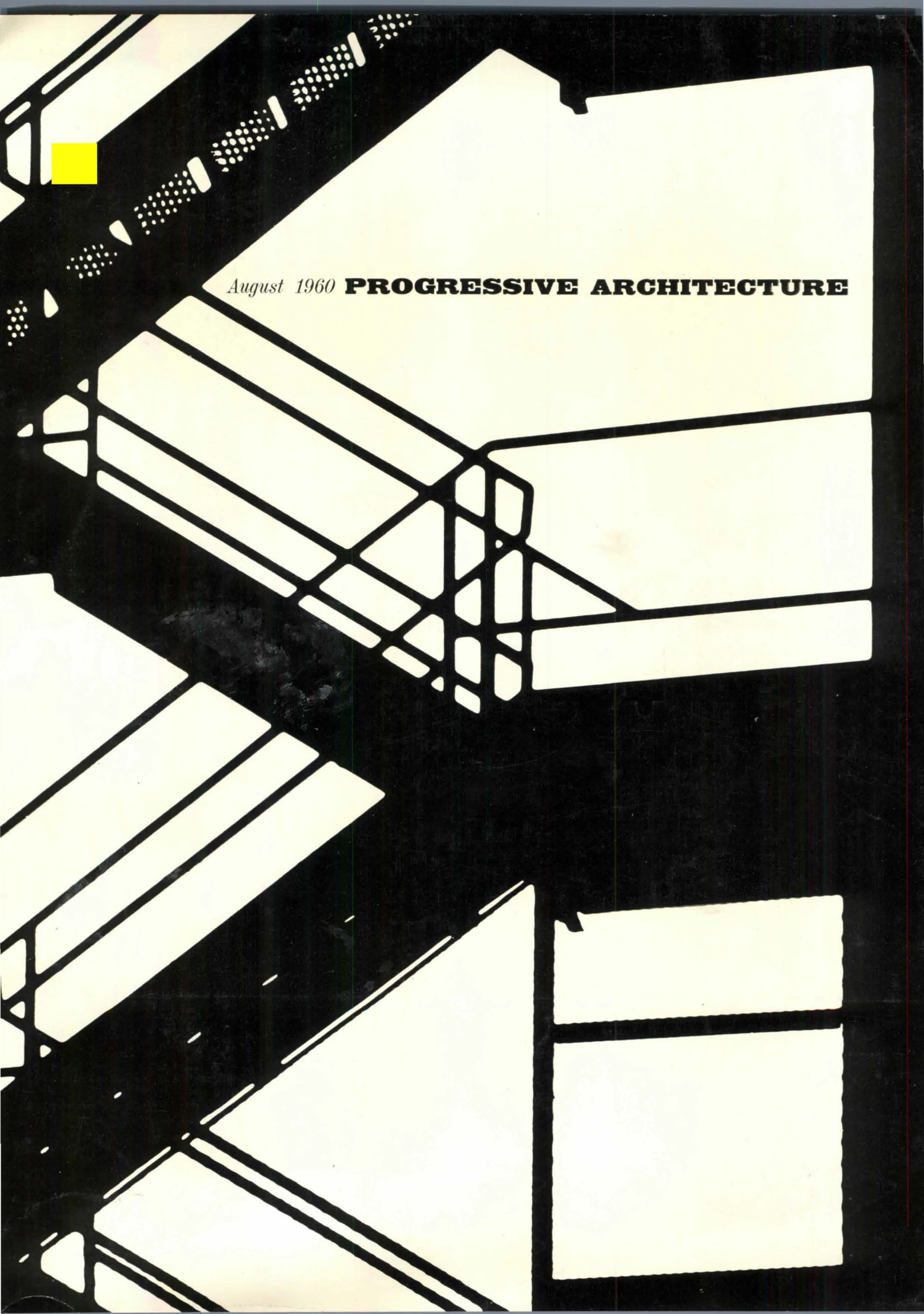
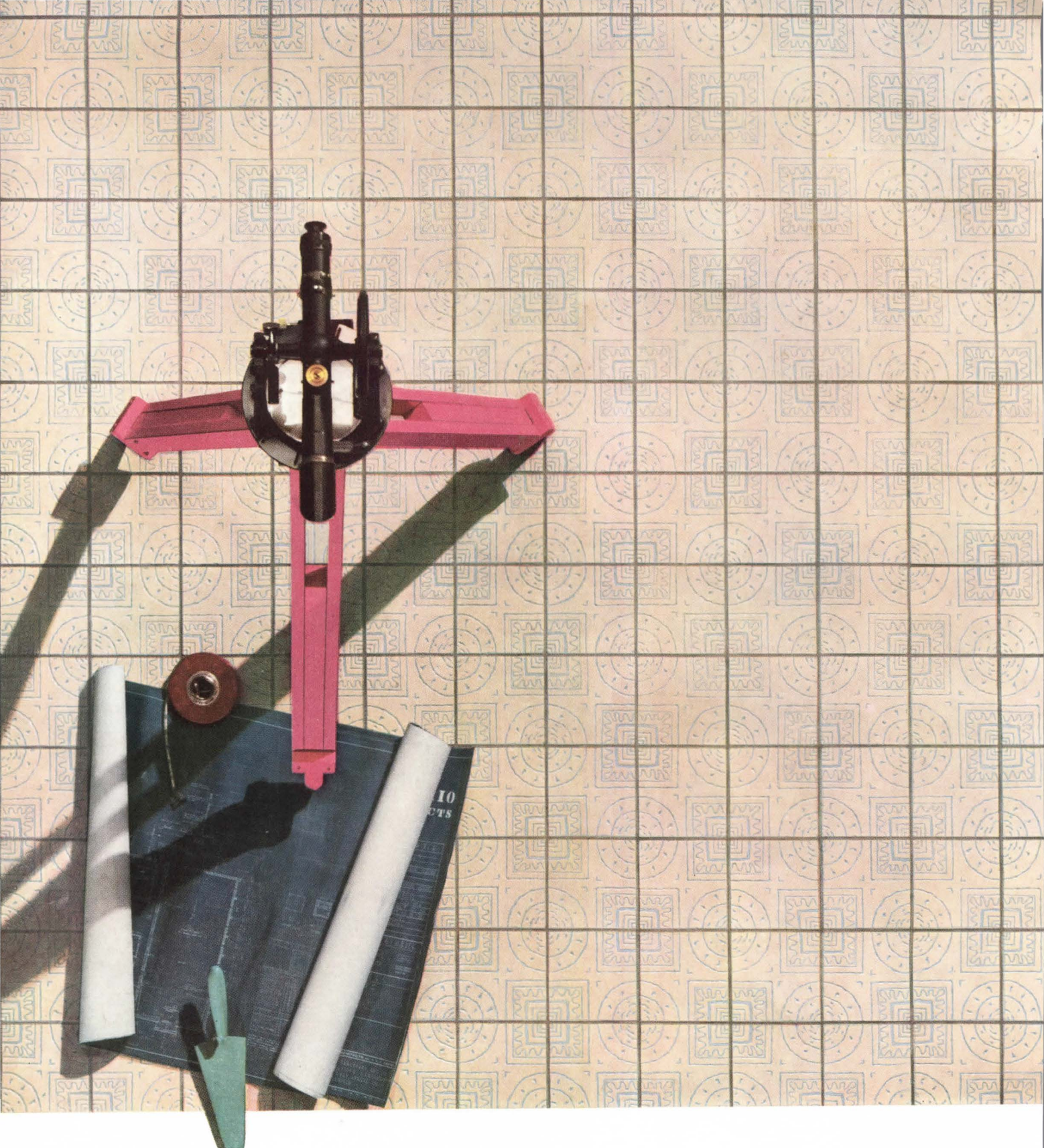


*August 1960* **PROGRESSIVE ARCHITECTURE**



# TEXTURE

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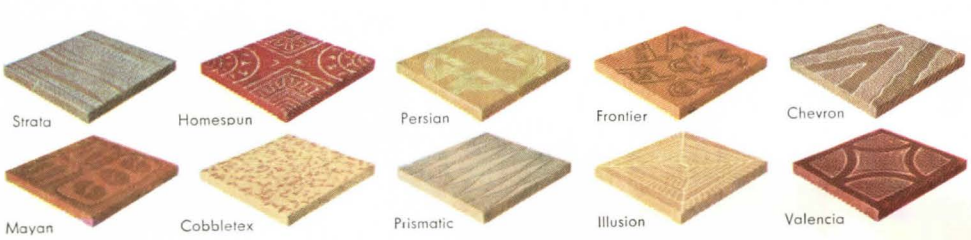


# THIS MONTH IN P/A

*The World's Largest Architectural Circulation*




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# Exploding

## *a popular misconception*

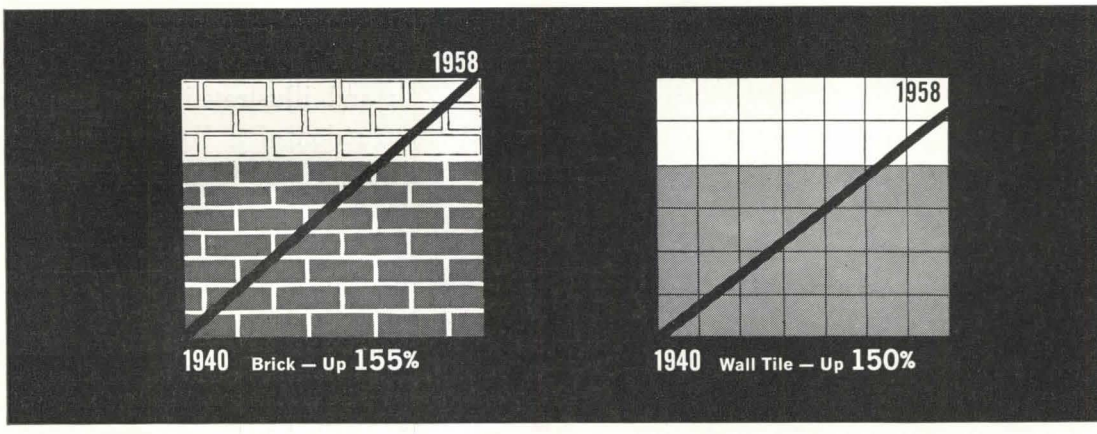
When some people see beautiful, modern buildings and residences with friendly, open expanses of clear glass, they jump to false conclusions. Somehow they confuse expansiveness with expensiveness.

You, of course, know better. Glass is not expensive, just looks it. In fact, with glass you are specifying a building product that has been least affected by spiraling building costs.

Increases in building-material costs show some marked differences from 1940 to 1958. For example:

| | | | |
|---|---|---|---|
| Brick | up 155% | Structural Steel | up 187% |
| Wall Tile | up 150% | Window Glass | up 54% |
| | Plate Glass . . . . . up 76% | | |

Source: U. S. Bureau of Labor Statistics. (Exception — costs for plate glass, 1940 to 1958, based on company records of wholesale prices.)

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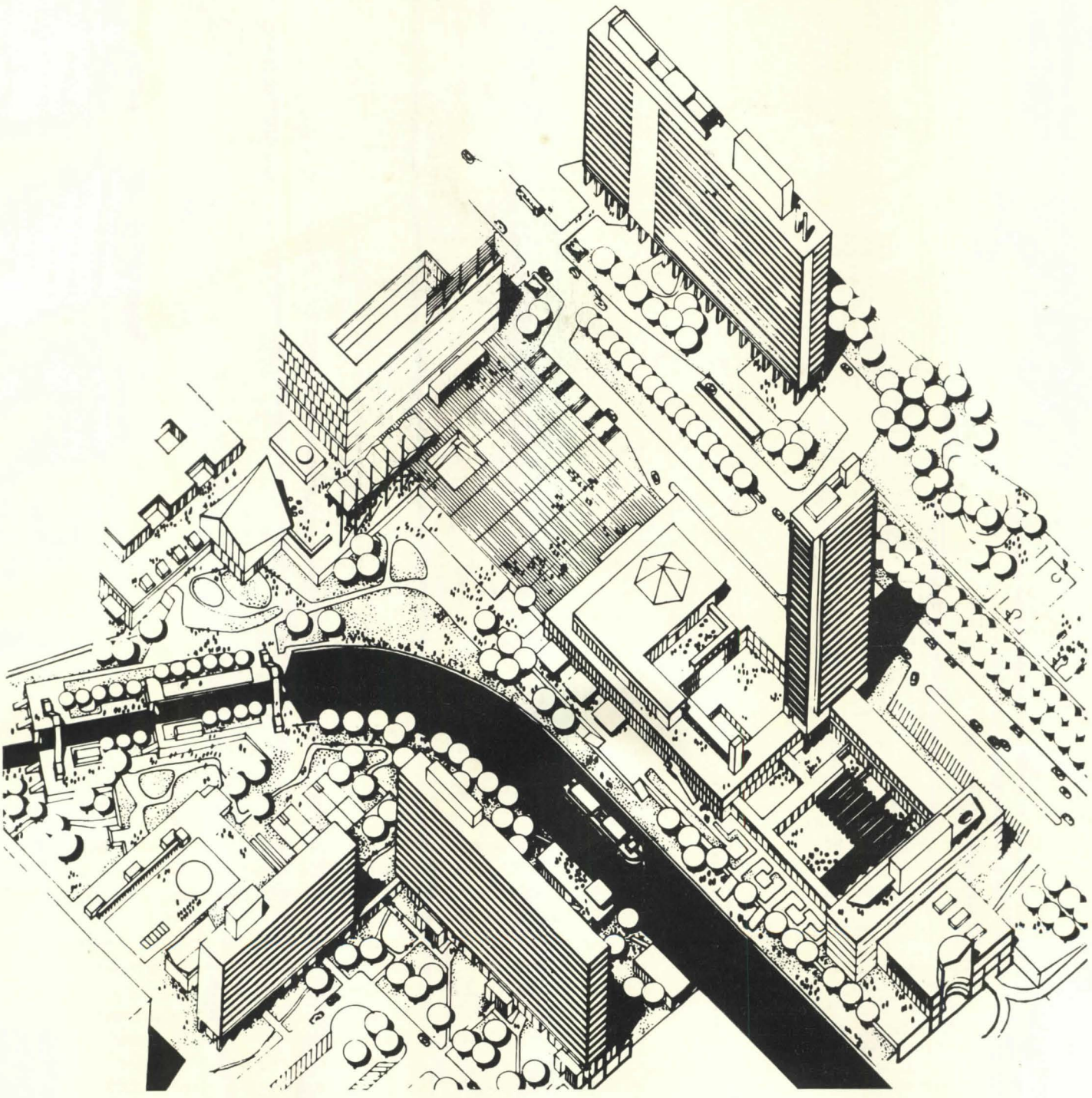
**PROGRESSIVE ARCHITECTURE AUGUST 1960**

# NEWS REPORT

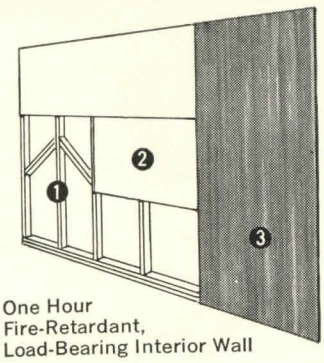
*Architecture's Monthly News Digest of Buildings and Projects, Personalities, New Products*



*Canal St. Martin threads through redevelopment project proposed for Paris near the Buttes-Chaumont, Gare de l'Est area.*

*Another Roddis "First!"*

# New 7/16" Architectural Craftwall


One Hour
Fire-Retardant,
Load-Bearing Interior Wall

**LABELED AND LISTED BY UNDERWRITERS' LABORATORIES**

Official tests prove FR Architectural Craftwall, in combination with U.L. labeled gypsum wallboard and wood studs, will form a wall that affords one hour protection against the passage of flame or dangerous heat transmission.

1. Wood studs: 2" x 4", 16" on center
2. U.L. labeled gypsum wallboard: ½" thick, nailed horizontally
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*(Complete construction details available. Write for new Roddis Fire Retardant Bulletin)*

Find out more about FR Architectural Craftwall or other Roddis products. Write: **Roddis Plywood Corporation, Marshfield, Wisconsin.**

## *Roddis does such wonderful new things with wood*

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New FR Architectural Craftwall is designed particularly for offices, or for schools, hospitals, public buildings — anyplace where fire safety is of vital concern. Choose from a wide range of hardwoods. Available prefinished the exclusive Roddis way for lasting beauty and durability. And at a considerable savings over ordinary fire-retardant plywood ¾" paneling.

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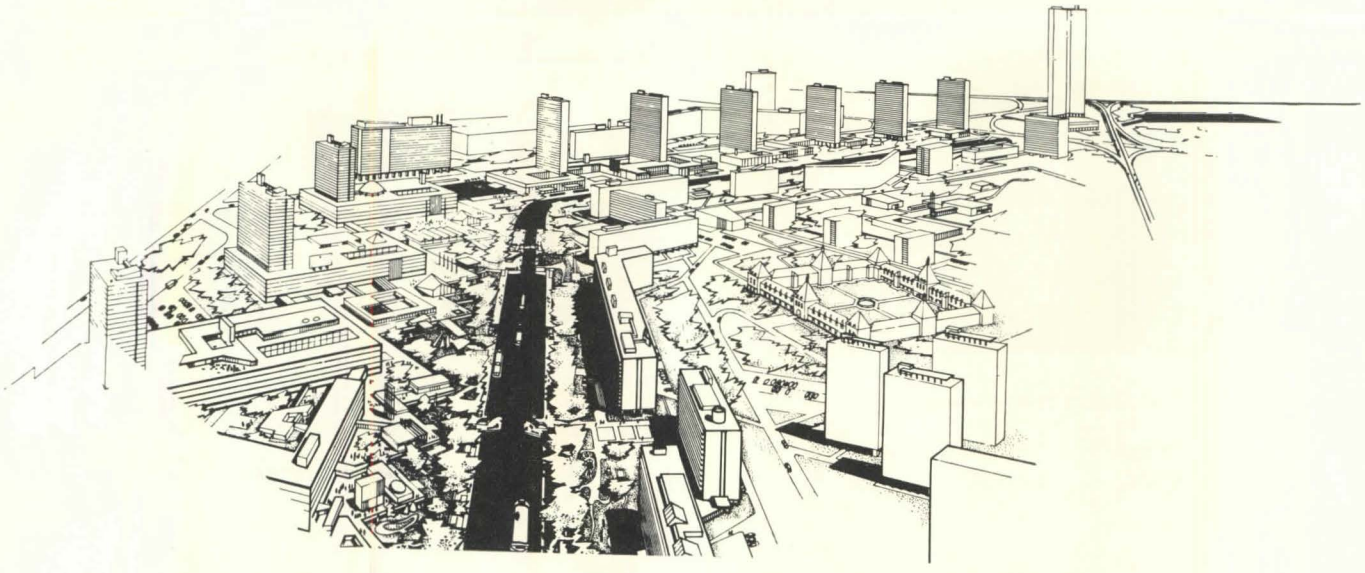
**Roddis**



# REDEVELOPMENT PLAN PROPOSED FOR PARIS

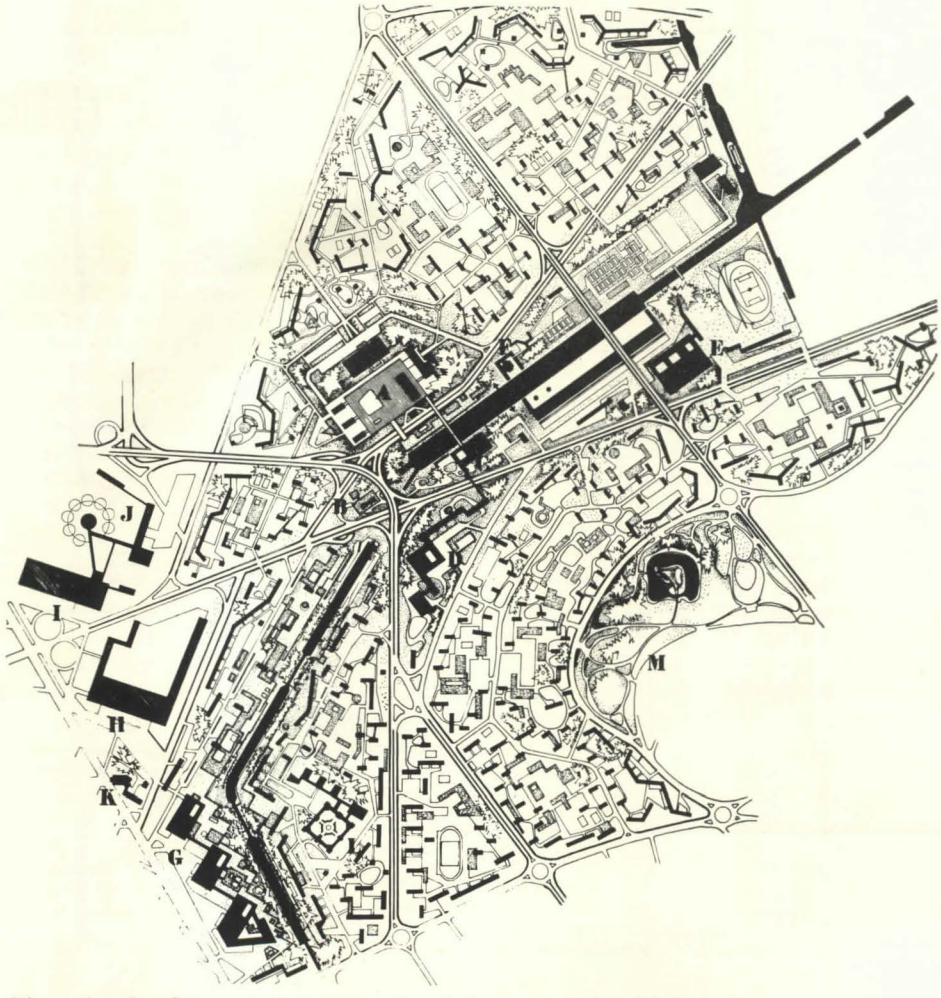
## Project Includes Museum, Cultural Center

PARIS, FRANCE A scheme for the redevelopment of a large section of Paris has been proposed to the Government by Architect Gaston Leclaire (Ph. Martin, Associate). The plan, which would encompass an area near the Buttes-Chaumont section presently occupied by small manufacturers and warehouses, would create, in effect, a self-contained community on the edge of the city.

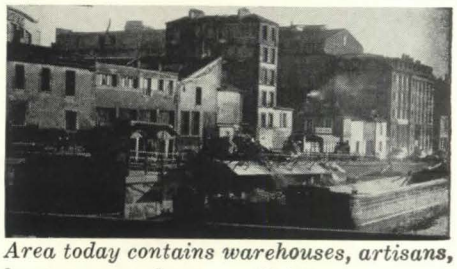
The section, comprising parts of the 10th and 19th Arrondissements, is graced with Canals St. Martin and St. Denis and Boat Basin de la Villette, now used by barges servicing the factories and artisans of the area. The architect suggests making full use of these waterways for the delight of future inhabitants, freeing the banks for pedestrian traffic, and placing cafes, parks, and recreational areas along the borders of the streams.

Living units would be in clusters of high-rise apartment buildings, newcomers to predominantly low-rise Paris. First floors of most apartments would be devoted to the small shops beloved by the French—the *boulangerie*, the *charcuterie*, the *épicerie*. In addition, larger market centers are planned for more comprehensive shopping. Underground parking would be provided throughout the redevelopment area.

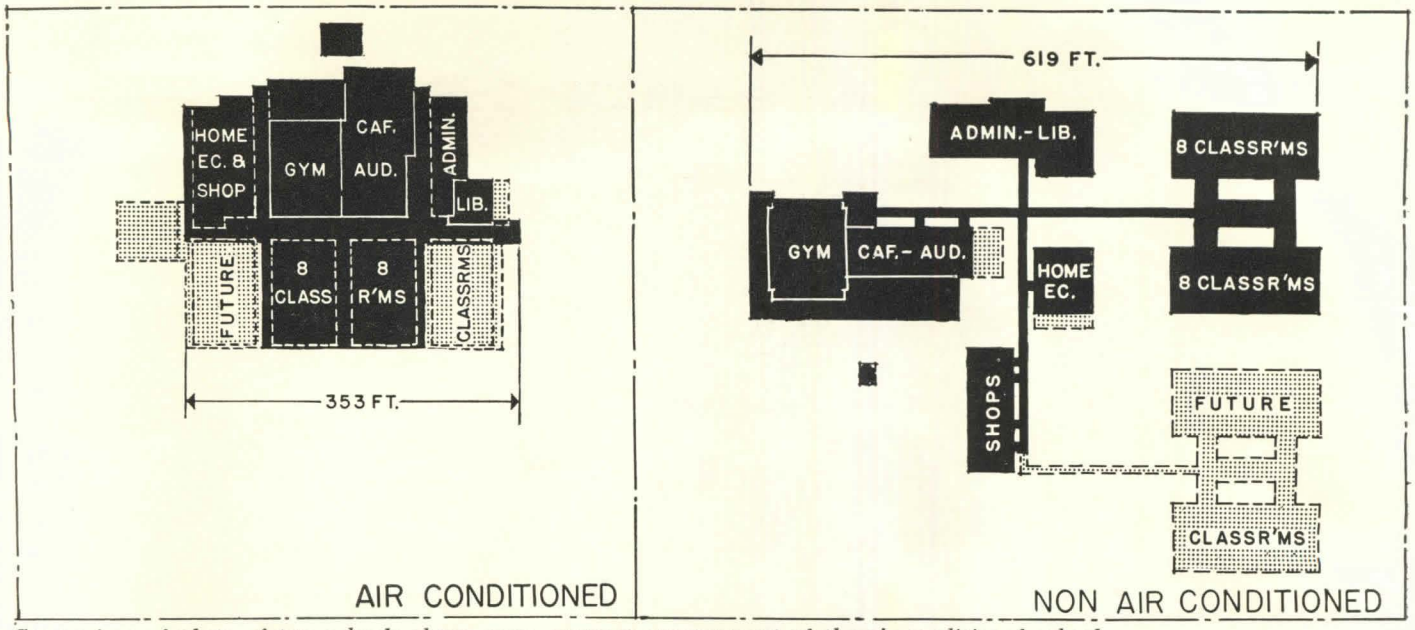
In addition to regular creature comforts usually featured in a project of this kind, Architect Leclaire has included amenities which would increase the self-sufficiency of the new neighborhood. These include a cultural center to house halls for performances of drama and music, studios and workshops for artists, and a library; a museum for the exhibition of arts and crafts "born in the modern world"; and a 40-story office building with a restaurant on the top floor, an auditorium and terrace bar on the fifth floor, and a post office on the ground floor.




*Plan of redevelopment shows use of existing canals for "delight."*



*Area today contains warehouses, artisans, bargemen, and poor artists.*




*Comparison of plans of two schools shows more compact arrangement of the air-conditioned school.*

# Florida Sees Full-Scale Air-Conditioned School Test

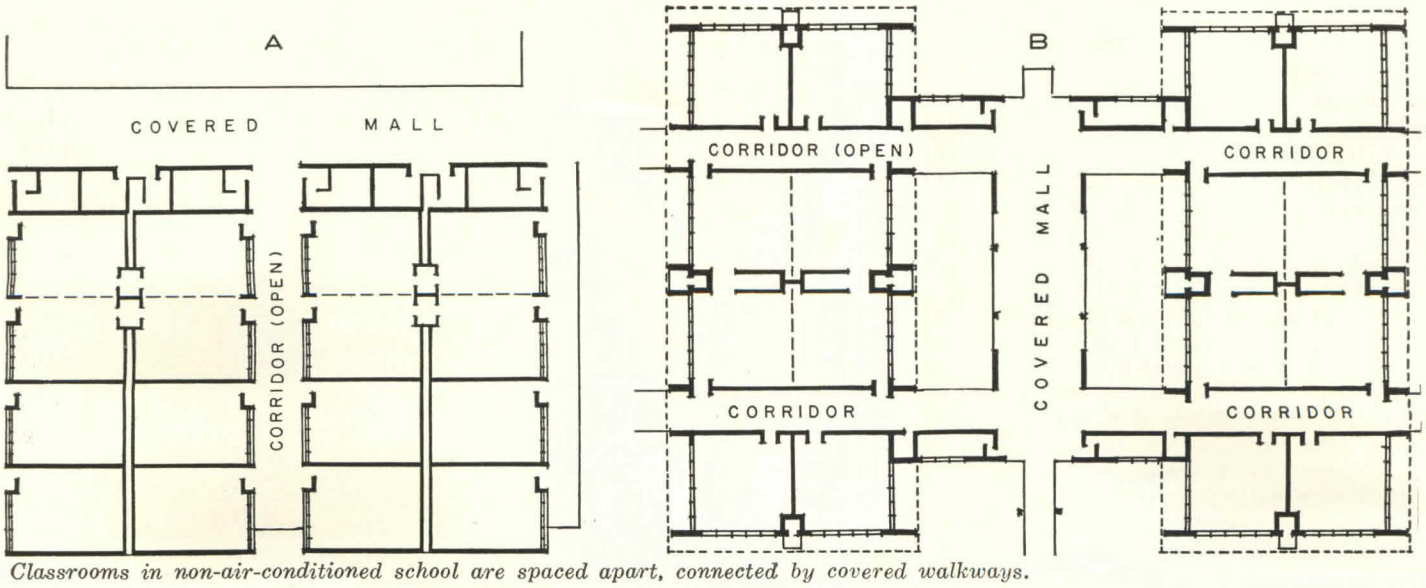
## Two New Schools Compare Notes on Costs, Layouts

PINELLAS COUNTY, FLA. Two new schools going up here represent an unusual experiment in comparison of costs and design. Last year, Pinellas County Superintendent of Schools Floyd T. Christian approved a plan to construct two junior high schools, one air conditioned and one naturally ventilated. Aside from cost of construction, the two schools now are being compared on the bases of operating expenses, attendance, increased use of school facilities by the community, and educational effectiveness. Each contains 16 academic classrooms, a large home-making suite, vocational training shops and drafting room, a teaching auditorium, library, cafeteria, gymnasium, and offices. Construction of both is concrete block with brick facing, one story high.

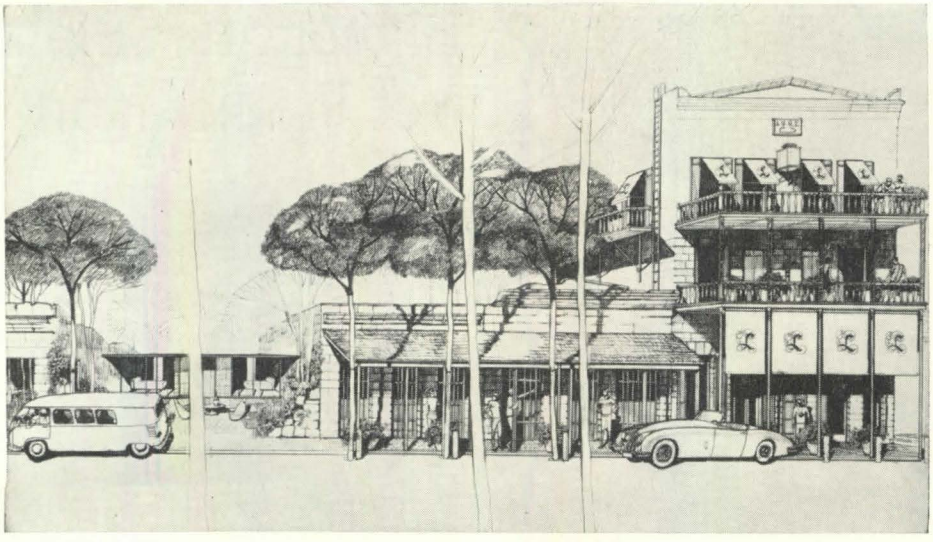
The non-air-conditioned school is Pinellas Park Junior High School, designed by Charles L. Colwell of St. Petersburg. It has a cluster plan with classroom units connected by outside breezeways. Florida regulations requiring windows on two sides of classrooms have been followed. Base bid received for this school—exclusive of a sewage lift station not included in the base bid for the comparison school—was $584,749.

Oak Grove Junior High School, the air-conditioned school, has a compact plan made possible by the air conditioning. Designed by Bruce & Parrish of St. Petersburg, the school features rectangular classrooms with their narrow ends abutting on 16-ft wide covered corridors opening on the outside. Base bid received for this school was $582,900. Henry Wright of New York was technical consultant on Oak Grove school, which utilizes unit ventilators of the Herman Nelson Division of American Air Filter Company, Inc. Healy & Latimer, St. Petersburg, is mechanical engineering consultant to architects of both schools.

Pinellas Park school has a gross area of 66,175 sq ft; Oak Grove has 66,468. Educational space comparison gives the air-conditioned school 49,159 sq ft, the non-air-conditioned school 47,880 sq ft. Contracts let for driveways, parking areas, and sidewalks at Pinellas Park totalled $10,012, while those at the more compact Oak Grove came to $5800.




*Classrooms in non-air-conditioned school are spaced apart, connected by covered walkways.*



# Gold Rush Town to Become Resort

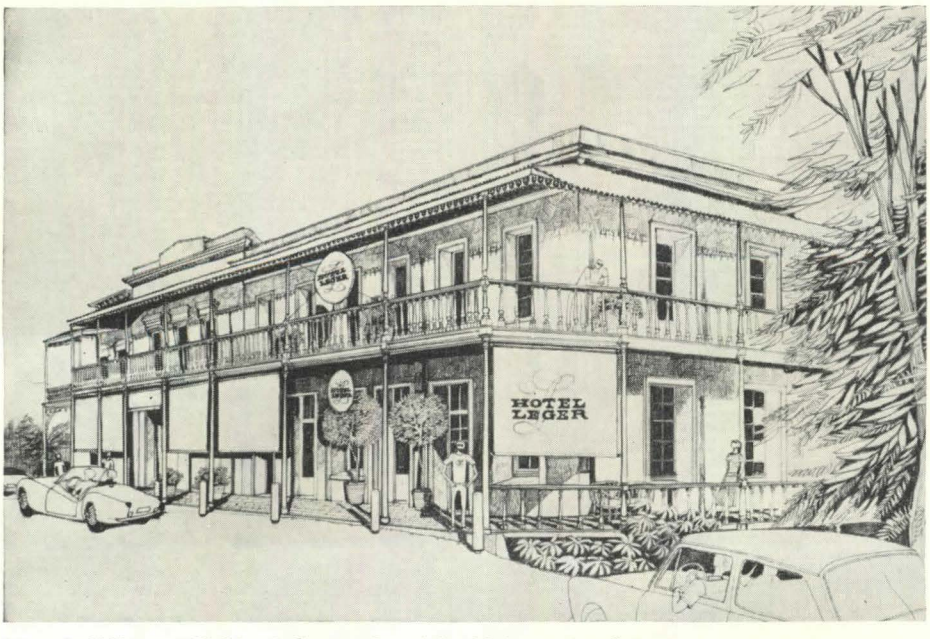
## Designer Heads Group Revitalizing Old Town

MOKELUMNE HILL, CALIF. This old town, sleeping in the mountain sun since the gold rush days of the 1840's, may be, before long, the scene of bustling tourist traffic, if the hopes of a group of San Franciscans bear fruit. Noting that, Central California area lacks resort facilities, with the exception of the Monterey Peninsula, the group, headed by John Carden Campbell (Campbell & Wong), hit upon the idea of transforming an old Gold Rush town into a desirable recreational area. (Why leave San Francisco? *Ed.*)

Already, Leger Ltd. has purchased the old Hotel Leger and has options on five related properties. Plans are to restore the hotel and operate it as a "small resort with bar, excellent restaurant, truly attractive rooms, swimming pool in the rear garden, and other features to attract the local and national tourist." The other buildings will be leased to businesses compatible with the resort nature of the project.

Second phase of the program includes restoration of an old meeting hall to house plays, musical performances, small conventions, and act on occasion as a cinema; and the construction, in ruins of old buildings, of a motel. The motel will be comfortable and up-to-date "without damaging the esthetic historical value of the ruins."

Mokelumne Hill, which has a setting in the foothills of the Sierras, will offer facilities for hunting, fishing, swimming, skiing, and riding.

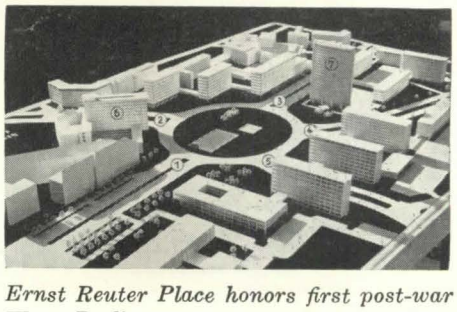



*New buildings will blend discreetly with old in restored town.*


## HIGH-RISE SPARKS BERLIN PLAZA PLAN

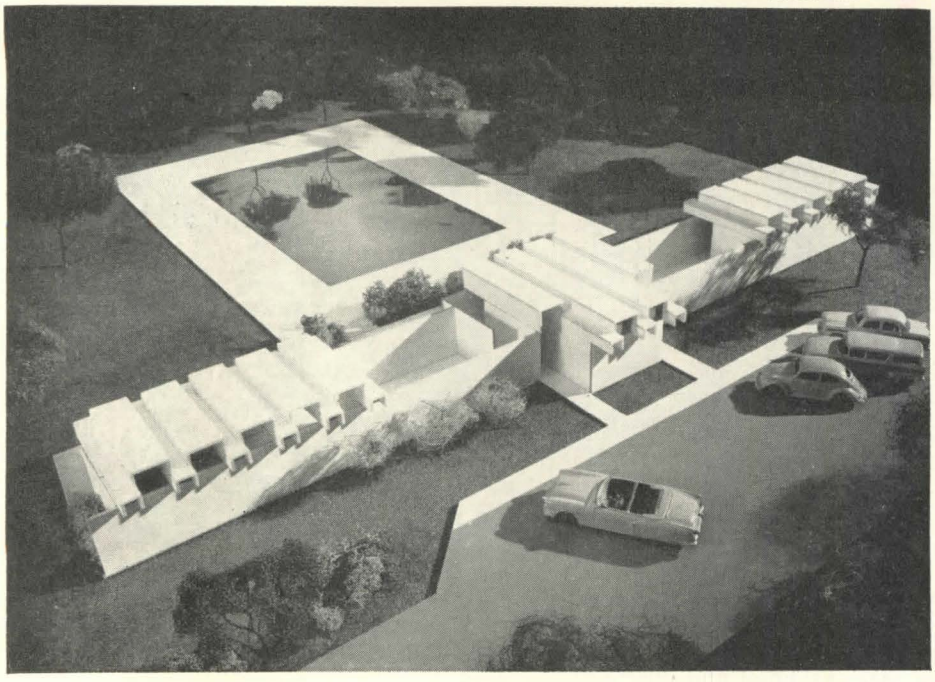
WEST BERLIN, GERMANY The recently-opened world headquarters building of Telefunken, Inc., manufacturers of electric appliances and equipment, forms the vertical focal point of Ernst Reuter Place, a circular plaza named after the late first mayor of West Berlin. The plaza, designed by Professor Hermkes, is the western traffic junction of the city.

The entire first floor of the Telefunken Building serves as exhibition space for the company's products. Floors two through nineteen contain offices, and the top floor has a restaurant and kitchen and a large conference room. Structure of the building is reinforced concrete faced on the exterior with green mosaic. Fire-protection cornices standing out above the windows give a textured feeling to what is essentially a straight-forward curtain-wall structure. Like the Pirelli Building in Milan, the Telefunken Building tapers at each end, permitting narrower corridors where traffic is less heavy. Peripheral strip lighting makes of the building a glowing advertisement at night. Architects: Schwebes & Schoszberger.



*Ernst Reuter Place honors first post-war West Berlin mayor.*

Photos: Baltazar Korab



# Bath House Has Distinctive Profile

## Building to Screen Bathers from Parking Area

SOUTHFIELD, MICH. For the Cranbrook Country Club here, Birmingham (Mich.) Architects Gunnar Birkerts & Frank Straub have designed an open, airy bath house which is the first unit in a recreation group which will include several swimming pools and a club house.

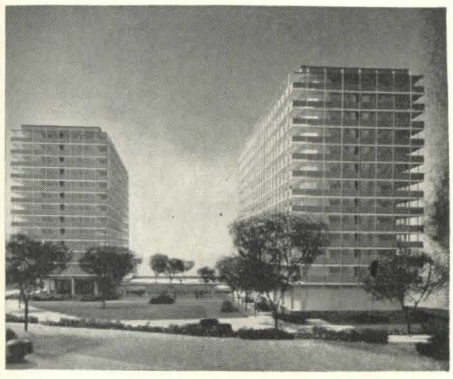
The most dramatic element of the bath house will be its roof, constructed of precast concrete channel sections. According to Gunnar Birkerts, the stacked-up channel ends will be equipped with pivoted panels which will be completely opened for ventilation during the summer months, and closed during cold weather when the bath house is not in use. Walls will be brick. The structure will be disposed on the site so that its long axis separates the swimming and recreational area and the paved parking space. It thus will act not only as a visual barrier, but also will stop hot air and fumes from the parking surface from being carried by the prevailing westerly breeze into the vicinity of the pool. Dressing areas of the pavilion-like bath house will be uncovered. Its simple plan will provide facilities for men and women on either side of a central check-in, check-out station.

Southfield, according to Birkerts, is a subdivision now grown large enough to maintain a recreational facility such as this.

*Open roof plan of bath house will permit free circulation of air.*

# Biggest Lift-Slab Yet in Michigan

Lens-Art

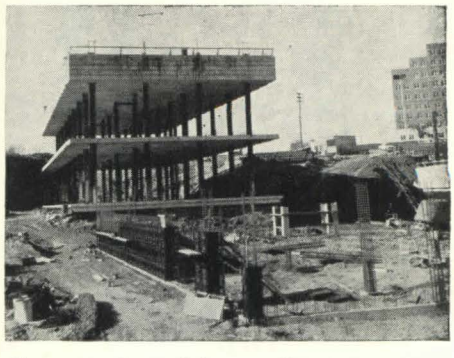


## Apartments Will Sit on a Podium in Apple Orchard

ANN ARBOR, MICH. "Huron Towers," a two-apartment-building project under construction here, represents the largest-scale use of the Youtz-Slick lift-slab method to date, according to developers. The 12-story buildings are the tallest to be built in the U.S. using the system, and the slabs are the largest, measuring 215 ft by 70 ft and weighing 820 tons each. Interestingly, the inventor of the system, Philip N. Youtz, is Dean of the School of Architecture and Design at the University of Michigan in Ann Arbor. King & Lewis, Inc., of Detroit, is architect.

The Youtz-Slick method consists of pouring concrete floor slabs the full width and length of the building at ground level, then raising them into place—two at a time—by hydraulic jacks attached to the tops of the building columns. This particular project requires 36 jacks to lift the 1640-ton loads.

Balcony railings will be installed by a separate lifting process. Precast elements will be factory-fabricated, then lifted into place on the site. The two buildings will be raised on a common platform to look out over an existing apple orchard.



*Concrete floor slabs are lifted into place two at a time.*

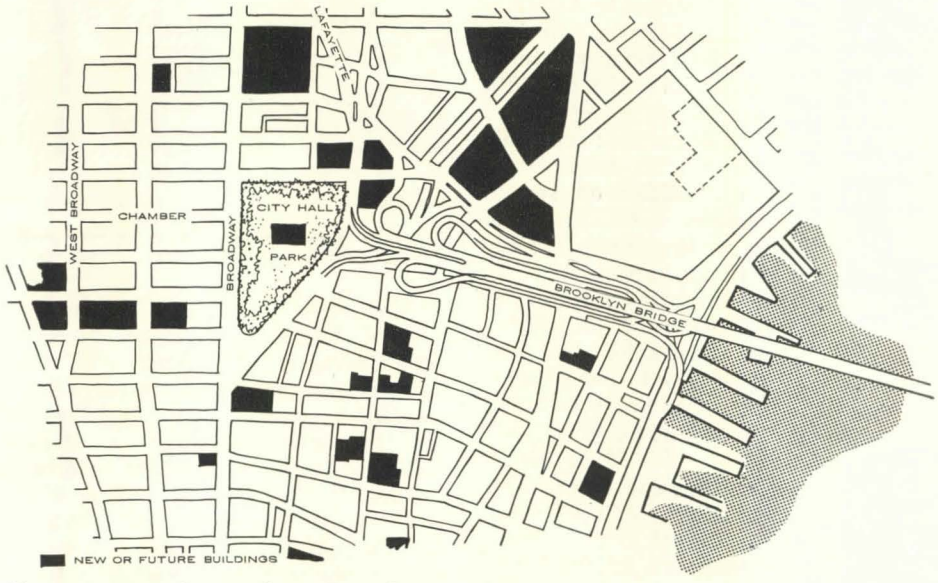
# New York Architect Proposes Civic Plaza Plan

## Calls Present Traffic Plans Waste of Millions

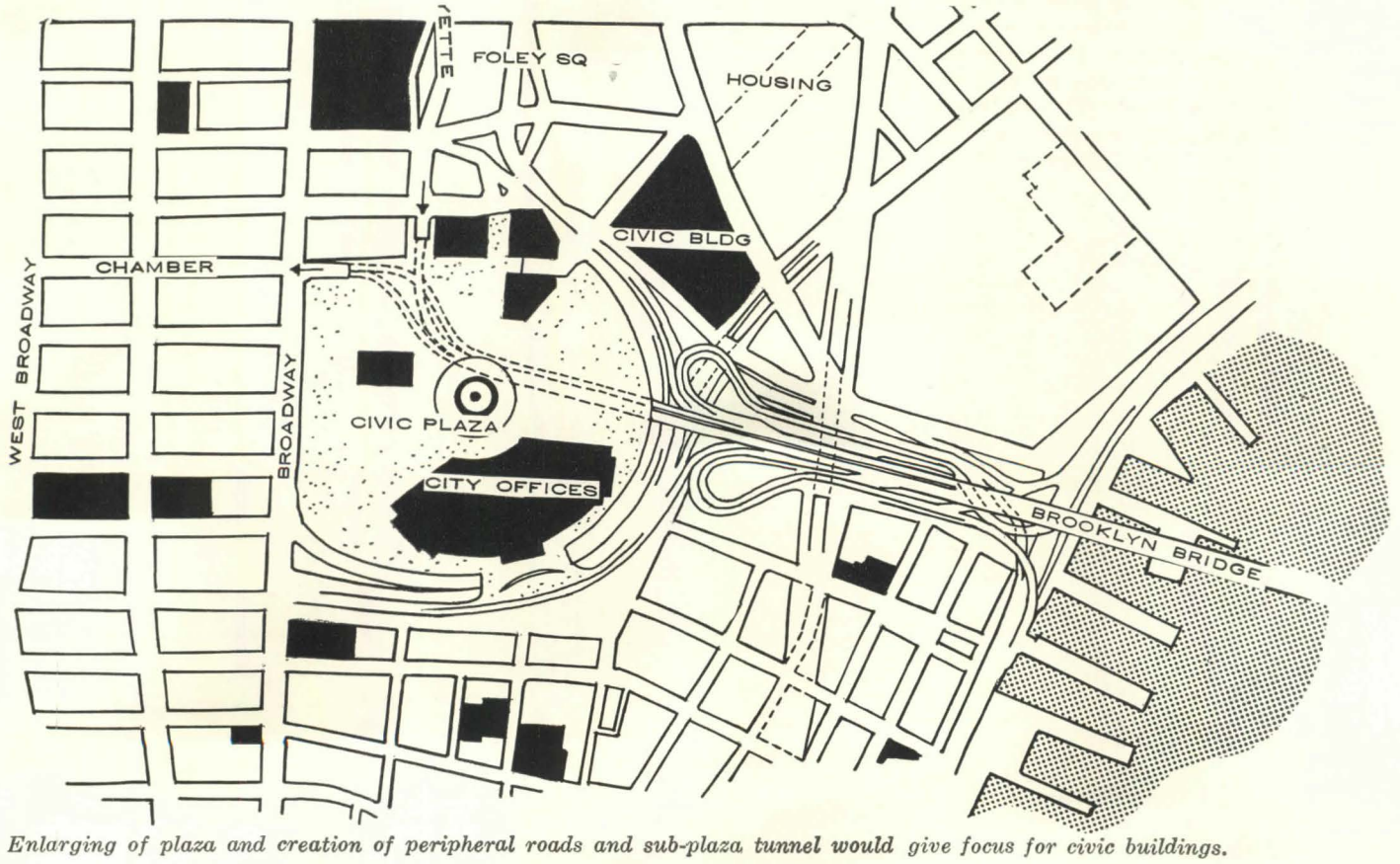
NEW YORK, N.Y. A waste of millions in misdirected traffic and misplaced buildings has been charged in a proposal to Mayor Wagner and the New York City Planning Commission by Nathan R. Ginsburg, president of New York Society of Architects. He stated that the $5,400,000 program of new connections to Brooklyn Bridge near City Hall Park will strangle the area and create "islands in a sea of traffic" of proposed City and Federal buildings expected to total about $40,000,000.

Ginsburg proposes that the City acquire land—"now available"—for the creation of a true Civic Center, a municipal ornament New York does not possess in the strict sense. Using this land properly, he states, a huge, circular civic plaza more than twice the present size of the park could be developed around City Hall. Important new municipal buildings would be located at the circumference of this plaza. To create the plaza, all vehicular traffic would be diverted around it in a semi-circular loop from Broadway at Ann Street, past the bridge entrances to Foley Square. Brooklyn Bridge traffic would connect to this loop and also pass under it to tunnels running beneath the plaza, connecting with a major artery to Manhattan's West Side Highway. Drain of excess traffic from Foley Square would create appropriate plaza for Federal buildings.

Parking for thousands of cars would be provided in several tiers under the plaza with direct elevator connections to civic buildings. Sub-plaza concourses would connect to all subway lines. The evolution of Chambers Street as a major road connecting the West Side Highway—through Civic Center tunnels — with Franklin D. Roosevelt Drive and Brooklyn Bridge on the East Side would greatly relieve traffic congestion in lower Manhattan, according to Ginsburg. He claims that this would be the shortest and most economical solution, since this is about the narrowest part of the island, "with practically no relocation problems."




