare installations as a prototype, working to raise all the values that could be built into the seating. As for concern about appearance, their hope and ours was that the seating would become a part of the over-all unity that is characteristic of the O'Hare architecture.

Hugh De Pree: Herman Miller did not analyze the market for public seating before deciding to produce this new seating group. To be sure, we were interested in market response, but the real impetus came from a desire to see the new design become a reality. We are depending on the validity of the design and on the quality of its manufacture to create a demand for Tandem Seating.

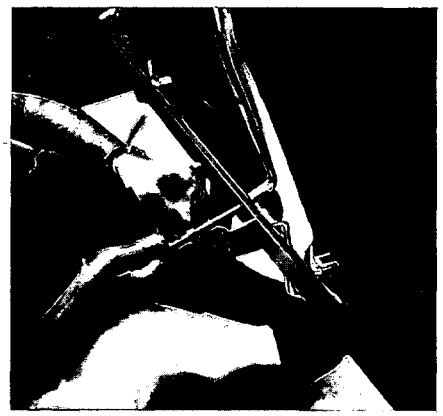
Charles Eames: Two gratifying things



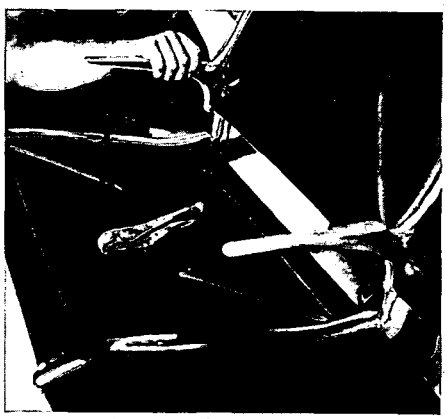
CARTOON OF HERMAN MILLER TECHNICAL CENTER BY GLEN FLECK.



Seat pads secured by seat caps.



Back spreader attached with Allen screws.



Addition of arm supports.

about the project can be directly attributed to the architects: the architectural background within which the seating worked was sound and consistent; and the architects were content to consider black as a color.

Carter H. Manny, Jr.: Eames Tandem Seating was finally selected over the other submissions because it met our requirements more than any other design. It was easily as comfortable, perhaps even more comfortable, than units with conventionally upholstered seats and backs, yet the back and seat in this Eames design are simple reinforced pads, identical, interchangeable, and capable of quick-low-cost replacement. This replacement factor was also constant for the polished, cast aluminum legs and frames, which are assembled with mechanical joints. It was a key factor in deciding on the Eames unit. None of the other designs submitted had such a feature.

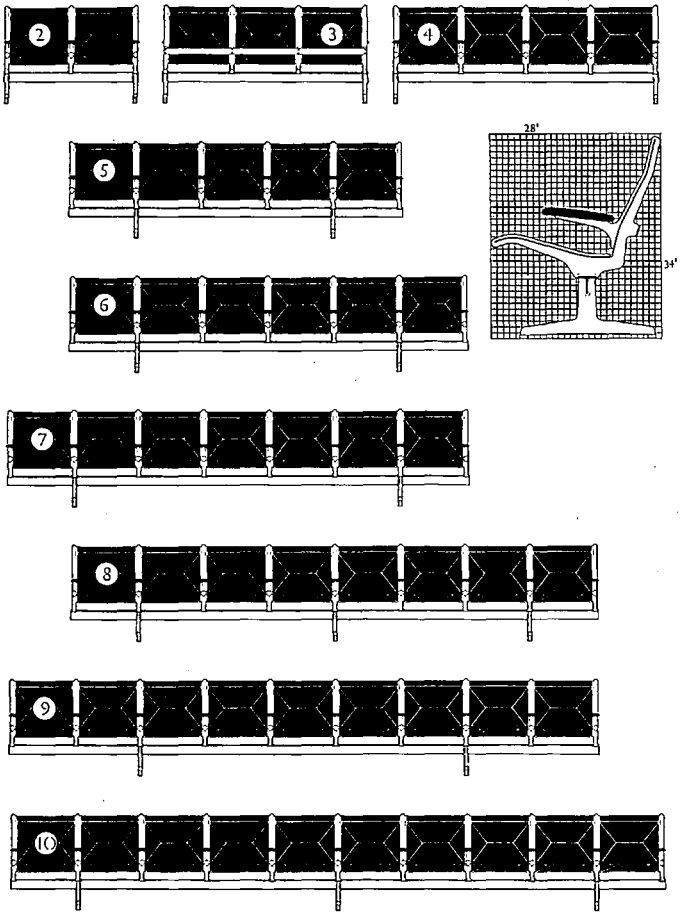
Harvey Stubsjoen: We enjoyed a thorough understanding of our objectives on the part of Eames, and the feedback worked constructively both ways during the course of development.

Before we had come to grips with the specific design of public seating, we had determined the functional and visual considerations relating to the placement of seating in the waiting lobbies. The basic configuration of the terminal buildings at O'Hare is a direct result of ticket-counter requirements and distances between concourses. Together, the two buildings constitute well over a quarter of a mile of continuously enclosed space, not including the links, the restaurant, or any portion of the concourse buildings.

The rectangular buildings are divided into three basic zones that extend through this entire distance at the concourse level. These zones are: (1) A long, central core containing concessions on one side and ticketing offices on the other. (2) An open space devoted entirely to airlines ticketing functions between the entrance side of the building and ticket-office side of the core. (3) An open space devoted to merchandising, advertising, and public waiting on the concession side of the core.

Since the scale of the interior space of the waiting lobbies makes it difficult, if not impossible, to perceive an entire building from a single vantage point, we had to rely on the organization of elements within the space to orient the traveler as he moves about in the buildings.

To produce meaningful relationships between the elements used in these spaces, and to determine the exact nature of these

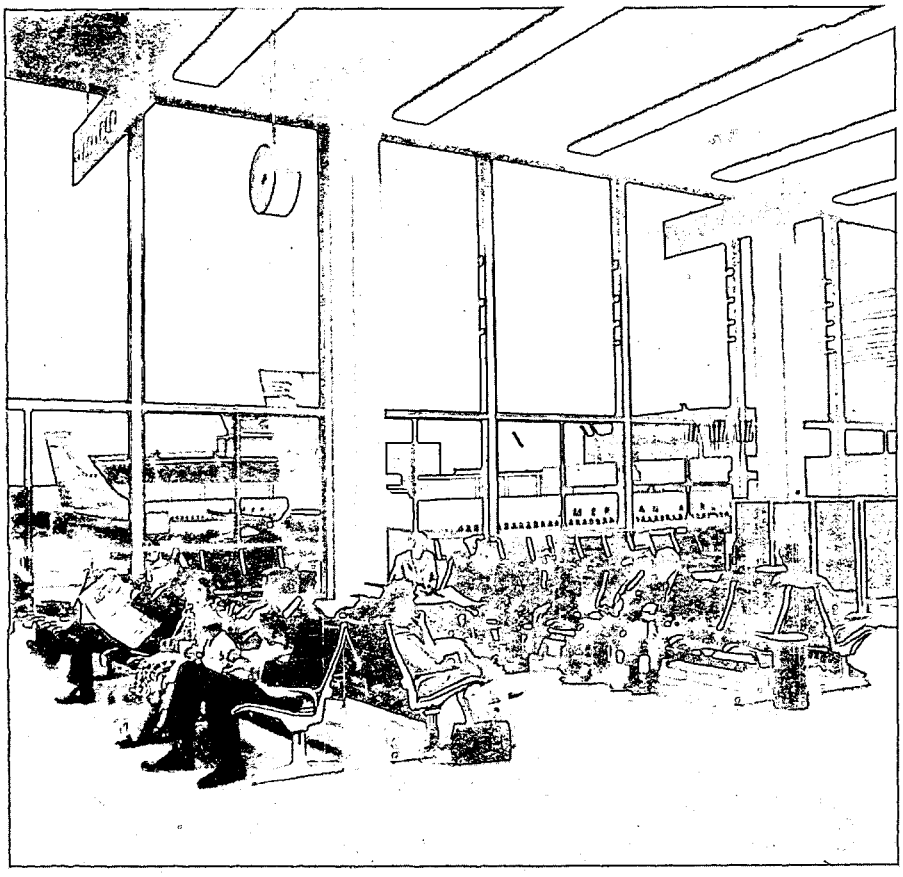


relationships, we studied the building and its parts in model form. From these studies we decided the following: (1) Separate groups of elements should be kept at a minimum in order to relate well to one another and to the whole. (2) Each group should be easily and quickly recognizable as a group. (3) Groups at the ends of the terminal units should be as low as possible so that the passenger could see into each unit. (In the end, this consideration had to be modified, and the taller concession units were placed in the areas of greatest traffic.) (4) Each terminal unit should be developed exactly alike in order that it be recognizable as one of several independent entities within the whole.

Each half of each building is organized very much alike (seating groups, rest rooms, and other services) to facilitate visual recall for the passenger. We considered the basic unit of space to be one-half of a building and arranged the interior so that the traveler can easily perceive this spatial unit at once. This technique is an effective aid for the traveler in orienting himself as he walks from building to building.

Although some seating was arranged in single rows, it was primarily planned in block form, in units of three's, so as to count well in the large space with the other major elements and to provide the maximum number of individual units. This created an aesthetic problem in that it was necessary for the seating to present an attractive appearance when used back-to-back as well as side-by-side. Eames' final solution satisfied our requirements in a most direct and outstanding manner.

Carter H. Manny, Jr.: We think the aspect of this story that other architects should know is that out of this three-way collaboration (architect, industrial designer, and manufacturer) came something good. This is especially laudable since the price had to be competitive and the specifications had to be approved by several groups with diverse interests. Our experience in specifying seating units for O'Hare again illustrates how important it is for the architect to know exactly what he wants in product design and how to define its required characteristics.



DATA: **Legs:** cast aluminum/polished; nylon glides. **Support beam:** steel tee/epoxy painted/black; available in combinations of from 2 to 10 individual seats; maximum number of seats between legs is 5. **Seat frames:** cast aluminum/polished; height 33¾"; depth 28"; width of seat 23¼". **Back Spreader:** steel/epoxy painted/black. **Upholstery:** seat pads, backs/black Naugahyde/reinforced by nylon Fiberthin and vulcanized fiber strips/heat-sealed. **Armrests:** Royalite/black.


CHICAGO
GAMBLER KI

Architects as Critics

BY SAMI HASSID

Systems of criticism and evaluation become more necessary as diversity in approaches to design increase. Among several academic studies of this subject, the work of Professor Hassid, member of the faculty of the College of Environmental Design, University of California, Berkeley, is outstanding. He reports here on one aspect of his research.

The question of what architects talk about when they act as critics was the subject of a recent study at the University of California, conducted as an initial phase of a more ambitious program on systems of judgment of architectural design.[1] The study was designed as a test case for a new approach aiming at a better understanding of the processes by which evaluations of architectural works are reached.

Architecture, a highly pragmatic discipline, has traditionally relied for its progress on the achievements of eminent practitioners. Architectural theory has often failed to keep pace with this continuous development. Such progress as has been accomplished may be credited to a few articulate members of the profession and to fewer sensitive critics. Recent evolution of our society gives weight to the belief that such "direction from the top" needs to be supplemented with, but not supplanted by, a "grass-roots" approach. This could capitalize on the tremendous potential in the rank and file of our profession, and thus derive meaningful relations and useful lessons from the accumulated published material on the architecture of our time.

An approach of this kind guided the study briefly summarized here.[2] It was realized that a theory of architectural criticism which starts with general principles at the top is of necessity hazy or unclear, unavoidably personal and possibly dogmatic; that it is impossible to reach universal agreement on such a theory or to obtain factual evidence to verify its certainty. It was assumed, rather, that a gamut of studies could be organized, covering a field similar to that of an aesthetic theory, each study being aimed at a relatively minor portion or aspect of the whole. In each of these studies, clear questions might be answered by clear and verifiable findings based on repeated investigations. These limited findings might gradually broaden our understanding and reduce the haziness now surrounding architectural judgment.

For this comprehensive program, a general framework or outline of research was formulated. The design process was analyzed, together with other elements playing a role in the evaluation of architectural works. Areas of inquiry were identified, mainly in the fields of decision-making, aesthetics, and communication. Within this framework, an initial phase of study was designed in which several hypotheses were made as a basis of investigation. Their object was to answer in some measure the following questions:

1. What do critics actually talk about when they evaluate architectural design?
2. How are their comments distributed over a given range of items of interest?
3. Is it possible to derive a checklist for items of interest arranged in descending order of importance for classes of situations?

To answer the first question, it seemed natural to seek the needed information first hand: that is, to take a record of architectural criticism where it is given frequently and spontaneously. The Department of Architecture of the University of California follows a procedure for the review of student work similar to that used in many schools in which open juries are held at the close of every major project. Discussions take place at these sessions in which students, instructors, and guest critics are engaged. These discussions, if recorded, seemed to offer a very appropriate source of data.

The co-operation of the Department of Architecture, of its faculty, and of its Research Committee was secured. The comments made by architectural critics on student work at all levels of design during a full semester were faithfully recorded by specially coached reporters. Their reports were carefully analyzed. Every single complete comment was labeled and entered in a master list under a previously determined range of factors. The number of comments was then used as a basis for the compilation of a revised "factor list" (*facing page, top*). Diagrams were prepared showing the distribution of comments for every jury session covered (*facing page, bottom*). Similar diagrams were drawn, each of them based on all comments made in relation to a particular problem (*overpage, top*), or at a certain level of design, or by an individual critic (*overpage, top*). The distribution of emphasis as derived from problem statements was also entered in the diagrams.

An examination of the lists and diagrams revealed the following:

1. The descending order of the factor list, as derived from the study, was found to be substantially maintained for individual problems and for design levels. This suggests the adequacy of the list as a checklist for a class of situations—in this case, architects' evaluations of students' projects.

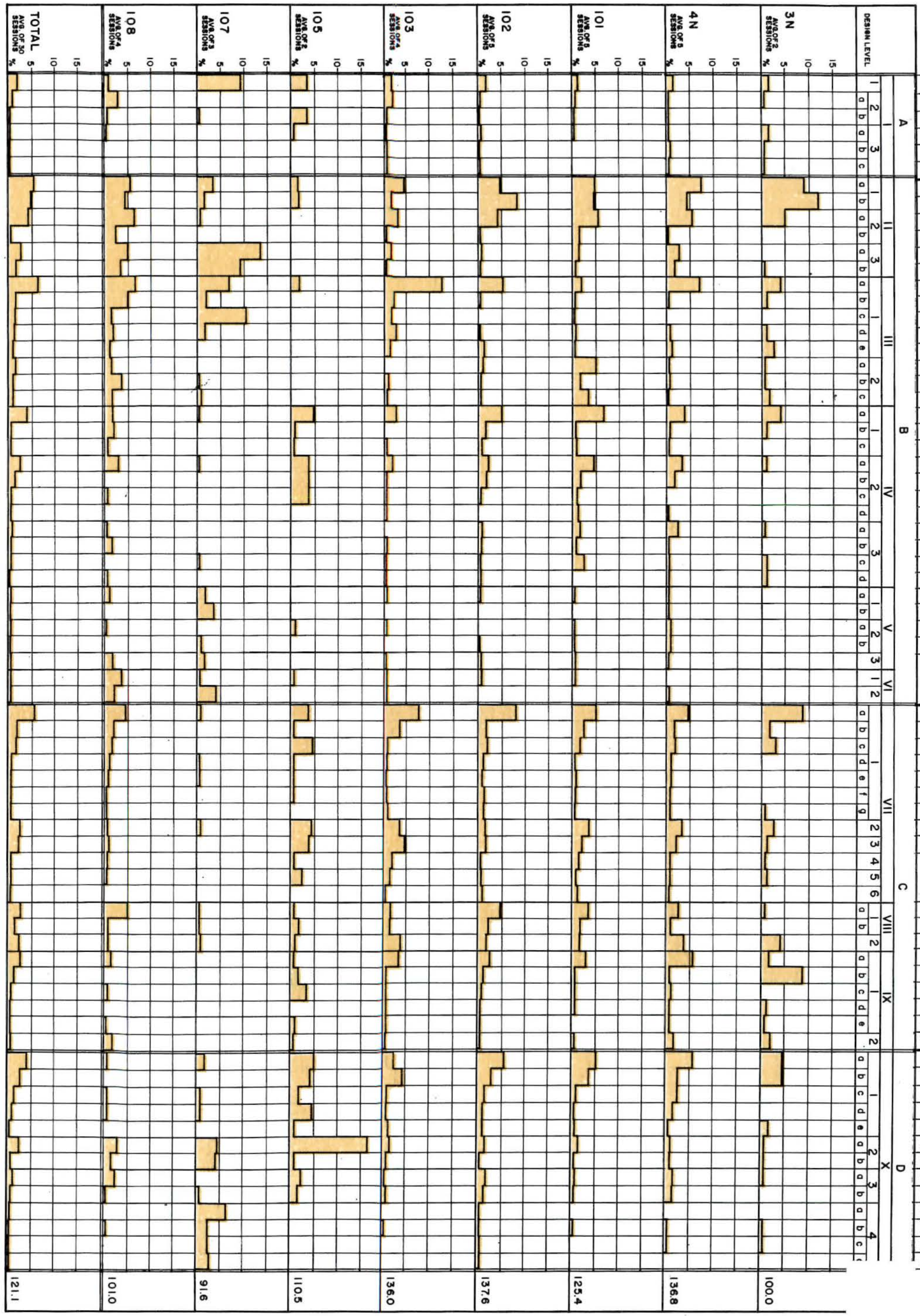
2. Four areas of interest were found to be the most popular with our critics, attracting considerable commentary irrespective of the nature of the problem and of the personality of the critic. The principle of unity in diversity, or "unity and variety," was uncontested leader. Site considerations, graphic presentation, and planning followed in that order.

3. Correlation was detected between the characteristics of a situation as defined by the problem statement and the emphasis in distribution of comments, with some justifiable exceptions. This indicates that given situations call for corresponding hierarchies of values.

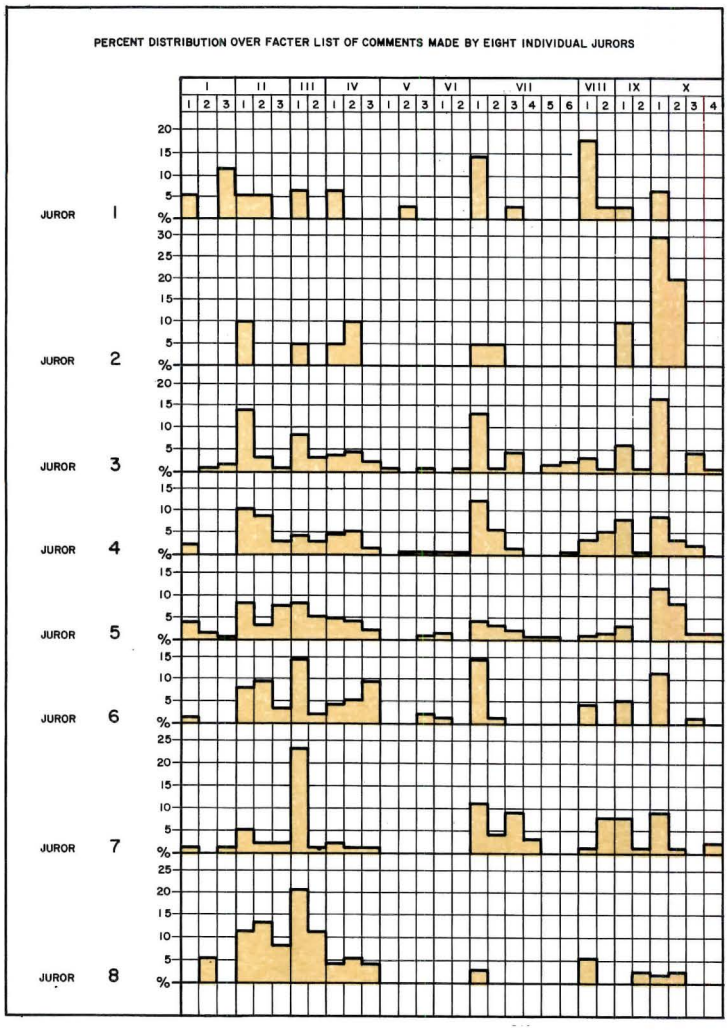
4. Large discrepancies were found in patterns of interest distribution for individual jurors. This implies that personality traits and the individual's specialty may appreciably influence the orientation of his critical judgment. Limitations in the conduct of the study did not allow a more precise pattern of relationship to emerge.

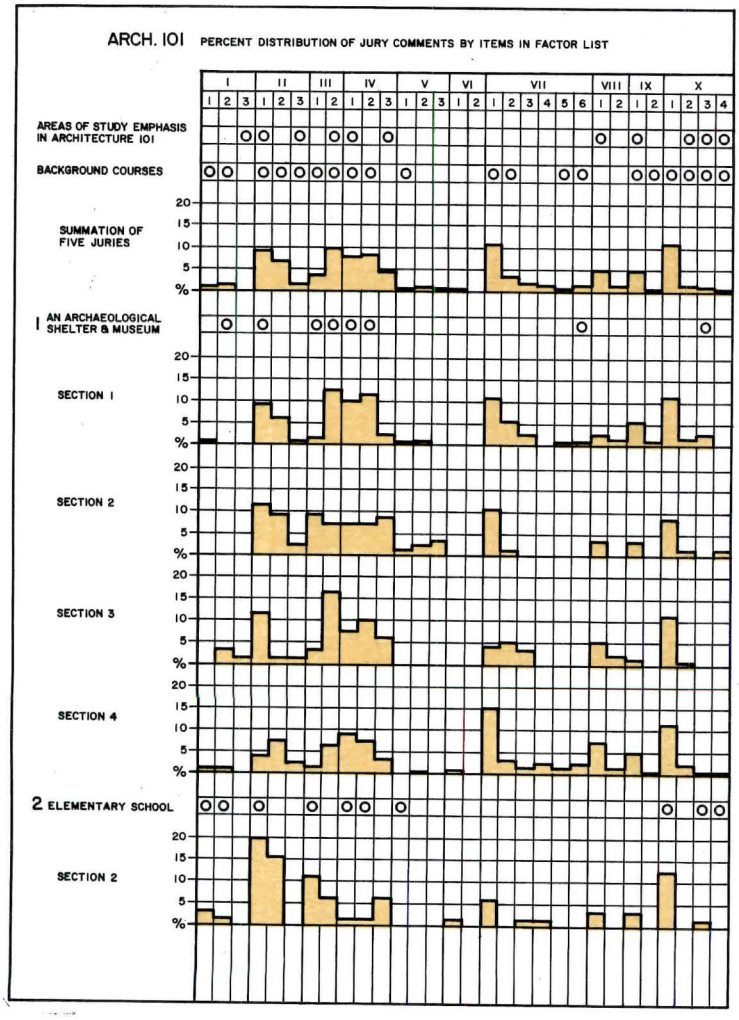
An important aspect of the study was its acceptance of human judgment as a fact of nature amenable to systematic investigation in the same manner as other facts of nature. Differing from other attempts in which systems of hierarchies are preconceived or imposed by their authors as aesthetic theories, the study lets the material collected from a wide

COMPARATIVE AVERAGE PERCENT DISTRIBUTION OF COMMENTS OVER FACTOR LIST FOR REPORTED JURIES AT EVERY DESIGN LEVEL, FALL 1959



Item	Sub-factor	Factor	Group
Originality, significant ideas, contribution.	1. Approach to planning.	I. ARCHITECTURAL THEORY	A. THE FRAMEWORK OF CRITICISM
a. Emotional demands.	2. Recognition of the human.		
b. Physical demands.			
a. Hierarchy of building type factors.	3. Philosophy.		
b. Sense of period.			
c. Schools of architectural thought.			
a. Adequacy for use of devices, methods.	1. Planning.	II. FUNCTION	B. FACTORS AFFECTING THE QUALITY OF DESIGN (other than visual aesthetics)
b. Relationship of elements.			
a. Efficiency, adequacy manipulation of space.	2. Circulation.		
b. Differentiation of traffic types and areas.			
a. Determination of requirements.	3. Programming.		
b. Recognition of purpose.			
a. Utilization of site characteristics.	1. Site.	III. ENVIRONMENT (physical context)	
b. Parking.			
c. Analysis of land use within wider zone.			
d. Access, pedestrian and vehicular.			
e. Indoor—outdoor relationships.			
a. Natural devices for climate control.	2. Climate.		
b. Analysis of climatic influences.			
c. Orientation for optimum control.			
a. Validity and adequacy.	1. Structure.	IV. TECHNOLOGY	
b. Consistency.			
c. Efficiency.			
a. Validity and adequacy.	2. Materials.		
b. Limitations			
c. Method, assembly, maintenance.			
d. Availability.			
a. Lighting.	3. Environmental control.		
b. Drainage, weathering, waterproofing.			
c. Heating and cooling systems—mechanical.			
d. Acoustics.			
a. Political, religious, other.	1. Demands of social organizations.	V. SOCIAL INFLUENCES	
b. Needs.			
a. Ethnic heritage.	2. Tradition and culture.		
b. National, regional and personal influences.			
	3. Codes and restrictions.		
	1. Building costs.	VI. ECONOMICS	
	2. Financial basis.		
a. Consistency or variation.	1. Unity and variety.	VII. PRINCIPLES OF VISUAL AESTHETICS	C. VISUAL AESTHETICS
b. Emphasis, focus, climax, dominance.			
c. Simplicity or complexity.			
d. Adapting or contrasting.			
e. Monotony to chaos.			
f. Strong or passive.			
g. Static (serene) or dynamic (exciting).			
	2. Scale.		
Organization of forms.	3. Proportion and composition.		
	4. Balance.		
	5. Movement, rhythm or sequence.		
	6. Harmony, relationship.		
a. Use—human occupancy and kinds of spaces.	1. Of function.	VIII. EXPRESSION	
b. Structure—aesthetic derived from forces.			
Atmosphere or character.	2. Of feeling.		
a. Form.	1. Awareness of design, characteristics of	IX. PERCEPTION	
b. Space.			
c. Color.			
d. Texture.			
e. Materials.			
The use of light and shadow.	2. Revelation through light.		
a. Clarity.	1. Graphic presentation.	X. COMMUNICATION	D. THE PROCESS OF PROBLEM SOLVING
b. Technique.			
c. Accuracy.			
d. Emphasis.			
e. Uniformity.			
a. Exploration.	2. Instructor to student. (—client to architect)		
b. Understanding the problem.			
a. Refinement.	3. Student to himself. (—architect to himself)		
b. Use of drawings and model making as tools.			
a. Accuracy.	4. Written and oral presentation.		
b. Clarity.			
c. Emphasis.			
d. Technique.			





coverage of human judgments be a guide for the hierarchical order and a measure of its value.

Several objectives of the initial phase were thus achieved, leading to some interesting results. To complement these results and to answer some of the unresolved questions, further research is needed, and under the joint sponsorship of the University of California and the Building Research Institute, a proposal has been made for a research project on "Design Decisions and the Critical Evaluation of Architectural Works."[3] This proposal differs from the initial phase in that it seeks to establish correlations between two sets of factors and processes: on one hand, the factors contributing to decision-making and the processes by which decisions are reached during the various stages of architectural design; on the other hand, the factors entering into the evaluation of architectural works and the processes through which degrees of success or failure are ascribed to the works in this evaluation.

Meanwhile, other slices of the research program are being explored in the graduate class of the Department of Architecture at the University of California. A group of graduate students is engaged in experimental investigations of the principle of "unity in diversity." Graphic presentation is another group's choice for more intensive investigation. The gradual design and conduct of additional interrelated research projects may eventually cover the scope of research described in the comprehensive program. These projects would deal with additional problems in decision-making, scales of values, human responses, experimental testing of design principles and communication methods. It is hoped that interest in these problems will generate similar studies by other researchers. New findings may be reached, old findings may be checked and results may pile up, bit by bit.

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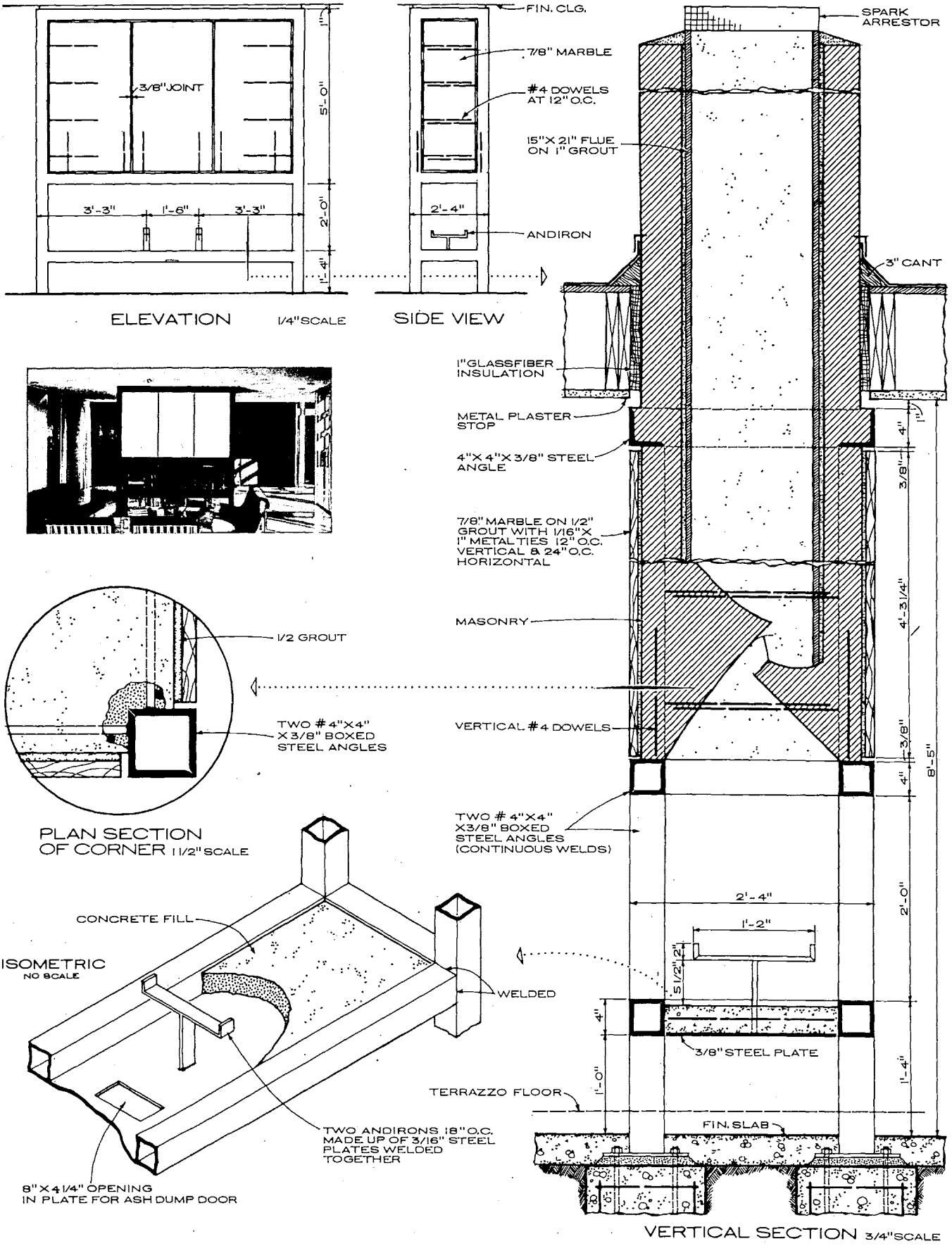
1. Hassid, Sami, "A Research Program on Systems of Judgment of *Architectural Design*," (Abridged Form), College of Architecture, University of California, December 1958.

2. Hassid, Sami, "Interest Distribution in the Evaluation of Architectural Design," presented at the Faculty Seminar on Architectural Research of the Department of Architecture, University of California, November 1960.

3. Hassid, Sami, Proposal for a Research Project on "Design Decisions and the Critical Evaluation of Architectural Works," presented as part of the Building Research Institute 1961 Spring Conferences, May 1961, Washington, D.C.