*Present state of area shows "spaghetti" being caused by traffic approaches.*



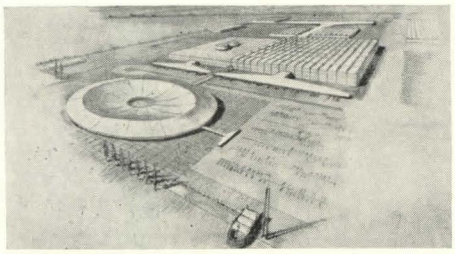

*Enlarging of plaza and creation of peripheral roads and sub-plaza tunnel would give focus for civic buildings.*

# School for Paris, Market for Rome by DMJ&M

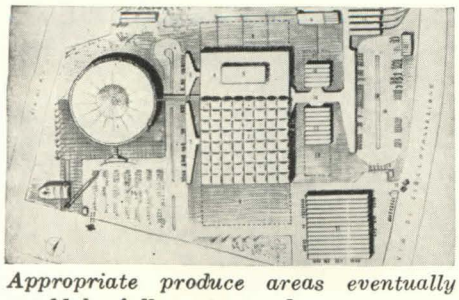
A new school for The American School in Paris and a large produce market in Rome are two current projects on the boards of Daniel, Mann, Johnson & Mendenhall, Los Angeles.

The American School in Paris was founded in 1946 to serve a constantly-growing community of temporary expatriates. The need to integrate facilities will be satisfied when a five-year, five-phase, five-building construction program *(right)* is completed for the new school group designed by DMJ&M with Pierre Dufau of Paris. Site is a 10-acre park on the former estate of Madame Dubarry—an existing 18th Century pavilion will be preserved and used. The five buildings are: academic classroom building with administrative and health facilities on second floor; special classroom building with multi-use room in basement; gymnasium; dormitory; and auditorium.

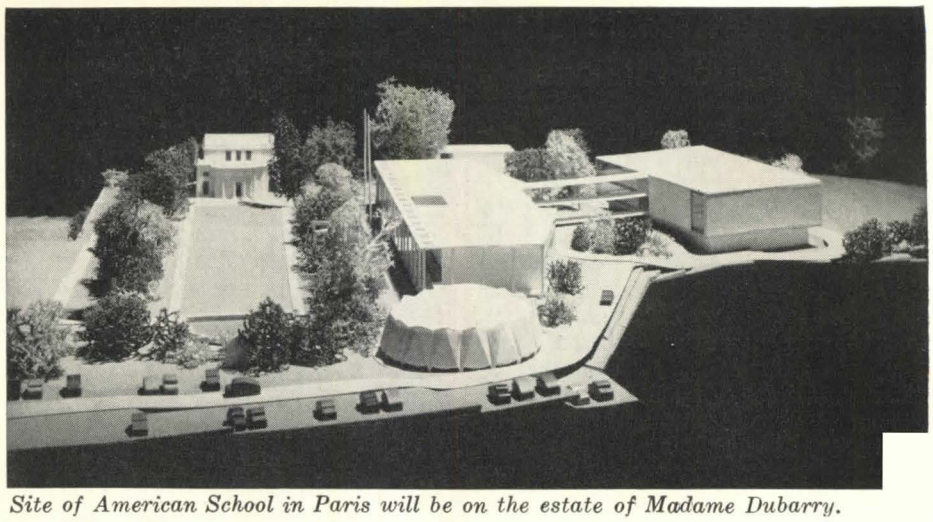
In order to co-ordinate its somewhat diffuse wholesale market facilities, the Rome Municipal Government last year announced an invited competition to design a market complex to bring together these elements. The only U.S. competitor is DMJ&M. Major units in the submission are: sales amphitheater building, with sales display areas, offices, restaurants, meeting rooms, and communications facilities; storage warehouse; refrigeration building; fish processing building; disposal plant and maintenance area; railroad receiving docks; truck crew dormitory and truck service areas; employes' residences; chapel; and local producers' area. Appropriate units would be convertible to full automation when feasible.



*Market would integrate Rome's wholesale food supply facilities.*



*Appropriate produce areas eventually would be fully automated.*



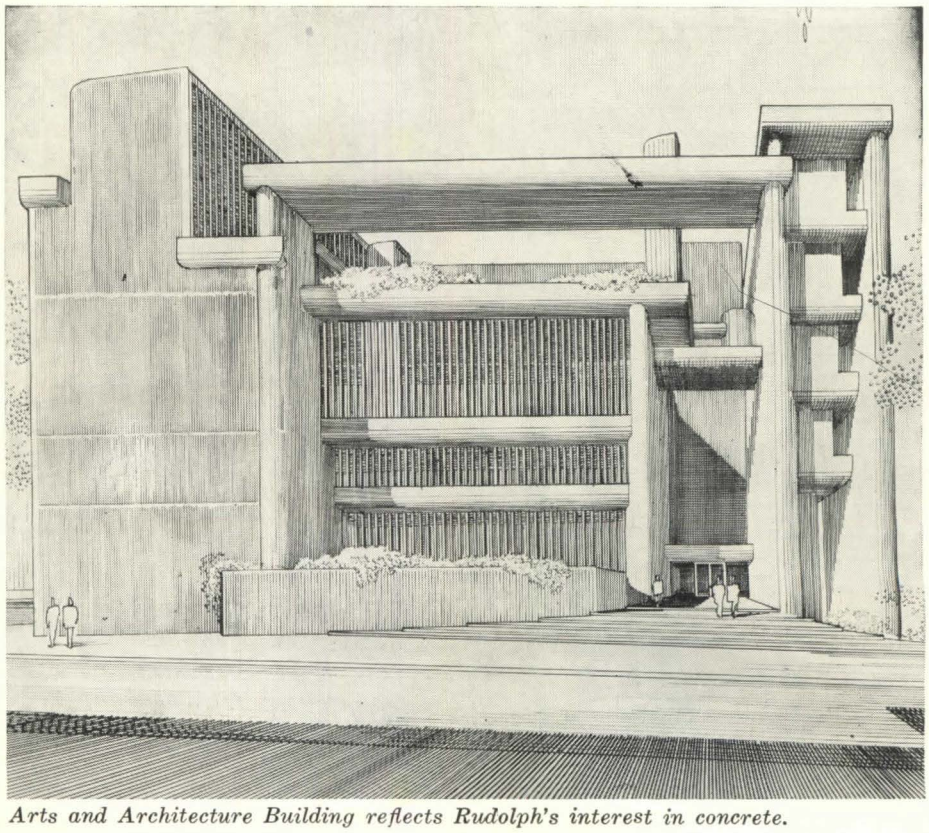
*Site of American School in Paris will be on the estate of Madame Dubarry.*

## YALE ARTS & ARCHITECTURE SCHOOL BY RUDOLPH

NEW HAVEN, CONN. At the annual Alumni Reunion Luncheon recently, Yale University President A. Whitney Griswold announced plans for a new, $4,000,000 Arts and Architecture Building by Paul Rudolph, Chairman of Yale's Department of Architecture.

The new building, to be located directly across the street from Louis I. Kahn's Yale Art Gallery, will have five stories above ground and two levels below. To be started next year and completed by fall of 1962, it will provide about 105,000 sq ft of offices and classrooms for Departments of Architecture, city planning, painting and sculpture, and graphic design. The unique façade—which should cause much comment — will be bush-hammered concrete and glass.

With the freeing of space in other buildings, including the Gallery, Yale expects to have one of "the most complete and modern facilities for teaching and research in the arts . . . in the country."



*Arts and Architecture Building reflects Rudolph's interest in concrete.*

# PERSONALITIES

Returning from an "On the Road" type trip to Mexico in the early 1930's, **Charles Eames,** though he had no formal architectural training, was tapped for an instructorship at Cranbrook Academy of Art by Eliel Saarinen. In 1941, with his Cranbrook friend Eero Saarinen, Eames won two first prizes in furniture design from the Museum of Modern Art for the first molded plywood chairs. After devising laminated plywood traction splints and aircraft components for the military during World War II, Eames returned to furniture design and produced some of his most popular designs. In the past 15 years, his design enthusiasms have ranged all the way from communications (industrial films, cybernetics) to exhibits (Moscow Trade Fair). His furniture design continues in his long-time association with the Herman Miller Furniture Company. He was recently recipient of the 1960 Design Award from the Philadelphia Museum College of Art.

JAMES FELT, Chairman of New York City Planning Commission, to recent convention of landscape architects: "We are saying now for the first time in New York City that open space is not to be considered as a gouge here and a notch there, depriving builders of valuable floor space but as a usable commodity worth more than the office it replaces." . . . Three new appointments at Harvard Graduate School of Design were effective last month: WILLIAM J. LE MESSURIER became Associate Professor of Construction, WILLIAM W. NASH, JR., became Assistant Professor of City Planning, and ALBERT ALCALAY became Instructor in Drawing . . . . An exhibition of the work of MINORU YAMASAKI is on view at San Francisco's M. H. De Young Memorial Museum through the middle of this month. The show was recently at the Honolulu Academy of Arts . . . . CHARLES LUCKMAN was re-elected to the board of directors of AID-United Givers for three years . . . . Newly-created post of university architect for New York University has been occupied by New Yorker JOSEPH J. ROBERTO . . . . "Engineer of the Year" award was presented to RALPH M. WESTCOTT, Holladay & Westcott, Los Angeles, by Consulting Engineers Association of Washington . . . . Silver medal of Scarab, national architectural fraternity, was presented to ARTHUR B. GALLION, Dean of the School of Architecture, University of Southern California . . . . Civil Engineer THOMAS E. BRASSELL was appointed first director of recently-created Inspection Bureau of American Institute of Timber Construction . . . . The stirring strains of "Monongahela Sal," by Pittsburgh Architect-Composer ROBERT SCHMERTZ, enliven "Folk Songs for a Coffee House," a new release of Bobtone Records.

Fast becoming one of the most articulate exponents of "skin-and-bones" architecture, 38-year-old **Craig Ellwood,** in the past 18 months, has spoken before many university and professional groups against the current sensualist movement in architecture. He calls it "nonsensualism." After attending the recent Aspen Conference, he was asked by a fellow panelist, the Director of the Council of Industrial Design in Great Britain, to deliver the "nonsensualism" talk before a number of organizations and schools there. And the publishers of *Bauen & Wohnen* are now working on a lecture tour of Switzerland, Germany, and France for the young designer. This is a rapid rise to fame indeed for a designer (he himself does not have an architectural degree) who just twelve years ago was still working in a Los Angeles builder's office. Ellwood started his own practice in 1948, designing during the day and taking extension courses in structure at UCLA in the evening. Recognition of his clean-lined design came early. He was asked to do a "Case Study House" for *Arts & Architecture* in 1951, and has done two others since. In 1954, he won first prize in the Collective Dwelling Category at the International Exhibition of Architecture in Sao Paulo, Brazil (judges included Le Corbusier, Gropius, and Sert). A leading housing magazine named him among 29 designers of "Houses of the Century, 1857-1957." His was among the architecture exhibited at the Moscow Fair last year. This year, Ellwood reports, a one-man show is scheduled at the American Cultural Center in Paris, to travel throughout European and Scandinavian countries after closing there.

JOHN D. ENTENZA is scheduled to leave Los Angeles, where he is editor and publisher of *Arts & Architecture,* for Chicago, where he will become director of the Graham Foundation for Advanced Studies in the Fine Arts . . . . LUCIO COSTA received Honorary Doctor of Arts Degree at Harvard's 309th Commencement; citation read, "Brazil's new capital rises from the soaring design of this gifted city planner" . . . . New president of New York Chapter AIA is FREDERICK J. WOODBRIDGE, Adams & Woodbridge . . . . RONALD S. RYNER is new executive secretary of Structural Clay Products Institute . . . . BARRY BYRNE, Byrne & Parks, Evanston, Ill., received award for distinguished use of stone from the Building Stone Institute . . . . JOSEPH L. MALONEY of Natco Corp. has been elected president of Clay Flue Lining Institute . . . . JEAN GARREAU, currently serving as senior architect in Montreal firm of André Blouin, received $2500 scholarship from Royal Architectural Institute of Canada College of Fellows . . . . DAVID R. CAMPBELL, president of American Craftsmen's Council, has been named director of Museum of Contemporary Crafts . . . . Other winners in Voorhees, Walker, Smith, Smith & Haines's furniture competition, reported here in June, were HIPOLITO PONCE (two firsts), OSWALD MITT (two seconds), and JAMES SANTOMASSIMO.

**Paul Rudolph,** Chairman of Yale's Department of Architecture, can't be accused of favoring Gown over Town. In addition to designing the new Art and Architecture Building for the University (p. 58), he also has on the boards a mammoth parking garage for the City of New Haven. What with the Jewett Arts Center at Wellesley, the Yale Forestry Laboratory, the Sarasota High School, and housing for married students at Yale, the garage is one one his first major non-educational projects in some time. Slight of frame and iron of will, Rudolph, when he stepped into the chairmanship vacated by Paul Schweikher four years ago, was probably one of the youngest architectural schools heads ever appointed. His volume of work had not been great, but much of it had been recognized. In 1955, he won the First Design Award in PROGRESSIVE ARCHITECTURE Design Awards Program. Rudolph, it may be confidently predicted, will continue to produce his brand of thoroughly personal architecture. The designs yet to come will elate some and infuriate others, but they won't be dull.

Sketches by Romeo Corbellini

**PROGRESSIVE ARCHITECTURE** announces its eighth annual Design Awards Program. Awards will be made to architects and their clients for projects now in the design stage to be built in 1961 in the United States.

**PURPOSE** of the Design Awards Program is to give recognition to good design in the period of design development, rather than after completion, in order to encourage the designers and owners of the projects so honored.

**AWARDS** will be given by the Jury listed below to the best projects chosen from nine categories—COMMERCE, EDUCATION, DEFENSE, HEALTH, INDUSTRY, PUBLIC USE, RECREATION, RESIDENTIAL DESIGN, RELIGION. AWARDS will be on the basis of site use, choice of structural system and materials and methods of construction, solution of the client's program, and over-all design excellence.

**FIRST DESIGN AWARD** will be given to the one best building submitted. AWARDS AND CITATIONS may be given in each of the nine building categories.

**AWARDS** will also be given in Planning and Urban Design. Under this phase of the Program the Jury will consider projects in Urban Redevelopment, Campus Planning, Industrial Park Planning, Recreational Area Planning, Etc.

**FIRST DESIGN AWARD IN PLANNING** will be given to the best project submitted. AWARDS AND CITATIONS IN PLANNING may be given to other projects.

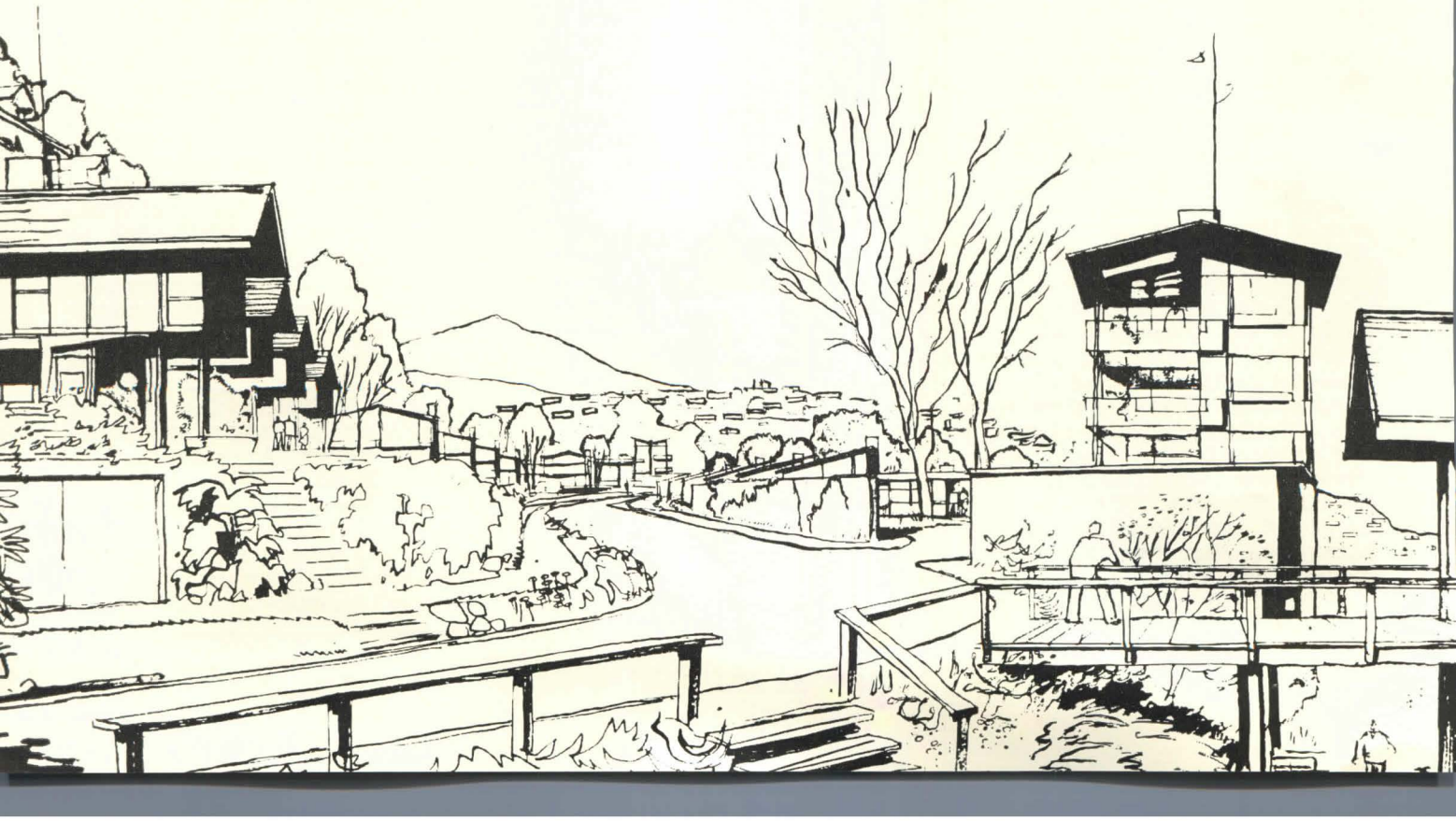
The Jury will assign projects to the various categories, and reserves the right to withhold an AWARD in any category.

**JURY** will be composed of Charles R. Colbert, Dean, School of Architecture, Columbia University, and partner, Colbert-Lowry-Hess-Boudreaux, architects, New Orleans, La.; O'Neil Ford, architect, San Antonio, Texas; Philip C. Johnson, architect, New York; Walter A. Netsch, Jr., partner, Skidmore, Owings & Merrill,

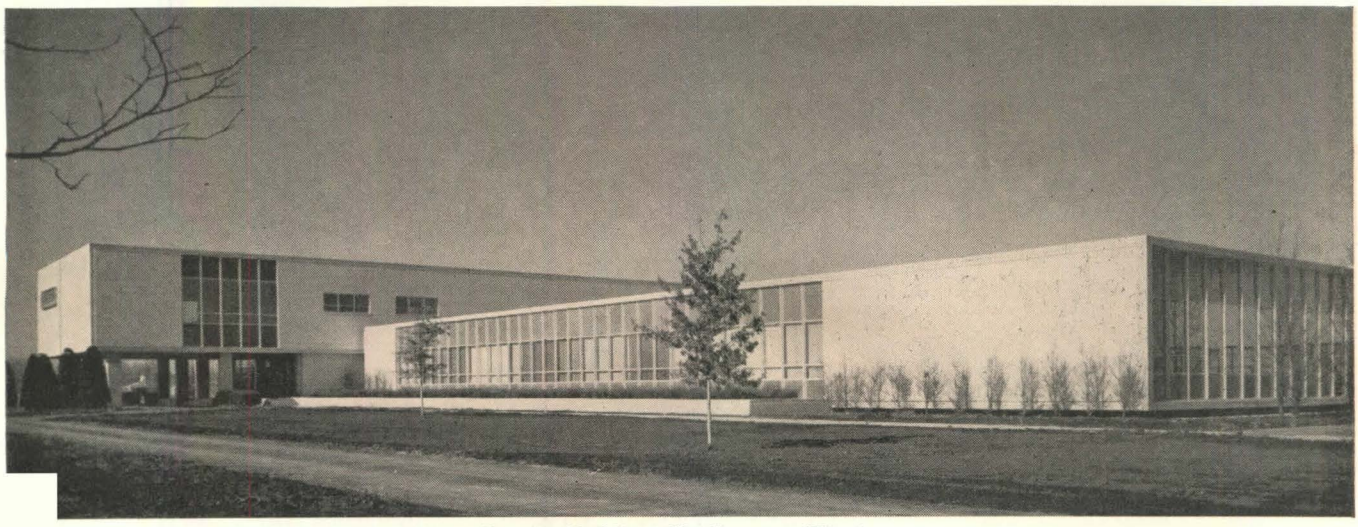
*Reinhold Publishing Corporation's*

# ANNUAL P/A

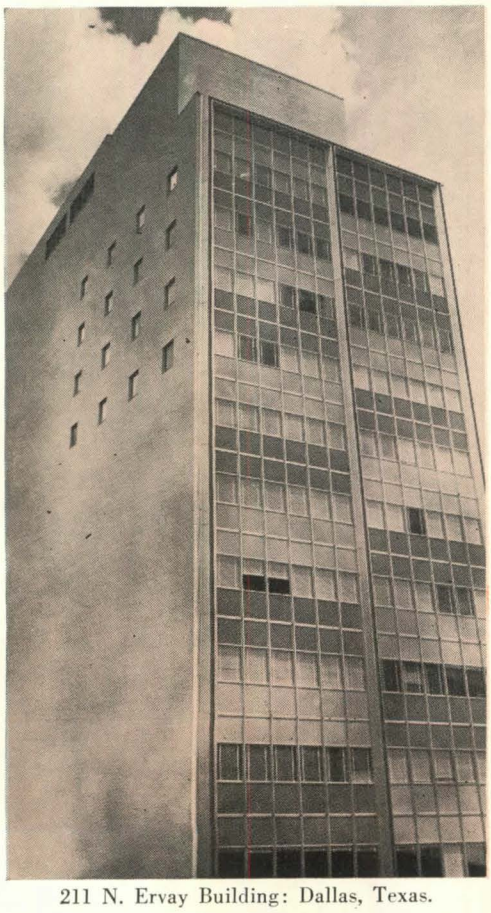
*Marin City, California: 1959 First Design Award Winner, DeMars & Reay, architects; Mayer, Whittlesey & Glass, consultants; James Scheuer, sponsor.*



# ...keeps these buildings beautiful!

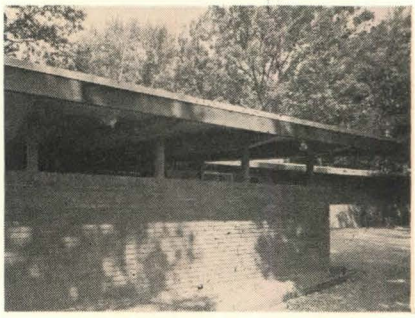


Bruning Building: Mt. Prospect, Illinois.



211 N. Ervay Building: Dallas, Texas.

Carlton Motel: Dallas, Texas



Residence: Saginaw, Michigan.

## *Suggested Specification for Silaneal*

*From Dow Corning Bulletin AIA File No. 3F.*

"Brick having suction above 20 grams per minute (per 30 sq. in. of bedding surface) shall be treated at the brick plant with Silaneal® (manufactured by Dow Corning Corporation). The Silaneal concentration shall be adjusted until the brick pass the following test:

Allow bricks to air-dry 24 hours after treatment. Weigh the brick and place bedding-side-down in 1/8-inch of water. Remove after 60 seconds and weigh again. The average increase in weight shall lie between 1/3 and 2/3 gram per square inch of surface tested (between 10 and 20 grams for a nominal 4 x 8 brick having a bedding surface of 30 square inches).

Brick having suction below 20 grams, but which may have a tendency toward efflorescence or other staining, shall be sprayed with Silaneal® on the face and two ends only. Treatment concentration shall be of sufficient strength to control efflorescence and staining."

NOTE: There are several brick manufacturers who produce brick having low suction which already perform similar to a Silaneal treated brick. Little improvement in efflorescence control and reduction in dirt pickup could be accomplished by treating this type of brick with Silaneal. Silaneal treatment would not improve the laying properties of this type of brick.

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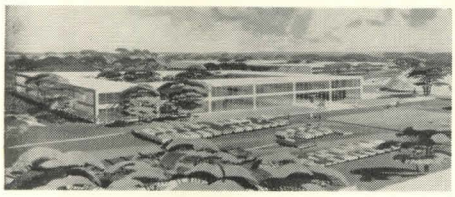
## "University" Planned for Airline's Employes

A center for training management employes and stewardesses has been announced by United Air Lines. The school, to be located near Chicago's O'Hare Field, has been designed by Skidmore, Owings & Merrill. First



floor of the two-story building will contain office, conference rooms, 12 classrooms, cafeteria, and kitchen. Dormitory suites for 176 trainees and two house mothers will occupy the second floor. The building, which will handle about 2000 trainees annually, will be built around an inner court.

## Competitions for Idlewild, Century 21

An invited competition for the design of a Union Terminal at New York International Airport is under way. Project is for a terminal which will combine facilities for small domestic airlines. Robert W. McLaughlin of Princeton's School of Architecture is Professional Advisor to a jury composed of Wallace K. Harrison, Chairman, Pietro Belluschi, and L. Bancel LaFarge. Competing architects are Philip Johnson, I. M. Pei, Morris Ketchum of Ketchum & Sharp, Arvin Shaw, and B. Sumner Gruzen of Kelly & Gruzen. Judging will take place early this month.

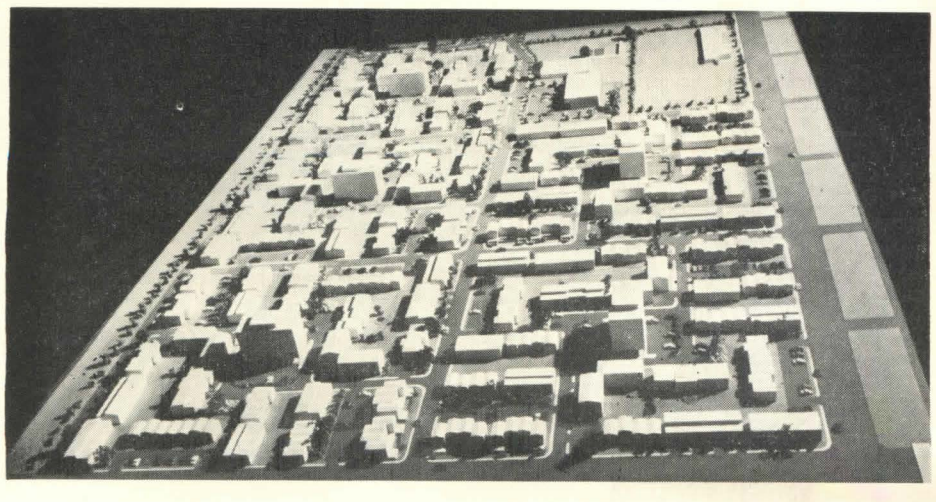
An open competition for the design of a major fountain at Seattle's Century 21 Exposition has been announced. Five first-stage finalists will be awarded $2000 each. From this group, the final winner will be chosen, and awarded the contract to complete the project. Calendar: last date for registration, Sept. 16; last date for shipping of designs, Nov. 28; judging of first stage, Dec. 12. Write: Professional Advisor, Seattle Civic Center Fountain Competition, Civic Auditorium, 3rd Avenue North and Mercer Street, Seattle 9, Wash.

## Demolition Started at Grand Central City Site

Demolition has started on existing buildings on the 3½-acre site where the mammoth Wolfson-Roth-Gropius-Belluschi Grand Central City is to rise. Readers of last month's NEWS REPORT will recall that even after total clearing of the site, Promoter Jack S. Cotton's billboard-building for Piccadilly Circus in London was stopped by the Minister of Housing. Cotton, as you know, has a $25 million chunk in Grand Central City. Your move, Mayor Wagner.

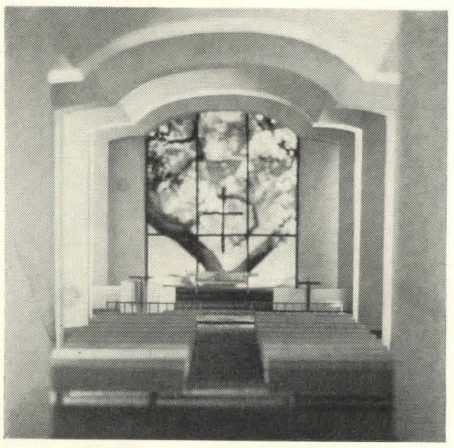
## Chicago to Get Large-Scale Residential Development

A $25 millions, 62½-acre residential-recreational development has been announced for Chicago's North Side. Designed by architects Solomon & Cordwell, the development will be in five areas, or cells, around courts. Each area will be made up of town houses, duplexes, two-story garden apartments, and a six-story apartment building. About 45% of the land will be devoted to open space, and a public park is being planned adjacent to the western boundary. A three-acre recreational area will include an Olympic-size swimming pool, cabanas, and dressing and nursery facilities.



## California Chapel Will Have Vaulted Roof

A sculptural roof of reinforced thin-shell concrete will dominate the chapel for the First Methodist Church of La Verne, Calif., designed by Ladd & Kelsey of Pasadena. Elements for the vaulted roof will be poured on a single form and repeated five times. Side walls of the 200-seat chapel will be reinforced concrete, and end walls will be glass. A huge camphor tree on the site will be seen behind the altar by



parishioners. A group of classroooms and a fellowship hall are included in the first phase of construction. The main sanctuary will be built later.

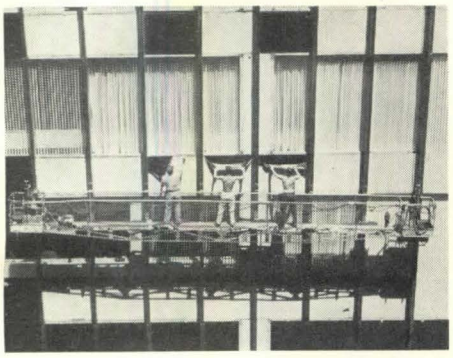
## CARNEGIE SAVED

New York's famed Carnegie Hall, threatened with destruction, has been bought by the city and reprieved from ruin. The city took title to the hall, then leased it to Carnegie Hall Corporation, a recently formed non-profit organization. The New York Philharmonic, the Boston Symphony, and the Philadelphia Orchestra, which were scheduled to play in the auditorium of Hunter College next season, can now play Carnegie Hall again.

*Continued on page 67*

## Strip Act on Park Avenue

Since January, workmen have been peeling the white protective coating from the 52-story Union Carbide Building on New York's Park Avenue. The stripping operation is revealing the black matte stainless steel panels which sheathe the building. Removal of the material—called "Spraylat"—from more than 6800 panels is expected to be completed this summer. Architects: Skidmore, Owings & Merrill.

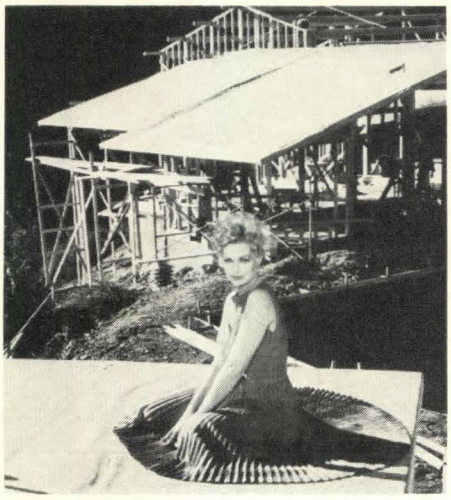


## P/A Design Awards Program Announced

On pages 60 and 61 of this issue, readers will find the announcement of the Eighth Annual PROGRESSIVE ARCHITECTURE Design Awards Program. The distinguished professional jury consists of Architects Philip Johnson, Charles Colbert, Walter Netsch, O'Neil Ford, and Chloethiel W. Smith. Deadline is August 29, so get busy!

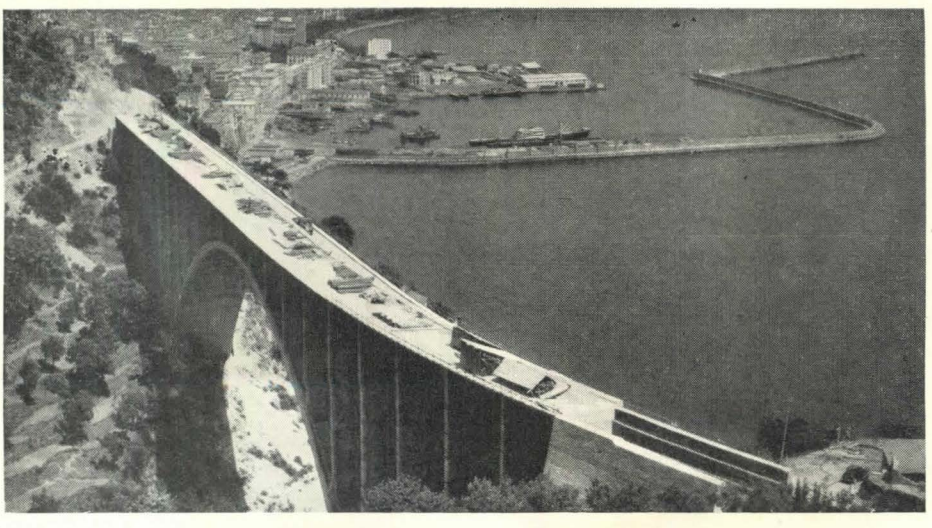
## STARRING: Kim Novak–Victor Gruen

Co-starring with Kim Novak and Kirk Douglas in the new film "Strangers When We Meet" is this house by Victor Gruen Associates. Picture portrays Douglas as an "idealistic architect" *(again?)* who attempts "to design artistic homes rather than develop industrial communities." The building of the predominantly wood house forms a framework for the plot. That's Novak in the picture, not Gruen.



## COMPOSITE CONSTRUCTION IN ITALIAN BRIDGES

Composite construction, to be the subject of a major Materials and Methods article in next month's P/A, is being utilized successfully in a series of dramatic Italian bridges. Arthur R. Anderson, author of next month's article, reports that his friend, Swiss Structural Engineer Ernst Schmidt, designed the bridges in a competition for a new super highway running between Naples and Salerno. Concrete composite construction is the close integration of precast and cast-in-place structural components.

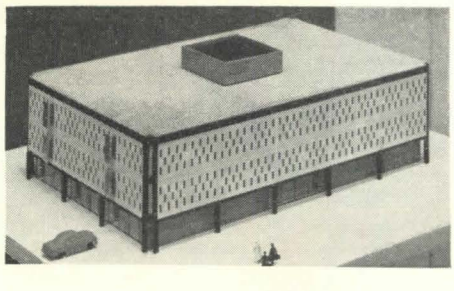


## Landscape Architects Meet in New York

Citations and other bouquets were the order of the day at the recent 61st Annual Convention of the American Society of Landscape Architects in New York. Citations went to: Shurcliff & Merrill; Goodwin & Bell; Royston, Hanamoto & Mayes; Arthur G. Barton; Sasaki, Walker & Associates; Lawrence Halprin; Scruggs & Hammond; Robert Zion & Harold Breen; Harland Bartholomew & Associates; and Eckbo, Dean & Williams. Student awards went to Pennsylvania State University for its exhibit at the convention and to Dominic D'Addario of Cornell. Pittsburgh was honored as the "city of the decade" for its urban renewal program—runnersup were Philadelphia, New York (!), and Los Angeles (!!). As is the case with most organizations past their 60th convention, ASLA gave an honorary membership to Robert Moses.

## IBM Building Exhibit Shows Forward Trend

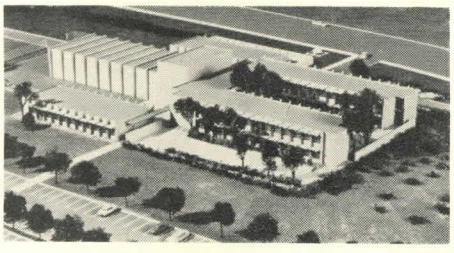
An architectural exhibition recently mounted at World Headquarters of International Business Machines Corporation in New York and now touring the country shows the development of the admirable architectural program IBM has undertaken—using top talent (usually local) in designing its regional buildings. Difference between old and new is graphically illustrated by the IBM Sales Office in Peoria, Ill. *(top)*, and the proposed Sales Office for Sacramento, Calif., by Eliot Noyes & Associates *(bottom)*.



## 3 BY ANSHEN & ALLEN

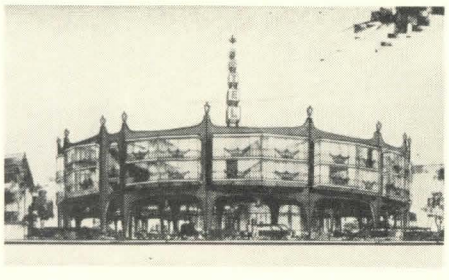
Currently on the boards of Anshen & Allen, San Francisco, are three widely different projects: an industrial research center, a motel, and a chemistry building for the University of California.

The research and engineering center for Food Machinery and Chemical Corporation will include administrative offices, engineering offices, and drafting rooms in a two-story, U-shaped unit around a court, and laboratories and shops in three one-story wings. Construction is planned in



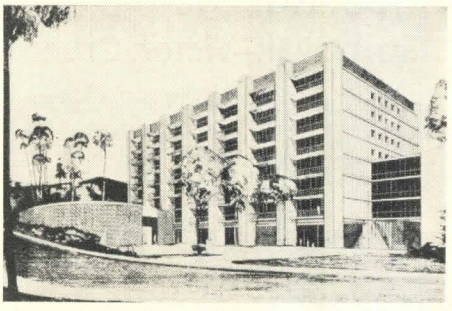
three phases, the first being currently underway. Structure of the office and laboratory wings will be of smooth finished, sculptured, precast-concrete columns and contrasting precast-concrete spandrels with exposed aggregate. The shop will be constructed with cast-in-place, smooth finished concrete columns and steel roof beams. Wall panels will be tilt-up, precast, exposed aggregate concrete.

The motel, to be located near Fisherman's Wharf in San Francisco, will be a two-story, wood-framed structure rising 20′ in the air over a precast-concrete platform. An inner,



circular, landscaped court will contain a bar and lounge raised slightly above tenant automobile traffic to enjoy San Francisco views. Motel will have 47 bedrooms, plus 12 living rooms convertible for use as bedrooms. Shallow bay windows, glazed with floor to ceiling sliding glass doors, will fenestrate the units, repeating a familiar San Francisco design element.

The chemistry building for the University of California at Berkeley is the first of several new units to be built by that department. It will be connected by a bridge to an older building; consequently an effort was made to keep the design subdued in character, while still retaining its contemporary identity. The building will display its own somewhat complex mechanical system of vents and



exhausts. These will be integrated with structural columns, freeing floor areas of interruptions, and carrying ducts from laboratories directly to the roof. Concrete floor slabs will be brought out between the columns, creating balconies useful for egress in case of emergency and for access to vent shafts. Structural engineers: Robert Dewell and John J. Gould and Henry Degenkolb; mechanical engineers: Bayha, Weir & Finato.

## MORE MONUMENTS

Monument-crowded Washington will get two more memorials to presidents —Woodrow Wilson and Theodore Roosevelt—and some Senators took action to block erection of still another (the controversial "freedom wall") proposed for a tract adjoining Arlington cemetery.

Nature and location of the Wilson memorial—whether it will be a "building of functional nature" or simply a monument—was left to a Woodrow Wilson Memorial Commission, to be appointed later.

The Roosevelt monument, for which $886,000 was appropriated, is already the subject of Congressional jokes. It will be built on the tip of Roosevelt Island—a small spot of land in the Potomac almost opposite the Lincoln Memorial (and will be crossed by the now-building Roosevelt bridge)—and its principal feature will be a 50-ft high bronze celestial sphere which, according to sponsors, will "betoken the free spirit, universal in its nature . . . and abiding within the orbit of eternal law. . . ."

Huffed Rep. John Kyl (R-Iowa): "People will certainly flock around, and ask—what is it?" Added Rep. J. A. Haley of Florida: "A bird roost." But the appropriation was passed.

Meanwhile, a group of 24 Senators, seeking to block construction of a huge "shrine" (JULY P/A, p. 52) along the Potomac near Arlington cemetery, introduced a bill (S 3717) to authorize enlargement of the cemetery to take in the 20 acres on which the proposed wall would stand.

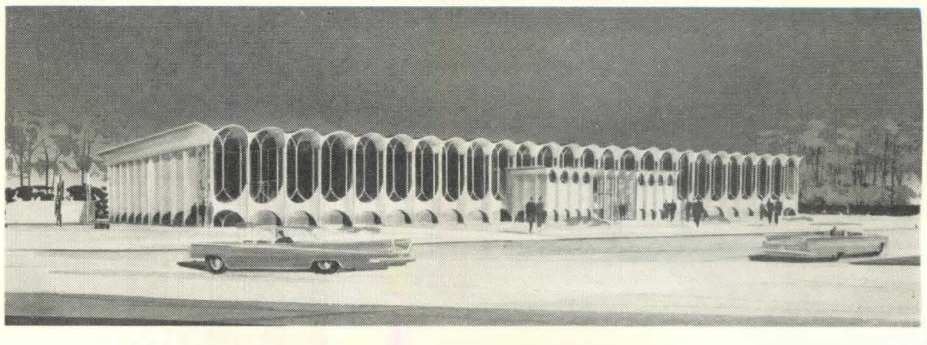
Local civic and service organizations have unanimously opposed construction of the proposed 68-ft high, 327-ft long, 204-ft wide "wall" as a monstrosity, and as a block to needed expansion of the cemetery.

## CCAIA CONVENTION SET

Fifteenth Annual Convention of California Council of AIA has been scheduled for October 19-23 in Yosemite National Park. Theme of the convention has been announced as "The Changing Practice of Architecture."

## Exotic Bowling Alley for Detroit Suburbs

For Yorba Linda Lanes in Royal Oak, Mich., Detroit architects Hawthorne & Schmiedeke have designed a "new sensualism" bowling alley. The bowling center, which will have 50 lanes, will be on high-cost property in a "desirable neighborhood," and consequently particular attention will be given to planting and fountains which will be visible from the main street. Long span steel trusses at 11′ 4″ o.c. will create bays the width of two bowling lanes. Concave vaults of cement plaster will occur at the roof line, to be repeated obversely by curved sub-purlins spanning from bottom chord of truss to bottom chord of truss. Subsurface parking for 80 cars will be provided; an additional 130 cars will be in a parking lot.

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# Congress Back; Work Begins Again

## Measures Put on Shelf Come Down Again

*By E. E. Halmos, Jr.*

As Congress comes back to work again this month after its political vacations at San Francisco and Chicago, you can make a couple of safe assumptions:

Earlier comments on the political facts of life are still valid—a vast amount of the legislation now unexpectedly given a new lease on life still won't get through. But anything that seems to promise a political payoff has a better chance.

The pressures on Congress will be enormous, with the campaigns actually under way, and that could mean that nothing at all will be done. But Congressmen are very much aware that what they do in this late period could make or break their party's image in the minds of voters—and their own chances for re-election into the bargain.

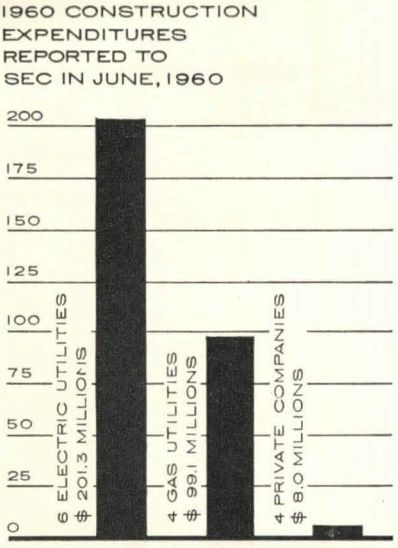
For this reason, some of the bigger pieces of unfinished business that seemed safely dead at the end of June are very much alive now. And their impact on architects and the construction industry in general is still to be assessed.

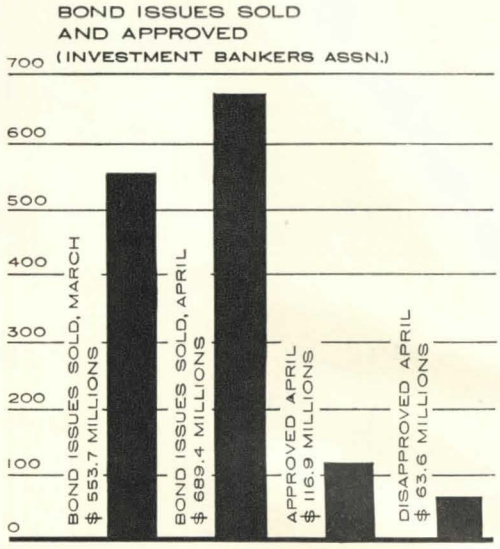
For instance, take federal aid to school construction (see p. 64 July P/A). As of the end of June, the House Rules Committee seemed to have killed the whole matter by refusing a "rule" for House consideration of the differing bills passed by House and Senate. Actually nobody but educators was really sorry about this—both sides could claim they tried to help, both could blame Committee Chairman Howard Smith of Virginia (and he has no re-election worries in his heavily Democratic district). Now, however, the excuse of lack of time for legislative maneuver no longer exists, and there'll be great pressure to get some sort of a bill enacted. Whatever version might be accepted will carry at least $500 millions for construction.

Take area redevelopment: as you know, the President vetoed one bill (S.722), and two others (S.3569 and HR 12286) were immediately introduced as substitutes. Both of these have been tied up in committees, neither has reached floor debate, both would have died with adjournment. There are $180 millions of construction and planning money in the two measures.

Take tax aid to the self-employed: the Senate had started debate on the matter at the end of June, but so many amendments were proposed that

*Continued on page 74*




BOND ELECTION RESULTS — MAY 1960 BY USE OF PROCEEDS

| USE OF PROCEEDS | APPROVED | | DISAPPROVED | |
|---|---|---|---|---|
| | AMOUNT | NO | AMOUNT | NO |
| EDUCATION: | | | | |
| ELEM. & SEC. | $ 83,535,000 | 54 | $30,649,000 | 22 |
| OTHER | 1,858,000 | 5 | 340,000 | 2 |
| ROADS & BRIDGES | 1,843,000 | 8 | 6,440,000 | 7 |
| WATER & SEWER | 18,115,000 | 28 | 5,767,000 | 8 |
| OTHER UTILITIES | 3,020,000 | 3 | ——— | 0 |
| HEALTH & WELFARE | 1,175,000 | 2 | ——— | 0 |
| RECREATION | 132,000 | 3 | 13,577,000 | 12 |
| PORTS & AIRPORTS | 222,000 | 3 | 50,000 | 1 |
| INDUSTRIAL | 500,000 | 1 | ——— | 0 |
| REFUNDING | 37,000 | 1 | ——— | 0 |
| PUBLIC HOUSING | ——— | 0 | 800,000 | 1 |
| ADMIN. & OFFICE BLDG. | 100,000 | 1 | 619,000 | 3 |
| UNCLASSIFIED | 6,385,000 | 15 | 5,315,000 | 10 |
| TOTALS | $ 116,922,000 | 124 | $ 63,557,000 | 66 |

BOND ELECTIONS SCHEDULED AS OF MAY 1, 1960

| MONTH | AMOUNT |
|---|---|
| MAY | $ 92,563,000 |
| JUNE | 796,543,000 |
| JULY | 35,500,000 |
| SEPTEMBER | 4,400,000 |
| OCTOBER | 3,200,000 |
| NOVEMBER | 230,700,000 |
| NO DATE SET | 11,112,000 |
| TOTAL | $ 1,174,018,000 |

| USE OF PROCEEDS | AMOUNT |
|---|---|
| EDUCATION: | |
| ELEM. & SEC. | $ 618,565,000 |
| OTHER | 12,995,000 |
| ROADS & BRIDGES | 2,250,000 |
| WATER & SEWER | 14,096,000 |
| OTHER UTILITIES | 4,400,000 |
| HEALTH & WELFARE | 20,685,000 |
| RECREATION | 17,145,000 |
| PORTS & AIRPORTS | 1,170,000 |
| INDUSTRIAL | 2,835,000 |
| REFUNDING | ——— |
| FLOOD CONTROL | ——— |
| PUBLIC HOUSING | 198,000 |
| VETERANS AID | 400,000,000 |
| ADMIN. & OFFICE BLDG. | 7,575,000 |
| UNCLASSIFIED | 72,104,000 |
| TOTAL | $ 1,174,018,000 |

walls, as well as the retaining wall at the base.

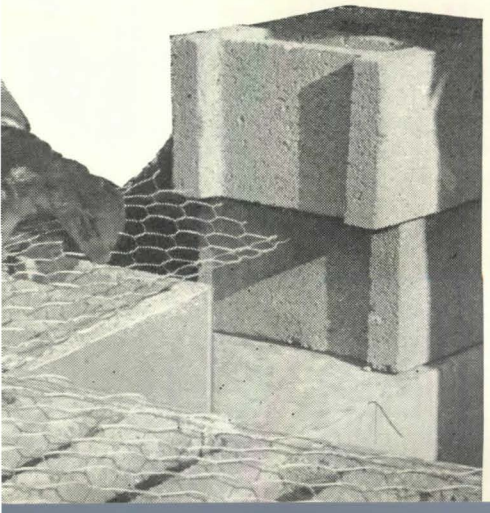
Architects have specified KEYWALL because they know it does an exceptional job in reducing shrinkage cracks and increasing lateral strength. And, as on all KEYWALL jobs, they can be sure this masonry reinforcement is used as specified.

Masons find KEYWALL easy to handle and store. It unrolls in place on the wall, it cuts easily, and it's easy to lap without adding thickness to mortar joints. Full embedment and a strong bond are always assured.

Why not use KEYWALL masonry joint reinforcement on your next job? You'll find it gives the low-cost, effective reinforcement you've been looking for.