RESIDENCE: Hillsborough, California CRAIG ELLWOOD, Architect	SELECTED DETAIL FIREPLACE

WORKSHOP-CRITIQUE OF AISC AWARDS

Five winners of the 1962 AISC Architectural Awards of Excellence Program provided the basis for a Workshop-Critique held in New York last summer. At this session, conducted by Editors of P/A and sponsored by the United States Steel Corporation, each of these projects was presented in slides and words by the architect and his engineer, analyzed by a prepared critic, and discussed from the floor. Comments and observe could be analytical, complimentary, or critical, de ing on the individual judgments of the particip The following presentations were edited from tape recordings and stenographic transcripts made at this meeting, which took place before an audience composed largely of architects from all parts of the country.

PHILIP DRILL HOUSE

Davis, Brody & Wisniewski, Architects; Wiesenfeld, Hayward & Leon, Structural Consultants.

A steel framing system was selected to provide the open plan that was felt necessary for this house. Approximately 5000 sq ft of steel framing was erected at a cost of about $2.00 per sq ft.

A critique is presented by one of the jurors for the AISC Architectural Awards of Excellence Program.

Presentation

Lewis Davis: The Drill House is located in West Orange, New Jersey, a location considered by New Yorkers as an immediate suburb. It is situated on a typical suburban street and has conventional, conformist-type houses as its neighbors. The lot is 75 ft wide on the street side and extends 300 ft back into a rather steep incline. Longitudinally, it is divided into a high and a low level. The high level has many trees, whereas the low level is quite bare.

The site played a most important part in the architectural solution. Since it is so narrow, we didn't want to block the total scope of the property by building across it transversely (1, 3). Also, as we were forced to reckon with the two distinct levels, we decided to build a brick retaining wall directly against the break and to install our mechanical equipment in a room behind it.

In order to provide the open plan that we felt was necessary, we selected a steel framing system. At the east side of the house, we have a distinct area for living —a formal living area separated from an informal one by an island kitchen. At the opposite end, we find sleeping areas, a mechanical core for plumbing, and the necessary elements to divide the room areas.

The entry is flanked on north and south by open wells that are protected from the surveillance of neighbors by a series of wood grilles.

The east side of the house has a fine view of New York City when the trees are bare. In the evenings, even when the trees are in full bloom, the city's lights manage to flicker through. To provide privacy for the large glass areas and the outdoor decks, redwood grilles have been installed (2). These are top-hung and pivoted so that they can be opened or closed and adjusted to the proper degree of view, privacy, or sun desired.

The structure is composed of a steel frame combined with prefab-wood floor and roof decking. The "cross" columns consist of four 2" x 2" x 5/16" angles, spaced 2 in. apart (4). These columns gave the structural stability we wanted as well as an appearance of lightness. The steel beams are built-up tubes consisting of two steel plates ¼ in. thick with continuous bar separators. The wood deck spans from steel tube to steel tube. We liked the idea of taking standard bar shapes, plates, and angles, and composing them in a manner that would make the assemblies com-

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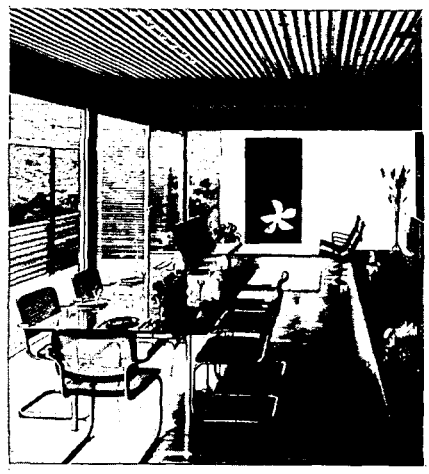


PHOTOS: ALEXANDRE GEORGES

patible with a wood floor system.

In providing a steel frame on this particular street, we tried to be conscious of the existing environment and felt that a combination of steel and wood would not only be aesthetically and structurally a satisfactory solution, but also would blend with the existing houses, which are predominantly of wood.

The heating system is a warm-air plenum that is 1½ in. high over the first floor and created by sleepers and sheathing. The floor is composed of alternating 2 x 4's and 2 x 5's, arranged so that the top side is smooth and the bottom irregular.

The house can be approached in two ways: an entry on the south is for pedestrians; one on the north is at carport level for those arriving by automobile. Both the north and south elevations have small openings, because houses are located on both sides and are quite near. At the pedestrian entry, an open well is created by the tubular-steel beams. A wood deck continues over the well from the inner entry to the outside beam (4). At the north side of the entry, spiral stairs lead to terrace and carport level. These stairs are used primarily by the inhabitants, since they arrive most frequently by car.

Samuel M. Brody: This house falls in a somewhat different category of structures than most others. In this case, the owner was a general contractor and one who had built some of our other buildings. He came to us and said, almost as a challenge: "Now, design me a house." We in turn replied; "Let's see you assemble and construct this." So, back and forth we played it as a game, as plans for the house evolved, and in that sense it was instructive and fun. However, once the design was set, establishing the ground rules so to speak, we insisted that the original conception be followed consistently in every detail. In essence, the approach to this house was one of fun.

Critique

John T. Grisdale: I think it is always interesting to see the relation of what is thought of as a modern house, to the traditions of this country as well as of others. I see this as a house with an exposed structure. In the past, in England, this would have been called a half-timber house. I think it is a direct descendant of such a structure. The old half-timber house showed the wood frame on the outside revealing a combination of structure and finish. We have the same situation here.

Another thing that I think is interesting about this house, traditionally, is that it is formal. There was a time when proponents of modern architecture hated any trace of formality. It was thought to be nonfunctional. At the same time, this house also reflects a return to symmetrical architecture. Our oldest example of the traditional symmetrical house in this country is the center-hall colonial. The Drill residence is a direct descendant of this early house. It is just as much a period house, but the period is today.

Discussion

Voice: Where there are solid walls, what materials were used?

Davis: The solid walls are made of cement/wood-fiber panels plastered on both sides and containing a vapor barrier. Total thickness does not exceed 2 in.

Voice: How much was the cost per sq ft?

Davis: With respect to the steel, the framing cost $10,000 erected. It provides two levels of 2400 sq ft each. Roughly, that is 5000 sq ft of framing at $2.00 per sq ft.

Fred Comee: Could you tell us about the surface preparation of the steel and type of finish paint that was used?

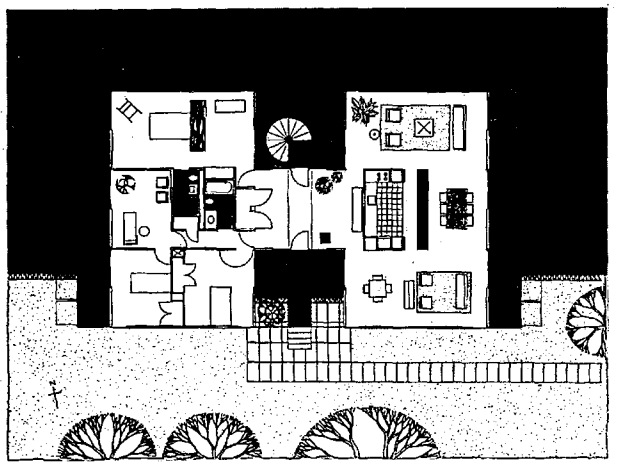
Davis: If we had the kind of surface that we really would liked to have had, the cost of the steel work would have been nearer $20,000, rather than $10,000. However, the workmen did make an attempt to grind all welds, remove all rust spots, and make the steel clean for the painters. We specified an epoxy-based paint.

Roger Halle: Would you care to comment on the cost of maintenance?

Davis: This building has been standing some two years with one paint job. Ornamental steel or structural-steel maintenance depends on the area in which the project happens to be located. We don't anticipate any more painting of this steel than the painting of the hand railing. We have been assured that with the use of epoxy paint, we have a much greater chance of having it last well beyond the three-year period that we generally feel is the limit for ordinary paint. The sand-finished cement panels on the exterior have not been painted and they seem to be weathering nicely. The wood has been finished with a conventional clear flat varnish on the underside of the deck.

William B. Kelly: Recently, in Baltimore, acute angles were used to form a steel column. The fabricator welded these together and in so doing he tended to curve the angles. The reason it was built up, in our case, was to obtain a good arris instead of the rounded curve. Did you experience that problem when you welded the plates and bars for your columns?

Davis: We have ¼-in. bars between the plates and we employed plug welds to avoid continuous welds, which might have twisted our rather thin structure.



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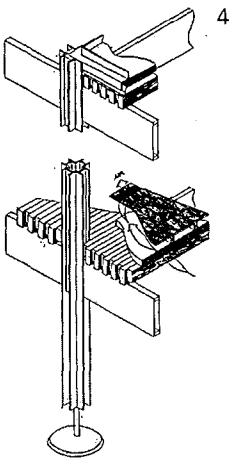

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McALLEN STATE BANK

Cowell & Neuhaus, Architects, David Haid Associate; Harold B. Horton, Structural Engineer.

Essentially, the program for this project called for a contemporary building that would express modern methods of banking and finance. Placed on its site in a classical manner, a successful solution was found in a discipline of exposed, conventional stock-steel sections in sensitive juxtaposition with other materials of construction.

After a presentation of the design solution, a critique by one of the jurors follows.

Presentation

C. Herbert Cowell: The McAllen State Bank is located in the semitropical Rio Grande Valley of Texas, one of the richest agricultural and citrus-producing areas in the United States. McAllen, situated within 10 miles of the Mexican border, and a growing city of 35,000 people, is a trade and tourist center for an area noted for its mild winter climate. A major highway access to Mexico passes through the city contributing to trade and tourist activity.

Directors of this bank wanted their architects to create a contemporary building that would express, economically yet attractively, modern methods of banking and finance. In addition to the customary facilities, they required a small loan department having a separate entrance (since its customers hesitate to enter the main banking room), and a community meeting room for the use of civic organizations. Property across the street was provided for a drive-in bank and customer automobile parking.

A raised platform, paved with 24″ x 36″ slabs of travertine, covers the entire site (1, 2). The building is set back on three sides and provides areas for landscaping within the platform.

The structural-steel frame is composed of typical bays, 24′ x 36′. It is exposed on the exterior and interior, and forms an integral part of the design.

To provide needed expansion space, a full basement was decided upon. Air-conditioning equipment is located there, and its 125-ton and 60-ton chilled-water units will accommodate future air-conditioning needs.

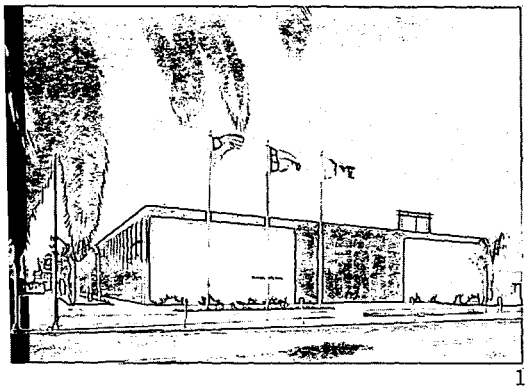
On the south and north elevations, the doors and glass panels are flanked by walls of English-bond brick, and are framed entirely by structural steel that has been painted black (1). The long glass wall on the east is divided into panels 4 ft wide, 6 panels per bay. Total panel height is 18 ft. The cold-rolled bar stock frames were fabricated in the shop in 2 sections per bay. After installation, the bars were welded and ground smooth. The simple reveal and the continuous welded frames of the windows provide a restrained, crisp design detail that was carried throughout the building.

Ceiling of the main floor is 18-ft high and contains panels of mineral fissured acoustical tile. The panels are held clear of the structural-steel beams and level with their bottom flanges (3). The ends of purlins are visible and were painted black. The steel deck was painted dark gray.

Harold B. Horton: Since this was the first building with exposed-steel framing on which we worked with these architects, we set out to make it an example for future work. Hardly a member was designed or a detail developed that was not discussed, sketched, drawn, and redrawn, until it was thought to be the most satisfactory solution possible.

As Mr. Cowell stated, the typical bay above the first floor is 24′ x 36′; the typical bay at basement level, however, is 18′ x 24′. You will note that these dimensions are all multiples of 3 ft. The 3-ft module is to reoccur many times throughout the building. The pieces of travertine are 3-ft long; the concrete floor joists are 3-ft o.c.; mezzanine floor beams are 6-ft o.c.; roof beams are 9-ft apart. This was not just a happy accident; it was part of the architectural design. It has the appearance of being orderly, and that is exactly what was intended. By this repetition, details were simplified and special designs eliminated. Thus, costs were significantly reduced by the elimination of odd shapes and sizes.

The main structural members of both the roof and floor span in a transverse direction. All roof and floor girders are 21-in. deep, wide-flange sections having a nominal width of 8 in. All columns are of the 8-in. wide-flange family and are nominally 8-in. wide and 8-in. deep, providing an attractive, nondirectional appearance (3). All fascia members, spanning in a longitudinal direction, are 15 in. channels. All roof beams likewise span in the longitudinal direction and are 12 in. light beams. The mezzanine floor and the roof are supported on ribbed-steel decking. We detailed and also noted that joints between the sheets would be located at the center lines of the girders. Roof beams are connected to the roof girders by bolted connections. We prepared details showing that the bolts should have a square head, a square nut, and limited the amount of visible thread to ½ in., plus or minus ⅛ in. We also noted that the bolt heads were to be located on the north side of the girder at all connections.



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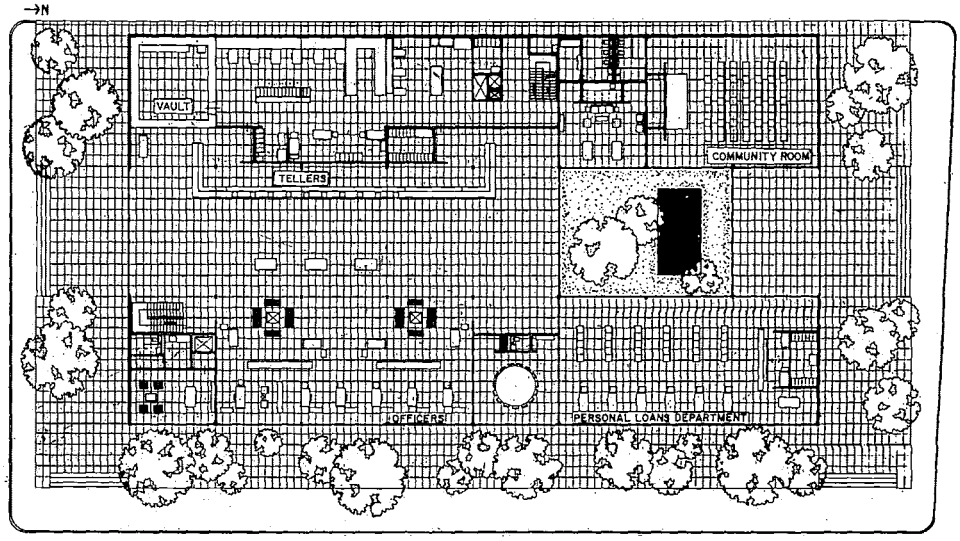

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Frequently, architects will relax when detailing the basement and roof areas, because these areas are not in the spotlight. It is true that this basement is finished less elegantly than the first floor; however, the steel and concrete details were given the same careful consideration there as elsewhere.

In preparing the structural details, we cut sections to show in elevation nearly every weld in the building, and described the welds by use of standard welding symbols. At some connections, it was necessary to show four or five views. For a beam bolted to a girder, we detailed the ordinary block but limited the clearance between the beam and the girder to ¼ in. minimum.

The cap angle for the fascia is attached with countersunk flat-head machine screws 12 in. o.c. Joints in the cap angle were welded, ground smooth, and located at the column center lines. The first screw is located 6 in. from the joint on either side; thus, the screws are always 12 in. o.c. Door and window frames and glass stops are attached with screws according to a prepared layout, with dimensions, so that nothing was left to chance. The resulting product has the appearance of being planned, as in fact it was.

Critique

George E. Danforth: In a time when the work of some of our contemporaries gives the impression that we are plunging into a style of baroque mannerisms, it is refreshing to see a building so lacking in trick effects or romantic masking of structure. It certainly is not easy for any architect to accept or control the discipline imposed by the use of the conventional unadorned shape of stock-steel sections. It also takes an infinite amount of study and refinement of details to develop from these conventional forms an architecture of the serene dignity and unpretentiousness that this building has. It is deceptively simple; so simple in its use of structural forms that it might, in lesser hands, have turned out to be something like a factory. However, it transcends this kind of building well. I applaud the sensitive juxtaposition of materials with the simply exposed structure. The placement of the large building on the relatively small lot is commendable. It is fortunate that, on three sides at least, there was a reasonable amount of space remaining to permit the platform to extend from the interior. This sets off the structure classically, and at the same time gives it a distinction from the lot line that otherwise would have made it less interesting.

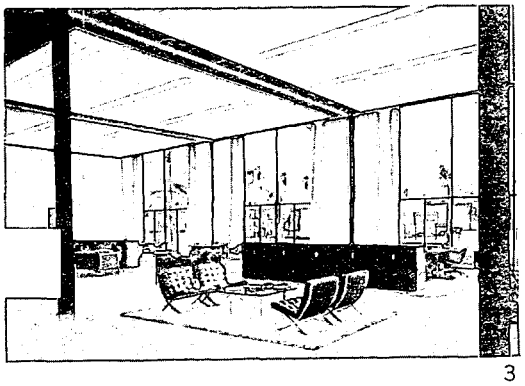
The plan works well, especially the zoning which allows various parts of the building to be used at different times.

I would like to ask if there were any difficulties involved in achieving the superior level of craftsmanship that is necessary for a building that is so simple? If there were one bit of craftsmanship that is not of the highest order, it would be reflected.

This building is obviously rather anonymous architecturally. It has great dignity, and I feel this kind of restraint is to be commended.

My last question will be: How did you convince the clients to have a building that has no moniker on it that states: "This is our bank!"

PHOTOS: HARPER LEIPER STUDIOS



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Discussion

Cowell: I think we had an understanding client. This didn't just happen automatically, but rather it was the result of a number of meetings, conversations, and explanations. There was, for example, a certain amount of initial criticism of the use of steel, and its painting requirements, that we had to go into thoroughly. We found, however, that the cost of repainting the steel periodically was not prohibitive and we were able to sell that idea. A previous project for the same client was similar in character to this one, so we had some prior experience which helped materially.

Maintaining a high level of craftsmanship is something that requires a constant effort on the part of the architects and engineers. In this case, I believe we had good results. In our specifications and plans, we tried to be as clear and thorough as possible. We insisted on the welders' certificates being furnished, and also insisted on prior examination at the fabricating shop. The drawings for the English-bond brick walls carefully detailed the exact number of bricks for the length and height of the building, so that there was no guesswork on the part of the brick mason as to what was wanted. When this information was carefully shown, and carefully explained to the mason before he started, it helped. And then, with constant supervision, we did get a good job.

Voice: Were there expansion joints in that 192-ft façade facing east?

Horton: No.

Cowell: The windows are set in bar stock and set in a tape which permits certain amounts of movement in glass. The steel, I am sure, moves back and forth. Neither have we seen evidence of cracking in the masonry walls that run the short way.

Aladar Olgyay: Why doesn't this building wear a Texas hat? In other words, you have a large surface on the east side that is entirely without any shading device. Why didn't you place a screen in front of this large wall?

Cowell: There is no question about the glass wall absorbing heat. However, I think you must weigh the advantages against the disadvantages. The solar screen, in reducing solar load, would also lessen one's ability to see into the bank. We felt that being able to see in and out had some advantages over putting the screen on the outside of the wall. We do have drapes on the inside of the wall which provide an adequate screening of the light during the early morning hours. Further, we have gray glass which materially cuts out glare. And it tends to keep out some of the heat that it would otherwise absorb. Air conditioning, of course, was still needed to make the interior climate satisfactory.

Samuel E. Homsey: How did you discipline the very commercial-minded bankers from ruining your project with large signs, oversized bank names, neon, etc.?

Cowell: We convinced the owners that the building itself would be a symbol that all of the citizens of the area would recognize.

Voice: I am curious about the insurance premium penalty that was incurred by the lack of a semifireproof rating on the structure.

Cowell: The Texas Insurance Commission rules have a higher rate for a structural-steel, nonfireproofed building, if over one-third of the exterior wall area is glass. A "named rate" was approved for this building, resulting in a substantial reduction in premium because of access at four sides of the building, and that all of the materials of the structure, other than furniture and drapes, are nonfireproof.

PITTSBURGH PUBLIC AUDITORIUM

Public Auditorium Authority of Pittsburgh and Allegheny County, Owner; Mitchell & Ritchey, Architects; Ammann & Whitney, Structural Engineer.

Although this auditorium is one of the largest clear-span structures in the world, its most unique feature is its vast retractable roof that makes possible a year-round auditorium that can be converted to an open-air stadium. Presentations of this construction were made by members of the architectural and engineering firms respectively, while one of the jurors of the awards program offered the critique.

Presentation

Edward R. Gallagher: The auditorium construction, including malls and parking areas, occupies a 20-acre site **(1)**. It has been built to house numerous facilities, including a convention hall, open-air auditorium, a sports arena, and exhibit center.

Exhibit areas, lockers and dressing rooms, main mechanical and electrical equipment rooms, and storage space are situated on the same level as the arena floor, 16 ft below the main entrance.

Located at the main entrance level are the promenade deck, or podium, offices, and meeting rooms **(2)**. The roof-control room and access to the stands is 16½ ft higher, approximately at the level of the ring girder. Ramps carry people from level to level.

The Auditorium provides air conditioning, excellent acoustics (having close to 95 per cent absorption), modern lighting, extensive stage facilities, an ice rink, and equipment for both radio and television broadcasts. It has 9280 permanent seats and can accommodate from 7500 to 13,600 people, depending on the event.

A complete, fully equipped, 118′ x 64′ stage for theatrical and musical events is created by rotating a 2100-seat section of the oval stadium upward about hinges at the upper edge of the section **(2)**. Hydraulic lifts raise the 222-ton section 36 ft with four 12⅝-in. plungers, 45-ft long, working at 1000 psi.

Undoubtedly the most unique feature of the auditorium is its vast retractible roof that is sheathed in stainless steel. The first such dome ever built, the removable roof makes possible a year-round, weatherproof auditorium that can be converted to an open-air stadium at the press of a button **(3)**.

One of the largest clear-span roof structures in the world, the domelike roof is nearly circular in plan. It has a maximum diameter of 417 ft and a rise (average of all leaves) of 109 ft. The entire roof structure is mounted on a peripheral reinforced-concrete ring girder 34 ft above the area floor. The pivot points of the movable leaves are supported by a triangular, cantilever space frame **(2, 4, 8)**.

The roof is divided regularly into eight approximately equal sections, six movable and two stationary. When the roof is retracted, the six movable sections—three on each side—glide one over the other to rest above the two fixed sections, opening the huge arena to the sky.

The rest of the description I would like to leave to Mr. Cohen, who represents our structural engineers.

Edward Cohen: In plan view, each roof leaf is a 45-degree sector of a circle, each top or leading leaf having a plan radius of 207 ft and weighing 300 tons. Its curved base is about 162 ft long; the distance from the ring-girder rail to pivot, measured along the curved axis of the roof's arch ribs, comes to approximately 250 ft.

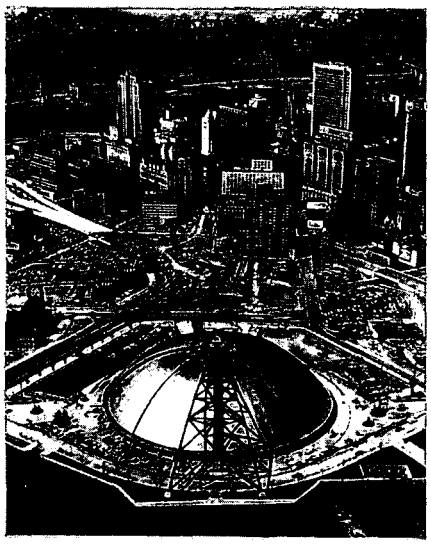
Leaves vary slightly in size so that they can nest together **(4)**. Each leaf is about 3 ft thick, including roof and ceiling materials. Leaf roofing consists of zinc-coated cellular decking, which is completely covered with a vinyl-sheet vapor barrier, treated-wood nailers, glass-fiber insulation, saturated felt and an exterior covering of 20- and 22-gage stainless steel. The stainless steel has a designation of Type 302, finish 2-D.

The ceiling of each leaf, rigidly suspended from the structural framing, is made of 20-gage perforated, zinc-coated steel sheet, with a baked-enamel finish, enclosing 2 in. of glass-fiber acoustical insulation.

Main structural members of the leaves are seven radial ribs (in each leaf) fabricated from 30-in. deep, wide-flange sections. Each rib is composed of a series of straight beam sections mitered and butt-welded together to follow the dead-load string polygon. To keep the over-all thickness of the nested leaves as small as possible, the clear distance between them is reduced to a minimum.

The converging ribs at the apex of each leaf join a single pivot weldment which delivers the leaf thrust, a maximum of 700,000 pounds each, through the pivot to the cantilever frame **(4)**. Purlins between the ribs support the roofing. Diagonal bracing between the ribs and purlins stiffens the leaves against traction, wind, and bumper forces. Purlins and bracing are field-connected to gusset plates by high-strength bolts.

Double-wheeled carriages are placed at the base of each leaf rib, except at the ends of the intermediate leaves and the trailing ends of the top leaves where



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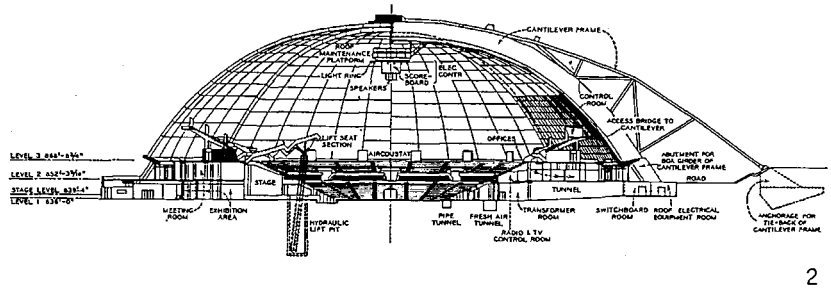

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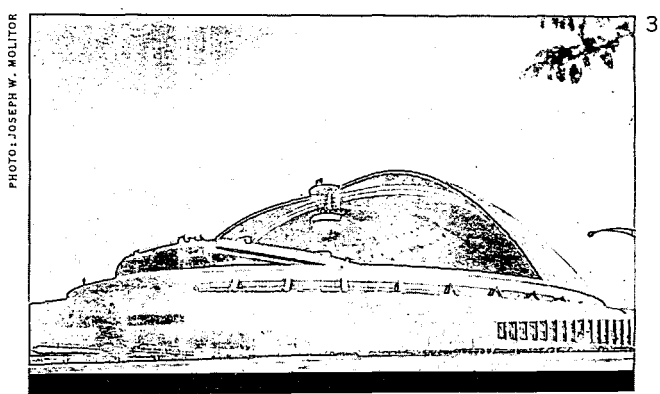

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single-wheeled carriages are used (5). Drive motors and brakes are mounted above the intermediate carriages and are connected to the wheels by means of sprockets and roller-chain drives.

The main control room, located on the top level of the seating and under the box girder of the cantilever frame, allows the operator to have complete surveillance of leaf travel as well as all arena and stage activity. From this vantage point, the operator can control roof motion, arena and stage lighting, as well as sound recording and reproduction. Provision is also included for television and radio operations from this point.

Power for roof motors and controls is routed through the box girder to the roof platform at the top of the dome below the pivot. From there it goes to the six movable leaves through multiple flexible cables. Normal opening and closing is fully automatic and is initiated with a single push button. Each leaf has its own drive.

Opening and closing of the roof sections is staggered. The starting of each leaf is delayed slightly with respect to the leaf above. The leaves arrive at the end of their travel in the opposite order from that in which they started. To minimize peak power demand, the beginning of successive leaves is delayed until the previously starting roof section has accelerated to approximately 70 per cent of its top speed.

The structural-steel, cantilever space frame that supports the pivot points of the roof is basically a curved tripod (2). The lower leg of the tripod, an 8′ x 17½′ box girder, is curved in a series of straight chords between panel points to a shape approximately following that of the roof.

The two upper legs of the tripod, also chords of a curve, are 3′ x 3½′ box members acting as the tension tie-backs. Positioned high above the rear entrance of the auditorium, in order to meet various access and architectural requirements, they terminate in anchorages about 110 ft to the rear of the ring girder.

They are held away from the box girder by triangular frames consisting of struts and cross-ties. The profile of each tie-back is a string polygon so shaped as to place minimum moment in the box girder when the girder and tie-backs receive their maximum axial load. This occurs when the leaves are nested, when they apply a total horizontal load of over three million pounds to the pivots. The concurrent vertical load is only a small percentage of the horizontal. Members other than the tie-backs and the box girder are 2′ x 2′ 6″ box members.

Interconnecting the space-frame members at the panel points presented a serious design problem, since as many as seven box members intersect at one point (6). Further, few of the member sides lie in common planes, and many of the intersection angles between the members are sharp.

All plates were checked for lamination by ultrasonic inspection before fabrication in those areas where tension was to be transmitted across the plate. All weldments were furnace-stress relieved after fabrication. Welds were checked ultrasonically before and after stress relieving.

Deflections of the cantilever are of particular interest, because of the interdependence of leaf and cantilever design. When the leaves nest, the tip of the cantilever moves outward 2 in. and downward 6 in. A full-design, unbalanced snow load on the closed roof causes a sideward movement of about 1 ft.

The lower member of the cantilever frame, the 8′ x 17½′ box girder is a riveted member divided into an upper and lower section by a continuous web at mid-height. The lower section includes an access stairway from the auditorium to the overhead platform which is suspended directly beneath the leaf pivot points. Its interior also provides a path to the pivots for the many cables required for roof lighting, operation, and control. The base of the box girder, which at 68 tons was the heaviest lift of the job, is embedded in a reinforced-concrete abutment to transfer the thrust, moment, and torsion reactions to the concrete. Each tie-back terminates at its base in a weldment which engages the reinforced-concrete anchorage with 24, 2½-in.-diameter, high strength anchor bolts. When the space frame was finally adjusted, the anchor bolts were prestressed to 125 tons per bolt.

Critique

William J. LeMessurier: This particular building is an enormous challenge to anyone thinking of it in terms of a critique. I feel as though I have just been presented with the original invention of the wheel, and I am supposed to say something about it.

The remarkable thing about this building is that everything is so right about it. One of the very bright things about this structure is that it is just unimaginable in any material other than steel. The enormous deflections, pointed out by Mr. Cohen, the movement of this great space frame laterally by as much as 1 ft, could not be entrusted to any other material because one couldn't predict any other

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PHOTO: HAROLD CORSINI

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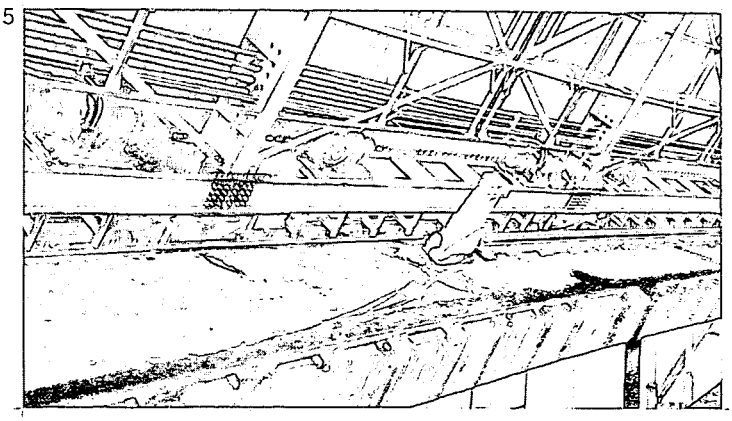

PHOTO: BRADY STEWART STUDIO, INC.