The winning design in the Million Dollar Fine Arts Center architectural competition, Memphis, Tennessee. When completed, this building will have facilities for an art academy, a theatre and a concert hall. Mann and Harrover, Architects; Allen and Hoshall, Mechanical Engineers; John C. Brough, Structural Engineer; Whitsitt Construction Co., Inc., General Contractor; Memphis.

**KEYWALL** masonry joint reinforcement is made for the following wall thicknesses: 4", 6", 8", 10" and 12".



# KEYSTONE STEEL & WIRE COMPA /

**Peoria 7, Illinois**

Keywall • Keycorner • Keystrip • Keymesh® • Welded Wire Fabric • Nails

**Keystone Steel & Wire Company** Dept. PA-80

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*Please send me complete information on Keywall.*

*Name*_____

*Title*_____

*Company*_____

*Address*_____

*City*_____ *State*_____

*Continued from page 70*
it couldn't possibly have completed action by July 8. But the bill now has a further chance.

The same goes for much other legislation of interest to architects. Legislation to raise the minimum wage from $1.00 to a higher figure got so thoroughly confused when the House got through with it that the bill was completely stopped; legislation to permit construction union on-site picketing was also stopped cold. Now, much of it stands a new chance.

## Capital Architecture

Meanwhile, Washington kept its architectural pot boiling over a lot of other matters.

One of these was a futile debate over whether Congress should buy (for $5 millions) a two-block area just south of the Library of Congress for future expansion. Stores, homes, and other buildings are included. The arguments did no good; Congress voted to buy the property anyway.

A new city building code, which would impose strict standards on older buildings (sprinkler systems, fire alarms, fireproofing, etc.) was opposed by businessmen as "physically and economically impossible." And the District's Zoning Commission—also over protests of business interests—adopted a new set of rules requiring enclosure of rooftop structures to eliminate "warts" on the city's skyline.

And, not to be outdone in the city's constant architectural furor, the Fine Arts Commission—which just celebrated its 50th year—told National Capitol Parks that its plans for a $1.7 million headquarters building on parkland overlooking the Tidal Basin would encroach on the famous Japanese Cherry Trees, advised NCP to find some other spot.

## FINANCIAL

On the financial side, the year—from the vantage point of the half-way mark—continued to look good for the construction industry, despite the drop in housing starts.

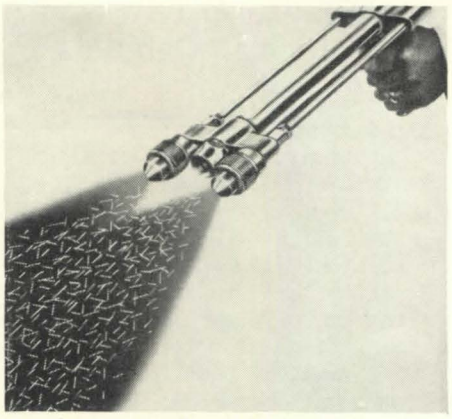
Many observers, reinforced by the apparent steadiness in the money markets, thought that the low point for housing had been passed, and one (the respected Value Line investment survey) thought that the rate of new starts would turn upward for the rest of the year, go even higher in 1961, to meet a demand that will run to 1.4 million new homes per year by 1963.

Certainly, public utilities (see p. 70) continued to evidence their faith in future growth, with a continuing strong showing of construction plans. And voters continued to approve a majority of construction bond issues presented to them for certain items—principally schools. However, voters didn't think much of most proposals for road and bridge construction, turned down more than half of the proposals for water and sewage construction during April.

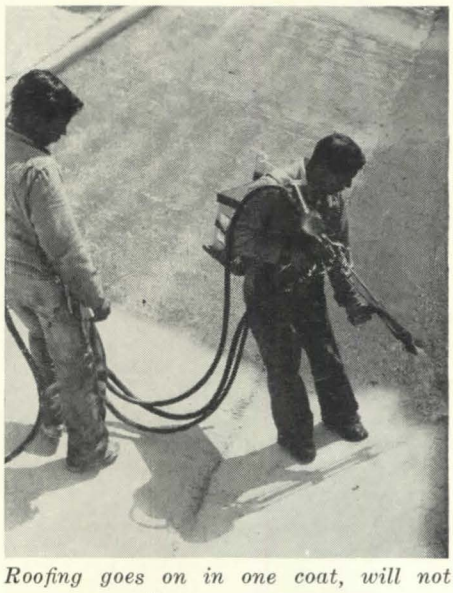
Tax note: If an employe embezzles some of your fees, you can't claim the embezzled funds as a tax deduction, unless you reported the amount as income while it was being stolen.

That's the net of a somewhat puzzling Tax Court decision, involving a lady author, who lost $57,000 to an agent (over a 10 year period), didn't report the loss in those years because she didn't know of the embezzlement, then claimed the losses in 1952, after accidental discovery of the criminal action. But said the court, the author didn't report the losses as income, so wasn't taxed on them. Therefore she can't now claim a refund.

*Flexible, lightweight Monoform sprays on easily, rapidly.*



*Application is by Sealzit Spray Gun, which mixes compound, glass fibers.*



*Roofing goes on in one coat, will not craze or crack.*

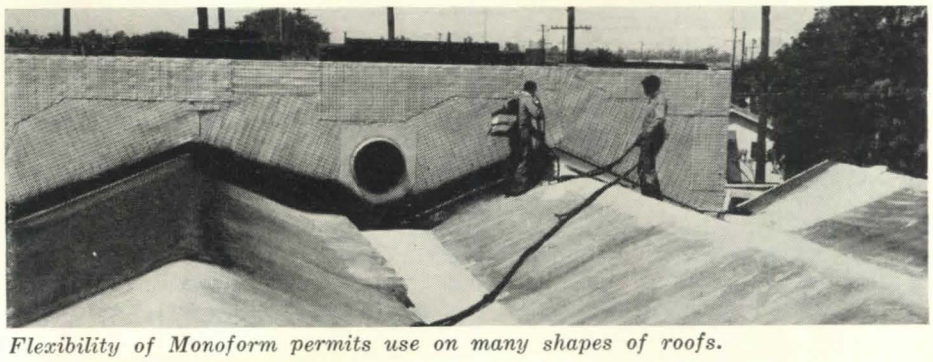
# New Roofing System Easily Applied, Saves Money

## Material Applicable to Flat, Curved Surfaces

WHIPPANY, N.J. A new spray-on method of roofing has been developed and demonstrated to the press here at the research laboratories of The Flintkote Company.

Using a "Sealzit Spray Gun," a three-man crew can apply a 300-square roof in two days — it would take a crew of nine five days to apply a conventional built-up roof. The Sealzit gun has three nozzles, one which ejects glass fibers, and two which spray an especially formulated mineral colloid asphalt emulsion compound (Monoform Compound GMR/FM-100), which combines with the glass fibers to form the finished "Monoform" film. The three-man crew consists of one man to handle the gun, one to tend the hoses, and a third to run the compressor which forces the material from the tank through the hoses. No hoisting of materials is necessary since the tanks and compressor are left on the ground, and the materials are delivered to the roof through the hoses. No hot material is required during the application process, with any possible fire hazard thereby eliminated. Monoform roofing is non-flowing, hence can be applied even vertically, and will not melt and flow in hot weather. It is lightweight, weighing about 1½ pounds per sq ft as compared to 5 pounds per sq ft for conventional roofing. Its flexibility permits its application to any roof form. Combination with a number of aggregates is possible, including crushed rock, vermiculite, sand, roofing granules, metallic powders, and decorative flakes. The coating also can be used for sidewalls, insulation, sound deadening, pipe coating, maintenance and repair, and as corrosive protection in water tanks. The Flintkote Company.

*On Free Data Card, Circle* **100**



*Flexibility of Monoform permits use on many shapes of roofs.*

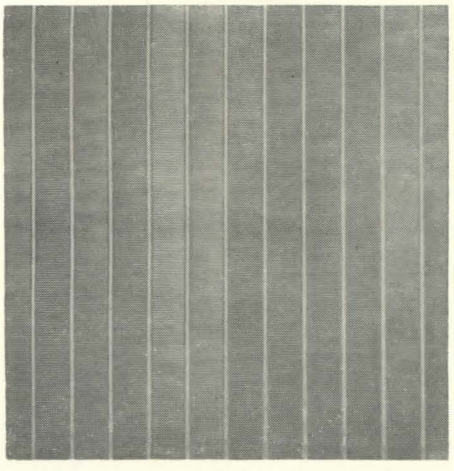
## Schoolroom Ventilators Blend into Wall Cabinets

Compact line of classroom unit ventilators, designed with modern school decor in mind, blends without expensive recessing into continuous wall of shelving. New narrowness of 11⅝"-wide units can save up to 15 sq ft of floor space in the average classroom. Optional shelving for cabinets is available with or without sliding doors, and counter tops are finished in abuse-resistant material. Five possible arrangements of fans, coils, and other internal components make it possible to select equipment for exact requirements of any school. Units are available for steam, hot-water, and electric heating, and chilled-water cooling. Heights of 28" and 32" permit installation under conventionally high sills as well as lower sills. The Trane Company.

*On Free Data Card, Circle* **101**

## Panels to Aid in Heat And Sun Control

Aluminum screening is embedded in plain or tinted vinyl, then laminated between two sheets of one-way safety glass. "Sans-sol" filters heat and light. It is claimed to make air conditioning



more effective and to minimize fading of interior surfaces. The panels may be tinted in any color. Multiplate Glass Co.

*On Free Data Card, Circle* **102**

## Metal Office Furniture Has Great Flexibility

Flexibility in specifying office furniture is provided by the wide range of basic units in the new 4000 Line. Executive, secretarial, clerical desks, L-units, as well as credenzas, bookcases, storage units, and conference tables are available in 13 standard colors. Tops in five different widths

and lengths from 24" to 120" are available in a range of laminates or may be ordered in wood; tops are self-edged or edged with resilient molding. Recessed hexagonal legs are brushed chrome or are available in painted finishes. A wide range of drawer and shelf pedestal arrangements, inner drawer fittings, and two lines of office chairs are also offered. All-Steel Equipment, Inc.

*On Free Data Card, Circle* **103**

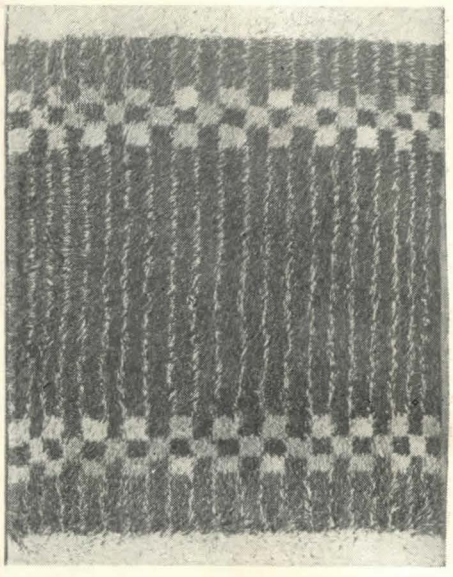
## Compact Generator for Use on Job Site

Onan Magneciter Generator is now available as small, compact unit, providing efficient performance in both primary and standby applications. New generator with static exciter eliminates rotating exciter used in other types of generators. Voltage regulator has no moving parts and no multiple delicate contact points. The simplicity of design eliminates hundreds of electrical connections. Regulation and stability are "built-in," avoiding any extra sensitive adjustments. D. W. Onan & Sons Inc.

*On Free Data Card, Circle* **104**

## Award-Winning Designs In Area Rugs

A collection of six area rugs inspired by award-winning works of Finnish hand weavers has been introduced. Four of the Nordic Gallery rugs are adaptations of winners in the design competition conducted by the manufacturer in co-operation with the Finnish Society of Crafts and Design; the other two are of a more traditional pattern, designed by Bigelow's Style and Design Studios, available in two colorings. The rugs are 4½'x6', and are woven with a special yarn (70% wool, 30% carpet nylon). Vikings Rest from Kirsti Rantanen's design award is in black and brown



with a border on beige and parchment and horizontal bands in brown, copper, beige. Retail price is $129. Bigelow Rugs and Carpets.

*On Free Data Card, Circle* **105**

## Vinyl Now Available in Drapery Fabrics

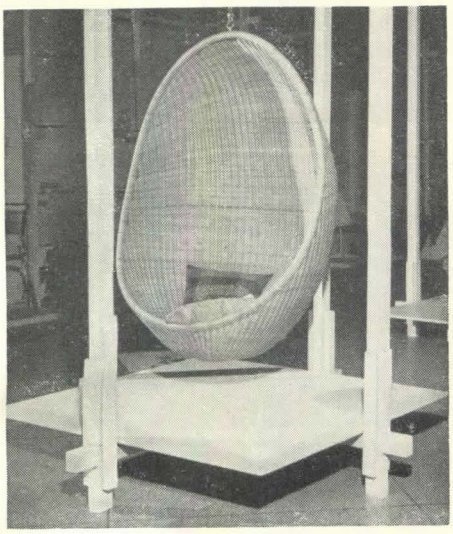
Though vinyl wallcoverings and upholstery fabrics are familiar, now a special-weight vinyl has been bonded to a glass cloth backing to make a fire-retardant drapery fabric. Vicrtex vinyl drapery fabrics are said to be unaffected by atmosphere; never to fade, crack, or snag; to have great dimensional stability; to wipe clean with a damp cloth. A limited number of patterns are available. L. E. Carpenter & Company.

*On Free Data Card, Circle* **106**

## New Imports Are Introduced

Jorgen Ditzel's playful hammock chair was shown this spring in the seventh "For Your Home 1960" exhibition at the University of Illinois. The first new group of modern furnishings—case goods, chairs, and lighting equipment—imported from France, created considerable interest when they were introduced here. Widespread residential construction in France and the need for new furnishings stimulated these works by French designers, all in their thirties. Especially interesting are the upholstered chairs, for office as well as residential use. Steiner has designed one with upholstery covers which zip completely off each part for easy cleaning and

another, a light bucket chair slung in a chrome frame. Another line with tubular steel legs has metal frame

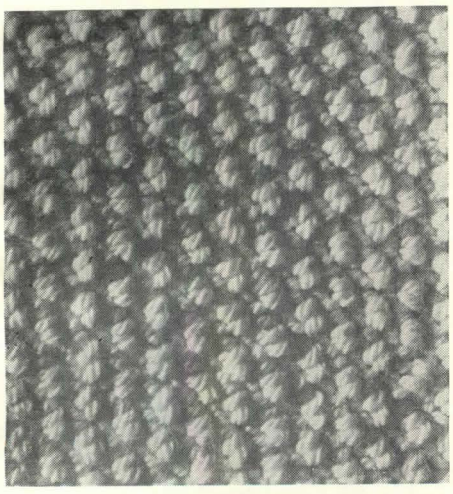


interiors covered with foam held to the metal by glue and clips. George Tanier, Inc.

*On Free Data Card, Circle* **107**

## Textured Effect in New Modacrylic Carpet

Homecraft has a thickly-looped pile of varying heights for a richly-textured look. It is made of 100% Verel, Eastman's modacrylic fiber which is



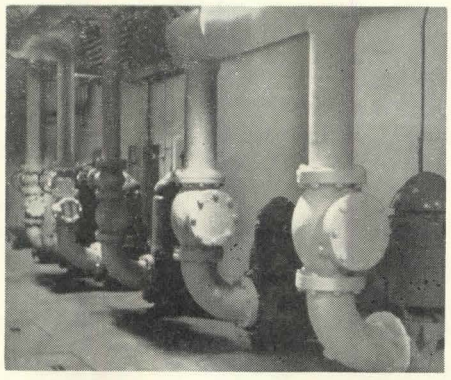
said to have excellent texture retention and resistance to abrasion. The carpet is available in nine colors and in 12- and 15-ft widths. Approximate retail price is $12.50 per sq yd. Roxbury Carpet Company.

*On Free Data Card, Circle* **108**

## Patterned Carpet Knitted of Acrylic Fibers

Conquista's tracery pattern is formed by multilevel looped pile knitted of 80% Creslan, American Cynamid Company's acrylic fiber, and 20% modacrylic fiber. The special knitting process lock-stitches each tuft for greater stability. Conquista has excellent resilience and color retention. Available in ten colors, the carpet retails for $10.95 per sq yd. Archibald Holmes & Son.

*On Free Data Card, Circle* **109**



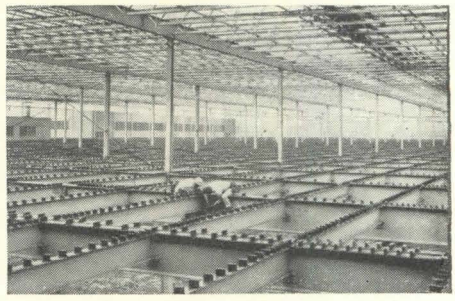
## Anti-Condensation Coating Introduced from Britain

A compound which prevents condensation on pipes, ceilings, walls, and other surfaces likely to collect excess moisture has been tested against emulsion paint, flat oil paint, glossy enamel, and conventional anti-condensation paints, and found to be more effective. "Seculate," presently being manufactured in England and distributed in the United States, is said to prevent condensation by insulation of the surface, and by absorption of some of the moisture followed by gradual release when the relative humidity of the surrounding air becomes lower. It may be applied by either brush or spray, creating an off-white coating (also available in several pastel shades). It will adhere, even where vibration is present, to metal, wood, masonry, insulation, and hard board plus most other materials. Chemical Concentrates.

*On Free Data Card, Circle* **110**

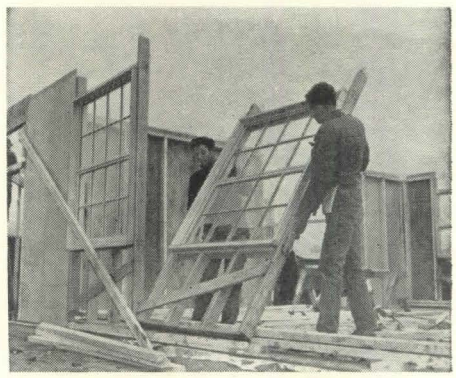
## Biggest Job Yet in Composite Construction

Composite construction, treated in depth in last month's P/A (pp. 169-172), has penetrated the Midwest. The new manufacturing plant for Steelcase, Inc., is said to be the first building in that area using this technique and also the largest known composite steel beam building completed to date in this country. Composite construction is the integration of steel framing and concrete slabs into a strong structural system. The Steelcase plant, designed by J. & G. Daverman Company, Grand Rapids, utilized a system of channel sections welded to the beams to act as shear connectors, instead of the spiral shear connectors used in much bridge work, or the



welded stud used in most buildings featuring composite construction. A 5″ reinforced concrete floor with a 1″ topping was designed for a live load of 250 lbs per sq ft. The floor was placed monolithically. Haven-Busch Company.

*On Free Data Card, Circle* **111**



## Window Unit with Wall Framing Has Divided Lights

The "Strutwall" unit, a complete window unit with wall framing members integrated, is now available with divided lights for residential and light commercial construction. The factory-framed wall-window component provides faster, tighter window installations, since pre-mounting of window to wall members takes place in the factory and is covered by factory quality control. Installation of Strutwall requires only two cuts to adjust height of load-bearing assembly to building wall. Andersen Corporation.

*On Free Data Card, Circle* **112**

## Glass Shields Drain Off Static Interference

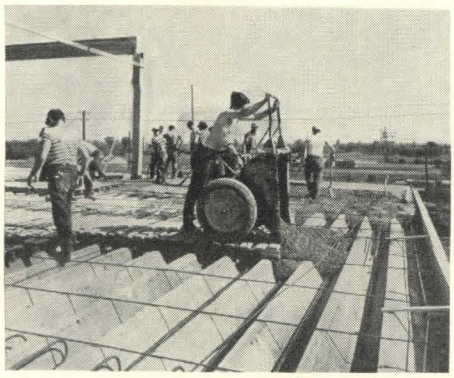
Shields of borosilicate glass coated on one side with a thin (1/16 millionths

*Continued on page 84*

*Continued from page 83*

of an inch), transparent metallic film have been developed for use as windows and transparent partitions that drain off electromagnetic interference. The shields have been successfully tested in laboratories and hospitals and on computers. The metallic film intercepts radiated interference, which can then be grounded by conductive tape, carbon button, or clamp-on spring. Panels transmit 70 percent of visible light. Panels, which come in sizes up to 2′ x 6′, have applications in radio and TV stations, and military, medical, and scientific buildings. Corning Glass Works.

*On Free Data Card, Circle* **113**



## 50-Ft Spans Possible with Plywood Folded Plate

Thin sheets of plywood glued to light lumber stiffeners in a series of miniature troughs produce a roof or floor system notable for light weight and long span—up to 50 ft. "Trofdek"—fabricated on a 16″ module—runs parallel to the span and varies in depth from 5¾″ to 15½″. The system is capable of carrying 100 times its own weight. Trofdek may be used either as removable concrete forming, or as a permanent part of the structure. Reinforcing steel is laid directly in the troughs, and wiring and piping are easily attached to the wood surface. Plywood Fabricators Service, Inc.

*On Free Data Card, Circle* **114**

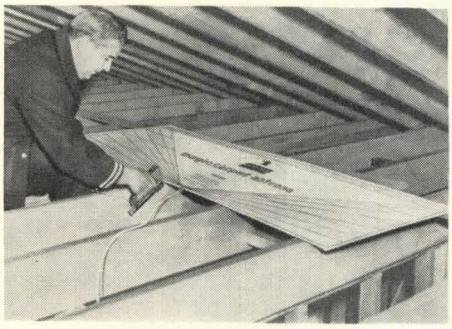
## Flexible Steel Conduit For Wiring in Wet Areas

Flexible steel conduit with a polyvinyl chloride synthetic resin cover has Underwriters' Laboratories approval for protection of wiring used in wet areas. Conduit, called "Sealed Skin," is equipped with a copper wire positive ground. It is said to absorb vibration and resist flame, oil, grease, dirt, chemicals, fumes, and salt spray. Sizes ⅜″, ½″, and ¾″ incorporate square locked construction and an extra heavy galvanized steel core. Sizes 1″ and 1¼″ have fully interlocked galvanized steel core. The International Metal Hose Company.

*On Free Data Card, Circle* **115**

## Flat TV Antenna Will Bring Jungles Off Roofs

"Magic Carpet" TV antenna is a flexible, printed circuit antenna with silver antenna elements duplicating on a flat surface the characteristics of an outdoor antenna. The 12 sq ft printed design is on a 6′ x 2½′ sheet

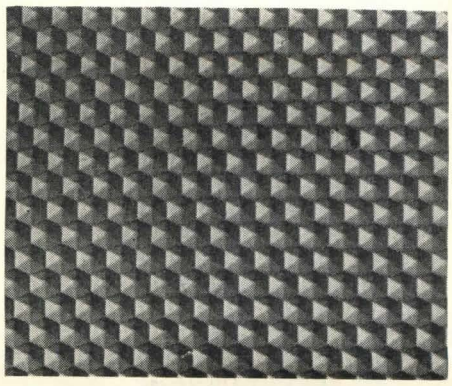


of flexible material which can be stapled to the attic floor or placed under the carpet near the TV set. Jerrold Electronics Corporation.

*On Free Data Card, Circle* **116**

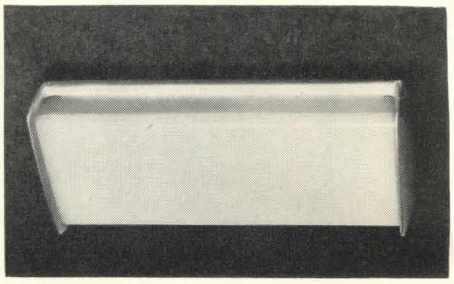
## New Prismatic Extrusion For Light Control

Extrusion of a newly-designed prismatic panel, "Extru-Lite Pattern R-7," has been announced. Consisting of optically-engineered hexagonal pyramids, Pattern R-7 permits light to enter at any angle from the light source, diffusing and refracting it with a low brightness of high uniformity and no glare. The new extrusion is available in polystyrene or acrylic plastic, in crystal clear or opal white, and in varying degrees of translucency. The advantages of



plastic over other materials—toughness, durability, light weight, and safety—make Pattern R-7 also well suited for office partitions, room dividers, and tub enclosures. Rotuba Extruders, Inc.

*On Free Data Card, Circle* **117**



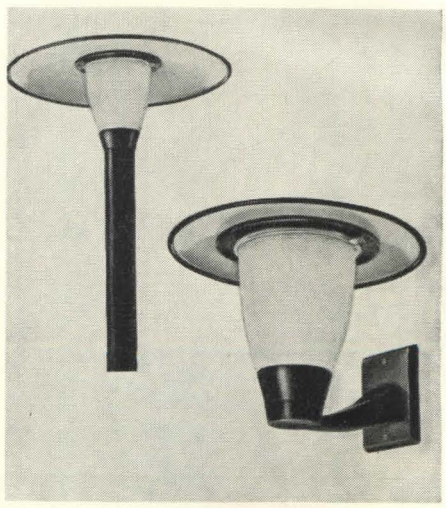
## New Aluminum Bracket For Outdoor Lighting

New line of weather-resisting bracket fixtures for exterior use has been introduced. "Model 4-75" can be mounted in horizontal or vertical position, over doors, adjacent to entrances, and under canopies and covered walks. Made of cast aluminum, brackets feature an impact-resisting molded-glass diffuser, and a satin-anodized finish. Wiring is either for incandescent or fluorescent lamps. McPhilben Lighting, Inc.

*On Free Data Card, Circle* **118**

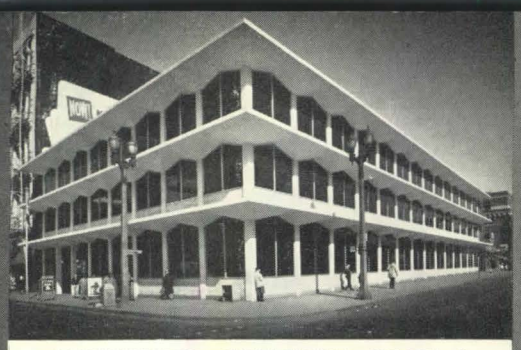
## Residential Luminaire Is Post or Wall Mounted

New weatherproof luminaire marks Holophane's expansion into the residential-lighting field, after a long history in the manufacture of quality



commercial-lighting equipment. Unit is styled to blend with either traditional or contemporary design, for illumination of patios, gardens, drive-

*Continued on page 86*



ARCHITECTS: HELLMUTH, OBATA & KASSABAUM, INC., ST. LOUIS, MISSOURI

### The Architects were from Missouri

...but after the Peelle Motorstairs were installed in the New Employment Security Building for the State of Missouri they wrote "Any reservation that we may have had at the beginning was offset by your cooperation in supplying information and equipment well in advance of the time required by the construction schedule . . . we appreciate the interest of your company."

PEELLE MOTORSTAIR INSTALLATION IN NEW EMPLOYMENT SECURITY BUILDING FOR THE STATE OF MISSOURI

THE

# PEELLE MOTORSTAIR

## The Moving Stairway that made good in a decade

When Peelle engineered the Motorstair, a little over ten years ago, it was designed from a completely unbiased viewpoint, unaffected by earlier traditions.

Today, this original engineering approach has been thoroughly justified—over two-thirds of the many hundreds of Peelle Motorstairs now installed were re-ordered by already satisfied users—some of whom are among the largest, oldest and most experienced users of moving stairways in the world.

Architects often admire the clean, sculptured lines, graceful proportions and harmonious color combinations of the Peelle Motorstair—but these are just a bonus—the form that follows function.

Look for the Peelle Motorstair in many of America's finest buildings. It is most easily recognized by the exclusive safety handrail with contrasting color spacers.

**MOTORSTAIR PLANNING SERVICE**—Without obligation to you, Peelle engineers will outline a plan for the advantageous use of Motorstairs in new or existing buildings. Call or write fully about your requirements.

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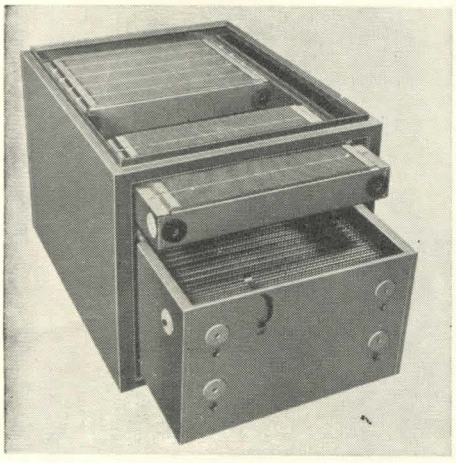
*Continued from page 84*
ways, walks, entrances, and other outdoor areas. Post-top unit is equipped for mounting on a 3″ post or 2″ thin-wall conduit, and adapts to wall-outlet mounting. The engineered refractor, made of thermally-stable glass, is particularly suited to all-weather use. Compound-faced prisms on both inner and outer surfaces control the light distribution, and at the same time make the entire refractor appear luminous. Holophane Company, Inc.

*On Free Data Card, Circle* **119**



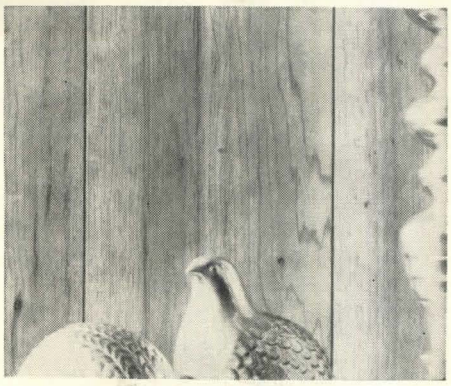
## Improved Filtration in Electronic Air Purifying

1960 line of "Electrostatic Air Filters" reportedly traps 98 to 99 percent of all visible dust, soot, pollens, and fungus, and, unlike ordinary filters traps up to 75 percent of invisible particles. Installed in forced-air ducts, the filter requires no plumbing or drainage lines. Completely automatic, it operates whenever furnace blower is operating. As air passes through the filter, the charging section gives dirt and bacteria particles a positive electrical charge. The particles are then attracted by negatively-charged collector plates, which are easily removed for cleaning. Largest of three models handles up to 2400 cfm, is 22″ x 24″ x 29″. York Division, Borg-Warner Corporation.

*On Free Data Card, Circle* **120**

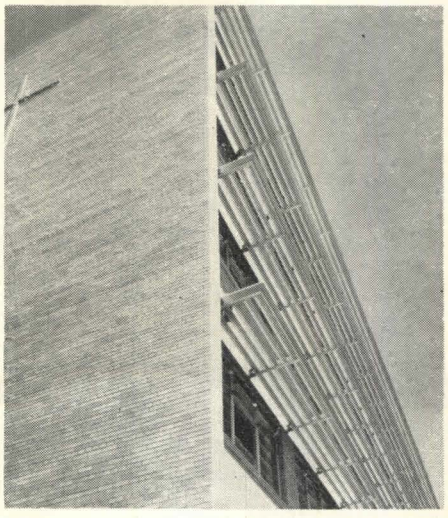
## Prefinished Pecan Panels

Natural Pecan, latest in a series of luxurious hardwood panelings, has a warm reddish-brown color with darker overtones of brown. In addition to natural toughness (the pecan is often compared to hard maple, and is botanically related to walnut), paneling has a baked-on "family-proof" coating that withstands hot grease spatters and scuff marks. No job-finishing is required. Panels are 4′ wide, in



lengths of 7′, 8′, 9′, and 10′, and are vertically grooved to give a random-plank effect. Georgia-Pacific Corporation.

*On Free Data Card, Circle* **121**



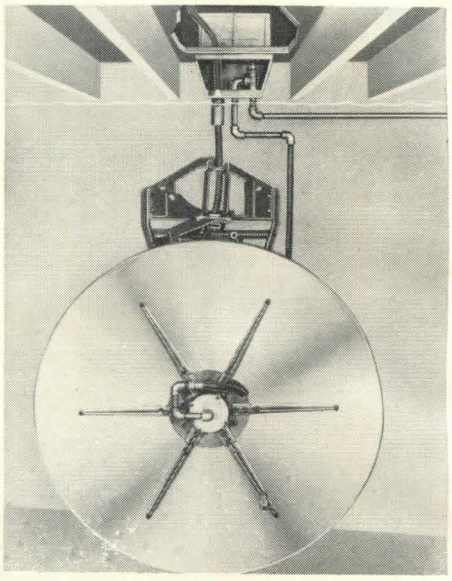
## New Solar "Eyebrows" Of Extruded Aluminum

New line of extruded-aluminum solar canopies has been developed to provide improved interior environment and lowered air-conditioning requirements for commercial and institutional buildings. The 12-gage aluminum "eyebrows" can project up to a 5′ cantilever and can carry a snow load of 30 psf. Product is available in several fascia designs to allow for varying architectural treatment. Brisk Metal Products Division, Brisk Waterproofing Company.

*On Free Data Card, Circle* **122**

## Fire Hose Unwinds Through Trap Door

Efficient fire protection is afforded by new vertical "Hide-A-Hose." Hose, in 150′ length, is stored on a reel in the basement and unreels through a trap door in an upper floor. Hose cannot stick at any point in its pipe guide, because of roller bearings that provide for all directions of pullout. Neither can it kink, because of automatic braking mechanism that engages the



reel at any temporarily fixed position. Nozzle gives either a smothering fog or an energetic stream of water. Flinchbaugh Murray Corporation.

*On Free Data Card, Circle* **123**

## New High Back Wing Chair Is Introduced

Wing chair is available with three different bases: three-legged brushed aluminum base on large aluminum glides (shown), a three-legged walnut base, or a metal and wood T base. The chair measures 37½″Wx35½″Dx41½″ H. It has a separate back cushion and seat cushion of Dacron fiber pad wrapped around foam latex. With the wood base, the chair retails for $455; with another base, for $520. Jens Risom Design, Inc.

*On Free Data Card, Circle* **124**

# INSULATION

## Properties of Foams Are Compared

Blowing urethane foams with fluorinated hydrocarbons, a method growing in popularity because of economy and the uniformity of foams it produces, is presented in new 4-page publication. Entitled *Blowing Foams with Isotron,* brochure discusses recent developments in foam-making techniques. In addition to listing advantages of the Isotron technique, brochure suggests some of the growing uses for urethane foams. A chart compares physical properties of the most widely-used insulating and cushioning materials. Isotron Department, Pennsalt Chemicals Corporation.

*On Free Data Card, Circle* **200**

## Masonry-Fill Insulation Literally Sheds Water

Two booklets present advantages and applications of new "Water-Repellent Masonry Fill Insulation" for both brick-cavity and concrete-block walls. Each of the 4 pages contain information and charts on the product's thermal efficiency, estimated fuel and air-conditioning savings, coverage tables, water repellence, and ease of installation. A result of 10 years of intensive research and development, the fill literally sheds water that might penetrate the masonry wall, without loss of insulating efficiency. Zonolite Company.

*On Free Data Card, Circle* **201**

# PROTECTORS/FINISHERS

## Causes of Efflorescence Extensively Discussed

An authoritative discussion on the causes of efflorescence and early chalking on painted masonry surfaces is given in new 48-page publication. The extensively-illustrated booklet is based on a technical paper that received first prize in the 1959 Roon Foundation Awards. Because paint formulation is one of the more important factors in efflorescence, it is given major attention. The four basic types of emulsion vehicles used for exterior masonry paints are compared for resistance to alkali, moisture, heat, and ultra-violet light. Other subjects include film swelling, film coalescence, and paint stability in the presence of soluble salts. Resinous Products Division, Rohm & Haas Company.

*On Free Data Card, Circle* **202**

## No More Slips with Spray-on Coating

An anti-slip coating, and its application in industrial, commercial, and residential areas, is described in 4-page *Booklet I-F8-C.* "Flintdek" is unaffected by oil, water, or ordinary chemicals, and is suitable for indoor and outdoor areas of many types. It is easily applied by trowel or spray, drying within 48 hours. Available in five colors. Industrial Products Division, The Flintkote Company.

*On Free Data Card, Circle* **203**

# SPECIAL EQUIPMENT

## Acetate Adhesive Film Saves Hand-Lettering

All types of title blocks, standard parts, wiring diagrams, and other printed matter used repeatedly on drawings can now be quantity-printed in advance on "Dulseal" transparent adhesive film. Dulseal's unique delayed-setting action allows accurate positioning of material; left untouched for about 24 hours, the film's adhesive sets to form a permanent bond with paper or cloth. Made of .0015″-thick acetate, Dulseal also provides a durable protective coating for frequently-handled documents. Available in narrow rolls, it makes an excellent mending tape for torn drawings. Mat surface allows use of pen, pencil, or typewriter; repeated erasures do not reduce clarity. Keuffel & Esser Company.

*On Free Data Card, Circle* **204**

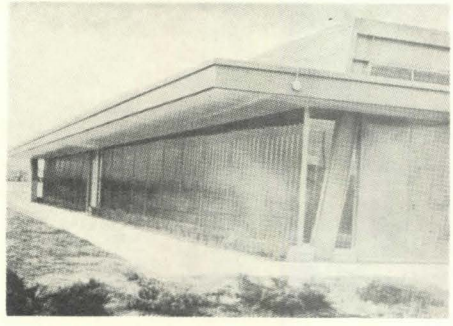
## Superior Nylon Hinge For Toilet Compartments

Compartments for toilet room, dressing room, and hospital installation are described in 16-page *Catalog 570.* With presentation of complete line comes the announcement of outstanding "Life-Line" hardware available in all models. Hinges and slide bolt require no replacements, adjustments, or greasings; tests show more than a million uses with no signs of wear. Made of DuPont's "Zytel" nylon, hardware is strong and tough, noise-free, self-lubricating, rustproof, and resistant to abrasion and chemicals. Catalog includes specifications, plans, and installation data for all compartments. Fiat Metal Manufacturing Company.

*On Free Data Card, Circle* **205**

## Uses and Advantages of Architectural Plexiglas

*Plexiglas in Architecture* is a 16-page booklet describing characteristics of this acrylic plastic, its uses as an architectural material, and properties of its various types. Information is presented for the proper specification, design, and assembly of luminous ceilings, lighting fixtures, window glazing, dome skylights, spandrel



panels, signs, and display fixtures. A list of advantages accompanies detail drawings and photographs for each of these applications. Rohm & Haas Company.

*On Free Data Card, Circle* **206**

## Curved Blade Improves Industrial Louvers

Improved line of industrial louvers is presented in 4-page *Bulletin IL-1.* Said to be an outstanding advancement in louver design is the new curved return blade, which effects more efficient air intake and weather protection. Louvers may be fixed, or operated by hand or motor. Available in "Steelbestos," an asbestos/asphalt-protected metal that can be supplied in color. Bowman Steel Corporation.

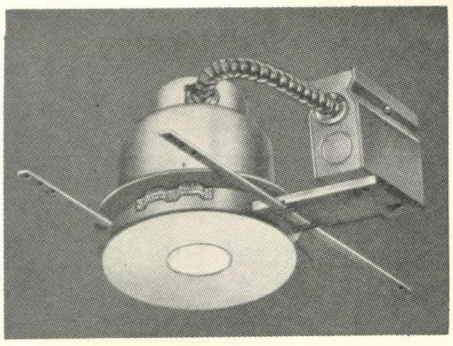
*On Free Data Card, Circle* **207**

## New "Calculite" Line Is Cataloged

Recently-introduced "Calculite" group of recessed incandescent fixtures is

*Continued on page 92*

*Continued from page 91*
cataloged in comprehensive 36-page booklet. Titled *Recessed Incandescent Lighting,* booklet is #31 in Lighto-



lier's series of architectural brochures that serve as convenient guides to the selection of proper fixtures for a designated area. Full details are given for concentrated, medium, and wide-spread beams; round and square units for use with general service and PAR lamps. Also included are E.T.L. reports, construction drawings, and lighting-calculator charts for the 96 interchangeable Calculite housings and diffusers. Lightolier Inc.

*On Free Data Card, Circle* **208**

## Durable Venetian Blinds For Variety of Purposes

*Architects Manual for Venetian Blinds* discusses full line of models that will meet any requirement for sun or light cut-off. An audio-visual model is complete with side and bottom shields; a skylighter model may serve either audio-visual or conventional use; motorized blinds are adaptable to special installations. Durable materials are aluminum slats, plastic tape, and braided-nylon cord. Catalog, 28 pages, details special installation problems, gives specifications for complete equipment. Levolor Lorentzen, Inc.

*On Free Data Card, Circle* **209**

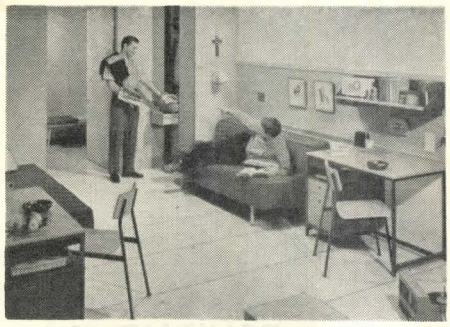
## Review of Developments In Plastics Applications

*Bakelite Review* is a quarterly publication presenting latest developments and applications of plastics and synthetic resins. Current issue is 22-page coverage of varied subjects—decorative inserts in plastic-laminate wall surface, protection of motors by epoxy encapsulation, vinyl spray used on Guggenheim Museum exterior, polyethylene tape for insulation against pipeline corrosion, vinyl/aluminum siding. Other products and processes of interest primarily to industry or the consumer are also reported. Union Carbide Plastics Company.

*On Free Data Card, Circle* **210**

## Built-In, Free-Standing, Dormitory Furniture

"Dorm Line," colorful and sturdy dormitory furniture, is presented in 16-page brochure. Both built-in and free-standing pieces are available. Materials selected for ability to withstand normal abuse are welded steel



frames; "Novoply" sides, doors, and backs; and "Fibresin" tops of dressers and desks. Catalog gives full information on features and accessories of varied pieces. Contract Division, Simmons Company.

*On Free Data Card, Circle* **211**

## Communications Systems For Apartment Buildings

*Apartment House Telephone Systems* describes all communication equipment necessary for large or small apartment buildings—vestibule telephones, call-button plates, tilting mail boxes, directories, suite telephones, and superintendent stations. Units are integrated for flexible arrangement, and are of unobtrusive design. Booklet, 12 pages, gives sample specifications and wiring diagrams, along with a guide to system selection. On any installation, engineering and layout advice is offered. S. H. Couch Company, Inc.

*On Free Data Card, Circle* **212**

## In the Swim with Well-Outfitted Pool

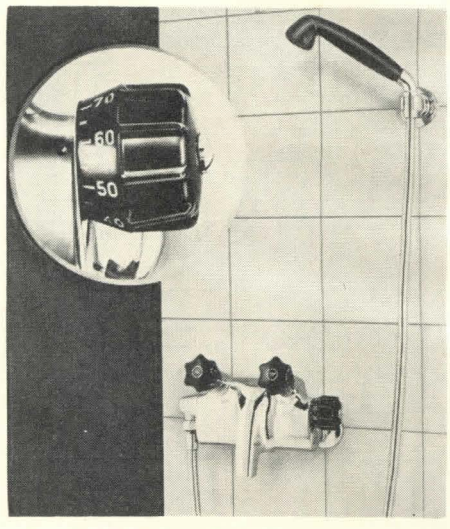
New 36-page catalog, *The Perfect Swimming Pool,* illustrates more than 400 products for swimming-pool construction, maintenance, safety, and fun. Accessories include diving boards, ladders, rails, underwater lights, lane markers, and prefabricated cabanas. For pool care, there are vacuum cleaners, skimmers, filters, algaecides, chlorine dispensers, and paints. Many safety devices—rescue hooks, pool covers, foot baths, life rings—are available. Just for fun are a pool slide, float rafts. Notes on proper care of an installation discuss chemical treatment, painting, cleaning, and winterizing. Paragon Swimming Pool Company, Inc.

*On Free Data Card, Circle* **213**

## Incinerator Standards Dispose of Waste Effort

Newly-revised *Incinerator Standards* is intended to serve as an authoritative reference against which architects can measure designs submitted to them. Members of the Incinerator Institute are able to use official Standards Plate only when equipment complies with these standards. Booklet, 12 pages, contains list of definitions, analysis of waste types, and a classification of incinerators according to capacity and type of waste. Booklet makes no recommendations as to specific design factors of refuse collection, air supply, and chimney location. Write: Incinerator Institute of America, 420 Lexington Ave., New York 17, N. Y. ($1.00).

*On Free Data Card, Circle* **214**




## Automatic Mixing Valve Prevents Scalding

Claiming to be the only truly automatic mixing valve, Swiss thermostatic valve for bathroom fixtures offers many outstanding safety features. If breakdown occurs in cold-water supply, hot water is automatically stopped. A safety lock permits setting a maximum temperature, beyond which control dial will not turn. Unit is compact and stream-

lined, with faucet, spout, and thermostat forming a single unit. Desired temperature is easily set on calibrated dial and response is immediate. Particularly appropriate for baths and showers, unit can feed up to five outlets. Simix Company, Inc.

*On Free Data Card, Circle* **215**

## How Many Centimeters In **Your** Yard?

*Wall Chart of Conversion Factors* includes many common conversions (such as inches to centimeters or watts to horsepower), as well as conversions difficult to locate in standard references (such as cubic feet to liters or microns to meters). Chart should prove useful wherever engi-


neering and shop work is done or foreign sources are consulted. Size is suitable for filing. Precision Equipment Company.

*On Free Data Card, Circle* **216**

## Storage Furniture Is Adaptable

Presentation illustrates flexibility of elementary-classroom furniture offering wide selection of types and sizes in cabinets and special-purpose units. Items include food and clothing storage, laboratory equipment, storage for arts and crafts. Units fabricated of mild, cold-rolled annealed furniture steel. All tops are wear-resistant Fiberesin solid plastic, with added plastilc "T" molding bumper strip. Choice of 16 body colors, and 7 Fiberesin colors, in any combination. Construction details and finish are explained. Installation is supervised by manufacturer. St. Charles Manufacturing Company.

*On Free Data Card, Circle* **217**

## Vinyl-Covered Furniture Is Aluminum-Trimmed

"Alumi-Guard" vinyl-covered schoolroom furniture insures unusually long wear. Backs and seats are a rugged vinyl covering set off by protective aluminum edging. Plastic-laminate desk tops, also trimmed in aluminum, are one-piece lifting surfaces for increased work areas. "3-R Line" includes desk-chair combination, study-desk with bookrack seat, stacking chairs, open-front desk, and tablet-arm chair. Irwin Seating Company.

*On Free Data Card, Circle* **218**

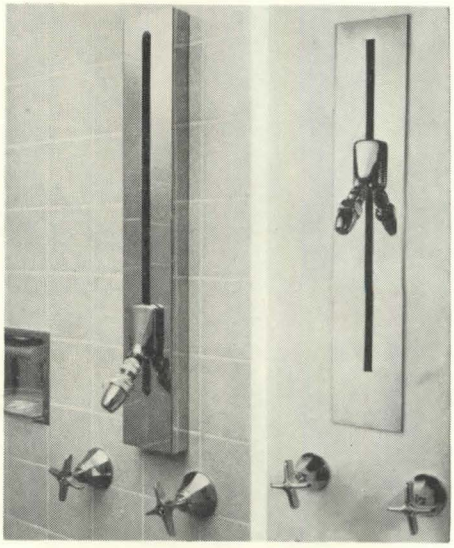
## Office Furniture for the Gold-Plated Executive

"Executive Series 2000" is presented in 10-page pictorial brochure. Desks and tables feature solid-looking, untapered legs, and tops that are rectangular, gently curved, fan-shaped, boat-shaped. Drawer pulls return an American classic to the office scene—antique bank-door pulls have been refined in shape and are finished in brushed chrome, brass, or gold plate. Unusual plug-in system for storage units permits complete flexibility of cases. B. L. Marble Furniture Inc.

*On Free Data Card, Circle* **219**

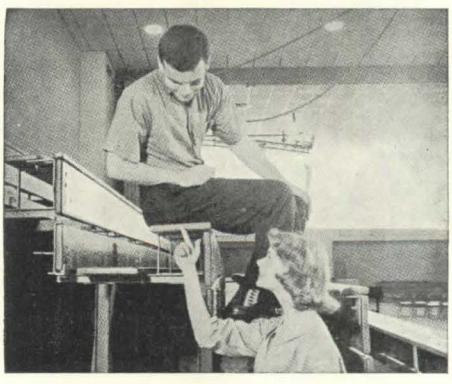
## Shower Head Adjusts To Varying Heights

"Vari-Height" shower unit adjusts freely over 1′-8″ range to provide bathing convenience for entire family. Shower head remains firmly held without pegs or fastenings. Two basic models—flush-mount and wall-mount



—suit requirements of new or remodeled construction. Chrome-plate finish assures permanently gleaming appearance. Bickford Manufacturing Company.

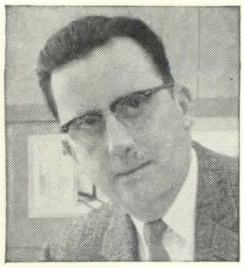
*On Free Data Card, Circle* **220**



## Seating and Accessories For Gymnasiums

Complete catalog of gymnasium equipment, 38 pages, provides information on all necessary furnishing. Gymnasium seating includes various types of

*Continued on page 96*



*A. D. Pearson, vice president of Jewett Refrigerator Company, Inc., an Approved Insulation Contractor.*

# STYROFOAM®

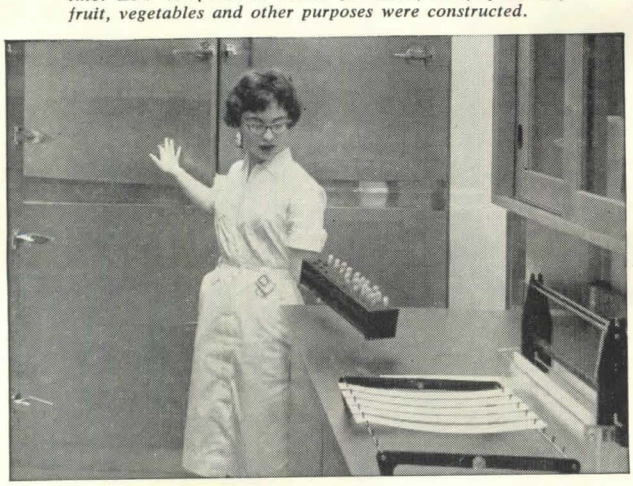
## Dow Approved Insulation Contractors offer design assistance to the architect and assure quality installation for low temperature applications

Economical, efficient cold storage rooms and other low temperature facilities have two important engineering requirements—efficient insulation and proper installation. That's why Dow established an Approved Insulation Contractor program for its outstanding low temperature insulation, Styrofoam†. Dow awards this approval only to carefully selected contractors capable of giving the architect technical design assistance, followed up by quality installation.