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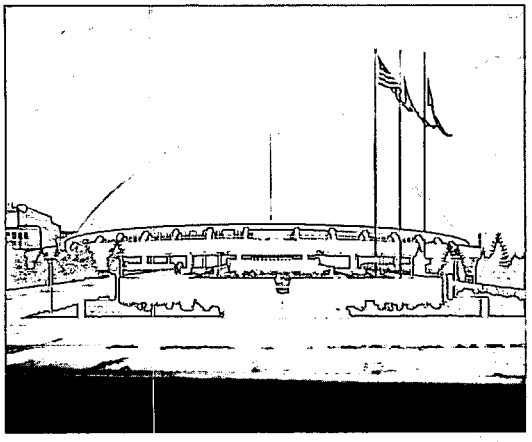


PHOTO: JOSEPH W. MOLITOR

material's behavior as well as one could steel. It is necessary to control deformations in a structure that moves. There are marvelous details throughout the structure that do just this.

In final analysis, however, this kind of structure raises questions. The dome, as everybody knows, is a tough thing to deal with architecturally. As you walk up to one, it doesn't seem to have any particular size. It's just a big thing. At this particular building, there is this unusual feature of a great structure that comes from the back and receives forces up at the top.

This great space frame has been done logically and reasonably. Yet I feel that something was missed here. When you are at the site, you unfortunately don't really see this marvelous cantilever space frame (7). This is the element that could give scale and interest to this dome.

PHOTO: JOSEPH W. MOLITOR

8

I saw the auditorium a year ago and first approached it from downtown when the dome was closed. My immediate thought was: "Where is this marvelous frame (8) that I have seen in the magazines?" I would like to have seen the space frame come up over the top in such a way that one could always see it. It ought to have been larger.

This is a difficult kind of thing to say, because it is absolutely defensible just the way it has been done. And to make it larger would perhaps make it more expensive, and render it less perfect structurally. But I think there are times when one must distort things a little to give them more precise visual power.

The other items that I think were handled with perhaps too much restraint are the concrete struts around the base of the building. They seem overrefined. Here was a chance to contrast them with the enormous delicacy of the roof structure. But these members are shaped as if they still might have been steel members or box sections.

I would also like to know if other methods of supporting the dome were considered?

Discussion

Gallagher: I will make a comment about the size of the auditorium. As you approach it, you may not get the idea that it is a large structure. But when you are inside, the dome with its tremendous ceiling does give one a feeling of great size. The thrill of this building is to see its roof move back. It is a complete change of structure.

For light opera performances, the stage is located on the downtown side. As the roof moves back, the skyline of Pittsburgh is in full view of the spectators. Some of the viewers are seated below stage level, but this fact is not apparent to them. Early in the preliminary design there were some who would like to have seen these people turned around and face the hillside. This is one thing we really opposed. We wanted the audience, looking at the opera as the roof was opened, to see the downtown skyline and have something pleasant to view. Trees are all right to look at, but not as a steady diet. We think one has to have a variety of trees and buildings to look at as the auditorium is opened.

Cohen: In partial explanation of the proportions that were chosen, it may help to think of this project as consisting of two buildings: a conventional enclosed auditorium and an open-air arena. The roof of the auditorium is, essentially, a stationary dome without need of the cantilever frame except for unsymmetrical loading. When the open-air arena is in use, the box girder of the space frame is hidden from view by the leaves that are nested around it. Then one sees only the tie-backs that were planned to convey the idea of the tension support for the cantilevered leaves.

The slender reinforced-concrete A-frames under the ring girder were designed to avoid the impression of massive foundation under the dome.

Although other methods of supporting the open dome were considered, the final wish of the designers was to have it appear completely open to the audience within. As worked out, the sight-lines are almost completely clear. Once the spectators are accustomed to their seats, almost none of them are aware of the roof when it is open.

Voice: I would like to hear about the advantages of such a large open area. Although one may enjoy seeking the skyline, what if the whole thing had been closed? What was the price of the skyline?

Gallagher: The original concept was to have an open-air theater for opera. The first design was of canvas. We had the plans and specifications completed, but the Korean War came along and shelved all progress for a time. Concurrently, sports events, such as hockey and basketball, were in need of a new building to house their games. The Duquesne Gardens were being razed and it became desirable to attempt to house the civic light opera and facilities for ice hockey in the same structure. The uses for which the auditorium was intended just grew over the years. One factor that certainly helped it along was a donation of $1,000,000 by Edgar Kaufmann, the great philanthropist of Pittsburgh. Without help like that, it probably never would have gone through.

Bertram L. Bassuk: Since we are interested in the choice of materials, especially steel, I wonder whether more than one kind of steel was used in the frame? And in regard to the over-all question of choice, were other materials considered? For example, the use of an aluminum space frame, since the need for lightness is an obvious one.

Cohen: There are basically two principal types of steel used in major quantities in the framing. These were A373 and A7. The A373 was used for weldments and the A7 for riveted and bolted work. Small quantities of low-alloy steels were used at various critical locations.

In the basic choice of material for the space frame, the need for stiffness was of much greater importance than the need for weight reduction. For this reason we did not, in this particular case, use aluminum. The design of the leaves themselves is controlled to a large extent by the deflections of the cantilever and secondary moments.

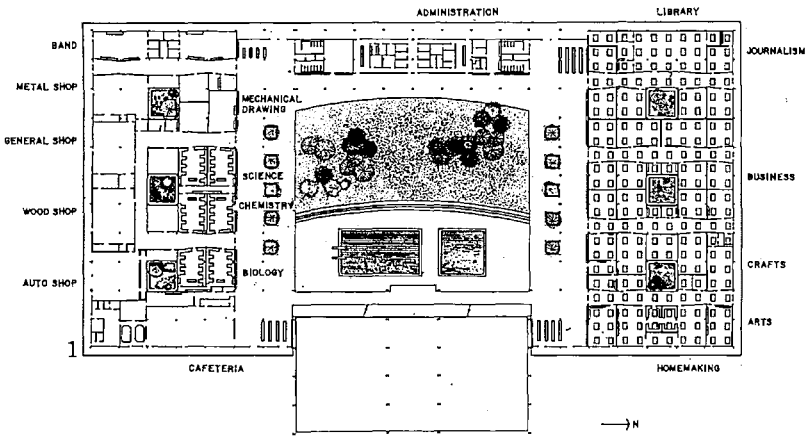
If we were to use a higher strength material, or a material with a lower modulus of elasticity, deflections would increase. In order to minimize the deflections, we accepted the use of more material working at lower stress.

On this basis we determined that the most common types of steel—A7 and A373—were best suited for the purposes, both technically and economically. The same is true of the leaf ribs which are of A7 steel. Had they been of higher strength or lower modulus material, the secondary stresses, which were important in the design, would have increased considerably.

For the cantilever frame, the use of wire strand tie-backs was studied. Although the cables themselves were structurally adequate on the basis of stress alone, the deflections of the pivot points would have been so much enlarged as to make the building as a whole impractical.

Bassuk: Why wasn't advantage taken of something like structural aluminum? It is true that deflection is greater, but depth of section might be considered. It might not have been that much of an increase, architecturally speaking.

Cohen: We all recognize that under proper conditions aluminum can be useful and economical structural material. It has been used as such in certain portions of this project. However, the use of aluminum for the main structural members of the space frame would have resulted in considerably greater cost.



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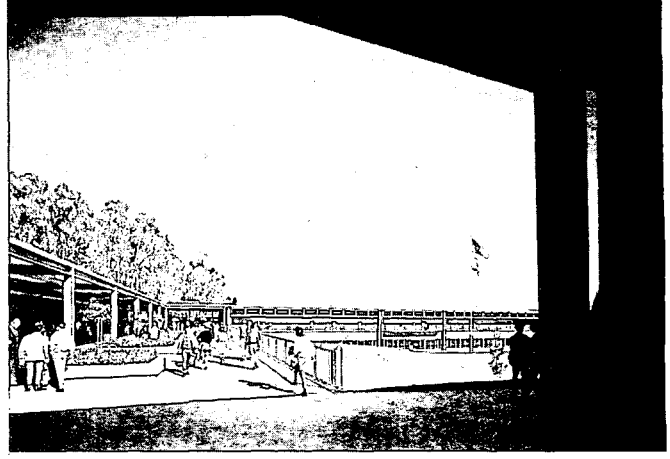
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ARAGON HIGH SCHOOL

Reid, Rockwell, Banwell & Tarics, Architects and Engineers, Burton L. Rockwell, Jr., Partner-in-Charge. Owner: San Mateo Union High School District.

Using structural-steel framing, flexibility was achieved with the aid of movable partitions in two large loft areas of this school penetrated by small courts.

Following a presentation by one of the partners, a critique is given by Morris Ketchum, well-known school architect in his own right.

Presentation

Burton L. Rockwell, Jr.: In the design of this school, we were concerned with its appearance and the use of steel only insofar as they contributed to the creation of an appropriate and attractive environment. An environment, of course, includes both the people and the building, and the people and the building in the landscape. An environment of a school is often criticized for being institutional. I happen to believe that a school should be institutional. In the Aragon High School, at San Mateo, for example, there is an attempt to have the building complement the students who will study there. As such, it is not a rustic or homey place. What we would like to do is to give a *desirable* connotation to the word "institutional." We feel that a building itself should be an encouragement to logic, and, if possible, should be a calm, serene setting for all of the ebullience and color that students are going to bring anyway.

In creating an educational environment today, an overwhelming requirement is the accommodation to change in the means and content of education. Therefore, as in many other types of buildings, there is a great demand for flexibility. As in office space and other flexibly designed buildings, it tends toward undifferentiated space. It is difficult for a particular function to determine the form of a building, when that function itself may change. This, I feel, is one of the things that has led to the formality evident in the presentations preceding this one.

The need for flexibility in a large school, the need for economy, and the consideration for seismic resistance in California, all make steel a logical choice in this school. Steel has many desirable qualities that we have all heard a great deal about. I would put it this way. It is the spare material. It is legible; one can see what is happening; one can follow stresses. It is a material capable of almost any degree of refinement. If carried too far, however, this kind of refinement may, in my opinion, make for loss of character. We must not eliminate too many boltheads, nuts, and the little things that give interest to a steel structure. Steel lends itself to precise computation. In other words, there is less empirical computation.

The use of steel in our school, beyond that which is normally allowed without fireproofing, is another point I would like to discuss. We have worked closely with the Fire Marshal of the State of California over a period of 10 years, trying to eliminate some of the requirements of fireproofing that seemed to be impractical, and still create firesafe buildings. Therefore, the entire building has fire sprinklers. These, plus normal fire-sprinkling requirements and practice, reinforced with a great deal of special sprinkling in conjunction with the use of separations between occupancies—that is, open-air separations—have allowed us to dispense entirely with any fireproofing of steel in the form of a cover. This, of course, has eliminated many of the bothersome problems in steel design. Also, in this manner, steel can be revealed practically every place, and that is a freedom I think we would all like to have.

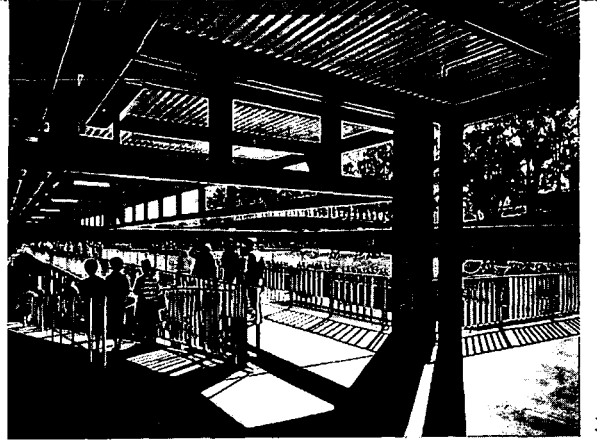
The larger areas are built in 28′ x 28′ bays **(1)**. Girders and beams in those sections are welded together to form a three-dimensional frame that is equally stiff in all directions. Theoretically, all columns are point-connected at the base. In larger spans, we have used Vierendeel trusses **(2)**. They are simple to fabricate, easier than trusses with diagonals, but they are not as easy to design. Spans for these are not over 88 ft. Distances of this magnitude could have been accommodated with 36-in.-deep rolled sections, but they would not be readily available on the West Coast. The Vierendeel openings, which are 3′ x 7′, allow efficient passages for pipes, ducts, and other items to be accommodated within the structure.

Here are one or two statistics, in order to acquaint one with the size of this project. It is 163,000 sq ft in area. Complete, with equipment, it cost just under $3,000,000. That is exclusive of the site development and clearing, which added another $500,000. This puts the cost for building and equipment at $1956 per student, or $17.38 per sq ft. Completed in 1960, it accommodates 1500 pupils.

This is the third of a series of four schools in one district that are all quite similar in their components. Each site was quite different from the previous one, so that the buildings do emerge with a different appearance.

The two areas on either side of the structure are laid out as loft areas penetrated by three small courts on each side **(1)**. These diminish the flexibility of the spaces somewhat. We do not consider this a serious impairment, however. All of the partitions within the spaces are movable and are of the conventional office type. Classrooms are illuminated through prismatic glass-block skylights. Artificial illumination is also built into the light well.

The environment should be uniform within. I am often asked why we prefer windowless classrooms. The answer is



PHOTOS: ROGER STURDEVANT

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that we do not. We have used windowless classrooms rather cautiously, and have found to our surprise that they are well liked. In fact, they are preferred to those with windows. The lack of distraction is considered an asset by the teachers. Yet I feel that we should struggle to keep windows in our schools and to make sure that during the school day a student doesn't spend any large proportion of his time without some contact with the outside. This school, too, has a few windowless classrooms and they are well liked. We introduced these little courts so that almost every classroom has a window, or can have one.

In these schools, they do occasionally take our partitions and rearrange them as they try out new teaching methods. The district has developed its own crew for moving partitions, and over a weekend, or Easter vacation, or between terms, an entire department can be changed around if desired.

Critique

Morris Ketchum: This school appeals to me and I consider it a model of straightforward, practical and efficient school planning. Its layout takes excellent advantage of a sloping site. The main floor educational spaces are appropriately interrelated around the central open plaza. Flexibility is something we often talk about but seldom achieve. I have a slight horror of demountable partitions that aren't really demountable and are not soundproof. But perhaps these are. I believe that the creation of infinitely flexible space in an inexpensive and practical way is much to be admired. I do not think that every room has to have an outside view—especially in a high school, where one changes his teaching area several times daily. This can result in a refreshing variety of experiences and in environment.

You might question what a school should be. There are so many answers and there is no set formula. I hope that never will be. Should a school be playful, or cute, or calm? Perhaps that depends on whether it is a kindergarten or a high school. Should it be residential and wood, or stony? Should it be condensed and modular, like Aragon (3, 4), or exploded into expressive spaces and groupings like, say, the Heathcote School in Scarsdale, by Perkins & Will?

In my opinion, it can do any of these things provided that it answers the problems of education and architecture, and the mood and desires of the client, site, and the real client, the pupils who learn in that building.

I think there is a good point in the philosophy expressed that a school should not dominate its pupils, but should, rather, act as a background and let them supply the color.

Discussion

Rockwell: I would like to point out that this type of school exists—that is, in our practice—in only one district. Our buildings do vary a great deal from community to community. It often happens, though, that we are selected by one district because it liked what it saw in another.

In this district, our first school took this pattern; they liked it and asked that it be continued. It has been a pleasure to refine it.

Fred Comee: What type of finish was used on the exposed steel?

Rockwell: All of the steel was laboratory-inspected, and that includes the surface preparation before the shop coat was put on. After delivery to the site, any rust spots were wire-brushed and immediately coated (4).

Samuel E. Homsey: I am aware of something valuable in this approach to a school. For example, should the district change its character, this structure is readily changeable for uses other than as a school.

Thomas H. Creighton: In schools that you have completed where shifting partitions is possible, what has been your experience? Has there actually been much rearranging of spaces?

Rockwell: There hasn't been any large-scale changing of partitions until this year. Inasmuch as the materials were first put in use in 1955, we would have probably done a poor job of planning if they hadn't worked out fairly well for a few years without any changes. When the counselling system was changed to include more group counselling, the whole administration area was redesigned in the original Hillsdale High School.

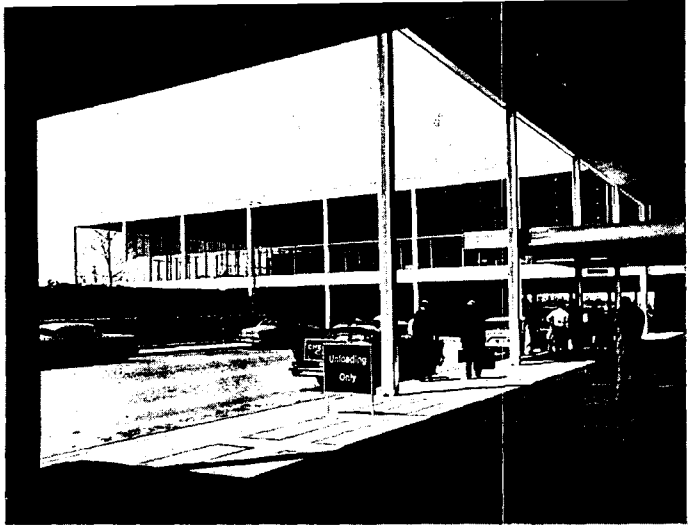
Within this district, these are the schools where they do try out new teaching methods, because they can make a large classroom out of smaller ones, or vice versa.

Ketchum: Has television affected the planning to any substantial degree?

Rockwell: It hasn't in any of these schools. In fact, the whole influence of television mystifies me, because the main advantage of television, I think, is that it allows people to be taught in groups that are small enough to be discussion groups. And yet the schools I have seen have tended to get everybody together in a big room and then use the multiple sets and multiple images.

Donald D. Sullivan: To what extent was sound control taken into account with these movable partitions?

Rockwell: We are well aware of the limitations of movable partitions and you cannot, with ordinary procedures, get the 55 to 60 db that are potentially possible with a plastered wall. But you can fairly well be sure of 38 to 40, if care is taken. In this school, there are extremely level floors and ceilings, so that when the partitions were put in, they fit. All joints are packed with glass wool.



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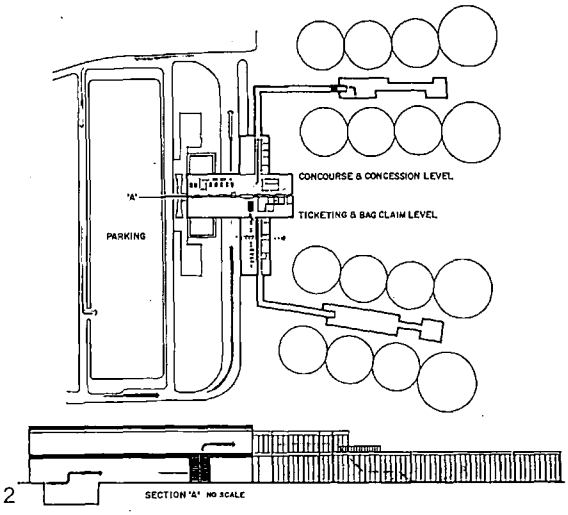

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TULSA MUNICIPAL AIRPORT TERMINAL BUILDING

Murray-Jones-Murray, Architect; David R. Graham & Associates, Consulting Engineers; Tulsa Airport Authority, Owner.

This terminal building, which has a partial two-level circulation, was in the design stage before commercial jets were in use. In principle, its scheme is similar to some international airport terminals that are much younger. Its structural-steel framing, according to its engineers, was selected entirely on the basis of favorable cost.

A critique is presented by Emmanuel N. Turano, one of the architects for the Pan American Terminal Building in New York.

Presentation

Robert L. Jones: Tulsa is a city of 260,000 with a metropolitan area of nearly one-half million. Our airport was designed for conditions projected for a decade from now, and a rather thorough program was developed by Leigh Fisher, Airport Consultant, who had advised the Tulsa Airport Authority on all of its problems for three or four years prior to our involvement as architects.

At that time, Fisher estimated that the 1970 volume of in-and-outbound passengers would be 800,000 a year, with a peak-hour usage by passengers of 375. Daily usage was expected to be about 2200 passengers. When visitors and those individuals employed by the terminal are included, this figure would increase to 7000 per day. Although the airport currently provides 15 gate positions, it is expandable to 23.

Our work started four years ago. This was at a time before commercial jets were in operation anywhere in the country. In a sense, the airlines had a limited understanding of what their operation would be at the time that jets would be brought into medium-sized terminals such as Tulsa. With this sort of background, plus the experience of the airport consultant who had been involved on 50 projects prior to his Tulsa assignment, it was decided that a finger plan was necessary. Whether this is the best basic scheme for this terminal, we shall have to wait and see.

Further, at that time, the airlines themselves were not willing to accept any change in their own operating procedures for an airport of this size. Proposals for single ticket-purchasing space and greater co-operation in baggage handling were unenthusiastically received by the airlines, who had the additional support of the Airport Authority. Airlines, guarding their competitive position, sought to have their own identity preserved.

Our fundamental assumptions were that passenger volume would continue to increase, the principal aircraft would eventually be jet, larger groups would arrive on a single plane, and the problem of sound must be solved. As we developed various schemes, we were interested in isolating waiting and passenger services from major circulation. We were not keen about the possibility of pumping passengers through the sales area, the penny arcade that seemed characteristic of most airports visited during the 1950's. We were also interested in bringing ground transportation as closely as possible to the aircraft. It was considered desirable to separate spectator and automobile traffic. We also felt it was necessary to design the structure for direct second-level loading. We were interested in having no level changes for the baggage within the terminal. And we also realized the necessity of providing for expansion and flexibility.

Apart from those technical concerns that one would find in most structures, jet noise of 120–125 db had to be reduced to acceptable noise levels within the building. It was, of course, necessary to provide passenger comfort.

Visually, at the outset, we sought to create a sense of order, to relate parts or elements to the whole. We wanted to express clearly the essential nature of contemporary building. In an industrialized country such as ours, technology seems to be logically directed toward the lighter use of materials and greater speed of erection. This we felt should be acknowledged architecturally.

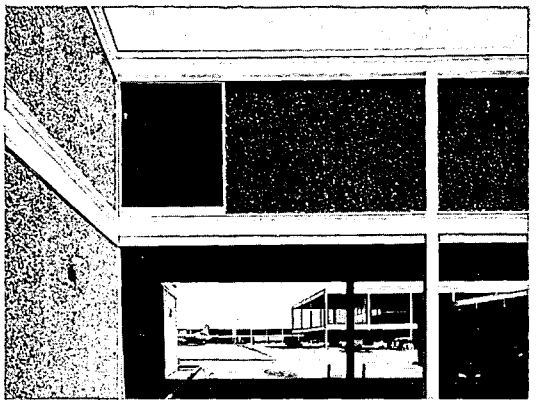
The Tulsa Municipal Airport owns 5000 acres. In spite of this large land area, the location of the building on the site was determined by some fixed runways as well as by the recommendation of the airport consultant. The passenger arrives at the entry canopies and enters a ticketing area 200 ft in length, serving five different airlines (1, 2). After depositing his bags, he takes the moving stairs to the concourse, which is at the level of the fingers, and is headed directly to the plane.

Primary materials of construction are structural steel, glass, aluminum sun screens, and precast-concrete panels (1, 3, 4). Many of the latter are about 7-ft wide, 12-ft high, typically 4-in. thick, and have large granite aggregate.

The restaurant occupies a position of importance, since in airports of this size the eating facility becomes one of the major sources of revenue, attracting from the community large groups of patrons. The whole waiting area is quite light, yet there is no glare. The floors are a dark brown, which reduces glare satisfactorily.

David R. Graham: This structure was very straightforward and simple in design. There were no unusual design procedures.

In the beginning, the structural material was not predetermined for us; the architects had no preference regarding a steel or concrete structure. And neither did we. We made careful cost com-



PHOTOS: BEN NEWBY

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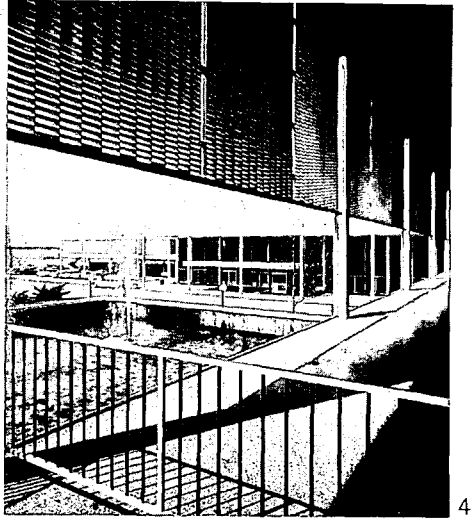

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parisons and arrived at a steel structure on this basis. Our costs were interesting. The cost of the steel framing was $2.63 per sq ft. This figure includes the miscellaneous steel, which in this building amounted to 20 per cent of the total structural cost.

All of the fascias and the exposed exterior structural members were combined (3). Also, where we used bent plate, we combined it with the rolled sections. In this manner, the bent plate was not just an applied decoration, but was, rather, part of the structural member.

Most of the floor area was designed for 100 psf loading. Many areas of the roof, too, were designed for this loading with plans for future expansion in mind. Spans of the structure were approximately 40′ x 40′; therefore, some of our structural members were rather heavy. As we were limited in depth to some extent, our weight was accordingly increased; however, the over-all cost of the building was decreased by cutting down wall area, volume, and other items.

Use was made of isometric drawings to make sure that the fabricators understood exactly what we wanted. An item of interest is that the names on the rolled sections presented a problem. This wasn't mentioned in the specifications, yet the fabricator had to remove these. He didn't like it, because it was not spelled out for him. He did not think it fair that he had to grind them off. But, obviously, it had to be done.

To be sure that our exposed members were sufficiently straight, we reproduced the tolerances for crown and camber from the AISC specifications in our own. We then checked the members in the shop before they were fabricated. We could not, of course, check all of them, and a few did get on the job with too much crown. These were removed and replaced. This also caused a bit of grumbling on the fabricator's part, because he was not accustomed to holding quite as closely to the specifications that we required on this job.

Critique

Emmanuel N. Turano: Initially, I had some serious reservations about this project. However, Mr. Jones has cleared up some of my doubts. I will, however, repeat some of them, so that everyone may be aware of them.

I found the location of the terminal building in relation to the 5000-acre property to be rather peculiar. I understand, however, that the Airport Authority is planning to acquire some 2000 additional acres on the southwest corner, so that will alleviate the problem, I believe.

Architecturally, I think the building is a clean expression and that it expresses its parts well. But, aside from the client's requirements, I think it is the architect's duty to acquaint the client with all sorts of concepts. A real educational program is needed for the client. I know how unreceptive they can be, as I have been in the same situation. However, many jet airlines are now becoming open to new ideas and modern concepts.

The relationship of the fingers to each other is somewhat unsatisfactory. Perhaps the side wings, both east and west, might have been reorganized and oriented in a Y-situation. Maybe the terminal building could have been loosened up with some of the side runways.

The walking distance, which is in the neighborhood of 1000 to 1300 ft, seems excessive (2). This is a sizable walk, particularly if you have only a few minutes to make your plane. Furthermore, the parking lot is across the road, which is the same error in planning that was made at Idlewild Airport.

Arriving at the terminal building, the outbound passenger decars, get his ticket, and drops off his baggage. He next takes the moving stairs to second level. Although he does not have to go through the concession area, he still must walk a long distance and then go down another flight of stairs. When he gets on the apron, he must climb again to board the plane. This requires three vertical movements. The inbound passenger does the same thing in reverse order. I think an attempt should have been made to have a more co-ordinated and articulated scheme. I disagree with the airlines disposition of operations. Although they were quite adamant about their wishes in this instance, I still disagree.

I would liked to have seen a more sensitive articulation between the members of the frames, the windows, and various other component parts. I do think they have achieved a nice separation with the overhang and the frame on the outside. It looks very well at night. However, I hope that they attempt next time to sell them a better scheme.

Jones: As far as the circulation goes, I think that the comments brought out here are the same as those that have been made about TWA and, I believe, United at Idlewild. These three all have the same basic, partial two-level circulation. One has the feeling that rejection of the round terminal, mobile lounge, and the tunnel-satellite scheme has marked the Tulsa concept as an archaic one. While we realize that no one scheme solves all requirements equally well, a number of other respected authorities have commented most favorably on this solution.

(Unfortunately, time did not permit additional discussion of this project and the workshop had to be adjourned before questions could be received from the floor—EDITOR.)

Electric Heating

BY WILLIAM J. McGUINNESS

As the number of electric-heating installations continues to increase, improved methods of thermal design are also evident. Because of differing conductivities of various insulations, manufacturers are now following the trend of stating resistance values on their products. Some comments on electric heating today are offered by the Chairman, Department of Structural Design, School of Architecture, Pratt Institute.

In selecting a method of heating, it is likely that many would prefer electric heating, if the over-all costs including installation, annual energy costs, and maintenance were found to be equal to or less than the costs for systems using gas, oil, or coal. In the comparative appraisals, one must credit electric heating with eliminating the cost of a chimney, fuel storage, and sometimes the space that would be needed for a central unit. Conversely, electric heating might be charged with the extra expense of better insulation, which is usually recommended when that method is used. The favorable characteristics of electric heating are many: silence, cleanliness, ease of individual room control, flameless operation, freedom from the responsibility for fuel supply, and the elimination of the need for combustion air.

Present Market

Since economy must often supersede personal preference, costs are important. The economic choice of fuels is a matter of geography. Electricity is no exception to this. Coal will be chosen in the vicinity of mines, oil in coastal areas where shipping is relatively inexpensive, and gas adjacent to its sources or along the established lines of distribution. The convenience and profit-motive of the local electric utility company are the strongest determining factors in the economic availability of electricity for heating.

There are presently in the United States more than one-million dwelling units, including apartments, that are electrically heated. Of the dwelling units constructed during the past year, 15 per cent had electric heating. In the past five years, the use of electric heating has tripled. Almost half of all electrically heated homes are in the South. There, electric companies, equipped to carry a heavy summer air-conditioning load, are glad to pick up winter business and will therefore offer a favorable rate. Running concurrently with this localization trend, the number of units electrically heated in northeastern states has increased fivefold in the last five years. Utility companies in this region are acquiring more summer demand for electricity for air conditioning, and, as they do, they can afford to balance it with power for winter heating. Nationally, the variation in the cost per kwh of electric energy for heating purposes is from 0.7¢ to 2.1¢. Some independent experts set 1.7¢ as the approximate cost below which electricity begins to compete with combustion heating. As the gap closes between high and low costs, regionally, the use of electric heating will, obviously, become more general. Electric rates have generally remained steady during recent increases in the costs of conventional fuels. This, together with the fact that electricity is 100 per cent efficient, may forecast greater use. An encouraging fact is that private companies are increasingly getting into electric heating, while previously it was centered largely in Federally-sponsored hydro-electric areas.

Thermal Design

Because electric-heating installations are necessarily competitive, much attention has been given to planning the heated space for minimal heat loss. This kind of good planning should, indeed, accompany the use of any fuel, but it is true that stronger impetus to better insulation methods has been stimulated by electric heating than by other fuels. A measure of the heat loss is established as the number of Btuh per sq ft of floor area of the house. Its prescribed upper limits vary from 29 Btuh, in areas of 3000 degree days, to 36 Btuh where the degree days exceed 8000. Some of the standards that aid in achieving these efficiencies are as follows:

Building Component	*Thermal Resistance "R," Reciprocal of Conductance "C" of the Insulation*
Ceiling	19
Wall	11
Floor over vented crawl space	13
Floor over unheated basement	9

This new system of specifying insulation by thermal resistance instead of thickness stems from the fact that insulation varies in its quality of unit conductivity. *If* this unit conductivity "k" were 0.27, then the thicknesses, respectively, of the insulation required in the foregoing building components would be (in inches) approximately 5, 3, 3, and 2. Manufacturers are following the trend of stating the resistance values on their products. Included in the new minimization-of-heat-loss planning is the limitation of room air change to ¾ change per hour for infiltration or planned ventilation. Ventilations of bathrooms is set at 12 changes per hour and kitchens at 15. Vapor barriers receive special attention to preclude moisture condensation that would reduce the effective resistance of the insulation. The foregoing standards are set by a joint report of the Edison Electric Institute and the National Electric Manufacturers' Association with the co-operation of building materials producers.

Equipment and Methods

Voltages of equipment are 120, 208, and 240, the higher ratings applying generally to elements of higher power. Quite a variety of heating methods are available. They include the following, for which the approximate percentage of present use and current popularity trend are shown.

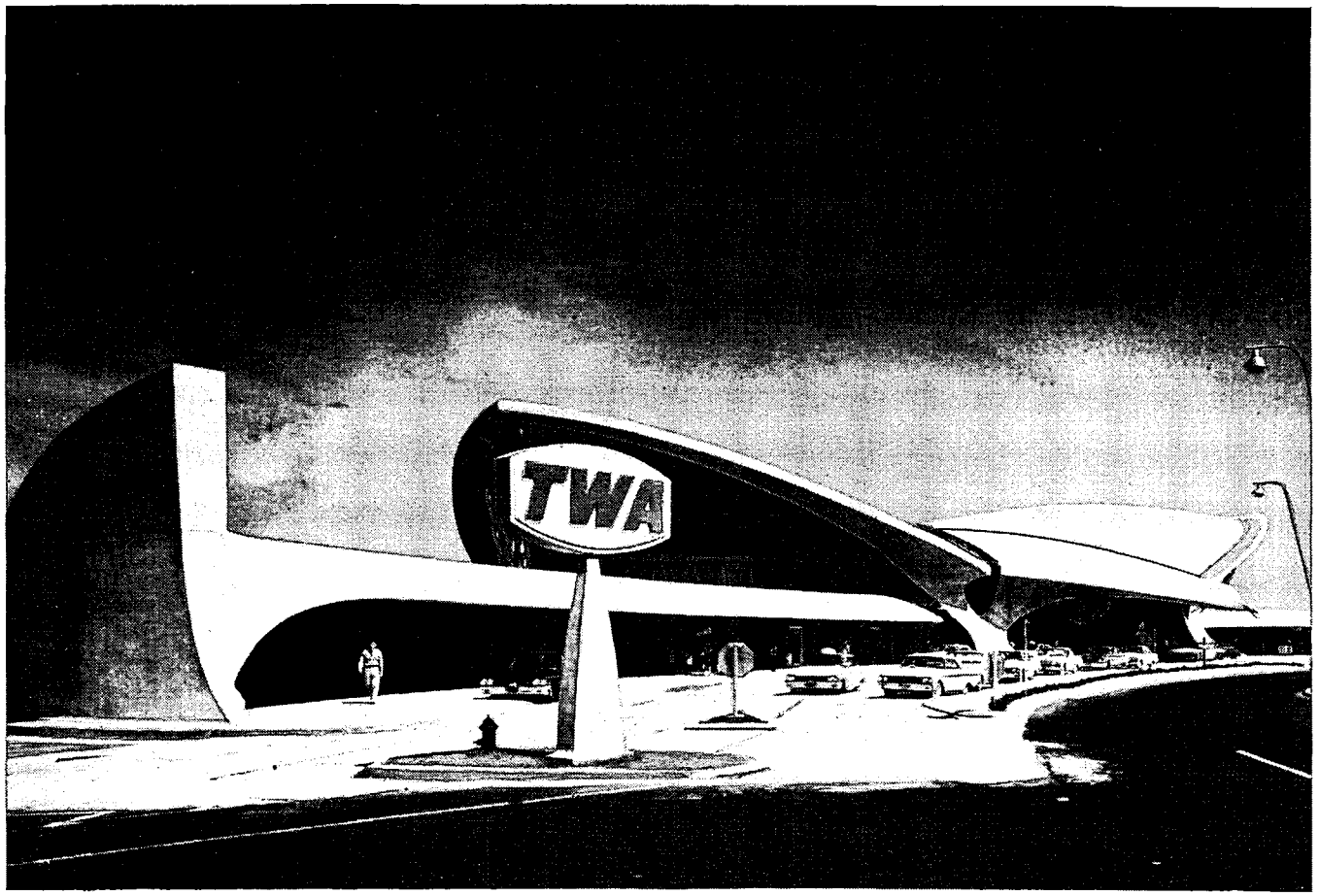
Type	*Percent*	*Trend*
Wall units	33	Decreasing
Baseboard	22	Increasing fast
Cable in plaster	28	Steady
Heat pump	12	Growing
Central furnace and in-duct	5	Growing
	100	

Standards and Information

Information can be obtained from National Electric Manufacturers' Association publications ("Manual for Electric House Heating"; "Standards Publication, Electric Comfort Heating Equipment"), as well as from the Edison Electric Institute.

Selected for the
Trans World Flight Center at Idlewild

Ruberoid/Matico Vinyl Asbestos Floor Tile



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Product Data Sheet Proposed

BY HAROLD J. ROSEN

A standardized product data sheet that would list pertinent physical and chemical test requirements of a material, referenced to certain standards, is proposed by the Chief Specifications Writer of Kelly & Gruzen, Architects-Engineers.

An endless list of new products is being paraded before specifications writers for their evaluation and use in project specifications. Some can be analyzed and evaluated on the basis of standard material specifications, such as ASTM Specifications or Federal Specifications. Others bear no relationship to standard specifications, or are products for which standard specifications do not yet exist.

The absence of a standard specification should not be a bar to the use of new products. Yet on what basis can an evaluation be made by the architect or specifications writer to safeguard him, if he wishes to use the material?

In the absence of a standard specification, each manufacturer tests his own material and reports it in literature he prepares for the architect on the basis of tests he devises himself. Usually, the tests he conducts and the physical data he makes available are those that will reflect certain attributes, but he plays down, or does not list, other physical data that may be important to an architect or specifications writer.

What the architect and specifications writer are confronted with is a veritable jungle of product data on comparable materials from different manufacturers, with unrelated test requirements and results. If he attempts to compare the products of two competitors to determine whether they may be rated equal or whether one is superior to the other, he is hampered by the fact that the materials are neither tested nor reported on the same basis.

As an illustration, let us examine the rigid-board roof insulation literature. How are the physical characteristics reported? Thermal conductance is reported by some as the "C" factor; others report conductivity by the "k" factor, some measured at 40 F and others at 75 F. Compressive strength is vaguely reported by some; others report it in psi; and others modify this result. Water absorption is reported by those whose materials are impermeable whereas others ignore it. Vapor seals and water cutoffs are for the most part unmentioned.

I would like to see a system developed whereby manufacturers of building materials would submit data concerning their material on a standardized Product Data Sheet, which would be developed by CSI and AIA, perhaps with the assistance of Producers' Council.

The Product Data Sheet would list pertinent physical- and chemical-test requirements of the material, referenced to certain standards. Each manufacturer would fill in the required information for his product on the data sheet. This would permit architects and specifications writers to compare materials, especially those now not covered by an ASTM Specification or a Federal Specification.

Current manufacturers' literature is not standardized, and the test references referred to vary so that it is virtually impossible to make comparisons. A sample of a proposed Product Data Sheet on rigid-type roof insulation is included at the end of this discussion. Compare this with the manufacturers' literature contained in Sweet's Catalog File, and you will find each manufacturer presenting his data based on differing test requirements, or using certain test information that is not pertinent, or not listing certain data that is quite important.

Any new product, promoted for use by a building materials manufacturer, would have to be accompanied by a standard Product Data Sheet before an architect or a specifications writer would consider its use in his project specifications.

The Product Data Sheet differs from ASTM Specifications in that standards of performance are not established for manufacturers to meet. What is accomplished through the Product Data Sheet is the establishment of common physical and chemical property test standards, so that all materials are evaluated against the same testing procedure. A material can then be selected by a specifications writer on the basis of the physical properties noted on the data sheet that are most pertinent to a specific project. For example, if we require a roof insulation board with a good "k" factor, and are not concerned with compressive strength, then those factors determine our selection. Manufacturers do not have to compete in every category of physical requirements. There are many materials that can be selected for certain minimum properties, and economies can thus be effected in the over-all construction budget through selective choice of the physical characteristics of the materials.

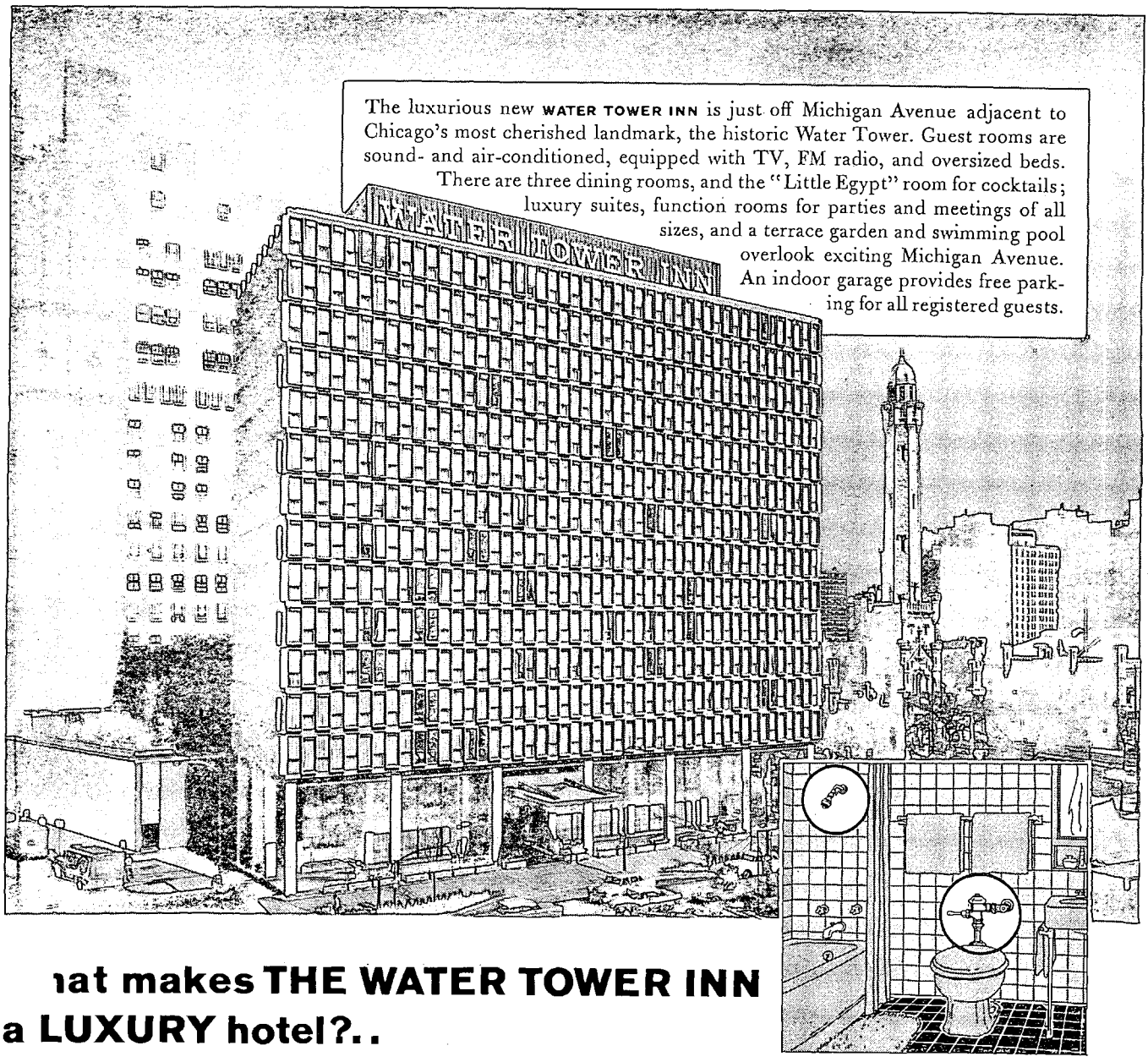
The whole field of manufacturers' literature suffers from the fact that the manufacturer does not always know what information the architect requires. The building materials manufacturer would be well advised to engage the services of an architect who can help him understand what information is needed, and then aid him in preparing his literature for circulation among the different audiences in the building field.

File No._____

CSI/AIA PRODUCT DATA SHEET
INSULATION, ROOF, RIGID-TYPE

Product Brand Name _____
Manufacturer _____

Test Requirement	*Test Result*
(1) General Nature of Material	
(2) Conductivity "k" factor Btu/hr/sq ft/of/in. at 70F	
(3) Water absorption lbs/cu ft	
(4) Water vapor transmission perm/in.	
(5) Compressive Strength psi	
(6) Heat Distortion, F	
(7) Coefficient of Expansion	
(8) Density, lbs/cu ft	
(9) Is vapor barrier required?	
(10) Are water cutoffs required?	
(11) Sizes available	
(12) Limitations of use	Remarks:



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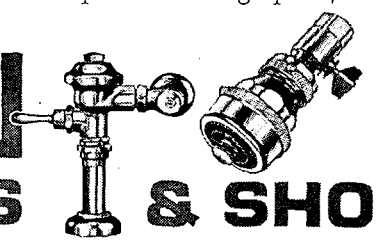
Plan now to make the superiority of Sloan quality a permanent part of your building by specifying and insisting upon performance-proven Sloan *Quiet-Acting* Flush Valves and Sloan *Act-O-Matic* Shower Heads.



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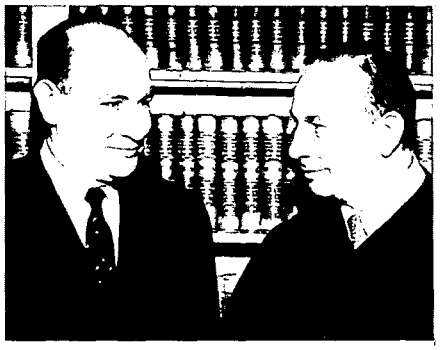


Forms of Agreement

BY HAROLD J. ROSEN
NORMAN COPLAN

P/A's legal team discusses a recent court decision that emphasizes the need for conclusive language in drawing up the standard forms of agreement of construction contracts.

The standard forms of agreement for the construction of buildings issued by the American Institute of Architects provide that, when the work is ready for final inspection and acceptance, the architect shall promptly make an inspection, ". . . and when he finds the work acceptable under the contract, and the contract fully performed, he shall promptly issue a final certificate . . . stating that the work provided for in this contract has been completed and is accepted by him under the terms and conditions thereof." The finality and conclusiveness of such a certificate was unsuccessfully challenged in a recent case, before the New York Court of Appeals, on the ground that, in form, it was not in literal compliance with the contract requirements (*H.M. Hughes Co.* v. *Sapphire Realty Co.*, 11 N. Y. 2d 17).

In that case, the architect had issued a final payment certificate several months after a certificate of occupancy had been issued for the building in question, and the owner had gone into possession. The owner, however, had refused to pay the sum certified in the approximate sum of $100,000 on the alleged grounds that the work had not been properly performed, that unnecessary expenditures had been made under a cost-plus contract, and that rebates had been received by the contractor. The contractor, on the other hand, contended that the architect's certificate was binding and conclusive upon the owner, and that these objections to payment could not be raised.

The construction contract provided that the architect was to issue a final payment certificate provided he found the work "acceptable." The certificate issued by the architect stated that the contractor was "entitled" to the "final payment" due and owing on the contract, but it failed to state explicitly that the architect had found the building properly and fully completed and that he had inspected it and found it "acceptable."

The New York Court of Appeals, the state's highest court, by a divided opinion, concluded that the architect's certificate was binding upon the owner. As to the finality of the architect's certificate, the majority opinion stated:

"The contract provides for 'final payment' upon issuance by the architects of a 'final certificate.' This being so, the certificate, when issued, is conclusive and decisive on the rights of the parties, obligating the defendant, Sapphire Realty Co., to pay the amount fixed by the architects unless it can show that the certificate was obtained by fraud or mistake."

In answer to the contention of the owner that the form of the certificate was not in compliance with the express requirements of the construction contract, and therefore not binding upon the owner, the Court stated:

"As to the defendants' objections to the form of the certificate, taken for the first time in this court, we need merely say that the architects sufficiently complied with the contract's requirements when, titling the certificate 'Final Payment,' they certified that Hughes (the plaintiff herein) 'is entitled' to the payment of the sum of $100,383.90. In view of that certification, it verges on the sophistical to urge, as the defendants have, that the certificate is deficient because it fails explicitly to recite that the architects found the building properly and fully completed and that they had inspected it and found it 'acceptable.' As a reading of the contract between the parties establishes it makes the final payment certificate dependent upon the architects' finding the work 'acceptable.' All this, and far more, is subsumed by the architects' use of the phrase that the contractor Hughes 'is entitled' to the 'final payment' due and owing on the contract. . . .

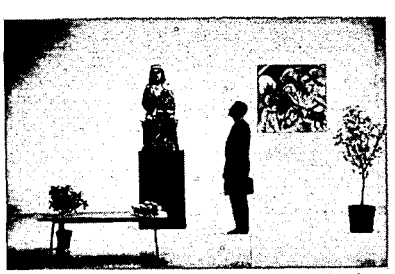
"It is equally captious for the defendants to attack the architects' final certificate on the further ground that it refers to the building as 'being constructed' rather than 'completed.' As already indicated, the certificate was to issue, according to the contract itself, only if the building had been inspected by the architects and only if they had found the work 'acceptable under the Contract and the Contract fully performed.' Accordingly, the very issuance of the certificate demonstrated not only completion of the building, but also its 'inspection' by the architects and their approval of the work as 'acceptable.'

"In sum: the architects, in fulfillment of their duties and powers, made a final inspection, found the work acceptable and the contract fully performed, and certified that the plaintiff was entitled to 'final' payment of the amount still unpaid. The objections to the form of the certificate are without substance."

In a dissenting opinion, three judges of the New York Court of Appeals, emphasizing that the contractor was in a relationship of "trust and confidence" under a cost-plus contract, stated that the question of conclusiveness of the architect's certificate involved issues of fact which could only be determined after a full trial. It was the opinion of the dissenting judges that the owner should be afforded the opportunity to prove his allegations in respect to the issue of the contractor's performance and value of the work, as well as the propriety and necessity of expenditures made by the contractor and the extent of rebates received.

The majority opinion, although fixing the law of New York, may not necessarily be followed by the courts of other states. Consequently, to assure the conclusiveness of the architect's certificate, consideration should be given to the desirability of including in the construction contract language that will leave no room for doubt.

Eames Tandem Seating



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More Comments on Aesthetics and Registration

Dear Editor: For the past five years, I have been closely associated with a very talented Arizona architect who has been engaged in an extended legal battle with the Arizona Board of Technical Registration in an argument parallel to Mr. Hawley's [AUGUST 1962 P/A].

It is an accepted fact that the legal *right* to design a building does not necessarily imply an *ability* to design a structure. This problem has generated many disputes about the registration laws of our country.

The distinction between architect and engineer is a clear one. An engineer is not required to know, nor is he legally empowered to execute, the architectural considerations of a building. The legal basis for registering architects is that the public welfare must be safeguarded. An architect must know the architectural conditions of a building and properly design them, in order that all the legal requirements will be met. In addition, his advisory duties to owner, contractor, and various middlemen must be dispatched "in a workman-like manner." Here his legal jurisdiction ends, but his responsibility does not. For the architect's aesthetic solution must be pleasing to his client, to himself, and it must not be completely distasteful to the general public.

Suppose our hero designs an orange-juice stand that resembles a giant orange, repulsive to all but the most avid juice addict. The site—an industrial lot. Has he violated the trust that the public, through our elective/appointive system, has given him? He certainly has.

But what can be done about it? Nothing. If there are not enough rest rooms, or if a wall cracks, then it would be possible to bring some pressure against the owner. But as long as it remains standing, its ugliness is legally unassailable (except for some form of public referendum, but pity the attorney for the state in the counter suit). In other words, the structure cannot be proven ugly; therefore no breach of trust is involved. If the community were fortunate enough, then possibly the building could be condemned if it were shown to be unsound for reasons of structural or sanitation deficiencies. On the basis of these factors, proof could be presented that the public welfare is not adequately protected.

On the basis of the above discussion, it is apparent that an exam can be formulated and accurately graded that deals with the legal, ethical, or technical areas. Aesthetics hardly fits any of these categories. A test that could determine not only an individual's capability for good design but could also predict that his designs for future projects will be good, is, I believe, unrealistic.

Not many architects will consciously produce consistently poor designs. If an architect produces ghastly structures repeatedly, he is either attempting professional suicide or he is incapable of better work. This is not uncommon. If architecture is to flourish as an art rather than as a business, then it must be admitted that registration cannot insure good design.

It must also acknowledge that a whole army of excellent designers is wasted under the present master-apprentice system. Why is it illegal in many states to be an independent designer—a design consultant? If an architect may use structural, mechanical, and electrical consultants, and perhaps a specifications consultant and rendering service, then what could be so wrong about retaining a design consultant?

I believe that a large measure of this controversy stems from the confused thinking embodied in our registration laws. Basically it involves the inability, or unwillingness, to distinguish between legend and moral responsibility. Too often, the duties of the AIA and the local registration boards are not properly separated from each other. It is the duty of the AIA to maintain a proper moral climate in the profession; the registration boards should certify the technical ability of the individual. Unfortunately, these responsibilities seem to overlap occasionally—especially in the area of design.

Certainly good design cannot—and should not—be classified as a technical endeavor. It is, instead, a combination of good taste, artistic ability, and moral responsibility. It is impossible to legislate morality without an overabundance of laws—a situation that would certainly strangle radical innovations. Yet we need radical innovations in architecture. We need to sell architecture to the public. We cannot condemn what is built for the public if we make no effort to lead them. The public accepts ugliness today out of neglect, not ignorance. There is an intellectual vacuum that has not been filled. Today it is fashionable to be an architect's architect, to chuckle quietly to ourselves about the public's ignorance of our product. Consequently, the public has begun to find a new source of enrichment—the structural engineers, such as Nervi and Fuller. Public preoccupation with engineering structures does not center on structural wonder but on aesthetic delight. Thin shells and warped surfaces present no problem of formwork to the public. They delight in what it *is*, not in how it was made. All they see is architecture. The façade, fenestration, drama of interior spaces, color, décor—these things give them enjoyment. If occasionally they mistake shock for drama in architecture, we should not berate them for having poor taste. They probably have sampled fine architecture so seldom, they cannot detect any difference. This is a gross danger. It could spell complete chaos in our most powerful, most permanent, and most familiar art form.

These dangers can be avoided by increased efforts on our part through the AIA, through national and local art institutions, and so on. A revision of thinking and a more deflated view of themselves by members of the profession are also needed.

Can't we acknowledge that there is a need right now for highly talented, independent design consultants? Would it be wrong for an architect of exceptional design ability to limit his practice to aesthetics, as some, indeed, do? Not many architects insist on doing their own engineering. Some do not even have time for specifications. Is it not true that these men could better protect the public welfare by doing their own specifications and letting a consultant handle the aesthetics?

NICK DEVENNEY
Phoenix, Ariz.

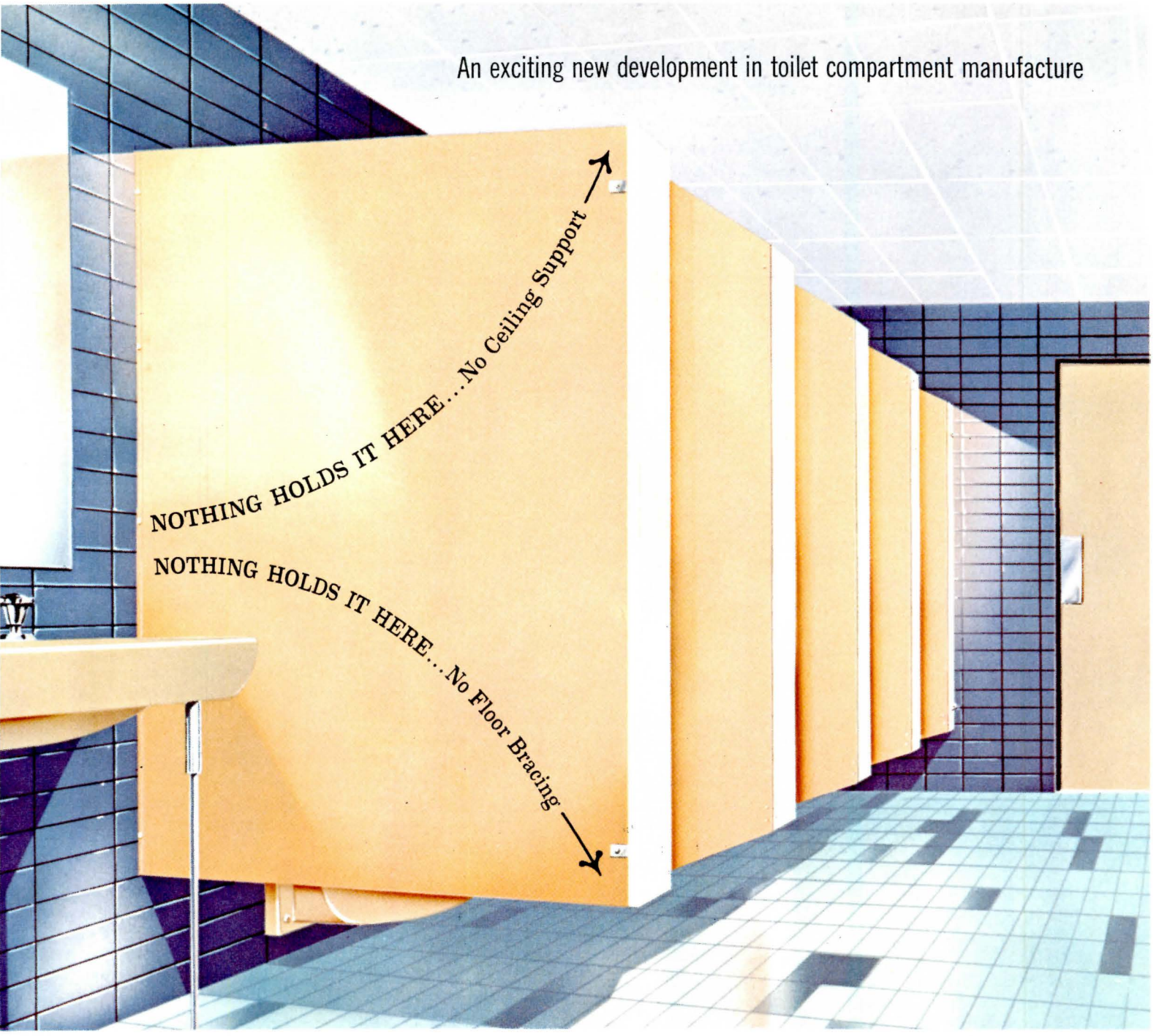
Dear Editor: Congratulations on your article "Aesthetics and Registration," by Don Hawley.

Mr. Hawley has done an excellent job of showing how any true student of American freedom, thinking objectively, would have to agree that aesthetic ability should not be a requirement for judging competency of a candidate for registration, even though it might be advisable.

Very few architects, if any, will agree with Don Hawley, but will instead, as he puts it, ". . . point to the adverse social and psychological effects caused by the presence of ugly buildings in our environment."

Heaven help us when the time comes when the protectors of the beautiful, in the guise of registration boards, are granted the power to determine who shall be licensed to provide us with beautiful

An exciting new development in toilet compartment manufacture



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autos, beautiful roadside ditches, beautiful billboards, and all other things beautiful.

But then how about some of the members of the human race who are not so beautiful, and some who are downright unaesthetic-looking: what adverse social and psychological effect will they have on the rest of humanity, and what state board will take care of the licensing to remedy the situation?

The whole approach of the registration boards, when viewed objectively, is absurd, and how absurd is only a matter of degree.

JACK RETLAW
Portsmouth, Ohio

Dear Editor: Mr. Hawley's legal crusade against the New Mexico Board of Examiners makes fascinating reading, in that Democracy, Americanism, and Freedom (why not Christianity?) are invoked. From his passionate plea for the American right to both good and bad taste, I wonder from which side of the fence he is arguing: is it the modern side? It would be nice to have a more precise account of the case, as well as its outcome.

JAN REINER
St. Petersburg, Fla.

Dear Editor: Don Hawley's article touches on two areas that have long shown need of clarification, and your magazine may provide the means to accomplish this.

The first area is that of the use of a design problem in the exams given candidates who are seeking a license to practice architecture. If the purpose of the problem is to investigate the candidate's knowledge of building codes, safety provisions, widths of exits, size allowances for planning various uses, and similar matters, then this can be shown to be a necessary and logical part of an examination. The unfortunate part is that such a design problem is frequently used by members of the examining board to restrict the number of certificates issued each year.

The second area touched on by the article is that of the area in which professionals should practice. In any case, if a person demonstrates his capacity to practice architecture, he should have no difficulty in obtaining a license. If he is practicing as a civil engineer and has the proper qualifications to practice architecture, he also should have no difficulty in obtaining an architect's license. What we see too often is a skilled civil or structural engineer, or a so-called architectural engineer, attempting to practice architecture with neither the necessary training or experience. The notion that an architect is an artist and dreamer is too prevalent; it is an idea fostered by some structural and civil engineers who would like to carry on an architectural practice without getting an architect's license. Architects find that in carrying on an ethical professional practice, they must possess a great deal of precise knowledge about structural design, civil and mechanical engineering, since often it is difficult to employ reliable assistants in these fields. That is, if the architect depends on the assistance of such professionals, then he must be familiar with the areas of their skill in order to protect his reputation.

No individual should be permitted to use the title of architect or engineer unless he has the proper qualifications. If a person has the qualifications and wishes to practice, he should secure a proper license. If he cannot pass the examination, then he is not fit to practice. The examination is only an intermediate step between education and a full professional practice.

DANA D. CORROUGH
Colorado Springs, Colo.

Dear Editor: Don Hawley's article sounds as if he would like to emulate Samson and bring the palace down upon the heads of his tormentors. His complaints could very easily be squelched by asking him why, if he feels the way he does, he does not try for an engineer's license? That would relieve him of his burden.

The question he raises, however, is not one that can be dismissed so lightly. It is interesting to note that while engineers in general tend to disparage the architect's status, they are expanding a great deal of energy attempting to take over his role and title. Why don't they just practice as engineers?

Aesthetics is a part of architecture. This is not to say that all buildings designed by architects are masterpieces, nor does it deny that many are purely utilitarian in nature and require no special designing ability. I, personally, cannot take issue with Mr. Hawley's challenge concerning the objective judgment of design. Whether or not exercising the legal right to judge an individual's design ability is threatening his fundamental right is, however, a matter to be debated. Like all laws, the justice of it depends upon the administration of it. I am sure that if Mr. Hawley's designs had been favorably acted upon, he would not now be tenting in his present camp. I am also sure he would be very surprised to see those designs which the Board has, to date, given passing grades. This is, of course, conjecture on my part, but I do know that when I passed my exams, there were other candidates with passing grades whose designs were radically different from mine. The Boards, after all, are composed of human beings, subject to human error, yet also capable of reason and compassion. What they basically seek is a reflection of professional skill. The title "Architect" carries with it the claim to some degree of aesthetic ability; and without wishing to disparage the profession, I have not seen strong evidence of that ability among engineers. If I thought for one moment that the state Boards were inflexible in their judgment, I would be on Mr. Hawley's side. The proof that they are not is evident in many structures we see around us.

To follow Mr. Hawley's reasoning and analogies to their logical conclusion would lead us to assail all Governmental interference and even cause us to close our courts. This, as I am sure he would be the first to admit, would lead to anarchy.

The increasing antagonism between the architectural and engineering professions is, I believe, to be deplored. No one can deny that the complex structures we are now erecting demand the services of specialists. The engineer should be a specialist; the ones who are, are taking no part in this controversy. The ones who are expressing resentment are those who really want to be architects and can't make it. Most state laws permit them to design buildings as engineers, and it is curious to note that all such suits involve engineers posing as architects, not vice versa.

My advice to Mr. Hawley is that he get an engineer's license and live happily ever after.

LEON ROSENTHAL
Babylon, N.Y.