### AIC installs over ¾ million board-feet!

Typical of the more than 90 Dow Approved Insulation Contractors is Jewett Refrigerator Company, Inc., Buffalo, New York. An AIC for three years, Jewett has installed more than three-quarters of a million board-feet of Styrofoam. To serve the architect, Jewett offers a design staff of engineers to make specific recommendations and detail out plans.

*Combined cooling and deep-freeze facilities were constructed, using Styrofoam, for the hospital research institute. Low temperature rooms for meat, dairy products, fruit, vegetables and other purposes were constructed.*



A typical Jewett job is the recent major modernization program for the Millard Fillmore Hospital in Buffalo. Styrofoam was used to insulate a variety of low-temperature facilities. Jewett designed and constructed combined cooling and deep-freeze facilities for the storage of enzymes, proteins, blood specimens and other substances under study in the adjoining research institute. Also part of the project was the building of refrigerated storage rooms for food service, and for other cold storage requirements as well.

Says A. D. Pearson, Jewett vice president: "Styrofoam impresses us with its qualities of lighter weight, easier handling, simplicity of installation and non-absorbency of moisture. Once it's installed properly, Styrofoam affords permanent insulation efficiency, and we never have to worry about the job."

For the names of Approved Insulation Contractors near you . . . for more information about Styrofoam for low-temperature applications or for comfort insulation uses, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1703EB8.

*†Dow's registered trademark for its expanded polystyrene.*

### Other Dow Building Products

**SCORBORD®** (Pat. applied for) — Rigid expanded polystyrene insulation for foundation perimeters, slab floors. Exclusive pre-scored feature speeds installation.

**ROOFMATE***—Rigid, lightweight insulation for built-up roofs—serves as its own moisture barrier.

**SARALOY® 400**—Durable, elastic flashing material installs without prefabrication, can be conformed to irregular shapes.

**POLYFILM®**—High-quality polyethylene film for use as a moisture or vapor barrier and for temporary enclosures.

*TRADEMARK

**THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN**

*Continued from page 93*

folding or rolling bleachers, balconies, and grandstands. Folding partitions are also operated either manually or electrically. Basketball backstops, folding stages, and outdoor spectator seating are other lines presented. Wayne Iron Works.

*On Free Data Card, Circle* **221**

## Space-Saving System Uses Vertical Files

Method to save valuable hospital space is outlined in 4-page *Bulletin A-3*. "Verti-file" units are available in X-ray, legal-size, or letter-size models, in choice of heights, number of openings, doors, and accessories. Vertical filing claims to save up to 60% of floor space, 66% of costs, over standard pull-out drawers. All units are illustrated in brochure. Deluxe Metal Products Company.

*On Free Data Card, Circle* **222**

## Color-Comparison Chart For Vinyl-Asbestos Tile

Revised annual chart covering various colors, shades, and patterns from ten manufacturers of vinyl-asbestos tile is now available. The single-page non-illustrated chart shows not only existence of wide range of colors and patterns but also similarity in general color effects among them. Comparisons are intended only as a guide to commercial equivalents of the several manufacturers and do not indicate exact matches. There are no color samples on the chart. Asphalt & Vinyl Asbestos Tile Institute.

*On Free Data Card, Circle* **223**

## Movable Partitions Allow Attachments to Walls

*Movable Walls That Work*, 8 pages, outlines advantages of this partitioning system. Patented locking device permits all types of utility attachments to be locked into post channels, without defacement of walls. Table and desk tops, cabinets, shelving, letter files, pictures, and lighting fixtures can be easily added or removed with a screwdriver. Partition panels are available in 7′ heights, ceiling heights, or as rail-high space dividers. Eight standard finishes of the tough plastic include four wood designs. Workwall Movable Partitioning, Division of L. A. Darling Company.

*On Free Data Card, Circle* **224**

*Continued on page 100*

# advantages with a TUFCOR® roof system

**SIMPLIFIED SYSTEM.** Lay Tufcor steel sheets . . . place insulating concrete . . . apply built-up roof.

**FIRE RESISTANT.** No combustible materials—steel and concrete. Exposed deck has UL fire-resistant rating. Saves on insurance and sprinkler cost.

**STRONG STRUCTURALLY.** Tufcor is made of tough-temper steel . . . increases safety factor. Deck system functions as diaphragm . . . stiffens roof framing.

**VAPOR BARRIER.** Tufcor system prevents penetration of warm, moist air. Insulating concrete stays dry and effective. Reduces heating costs. Rated 0.4 perms by test.

**LIGHTWEIGHT.** Tufcor system weighs 4 to 6 psf less than most types of roof construction, saves framing costs.

**GOOD INSULATION.** Insulating concrete of 25 to 30 pcf density provides high insulating qualities. Desired U factor is easily obtained by varying slab thickness.

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**FIRM BASE FOR BUILT-UP ROOF.** Insulating concrete provides firm, hard base for built-up roof. Assures good adhesion, resists indentation.

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*Continued from page 96*

## Hydraulic Dockboard For Truck Loading

Air-powered, hydraulic dockboard is intended for loading docks in terminals, warehouses, or manufacturing plants where a volume of materials is handled by truck. "Aero-Board" is suitable for new construction or remodeling. File folder contains air-compressor chart and data, with suggested construction details for both cantilevered (bumper) docks and fabricated frame for flush docks. Engineering service is provided for special or complicated installations. Allied Products Division, Freightliner Corporation.

*On Free Data Card, Circle* 225

## Telephone Booths For Any Installation

Telephone booths and acoustic enclosures for all purposes are presented in 4-page folder. Booth styles are full-length in standard sizes, or wall boxes in modular sizes; special shapes and sizes will fit curved walls, corners, and recesses. Finishes are baked enamel or wood in a variety of colors and patterns. New "Drive-Up" model permits telephoning from an automobile. Suttle Equipment Corporation.

*On Free Data Card, Circle* 226

## Plexiglas Letters For Business Signs

Small 6-page folder gives advice on choosing a business sign, emphasizing the importance of selecting a sign to suit personality of the business. Nine type fonts are shown, with data on available dimensions. Letters are Plexiglas, having proved durability, resistance to weather and breakage, lightness in weight, and a wide range of fade-resistant colors. Amplex Manufacturing Company.

*On Free Data Card, Circle* 227

## Survey Shows Preferences For School Shop Floors

*Facts on Floors in School Shops*, 20 pages, summarizes a survey covering 57 school districts across the country. Tabulations include general shops as well as seven major shop departments —woodworking, electricity, printing, mechanical drawing, metalworking,

*Continued on page 102*

*Continued from page 100*

machine, and auto mechanic. Data supports use of hardwood strip floors, *mostly* maple, in some departments, concrete in others—composition flooring appears to find little favor in these specialized areas of schools. General summaries of the advantages of northern maple flooring are given. J. H. Wells Lumber Company.

*On Free Data Card, Circle* **228**

## SURFACING MATERIALS

### Properly Detailed Plastic Laminate

Details for numerous installations of "Panelyte" decorative laminate are illustrated in 22-page *Technical Data Brochure for Institutional, Commercial, and Residential Use.* On the theory that correct installation is possible only with precise detail drawings and specifications, booklet shows recommended method for many typical problems—counter tops with metal molding or self-edged; corners, coves, and joints in wall surfacing or tub enclosures; door veneers; and window stools. Extensive specifications are keyed by paragraph number to appropriate installation. Panelyte Division, St. Regis Paper Company.

*On Free Data Card, Circle* **229**

### Curing and Sealing Coat For Concrete Floors

Complete product description of "Clear Seal," a transparent, synthetic liquid for concrete floors, is available in 4-page brochure. Material combines curing, sealing, hardening, and dustproofing of concrete floors in single, quick-drying application. Brochure states advantages, properties, uses, methods of application, and schedule of resistance factors. A. C. Horn Division, Sun Chemical Corporation.

*On Free Data Card, Circle* **230**

### Asphalt Finish in Color

New protective color coating for asphalt pavements, "Vynatex 23," is described in 4-page folder. Contents include typical applications—for commercial establishments, industrial plants, decks and courts, simulated lawns, highway center strips, driveways, tennis courts, etc. Available colors are grass green, concrete gray, and brick red. Charts give light-reflection and absorption values. Maintenance, Inc.

*On Free Data Card, Circle* **231**

### Structural Panel Is Fully Translucent

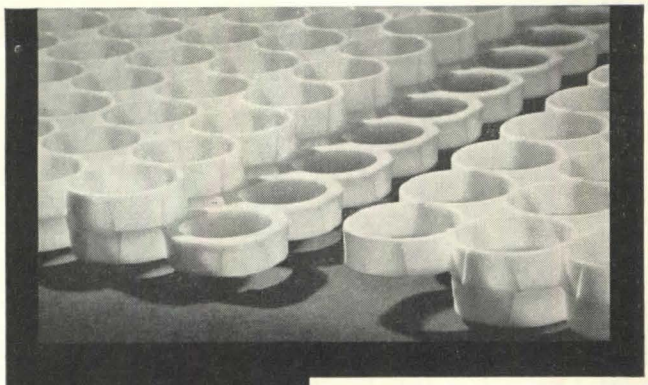
"Sanpan" is a new structural sandwich panel with full translucency in its wide variety of colored skins. Panel is formed of two skins of glass-fiber-reinforced plastic that are laminated to an extruded-aluminum grid-work core. Evenly-diffused natural light makes product suitable for curtain walls, interior partitions, roof panels, skylights, or canopies. Bulletin, 8 pages, shows the various cross-sections and gives installation details. Panel Structures, Inc.

*On Free Data Card, Circle* **232**

### Aluminum Sheet Enlivened With Color Patterns

Aluminum sheet is now available in a variety of sunfast color patterns. Embossed patterns are highlighted in color when the sheet is processed by conventional, commercial anodizing

*Continued on page 104*



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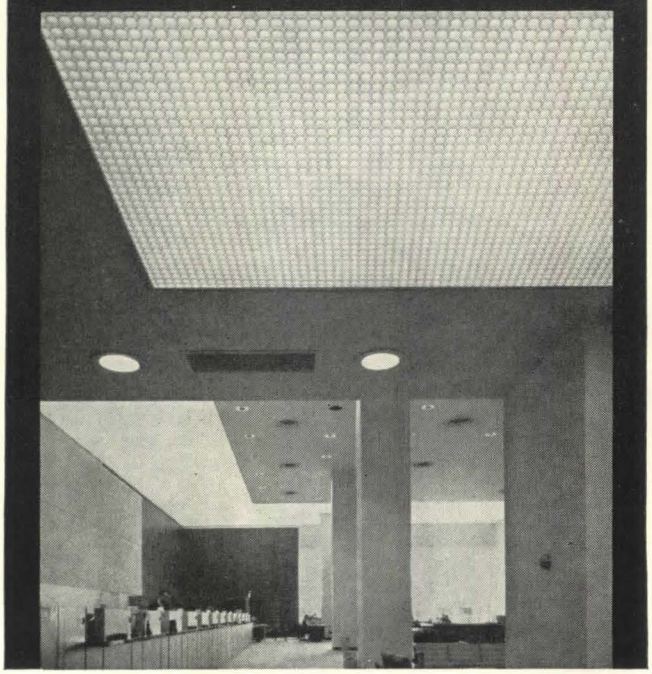

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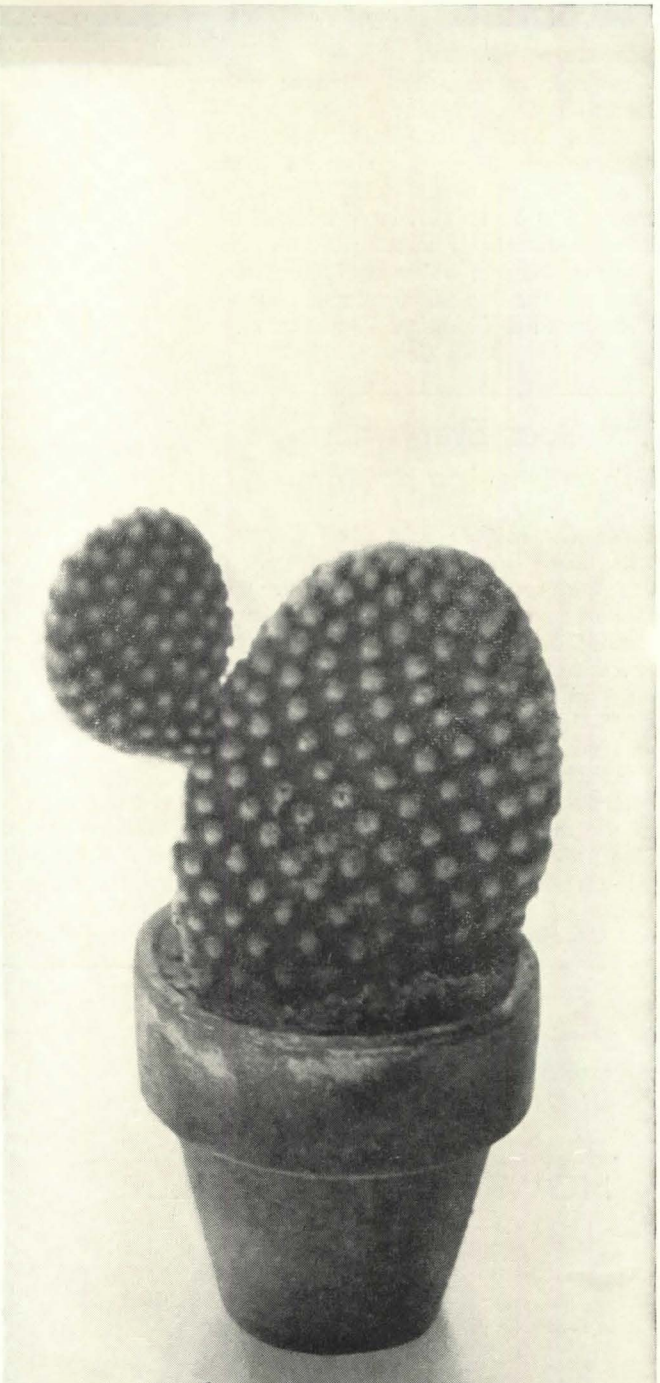

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*Continued from page 102*

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## Installation Need Not Floor the Architect

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**PROGRESSIVE ARCHITECTURE**
**NEWS REPORT**
REINHOLD PUBLISHING CORPORATION
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Publisher.....D. Bradford Wilkin
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*August 1960* **PROGRESSIVE ARCHITECTURE**



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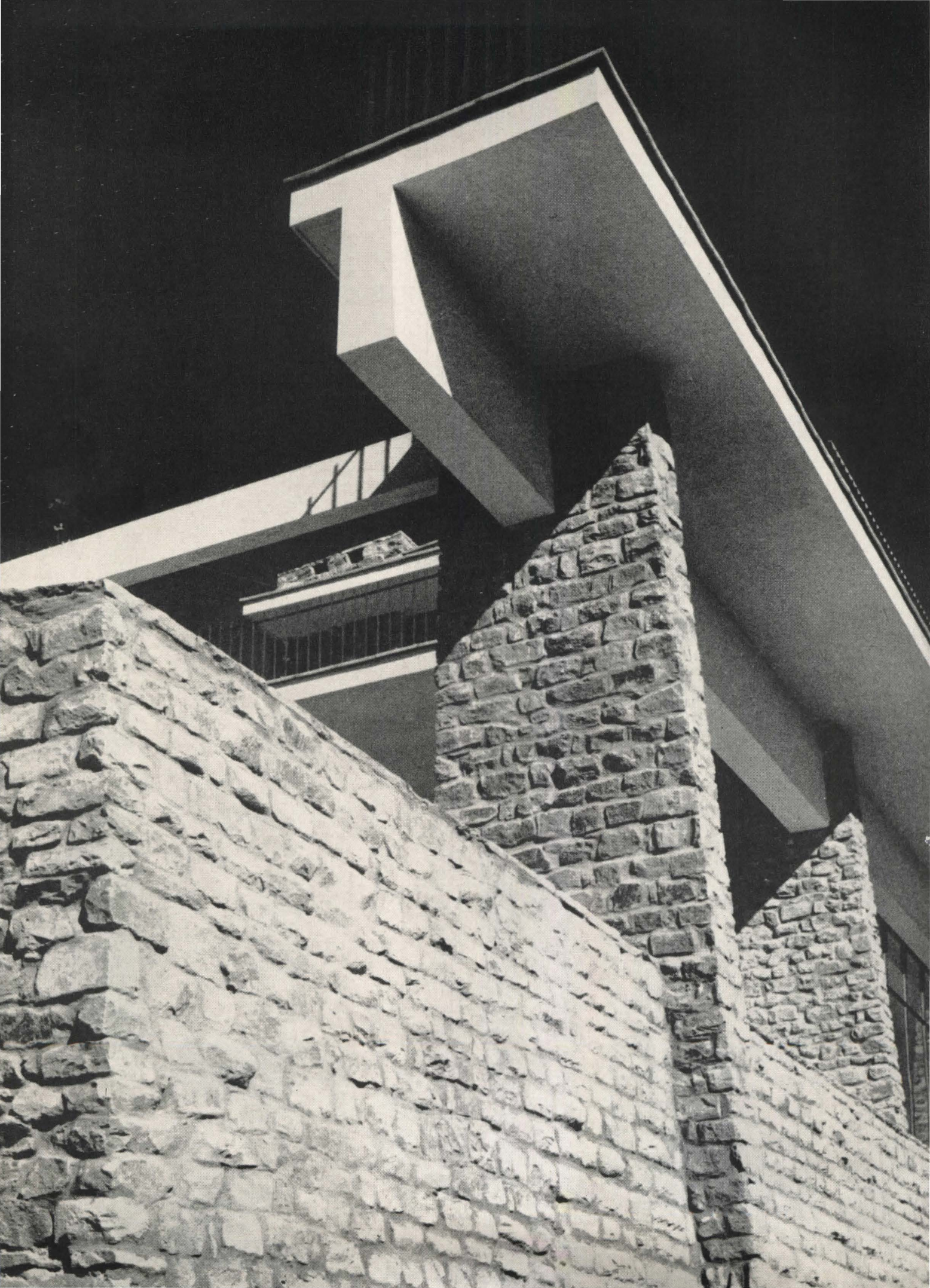


# CONTENTS

# European Diary

BY THOMAS H. CREIGHTON

*P/A's Editor reports on a study tour of contemporary European architecture. Although his over-all impression is that "few buildings recently completed deserve careful, critical scrutiny," he gives an analytical and critical look at two works of architecture—UNESCO Headquarters and the chapel at Ronchamp—"for their influence on architecture in the United States as well as in Europe."*

Sketches by the author

There are very few outstanding architectural achievements among the recent buildings in Western Europe. After a trip last fall during which I visited most of the major cities and saw, it seemed to me, everything that had been built in the last five years (in many cases, embarrassingly, with the architects of the buildings) I found myself with the conviction that there is a very limited number of mature, capable architects practicing in Europe today. One comes away feeling that few buildings recently completed deserve careful, critical scrutiny. What has gone wrong? Not too long ago this part of the world was the fountainhead of contemporary architectural inspiration. In fact it gave us, in the United States, people as well as ideas. It absorbed the lessons of our own genius, Wright, and gave them back to us better understood than we had learned them. Perhaps the single limitation that one recognized in modern European architecture was that there was little opportunity to plan and to build. Then came the war, and much of the old architecture and many complete cities were destroyed. The Western European architects, with their own background in architectural theory, and actual experience in both building construction and urban design in the United States to draw on, were given a tremendous field in which to replan, reconstruct, and build anew. What a remarkable opportunity to advance the cause and the tenets of contemporary urbanism and architecture!

Today, fifteen years after the war's end, what does one find? Hesitation, modernisticism, bad copies of unfortunate U.S. work, half-hearted urbanism, lack of organic expression, lack of conviction, lack of direction, lack (one must say heartlessly) of talent. In fact, there is lack of all but one important factor: work to do. This lackluster architecture and urban design is being erected in fantastic volume, in every country of the West. The work is being done in large part by young, enthusiastic people (even Perret's Le Havre reconstruction has been taken over by a group of young men from his office there) and is pridefully shown by devoted architects and city officials alike.

What one remembers from a contemporary architectural tour abroad today are the buildings one already knew: the early churches such as Raincy, the early housing such as Neubuhl, the early hospitals such as Zurich's Kanton, Le Corbusier's Savoie house, the Sullivanesque work of Hoefli, Sr. in Switzerland 1. There are, of course, occasional heart-lifting finds: a church by young Hans Schiller in Cologne 2; an apartment and a library (shown in detail in this issue) by young Werner Duttmann in Berlin; some nice apartments by the Montis in Milan 3; an Olympic track practice area by young Clairicci in Rome; a church by young Bauer in Basel; a school by young Hans van Dorp in Bonn; a museum outside Copenhagen by Bo and Wohlert 4.

I am sure there are many more well-designed buildings that I did not see and many more bright young architects whom I did not meet. And perhaps what I did see on the good side should be encouraging enough. We would have difficulty in any American city to find too many gems of design to show a visitor from abroad; the confusion in purpose and the resultant slump in design is worldwide. Yet the faults in Europe seem basic in the over-all picture one retains, and worth special comment.

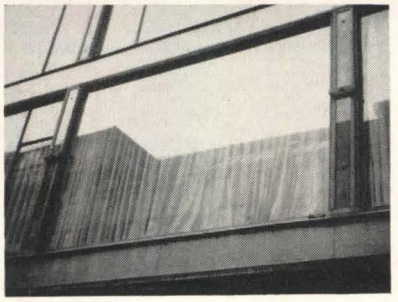
For one thing, construction is shoddy, almost without exception. Some of it is shocking: new housing falling into rapid disrepair, as at Nanterre outside Paris 5. Some is thoughtless: lack of or poorly applied insulation in cold climates; prefabricated concrete panels carelessly connected and flashed; windows leaking air and water. Some is purposeful, such as the "brutality" of Le Corbusier's Brazil pavilion at the *Cité Universitaire* 6.

For another, even the most elementary aspects of group planning and site use —now surely learned in any school of architecture—are almost totally unconsidered. Buildings are poorly related to surroundings and to transportation. Three housing projects out of hundreds visited seemed well-planned as groups, speaking in the most basic sense: Lods' *Marly les Grandesterres*, near Paris 7; Gondolfi's *Ca Grande* outside Milan; and Selk's *Tannenbusch Community* near Bonn. The rest were demonstrated as fine (as was the depressing new section of Charlottenburg North in Berlin, by an ardent young disciple of Scharoun, the chief planner) because the buildings had been placed quite far apart, or because there was to be some landscaping on the site.

Urbanism as such deserves a report in itself (Homer Hoyt has made a brief and completely uncritical one for the Urban Land Institute) because each city is planning ring-road traffic-circulation patterns; each city is constantly bringing more cars into the city heart; each city is underestimating the increase in automobile use, that we know so well is inevitable, and of which they already have obvious signs. Cities with industrial growth potential like Marseilles and Cologne are planning in the same way as cities that are being bypassed by economic growth factors, such as Le Havre, or that depend on the new industry, tourism, such as Nice. Urbanism seems to be urbanism, with its own clichés, wherever one goes today. Whether one sits down with Beaudouin in Paris to hear of a new redevelopment project, with Von Traa in Rotterdam to hear of the final city plan there, or with Meyer-Heine in Marseilles to hear of the total gold-coast regional development, one knows that ring-roads will be demonstrated, community sectors will be pointed out, industrial areas will be spotted in green, and a cultural center in red. And one knows that the city itself, in its reconstructed parts, will look like any other with its unpleasant new apartment groups, an opera house sporting every material that man builds with today, several modernistic churches, and a civic plaza used as a parking field. The humanistic appeal of the Liinban shopping area in Rotterdam is very rare 8.

And then, although much of the building and rebuilding has been housing, almost nowhere (with Rotterdam an outstanding exception), from cheap public housing to the extravagant Interbau structures in Berlin, does one see a well-planned apartment unit. Making all allowances for differences in living habits (such as lack of closets, because even the young married couples come bringing their *armoires* for hanging clothes), simple direct circulation and elementary use of space to its best advantage seem unknown. Dining rooms are far removed from kitchens; bathrooms are at the opposite extreme from bedrooms; long hallways are the rule; no thought is given to furniture placement; doors swing the wrong way; electric outlets are absurdly placed.

One turns, then, to the visual aspect of the individual buildings, and the picture is still bleak. Perret's last work is muscle-bound and uninspired, whether in Le Havre 9 or Marseilles; Ponti's Pirelli building I found most dull and uninteresting in its finished state 10, although Nervi's structure for it (completely concealed by ceiling finishes except in two special rooms) was exciting in the raw, construction stage. Nervi's own work at the two Olympic cities in Rome, stimulating and moving as structure 11, falls down badly as finished architecture, whether his own or another architect's 12. Arne Jacobsen, the great Danish modernist who did the charming Rödovre Town Hall, is just finishing a huge in-town hotel that I would have attributed to an off moment of SOM 13. Roth and Moser in Zurich sadly excuse what they are doing at the moment. Scharoun, the hero of the "organic" younger German group, has completed one of the most contorted and badly colored apartment buildings I have ever seen. In Holland, Oud's latest work is embarrassing; Bakhema and van der Broeck have as their best recent accomplishment a pleasant but very cold church in Rotterdam's outskirts 15. Zehrfuss and several associates have designed a huge exposition hall—the CNIT Building—outside Paris, which is interesting in structure, disappointing as so many of the shell constructions are today, when "architecture" is added around it and inside it. The controversial Torre Velasco in Milan, by the BPR group, is difficult even for its friends to defend 14. And there is the U.S.-designed and other foreign work in Berlin (Stubbins' Congress Hall, and the Interbau buildings) of spotty quality.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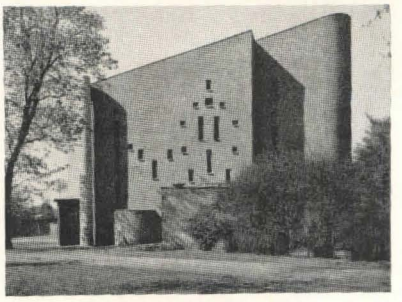
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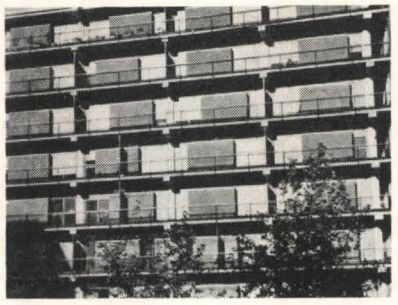
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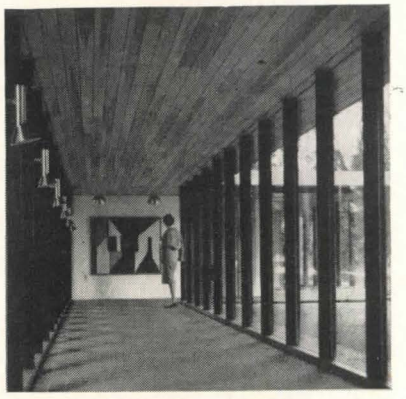
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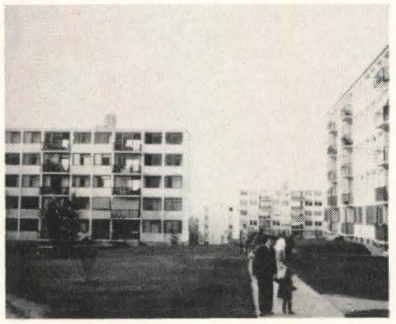
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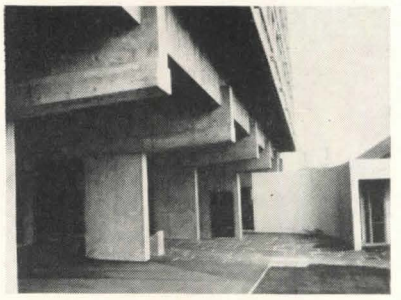
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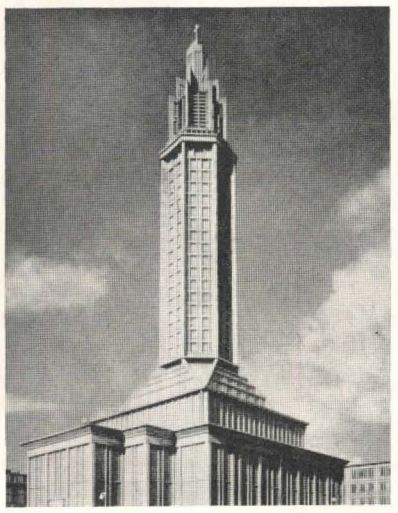
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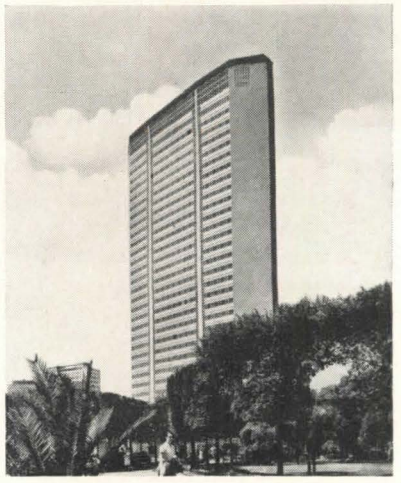
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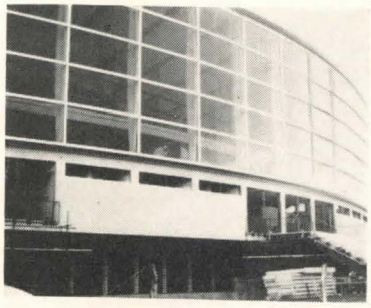

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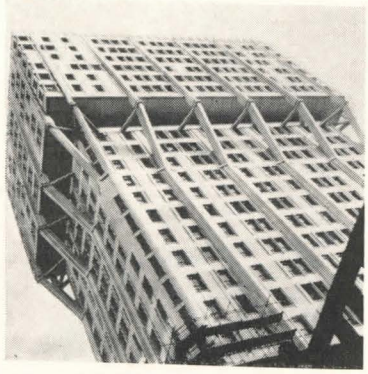

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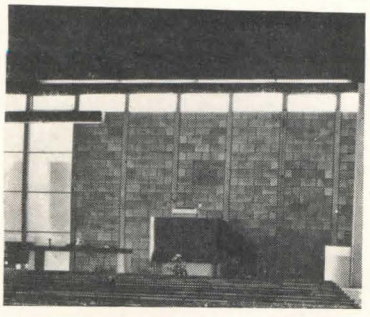

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I had one pleasant surprise: I made my first trip to Le Corbusier's Unité d'Habitation at Marseilles, and felt that its many great qualities far outweigh whatever architectural or social faults have caused the adverse comments of Mumford and others (I discovered to my surprise, visiting families living in them, that the unit apartments are delightful, light, most liveable spaces).

And, I felt that two recently completed buildings were most important for the influence they are having on architecture in the United States as well as in Europe. Headquarters for UNESCO, in Paris, is one; the Chapel at Ronchamp, by Le Corbusier, is the other.

Why discuss two such dissimilar buildings together—aside from the fact that they stand out in my mind as among the most interesting structures I saw on this trip? Because they seem to make interesting comparisons in several ways. For instance, Ronchamp is the product of one strong, creative spirit working in a quick, intuitive way; UNESCO is the product of a "team"—Bernhard Zehrfuss from France, Marcel Breuer from the United States, and Pier Luigi Nervi from Italy—working under "supervision" of a larger panel, and the design went through many months of study, restudy, revision of *parti*, change of site, budget decrease, and all of the evaluations and re-evaluations that come with group design. Ronchamp is *in itself* sculpture, and the "art" which enriches it is the work of the one creator, Le Corbusier; UNESCO is proud of an "art program"—what we call at The Architectural League "collaboration of the arts"—and it houses or at least provides space for work by Henry Moore, Miró, Picasso, Calder, Tamayo, Afro, Noguchi, and others. UNESCO is proud of the fact that many advanced technical processes were used in its construction (such things as concrete and travertine sun shades, light-absorbent glass, the most modern of hardware, the best of mechanical equipment systems); it enjoys Nervi's great skill as an engineering designer; in every detail it is carefully thought through and meticulously well built. On the other hand, Ronchamp is a weird combination of stone, concrete, gunnited stucco and whitewash; furniture and hardware are crude, as the concrete is *brut*; the structure is intuitive, and very obviously a personal act of creation.

First, let us examine UNESCO's headquarters. This building, as I have indicated, was designed by a team of three, chosen after an early design by a conservative French architect had been deemed unsatisfactory. UNESCO was determined to do something contemporary, even in a section of Paris distinguished for pseudo-classical buildings (though dominated by the nearby Eiffel Tower), and even though almost no other "modern" buildings had been erected in Paris itself. There were difficulties with the Paris building department and local zoning laws, and height was strictly limited. The *parti* finally arrived at conforms in scale, and even in contour of the main building, with the adjoining structures on the Place de Fontenoy and with the Ecole Militaire across the street 16. The site is small—7½ acres—and the functions to be housed grew as the project progressed.

There are three buildings: the Secretariat, Y-shaped, eight stories high; the Conference Building, wedge-shaped, connected to the Secretariat; and the five-story Delegation Building, situated separately, frankly an afterthought to house overflow functions.

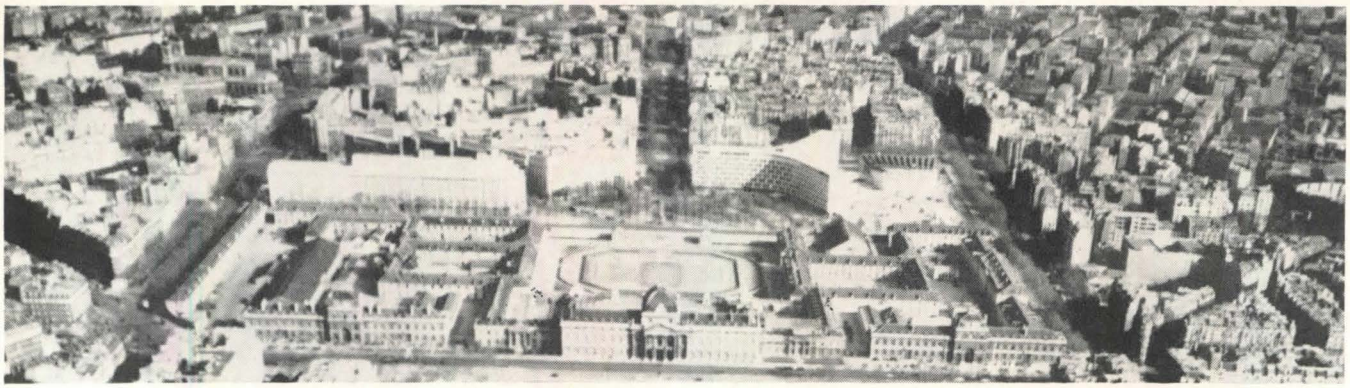
The particular shape of the Secretariat building was arrived at after many studies. Not only does it "fit" the site, in the estimation of the designers, and relate to adjacent buildings, it has certain advantages as an office building floor plan: well-located central core; no internal angles into which rooms are difficult to fit; corridors decreasing in width as one approaches the ends of the wings.

The Secretariat is supported on the ground floor on *pilotis* which continue up the building as principal columns. Floor framing is ingenious, simple, and effective.

The façade of the building is distinguished by a sun-control system consisting of vertical fins, horizontal louvres, and vertical sheets of blue-gray glass 17. Aside from the main form of the building itself there are three other extremely obtrusive elements: a double hyperbolic portico facing the plaza; an outside stair on the opposite side of the building, and another portico, flatroofed and framed in a rather complicated fashion to receive support from three columns, leading off the Place de Fontenoy.

Apparently, as far as I could determine in a rather lengthy trip through the Secretariat building, it functions extremely well. I found the interior spaces on the upper floors pleasant, well lighted, well protected from the sun, ample in

UNESCO photos except as noted: Lucien Herve



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space, well furnished. The corridor system, with the thin, diminishing plan, gives much happier working spaces than the square or thickly rectangular shapes that we have become used to. The main entrance lobby and the ground floor generally seemed to me undistinguished — another glass and aluminum office building lobby.

The Conference Building, itself a *tour de force* in structure, suffers, I think, from its relation to the Secretariat. It has pleated end walls, very beautiful outside and inside 21; a corrugated concrete roof system related to an undulating roof slab which follows the moments of the beams 22, supported midway by two columns and a transverse girder.

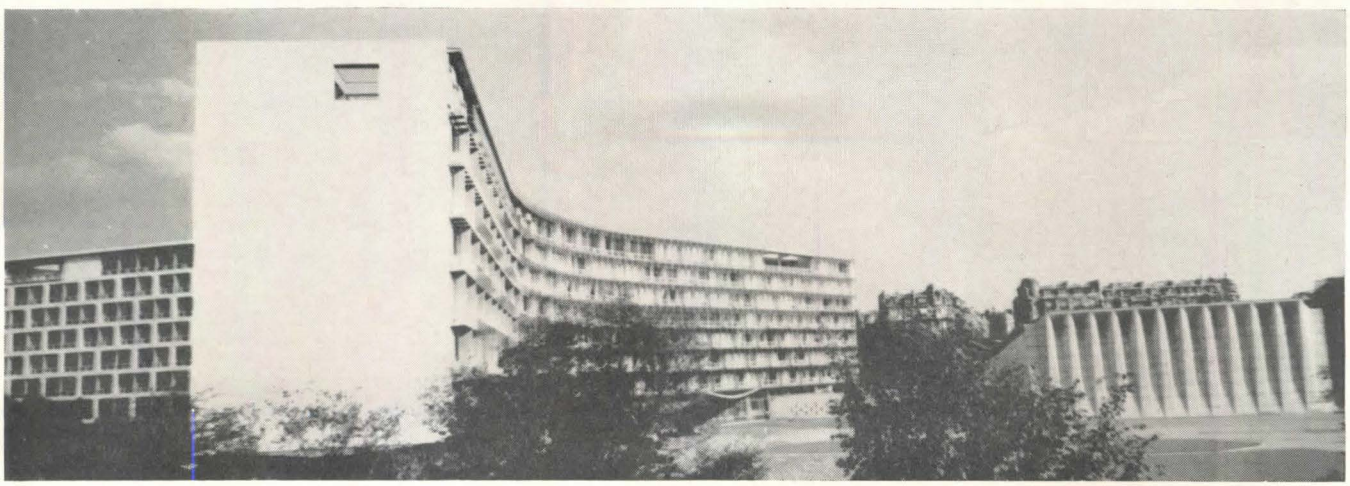
It also is well planned for its uses, I was told by those who use it. One half the total space is occupied by one big auditorium; a smaller conference room and a number of committee rooms fill the rest of the building. I think one might argue about the use of the single strong form for these multiple inside functions, but I felt after some consideration that it could be rationalized. There is a double-pitch roof, divided by a girder, and inside the spaces, at least, one feels that the structure *reads* well. The small committee rooms have been "given" and designed by various member countries. Some are handsome; all, I felt, were interesting. I think that this Conference building, by itself, can be judged successful, even exciting architecture, on all counts—though I don't think I would go so far as Mario Salvadori and say that it is "one of the masterpieces of the concrete age."

Yet despite all these favorable judgments, I found the entire complex strangely unsatisfying. I think that my reasons are three.

First, the relationship of the buildings and their connection are disturbing—even awkward. And in walking from one building to the other in actuality one feels this awkwardness. The transition is not smooth, the sense of the simplicity of plan one has in one building or the other becomes lost and a feeling of confusion arrives instead.

My second adverse judgment is that the very structural forms that many have admired are largely hidden in the finished building. One sees the folded roof of the Conference Building only from an upper window of the Secretariat —or from the Eiffel Tower. Perhaps that is enough. But one sees not at all Nervi's floor framing system in the Secretariat Building. And the *pilotis* bothered me. In the first place, I think pilotis have been done better—by Le Corbusier, most importantly. And then if one is going to use these bold, strong supports for an entire building—handsome, certainly, while they were being built—I think that one should not construct rock walls around them, nor should one enclose them in a glass cage which houses the lobby 23.

My third quibble is the art work. Surely the allied arts must be integrated with architecture. But how? There are, I think, several ways. One is for the designer of the building—architect or engineer—to be in himself an artist in the full sense. I will come back to this point in relation to Ronchamp; in the meantime let us recall, in UNESCO, the basically sculptural forms Nervi developed for the Conference Building. Inside and out, they *are* sculpture, on



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Sidney Waintrob

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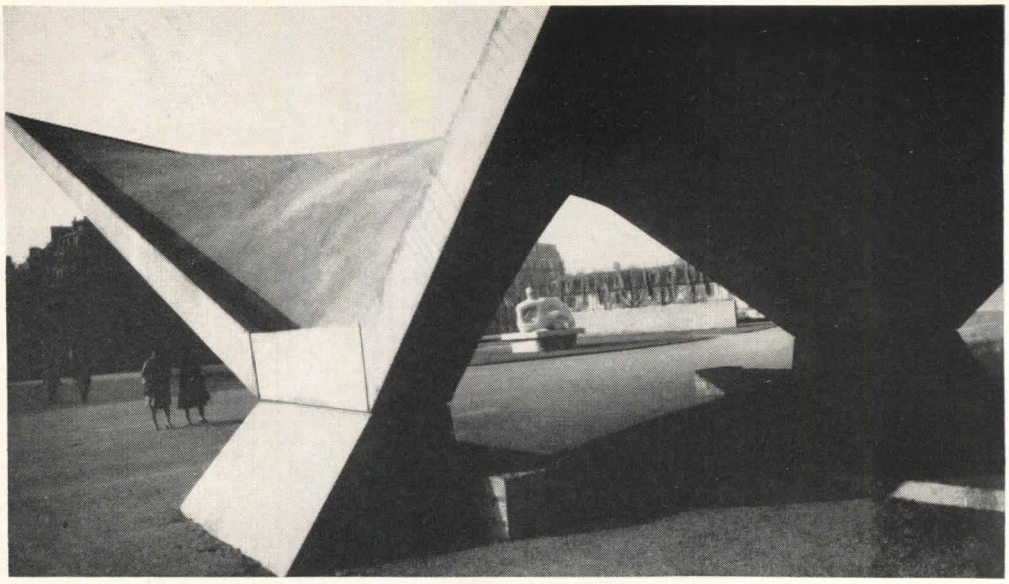

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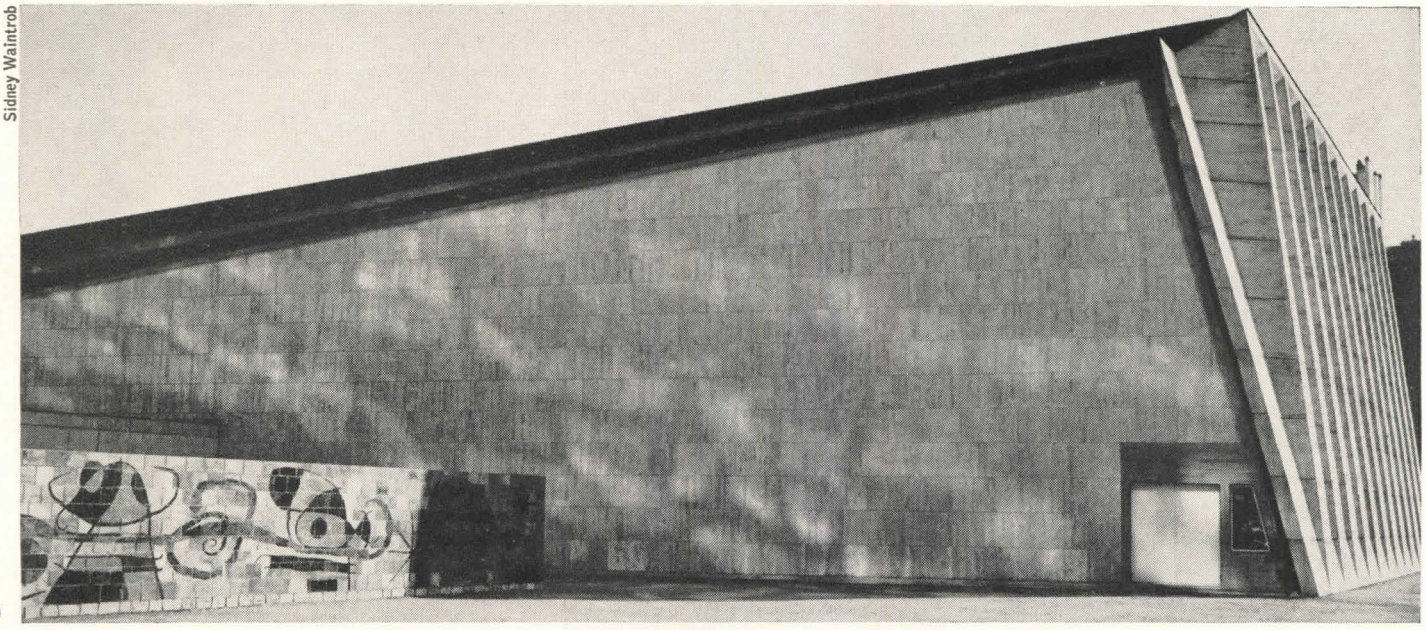

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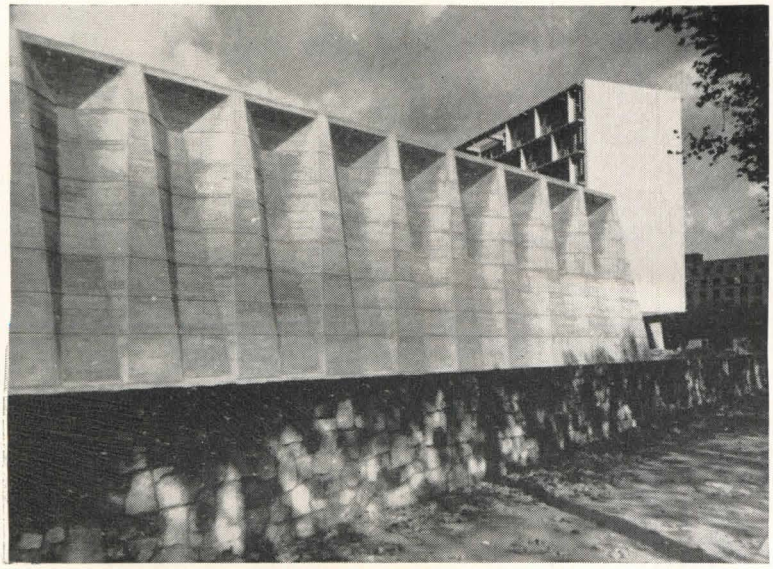

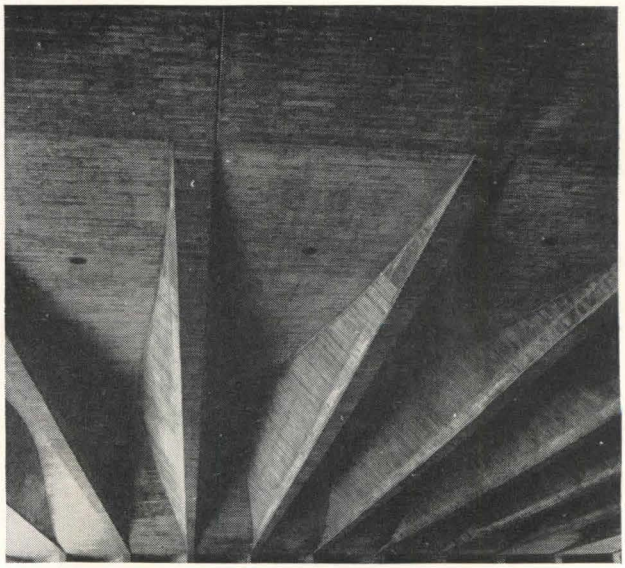

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a grand scale. So are the stairway 18, the portico 19, and even the contour of the main building. This is not extraneous art work; it is the architect, or engineer, acting as a plastic artist, beyond the usual call of duty toward architecture as an art.

Another way one can relate art and architecture is by hiring some artists and saying to them, "Here is a wall; paint a picture. Here is a yard; put a piece of sculpture in it. Here is a court; make a garden of it." I think that this is the wrong way. It is neither using the talents of the artist for collaboration, nor those of the architect for integration. And this is the way UNESCO solved the problem. There is Calder's mobile, sitting uncomfortably in a yard 24. There are the two completely extraneous walls by Miró and Artigas 20. There is a painting by Appel, out of scale in a dining room. There is a garden by Noguchi, delightful by itself, stuck between the two unrelated buildings. There is one of Afro's most beautiful works, so badly placed that few visitors to the building even see it as a museum piece. And there is Picasso's incomprehensible jibe, very easy to see, very hard to take, defying the architecture of the space which it dominates 25. These works of art not only lose the importance they might have had; in my opinion their unrelatedness even does damage to the architecture. Surely such a galaxy of stars of the contemporary art scene could have been used better than for guest appearances; they could have been regular members of the cast.