A Word of Thanks

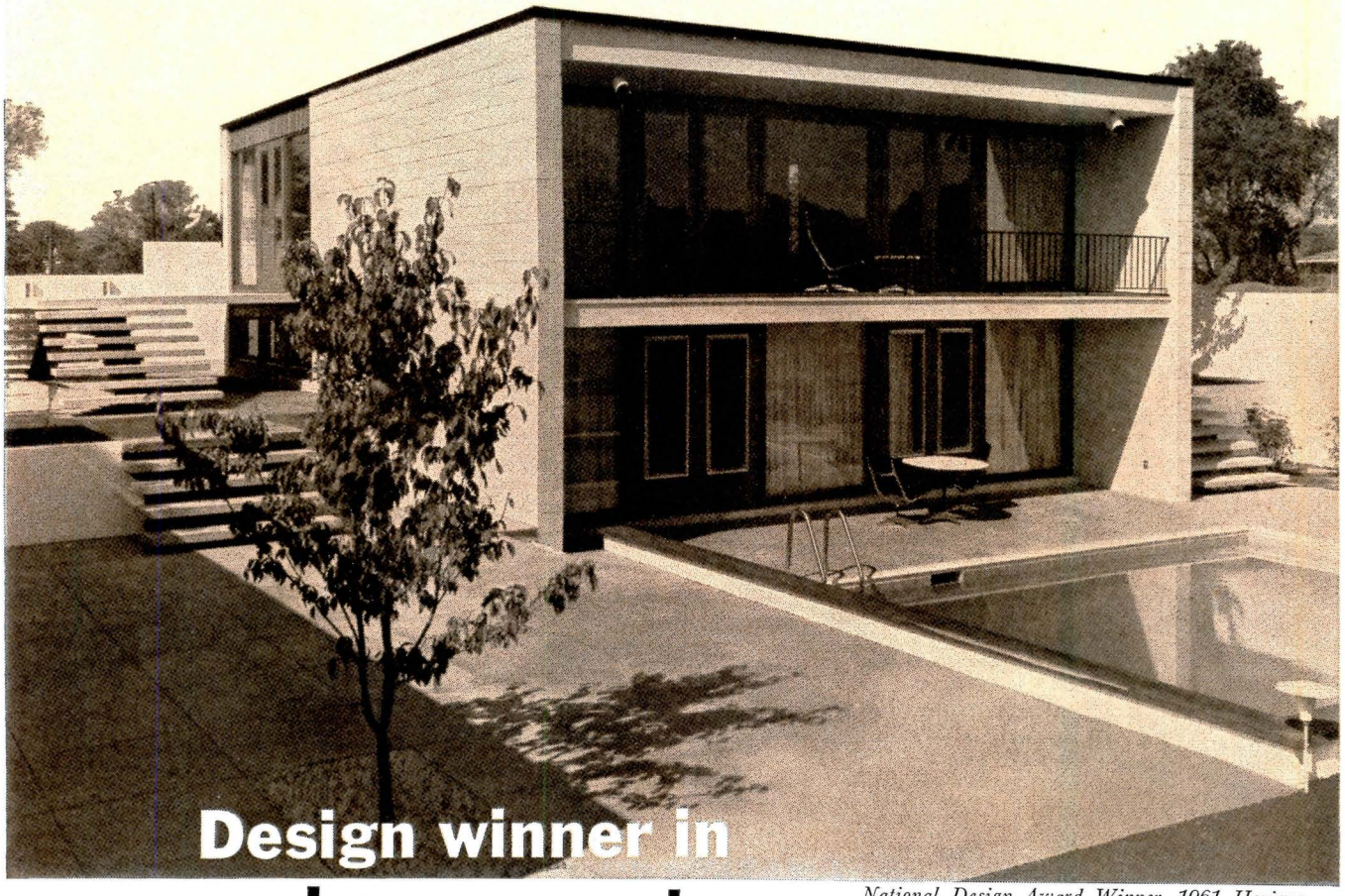
Dear Editor: Thank you for your fine, sensitive "P.S." this month [SEPTEMBER 1962 P/A]. Too few of us are proud of some of the buildings we design—or help design.

Some day I hope there will be many Bill Conklins amongst us to give more people the opportunity of appreciating good architecture.

May I add, incidentally, that P/A is truly ahead with its fine presentation of remarkable structures and informative articles.

LEONARD SCHEER
Levittown, N.Y.

The best designs are more exciting in concrete



Design winner in modern concrete features "upside down" living

National Design Award Winner, 1961 Horizon Homes Program, was this home built in South Plainfield, New Jersey. Architects. Kuhn & Drake.

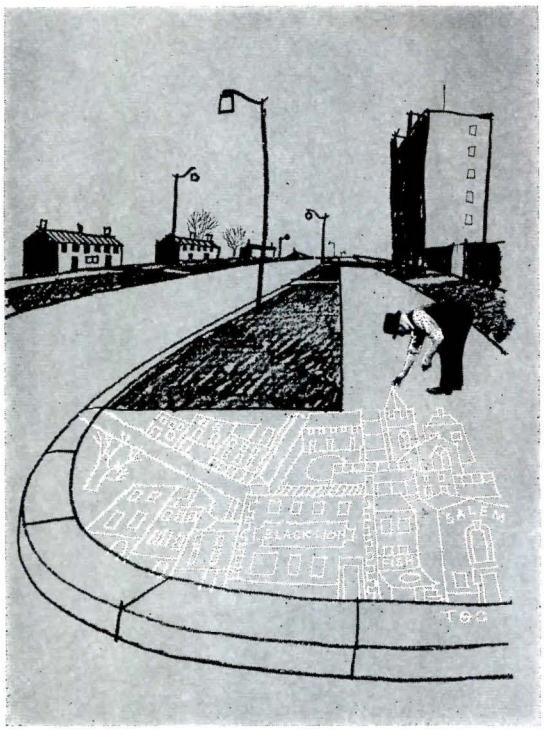
The living rooms, expanded by a balcony and dining porch, are upstairs. Bedrooms are downstairs . . . and the entry is at mid-level. This compact plan leaves room for pleasant outdoor living, even on a small suburban lot.

Ideally suited to the basic cube design is the smart simplicity of the concrete masonry used for the house and screening garden walls. Outdoor features can be easily varied to achieve interesting individuality in a grouping of identical houses.

Modern concrete, today, gives architects new opportunity to win approval from both homeowners and builders for distinctive home design. **Plan to enter the Concrete Industries Horizon Homes Program.**

Light and airy bedrooms open to the concrete patio and pool. Interior concrete masonry walls are painted to match color schemes of individual rooms.

PORTLAND CEMENT ASSOCIATION *A national organization to improve and extend the uses of concrete*



Protest from a New Towner . . .

. . . and proposal for an urban precinct.

Structure and Content in Urban Design

BY RICHARD P. DOBER

TOWNSCAPE *by Gordon Cullen. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. (1962, 315 pp., illus. $10). Reviewer is Executive Director of Sasaki, Walker & Associates.*

A topical subject of study in the academies and of popular interest to theory-makers, urban design may be this generation's enduring contribution to the arts that shape our environment. An act of synthesis, urban design draws sustenance from the allied professions of architecture, landscape architecture, and city planning. Advocates and practitioners of urban design fall into two camps: those emphasizing structure, and those concerned with content, or, if you will, skeleton and flesh. Not that the distinctions are so sharply drawn, for we speak of a matter of degree. Both groups share in common the vital concept that supra-design is possible; both exercise conscious design control. Urban design is not an art of anonymity, but rather one of deliberation and intention.

It is in the area of content that I believe Gordon Cullen's new book, *Townscape*, makes its most significant contribution to the small body of literature on urban design, and has the most usefulness.

Structuralists aim at establishing strong lines in the urban fabric and connecting these lines with special foci, allowing the interstices to be filled in as background design. Haussmann's Paris and L'Enfant's Washington come readily to mind as specimens. Current theory suggests that land uses can be laced together by major circulation elements and in a fashion that respects and takes good advantage of natural topographic features and existing man-made landmarks. The Copenhagen Regional Plan carries this concept beyond the border of the city, affording even the opportunity for metropolitan-wide design—a potential which our vaunted Federal interstate highway programs have ignobly ignored.

Structuralist concepts appear throughout the history of urban design, from Kahoun in ancient Egypt, Priene, the Roman camp towns, to the Renaissance schemes of Scamozzi and Cataneo. A search for order is particularly favored by architects, who have made the major contributions to date in urban design, but who occasionally have been misinterpreted in their synthesis by some critics. As an example, Tony Garnier deserves a much higher position than he now holds in the pantheon of 20th-Century architecture for his "Cité Industrielle." In the sense that it is viable as structure, rather than content, and

Continued on page 176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Architect makes decorative use of Revere Copper in functional roof design

Unique roof drainage system accomplished with copper-covered gutters; stepped-down roof faced with copper combination fascia and gravel stop.

The Pasadena Community Church is a striking example of how an edifice can be functional as well as architecturally attractive.

In creating this design, the architect had to consider: 1—Seating 2,200 people on one floor without benefit of balconies, and at the same time maintaining good acoustics. 2—Protecting the glass window wall. 3—Carrying away the run-off from the roof. 4—Breaking up the roof line so that it could be more readily installed, and without making a single, large plane area that would be monotonous in appearance.

The roof construction shown makes the inside of the structure almost perfect, acoustically. Bringing the roof out to an 18′ overhang shields the tremendous expanse of glass. The step-down or shingle effect was brought about by the use of Revere Copper face flashing. This enabled the contractor to work on the roof in sections and also gave a "truer" roof, breaking up the roof silhouette against the sky into an interesting pattern.

The problem of roof run-off was handled by continuing the fascia border design, in the form of copper-covered gutters running into a pool, in which semi-tropical plants are arranged. How this was accomplished is shown in the various photos on the opposite page.

"Design with copper in mind" is no idle catch-phrase. The daring architects of today are doing just that . . . more and more, and, as you can see, with most striking effects. You'll find copper doubly effective when you wish to combine utility with beauty.

The manner in which copper is applied in this structure is typical of its easy workability, its practically unlimited possibilities in design. This "Metal of the Centuries" is as modern in its construction possibilities as today's newest materials.

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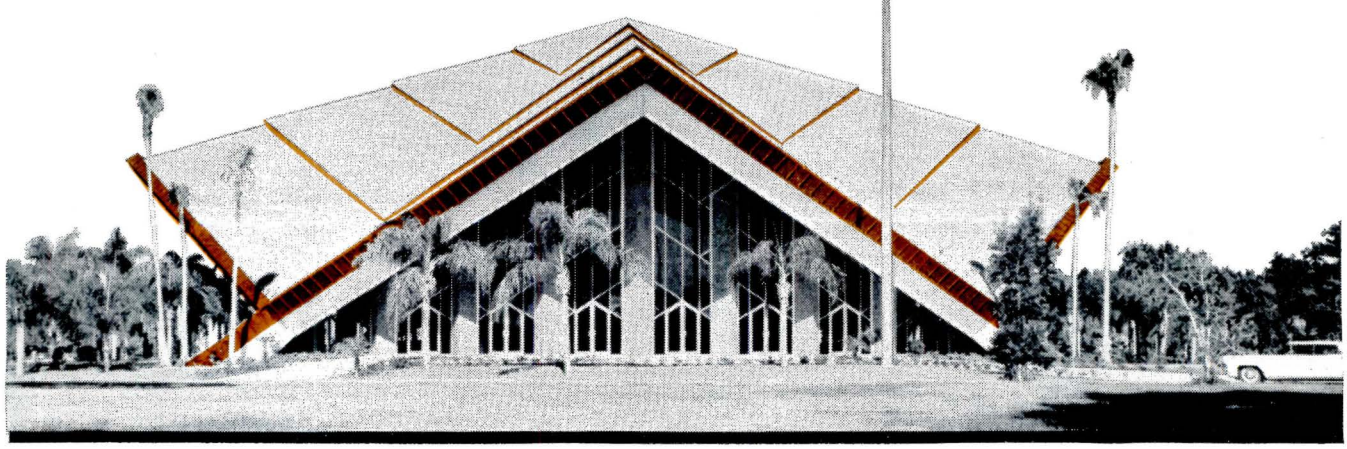
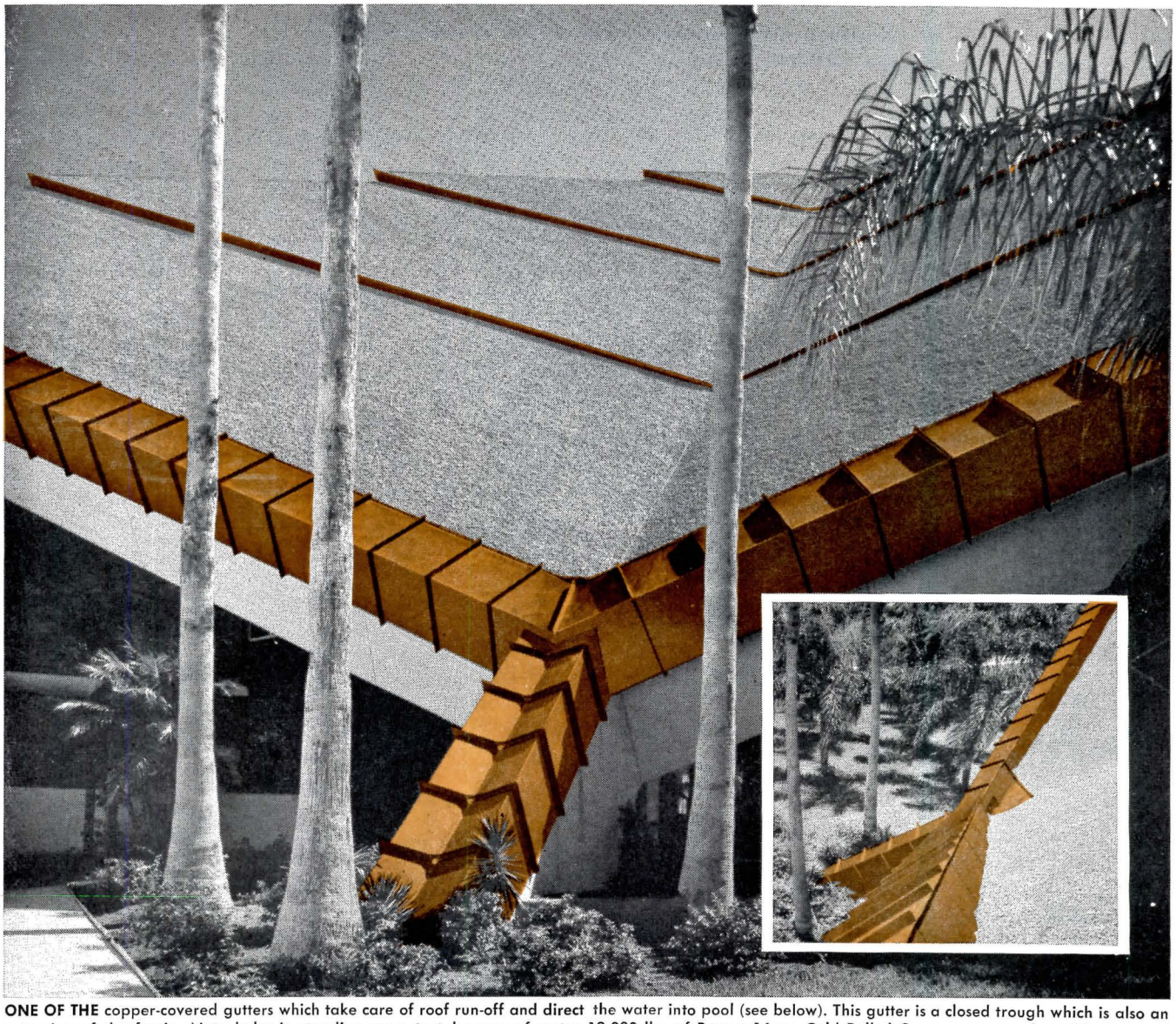
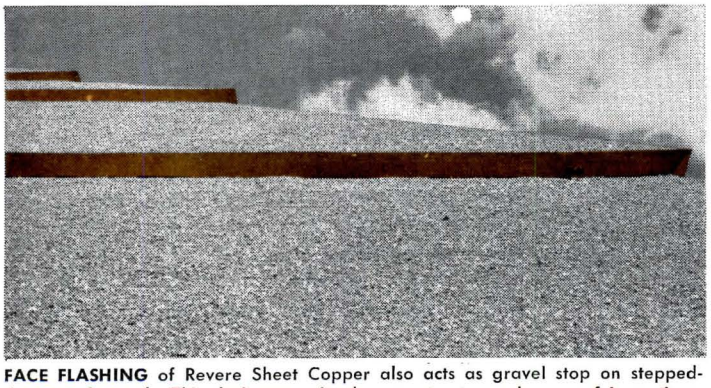




ONE OF THE copper-covered gutters which take care of roof run-off and direct the water into pool (see below). This gutter is a closed trough which is also an extension of the fascia. Note holes in standing seam to take care of water. 12,000 lbs. of Revere 16 oz. Cold Rolled Copper were used on this structure.



FACE FLASHING of Revere Sheet Copper also acts as gravel stop on stepped-down roof panels. This design permitted contractor to work on roof in sections.

FASCIA was prefabricated in the sheet metal contractor's shop in 4' sections with a 2" standing seam.

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Continued from page 172

should be so considered, Le Corbusier's plans for Paris merit re-evaluation. Le Corbusier did not advance a sack of Paris, as some would have us believe, but was using a dramatic city as a model for structural theories in urban design. José Luis Sert's plans for Chimbote and Havana give evidence of how these theories might be applied. First the "basic diagram" is picked out, i.e., the natural and existing features, and then these are woven into an over-all concept by adding clearly articulated channels of circulation, terminal points, transition areas designed for the scales of motion, and in-filling appropriate to the functions to be sustained on the land.

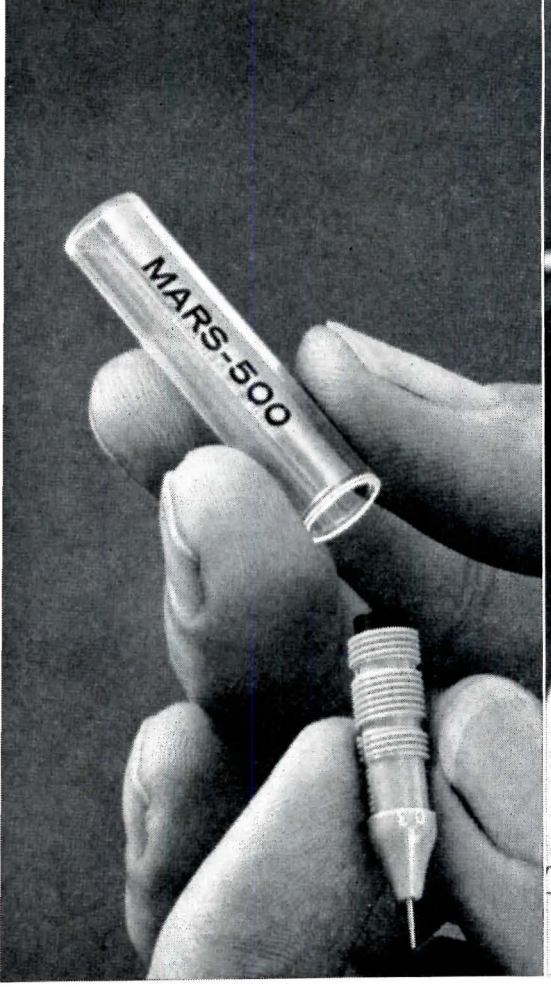
Structuralists' concepts have the advantage of being projections of emerging forces, or models of available alternatives, or commitments to a course of action; sometimes all three, sometimes a combination of any two. Highly generalized, as they must be, structuralists' plans are the first forces in the order of battle towards resolving design conflicts in urban development.

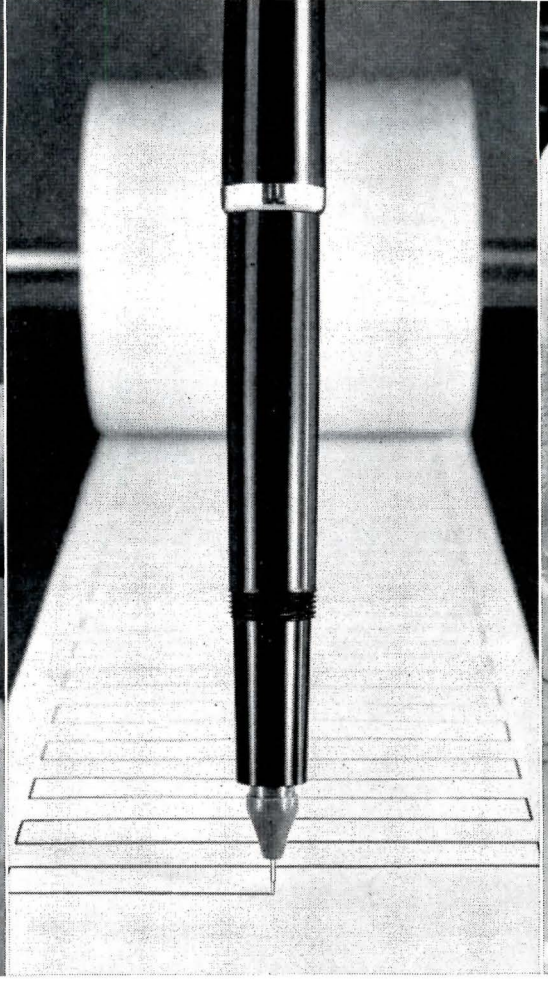
Designers interested in content as opposed to structure tend to concentrate on core areas of various kinds, hoping these pebbles thrown into the urban pond will produce widening circles partaking of and vitalized by the centers. This is project architecture exemplified by Boston's Government Center and Pittsburgh's Golden Triangle; and a typical urban-design approach in most projects now in planning or execution stage under current urban-renewal legislation. (Instead of the single vital organs, could the skeleton be the subject of a renewal project?) Particularly favored by these designers are the details of spaces between buildings, the embellishment of part of the structure, or the reinforcement of urban space with binding forces that have a life of their own but that are largely dependent on elements in which the forces exist—for example, the disposition of street furniture in urban spaces.

Selection and placement of street-furniture types have no meaning unless they serve the purpose for which the space is used. Yet the elements themselves can be aesthetically located as a counterpoint to the larger structure-making elements.

Gordon Cullen's *Townscape* is a largesse of visual experiences, which illustrates well some explorations in theories of urban design; it has a splendid collection of executed examples. It will make little difference if some readers find, as I do, that the word *townscape* is unsatisfactory as a label for the artful arrangement of the binding forces and contents of urban space. Even within Cullen's own purview, the town may be only a fulcrum and the *scaping* goes outward to the countryside and inward to dense urban centers. Little difference, too, that as a concept or even a program for action *townscape* lacks precision. Manipulated by a knowledgeable commentator, Cullen's subject matter has intrinsic appeal to any designer or observer—urban or otherwise—pulling together, as it does, street furniture, outdoor graphics, the soft landscape, even the smells of the sea airs and the exciting noises and commotion of downtown. Mood, mystery, romance—their physical forms as urban design—get prominent display in Cullen's work.

In the beginning of his book, Cullen organizes his materials around three ideas. The first is what he calls *Serial Vision*. According to Cullen, as an individual moves through the physical environment, he sees the scenery around him in a series of jerks and revelations —hence "serial." Cullen may not be optically correct, but he is suggesting





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an important point: the existing view and the emerging view can be prearranged to afford visual pleasure. The second group of materials deals with those kinaesthetic impressions that combine to give a sense of place. And finally, the subelements of townscape are analyzed with an obscurant set of terms ranging from "thisness" to "entanglement." The words by themselves are pedantic; as caption headings for Cullen's carefully chosen illustrations, however, they are explicit.

Fortunately for his discourse, in the last two-thirds of the book Cullen applies his principles to case studies. These pages contain discussions of important matters in less esoteric terms. For example, orthodox approaches to street-lighting—what I would call the mast-and-lantern complex—can seriously distract from and disrupt the stagelike appearances of special urban scenes. Cullen shows three alternative solutions: lights that rise like telescopes at night at the Pont du Carrousel in Paris; lights built into handrails and curbing, such as those along the Meuse Bridge at Dinant; and floodlighting of an area around the Radcliffe Camera in Oxford, England.

Manipulating changes in level for special effects in site design is well explained. The walls and floors of urban spaces are provocatively dissected and reviewed, especially as design elements in controlling the movement of pedestrians and vehicles, and the suggestions given are apparently practical. The treatment of outdoor advertising in town centers and cross-country utility pylons in rural areas show the range of subjects discussed. Whenever words are insufficient and photographs impractical, Cullen uses his pen and pencil in the facile manner that marks him as a master in the design of atmosphere.

Some of Cullen's materials have previously appeared in *The Architectural Review*, a magazine awkward in size and layout, and difficult to keep for long on the library shelf. We now have the essence of two decades of townscape articles in convenient format.

Focusing as it does on second-level issues in urban design, *Townscape* will not extend the professional reader's boundaries of knowledge. To suggest that something is elementary, however, is not to imply that it is unimportant. *Townscape* is a thoroughly enjoyable book, illuminating and well worth owning as a prod for ideas, but its greatest value is that it brings to our attention basic design ideals in a humanistic, engaging, and thoughtful manner.

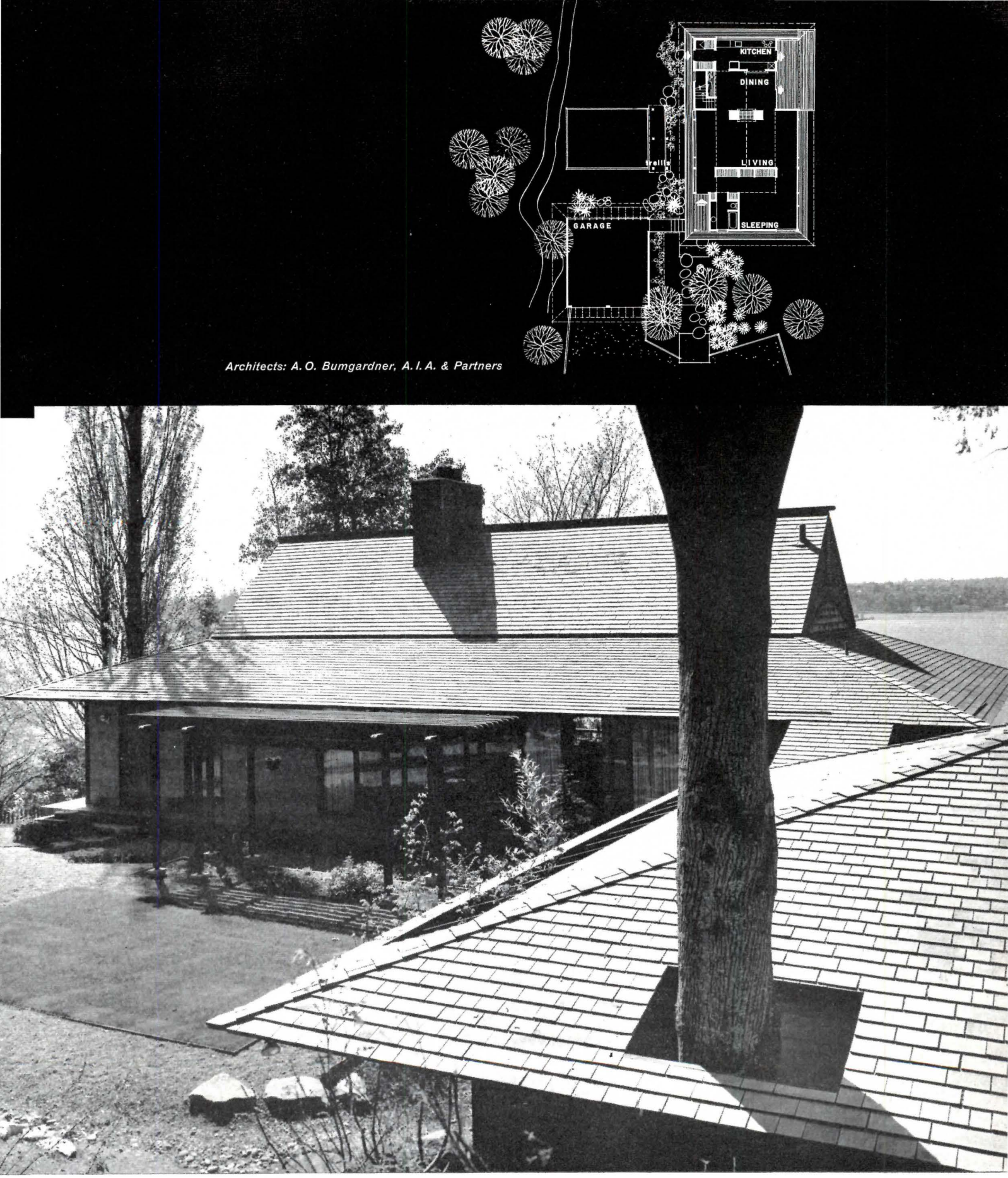
Unity of Design

THE WORKS IN ARCHITECTURE OF ROBERT AND JAMES ADAM. *Introduction by John Swarbrick. Published by Quadrangle Books, 119 W. Lake St., Chicago 1, Ill. (1960, 166 pp., illus. $12.50)*

This book takes its title from the three volumes of the *Works* that the brothers Robert and James Adam, architects both, published in 1773, 1779, and 1822. All the engraved plates in the original volumes are reproduced, but the lengthy prefaces of justification and explication that were written for sections of each original edition have been omitted. The plates themselves—of such buildings as Syon House, Kenwood, Luton Park, etc., and their interiors and details—have been rearranged so that all those pertaining to a single building are together for convenient reference.

The plates are reproduced photographically: the majority are quarter-size of the original engravings, though some are spread across two pages of this edition so that they are approximately half the size of the originals. Because of

Continued on page 188



Architects: A. O. Bumgardner, A. I. A. & Partners

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Concrete performance report:

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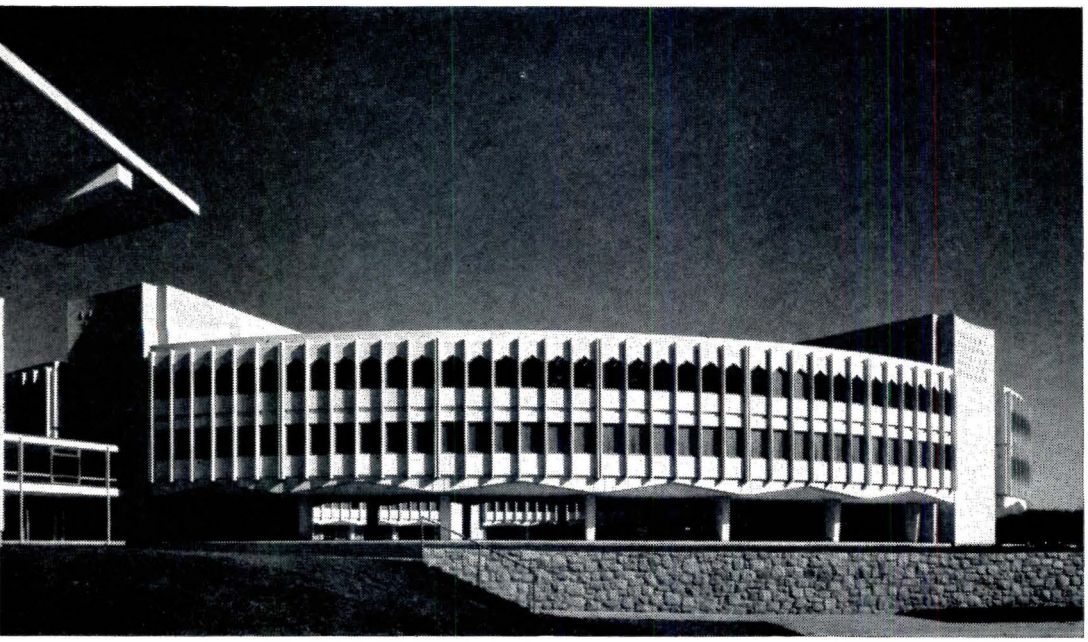

Vincent G. Kling expresses unity and permanence in the American Baptist National Offices at Valley Forge. POZZOLITH controlled-performance concrete used for all jobsite concreting.

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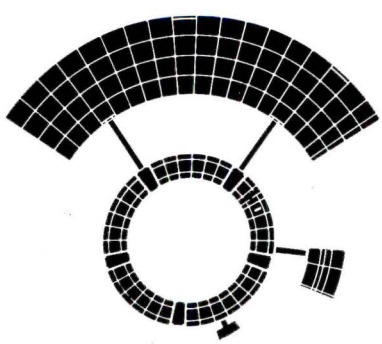
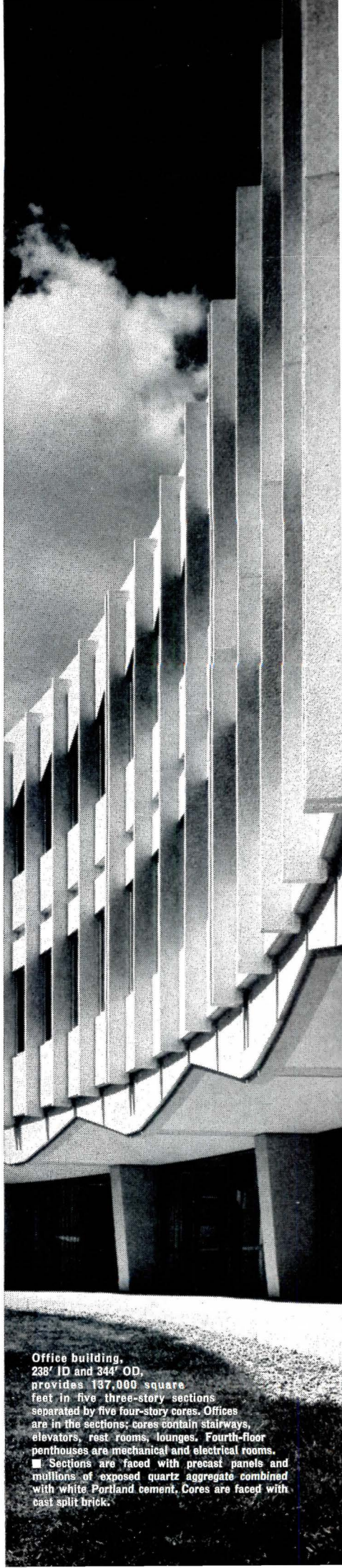
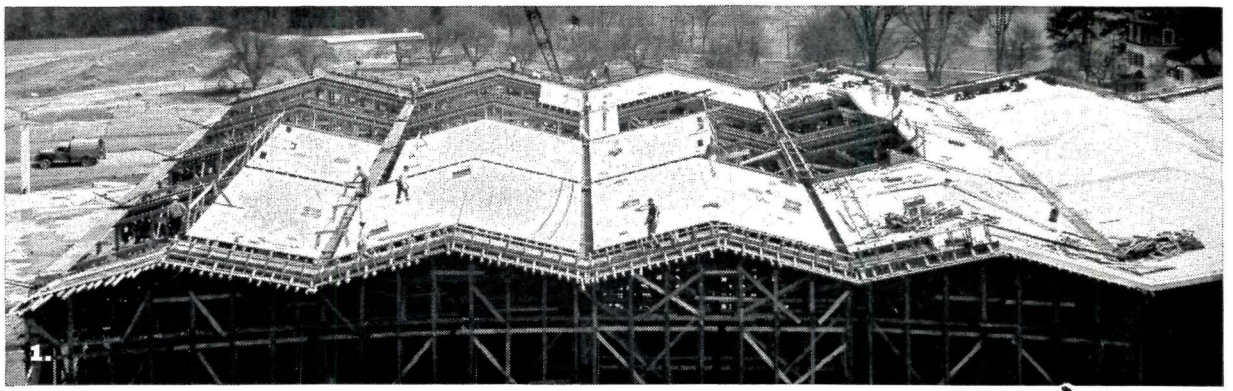
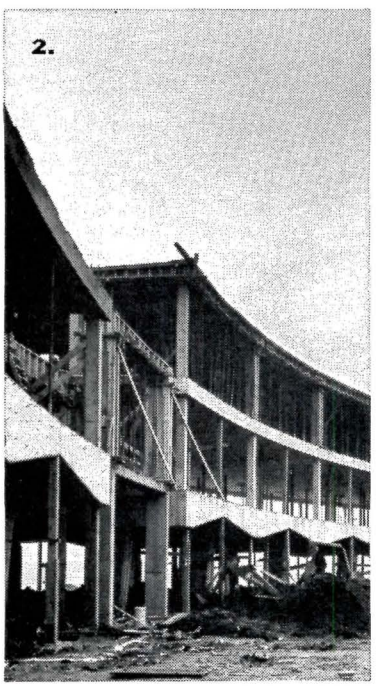


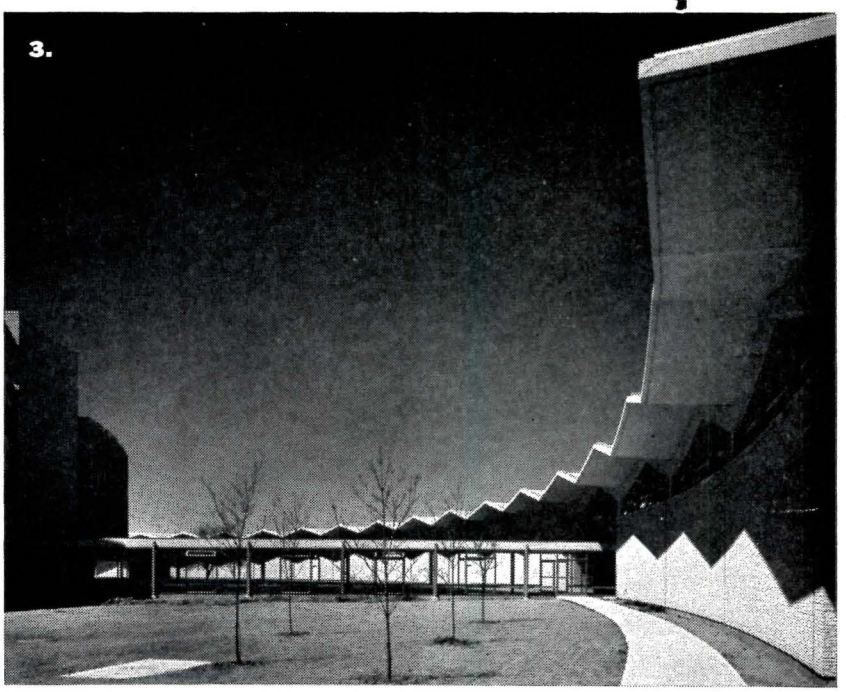


Office building, 238′ ID and 344′ OD, provides 137,000 square feet in five three-story sections separated by five four-story cores. Offices are in the sections; cores contain stairways, elevators, rest rooms, lounges. Fourth-floor penthouses are mechanical and electrical rooms. ■ Sections are faced with precast panels and mullions of exposed quartz aggregate combined with white Portland cement. Cores are faced with cast split brick.

National Offices, American Baptist Convention, Valley Forge, Pa., comprising circular office building, cafeteria building, graphic arts building and connecting links. Architect: Vincent G. Kling, F.A.I.A. • Structural Engineers: McCormick-Taylor Associates • General Contractor: Turner Construction Co. • Ready-Mix Concrete: Highway Concrete Co. • Concrete Testing: Ambric Testing & Research Co.







1. Graphic Arts Building—Four rows of reinforced concrete columns extend 18′ above floor, support 3′ deep reinforced concrete girders that reduce to depth of 2′ at ridge of 3″ on 12″ sloped roof. Columns are on 39′ centers along radial lines, vary from 31′ to 48′ along column arc lines.

Precast twin tee roof planks 39′ long and varying 31″ to 48″ in end-to-end width were framed into reinforced concrete hip girders. After planks were set and top reinforcement placed in girders, concreting of girders was completed—making planks and girders a rigid, monolithic structure.

2. Office Building superstructure is reinforced concrete on soil bearing spread footings. On ground floor, two rows of tapered, splayed columns support girders which cantilever 7′ beyond column lines and carry four rows of columns supporting upper two floors. Floor slabs and roof deck are cast-in-place concrete.

3. Graphic Arts Building, 900′ long on outer diameter, houses complete printing facilities, central services, mailing room, boiler room, maintenance shop. Building is on soil bearing spread footings, has slab-on-ground area of about 113,000 square feet.

Continued from page 178

the reduction, the lines of the engravings necessarily blend together and produce a slightly grayer effect than the light and almost sparkling originals. However, editions of the *Works* have had a history of becoming rare very quickly, and this new one, the first in 30 years, may be expected to follow the same pattern. It is the only edition of the *Works* now readily available.

Besides the plates, this book contains a section of 45 recent photographs of Adam buildings, interiors, and details. And there is also a biographical introduction by John Swarbrick, an eminent Adam authority, who devotes considerable space to excerpts of the journal which the younger Adam—James—wrote on a trip to Italy. Originally attributed to Robert Adam, this journal is considered the most complete revelation of the views and tastes of the lesser known James.

For any architect who appreciates a unity of effect and a thorough consistency of design—from invisible hinges to grand entablatures, from co-ordinated ceiling and carpet patterns to bold site plans and programs—the refinement of the Adam brothers will always be a source of inspiration. This volume should corroborate one's faith in meticulous attention to total architecture and its solid achievements throughout history.

C.R.S.

Faces, Houses, and Streets

WALKER EVANS: AMERICAN PHOTOGRAPHS, *with essay by Lincoln Kirstein. Published by Museum of Modern Art, 11 W. 53 St., New York 19, N.Y. (1962, 196 pp., illus. $7.50)*

The America of the 1930's, an America of depression, lassitude, neglect, and despair, impelled Walker Evans to make photographs of it. Seeing those photographs then, I was moved, knowing their ineluctable reality. Subsequently in group exhibitions, among contrived artistic strivings, Evans' images have come across with a stomach-cramping jolt. They still do. Hence the validity of reissuing a book that is neither a presently true picture of the United States nor a nostalgic period piece.

The paintings of Edward Hopper and the Paris photographs of Atget may have influenced Evans, but no works are true precedents for his invention of the American documentary photographic style. Evans' photographs demand *looking at* for their recognizable, gutsy subjects. Finicking aesthetic matters and obscure philosophic references are not a concern here.

First section of the book: *photographs including people.* Evans' ordinary-ugly people, more solid than the buildings, less expressive than the posters, transcend rags, home-made chic, sleazy furs, junky cars, used-up furniture, tacked-together shacks, even actual physical collapse, and come through tenaciously alive.

Second section: *architecture, unpeopled.* Photographs of American towns show utilitarian, unaesthetic building groups, industry-shadowed, in cubist patterns. The photographs of single buildings, flimsy and often sagging, are a reminder of what the substitution of the nail for joinery did to our indigenous architecture. The final series of curlicued wooden Gothic detail and wrought-iron balconies reaffirms a faith in American craftsmanship.

Along with the plates is the powerful and expressive writing on photography by the young and contentious Lincoln Kirstein, who says: "The power of Evans' work lies in the fact that he so details the effect of circumstance on familiar specimens that the single face, the single

house, the single street, strikes with the strength of overwhelming numbers, the terrible cumulative force of thousands of faces, houses and streets."

Nothing like this book could be done now. We are too consciously self-aware, too homogenized coast-to-coast by TV, superhighways, and advertising. And photographers prefer to snap-shoot the bizarre, distorted, dramatic split-second. It is good that we again have Evans in this book—and Kirstein. It reminds us that we once could feel and express, deeply and originally.

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

Toward Structural Clarity

SURFACE STRUCTURES IN BUILDING, *by Fred Angerer. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y. (1961, 142 pp., illus., paperbound, $4.50)*

This useful and convenient little book was originally submitted as an inaugural dissertation to the Faculty of Building in the Technical Institute of Munich. Thus it is neither a text nor a piece of original research, but rather a lucid and nontechnical exposition of the chief structural and formal properties of elastic bearing elements that behave as two-dimensional forms, such as slabs, panels (vertical slabs), shells, and folded plates. The author himself provides a good summary of his book at the beginning of the concluding section:

"In the introduction to this work it was stated that building with surface structures is an individual method of construction, equal in importance to solid and skeleton construction, though intermediary in type.

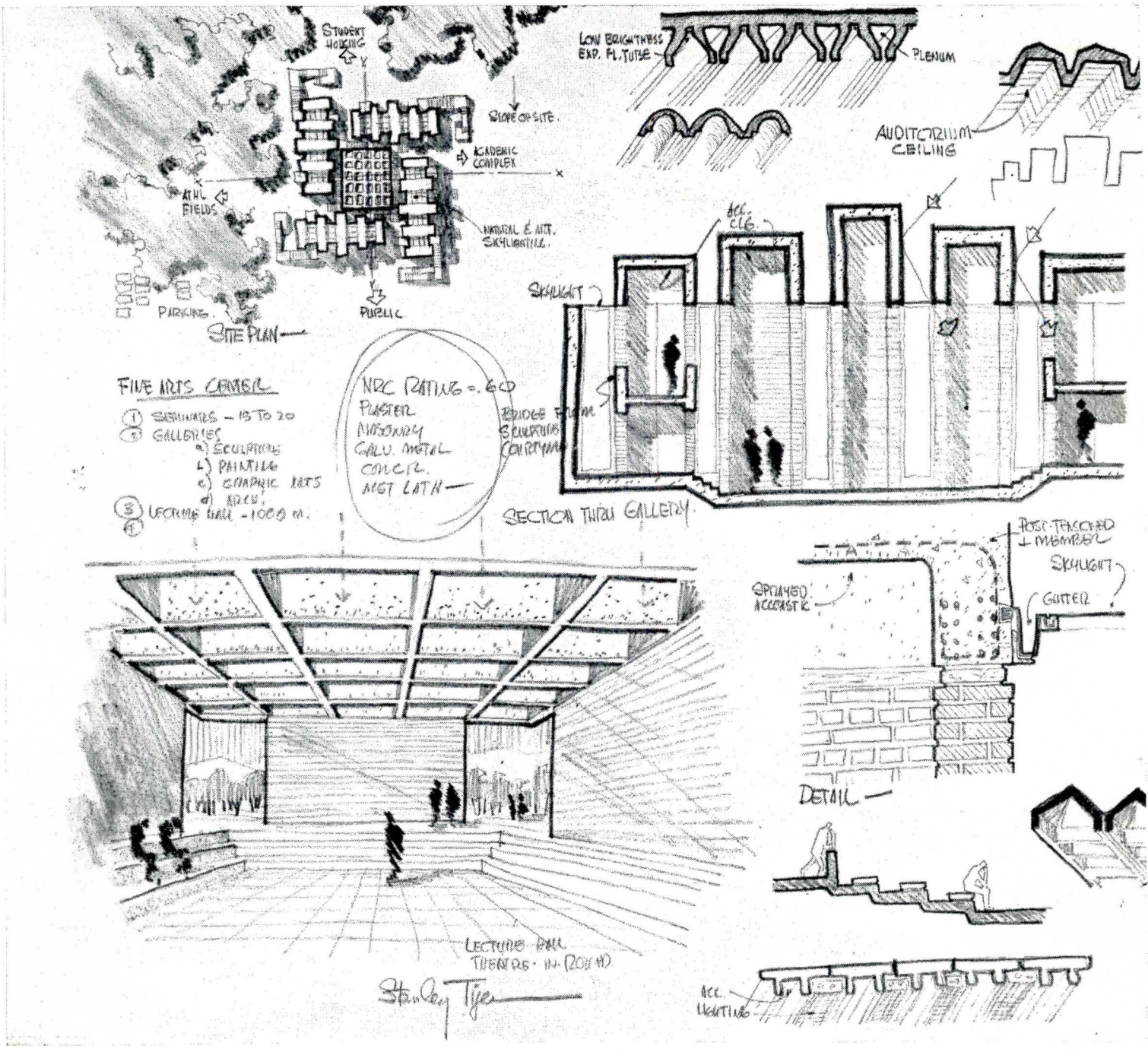
"It furthermore attempted to explore the individual principles of surface structures both statically and structurally and to show the difference between them and solid and skeleton construction. Investigation has had to be limited to the visualization of the flow of forces in this new constructional method and to the description of difficulties and limitations arising thereby.

"The aim of this [section] is to investigate the possibilities of form which this new constructional medium provides."

The main part of the text is divided into two sections: "Fundamentals of Construction" and "Form." The first provides a comprehensive description of the structural and elastic behavior of the whole range of bearing surfaces—slabs, girders, and panels; rotational and vaulted shells; doubly curved shells; prismatic and pyramidal folded structures. The emphasis is on the principle of membrane stressing and its variations: that is, the problem of designing the structure so that loads are always transmitted as stresses in the membrane plane rather than as bending forces in the plane at right angles to it. The text is supplemented by remarkably clear line drawings, admirable examples of how much better drawings are than photographs for visualizing structural forms. Unfortunately, there are no references to the figures in the text, although the individual cuts are numbered.

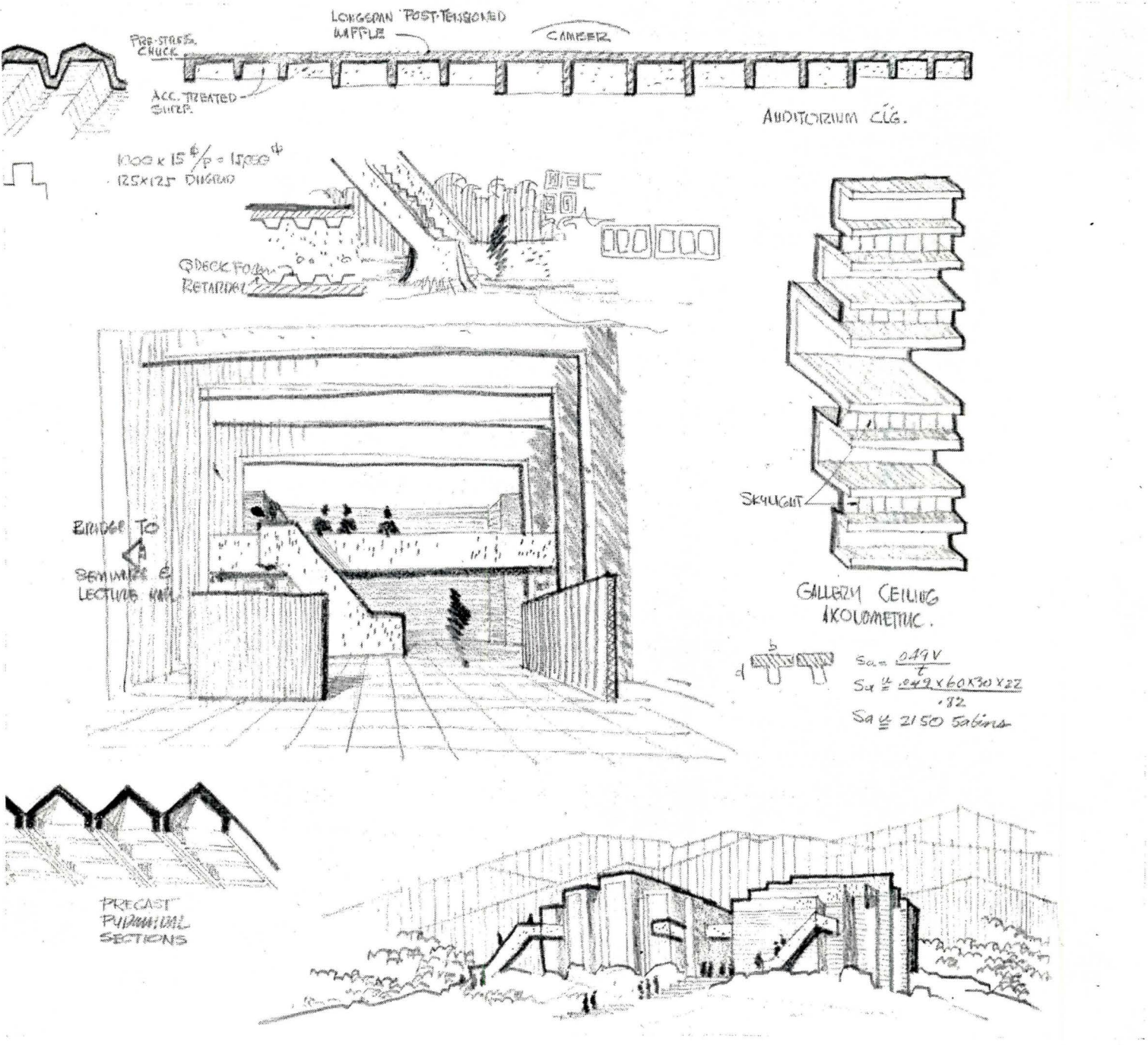
The treatment of the subject is perfectly sound within the limits that Angerer has imposed upon it, but one can raise certain questions about the emphasis and the nature of the limits themselves. To consider details first, the author deals with surface structures strictly in terms of dead load ("self load" as he calls it) and uniformly distributed static load, omitting point loads and moving loads. The result is that his treatment is oversimplified, with very little on bending forces and the consequent tensile stresses. It is theoretically possible to design shells and folded plates subject only to direct or membrane stress, but in actual practice this

Continued on page 196



Acoustical ceilings are designable

Architect Stanley Tigerman gives us a few of his ideas regarding three dimensional, acoustical ceilings. Mr. Tigerman is a principal of the firm of Tigerman and Koglin, 100 West Monroe St., Chicago.



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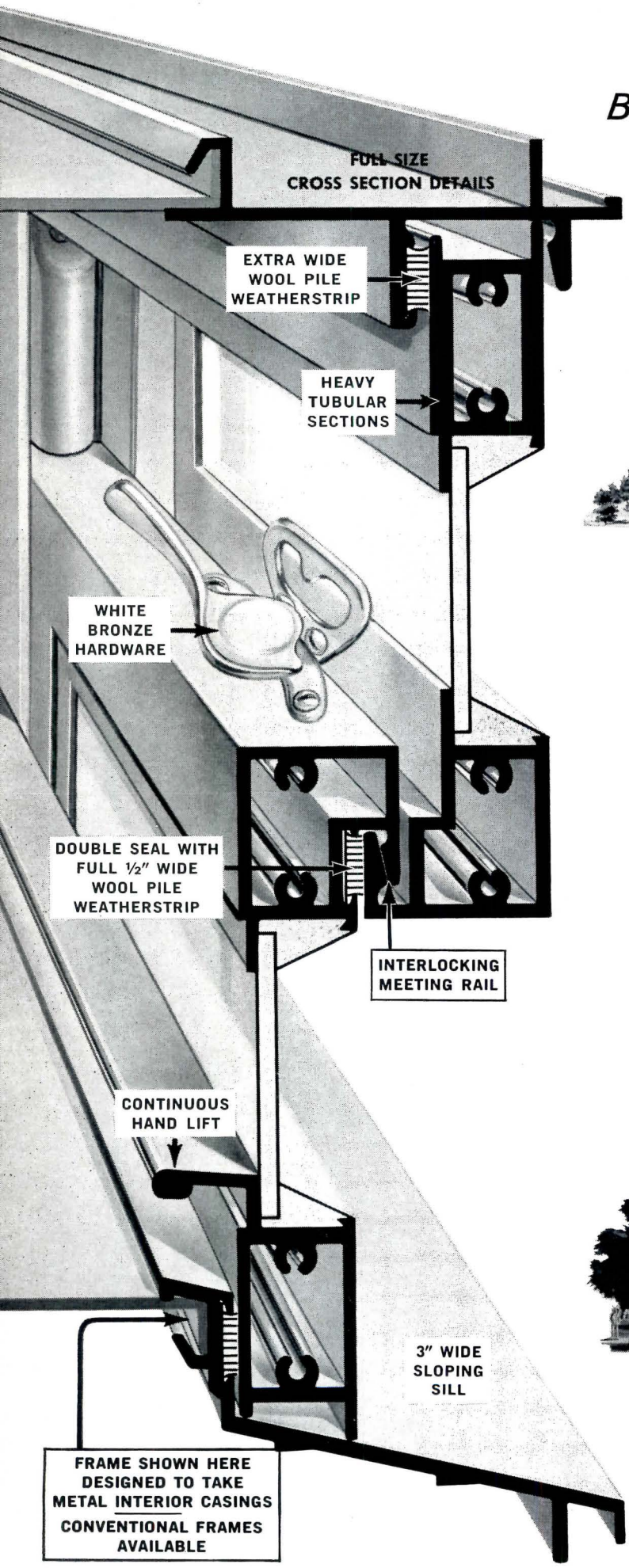
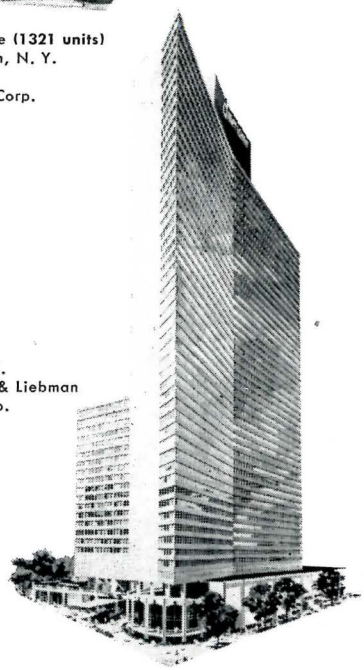


World's Largest Apartment House (1321 units)
Ebbets Field Apartments, Brooklyn, N. Y.
Architects: Brown & Guenther
Contractor: H. R. H. Construction Corp.



World's Tallest Hotel (50 stories)
Americana Hotel, New York, N. Y.
Architects: Morris Lapidus, Harle & Liebman
Contractor: Diesel Construction Co.

785 Fifth Avenue Apartments, New York, N. Y.
Architects: Emery Roth & Sons
Contractor: Fisher Bros.

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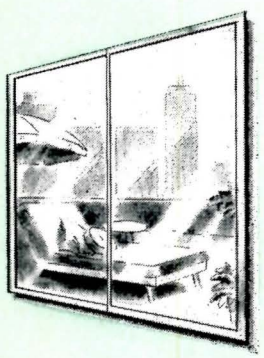

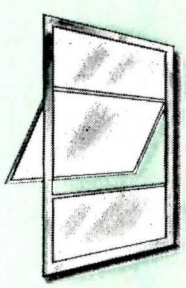

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Continued from page 191

is rarely the case. As a consequence, the problem of reinforcing is essential, but Angerer omits this subject almost entirely. Moreover, slabs and panels are always subject to bending and hence must be treated as reinforced elements. The author recognizes this fact only by a reference to the comparative virtues of the Maillart and Turner systems of slab reinforcing. On the subject of panels, it would be advantageous to show that a panel often behaves like a slab but has the additional virtue of counteracting potential buckling by the tendency of contiguous elements to buckle in opposite directions.

A larger question arises in this context. Including slabs and panels in the general class of bearing surfaces obscures a fundamental difference. Shells and plates are not really bearing elements: they support only their dead weight and wind and snow loads. Moreover, in the United States the codes almost always require that they be built with stiffening ribs. Slabs and panels, on the other hand, are true bearing elements capable of supporting heavy concentrated and live loads producing high bending forces. Their thickness is much greater than that of shells and their internal behavior is often radically different. Finally, it is misleading to suggest that because surface structures are the most scientific building elements, requiring the most exact mathematical calculations, they are the end-product of a straight-line evolution. Gothic vault webbing is an early form of surface structure, while modern solid-mass construction and skeletal systems are products of the scientific revolution in 19th-Century building technology. The older structural forms are suitable for certain kinds of construction for which surface elements are inadmissable. In this respect, Angerer's book might best be considered as a supplement to Torroja's *Philosophy of Structures*, a valuable work that has received too little attention.

The final part of the book is developed around a thesis the truth of which is becoming more apparent every day. The forms of much contemporary architecture increasingly rely on structural clarity, so that beauty is structurally the most exact form, or mathematically the most correct form. Aesthetic and empirical forms tend to merge. As Nervi has suggested, our architecture steadily approaches the pure manifestation of scientific laws. Everything that Angerer says points in this direction.

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

Lessons of the Past

ARCHITECT AND PATRON *by Frank Jenkins. Published by Oxford University Press, 417 Fifth Ave., New York 16, N. Y. (1961, 254 pp., illus. $5.60)*

This scholarly tome surveys professional relations and practice in England from the 16th Century to the present. With many amusing anecdotes, it makes a readable review of the architect's role in British society throughout these years.

Patrons have changed markedly during these years. Prior to the Tudor period, the main patron was the Church. Then followed the court, and particularly the landowner, who was concerned with personal aggrandizement. Subsequently, innumerable merchants and landowners who were not wealthy enough to belong to the upper strata of society nevertheless became a great force in the Age of Taste. There then arose the collective client boards concerned with the building of theaters, prisons, churches, and hospitals. In the 19th Century, new com-

mercial building provided another great source of clients. Today, in England, official bodies constitute the major patronage of architects. Britain has a highly developed "board of directors" architecture; in general, the best buildings since the war are those developed for governmental agencies.

The architect's position, too, has changed. At the time of Henry VIII, the architect was little more than a mason. Learned men of other professions dabbled in architecture; Henry's physician, for instance, made certain recommendations as to "where a man shuld cytuat or set his mancyon plaxe of howse for the helth of his body." Often the steward of an estate became a supervisor or clerk of the works.

Building habits at the end of the 16th Century are recorded by Shakespeare in Lord Bardolph's much-quoted speech:

> When we mean to build
> We first survey the plot, then draw the model;
> And when we see the figure of the house
> Then we must rate the cost of the erection;
> Which if we find outweighs ability,
> What do we then but draw anew the model
> In fewer offices, or at least desist
> To build at all?

Money had been no object under the patronage of the church; neither had time. But when people began to build for their own use, in the 16th Century, they wanted the structure finished on time and within their budget. Plans were usually drawn up by a third party—not the same person who did the building, as had previously been the case. He was called a surveyor, and in addition to recording existing conditions—as do present-day surveyors—he frequently did some design, too. Such designs would be let out on competitive bids, but often with poor workmanship resulting, especially when the craftsmen underestimated their costs. Contract specifications which arose were not unlike the General Conditions of today's practice.

Between 1620 and 1750, the group of men practicing as architects could be roughly classified into five types: artist-architects; scientist-architects; gentlemen-architects; architects who graduated to their positions through a building trade; and trained architects. Who were they? Inigo Jones, Sir John Vanbrugh, Robert Hooke, Roger North, Sir Christopher Wren, and James Gibbs were perhaps the most outstanding.

The years from 1750 to 1834 saw the rise of more formal architectural organizations and training. Many architectural clubs were formed and dissolved, perhaps failing because they were more social than professional. Architects, however, were leaders in the formation of other societies concerned with the arts; and some of these have survived to this day. Architectural training became more formal, with certain prerequisites in education and travel (at considerable expense) before one could hang out a shingle. The Roman experiences of George Dance, in letters to his father, are most revealing:

> "They received me very politely and Mr. Pitt who is a great lover of Architecture desired me to make him a drawing of the famous Gallery at the Colonna Place—I have already got a license to measure it and shall finish it with all expedition. . . . He is a young gentleman of an extraordinary Character & fine sense. His friendship may be of great service to me in England & if I please him in this Drawing I hope that he will employ me to do some of the Antiquities for him."

Books were quite popular, and a good library of the latest Italian findings ensured the success of any London architect who could make this known to

prospective clients.

The usual architectural fee at the end of the 18th Century was 5 per cent of the cost of the work, a figure which was standard until about 1920. In the printed contract used by Joseph Bonnomi in 1794, there are many clauses that were not in the AIA Standard Form of Agreement until the latest edition, a few years ago! I wonder how this one would do today:

"If the expense of the building exceeds the Estimates given, then B. demands no more than the Commission upon the amount of the given Estimate; provided though that the overplus is not caused by additions and alterations in the Design."

Competitions were not popular amongst architects. Sir John Soane observed:

"A Committee of taste—an honourable member of parliament—a learned barrister—a favoured clerk—or any fashionable amateur armed with a little brief authority—has the power to control the architect, paralyse the best energies of his mind, and destroy his fair pretensions to fame and fortune; although such persons are no more fitted to correct the public taste and to instruct the architect, than the presumptuous and ignorant pedant was to school Hannibal in the art of war."