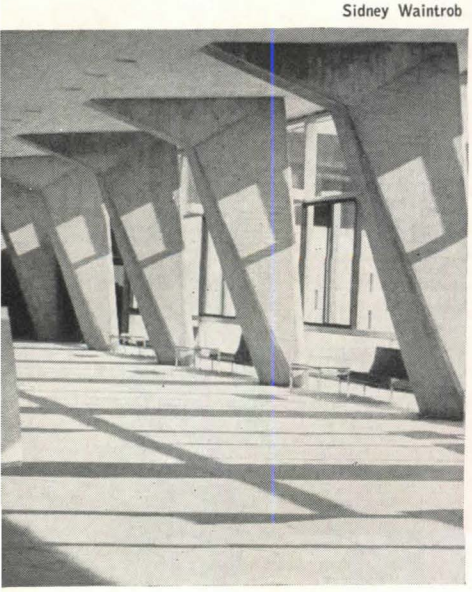
In summary: UNESCO is a handsome, successful building which misses greatness because of lack of integration of parts, lack of harmony in brilliant structural parts, and lack of co-ordination of very fine works of art. It has no theme as a group; it makes no statement, as we like to say these days; it does not insist what it wants to be, to use Louis Kahn's phrase. It is the near-miss, I am afraid, that one has come to expect from committee design, whether it is in UNESCO, UN, Lincoln Center, Grand Central City, or any other collaborative effort.

Now let us look at a very different sort of building. The Chapel of Notre Dame du Haut at Ronchamp is a pilgrimage church, not intended for regular services. It is built on the site of a former church destroyed during the war, and its location, the top of a hill dominating the small town below, was a center of strong resistance movement. The whole setting and the entire concept of the church are therefore steeped in emotional sentiment; and it is an emotionally sentimental structure, for all its extreme sophistication.

One sees the church from afar approaching the town, and the first distant sight is an exciting one. The next glimpse is not until the top of the hill has been reached, tickets of admission have been bought, and several very ordinary out-buildings have been passed. Then the great swoop of the roof and the very articulate sculpture of the southeast side hits one with a tremendous impact. This is, to my mind, the really beautiful view; the rest, until one goes inside, is anticlimax. From this approach one sees the effect of the inverted shell roof—the double concrete membrane which soars up to the corner of the south curving wall and then drops back on the two sides to die rather oddly into the north and west walls 26.

One wants to walk around it before going inside; I did, at least, and I have found that other visitors have had the same feeling: a combination of desire to see the rest of the exterior, to circle it and sense it; and a wish to postpone entry for an indefinable psychological reason—perhaps a dread of disappointment. We walk around, then. We go to the right, toward the north side, past the outdoor altar and pulpit, and we come to the most disappointing aspect of the building, as sculpture—a joining of two façades (and this building should not have façades) and a meeting of two design attitudes. The great roof dies, bump, into a stuccoed wall 27. The towers over the chapels pile against one another awkwardly. The exterior stair and the multiplicity of openings seem to distract, rather than invite, as they do on the south side. One keeps on moving, and at the northwest corner a completely different building rises before one. I think that it also is beautiful; it is strong, monastic, dignified, handsomely conceived and detailed 28. Look, for instance, at the location and the detail of the gargoyle, or roof drain, and its catch basin below; or look at the way the chapel towers rise from and complement the building below. Then, if one keeps on moving, there is necessarily another junction point: here, I think, a much more successful one, with the elliptical form of the chapel standing free from the sweep of the adjacent roof, and a handsomely proportioned

Sidney Waintrob



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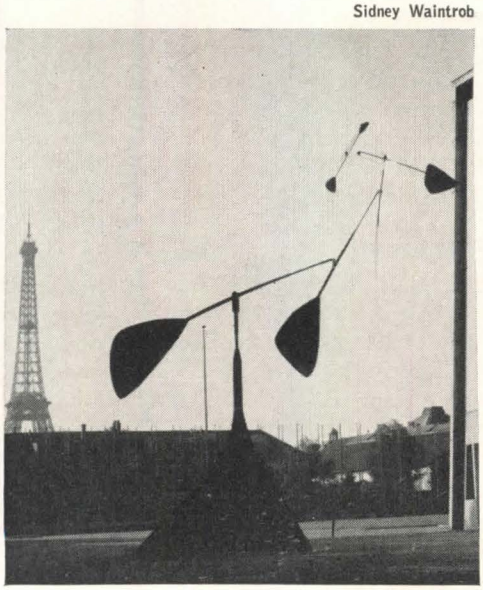
Sidney Waintrob



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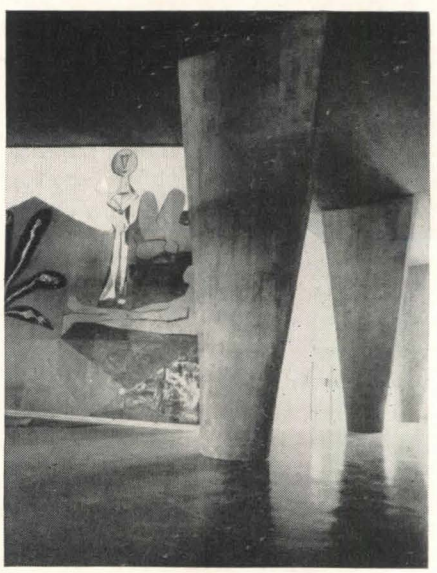

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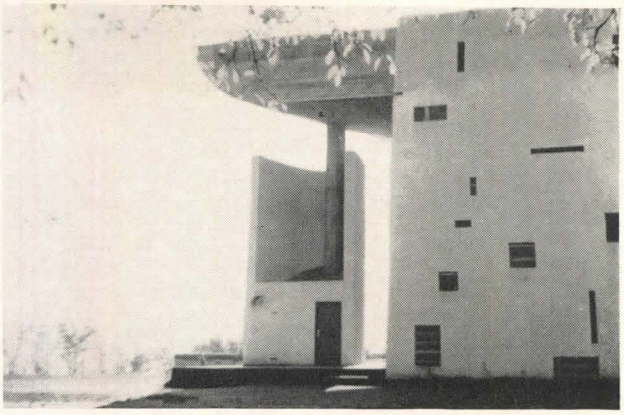
27 Quincy Jones



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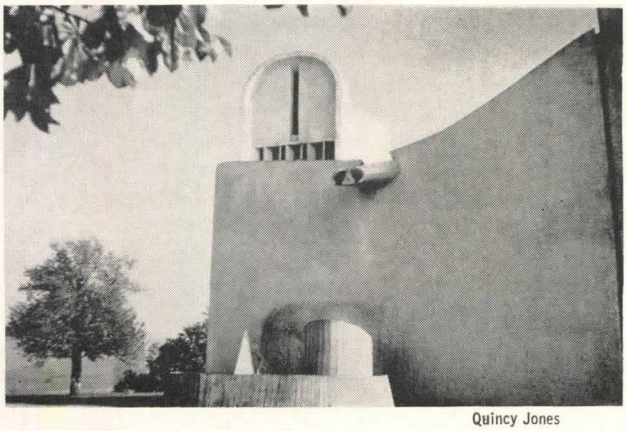


Ronchamp photos except as noted: G. E. Kidder-Smith

Quincy Jones

separation below containing the main, decorated doors.

The work is crude; concrete has been left not carefully finished, or it has been frankly and obviously stuccoed. This is the nature of the building: *purposeful* emotion-producing and sentiment-compelling crude strength; a simplicity which disdains suave finishes. One must remember, though, that there is a great difference between the crude simplicity of an unsophisticated—let's say a child's—expression, and the *purposeful* crude simplicity of a highly educated, artistically creative, extremely articulate adult. The very roof form, brutal as it may be, is also a sophisticated bit of concrete technology. Here is the dichotomy of the building, and here is what makes it so difficult to evaluate; the *feel* of childlike directness is almost too obviously contrived.

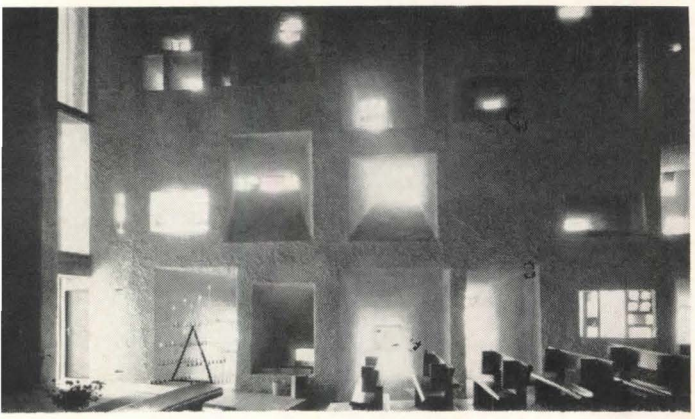
Let us move inside. Personal reactions have been varied. My own was one of great emotional impact. I took a deep breath. I felt a surge of space around me—not boundless space, but space described by filtered lights and subtly formed curving planes. This, I felt, is architecture. This is space contoured and defined and given the power to move one to one's marrow by its nature. After a moment, I began to examine, to put names on the devices by which this result had been reached; but at first there was nothing but the total impact. This was not, for me, a *religious* experience; I am not a religious person. It had nothing to do, in fact, with its being a church: it could as well have been an auditorium, a secular hall, a conference room; it was simply the impact of deeply moving *space*.

I can imagine the additional thrill that a truly religious-emotional person would have. While I was there I talked to the curate of the Chapel—its most ardent lover, incidentally—and he insisted on demonstrating to me two physical realities of the space—one auditory, one visual. First he asked me to stand about midway of the chapel, facing front, while he stood in the back and sang a canticle. His voice was mellow, resonant, all-pervading. No hi-fi stereo-reproduction was ever so able to give the effect of sound coming from everywhere and nowhere. In fact, after some minutes I turned around to express my appreciation, and I found that the curate had disappeared; he had moved silently into the corner chapel, and his voice from there still filled the entire main space.

Then, staying himself in this chapel, he asked me to stand in the entrance to the other one. He moved forward and back; he raised and lowered and extended his arms, as in the giving of a blessing. And he seemed to float in the space (which, in this chapel, is literally almost endless space, in Kiesler's terms, or ineffable space—*d'espace indicible*—as Le Corbusier calls it). He seemed to have no base on the floor, no definable relation to walls or upper enclosure.

One continues to examine details. The openings are deeply revealed, some glazed with plain glass, some with colored glass (not stained glass; one can see trees through all of it) 29. A few concrete structures protrude from the wall, as pulpit and so on. The altar is unpleasant; the furniture is again *brut*—rough concrete and crudely handled wood (but note that the wood is a beautiful African mahogany). The sloping floor is cement paved, between battens, in a pattern dictated by the Modulor.

29



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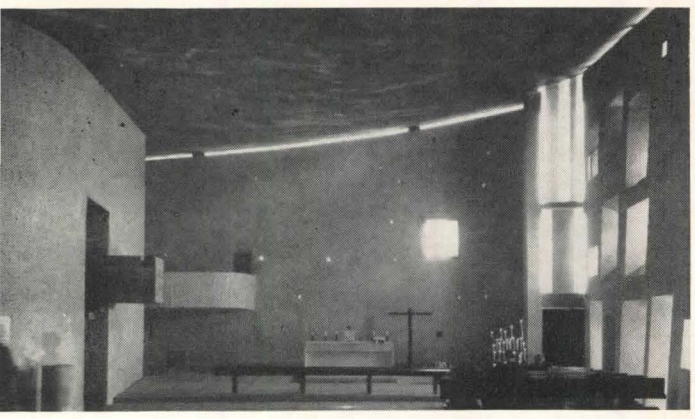


31

These are details. Main elements are the downward swoop of the roof, now become ceiling; the walls separated from it by a thin strip of lighted space; the batter of the great south wall inward toward the floor; the curve of the east, altar wall, away toward its corners 30; and the movement of the north and west walls, with no corners at all, as they surround and flow into the chapels 31.

How does one judge this building, objectively? I have given subjective impressions, with a modicum of factual description. It very nearly defies analysis by any "system" of criticism. It has no function to analyze, except as space to which pilgrims come for an emotional uplift. The curate told me it "works" well; his functions as a preacher, as central figure in the liturgical services when they do occur, as the giver of blessings to visitors are, he says, performed here in great dignity and with full effect, both inside and outside the church. Contextually, the building suits its hilltop, its site, its countryside, in a very happy way. Technologically, as I have indicated, it is an anomaly—a masterpiece of engineering in one place, a throwback to handcrafts in another. Art as applied is very personal: the little drawings and childish lettering on the windows are either charming and effective, or corny and crude, as one wishes. It was here that I felt most strongly the *contrived* simplicity; the lack of truly intuitive expression that the master contends it was. Considering the building as sculpture, on the exterior, I found two expressions, each beautiful, but unrelated to one another. As architectural space, inside, I think it one of the greatest successes any architect has yet achieved.

What conclusions can one draw from an examination of these two buildings?

First, I think, that great architecture will continue to come, as it always has, from the creative genius of a great architect, not from groups of architects working together—even though the individuals in the collective or collaborative may be in themselves great. And there probably will never be very much great architecture in any given period; there never has been; the rest of the work in Europe indicates that there isn't, now.

Secondly, it seems clear that the free sculptural expressions that our technologies make possible, and that our esthetics are beginning to encompass—what we have called the New Sensualism —are going to be an increasingly important part of our architecture, for better or worse. And these are very dangerous expressions; this is heady stuff. The development of this trend is going to make even more important the fact that the architect whose abilities lie at a lower level than that of great creative artists had better proceed slowly, if at all. Handled by a master of all the arts, such as Le Corbusier, the sculptural approach can produce beautiful and greatly moving architecture. In the hands of lesser people, it can be disastrous. Compare, for instance, the UNESCO portico with the Ronchamp roof—and Breuer is not much less a master of plastic expression, at that.

Certainly, there is a very important function for architecture to serve aside from producing the occasional work of genius. We would probably have a greater collection of really good, sober architecture going up in the United States right now, as well as in Europe, if so many architects weren't trying so hard —weren't attempting to be the geniuses they aren't.

Photos: Foto-Kessler and Werner Duttman

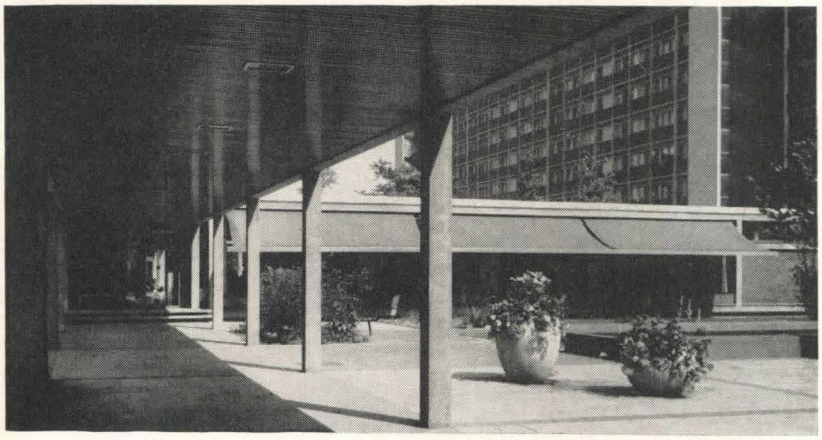
HANSA DISTRICT LIBRARY • BERLIN, GERMANY • WERNER DUTTMANN, ARCHITECT • HAMMERBACHER AND JACOBSON, ASSOCIATED LANDSCAPE ARCHITECTS

# Two Libraries

*Berlin, Germany, and Baton Rouge, Louisiana*

If a library's two primary functions are to house books and to provide a place where readers may comfortably peruse or study them, this library happily excels at the latter. The library is pleasantly situated in a park and is designed around an open landscaped courtyard where readers may relax outdoors.

The intimately-scaled library is one of the smallest projects in Berlin's new



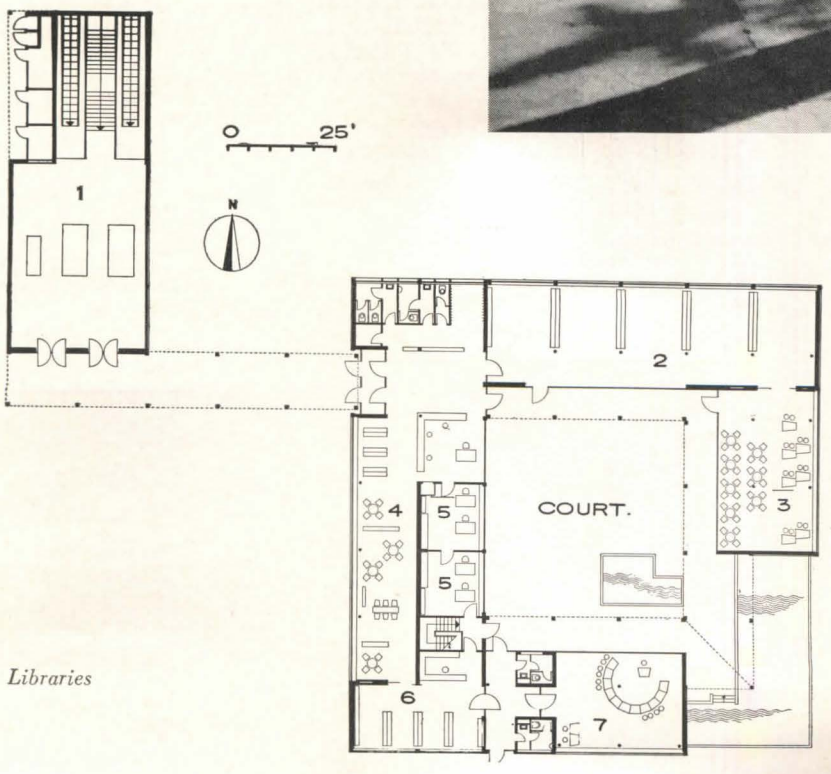
*The library* (above) *and subway station* (left), *favorably situated in a park, are connected by a covered walk. The mosaic mural* (acrosspage) *is by Fritz Winter.*

Hansa District and is adjacent to apartment buildings by Jaenicke and Samuelson of Sweden and Finland's Alvar Aalto *(above)*. Though a community building for the district, the library is also used by residents of neighboring areas, and therefore its entrance is connected directly to the subway station by a covered walk. The roofs, which are seen from adjacent buildings, are continuous.

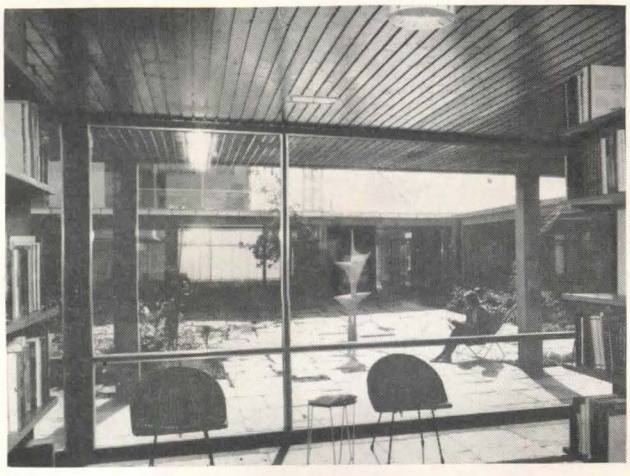
In plan, the 110-ft square library is clearly divided into sections for adults and children. The south wing with its own entrance houses the children's library and reading room; this reading room has movable furniture which may be arranged for discussions, meetings, or film showings. In the west wing are a magazine reading room and administrative offices, placed between the control desk and the children's library. A bookstore is on the basement level.

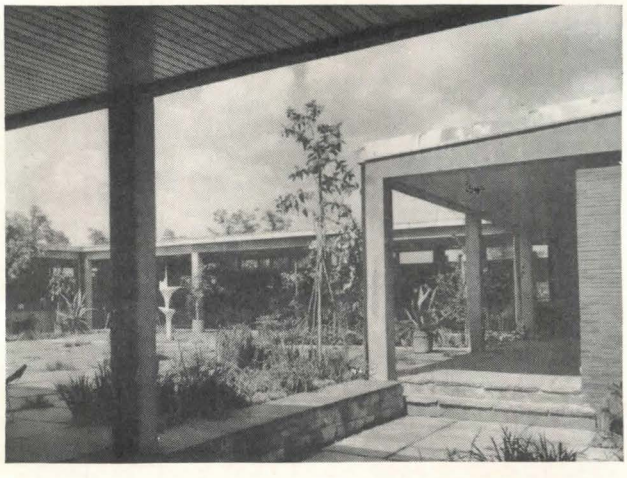
Every interior is visually open to the park or landscaped court through generous window walls. Vertically-sliding window walls of the north wing completely open the reading room to the court. The continuity between exterior and interior is expressed by extending the court's slate paving and wood soffits into the interior as flooring and ceiling. The reinforced concrete structure has walls of hollow concrete block faced with narrow red brick.

1 subway
2 self-service library
3 reading room
4 newspapers and magazines
5 office
6 children's library
7 children's reading room




*The library is developed around a garden courtyard. Windows of the self-service library* (right) *slide down, completely opening the north wing to the garden. The slate paving and wood-paneled soffit of the covered walk extend into the interior.*





*The reading room* (top), *has window walls on both sides; informal, light furniture may be moved into the garden. Plaster ceilings around the outer part of the library are higher than the wood ceilings. Freestanding book stacks are supported on metal uprights with adjustable brackets carrying wood shelves; they, as well as the display cases and book carts, were designed by the architect.*


Photos: Frank Lotz Miller

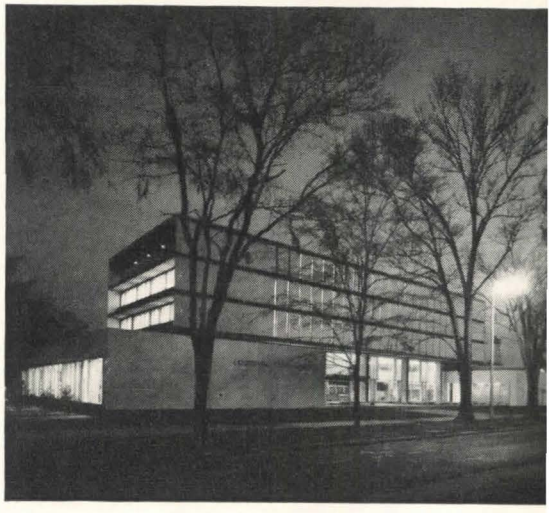
LOUISIANA STATE LIBRARY • BATON ROUGE, LOUISIANA • WILLIAM R. BURK AND JOHN DESMOND, ASSOCIATED ARCHITECTS

In contrast to the Berlin library, the program for the Louisiana State Library was more extensive and complex. The building was designed to house administrative offices for the state's library distribution service, public access collections, special collections for the blind, the administrative offices and collection of the Extension Department, and the State Library Administrative Headquarters.

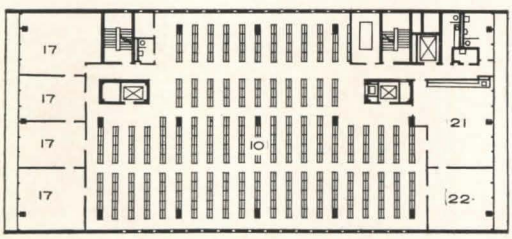
Librarian Dr. Essae M. Culver requested that the building be inviting and easy to enter, and that it "look like a library" with books and catalogs visible from the street. To avoid a multistepped entrance and also detach the library, without any visual barrier, from the street on the west, the building is set back on a landscaped entrance plaza three steps high. The two-story main entrance lobby is viewed from the street through window walls.

Since the site, on the State Capitol Grounds, faces north across a landscaped square to the State Capitol building, the main reading rooms and administrative offices are on the north to take advantage of the favorable light and view. The architects with consultants C. M. Morhardt and Ralph Uveling of Detroit developed the concept of open, centrally-placed stacks surrounded by reading and research spaces. This arrangement is expressed on the marble exterior by long slit windows for each stack aisle, while offices and reading rooms have more ample fenestration. The reinforced-concrete structural system is based on a five-foot stack spacing: stacks are placed on concrete beams 5-ft o.c.; the beams are exposed at the ceiling to form troffers for continuous lighting.

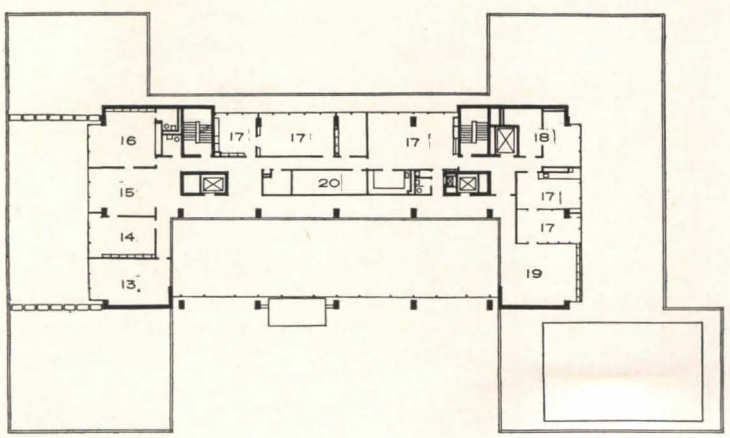
*Reading rooms and offices face north for the light and desirable view; stacks, at slit windows, are centrally-placed.*



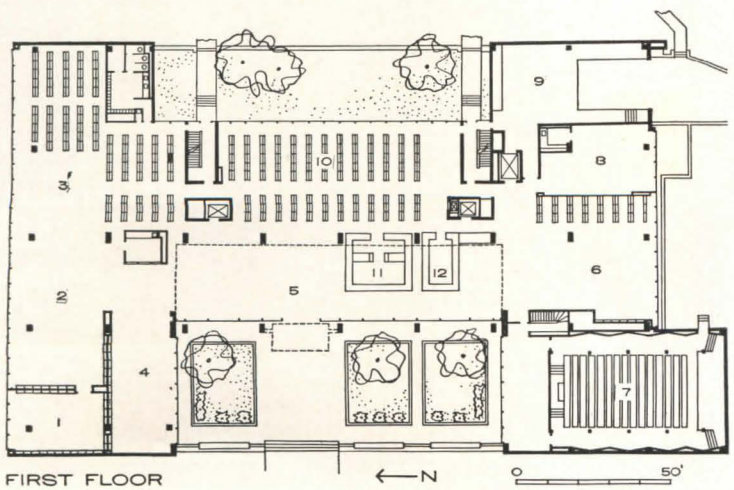
1 legislative reference
2 Louisiana room
3 periodical room
4 memorial room
5 lobby
6 reference room
7 auditorium
8 cataloging
9 shipping
10 stacks
11 reception desk
12 catalogs
13 conference
14 assistant librarian
15 secretary
16 librarian
17 office
18 film viewing, storage
19 audio-visual
20 storage
21 braille shipping
22 braille office



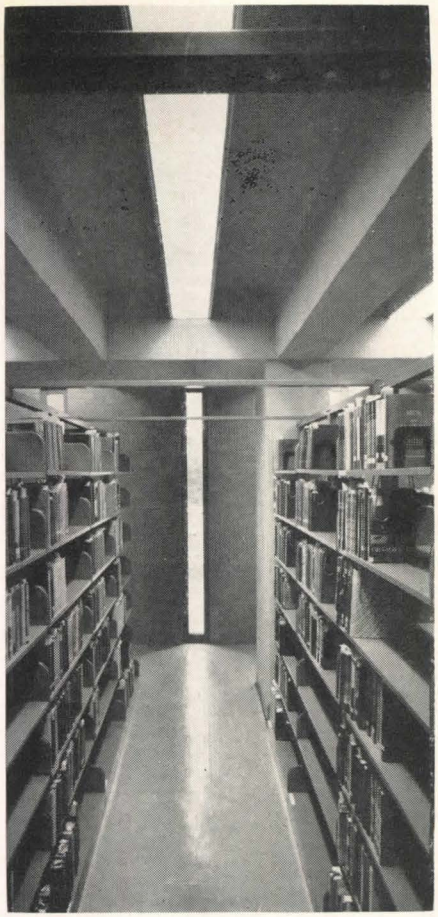

TYPICAL UPPER FLOOR




SECOND FLOOR

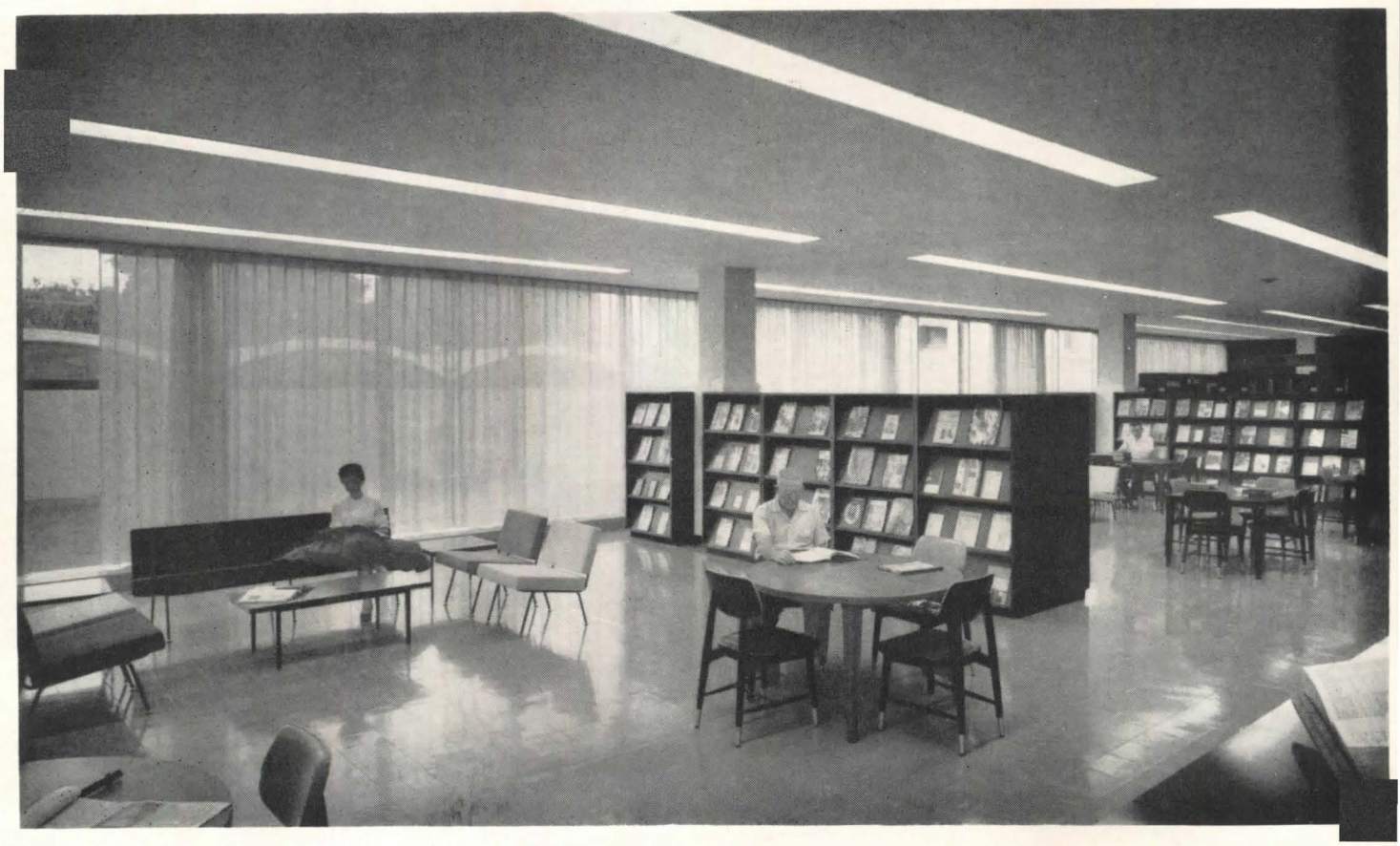


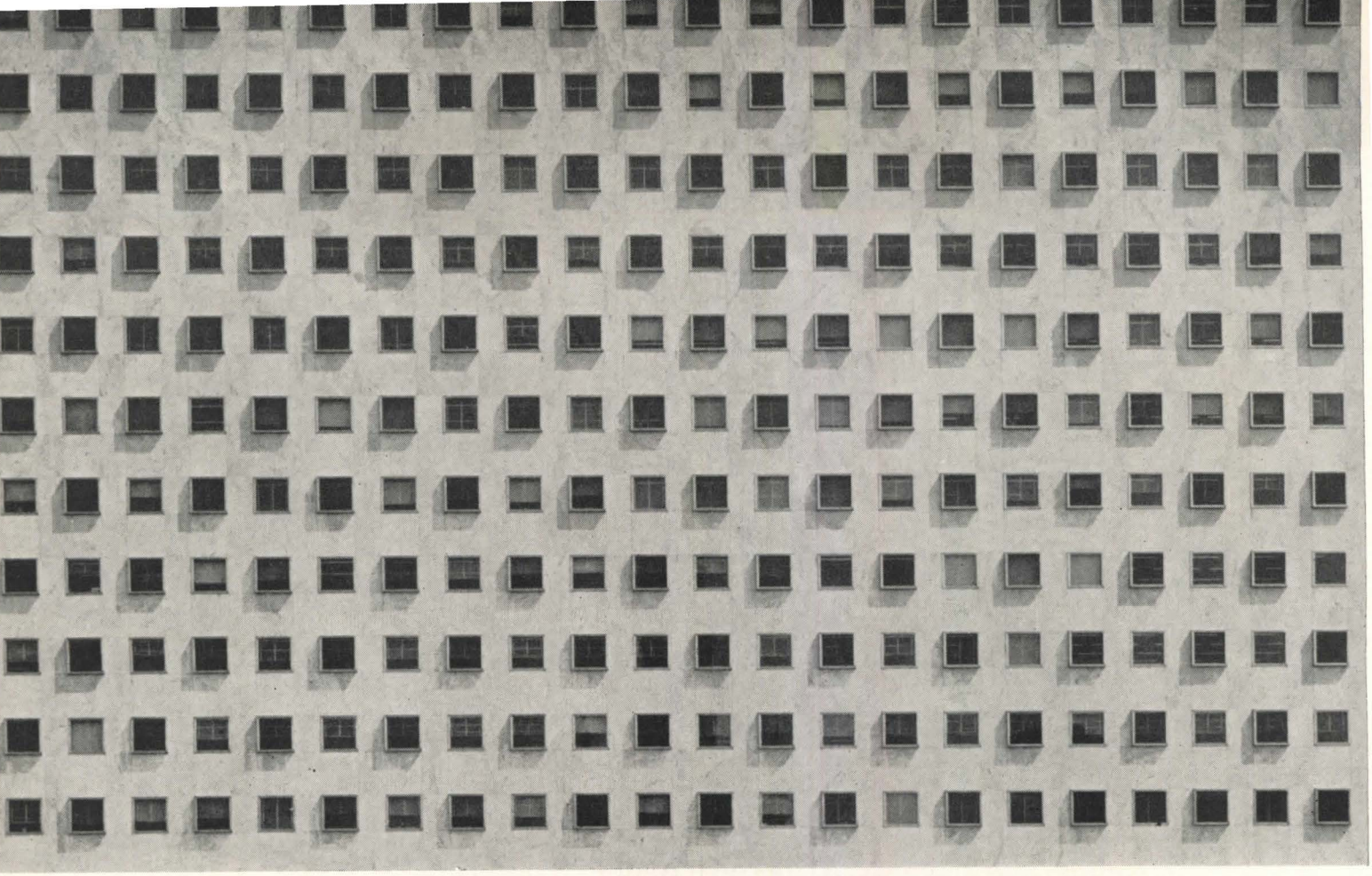

FIRST FLOOR



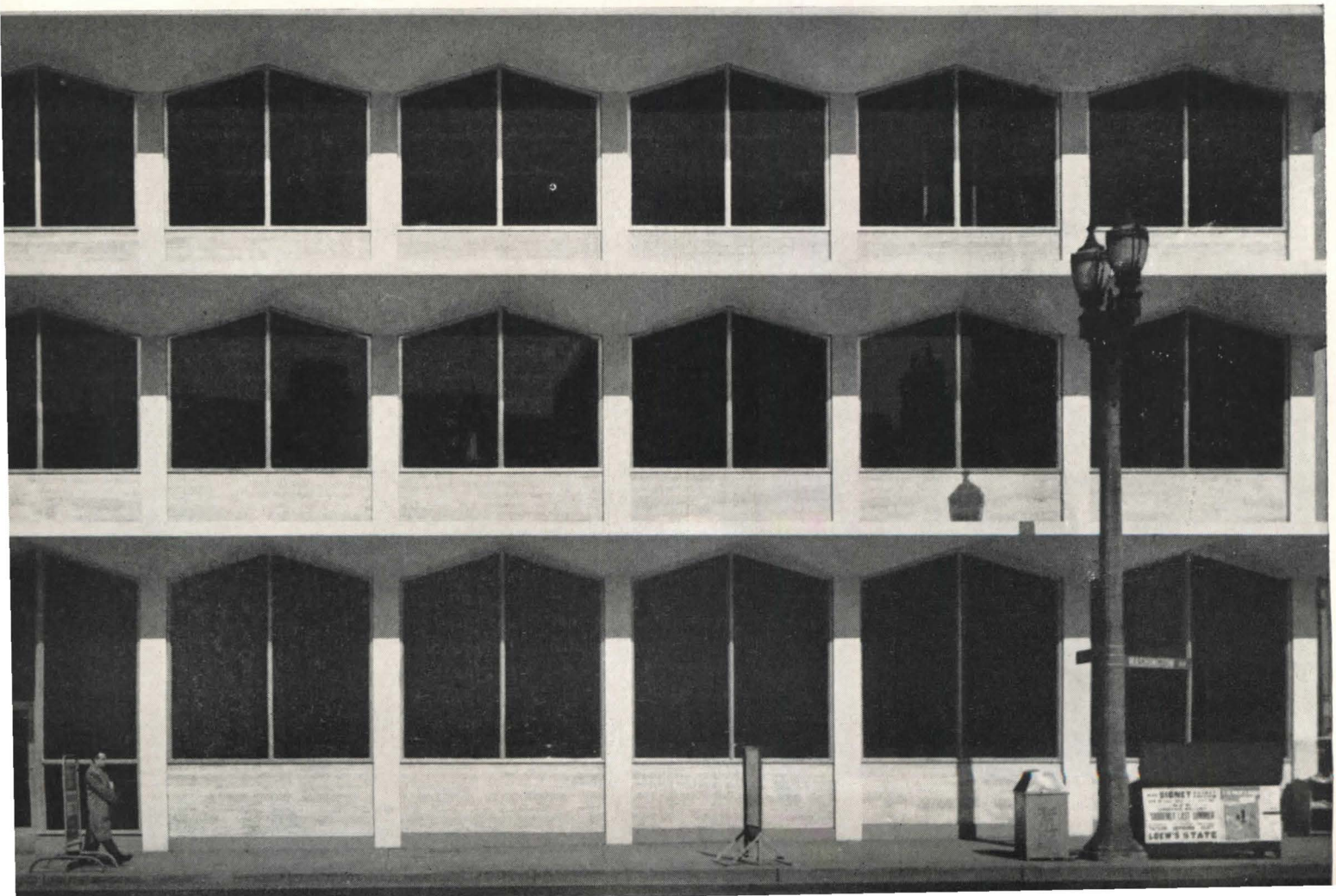
*The structure is based on a 5-ft stack module: stacks are directly over concrete beams 5-ft o.c., which are left exposed at the ceiling to form troffers for continuous lighting.*

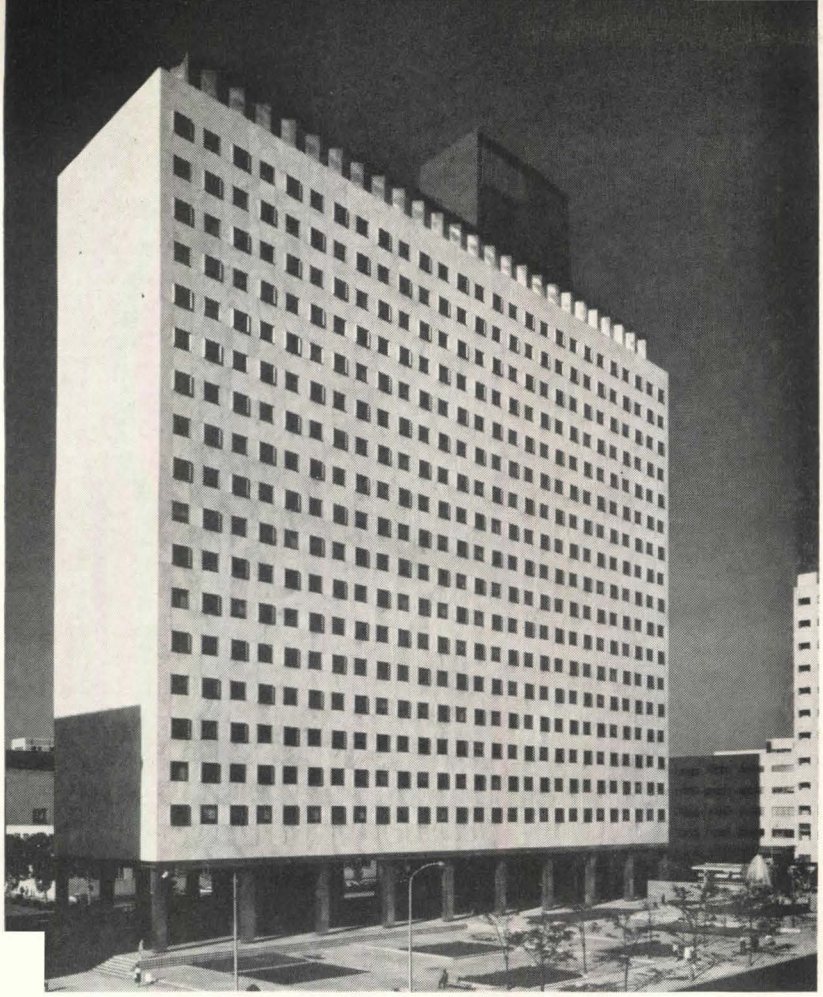
*The main administrative offices on the balcony overlook the two-story lobby* (above). *Reading rooms* (below) *and staff conference rooms* (acrosspage) *and offices have lower ceilings, generous daylighting.*





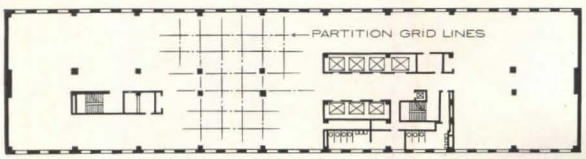
# Two State Buildings in the City





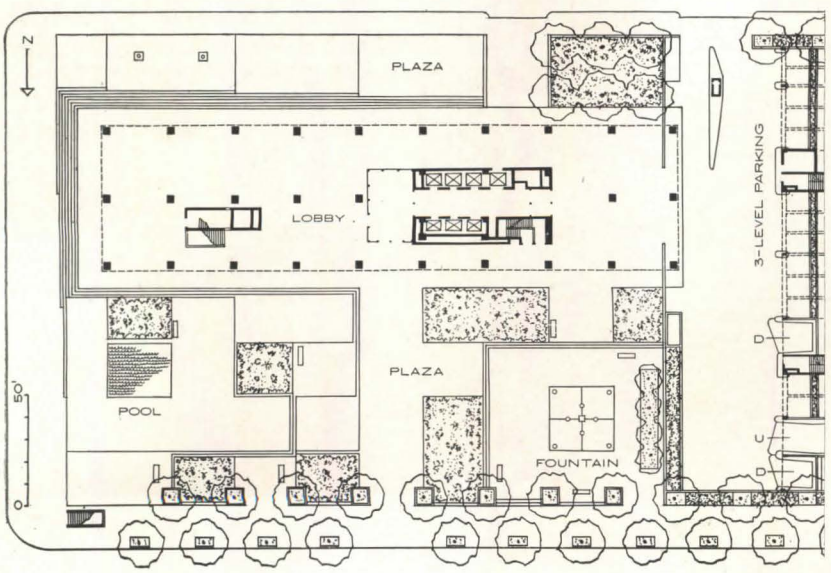
Photos of P.S.O. Building: Lawrence S. Williams

*The 17-story Philadelphia State Office Building, housing 20 state administrative agencies, is raised to accommodate a continuous landscaped plaza beneath.*




TYPICAL OFFICE FLOOR

GROUND FLOOR




Office buildings in the city, whether public or commercial, have certain requirements in common. In either case the architect must provide an economically sound area of flexible office space and design an exterior which will favorably represent the client. A government building, however, cannot be merely conspicuous; it must express the dignity of the state. Moreover, it must achieve its visual quality economically; extraordinary costs cannot be written off as good advertising.

Although these two state buildings differ considerably in size and complexity, both had to meet the basic requirements of flexibility on the interior and distinction on the exterior. In both cases the architects adopted modular structural-mechanical systems and designed distinctive façade treatments.

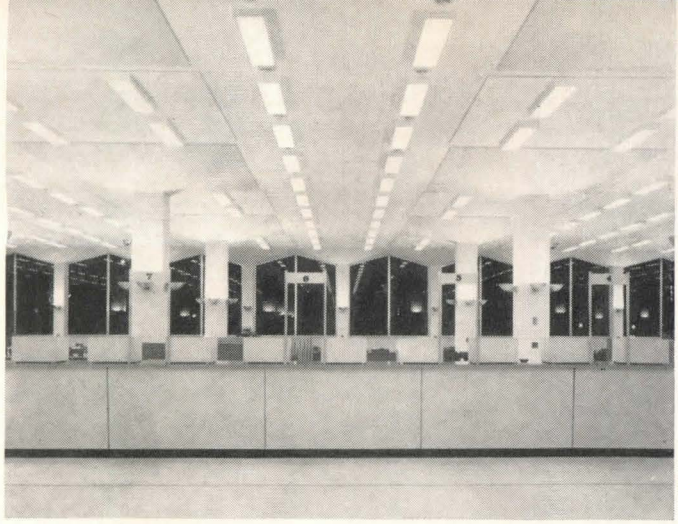
The Philadelphia State Office Building was designed by Collaborating Architects Carroll, Grisdale & Van Alen; Harbeson, Hough, Livingston & Larson; and Nolen & Swinburne to house all state administrative offices in the Philadelphia area. It provides about 245,000 square feet of usable space on 17 office floors and a penthouse.

The site is an entire city block near the center of the city. Consideration of interior planning requirements, orientation, views from main thoroughfares to the north and east, and possibilities for site development led to the choice of a simple slab form with blank walls to the east and west.

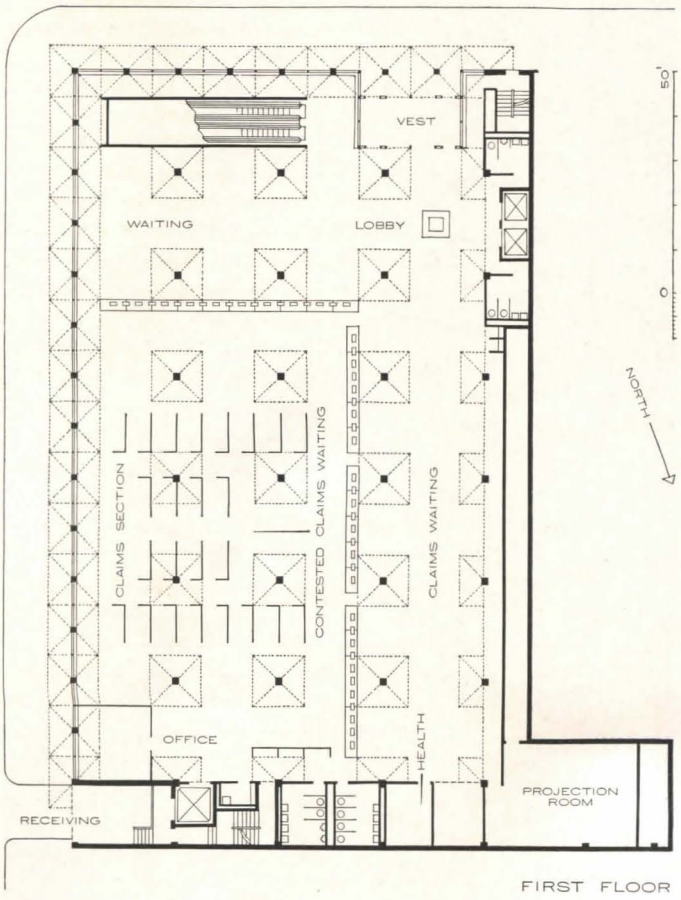
The building was raised 23 feet off the ground to permit treatment of the site as a continuous plaza, interrupted only by an entrance lobby and service cores. The walls of the service cores are surfaced in blue glass tile, which is repeated in the mechanical tower above the roof to express the identity of the vertical shaft.

White marble was chosen for the exterior curtain walls, say the architects, "because it is handsome, durable, self-cleaning, and reasonable in cost. Also it is a familiar material, associated in the public mind with public buildings." To avoid the monotony of a regular pattern of square windows in flush white marble, alternate windows were projected four inches beyond the wall surface. In an attempt to emphasize this checkerboard relief pattern the architects specified blue-green tinted glass for the projecting windows, untinted glass for the flush windows.

The 20 different agencies to be accommodated had a diversity of program requirements, all subject to future change.



*The exposed concrete structural system establishes a module and a motif for the State Employment Security Building in St. Louis.*




*The number of columns has been doubled along the façade to create a strong rhythmic pattern which is emphasized by night lighting.*

Photos of S.E.C. Building: Mac Mizuki

Therefore, only service cores and special-purpose rooms were enclosed within permanent partitions; the remaining area can be divided, as required, with movable partitions. The grid lines for partitions are integrated with the mechanical equipment to provide adequate lighting and air conditioning for offices of various sizes, with a minimum of 9′-0″ x 9′-10″.