And here is a letter C.F.R. Voysey wrote a client in 1899:

"The detail drawings for your house are progressing and all will be finished by Xmas or end of the month. Certainly you had better not see the drawings until they are finished and coloured. They will not give you the slightest idea of what you are going to have. All artistic questions you must trust me to decide. No two minds ever produced an artistic result."

What is past is prologue. I can recommend *Architect and Patron* to any architect interested in the historic development of our profession. And all of us, entrusted as we are with the welfare of our profession, would do well to review the lessons of the past in seeking answers for the present.

JEFFREY ELLIS ARONIN
New York, N. Y.

OTHER BOOKS TO BE NOTED

The Agadir, Morocco, Earthquake. W. G. Kirkland, R. W. Binder, R. W. Clough, and T. R. Higgins. Committee of Structural Steel Producers, American Iron and Steel Institute, 150 E. 42 St., New York 17, N.Y., 1962. 112 pp., illus. Distributed by AISI to libraries and selected engineers.

Observations and recommendations by a team of engineers who went to Agadir three weeks after the February 1960 disaster. They survey in detail the damage of the earthquake (which killed an estimated 12,000 and totally destroyed several parts of the city); they also explain the dynamic characteristics of earthquakes in general and review the development of seismic-design procedures in the U.S. during recent years. Major conclusion is that "structures designed in accordance with the lateral-force provisions of a modern building code would perform very satisfactorily in earthquakes of the intensity experienced at Agadir." A code developed by the Structural Engineers Association of California is included.

AIA School Plant Studies: A Selection 1952–1962. Edited by Eric Pawley. The American Institute of Architects, 1735 New York Ave., N.W., Washington 6, D.C., 1962. 152 pp., illus. $2.50 (paperbound)

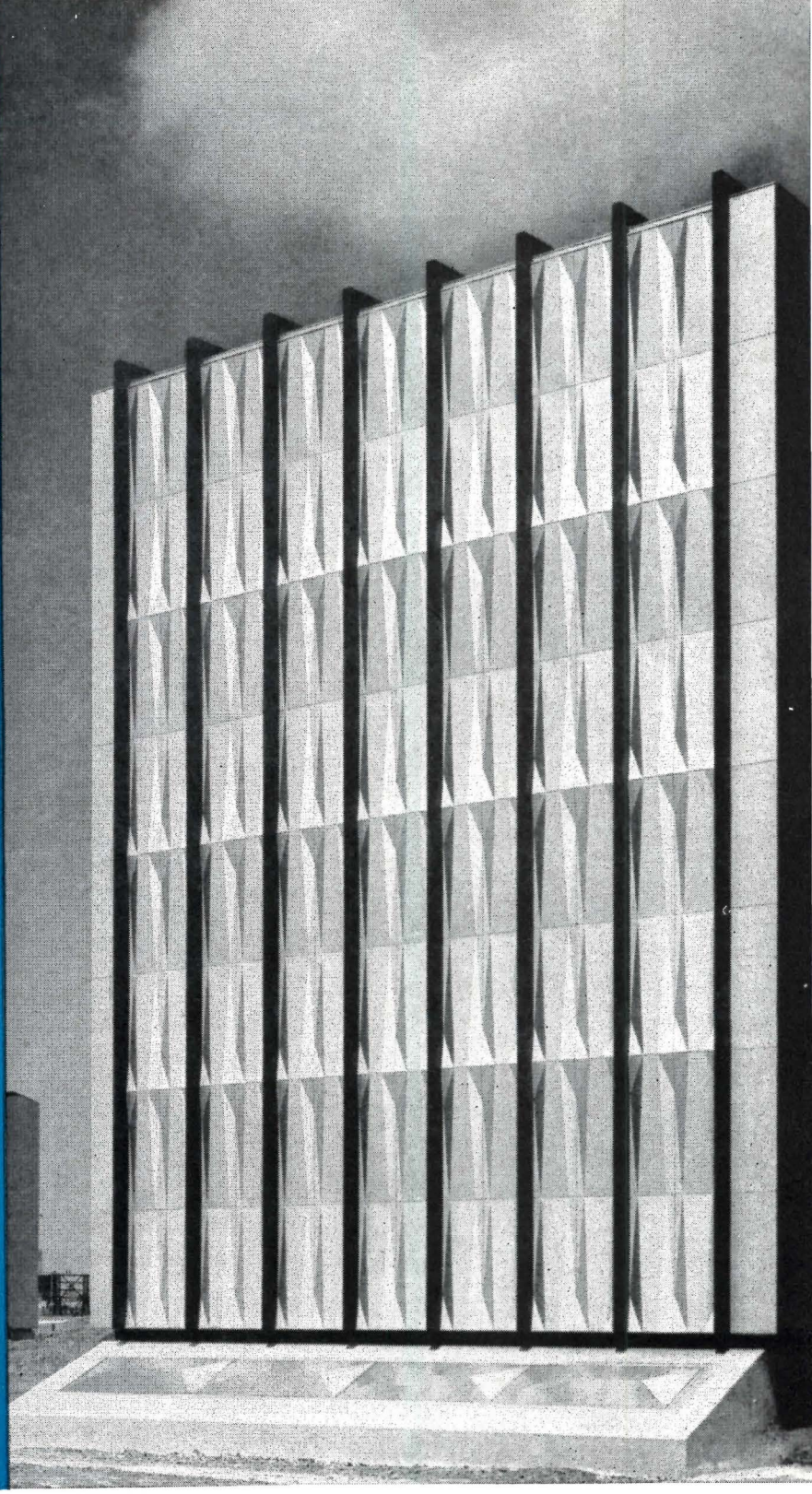
To be reviewed.

American Furniture: A Complete Guide to 17th, 18th, and 19th Century Styles. Helen Comstock. The Viking Press, 625 Madison Ave., New York 22, N.Y., 1962. 336 pp., illus. $17.50 ($15 until December 31, 1962)

Fully documented reference book on American furniture, with historic background of each period and description of each design innovation. More than 700 illustrations show individual pieces, details of carvings and turnings, room settings, and contemporary paintings. Author is a contributing editor to Antiques *magazine.*

Continued on page 204

Another of today's trend-setting designs–crafted and clad by GENERAL BRONZE



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In these unusual towers, many recurring problems in curtain wall treatment were amplified. Corrosive atmospheres were present. Harsh reflections and "oil-canning" in the all-metal facades had to be avoided with extreme care. Maintenance had to be held to a minimum. General Bronze helped solve these problems by applying the skills of a half-century in architectural metalwork... 16 years in curtain wall construction.

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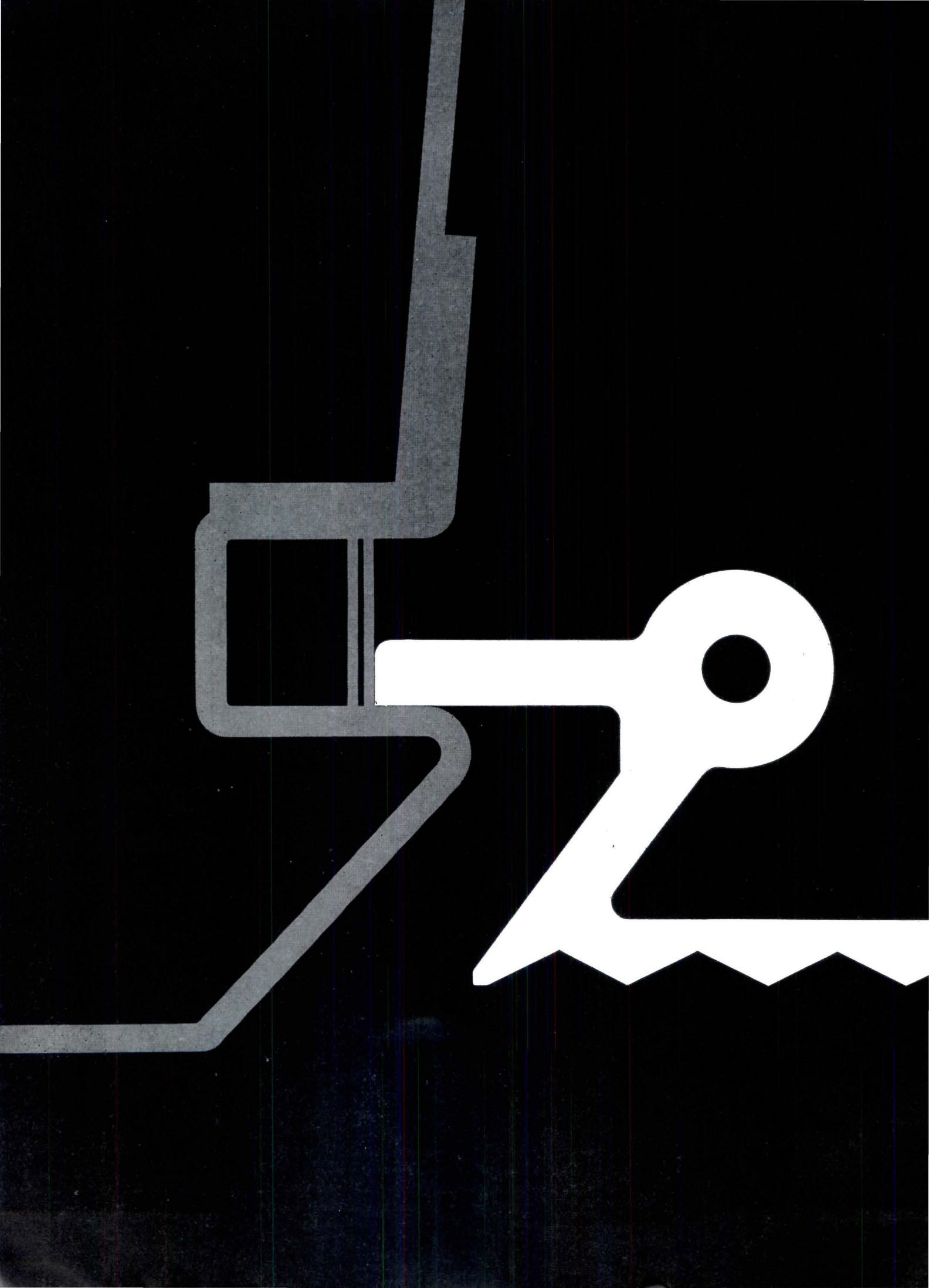
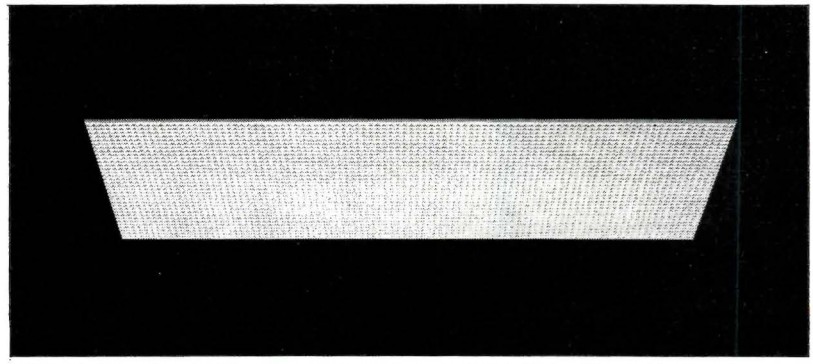
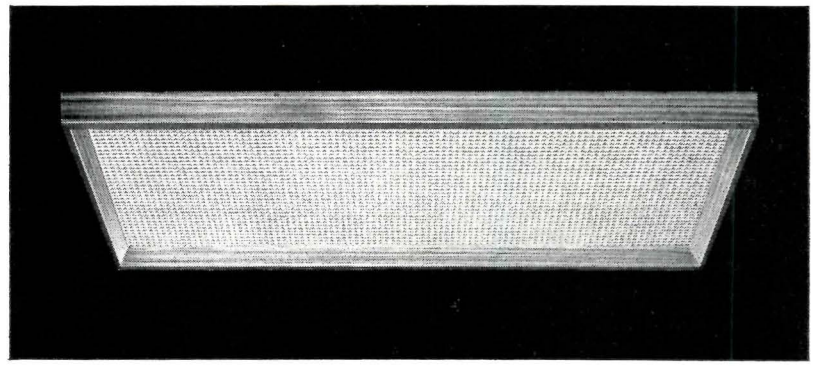


No visible means of support!





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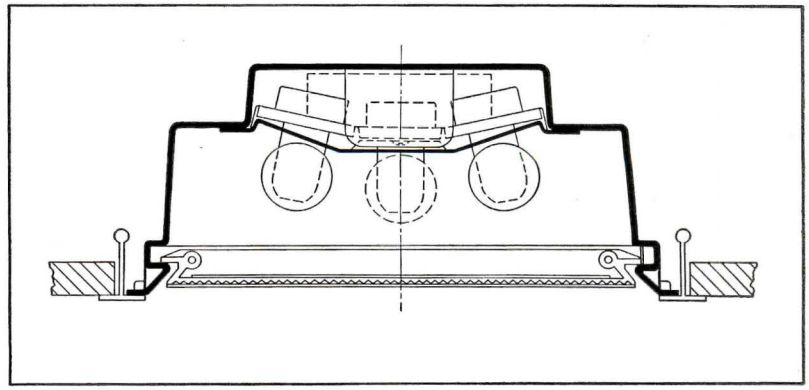

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REDWOOD GIVES EXPRESSION TO THE CHANGING IDEAS IN APARTMENT PLANNING. The Bay Tree Apartments, designed by Fred Marburg, A.I.A., are an interesting example of the present trend in garden apartment design. For exterior siding, the architect chose saw-textured redwood in reverse board and batten. To provide an interesting variation for stairs and balconies the boards are applied horizontally as lapped siding. The textured face of the redwood adds depth and visual interest to the wall surface and is extremely practical—leaves it virtually maintenance-free. The warmth and charm of redwood helps make garden apartments livable—leads to a high rate of occupancy.

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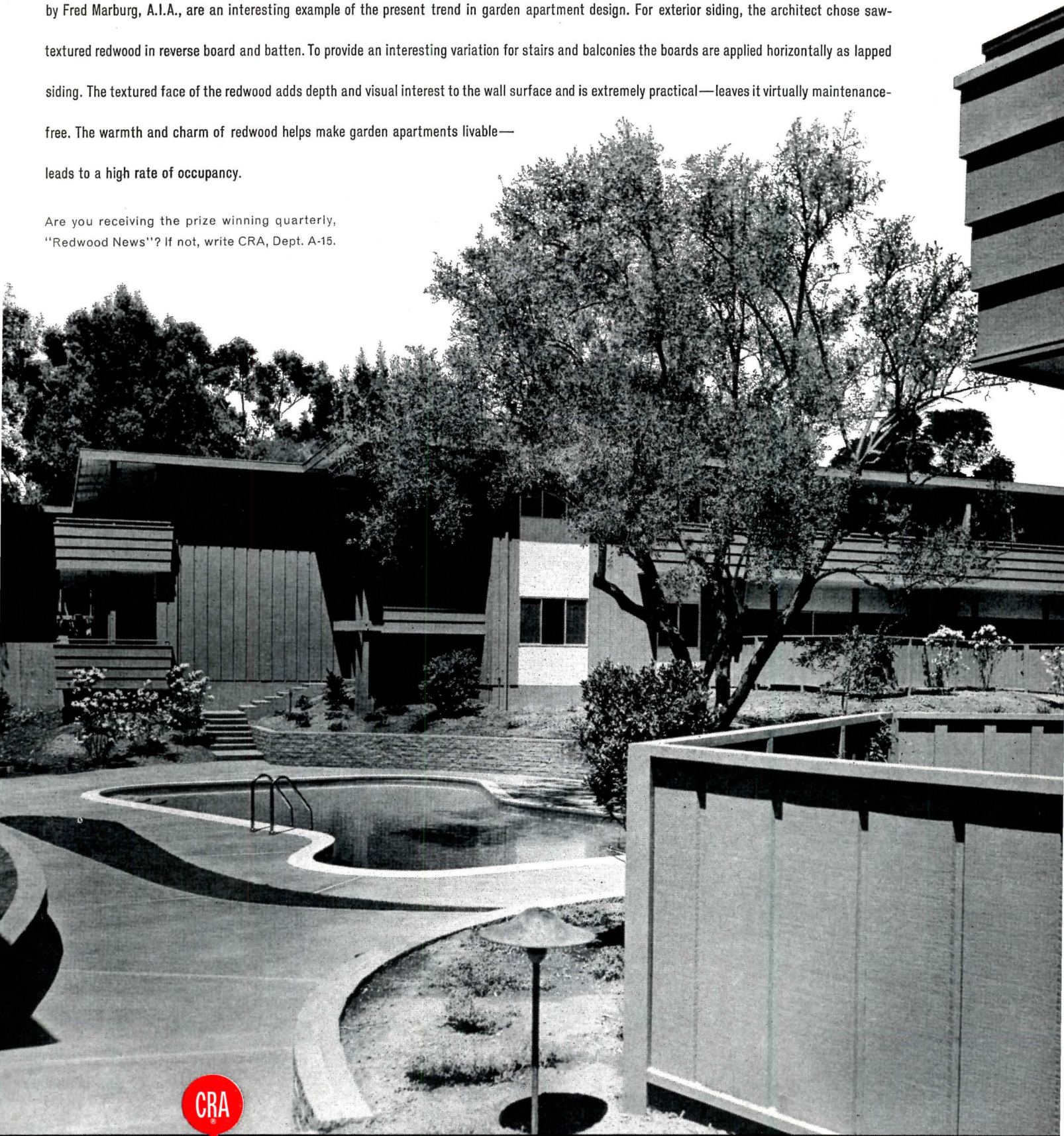

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Continued from page 198

Anatomy of a Metropolis. Edgar M. Hoover and Raymond Vernon. Doubleday & Co., Inc., 575 Madison Ave., New York 22, N.Y. 1962. 338 pp., $1.45 (paperbound)

Reissue of the first volume of the New York Metropolitan Region Study, *an impressive nine-volume series undertaken by Harvard's Graduate School of Public Administration for the Regional Plan Association.*

Architectural Design Preview, U.S.A. John Dixon. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y., 1962. 224 pp., illus. $15

To be reviewed.

The Architectural Index: 1961. Compiled and published by Ervin J. Bell, 517 Bridgeway, Sausalito, Calif., 1962. 62 pp. $5 (paperbound)

Twelfth annual index of all articles from the major architectural magazines—Architectural Forum, Architectural Record, Arts and Architecture, House and Home, Interiors, Journal of the AIA, *and* P/A. *For quick reference, all buildings are cross-indexed under three headings: type of project, location, and name of architect or designer. Back issues from 1950 also available at same price.*

Architectural Lighting Graphics. John E. Flynn and Samuel M. Mills. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y., 1962. 222 pp., illus. $16.50

To be reviewed.

British Art Since 1900. Sir John Rothenstein. Phaidon Press, London, 1962. Distributed by New York Graphic Society, Greenwich, Conn. 192 pp., illus. $13.50

A comprehensive study, covering 99 artists, of 20th-Century painting and sculpture in the British Commonwealth. Author is the Director of the Tate Gallery in London.

But Not Next Door: An Account of the Deerfield Case and Integration. Harry and David Rosen. Foreword by Sen. Jacob K. Javits. Ivan Obolensky, Inc., 341 E. 62 St., New York 21, N.Y., 1962. 175 pp. $3.95

To be reviewed.

The Cathedral Builders. Jean Gimpel. Translated by Carl F. Barnes, Jr. An Evergreen Profile Book. Grove Press Inc., 64 University Place, New York 3, N.Y., 1961. 192 pp., illus. $1.35 (paperbound)

A study of the creative forces in medieval Europe that produced 80 cathedrals, 500 great churches, and more than 10,000 parish churches. The author explores the political, spiritual, and financial role of the churchmen; shows how parish rivalry influenced architectural styles; describes the ingenuity of engineers and technicians; and traces the evolution of guilds. Illustrations, interspersed throughout the text, are excellent.

Site Planning. Kevin Lynch. The MIT Press, Cambridge, Mass., 1962. 248 pp., illus. $8

To be reviewed.

Fire Protection Handbook (12th Edition). National Fire Protection Assn., 60 Batterymarch St., Boston 10, Mass., 1962. 2216 pp., illus. $17.50

Revised and enlarged authority on the subject of fire prevention and protection. Information related to building construction includes fire-resistance ratings of all types of building assemblies and materials, flame-spread characteristics of interior finishes, principles of venting smoke and heat from buildings, life safety requirements for exits, and evaluation of structural damage from fire. Illustrated with 1000 photos and drawings, 300 tables and graphs.

Governing the Metropolis. Scott Greer. John Wiley & Sons, Inc., 440 Park Avenue South, New York 16, N.Y., 1962. 152 pp., $4.50 ($2.45 paperbound)

An analysis of the American urban community — the factors changing it and the governmental problems challenging it. Author is Director of the Center for Metropolitan Studies (and Professor of Political Science and Sociology) at Northwestern University. He served as Chief Sociologist for the Metropolitan St. Louis Survey.

Hotels, Restaurants, and Bars. W. S. Hattrell & Partners. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y., 1962. 146 pp., illus. $16

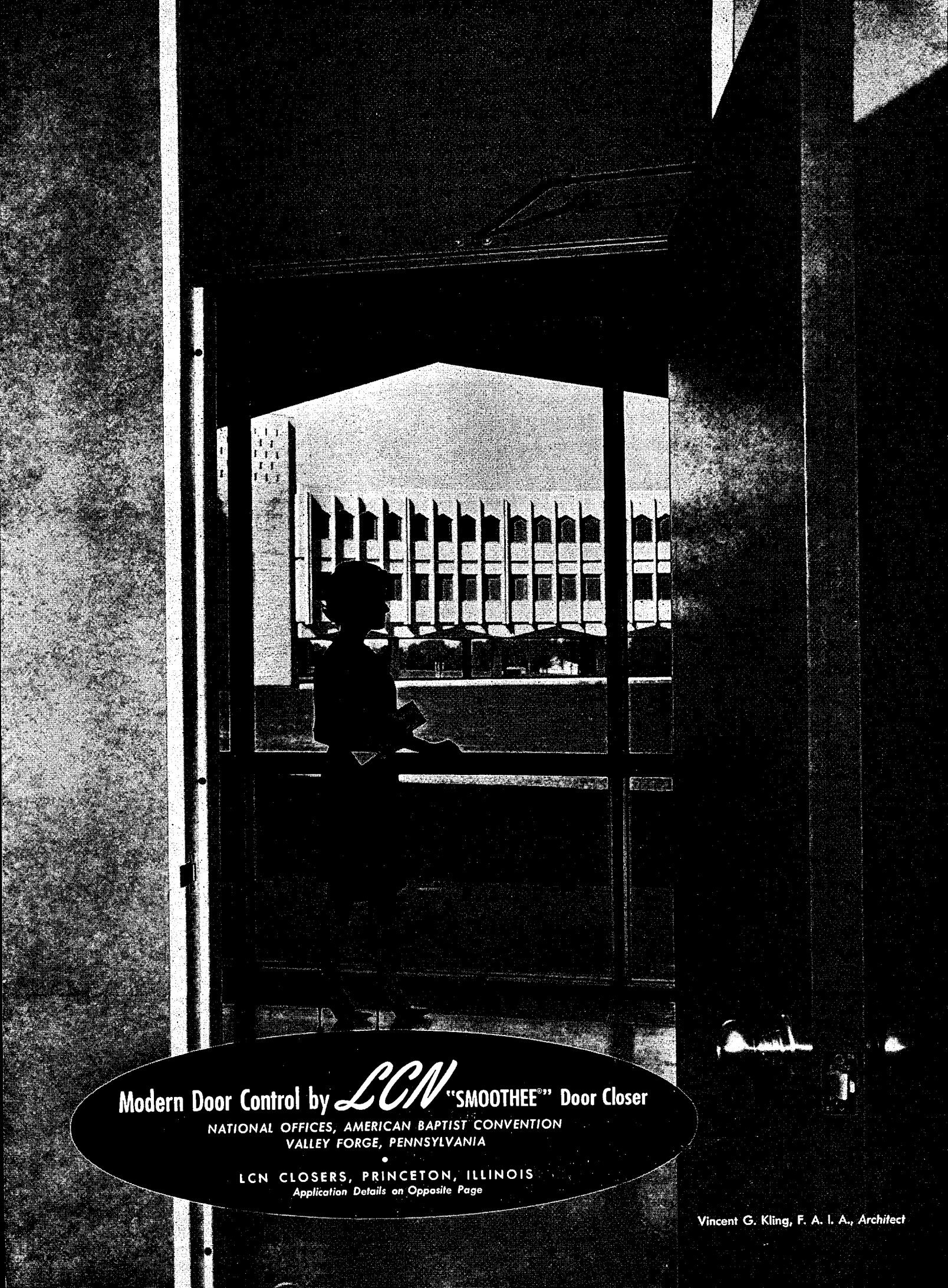
To be reviewed.

How to Plan and Build Your Fireplace. Editors of Sunset Books. Lane Book Co., Willow Rd. at Middlefield Rd., Menlo Park, Calif., 1962. 116 pp., illus. $1.95 (paperbound)

Idea book on fireplaces of all types and in all settings.

How to Read Shop Drawings: With Special Reference to Arc Welding and Welding Symbols. The Lincoln Electric Co., 22801 St. Clair Ave., Cleveland 17, Ohio,

Continued on page 210



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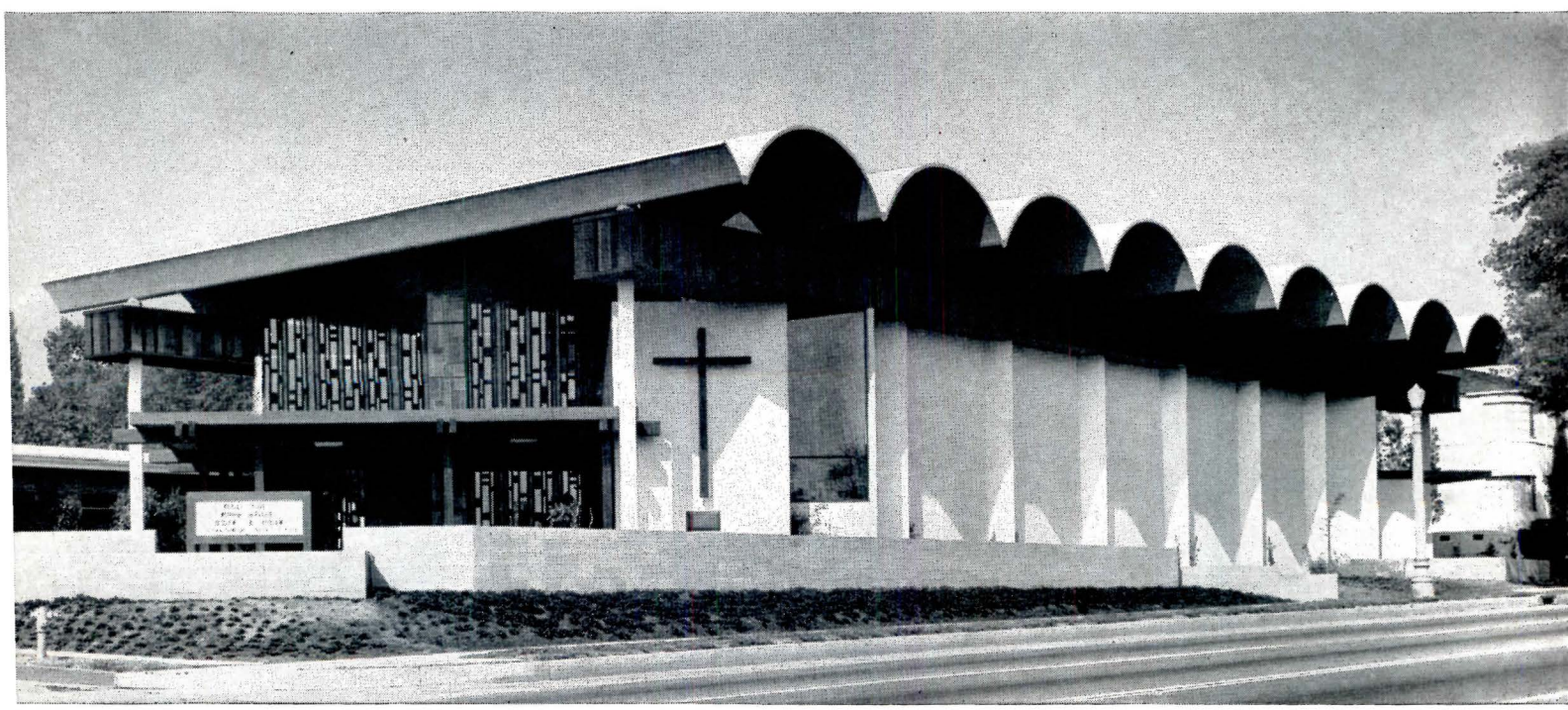
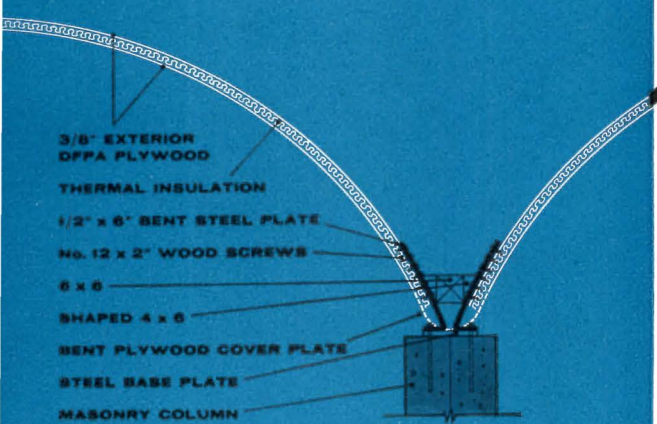
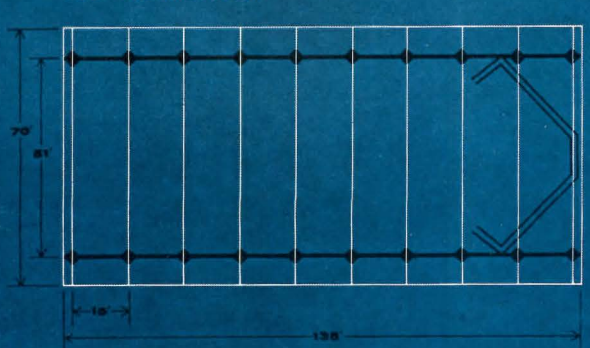


TYPICAL VAULT CONNECTION AT SUPPORTS



ROOF FRAMING PLAN



ST. PAUL'S LUTHERAN CHURCH

LOCATION:	MONROVIA, CALIFORNIA
ARCHITECTS:	SMITH AND WILLIAMS SOUTH PASADENA, CALIFORNIA
FABRICATOR:	BERKELEY PLYWOOD COMPANY SAN LEANDRO, CALIFORNIA

NINE PLYWOOD VAULTS, seeming to float on panels of light, give this church its simple grace and elegance. They provide the additional, practical advantages of construction economy and a 51x135 ft. support-free interior.

Each vault rises to an apex of 27 feet and spans an area 15x51 ft.—longest span on record for an unsupported plywood vaulted roof system. The roof components were prefabricated, and were so carefully engineered that installation took only seven hours.

This church is one more example of the striking new architectural forms that are becoming a practical possibility with plywood: high in structural strength and integrity, economical of labor and materials, and offering superior design flexibility. For more information on plywood structural systems, write (USA only) Douglas Fir Plywood Association, Tacoma 2, Washington.