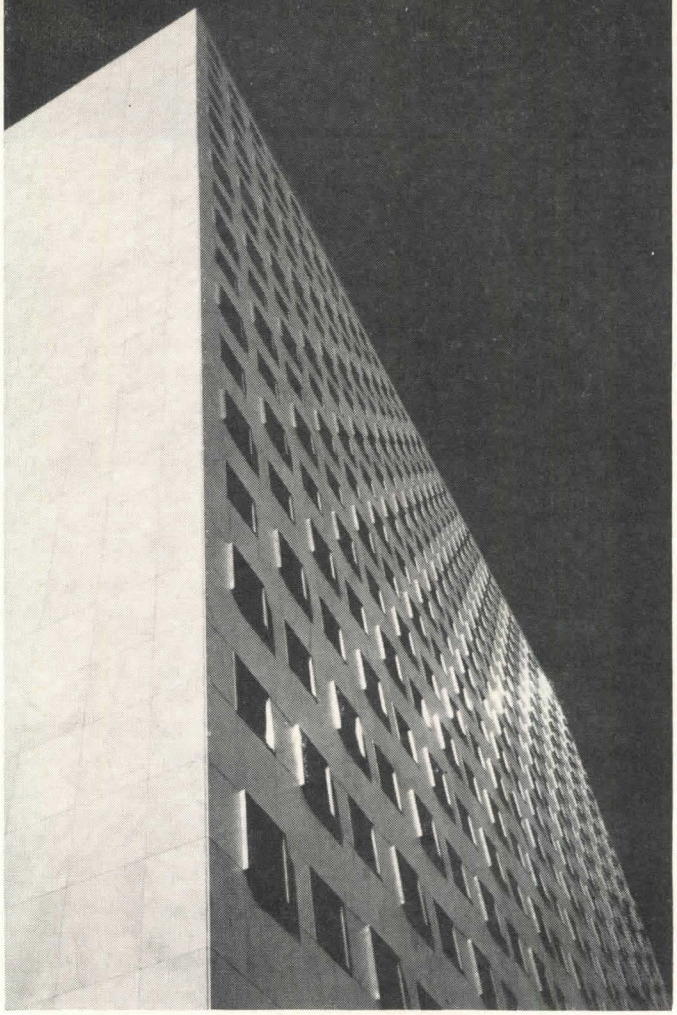
A three-level garage for 200 cars occupies the western part of the site. The rest of the site has been developed as a plaza extending under the building and opening to the street on three sides. Landscape Consultant Ian McHarg has carried the module established by the structural columns out into the surrounding plaza. The rectangular areas, defined by slight changes of level, are used singly or combined to form paved areas and planting beds. The exposed white quartz aggregate of the paving echoes the white of the marble above; the 28-foot-square black granite basin of the fountain provides a strong contrast.

The State Employment Security Building in St. Louis accommodates 75,000 square feet of office area on three floors. It completely fills the limited site in a deteriorating downtown area. According to the Architects Hellmuth, Obata & Kassabaum, "the state made it clear that it was seeking a building which, by its

handsome appearance, would not only present a favorable image of government to the community, but would also make a positive contribution to the revitalization of the downtown area in which it is located."

The entire design is based on a reinforced concrete structural system "which allows the maximum of open space and flexible partitioning, and which also provides the ornamental theme of the project. The inverted-pyramid pods which carry the load from the floor slabs to the columns are exposed, and the outer rank of columns, standing beyond the walls on the two principal façades, with the pods defining triangular spaces at the top, forms a graceful continuous colonnade around the building." The concrete was poured for a smooth finish and painted light beige; spandrels are of travertine; the deeply shaded windows are of gray heat-absorbing glass.

Inside the building, the columns are spaced twice as far apart as on the façade; the three-quarters of the ceiling left free of the structural pods accommodates a complex of fluorescent fixtures, acoustical tile panels, and air diffusers. Air is supplied through a three-inch-deep "air floor" system within the concrete slab. Engineers for the building were William C. E. Becker, structural, and Harold P. Brehm, mechanical and electrical.



*Alternate windows are projected four inches from the white marble façade of the Philadelphia building to produce a relief pattern.*

*The inverted-pyramid structural forms of the St. Louis building are carried out beyond the glass to form a continuous colonnade.*

# The Quantity Surveyor

BY TERENCE J. A. ASH

*Another explanation of and a plea for quantity surveying (see* FEBRUARY 1956 P/A: *"Quantity Surveying: What It is" by Michael F. Kennedy, and "Quantity Surveying: How It Works" by Arthur Schneider) is made by an English practitioner of the profession who is at present studying U.S. contracting methods.*

Although the profession of quantity surveying has grown rapidly in the last half century in England and the British Commonwealth, it has not been practiced to a similar extent in the United States. It is, therefore, the aim of this article to explain briefly the merits of such a system. Some aspects of the English procedure may be too rigid in a highly flexible economy; however, in these days of increased complexity in the contracting field a more methodical system of *financial* control might be worth considering.

It seems obvious that the preparation by each bidding contractor of his own schedule of quantities results in unnecessary overhead expenses, which, although originally borne by the contractors, eventually will be paid for by the owner. Accepted bids are but a fraction of the total of the bids submitted and therefore the cost of preparing schedules of quantities for unsuccessful bids is reflected, to the detriment of the owner, in those instances when a bid is accepted.

This highly expensive system of bidding was used in England before the general use of the quantity surveying profession. The English contractors realized, however, that if one surveyor would take all the measurements and other particulars required (known as Bills of Quantities), and if each contractor would have to price only these Bills in preparing the bid, they would all save the greater part of their overhead expense. Such pricing technique would not necessitate the disclosure of the prices to the competitors.

At first, the surveyor's fee was included in all submitted bids but paid only by the successful contractor. Later, the owners, realizing that they were paying for this service indirectly, decided that it would be to their advantage to have the quantity surveyor's experience and technical advice not only in the preparation of Bills of Quantities, but also in the preliminary design stages and in the final adjustment of the contract sum. Thus, today, apart from the preparation of Bills of Quantities, the professional quantity surveyor is also available to advise the architect on the cost of various constructional systems and materials; to give approximate estimates at the design stage; to help in the preparation of certificates of payment by assessing the value of work performed; and, most important, to prepare a final account for the job, based on the original Bills of Quantities, on which the architect certifies final payment.

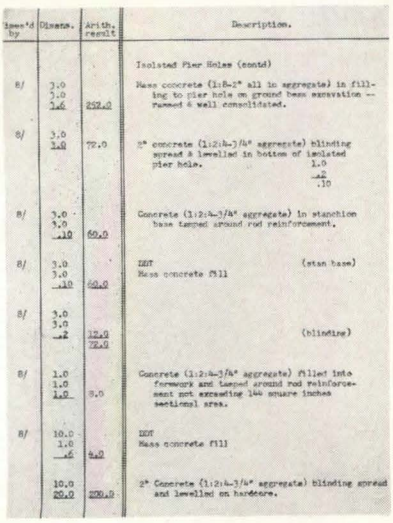
This method inevitably leads to a more efficient financial control of the project and minimizes overpayment by the client, who has a professional relationship with his quantity surveyor similar to that which he enjoys with his architect. As in the case of many other professions, one could view these services as a form of insurance against the possibility of a loss many times greater than the amount of the fee.

The value of a Bill of Quantities, apart from the saving in overhead expenses, is in the achievement of clarity and consistency helpful to all the parties. When every contractor is pricing the same unit quantities of materials and labor, it is skill in pricing that will win the contract and not skill in computing quantities.

The Bills of Quantities also provide a very useful document for the suppliers and subcontractors. As practiced in England, there is included a section prepared for subcontractors and suppliers nominated by the architect to perform certain types of special work or to provide special or preferred equipment. By this method only one bid is obtained from a number of subcontractors and suppliers, which saves their overhead expense of bidding several times for the same job, and also protects the owner because it becomes impossible for the general contractor to engage in price shopping. This, however, should be distinguished from normal subcontractors and suppliers chosen by the general contractor, and it should also be noted that a provision is made in the contract whereby a contractor can refuse the nomination of a subcontractor selected by the architect.

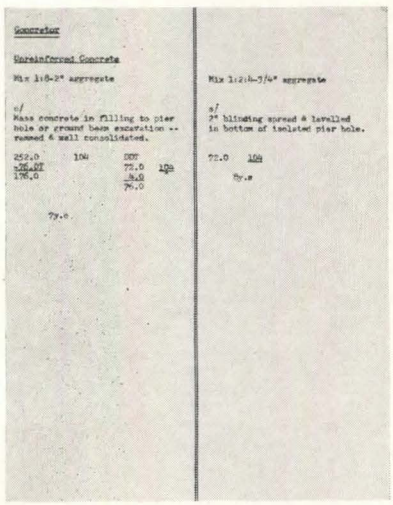
Although all subcontractors are primarily responsible to the general contractor and enter into a subcontract with him, it is the responsibility of the quantity surveyor to include them under a specific heading in his monthly recommendation for payment. Before preparing this recommendation, he has to ascertain that all the amounts he recommended the previous month have been paid. This ensures protection for the subcontractors and suppliers who otherwise might not be paid by the contractor in the event of his insolvency. Another safeguard is a provision for payment directly by the owner, if the need should arise.

The appointment of a quantity surveyor by an owner is usually left to the recommendation of the architect. After the appointment has been made, the quantity surveyor receives from the architect appropriate drawings and specifications, makes a preliminary survey of the scope of the work, and then begins the preparation of the Bills of Quantities. The first stage is the "taking off," i.e. the measurements of labor and materials. This is the most responsible part of the work, requiring an intimate knowledge of building construction and an ability to visualize details. The "taking off" has to conform to the Standard Method of Measurement of Building Works, which is a negotiated document published by Royal Institution of Chartered Surveyors and National Federation of Building Trades Employers, the latter representing the contractors. This document establishes the units in which quantities have to be measured (i.e. brickwork in yards superficial; concrete in yards cube, etc.) and indicates what



| Taken'd by | Diams. | Arith. result | Description. |
|---|---|---|---|
| | | | Isolated Pier Holes (contd) |
| S/ | 3.0<br>3.0<br>1.6 | 252.0 | Mass concrete (1:8-2" all in aggregate) in filling to pier hole or ground beam excavation -- rammed & well consolidated. |
| S/ | 3.0<br>1.0 | 72.0 | 2" concrete (1:2:4-3/4" aggregate) blinding spread & levelled in bottom of isolated pier hole. 1.0 -.2 .10 |
| S/ | 3.0<br>3.0<br>.10 | 60.0 | Concrete (1:2:4-3/4" aggregate) in stanchion base tamped around rod reinforcement. |
| S/ | 3.0<br>3.0<br>.10 | 60.0 | DEDT (stan base)<br>Mass concrete fill |
| S/ | 3.0<br>3.0<br>.2 | 12.0<br>72.0 | (blinding) |
| S/ | 1.0<br>1.0<br>1.0 | 3.0 | Concrete (1:2:4-3/4" aggregate) filled into formework and tamped around rod reinforcement not exceeding 144 square inches sectional area. |
| S/ | 10.0<br>1.0<br>.4 | 4.0 | DEDT<br>Mass concrete fill |
| | 10.0<br>20.0 | 200.0 | 2" Concrete (1:2:4-3/4" aggregate) blinding spread and levelled on hardcore. |

Figure 1 *Dimension Sheet for "taking off."*



Concretor

Reinforced Concrete

Mix 1:8-2" aggregate

a/
Mass concrete in filling to pier hole or ground beam excavation -- rammed & well consolidated.

252.0 10d
+26.87
178.0

DEDT
72.0 10s
.8.0
76.0

79.0

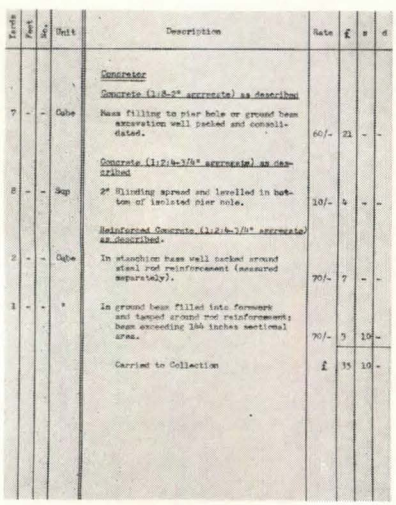
Mix 1:2:4-3/4" aggregate

a/
2" blinding spread & levelled in bottom of isolated pier hole.

72.0 10s

72.0

Figure 2 *Abstract Sheet for collection of items for Dimension Sheets.*



| Yards | Feet | Ins. | Unit | Description | Rate | £ | s | d |
|---|---|---|---|---|---|---|---|---|
| | | | | Concretor | | | | |
| | | | | Concrete (1:8-2" aggregate) as described | | | | |
| 7 | - | - | Cube | Mass filling to pier hole or ground beam excavation well packed and consolidated. | 60/- | 21 | - | - |
| | | | | Concrete (1:2:4-3/4" aggregate) as described | | | | |
| 8 | - | - | Sqp | 2" Blinding spread and levelled in bottom of isolated pier hole. | 10/- | 4 | - | - |
| | | | | Reinforced Concrete (1:2:4-3/4" aggregate) as described. | | | | |
| 2 | - | - | Cube | In stanchion base well tacked around steel rod reinforcement (measured separately). | 70/- | 7 | - | - |
| 1 | - | - | " | In ground beam filled into formwork and tamped around rod reinforcement; beam exceeding 144 inches sectional area. | 70/- | 5 | 10 | - |
| | | | | Carried to Collection | £ | 35 | 10 | - |

Figure 3 *Draft of Final Bill of Quantities as sent to a contractor for pricing.*

labor should be included under a specific item. A typical example of a portion of a dimension sheet on which the "taking off" is done is shown in *Figure 1.*

When these sheets are completed they are "squared," that is, the arithmetical value of runs, areas, and cubes are calculated, and then passed to the "Abstractor," whose responsibility is to arrange the items from the dimension sheets in a definite order, so that the final Bill can be written. A part of a typical abstract sheet is shown in *Figure 2.*

The actual writing of the Bill is the last operation, involving division into trades (i.e. preliminaries, preambles to trades, excavation, concrete, brickwork, etc.). To provide the bidding contractor with a clear and accurate picture of the scope of the work for which he is bidding, these trades are further subdivided; for instance, "Concrete" will be subdivided into types of mixes used, etc. A typical page from a Concrete Bill is shown in *Figure 3.* After all calculations and transfers have been checked, the draft is rechecked, usually by a senior partner, to make certain it describes accurately and precisely the work to be performed. It is then printed and dispatched to the bidding contractors, who insert their unit rates against each item and extend the arithmetical result. The total sum from all the sheets forms the amount of the bid.

The bids are received by the quantity surveyor and checked for arithmetical accuracy. Usually the lowest bid is accepted. Certified copies of the successful contractor's Bill of Quantities are then prepared for the architect and the quantity surveyor; the original is incorporated as a contract document. This priced Bill of Quantities is the base for all future financial negotiations.

The powers of a quantity surveyor derive from the terms of his contract with the owner, but they may be subsequently extended by the conditions of the contract between the owner and the contractor. The contract between the owner and his quantity surveyor takes a form similar to that which the owner has with his architect. The quantity surveyor is, therefore, the owner's agent and, as this is a personal appointment, it cannot be delegated. The architect has no power to appoint a quantity surveyor directly, although it is more satisfactory for the quantity surveyor to be appointed on the recommendation of the architect.

Until the signing of the building contract, the quantity surveyor's authority depends upon his *instructions* from the owner, but after the signing of the contract (usually a standard form issued under the sanction of Royal Institute of British Architects, National Federation of Building Trades Employers, and Royal Institution of Chartered Surveyors) he is vested by the owner and the contractor with definite *powers.* Reference is made to him in the building contract as follows: 1) He is nominated as the quantity surveyor for the work. 2) He is appointed as alternative custodian of the contract documents, and is authorized to measure and value all variations sanctioned by the architect, and to prepare a final Bill of Variations in accordance with definite rules and procedures for valuing the work set out in the building contract.

The fees of a professional quantity surveyor are calculable either by reference to a scale incorporated in the contract of employment with the owner, or, if there is no such scale mentioned, he is entitled to a "reasonable" remuneration for his services. Generally, however, the fees are based on the Scale of Professional Charges issued by Royal Institution of Chartered Surveyors. The basic Scale for the preparation of Bills of Quantities is 2½% of the estimated cost up to £20,000 ($56,000), with a minimum fee of £75 ($210), and 2% on the balance. The fee for the preparation of Variation Accounts is 2½% of the value of additions, where measurement and checking is required, and 1½% on the omissions, where the omissions are piecemeal and require reference to the original dimensions. The fees for preparation of Variation Accounts include the negotiation of prices and the agreement of totals with the contractor. A fee of ½% is also made for work in connection with the monthly valuations. The fees as set out in this document do not include such items as traveling expenses or the cost of reproducing Bills of Quantities.

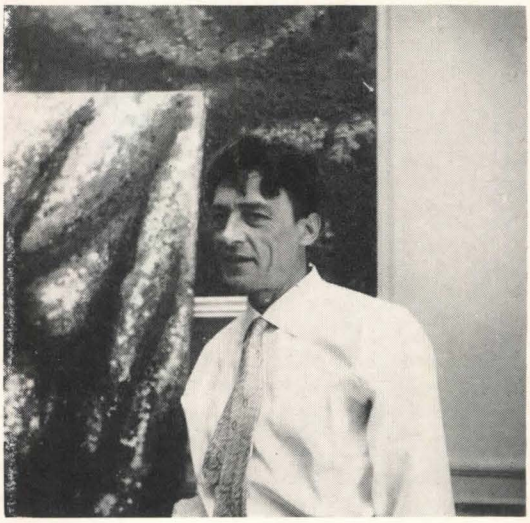
The English contracting system of incorporating a Bill of Quantities into the contract documents is undoubtedly more rigid than the system at present used in the United States, but there is little doubt that it results in a considerable increase in the financial control of the work and provides a common and accurate basis for negotiation at all stages of the job. That is why the professional quantity surveyor is respected by both the contractor and the owner, since they both know that, because of his services, they will have a more equitable deal in all the financial aspects of the job.

# THE INVOLVED MAN

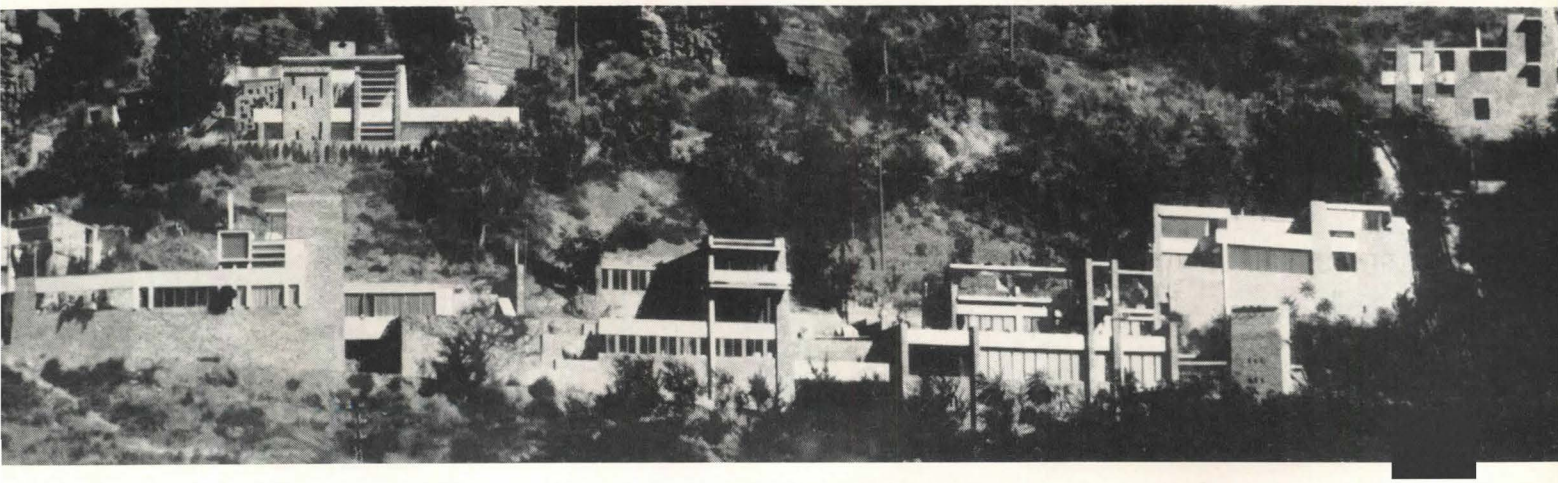
## Leonardo Ricci

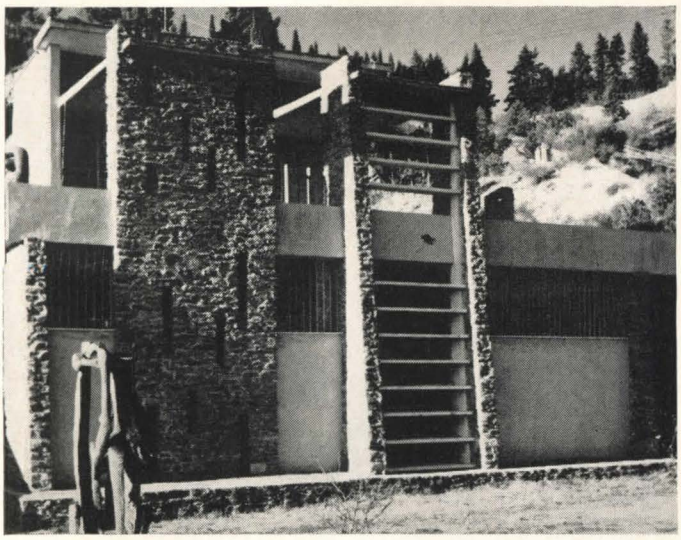
*The practice of architecture, if it is to produce buildings with character, must draw on people with convictions. Much of contemporary work depends on long-polished suavity; it is stimulating occasionally to meet the ardent existential individualist. Such a person is Leonardo Ricci, a young Italian architect who has been teaching at MIT and who recently had an exhibition of his paintings at the Trabia Gallery in New York. One may react in various ways to his buildings and his paintings; no one can deny that he is a creative person. Ricci's own word is the* involved *person—the person who is completely concerned with what he is doing. He is a man who cannot sit quietly while meaningless things are said; who loves to talk and to argue; who enjoys teaching and learning; who must draw and cannot resist criticising design. In whatever he does, he becomes* involved *to an extent rare today.*

T.H.C.



Photos: Gameliel





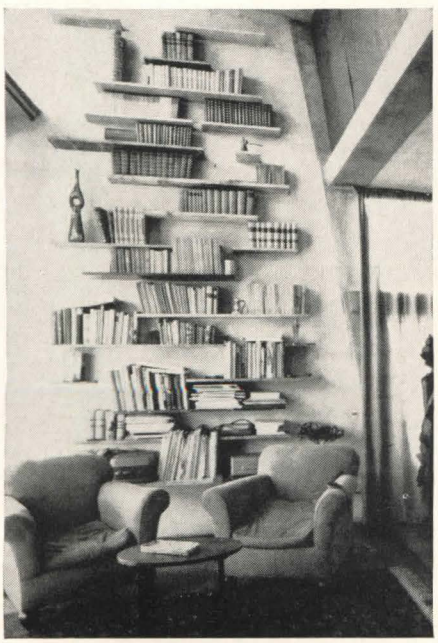
*In 1951, after a sojourn in Paris, Ricci built his own house on a hillside on the outskirts of Florence. Frustrated in his hopes to design whole communities, he intended the house as an "ivory tower" where he could retire to an environment of his own creation. But the house attracted considerable attention in Florence and was published in architectural journals—more enthusiastically abroad than in Italy. As a result Ricci was able to design an entire community, the Villaggio Monterinaldi, around his house. Photos on this page and preceding pages are of his house and the Villaggio.*

Why would a young Italian architect interrupt a promising practice in Florence to spend two years in Paris? "Just because I wanted to understand the situation of culture in Paris," says Leonardo Ricci.

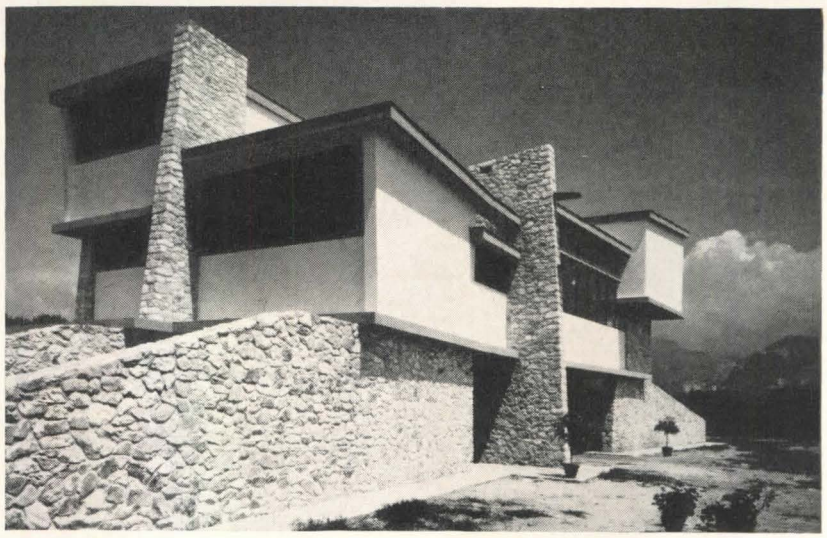
Ricci had been graduated from the University of Florence in 1941, in the turmoil of World War II. When the war was over, he recalls, there was a "wonderful moment of opening." Young architects and planners in Italy were ready to reshape the countryside and the lives of the people. Ricci plunged in and achieved rapid success. He won a competition for replanning the center of Florence. He collaborated in the design of the market at Pescia, which won an award at São Paulo. But, unsatisfied with these successes, he decided to go to Paris.

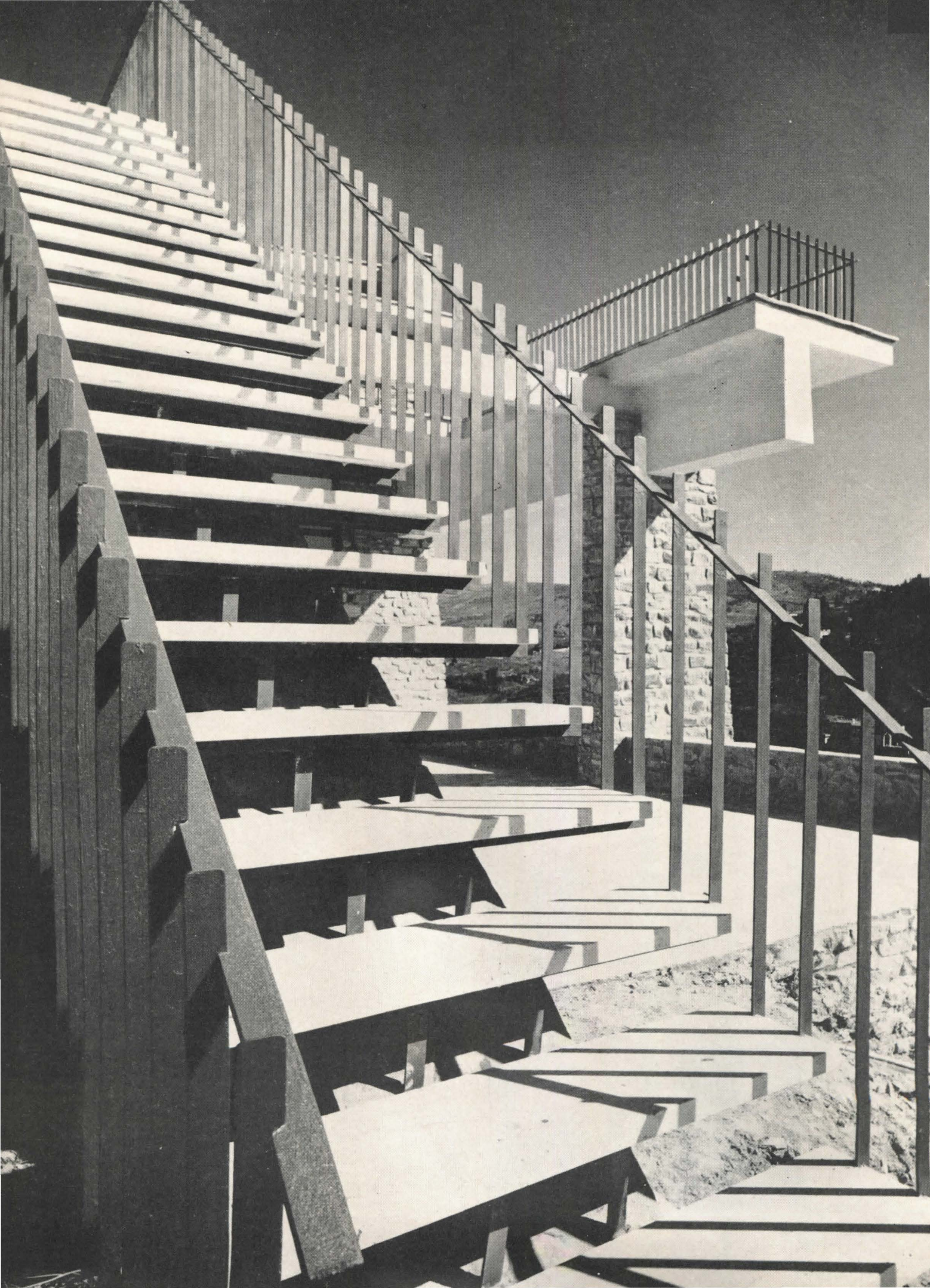
During his two years there his painting style matured and his canvases were widely shown. He met and learned to understand "the masters"—Picasso, Sartre, Camus, Corbu. Back in Italy they had seemed "like gods"; now he found that "they also were not sure."

When he returned to Florence he did not return to the accepted, "rationalistic" approach of the market at Pescia. He returned with new convictions about architecture: form must be the result of

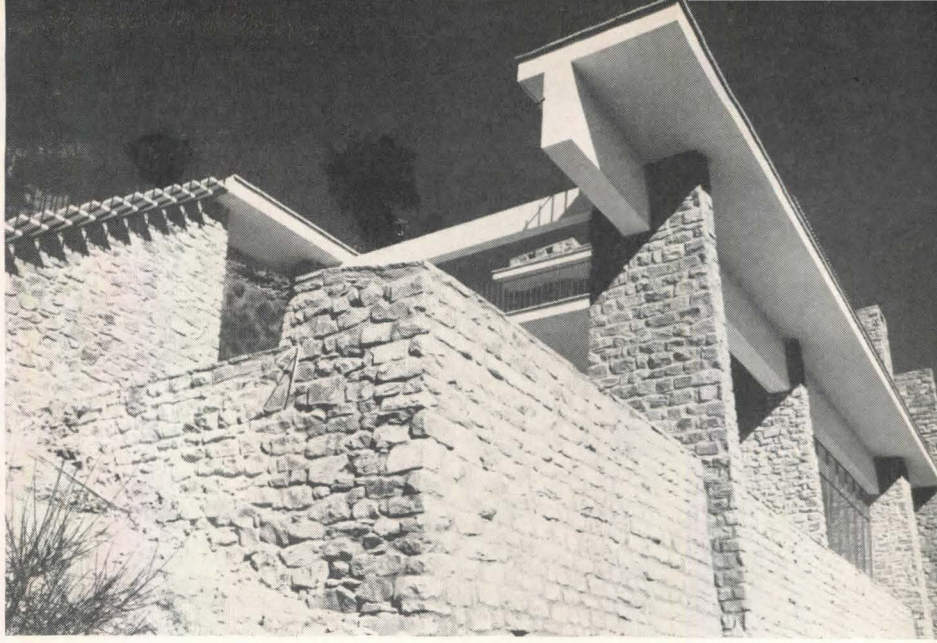


*This house, built for Elizabeth Mann Borgese at Forte dei Marmi, shows Ricci's approach to a different kind of site. Here the level, barren setting of the beach seems to have called forth even stronger sculptural composition than did the hillside in Florence. Ricci raised the house above the beach, developing the area under it as a retreat from the sun-drenched environment. The consistent use of small-scaled stone and the subtle variations in form in this secluded space induce a feeling of restfulness which contrasts with the strong forms of the landscape and the house itself.*





*The Casa Bellandi is one of the 20 houses in the Villaggio Monterinaldi. It is really two superimposed dwellings — consisting of apartments, one above the other, for two unmarried sisters. The entire structure is planned for horizontal expansion as households or budgets increase. The cantilevered beam which is so prominent in these photos was designed not out of caprice, but as part of a future bay. Ricci points out that the design of the handrails for this house was based on strictest economy, but feels that the articulation of each element is esthetically sound.*

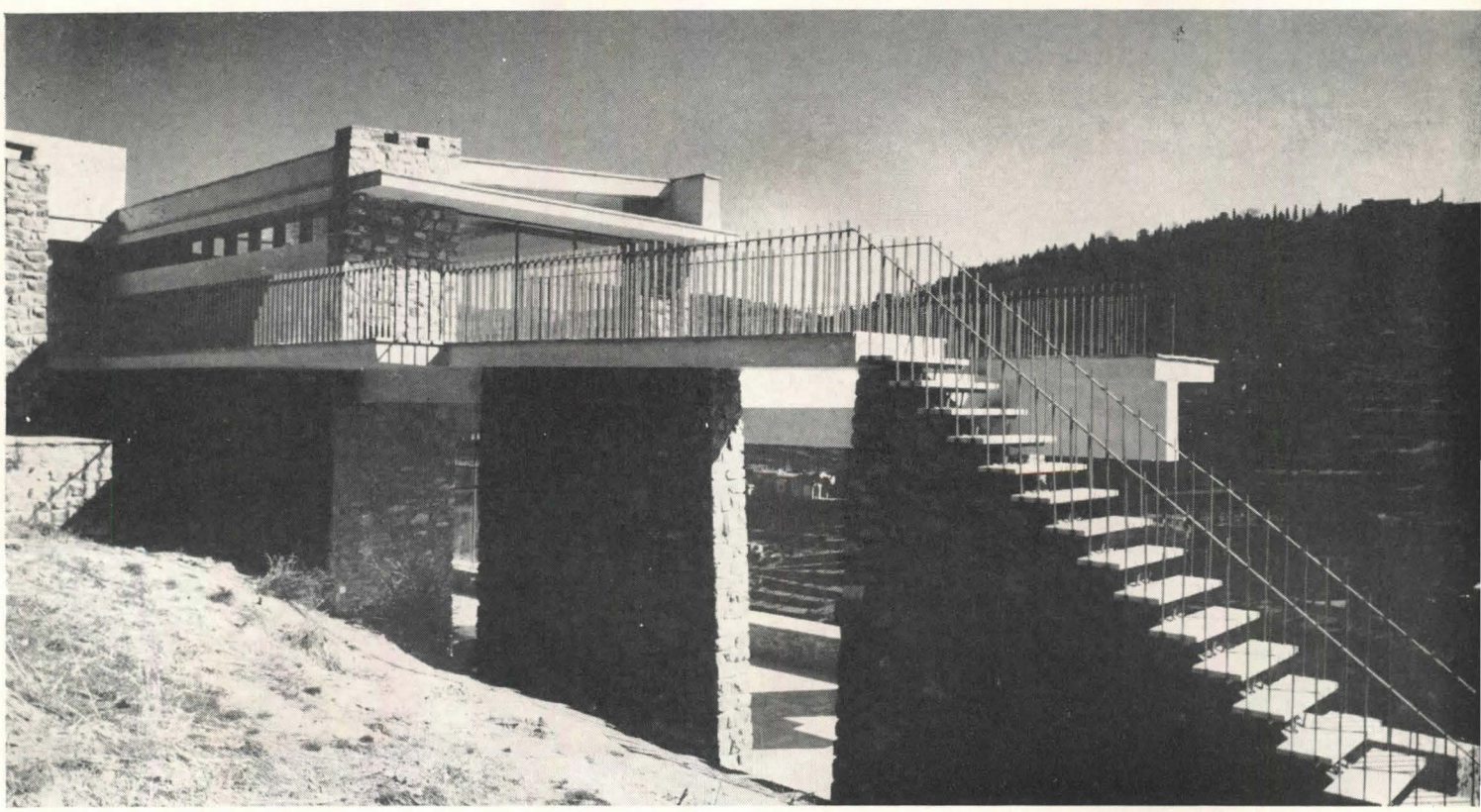


program and site, like the form of a living tree; the architect cannot, morally, impose his preconceptions and personality on the design; space must be fluid and dynamic, varying constantly "as a river—as life."

The conservatism of Florence prevented him from applying his ideas on a large scale, but he was able to build a house for himself on the edge of the city. He could design it as he pleased, he says, "just because it was my own and it was on a hill." Intended as a hermitage, the house was a public success.

When he was asked to plan a subdivision for the hillside, he accepted on the condition that he design all the houses. Although hampered by local laws, he was determined not to divide the land "like a cheese," but to allow for plastic composition. As the Villaggio Monterinaldi grew, Ricci continually studied its form from the opposite hill of Fiesole, so that the result would be more than a mere "addition of units."

Ricci's use of materials in the *villaggio* does not reflect a hand-craftsmanship approach. He is enthusiastic about the potentials of industrially-produced elements, but feels obligated to use whatever material is least expensive for a given job—in this case the locally abundant stone. He disagrees violently with



the "many architects today who feel that some materials are modern and some are not modern."

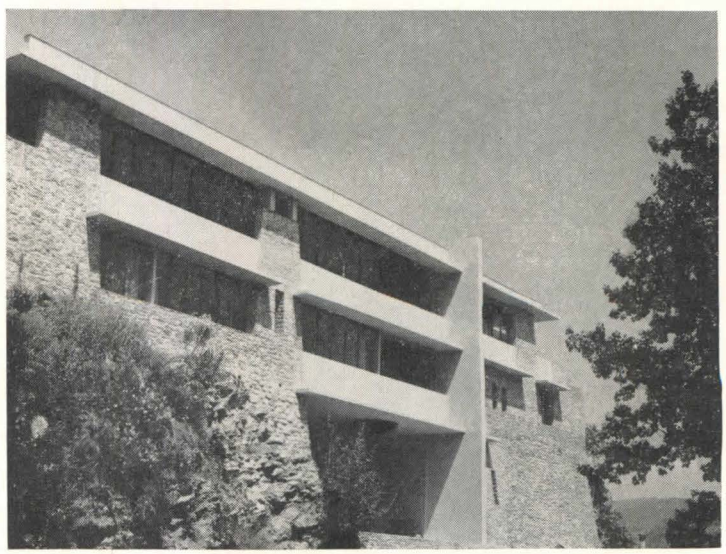
Superficially, Ricci's work shows an affinity for the organic tradition of Wright. Ricci is quick to point out fundamental differences. Wright tried to integrate his buildings with the natural landscape; Ricci tries to *create* a landscape, in the Italian tradition. Wright's detailing, says Ricci, was "refined—in a certain way decadent," while his is often characterized as "brutal."

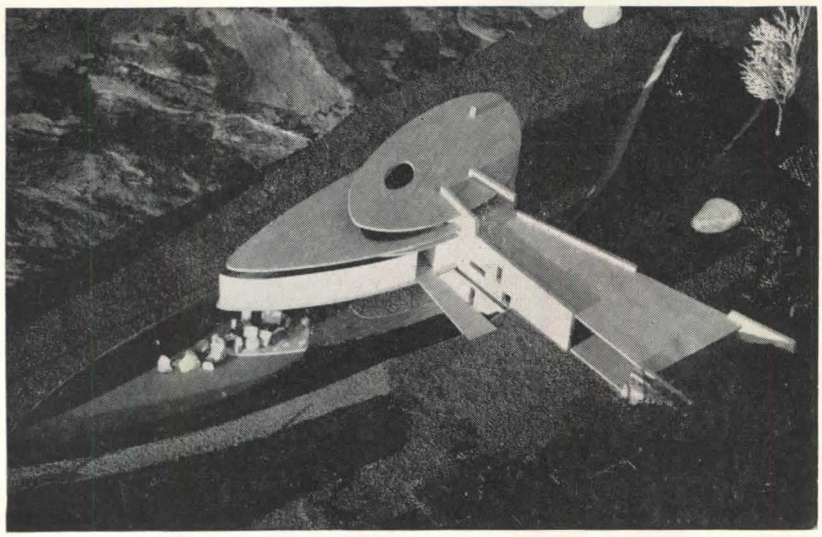
In its use of irregularly spaced openings and brise-soleils, Ricci's design seems to have been influenced by recent works of Le Corbusier. He points out, however, that his house was completed in 1951, Ronchamp in 1954.

As both painter and architect, Ricci hopes for an integration of art and architecture. He believes that there must be true art, art with content, in the fabric of the community. This content must be something understood and shared by humanity, not mere personal outburst. Decoration is not enough, nor is the artful design of stairways, spandrels, or cornices. Architecture cannot express an idea or an emotion; one "cannot put people in a room that always cries."

Ricci knows that hanging easel paintings on a wall can never fulfill his hopes. What is necessary is the collaboration of artist and architect from the start, producing the kind of integration one finds in the façade of a medieval cathedral, where neither building nor art could survive without the other.

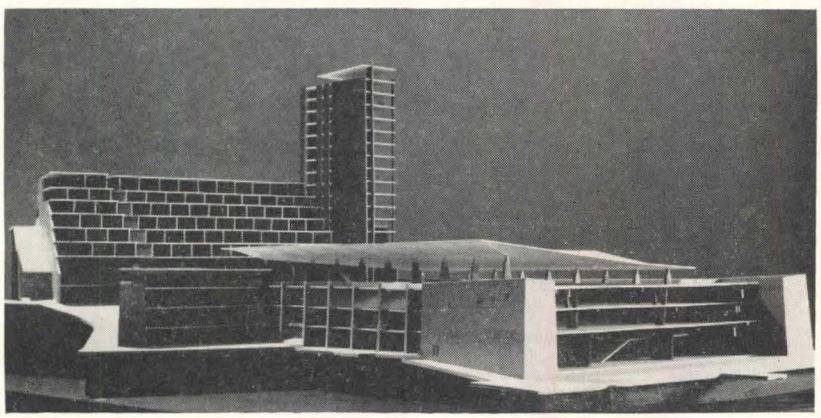
*The Casa Coisson, another house in the Villaggio Monterinaldi, was conceived as a bridge between two rock outcroppings. A spiral stair leads up into the house from the central courtyard beneath it.*

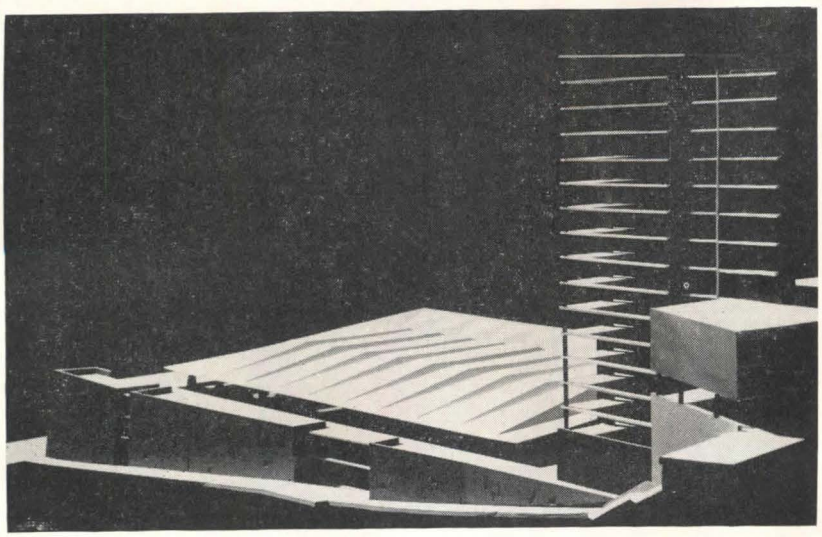




*A house now nearing completion on the isle of Elba for Balmain, couturier.*

*Design for San Remo flower market includes covered piazza and office tower.*





*What do I think of architecture and painting?*

*I think that we live in a "fractured" world, which calls out for re-integration.*

*I think that we must give up that which is personal and subjective in favor of that which is collective and objective.*

*I think we must get away from the bizarre, the experimental, from the urge to be original at any cost, and search, with due humility, for that which is really essential to the enhancement of our daily existence.*

*I think that we have not yet built "our city," in other words that we have not found a new and complete form of expression. Only a new urbanistic reality can give rise to architecture, painting, and sculpture that we can call truly ours.*

*I think we must find an enjoyment of living, that is a reality of living all our own. Only then, outside of myths, ideas, preconceived notions and everything that smacks of a priori can we create architecture and painting to harmonize with the lives we are leading, no longer as symbols but as meaningful, existential acts.*

*I think that we have heavy responsibilities, that no one can claim a monopoly of the truth, that the important thing is not to strike the pose of a genius, but to involve and commit ourselves. This is, indeed, the first step toward understanding the fact that life is worth living.*

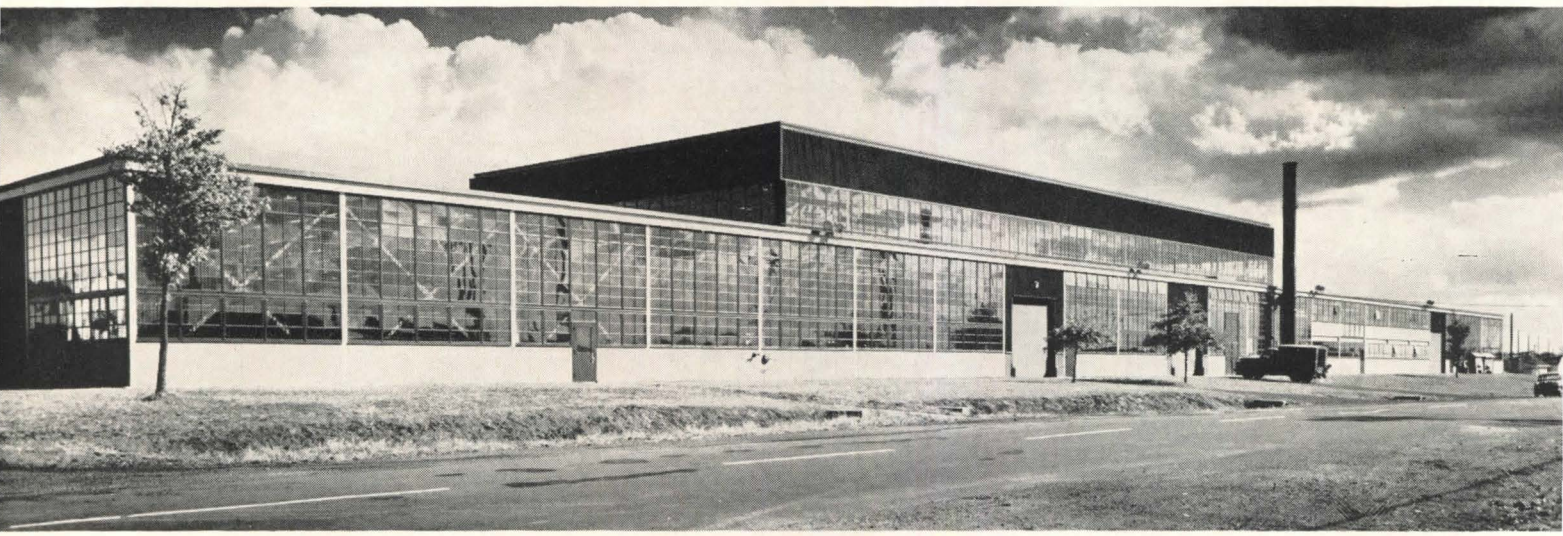
*I think that architecture and painting must become objects—objects which live with us as truly as if they were alive.*

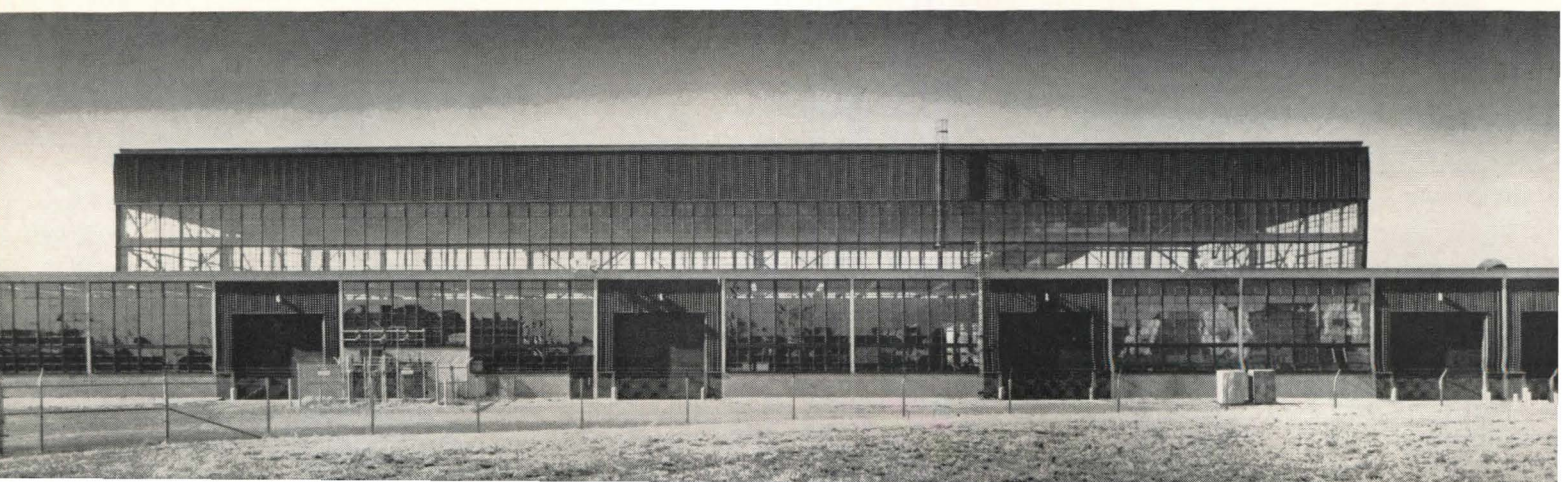
*I think that we must find something to do with the idle hours with which a mechanical civilization has endowed us.*

*I think . . . I think, in short, that we must together, all of us together, simply and honestly build up our lives, without cheating and mystification. We are "archaics," inevitably, the archaics of a new civilization about to be born, the successor to the mechanical civilization in which we are now living, an existential civilization, if you like, in which only life can justify living.*

Leonardo Ricci

Photos: Gottscho-Schleisner





ORDNANCE FIELD MAINTENANCE SHOP • CAMP KILMER, NEW JERSEY • ANTONIN RAYMOND & L. L. RADO, ARCHITECTS • LOUIS KERNER, PROJECT MANAGER

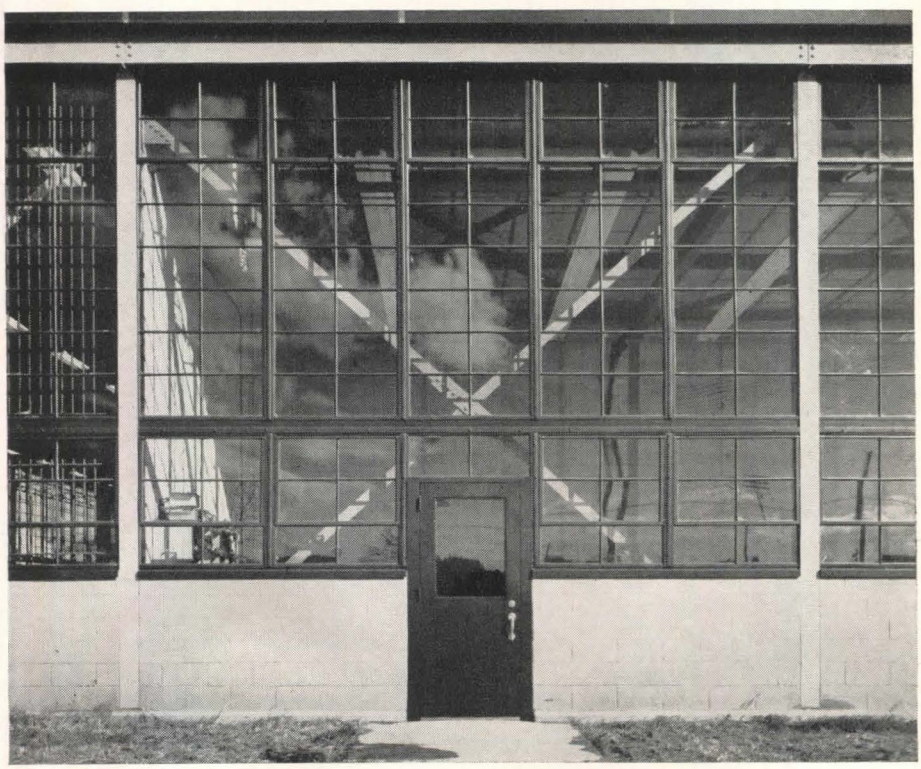
# IMPROVING ON THE DEFINITIVE

Defense construction makes up a growing portion of work in U. S. architectural offices. The 2.1 percent predicted for 1960 (NOVEMBER 1959 P/A) may seem small, but is only slightly below the figures for single-family residences or religious buildings. Very little of this defense work is architecturally noteworthy.

The offices which are commissioned as "architect-engineer" for these projects are provided with "definitive" drawings to work from. The purpose of the definitive is to "tentatively define the sizes of areas and their functional relationship." In practice the final building is often little more than a concrete realization of this drawing.

We present the Ordnance Field Maintenance Shop by Raymond & Rado as an example of what can be done in this field with a typically prosaic program. We hope it will lift the spirits of those legions who must draft, detail, and supervise the "frozen definitives" which constitute the bulk of our military construction.

The architects have collaborated with Engineer Paul Weidlinger to produce an orderly structure, distinctive in detailing, without violating the intention of the definitive. Economies realized by making the structure simple and modular have balanced the expense of increased glass areas and other refinements. Economy



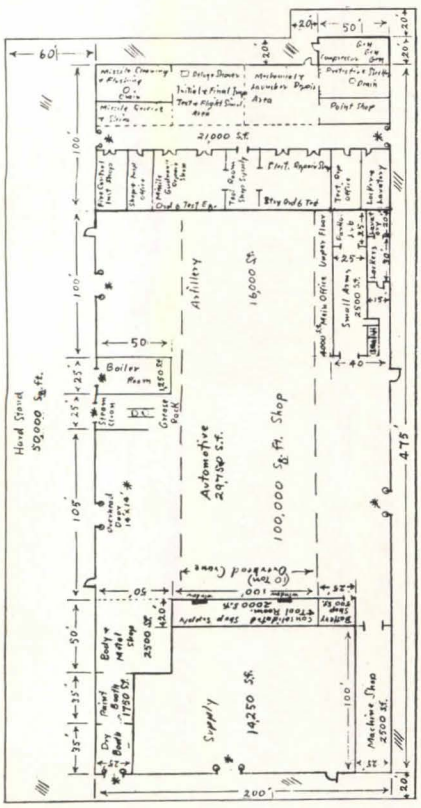
was a critical consideration, since any departure from the definitive must be justified to the using agency and the Corps of Engineers as affording greater economy or improved operation.

Discussing the development of the design from the definitive, the architects comment: "From our experience, we believe that if the architect is anxious to come up with a clear architectural concept and will not spare additional effort, many Government agencies will be helpful in that respect. This is especially true of the New York District of The Corps of Engineers under which this project was developed."

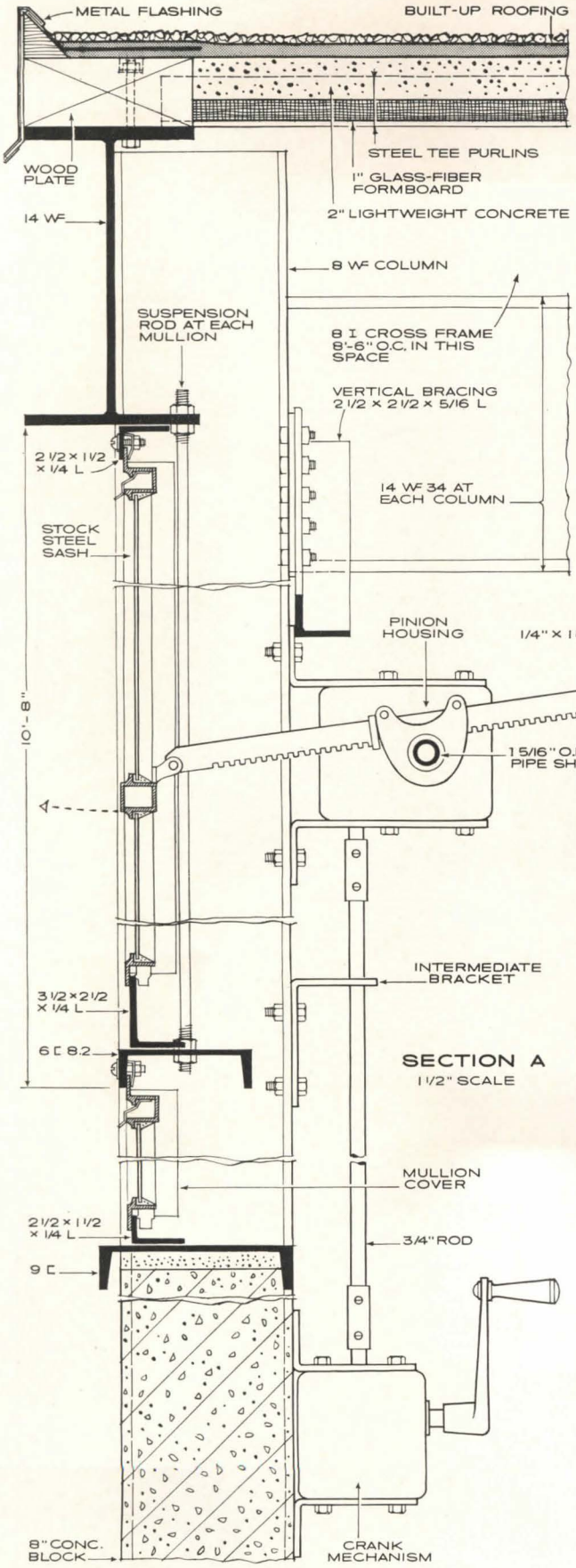
The program for the shop defined three distinct sections. The Ordnance section has facilities for the maintenance and repair of all types of vehicles and artillery pieces, and required an area 40 feet high with a 100-foot clear span. The Signal section contains facilities for the maintenance of Signal Corps equipment. The Nike section is designed to accommodate several types of currently operational missiles, with provisions for others not yet in operation. It contains shops which must be air-conditioned to laboratory standards and a concrete blast-proof shelter in which components of missiles are tested under high pressure. Very complex electrical services were required in this section.

Since the requirements for such a shop are bound to change with time, the architects feel that the flexibility of the structure they designed is a positive contribution to its future effectiveness.

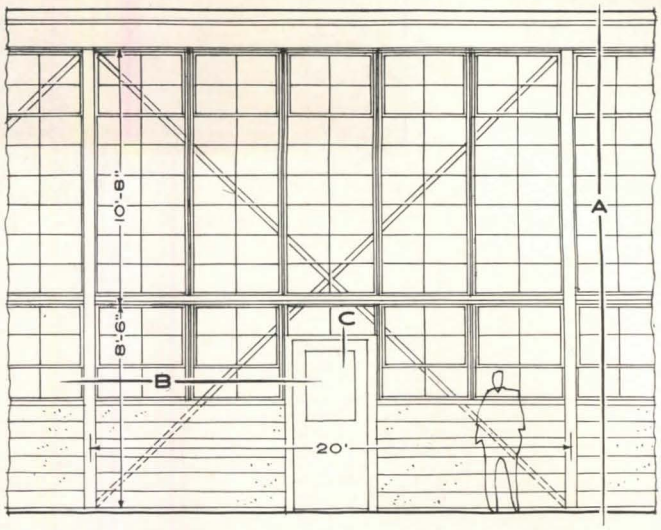
Corps of Engineers, U.S. Army, New York District: Colonel Charles M. Duke, District Engineer; Charles K. Panish, Chief of Engineering Division; Stanley S. Haendel, Assistant Chief of Engineering Division and Project Manager.



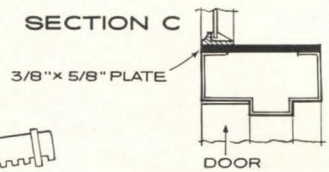

*The definitive drawing* (above) *is prepared by the using agency to show tentative sizes of areas and functional relationships. All deviations from this plan in the final design must be justified on the basis of economy or efficiency.*



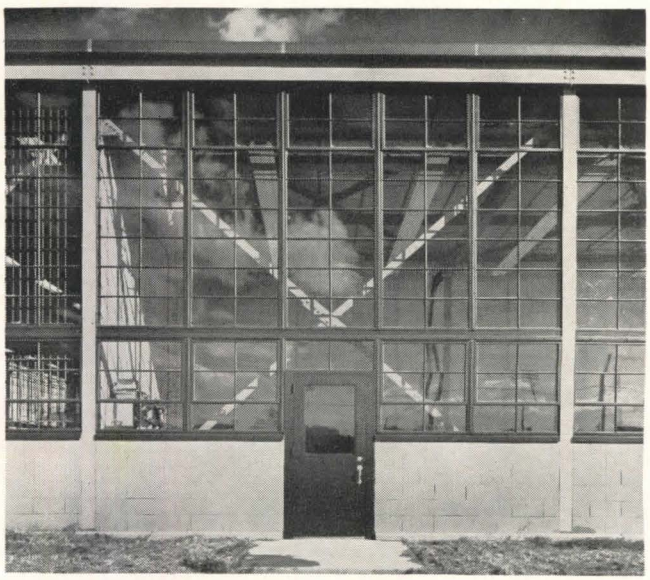

SECTION A
1 1/2" SCALE



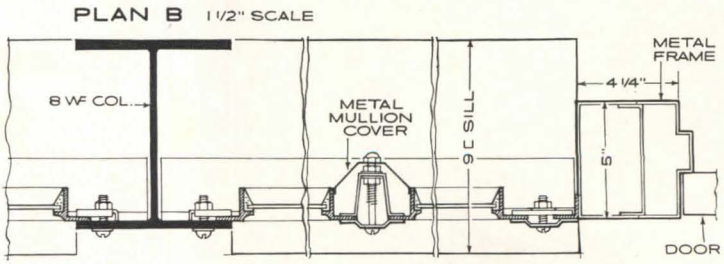

ELEVATION
1/8" SCALE




SECTION C



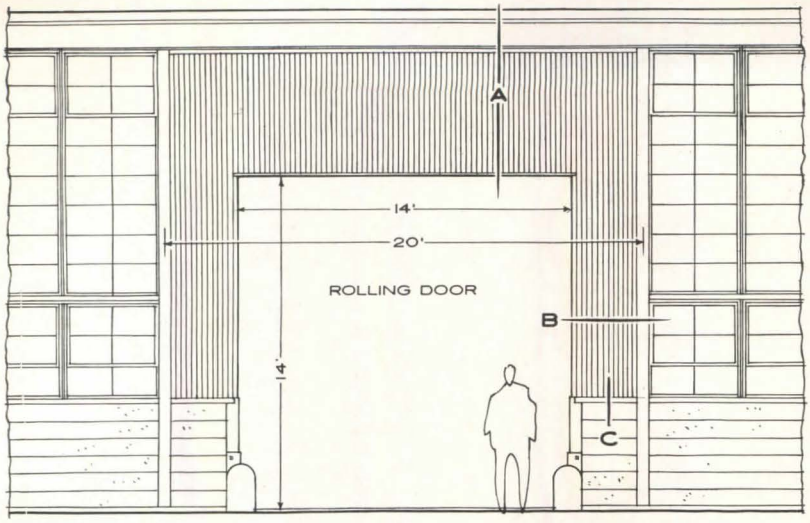
GOTTSCHO - SCHLEISNER



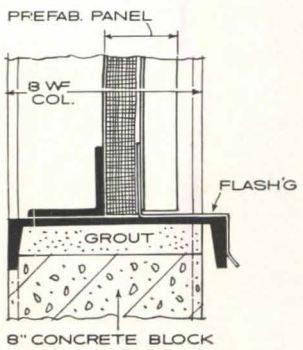

PLAN B 1 1/2" SCALE

ORDNANCE FIELD MAINTENANCE SHOP: Camp Kilmer, New Jersey
RAYMOND & RADO, Architects

SELECTED DETAIL
WINDOW WALL

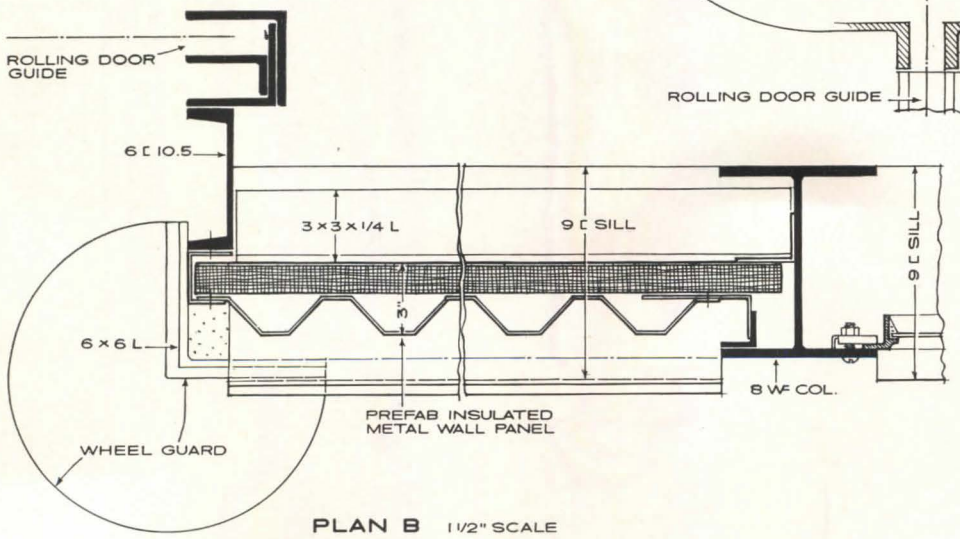



ELEVATION
1/8" SCALE

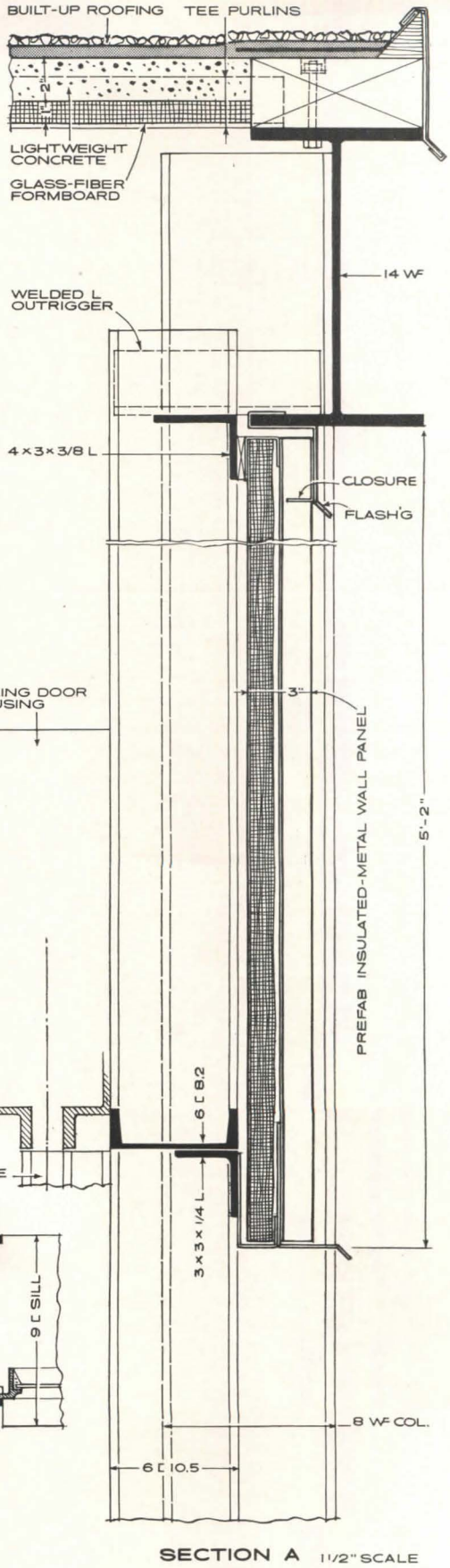



SECTION C
1 1/2" SCALE

GOTTSCHO-SCHLEISNER




PLAN B 1 1/2" SCALE




SECTION A 1 1/2" SCALE

| | |
|---|---|
| ORDNANCE FIELD MAINTENANCE SHOP: Camp Kilmer, New Jersey<br>RAYMOND & RADO, Architects | SELECTED DETAIL<br>DOORWAY |

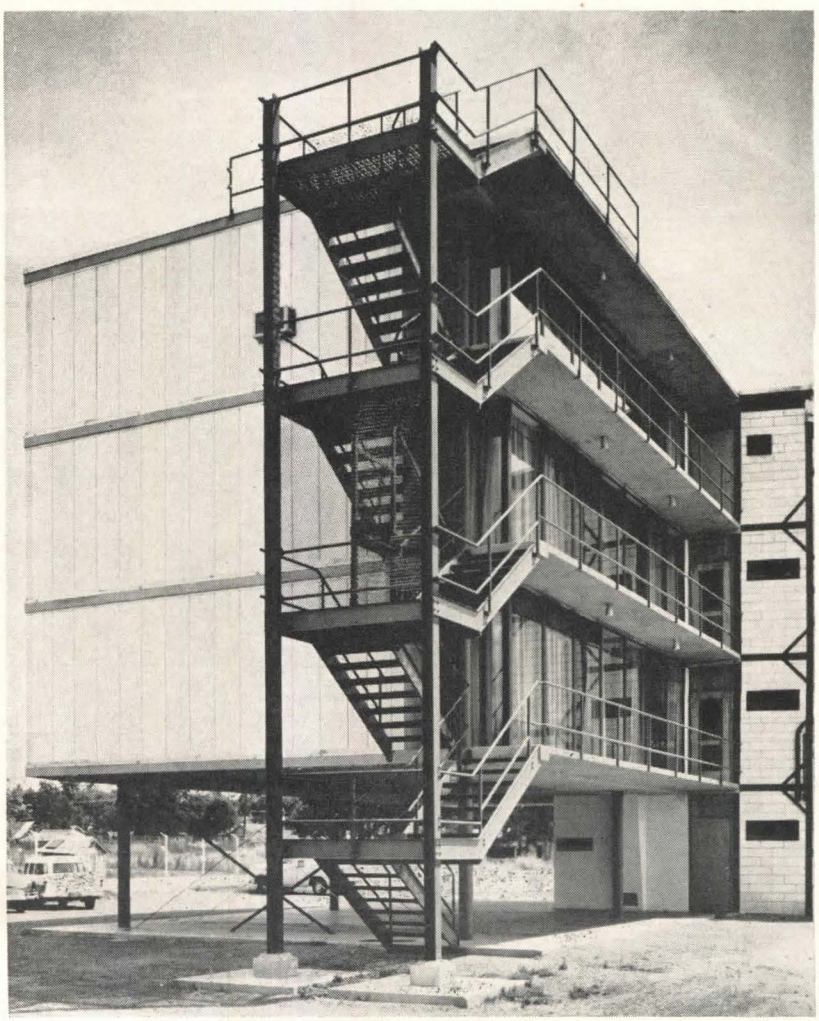
# ECONOMICAL OFFICE BUILDING

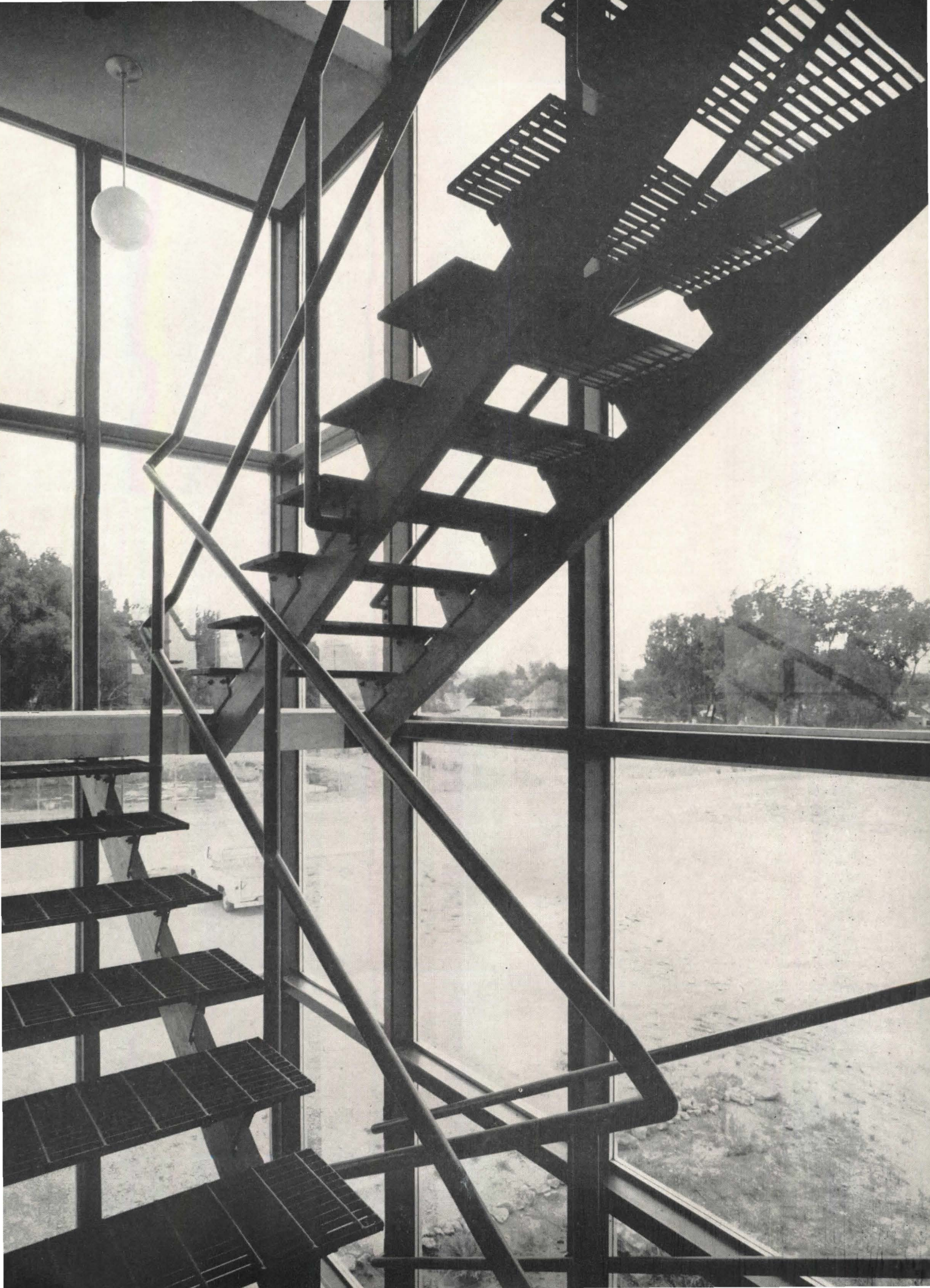
CO-OPERATIVE OFFICE BUILDING • COLORADO SPRINGS, COLORADO • A. G. JAN RUHTENBERG, ARCHITECT • KOONS, TYREE & SCHLEGEL, ENGINEERS

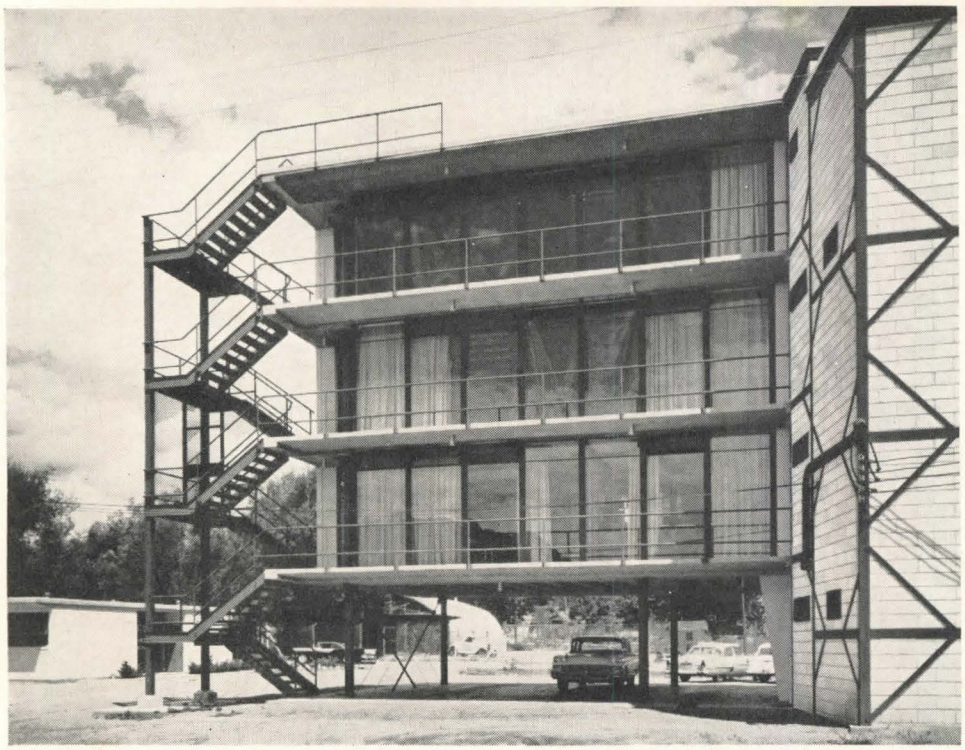
The architect's office is on the second floor of this small co-operative building; the upper two floors accommodate one other tenant, with the third floor devoted to a library and the top floor to private offices. The building was designed for the addition of stores on the first floor—now left open for parking—when a demand for retail space in the neighborhood develops. The architect comments that although there is ample parking elsewhere on the site, the spaces under the building are a valuable convenience.

The site, originally a water hole, was filled in for a projected shopping center. Subsurface conditions prevented the construction of a basement and dictated the use of caissons, which carry the structural load to the shale 20 to 25 feet below ground level. The lift-slab structural design, with only six columns carrying the office block, was selected for freedom in office planning and compatibility with the caisson foundation.

Details and materials throughout are of a simplified industrial type. Steel pipe columns are left exposed; ceilings are treated with mineral-fiber acoustical plaster. Stairs, both inside and outside,







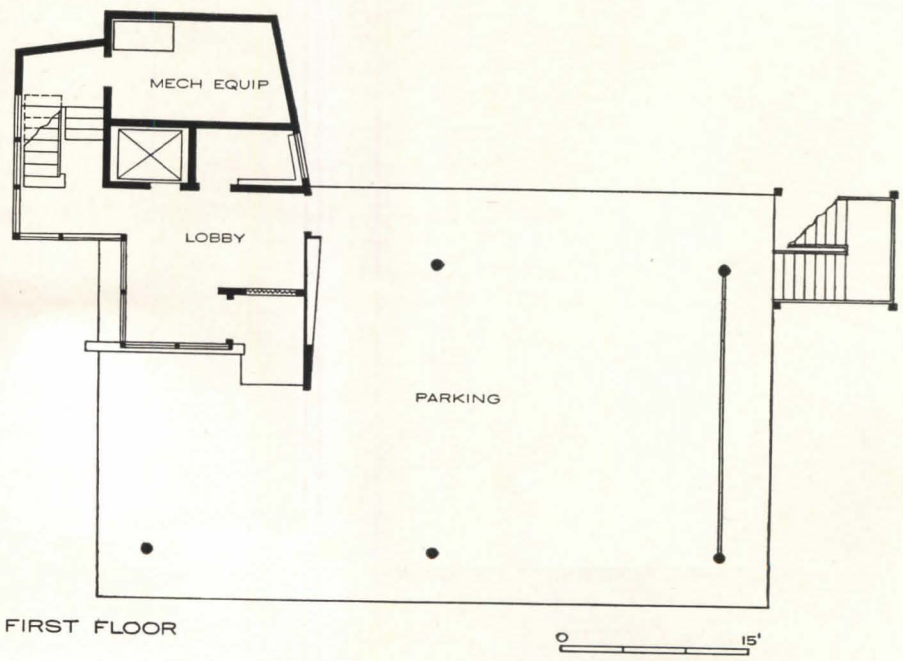
Photos: Guy Burgess

are of exposed steel, with grating treads and pipe railings.

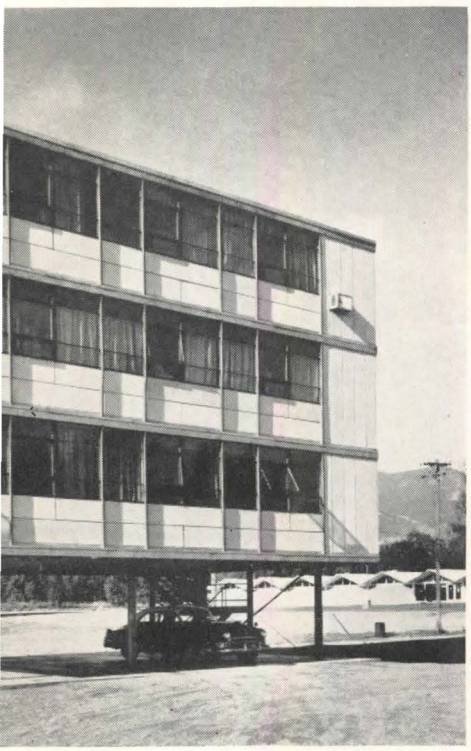
The building has been designed to minimize the penetration of direct sunlight into the offices. The west side is windowless; the windows on the south are shaded by the balconies, which serve primarily as required fire exits.

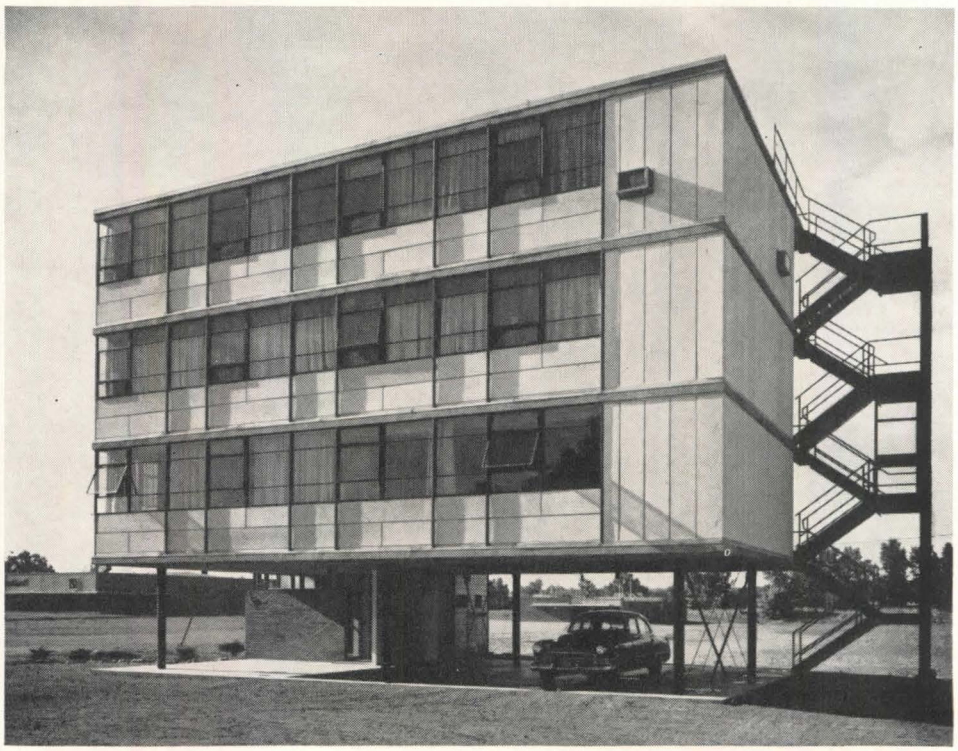
Office layouts vary on the three floors to accommodate different functions. The movable partitions are surfaced with natural-finished mahogany, which contrasts with the industrial character of other materials. The two offices are individually heated with forced warm-air systems; air conditioning is unnecessary in this climate.

The building was constructed for $11 per square foot at 1958 prices, not including interior partitions and furnishings.

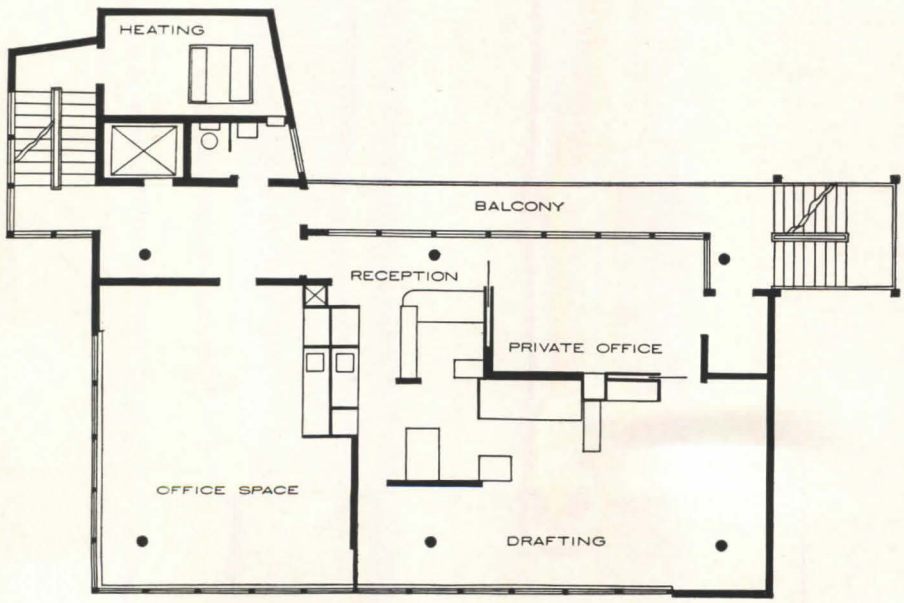



FIRST FLOOR





*Light-steel stair towers, one inside and one outside, identify the building from any angle of view. The office block is supported on six pipe columns, braced by cables in the form of a whipple truss.*




SECOND FLOOR

*Architect's own office illustrates interior treatment. Ceilings are of mineral fiber plaster, partitions of natural wood.*

Photos: Louis Reens

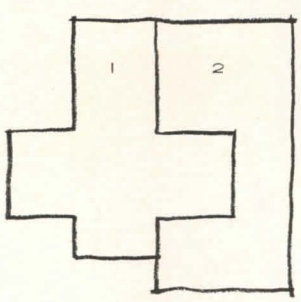
# Two Showrooms

Though every showroom is intended to sell merchandise effectively, not every showroom must convince a visually-sensitive and esthetically-sophisticated clientele. Here, however, the products—fabrics and decorative objects—will be elements in interior schemes which will be designed by buyers who are architects and designers.

The imaginative and economical remodeled showrooms for Jack Lenor Larsen, Inc. 1 and Karl Mann Associates 2 share the top floor of an existing office building (plans *below*).

The cross-shaped plan of the Larsen showroom (*left*) was developed as an architecturally interesting space which is easily divisible into separate display areas. New walls were built flush with the existing columns to shape a large expanse of uninterrupted exhibition space. The cross plan also encompasses two existing skylights, exploiting this source of natural daylight for display.

White plaster walls provide a smooth neutral background to set off the rich colors and textures of the fabrics. Since displays could not be fastened directly to the walls, another solution had to be found. The wood ceiling grid, suspended from the concrete slab, is used both for hanging displays and mounting portable downlights, sources of bright concentrated light. In an equally flexible solution, all wall displays are mounted on rods which hang from metal channels installed in the wall at ceiling level.



Other features of the showroom are the luminous walls for displaying sheer fabrics, benches for displaying upholstery fabrics, the movable pool, and the photo murals over the transoms portraying *wind*, *water*, and growth.

JACK LENOR LARSEN, INC. • NEW YORK, NEW YORK • EDWARD L. BARNES ASSOCIATES; CHARLES FORBERG ASSOCIATES; NOEL YAUCH; AND JACK LENOR LARSEN, DESIGNERS

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

**FURNITURE, FABRICS**

**Stools, Glass Tables:** steel-angle frames painted white/specially-designed/custom-made. **All Fabrics:** Jack Lenor Larsen, Inc., 677 Fifth Ave., New York, N.Y.

**LIGHTING**

**Portable:** single and double downlights clamped on ceiling grid/specially-designed/custom-made. **Luminous Walls:** 10-ft-high/fluorescent fixtures mounted 1′-6″ o.c./Fluorescent Company of America, 124 W. 24 St., New York, N.Y.; plastic panels/Synskyn/Polyplastex United, Inc., 870 Springfield Rd., Union, N.J.

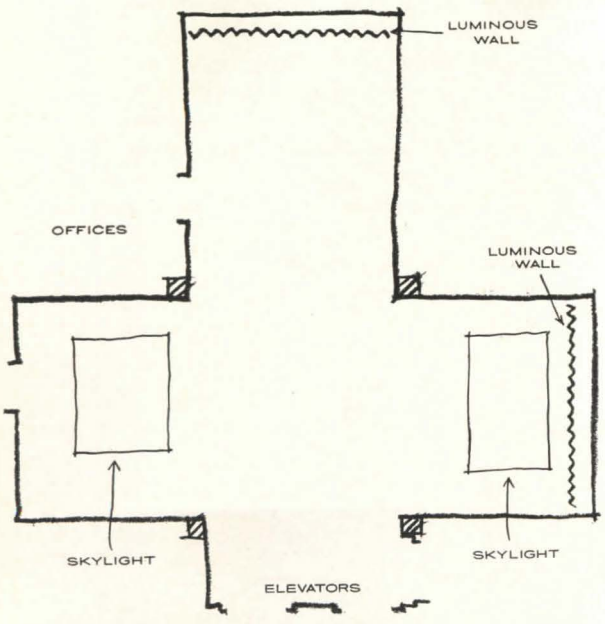
**WALLS, CEILING, FLOORING**

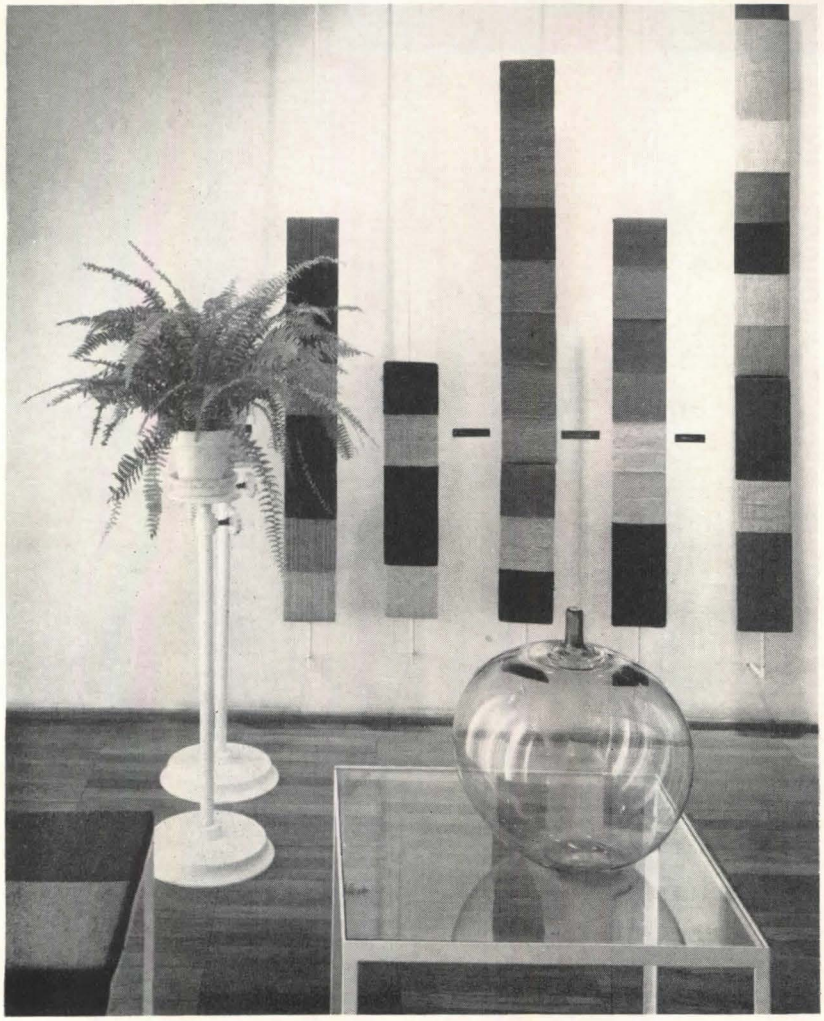
**Walls:** plaster painted white. **Ceiling:** ash grid/clear lacquer finish/suspended from concrete slab. **Flooring:** oak/custom-made.

**ACCESSORIES**

**Reflecting Pool:** ash top on 2″x4″ frame/black neoprene-coated nylon tarpaulin on hardboard bottom, covered with black pebbles/specially-designed/custom-made.

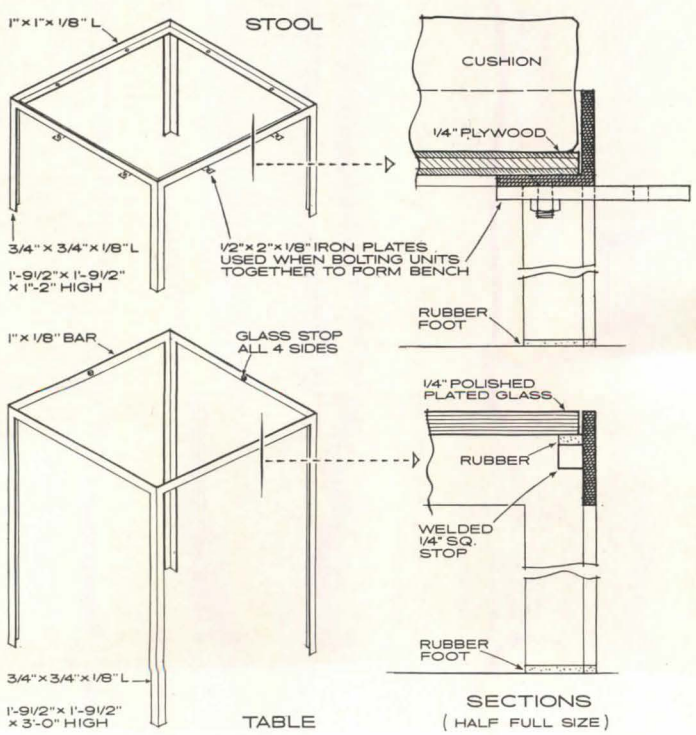
*Fabrics are displayed from, and portable downlights clamped to, the wood ceiling grid. Sheer fabrics are shown in front of a luminous wall (background).*

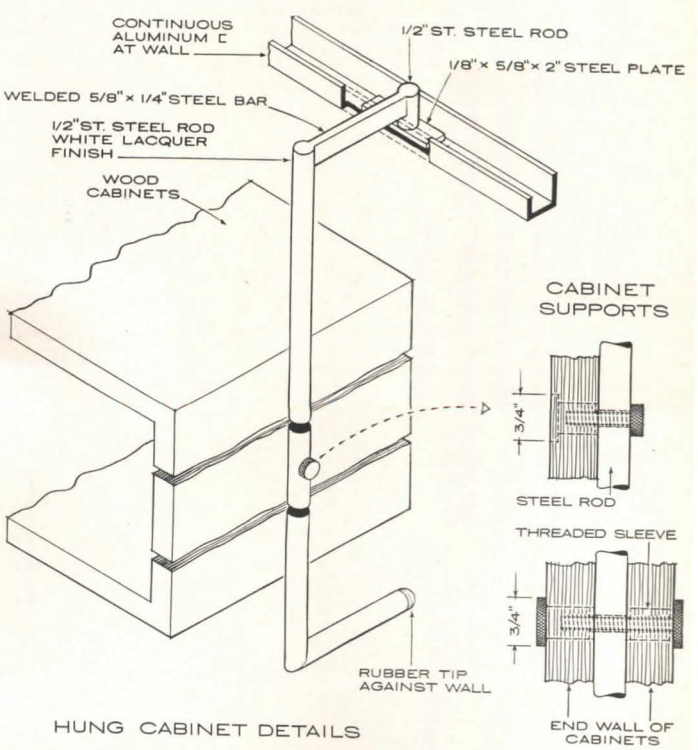


*Rods hanging from wall-installed metal channels close to ceiling level are used to display fabrics in three different ways* (above, right, acrosspage bottom).

*Upholstery fabrics on small pillows (filed in wall boxes) are displayed interchangeably on bench seats.*



The problem of inexpensively showing a multiplicity of small objects as well as rugs and wall coverings in a small display area was complicated here by the awkward shape of the space—two rectangular areas connected by a long, narrow corridor.

A gallery wall of storage alcoves was built between the existing structural members of the corridor; each alcove is backed with a sloping panel covered with wall material which is periodically changed. Additional display and storage space is formed by cabinets under the sloping structural members. A tilted mirror at the end of the corridor reflects its length and gives an illusion of greater space.

Sliding display panels are used to store and selectively exhibit flat items. Narrow spaces below the enclosed, existing air-conditioning equipment in the corridor and at the end of the showroom, as well as part of the reception area, are used for these panels.

KARL MANN ASSOCIATES • NEW YORK, NEW YORK • KARL MANN, DESIGNER

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

**CABINETWORK, SCREENS, PARTITIONS**

**Display/Storage Cabinets:** white-painted plywood partitions/walnut edge/hardboard cabinets/oil-finish natural walnut top/piano hardware/custom-made. **Sliding Display Panels:** white-painted plywood edged with stripping: tracks/Grant Pulley & Hardware Co., West Nyack, N.Y.

**FURNITURE**

**Reception Desk:** walnut/Design Previews, Inc., 160 E. 56 St., New York 22, N.Y.

**LIGHTING**

**Reception Area:** luminous ceiling panel/translucent grasscloth on white-painted wood frame/custom-made. **Gallery Fixtures:** double downlights/custom-made.

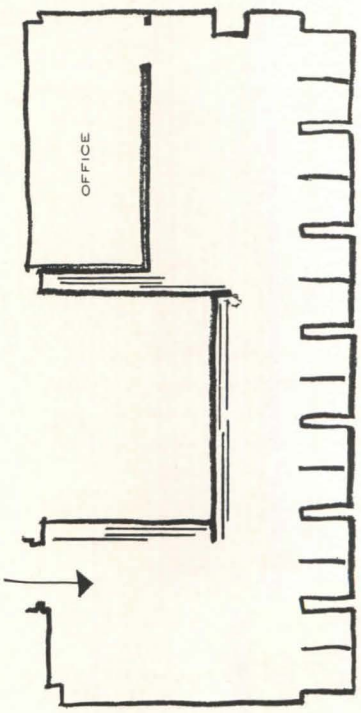
**WALLS, CEILING, FLOORING**

**Walls:** white grasscloth/imported from Japan. **Column:** heavy natural-color Belgian linen/paper-backed/Karl Mann Associates. **Flooring:** beige sisal matting/imported from Holland/Alison T. Seymour, 1222 S.W. 171 Pl., Seattle, Wash.