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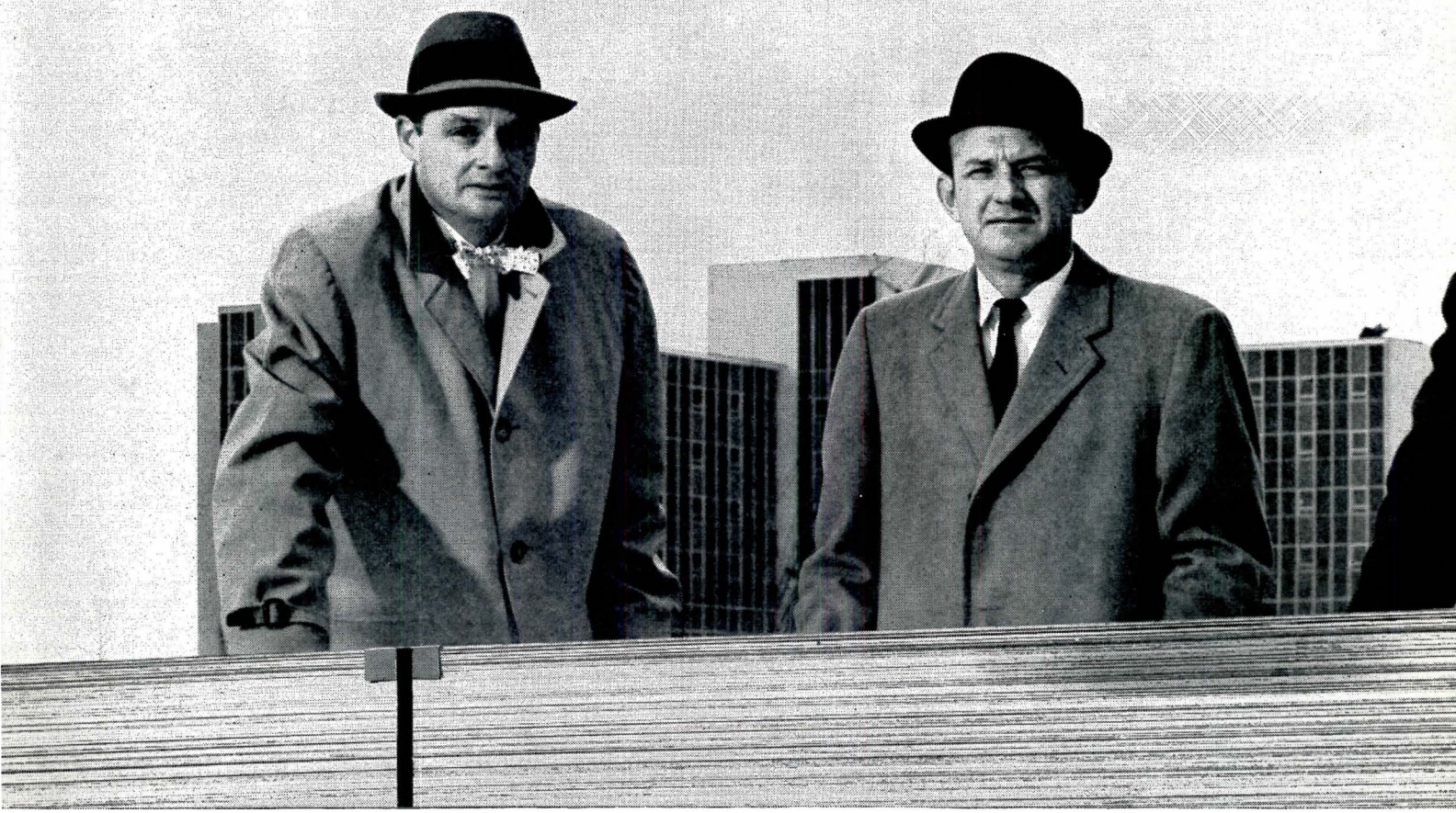

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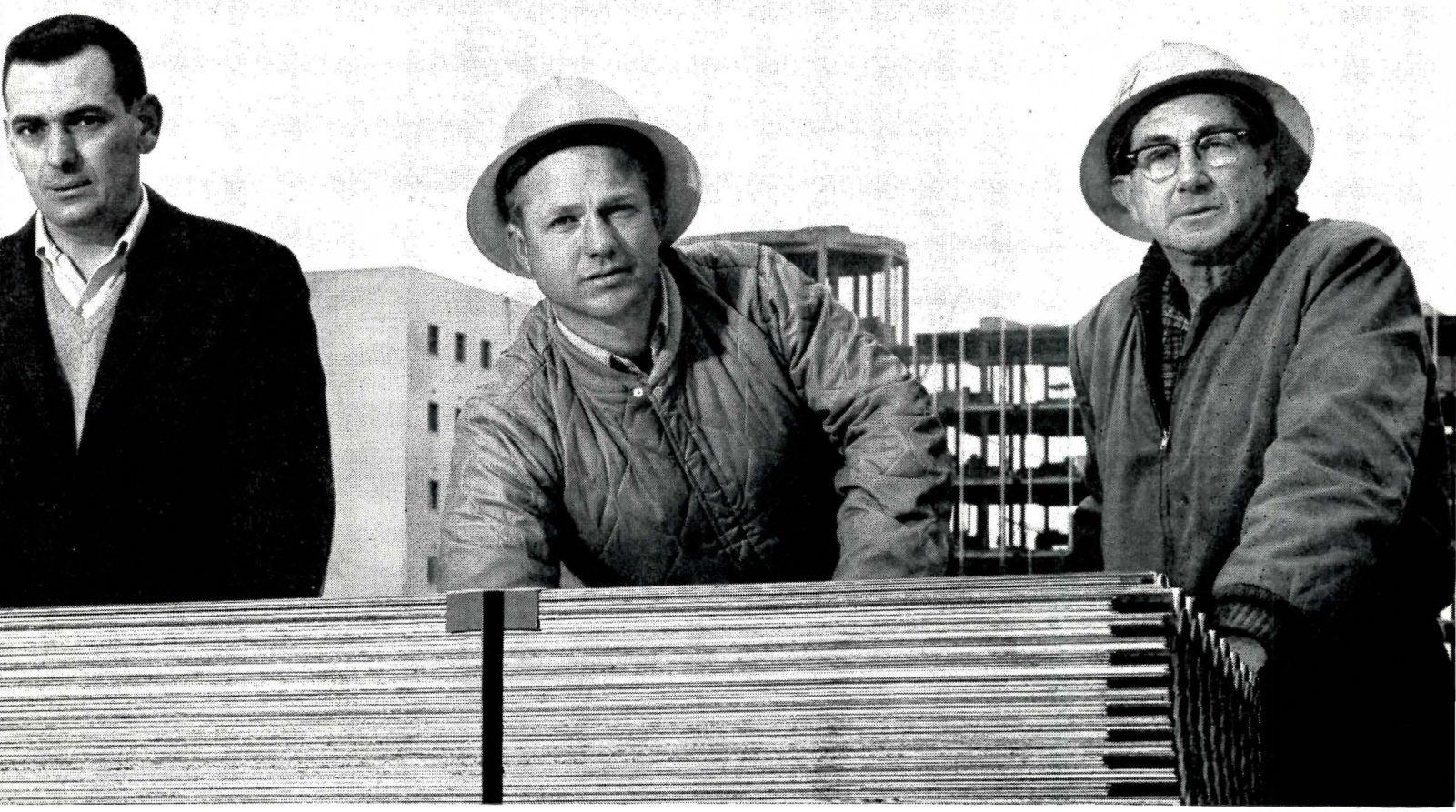
"Corruform gives you a good working deck, fast—you can walk on it right away. It's a tight deck—keeps water in the slab so it doesn't mess up floors below. I like the way it's bundled . . . easy to handle."

Tom Roussin



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Continued from page 204

1961. 187 pp., illus. $2

Simplified reference to help shop personnel and students understand the assembly and welding information that appears on mechanical drawings.

Innovation in Building: Contributions at the 2nd CIB Congress, Cambridge, 1962. Edited by the International Council for Building Research, Studies, and Documentation — CIB. Elsevier Publishing Co., Amsterdam, 1962. Distributed by American Elsevier Publishing Co., Inc., 52 Vanderbilt Ave., New York 17, N.Y. 232 pp., illus. $22.50

To be reviewed.

International Symposium on Hospital and Medical School Design, Dundee, 1961. Edited by George H. Bell. E. & S. Livingstone Ltd., Edinburgh, 1962. Distributed by The Williams & Wilkins Co., Baltimore 2, Md. 2 vols., 263 pp., illus. $16

To be reviewed.

Laboratory Planning for Chemistry and Chemical Engineering. Edited by Harry F. Lewis. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y., 1962. 522 pp., illus. $20

To be reviewed.

Makers of Contemporary Architecture: R. Buckminster Fuller by John McHale. **Philip Johnson** by John M. Jacobus, Jr. **Louis I. Kahn** by Vincent Scully, Jr. **Eero Saarinen** by Allan Temko. **Kenzo Tange** by Robin Boyd. George Braziller, Inc., 215 Park Avenue South, New York 3, N.Y., 1962. 128 pp. each, illus., $4.95 each

To be reviewed.

Metals and How to Weld Them (2nd Edition). T. B. Jefferson and Gorham Woods. The James F. Lincoln Arc Welding Foundation, Cleveland 17, Ohio, 1962. 392 pp., illus. $2

Revised textbook explaining the fundamentals of metallurgy and the relationship between properties of metals and weldability. Correct welding procedures are outlined for economically joining and hardsurfacing steel, cast iron, nonferrous metals, and exotic metals.

The Metropolitan Problem and American Ideas. Luther Halsey Gulick. Alfred A. Knopf, Inc., 501 Madison Ave., New York 22, N.Y., 1962. 167 pp. $3.95

Five lectures analyzing city problems and proposing possible solutions in areas of mass transportation, governmental organization, the planning function, zoning, redevelopment, etc. The lectures were given last year for the William W. Cook Foundation at the University of Michigan.

Modern Church Architecture: A Guide to the Form and Spirit of 20th Century Religious Buildings. Albert Christ-Janer and Mary Mix Foley. McGraw-Hill Book Co., Inc., 330 W. 42 St., New York 36, N.Y., 1962. 333 pp., illus. $9.75

To be reviewed.

Modular Practice: The Schoolhouse and the Building Industry. Modular Building Standards Association. (Editorial Team: Robert P. Darlington, Melvin W. Isenberg, and David A. Pierce.) John Wiley & Sons, Inc., 440 Park Ave. South, New York 16, N.Y., 1962. 198 pp., illus. $8.95

To be reviewed.

New Architecture in Sweden: A Decade of Swedish Building. Erik Thelaus. National Association of Swedish Architects, Stockholm, 1962. John Wiley & Sons, Inc., 440 Park Avenue South, New York 16, N.Y. 346 pp., illus. $14.50

To be reviewed.

New Furniture. Michel Mortier. Frederick A. Praeger, Inc., 64 University Place, New York 3, N.Y., 1962. 156 pp., illus. $12.50

To be reviewed.

Plastic and Elastic Design of Slabs and Plates. R. H. Wood. The Ronald Press Co., 15 E. 26 St., New York 10, N.Y., 1961. 344 pp., illus. $12

British text stating the assumptions, basic requirements, and limitations of plastic theories as they apply to reinforced-concrete floor slabs, especially in relation to the information already supplied by the theory of elasticity and the various accepted yield criteria. Attention is given to recent research into membrane action and the composite action of beams and slabs.

Eero Saarinen on His Work: A Selection of Buildings Dating from 1947 to 1964. Statements by the architect, edited by Aline B. Saarinen. Yale University Press, 149 York St., New Haven 11, Conn., 1962. 107 pp., illus. $15 ($12.50 until December 31, 1962)

To be reviewed.

Scene Design for Stage and Screen. Edited by Orville K. Larson. The Michigan State University Press, East Lansing, Mich., 1961. 334 pp., illus. $5

A collection of readings on the aesthetics and techniques of scene design for drama, opera, musical comedy, ballet, motion pictures, TV, and arena theater.

Seattle Cityscape: Sketches and Observations. Victor Steinbrueck, University of Washington Press, Seattle 5, Wash., 1962. 275 pp., illus. $4.75 (paperbound, $3.95)

275 excellent pen-and-ink sketches, with critical commentary, portraying Seattle's physical environment. Author is a practicing architect and Professor of Architecture and City Planning at the University of Washington.

NOTICES:

New Branch Offices

BOLT BERANEK AND NEWMAN, INC., Acoustical Consultants, 101 Park Ave., New York, N.Y. A new German company has been formed by BBN and HELMUT MUELLER known as MUELLER-BBN, G.m.b.H., in Munich, Germany. RAYMOND IRRERA ASSOCIATES, Architects-Engineers, 150 E. 35 St., New York 16, N.Y.

BURKE, KOBER & NICOLAIS, Architects and Engineers, 1823 E. 17 St., Suite 117, Hillview Building, Santa Ana, Calif., in association with Hawthorne Engineering.

REYNOLDS, SMITH AND HILLS, Architects and Engineers, 7 W. Gore Ave., Orlando, Fla.

JOHN THOMAS WATSON, Architect, closed

his office and is now associated with the firm's Orlando office.

New Addresses

BELL, MCCULLOCH, SPOTOWSKI & ASSOCIATES, Architects & Consulting Engineers, 10975 124 St., Edmonton, Alberta, Canada.

JOHN W. BRIGGS, Architect, 901 Midtown Tower, Rochester, N.Y.

J. HEWES CRISPIN, 2223 Pacific Ave., San Francisco 15, Calif.

DIEHL AND STEIN, Architects, Suite 122–24, 20 Nassau Building, 2-4 Chambers St., Princeton, N.J.

SEYMOUR EVANS ASSOCIATES, Lighting Designer, The Plaza, Fifth Ave. at 59 St., New York, N.Y.

FERGUSON-HUTCHISON, AIA, AND ASSOCIATES, Architects, have moved their drafting facilities to 14640 Victory Blvd., Van Nuys, Calif. The present address, 14606 Victory Blvd., will be retained and remodeled for the firm's executives.

FRAIOLI - BLUM - YESSELMAN, Consulting Engineers, 235 E 42 St., New York 17, N.Y.

FREEDMAN PETROFF JERUZALSKI, Architects, 491 Lawrence Ave., West, Toronto 12, Ontario, Canada.

HAROLD J. GREENE, AIA, 8375 Fountain Ave., Los Angeles 69, Calif.

VICTOR HORNBEIN AND EDWARD D. WHITE, JR., Architects, Suite 101, The Anderson Independent Building, 5909 E. 38 Ave., Denver 7, Colo.

HERBERT R. KAMEON, Architect, 1054 S. Robertson Blvd., Los Angeles 35, Calif.

KATZMAN ASSOCIATES, Architects, 147 E. 50 St., New York 22, N.Y.

HARRY B. KOHL, Architect, 17 Prince Arthur Ave., Toronto 5, Ontario, Canada.

LEVY & ANDERSON, Architects, 7 W. Grand St., Elizabeth, N.J.

LIBLING MICHENER & ASSOCIATES ARCHITECTS, Architects and Engineers, 368 Main St., Winnipeg 1, Manitoba, Canada.
PHILIP PEARLMAN, Architect, 1190 Northeast 163 St., North Miami Beach, Fla.

LITCHFIELD WHITING BOWNE & ASSOCIATES, Architects-Engineers, Palazzo Italia, Piazza G. Marconi, Rome, Italy.

FRANCIS PALMS, JR., Architect, 526 Pierce St., Monterey, Calif.

SAM REISBORD, Architect, 800 S. Robertson Blvd., Los Angeles 35, Calif.

CERF ROSS ASSOCIATES, Architects, The Praetorian Building, Dallas, Texas.

WALZER AND MILLER, Architects and Engineers, 1595 Elmwood Ave., Rochester 20, N.Y.

WASSERMAN DEVELOPMENT CORPORATION, Real Estate Development, Building Construction, and Manufacturing, 26 New St., Cambridge 38, Mass.

WEFEL AND WEFEL, Architect & Engineer, 3717 Lee Rd., Shaker Heights 20, Ohio.

New Firms

ARCHITECTURAL PRODUCTS CORPORATION, 114 E. 40 St., New York 17, N.Y.

PIERRE KLEYKAMP, NATHAN SHAPIRA, GEORGE DUKE, JR., WARREN MAXFIELD, JACK MACDONALD, principals in firm of ASSOCIATES DESIGNERS, 7 Dyer St., Providence 3, R.I.

ROWLAND K. BENNETT, Engineering Consulting Service, 40-27 218 St., Bayside 61, L.I., N.Y.

DANIEL T. BIRDSALL, Consulting Structural Engineer, Room 915, Architects Building, Philadelphia 3, Pa.

VINCENT R. BONFANTI, Architect, 11959 Rivera Rd., Santa Fe Springs, Calif. Formerly with KENNETH LIND & ASSOCIATES.

WILLIAM N. BONHAM, ARTHUR C. JONES, principals in firm of BONHAM-JONES ASSOCIATES, Architects & Engineers, 600 N. Sepulveda Blvd., Los Angeles 49, Calif.

BURRAN & MASTIN, Architects, The Plaza, Mesilla, New Mexico.

THOMAS B. CORGAN, ALBERT L. BALESTIERE, principals in firm of CORGAN & BALESTIERE, Architects and Engineers, 1221 Midtown Tower, Rochester, N.Y.

HODNE ASSOCIATES, Architects/Planners, 8 Melbourne Ave. Southeast, Minneapolis 14, Minn.

A. W. MCKELVEY AND ASSOCIATES, Architectural, Engineering, and Land Planning Consultants, 611 Wilshire Blvd., Los Angeles 17, Calif.

JOHN MCWILLIAMS, THEODORE KESSLER, principals in firm of MCWILLIAMS & KESSLER, Architects, 38 Mason St., San Francisco, Calif. Formerly CHOY & MC WILLIAMS.

GLEN PAULSEN, WILLIAM GARDNER, THOMAS J. LUCAS, JR., principals in firm of PAULSEN, GARDNER & ASSOCIATES, Architects, 1565 N. Woodward, Bloomfield Hills, Mich.

R. A. PIERCE ASSOCIATES, Architect, Craig-Forbes Officenter, 4535 Forbes St., Pittsburgh 13, Pa.

RODNEY L. B. SMITH, Architect, 312 Center St., Chula Vista, Calif.

TAYLOR WOODROW BLITMAN, Contractors, Southall, England.

CHARLES F. TERRY, JACK E. ROSENLUND, principals in firm of TERRY-ROSENLUND & Co., Consulting Engineers, 2525 McKinney Ave., Dallas, Texas.

New Partners, Associates

EDWIN F. BLISS, Architect, made Associate in firm of HARRY A. BROOKER, Akron, Ohio.

WILLIAM H. BUCHANAN, made a member in firm of NIMS, MARTIN, HALLIDAY, WHITMAN & BONYNGE, New York, N.Y.

HOWARD L. DUTKIN, Architect, named Associate in firm of M. TONY SHERMAN & ASSOCIATES, Architects, Engineers, and Consultants, North Miami, Fla.

COLDEN l'H. R. FLORANCE, ROSCOE REEVES, JR., JOSEPH A. WILKES, named Associates in firm of KEYES, LETHBRIDGE & CONDON, Architects.

LYN E. GRAZIANI, GORDON R. LOTTS, named Associates in firm of EBERLE M. SMITH ASSOCIATES, INC., Architects and Engineers, Detroit, Mich.

PHILIP W. HANSEN, WAVERLY C. ORMOND, HERBERT A. GYGI, named Senior Associates; M. RAY JORDAN, FRANK C. HOLTON, JR., named Associates in firm of OLIVER AND SMITH, AIA, Architects, Norfolk, Va.

LEONARD L. HUNTER, named Executive Vice-President and Partner in firm of JOHN CARL WARNECKE AND ASSOCIATES, Architects and Planning Consultants, San Francisco, Calif.

ERNEST A. JACOBS, Architect, named Associate in firm of ROCHLIN & BARAN AIA & ASSOCIATES.

MASAO KINOSHITA, made Associate; JOHN ADELBERG, KATHERINE DEMAY, RICHARD F. GALEHOUSE, JAMES E. ROBINSON, III, RICHARD H. ROGERS, appointed as Senior Staff in firm of SASAKI, WALKER AND ASSOCIATES, INC., Site Planners and Landscape Architects, Design and Planning Consultants, Watertown, Mass.

HERBERT J. KOOPMAN, named Associate in Charge of Materials Research and Specifications; WILLIAM MERCI, named Head of Interior Design Department, in firm of HELLMUTH, OBATA & KASSABAUM, INC., Architects, St. Louis, Mo.

DONALD J. LAWRENCE, named Associate Architect in firm of VINCENT R. BONFANTI, AIA, Architects and Engineers, Santa Fe Springs, Calif.

JOHN LOWE, III, WILSON V. BINGER, named Partners in firm of TIPPETTS-ABBETT-MCCARTHY-STRATTON, Engineers and Architects, New York, N.Y.

TERRY T. MURAKAMI, ROBERT S. BURNS, named Full Partners in firm of JOHNSTON-CAMPANELLA AND COMPANY, Architects, Renton, Wash.

RICHARD G. SAWLER, named Associate in firm of CLIFFORD DOUGLAS STEWART, Architect, Boston, Mass.

ROBERT H. SOHN, WILLIAM TRAVIS STEELY, ROBERT A. WRIGHT, JAMES M. HUGHES, ROBERT E. RAY, JOEL M. WALKER, named Associates in firm of CAUDILL, ROWLETT & SCOTT, Architects, Planners, and Engineers, Houston, Texas.

ROBERT L. THORSON, named Associate

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in firm of ULRICH FRANZEN & ASSOCIATES, Architects, New York, N.Y.

PETER SCHUYLER VAN BLOEM, named Associate in firm of OFFICE OF ALFRED SHAKNIS, Architects, Glen Head, N.Y. MENO L. WILHELMS, named Associate in firm of WILLIAM L. PEREIRA & ASSOCIATES, Los Angeles, Calif.

Elections, Appointments

DON CURLEE, appointed Executive Assistant of the California Council, The American Institute of Architects.

I. ROBERT KRIENDLER, elected to the Board of Directors; HENRY GEORGE TALBOYS, appointed as Director of Construction Management, in firm of CHARLES LUCKMAN ASSOCIATES, Planners-Architects-Engineers, New York, Boston, and Los Angeles.

JAMES R. LIVINGSTON, ADOLF H. ROESSLING, elected to membership on the board of directors and to Vice-Presidencies in firm of SMITH, HINCHMAN AND GRYLLS ASSOCIATES, INC., Architects and Engineers, Detroit, Mich.

DAVID C. MARTIN, elected Vice-President of HAMMEL AND GREEN, INC., Architects and Engineers, St. Paul, Minn.

A. WHITNEY MURPHY, appointed Head of the Washington office of PERKINS & WILL, Architects.

JAY S. PETTITT, JR., made Chief Architectural Draftsman; SAMUEL D. POPKIN, made Assistant Chief Draftsman; JOACHIM NACHBAR, made head of the Plumbing Division of the Mechanical Department, in firm of ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC., Detroit, Mich.

MARIO J. ROMANACH, appointed Director of the Design Department in firm of KELLY & GRUZEN, Architects-Engineers, New York, N.Y.

GEORGE W. WICKSTEAD, named Director of Planning for QUINTON ENGINEERS, LTD., Los Angeles, Calif.

Name Changes

ADLERSTEIN ASSOCIATES, Architects, North Plaza Building, Valley Stream, N.Y. Formerly SAMUEL S. ADLERSTEIN & ASSOCIATES, Architects.

BURDE AND SHAW, AIA, ARCHITECTS AND ASSOCIATES, Post Office Drawer 5366, Carmel, Calif. Formerly BURDE, SHAW AND KEARNS.

DANIEL COMM AIA ASSOCIATES, 6 N. Michigan Ave., Chicago 2, Ill. Formerly COMM, COMM AND MOSES.

Delegates voted to change the name of NAPC to the NATIONAL ASSOCIATION OF PLUMBING-HEATING-COOLING CONTRACTORS.

NOLEN-SWINBURNE AND ASSOCIATES, Architects-Planners, 1601 Locust St., Phila-

delphia 3, Pa. Formerly NOLEN & SWINBURNE, Architects.

New Construction Service

COORDINATED CONSTRUCTION OF ROCHESTER, INC., 73 Wilmer St., Rochester, N.Y.

New Press Service

Newly established "Limestone Press Service" by the Indiana Limestone Institute will provide news and feature stories to trade papers in the building, architectural and allied industries, as well as to newspapers, radio, television, and general magazines, including specific articles written for the "shelter" publications.

Architectural Service

DYNA-THERM CHEMICAL CORPORATION has formed an Architectural Service Department, located at the Burbank Division in Burbank, Calif., headed by JAMES H. SAWYER.

P/A Congratulates . . .

JOHN J. COLLINS, appointed Product Manager of Fire and Smoke Automatic Door Releases in firm of SARGENT & COMPANY.

RICHARD A. GOODROW, appointed Acoustical Sales Promotion Manager for THE CELOTEX CORPORATION.

J. CLIFFORD KNOCHEL, made President and Chief Executive Officer of AMERICAN-SAINT GOBAIN CORPORATION.

ROBERT M. THOMPSON, succeeds HERBERT N. SCHWARZ, resigned, as President of SEAPORCEL, INC.

ABRAHAM TUCHMAN, appointed Vice-President and General Manager of FISCHER EXCLUSIVES, INC.

Reorganization

WILLIAM B. MARQUIS, retired Partner of OLMSTEAD ASSOCIATES, Landscape Architects, will continue with the firm as consultant. ARTEMAS P. RICHARDSON, JOSEPH G. HUDAK, remaining Partners, will continue the practice at 99 Warren St., Brookline, Mass.

Special Hospital Planning Service

DUFFY INC. formed a comprehensive service for the space planning and designing of hospital interiors, headed by RICHARD S. BOWLES, JR., hospital planning consultant.

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ARCHITECTS—City of Philadelphia has openings at four different levels, including beginning and supervisory positions, for professional architects. Duties are of a progressively responsible nature, depending on background and experience. Work projects include preparation and supervision of designs and contract drawings for a wide variety of municipal structures. Require degree in architecture plus from 1-5 years of experience. Applicants must be U.S. citizens. Salary ranges: $5,877-$7,053; $6,738-$8,464; $7,725-$9,704; $9,272-$11,648. Liberal fringe benefits. For further information write Director of Recruiting, Room 792, City Hall, Philadelphia 7, Pa.

ARCHITECT-TOP DESIGNER—For one of the Nation's largest planning, architectural and engineering firms, located in California. Involves exciting variety of projects including planning entire cities, commercial, industrial and institutional projects plus complicated and unique facilities of the new space age. This designer must be thoroughly experienced in all phases of design, modern technology and esthetic trends, must be creative and enthusiastic; have the ability to lead, inspire and direct other project designers. Salary depends on capability and experience. Should be available in 30 to 90 days. U.S. citizenship required. Applicants please submit concise resume outlining qualifications to Box #470, PROGRESSIVE ARCHITECTURE.

ARCHITECTURAL DESIGNERS, SENIOR DRAFTSMAN, MECHANICAL DRAFTSMAN & STRUCTURAL ENGINEER—Expanding firm in Midwest. Diversified practice—hospitals, schools, institutions, commercial. Please send resume of training and experience to Durrant & Bergquist, Architects & Engineers, 666 Loras Boulevard, Dubuque, Iowa.

ARCHITECTURAL ENGINEER—Or Structural Engineer with architectural sense; degree plus two to four years experience. To handle all structural engineering phases for variety of projects in steel and reinforced concrete, including field inspection. Excellent opportunity for permanent position with young, growing firm doing contemporary work, located in heart of Pacific Northwest Vacationland near metropolitan center. Send complete resume to Coburn Ackley, AIA, 1413 "C" Street, Vancouver, Washington. Salary expected and availability.

ASSISTANT ARCHITECT—New York State Department of Public Works seeks Assistant Architects. Salary $7,740-$9,355. Requires six years of satisfactory architectural experience. Graduation from college with a bachelor's degree in architecture, or a master's degree in architecture, or graduation from a technical institute or junior college with a degree in architectural construction technology may be substituted for the above experience required on a year-for-year basis. *NEW YORK STATE RESIDENCE IS NOT REQUIRED.* For details, write Recruitment Bureau, Unit 35A, New York State Department of Civil Service, The State Campus, Albany 1, New York.

MECHANICAL ENGINEER (P.E.)—Experienced in commercial and apartment work to handle Mechanical Department of large Architectural firm located in Suburban Washington, D.C. Cohen, Haft & Associates, 1110 Spring Street, Silver Spring, Maryland.

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SITUATIONS OPEN

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WANTED—Two senior architectural draftsmen for architect's office in Northwest Florida. Excellent working conditions. Give full information on education, experience, starting salary, availability, age . . . etc. Replies held confidential. Reply Box #473, PROGRESSIVE ARCHITECTURE.

SITUATIONS WANTED

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ARCHITECT—A. I. A. 34, Bach. of Arch., registered in several states, NCARB, nine years of diversified experience, four in own office. Prefer responsible position that offers opportunity to utilize talents and experience. Desire to relocate to area with potential. Resume upon request. Box #475, PROGRESSIVE ARCHITECTURE.

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P.S.

Reporting of architecture was the subject of a three-day conference at Columbia University recently, sponsored by AIA, and conducted by the Schools of Architecture and Journalism at the University. I was privileged to take part in the program, and I found the sessions most instructive. What I was instructed in, however, was not at all what I had expected to learn, nor what the conference really intended to convey. The purpose had been to explain to a group of reporters, representing newspapers from every part of the country, how to document better the architecture, the urban design and urban redevelopment, and the suburban growth, in their various cities. The result was a strong appeal on the part of the reporters (an intelligent, wide-awake, well-informed group) for more detailed, descriptive, accurate information from the architects.

The program started, the first day, with a series of talks—talks by AIA officials, by Columbia University officers, and by invited specialists who were supposed to explain methods of evaluation in the economics, the technology, and the aesthetics of architecture. Many arbitrary statements were made, such as that ". . . the present aspect of Park Avenue from 46th to 59th Streets . . . [is one] where massive mediocrity results in . . . a total mass of indifferent conformity." The reporters were annoyed—and rightly so, I felt. In the discussion that followed that first day's sessions, there were honest and sincere appeals for some statement of standards of evaluation. For instance, they wanted to know: "Do you honestly mean that all the Park Avenue buildings are 'indifferent'—Seagram and Lever Houses, as well as the speculative quickies?" And further and more pointed: "By what criteria of evaluation do you describe a building as 'mediocre'?" Frankly, there were no decent answers to these questions.

On the second day, the group split into smaller segments, each to examine an area of urban architecture in more detail. I was assigned to lead the group exploring urban housing. In the morning I tried to set up for them, in answer to their questions of the previous day, some tentative check-points for evaluating the architecture of apartments and town houses; and several other discussants, in an open seminar, tried to be equally specific. The reporters complained that when they interviewed architects, they were not given good answers to direct questions; that each architect was anxious only to prove his merits, and to avoid mention of embarrassing realities. The same thing, they said, happened when they visited buildings: glowing public relation handouts were substituted for evaluative descriptions. Then we went out and saw six recently completed examples of urban housing, ranging from middle-income to luxury co-operatives and remodeled town houses, with the architect in attendance in each case.

I began to see what the reporters meant. Those of us in the architectural press can, in time, see beneath the surface of superficial description. The nonprofessional reporter, on the other hand, is at a loss—and is put off. These men asked penetrating questions (using conscientiously the check-points that we had discussed earlier)—about financing, about the concept and the form of the building, about layout, about the use of materials, about relationship with the neighborhood, and so on. And too many of the answers were shrugs: "You know," the architects said, ". . . the client, the budget, the codes, the way people want things." By the end of the day, we came to an interesting thought (I included myself among the reporters by this time), which was that a valid method of evaluating a building would be to find out how many items the architect had to *excuse*. In some cases, many (obviously, not an architectural success); in other cases almost none (an exceptional performance).

The next day the groups reported to one another, verbally, and a general discussion resulted. It was one of the most interesting, intelligent, penetrating round-tables on the problems of urban architecture that I have ever heard. There were none of the platitudes and exhortations of the usual meeting of architects and/or planners. This was down-to-earth and constructively critical. I was very proud of "my" group: they had decided that some of the things seen were good and others bad, and for valid reasons—there was no general condemnation, but a feeling that there could be over-all improvement, in specific, describable ways.

I think that the reporters at the conference learned more about architecture than they admitted aloud (they asked for more meetings, locally); and I think that the architects began to realize that good reporting starts with the furnishing of accurate information.