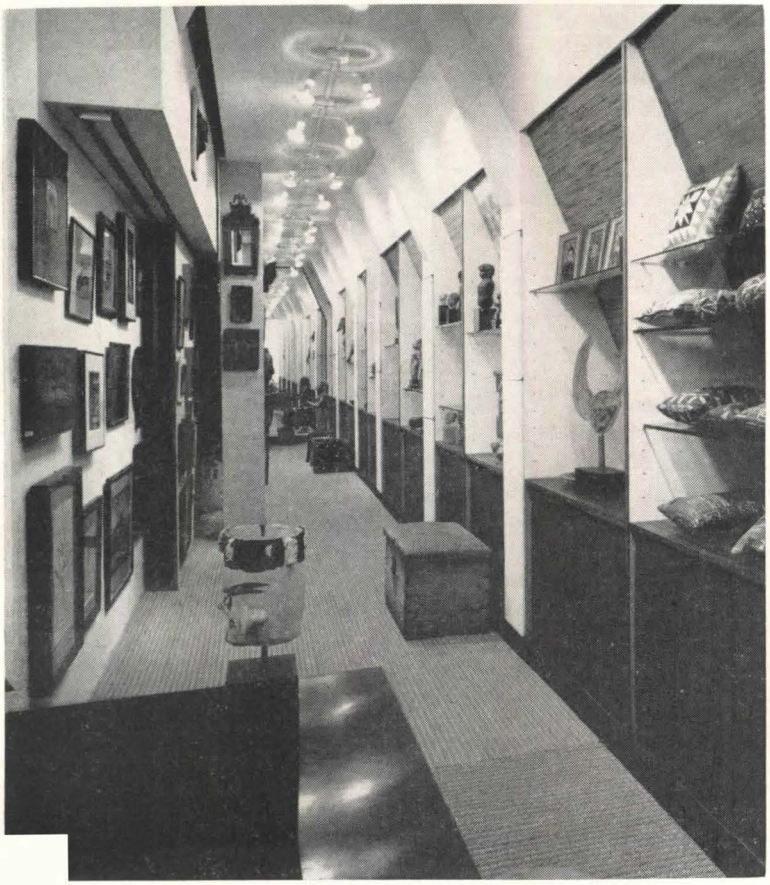
**ACCESSORIES**

**All:** Karl Mann Associates, 677 Fifth Ave., New York 22, N.Y.

*The reception area has a luminous grasscloth ceiling to conceal the irregular levels of the existing ceiling and skylight.*




*Storage alcoves, between existing structural members, display small objects against colorful papers and fabrics which are also on display.*



*In a minimum area, sliding panels supply exhibition and storage space for relief sculptures and pictures.*

# INTUITIVE DESIGN OF STRUCTURES

BY WILLIAM ZUK

*In most informal discussions of structural engineering, the validity of an intuitive approach to design will eventually be broached. Is an individual inherently endowed with a capacity of this kind? Or must a background of previously acquired knowledge precede effective intuitive design? Or is it possible at all? Here, a Professor of Civil Engineering at the University of Virginia discusses the phenomenon in relation to structural engineering and recalls the value that geniuses of other fields have placed on this mental process.*

Is intuitive design possible in structural engineering, or is it just a wishful fantasy of designers bored with handbooks and stress analysis? An examination of current engineering textbooks and curricula would certainly confirm the fantasy point of view, for rarely is the subject of intuition mentioned. However, the writings of such outstanding creative engineers as Robert Maillart, Eduardo Torroja, Pier Luigi Nervi, Mario Salvadori, Felix Candela, and Paul Chelazzi clearly indicate that intuitive design is possible. In fact, Torroja, in his book on structures, states that intuitition is easily acquired.

Intuition is a phenomenon still puzzling to scientists, since there appears to be no way to capture or measure it. Thus, even the explanation of intuition requires a somewhat intuitive answer. Answers may be found from several viewpoints. Jacques Maritain, speaking as a philosopher in his book *Creative Intuition in Art and Poetry,* considers intuition as a preconscious intellectual activity consubstantial with the soul, based on acquired experiences of the senses. Professor Salvadori, speaking of intuitive engineering, suggests that intuition is an extremely rapid rational sequence of thought, acquired after long association with the subject. Psychologists suggest that intuition is in some way associated with a restructurization of concepts and observations not following formal patterns.

For thousands of years past, those active in the domain of the creative arts as artists, poets, and musicians have used and relied on intuition as an intrinsic process in their intellectual activity. Yet the paradox in the sciences, and particularly in engineering, is that most creative engineers also use intuition in some form or capacity but refuse to acknowledge the fact. Ever since the modern scientific age burst forth, intuition has been grossly debased by those who imply that all new knowledge may be acquired by reason alone. The penetrating mind of Saint Thomas Aquinas set forth the observation that knowledge may be gained not only by reason but also by intuition, with intuition ranking *above* reason in intellectual stature. Using only reason to the neglect of intuition is to run one's engine on only one of the two available cylinders, discarding the supercharged one. Albert Einstein has said in respect to creative thinking that "the really valuable factor is intuition." Other great scientists and mathematicians such as Newton, Darwin, Huxley, Pasteur, Poincaré, Gauss, Von Helmholtz, and Fermi have admitted enjoying the fruits of its use. Modern physics is divorced of the intuition that it once employed in the early days of science, and a return to it is greatly desired.

Intuition differs from formal reason in that it is an instantaneous yet accurate observation and communication not consciously requiring the formal rules of logic. Intuition also differs from imagination, as intuition implies the veracity of exposed knowledge, not by guess or chance, but by subconscious activity; whereas imagination, also a subconscious activity, is not so restricted by *truth.*

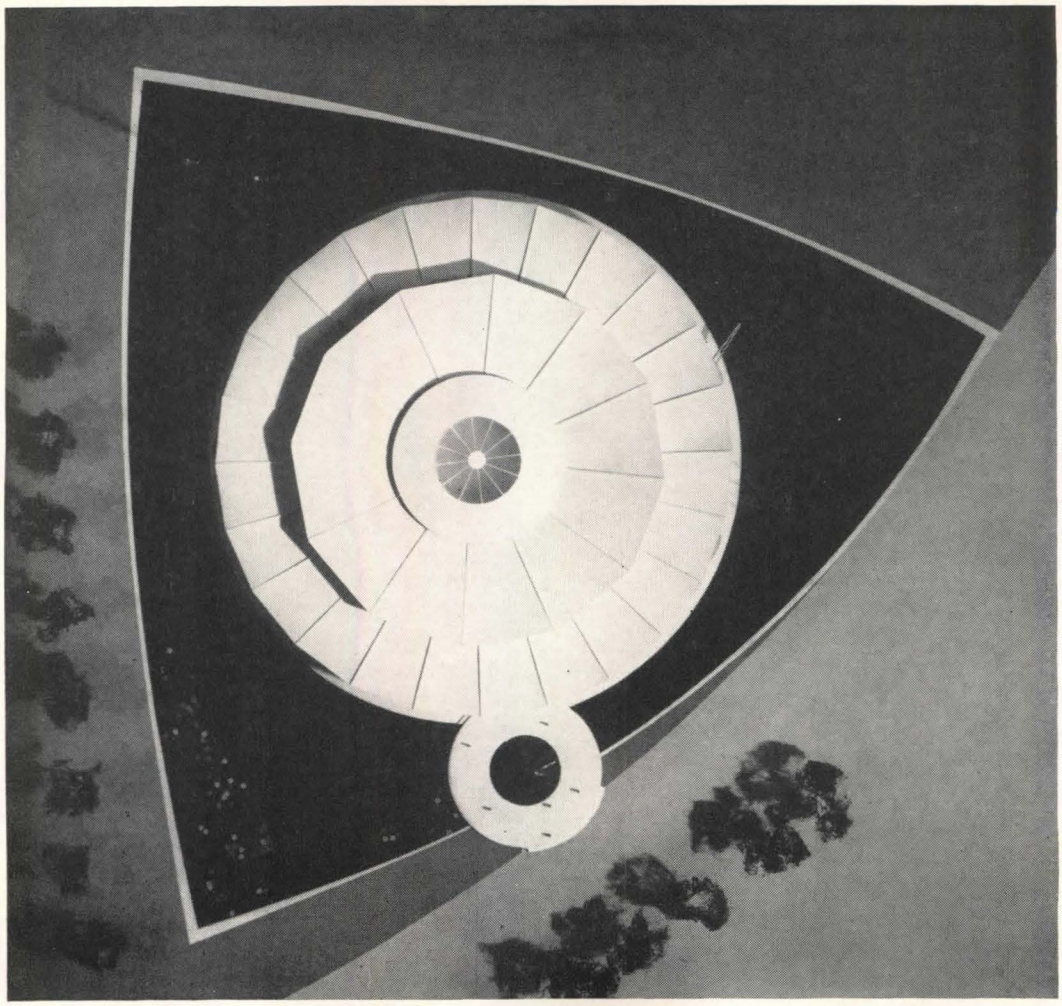
The fact that intuitive thinking does exist provides grounds for developing the hypothesis that it may be used, and indeed should be cultivated for use, in creative engineering, by making conscious use of the subconscious.

Intuition is generally regarded on a "take it or leave it" basis, with some individuals apparently possessing more natural intuitive ability than others. However, the proposition set forth here is that with the implantation of sufficient fundamental concepts of natural laws, the subconscious mind will be encouraged to synthesize these concepts, and so predigest these laws for possible intuitive use.

## *No Substitute for Precision*

Because of the subconscious nature of intuition, no claim may be made for detailed precision of such knowledge in engineering. For example, intuition could not say that a given I-beam should be exactly 12 inches deep, although it could say that the I-beam might better be an arch. Precision in engineering is still best accomplished by rigorous mathematics. The place of intuition is in the conceptual state, defining structural configurations and concepts, particularly essential for pioneering new technologies.

As powerful as intuition may be, it is



*An intuitive approach to structural design was the principal motivation in the design of this open-air pavilion.*

still not recommended that building codes be modified to permit intuitive design per se, for intuitive design is not intended as a lazy designer's panacea, allowing elimination of difficult engineering analysis. On the contrary, it represents a much higher intellectual state than that of equation solving. Intuition used creatively seeks out optimum solutions to complex problems, providing an excellent basis for standard rational or experimental verification of its structural integrity.

Drawing on the psychologists' belief that restructurization plays a vital role in intuition, several suggestions are offered that may vitalize or catalyze both conscious and unconscious thought and so seed the mind for intuitive action. An important position to establish is the recognition of the structural engineer's main adversary. This is not the architect; it is simply gravity.

### *The Forces of Structure*

A creative engineer should thus not think in terms of beams, trusses, or shells, but in terms of the vast domain of mechanisms opposing gravity. To this end, a digression as to basic forces, from the point of view of pure physics, is very revealing. Physicists conceive of four basic kinds of forces, of which gravity is the weakest. The four, listed in order of decreasing strength, are as follows:

1 Nuclear (forces inside the atom): order of relative strength magnitude of $1 \times 10^{16}$.

2 Electromagnetic (forces between atoms, controlling the strength of materials): order of relative strength of $1 \times 10^{14}$.

3 Weak forces (forces controlling such things as beta-decay particles): order of relative strength of $1 \times 10^{5}$.

4 Gravity (forces between masses): order of relative strength of 1.

The basic struggle of structures is therefore between gravity forces and electromagnetic forces present inside materials (such as stone, steel, concrete, etc.) which have a relative strength ratio of 1:100,000,000,000,000. This statement stands as a challenge to structural engineers, showing that structures have by no means reached a theoretical limit, but indeed have a long way to go. An example of this point may be shown as follows. A 1:1 ratio of load to supporting strength may be considered as a cube of stone being supported by another cube of the same size. This was the technological limit of the ancient masonry builders of Egypt who piled stone on stone. In modern technology, however, a more efficient way to support a cube of stone would be by suspending it by high-strength steel cables. In sophisticated form this principle is now being used in many hung-roof structures. The ratio here is 1:100,000. The second system represents a considerable improvement over early efforts, but it is still far from the theoretical limit.

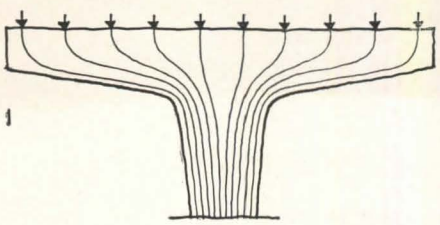
Perhaps some intuitive new concept motivated by such fundamental studies may raise the ratio still further. A

thought not to be overlooked is that electromagnetic-force fields may be used to counter gravity forces independent of structural resistance. (A magnet at a proper distance above a nail would hold it suspended in mid-air, essentially nullifying gravity.)

### *Stress Analysis by Intuition*

Another concept, awareness of which might vitalize the subconscious, is the fact that nothing is really static in truth, because the Universe (including the atoms in a beam, and the Earth, and all structures on it) moves. The so-called laws of equilibrium in the subject of statics are really only special cases of the laws of dynamics in which the accelerations are assumed to be zero. A stimulating approach to creative stress analysis is to consider stresses not as dead things stuck in a material, but as flowing forces surging through structural members as water flows through a river. With this concept, structures may be conceived as virile dynamic mechanisms.

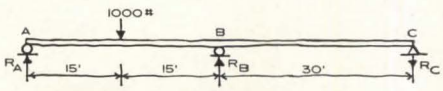
A feeling for stress trajectories as flowing stresses is quite worthwhile in understanding the behavior of complex structural systems. Torroja uses this approach extensively in his unique structures. Almost any engineer can intuitively sketch stress trajectories with surprising accuracy. An example of compressive stress trajectories determined by photoelastic-model studies, which would coincide almost exactly with lines intuitively drawn, is shown 1.



1

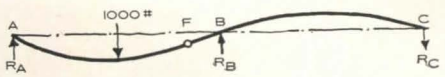
### *Indeterminate Analysis*

Another very useful practice wherein intuition yields amazingly precise results is in sketching deformation curves of statically-indeterminate frameworks. Even with little experience, engineers and students can "eyeball" or intuitively sketch quite accurately the general deformation characteristics of beams and frames. Not only will such curves indicate regions of large or small bending moments (as moments are directly related to the relative curvature at any position) but may be used to calculate redundant reactions in a very simple manner. Consider the example of a two-span continuous beam, shown at 1/120 scale 2.




2

With absolutely no intent at deception, the author's first and only attempt at sketching the deflection curve of this beam is illustrated 3. The point of contraflexure where the bending moment is zero is spotted by eye at point "F". The distance from "B" to "F" scales out to be about 5 ft.



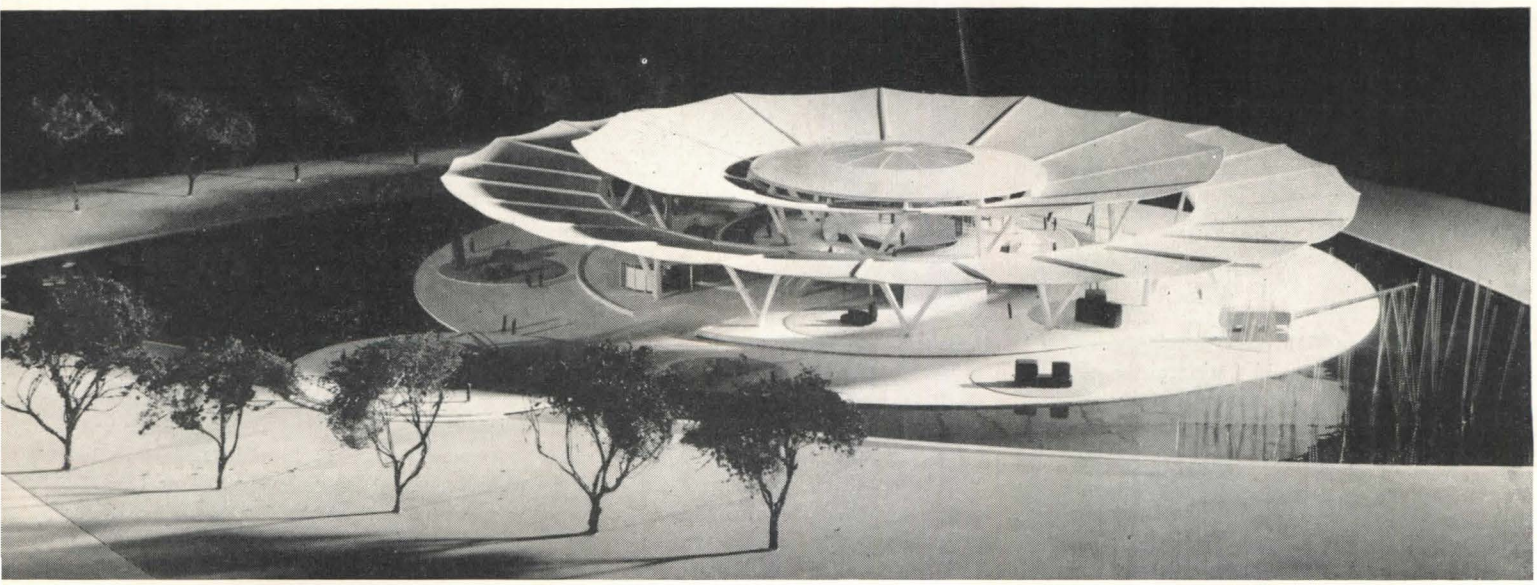

3

By summing moments about point "F" of the body "AF" and equating to zero (as the moment at "F" is zero), the reaction at "A" is quickly computed as 400 lbs. The true value of the reaction at "A" determined by lengthy methods of indeterminate analysis is 406.25 lbs, representing an error of only 1.5 percent. The general accuracy of this method is quite remarkable and within the intuitive grasp of any structural analyst. A textbook recently written by J. R. Benjamin of Stanford University on this subject attests to the wide and useful application of this method.

### *Examples from Nature*

Perhaps the ultimate in intuitive design are the creations of nature. The structure of a tree, a bird, or a spider web are remarkable examples of efficiency and function as well as beauty. Consider, for instance, the organic structure of a simple leaf. The main structural frame is that of a gently tapered network of ribs which are in themselves light yet stiff due to their cellular nature. A variable-thickness membrane spans between these ribs to form a surface. Aside

*Bi-level circular roof forms, with 400 and 280 ft diameters respectively, shelter principal exhibit areas of industrial display pavilion.*



from the fact that the leaf must perform many other complex functions, it is a magnificent structure in itself. The cellular floor system of Nervi's Gatti wool factory in Rome serves to show that such organic structures make both handsome and efficient engineering systems. It seems certain that a human mind focused on such natural creations could not fail to be infused with an introspective sense, germinating intuitive intellectual activity.

Although it is largely conjectural, the thought comes that the structural conception of large buildings prior to the scientific age, such as the temples and cathedrals, must have been due largely to intuitive insight, wherein the observation of natural systems provided the necessary motivations. How else can one explain how the old master builders successfully erected such complex interdependent arches and domes as existed in many early Gothic and Byzantine cathedrals, long before anyone even heard of indeterminate analysis? The earliest crude attempts at even simple beam analysis were by Galileo in the 16th Century. Even now an approximate analysis of such ancient arches with their involved masonry buttresses and timber bracing would be quite a difficult endeavor. Despite our modern techniques, Robert Maillart still believed in simplicity of analysis tempered with judgment and intuition, rather than in precise analyses which he felt were illusionary due to the many unknown and unpredictable variables.

Frank Lloyd Wright often borrowed from nature in the creation of his structures. In pioneering the mile-high "Illinois" building he said he designed the tower with the foundation like a tap root and the superstructure like a tree with the horizontal slabs as branches and the vertical core as a trunk. Based on engineering analysis with ordinary building materials, the mile-high tower would, of course, be reduced to a quarter-mile high at the first strong wind. However, Wright again intuitively sensed the need for "special high-tension steel" which is only now emerging in laboratories as flawless whiskers of 250,000 psi strengths.

### *Intuition from Fundamental Knowledge*

One should not be so naïve as to believe that a few rules and incantations are all that are needed for intuitive design of structures, or even that a full college-level course would do the trick. Since intuitive design cannot proceed without a background of previously acquired knowledge, the more fundamental and critically-acquired knowledge that one has the capacity for, the greater should be the ability for intuitive design.

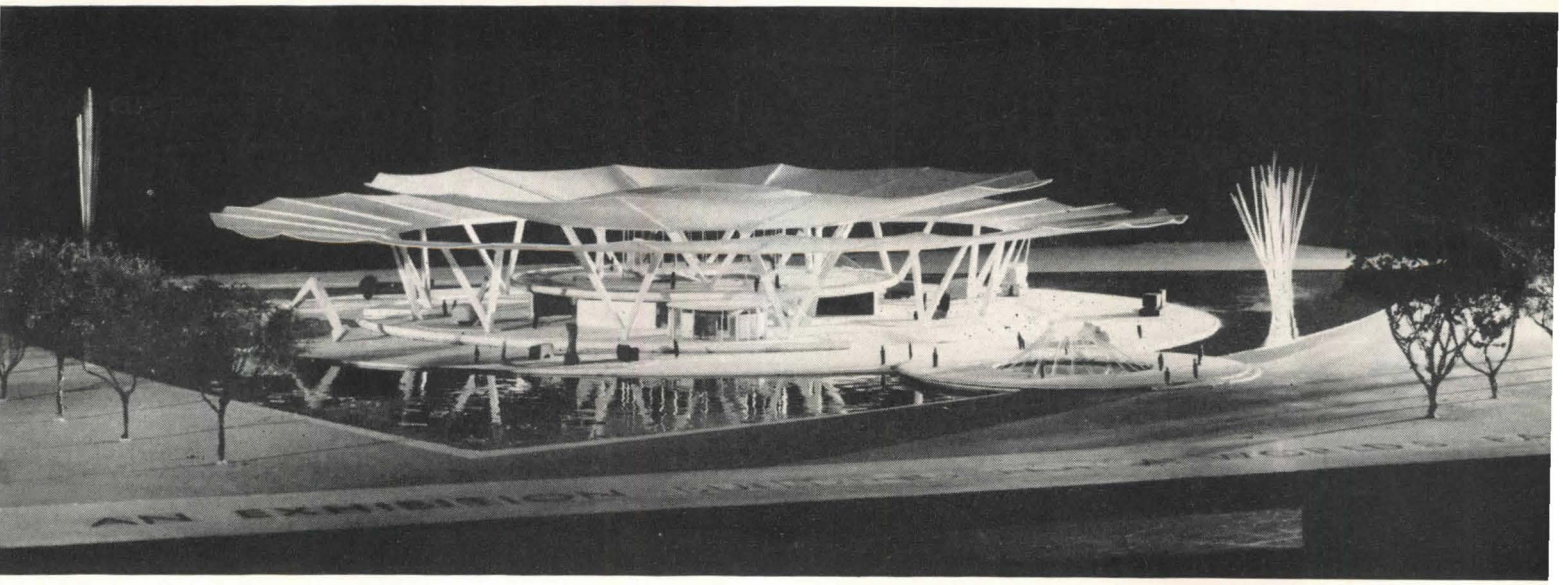
It is my belief that if one's thoughts are absorbed with the acquisition of fundamental knowledge, as contrasted with mere details of techniques and procedures, intuitive design in engineering is indeed possible.

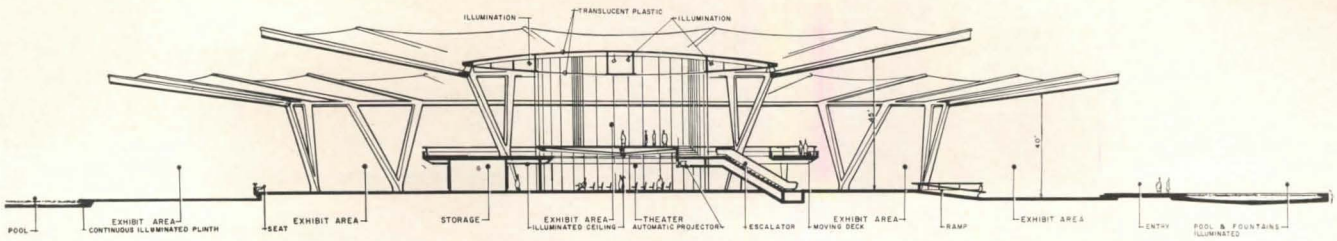
## Industrial Display Pavilion

*One of several creative engineers—cited by Professor Zuk in the preceding discussion—who have clearly indicated the possibility of intuitive design, is Paul Chelazzi—Italian-born architect-engineer now residing in New York. His "suspen-arch" studies, many of which have appeared in past issues of P/A, have been acclaimed by numerous of his engineering contemporaries and by members of the architectural profession. As guest critic working with three student groups of the Evening Courses In Architecture at Columbia University last spring, Chelazzi was able to instill an awareness of this valuable factor of intuition—which is evident in their design solutions for "An Exhibition Building for a World's Fair" shown on these pages. The situation and program for their problems follow:*

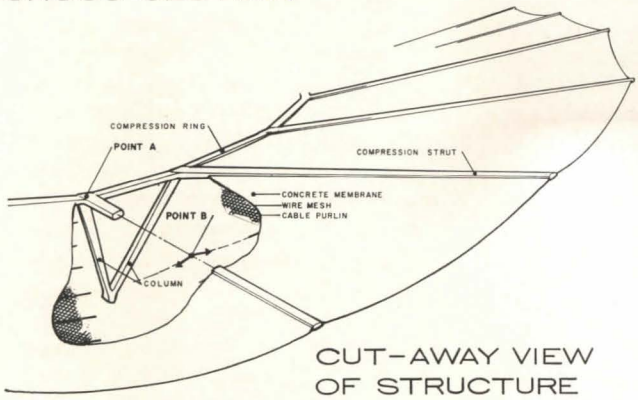
*Situation.* Several architects and a structural engineer have been commissioned to design an exhibition building for the projected New York World's Fair. The engineer is an eminent designer who has developed a structural system for large spans, using structural-type membranes on co-acting ribs. The team has chosen this kind of system for the proposed building.

*Axially-stressed strut-and-column system, carrying concrete membrane between struts, covers 126,000 sq ft of usable area at ground level.*

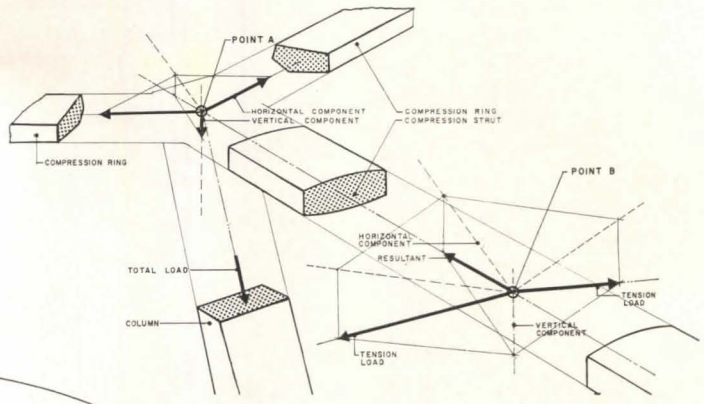




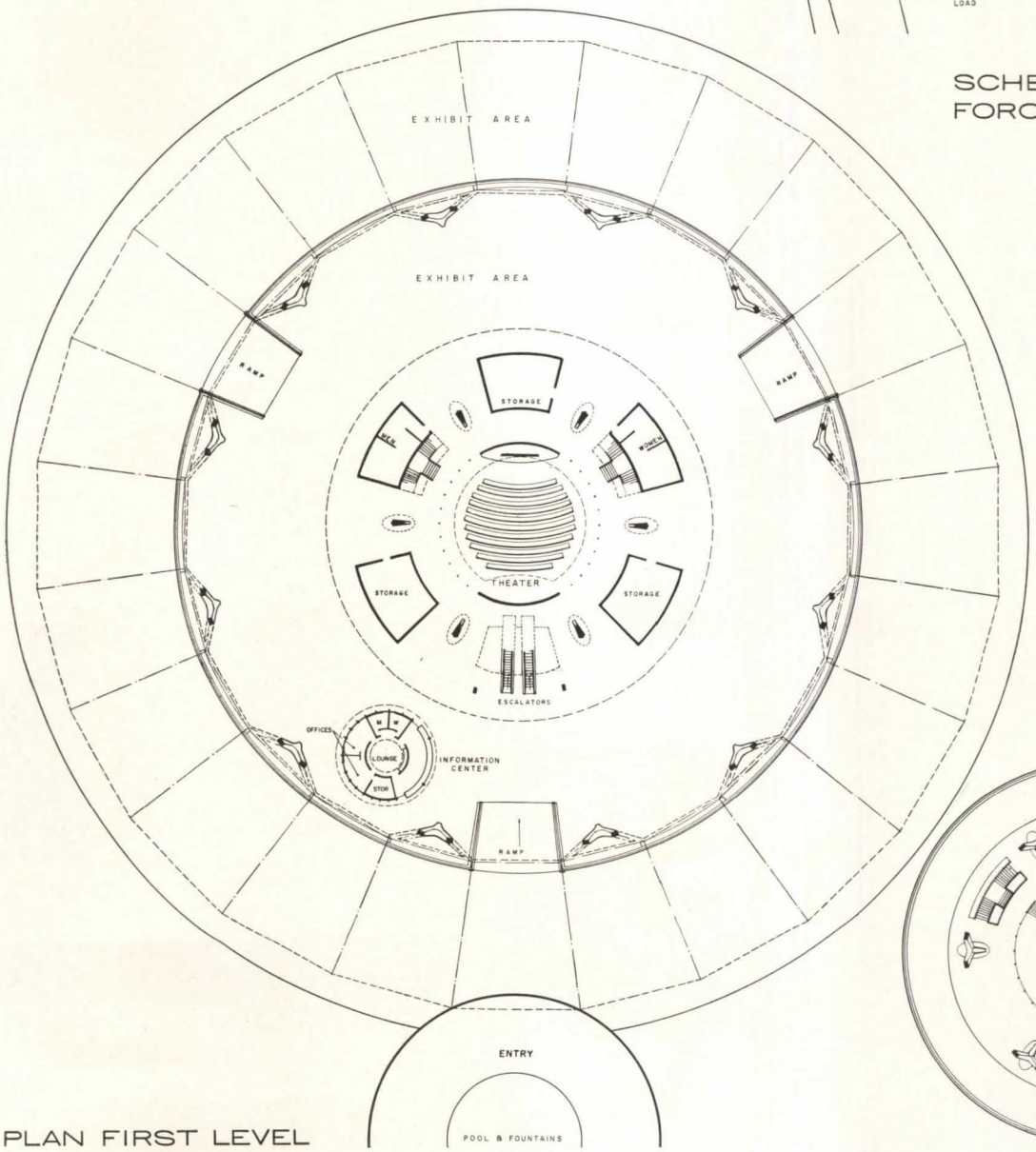

CROSS SECTION




CUT-AWAY VIEW
OF STRUCTURE

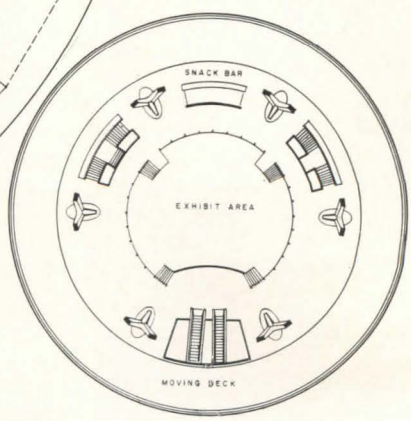



SCHEMATIC VIEW
FORCE RESOLUTION

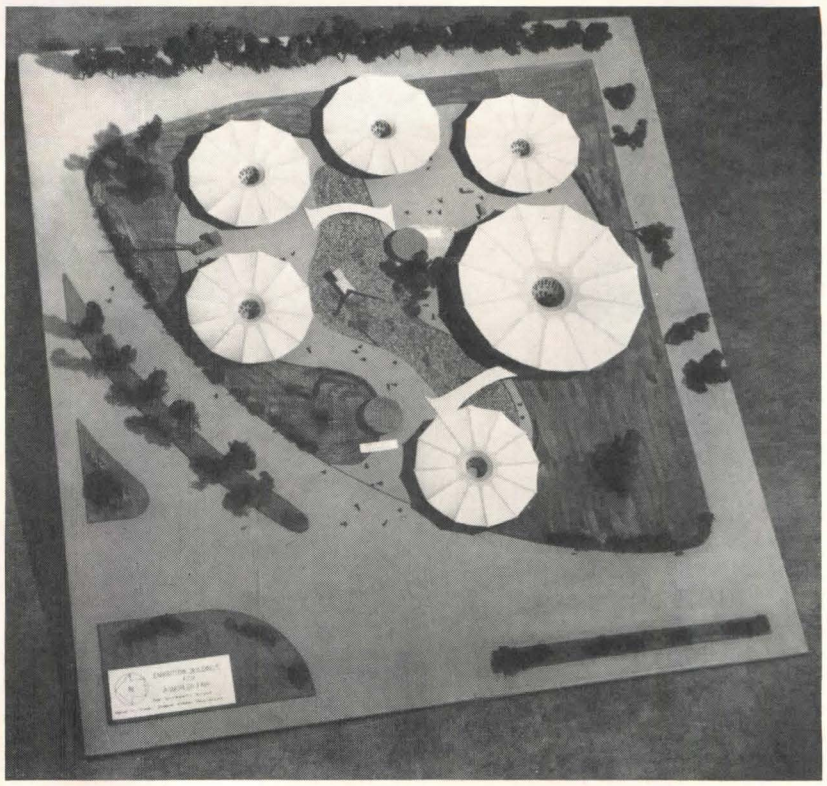



PLAN FIRST LEVEL

PLAN SECOND
LEVEL

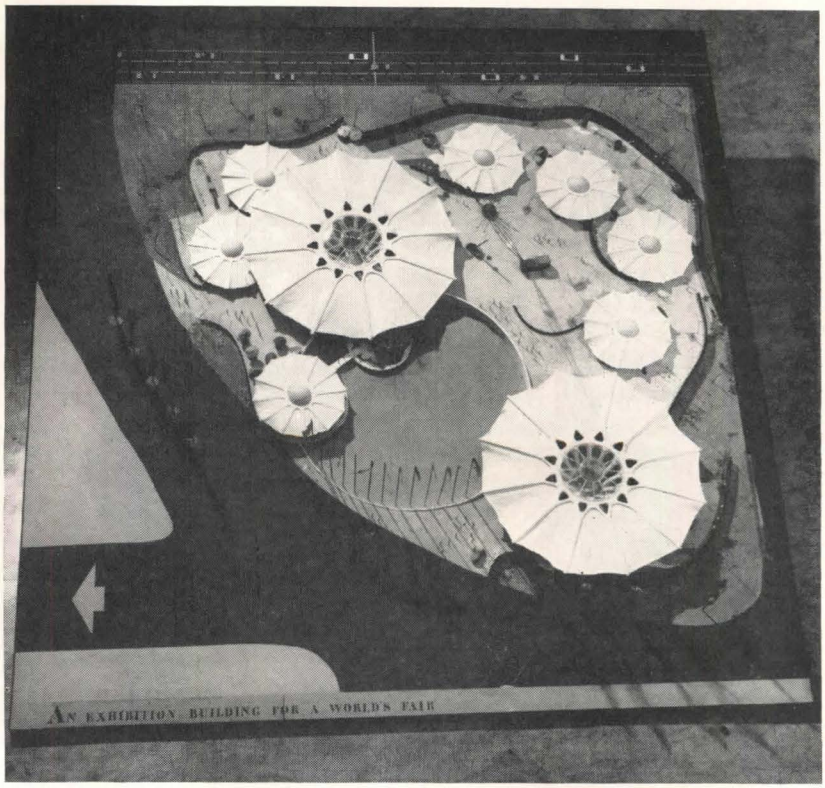


*Program* One of the structures planned for the World's Fair is a covered outdoor area for the exhibition of large machinery. On the 6½-acre site, the exhibition is to consist of: (1) A covered area of 75,000 sq ft. There are no definite requirements as to obstructions, but it is desirable to have the area as free of columns and other interferences as possible. Ceiling height in this exhibit space should be 40′ minimum. (2) Besides the main exhibition area, there will be a subsidiary one of 15,000 sq ft for small machinery and the display of light machine parts. This area may have a ceiling as low as 15′ and may be partly or entirely on a mezzanine level. (3) Snack bar, sitting area: 2500 sq ft. (4) Office and information center with private toilet facilities: 750 sq ft. (5) Public toilets, service closets: 750 sq ft. (6) Storage area: 2000 sq ft.



*Plans, section, and schematic views of industrial display pavilion for a World's Fair, presented in photos on preceding pages, are shown* (acrosspage). *Team members for this solution were: Rudolph M. Arsenicos, Mikio Kawakami, and Frank R. Shenton, Jr.*

*Two other exhibition pavilion solutions* (right) *have similar site planning, but have different structural rationales. Team members included: Dennis Clark, Hirsh Finkelstein, and Charles Vogelstein* (top); *Kuang-Hu Fang, Robert Strebi, and Paul J. Wilks* (below).



# The Agreeable Environment

BY FABER BIRREN AND
HENRY L. LOGAN

*A color consultant and an illuminating engineer review progress in the visual and physiological study of light and color, and point toward a new and sound freedom of expression for the architect and interior designer.*

What is the ideal visual environment? Can it be described quantitatively, or only qualitatively—if at all?

In the field of architecture and interior design, lighting and color problems arise constantly. They are important problems, for seeing is the central activity of all sighted human beings. In countless industrial plants, offices, schools, hospitals, commercial buildings, ships, trains, buses, planes, tunnels, highways, and streets, lighting and color are given a wide array of functions: to aid visibility and manual skills; to preserve and protect vision under many critical conditions; to increase efficiency, promote good morale, enhance decorative furnishings, put man at ease in the environments that are part of his civilization, and to ensure his safety.

Mere ability to see along the avenue of attention involves certain academic points. The eye sees detail better under bright light than under dim light; finer details require high levels of illumination. There is not much room for argument here. Although standards have been set by engineering bodies and societies, surely applied standards of lighting, brightness, and color do not alone insure an adequate solution. Perhaps if the eye operated merely as a camera, a simple chart of necessary light levels and exposures could be written. But vision does not answer only to simple laws of optics—it also involves many complex physiological, psychological, and psychophysical elements, all of which play a definite role and are highly significant to what might be termed "the agreeable environment."

## *Optimum Light Levels*

Even the elementary matter of suitable light levels for normal tasks is subject to broad interpretation.

According to acceptable history in the lighting industry, about 70 years ago Herman Cohn of Germany came to the conclusion that approximately one footcandle was the satisfactory minimum for reading 8-point type in black on white. Some forty years ago in 1917, M. Luckiesh, a prominent American authority, gave three to six footcandles as optimum in libraries. A. P. Trotter, in 1921, specified a required three to four footcandles for library tables. In 1923, J. W. T. Walsh wrote, "For reading and writing, it is now generally agreed that an illumination of about three footcandles is the most comfortable." And in 1924, the so-called Geneva Code of the International Congress on Illumination recommended five footcandles as the minimum for school library tables.

Yet by 1941, M. Luckiesh and F. Moss were claiming that "250 footcandles for reading appears to be below the optimum for easiest reading." Now this matter has come full circle. Dr. H. R. Blackwell, in studies sponsored by the Illuminating Engineering Society at the University of Michigan, reported in 1958 that the illumination necessary to give 8-point type a "suprathreshold visibility of 15, and to afford a visual capacity of five assimilations per second with the maximum accuracy (99 percent) is, according to the fount, 1.13 or 1.87 footcandles." So it is that Blackwell ends up where earlier investigations started.

H. C. Weston, of the Medical Research Council in England, writes, "Most . . . visual tasks can . . . be done at different levels of illumination without any demonstrable difference of comfort or efficiency, provided the lowest illumination of the range is good enough for the job. In other words, 'enough is as good as a feast.' The question at issue is what is enough?" The code authorities have taken the liberty of answering this question on the basis of whatever particular criterion they favor.

The Russians have adopted a "sliding scale of performance rates" as their criterion. The British have adopted "equal relative visual performance." The American System, developed by Blackwell and mentioned above, is based on a single performance rate, defined as five assimilations per second with 99 percent accuracy. The result is that three different sets of widely varying lighting-level recommendations exist, each of which is "scientifically" valid, but each of which is only a partial truth. Their application to practical visual tasks merely on the basis of the labels "office lighting," "classroom lighting," "sickroom lighting," and so on, without complete task analysis, hardly leads to "scientific" lighting.

## *The Attitude Toward Standards*

The above views are frequently offered as principles and rules for setting limits on illumination. Still other principles and rules are presented for setting limits on brightness. However, the data on which brightness restrictions are based are much more limited and far more controversial than the data for illumination levels. These limits, at times (and unfortunately), have been put down in black and white in building codes and government regulations. If this has pleased some, it has dismayed others; rules are a handicap when they lack absolute conviction and universal agreement.

In America, the Illuminating Engineering Society has, in committee and body, set forth limits for level of light in terms of *minimum* footcandles. Recommended practices have been published for offices, schools, industries, stores, libraries, hospitals, etc. The IES has set *maximum* limits of average foot-Lamberts for the brightness of light sources. It has prescribed what it considers to be proper brightness ratios (maximum contrast) for surfaces and areas in the field of view.

There is, of course, nothing wrong in this. But it is wide open to interpretation and should not be taken literally. As a matter of fact, the International Congress on Illumination, which is the world organization of illuminating engineers, by no means follows the American, or any "national" road. At international meetings thus far, it has failed to approve worldwide minimum

illumination levels on the ground that natural and economic conditions, customs (and possibily eyes), differ throughout the world. It has also failed to approve worldwide restrictions on brightness, not being satisfied that those proposed are suitable. American views on brightness ratios have been criticized as leading to sterile and monotonous environments.

As for the architect and interior designer, in America and elsewhere, it is quite apparent that many professionals do not want hard and fast codes. Being creative in viewpoint, they reject charts and diagrams and ask only for qualitative guidance. However, they do seek help, and if the lighting engineer and color consultant are at all conscientious and broadly informed, they will try to direct their special talents and research toward equally broad *and human* summations, rather than narrow, mathematical rules.

### *Qualifying Factors*

It is probably no exaggeration to say that light level is the simplest of all problems to deal with as far as the agreeable environment is concerned. (This, of course, would exclude the technical engineering of a lighting installation.) In effect, a task is set up and light level increased until the job is visible and easily as well as efficiently done. Having accomplished this, however, a number of other qualifying factors arise: the surround of the task shouldn't be too dark or too bright; glare and distraction must be eliminated; some brightness should usually encompass the whole field of view; shadows should give form and depth to lighted spaces (they should be light enough to see into, yet not so light as to create "flatness"); the total "effect" must be pleasing; the appearance of the worker himself, in his setting, should be acceptable, and sometimes flattering. Thus, beyond light level alone, there must be considerations as to the "quality" of the light, the color tint of the surrounding brightness, the beauty, proportion, and balance of the interior itself. (Not to forget temperature, humidity, noise-level, and all the other elements that make up the indoor "climate.")

Many of the elements that demand attention are most difficult to reconcile. Even in visibility alone, what is familiar and easily recognized will not require as much light as that which is strange. Although a monotonous task, in high contrast, may require little light, the worker may be kept more alert if he is stimulated by brightness. One fact seems obvious: there is more to the agreeable environment than light and the eye alone.

### *The Psychophysiological Approach*

Seeing has to do with many physiological and psychological reactions. To speak in generalities, agreeableness and comfort (like contentment and happiness) are quite relative states, and not very permanent ones at that. They are, in truth, perhaps better expressed in negative than positive terms. Most conceptions of Utopia and green pastures are anything but exciting. Yet where Eden is not-pain, not-strife, not-poverty, not-toil, it becomes a vivid escape.

So, too, for human environments. The good interior is one that is not too dark, not too brilliant, not too hot or cold, or noisy, or dreary, etc. Most people will agree on what they *do not like;* but such universality of view will take any number of directions when it comes to what people *do like!*

It would thus seem that there are not, and probably cannot be, definite and incontrovertible specifications for the agreeable environment. Yet such an aim is not hopelessly befuddled. On the contrary, a number of sound, plausible, and fully defensible principles and formulas may be intelligently presented. Anyone concerned with human environments would do well to harken to these principles and improve his capacity accordingly (always bearing in mind Mozart's comment, "I learned the rules of musical composition thoroughly so I would know when and how to break them").

There are many physiological and psychological responses to light and color, many of them wholly automatic. Virtually any stimulus (and this applies to all the senses) will affect blood pressure, pulse rate, respiration, muscular tension. There will be arousal of the entire autonomic system (involuntary responses) and cortical activation (brain waves). In the emotional realm, there will be pleasant or unpleasant associations and feelings. Man's response to his environment is formed by two processes: first, the involuntary, automatic (sometimes "moronic") response of his physical makeup and heredity; and second, his voluntary, conscious judgment on the basis of his mental equipment and past experience.

When the automatic element in his response dominates, his reaction may appear irrational to another observer and may defy prediction. However, while people differ, they differ only so much. Qualitative rules of design are therefore still possible: rules that are broad enough to cover the wide, but still limited, range of human responses. Such rules may not precisely fit any individual; they will fit the "average" man who, while he exists only as an abstraction of large groups, is sufficiently close to the majority for such rules to work.

Admittedly, illumination, brightness, and color are as much an art as they are a science. Having both in mind, the authors offer a series of notes leading toward an accomplishment of the agreeable environment. These are not sure answers so much as they are suggestions born of extensive study, experiment, trial and error—by the writers as well as by many qualified researchers in the fields of illuminating engineering, functional color, ophthalmology, physiology, psychiatry, and clinical psychology.

*Many seeing tasks are tough and difficult to relieve.* There is often a naïve assumption that critical seeing tasks merely need adequate light. The operation of the eye is largely muscular, and being muscular any excessive activity will tire it out—regardless of light levels or surrounding. Glare, prolonged convergence, constant shifts in accommodation, constant adjustments to extreme brightness differences, all involve wearisome muscular chores. (The retina, however, like the human brain, seems more or less immune to fatigue.)

There is no substitute for good eyes. Under natural conditions, an airplane pilot and a lookout on a submarine require good eyes. Factory workers engaged in delicate tasks also need good eyes. If eyes are not equal to a task, little can be done except to go to an eye doctor to determine whether therapy or correction is possible.

Where groups of people are concerned, eye "screening" under the guidance of a competent medical man would seem warranted. Eye defects could be noted and corrected with glasses, and tests made for color blindness and depth perception, to make sure that the worker's vision is in best possible condition.

*Light level is often the first and simplest consideration.* Although light-level requirements for various tasks have an extensive literature implemented by codes, specifications, and recommendations, much of this is academic. Argument here may be specious. The fact that the eye sees remarkably well over a range from 1 to 1000 (or more) footcandles allows for wide tolerances. Proponents of high levels may therefore speak of statistical efficiency, attempting to prove (often correctly) that the

more light, the greater the accuracy.

While a person may hardly object to abundant illumination, there are nevertheless accompanying factors to consider. Visibility increases at a rapid rate from darkness to a 50-footcandle level. For added "efficiency" beyond this, light levels may have to be doubled and redoubled. Thus the economics of a lighting installation must be regarded, for while 50 footcandles are fairly easy to achieve, 1500 footcandles, or even 500, may cost quite a bit.

Perhaps the architect or interior designer may settle the matter for himself, and in a wholly practical way. How much would added light cost? Would the expense be offset in cash savings for added efficiency or greater freedom from accidents? Light for the sake of light has small justification. Within reasonable limits, it is very doubtful if the eye itself or the agreeable environment is involved here.

*If there can be too little light, there can also be more than enough.* Architects and interior designers (as well as medical people) have objected—and with good cause—to the yardsticks set up by various lighting authorities in which space-lighting levels are based on visibility for the most difficult tasks that may be performed in them. This system tends to overlight the room and might be compared to the control of room temperature, through heat or air conditioning, at window locations. Obviously the room at large could be illuminated within practical and moderate limits, and local light be provided where a super level is required. It is fair to call attention to the fact that the latest Illuminating Engineering Society levels are defined as "for specific visual tasks," but if past experience is any guide, these will appear in various codes for the lighting of entire spaces.

High-level light may be an aid to acuity, but it may also be a handicap if the high light level involves glare or gives great brightness to wall areas. The eye cannot help itself from looking at, accommodating to, and focusing upon the brightest area in its field of view. Such response is automatic. Therefore, if walls are meaningless in the performance of a visual task, it hardly seems logical to give them the advantage.

Too, the eye is quick in adjusting itself to brightness and slow in adjusting itself to dimness. If the task is dark (as it might be), and if the surrounding is bright, the whole arrangement from the standpoint of visual efficiency and comfort may be in reverse. Some compensation, incidentally, may be achieved through color (see following notes).

*Uniformity of stimulation is undesirable and debilitating.* The human organism is not adapted to unvarying stimuli. While it may seem needless to say this, many lighting codes and recommendations run contrary to very plain and obvious facts. Uniform illumination and uniform brightness in the field of vision may be ideal from a narrow, academic standpoint, but they are inconsistent with the natural properties and capacities of human beings.

The human organism is in a constant state of flux. All its functions rise and ebb continually. Simple thoughts will affect respiration and pulse rate. So pronounced is this tendency for physiological and psychological experiences to fluctuate that they will take place even when the exterior world remains the same. Areas of steady brightness will appear to fade in and out. The pupil opening of the eye will actually close and dilate slightly. Steady sounds will not be heard consistently. Sensations of taste, heat, cold, and pressure will all vary and will be surprisingly independent of unvarying stimuli in the early stages of exposure. If the monotony is long continued, the ability to respond to the stimulus will deteriorate.

People require varying, cycling stimuli to remain sensitive and alert to their environments. Comfort and agreeableness are normally identified with moderate, if not radical, change, and this change concerns brightness as well as all other elements in the environment. If overstimulation may cause distress, so may severe monotony. The prejudice of architects and interior designers against sameness has a sound basis in the facts of life.

The current practice of introducing color variety (on walls as well as in furnishings) is one escape from monotony, and an excellent one, as long as the surroundings don't compete with tasks and defy concentration on them.

*Color and brightness have definite limitations in assuring visual comfort and efficiency.* An "engineering" approach to illumination, brightness, and color all too often discounts psychological factors. The technically ideal interior, approved and recommended by the engineer, may in the final analysis be disliked when emotional judgment is considered. The agreeable environment can be no fixed thing, for men do not think or feel the same way about the same things ("de gustibus non est disputandem").

So it is that optimum-range values rather than specific values must be sought. If no one can argue about a certain beam being capable of supporting a certain weight, the beam can, nevertheless, be called beautiful by some and ugly by others. Thus interiors may hardly be "engineered" alone. They must, and can, go beyond into things psychophysiological.

The lighting engineer speaks of the need for ample light and uniformity of brightness. If he is too strict about it, he is not entirely without logic on his side. If illuminating engineering often leads to monotony, much interior design often leads to needless and objectionable contrast.

In simple terms, where work is performed there is no need to tax the eye for the sake of dramatic effect. If an all-white room appears sterile in the psychological sense, a black-and-white room would be objectionable in the physiological sense. Somewhere in middleground is a better solution. The attempt to sit at the far end of a dark room and look out a window into a sunny day will result in marked discomfort. Yet if the person stirs himself to go out into the open, the same daylight may be taken in easy stride.

Both uniformity and excessive contrast are bad. An attempt by the eye to make trying adjustments may well throw it out of kilter. As the road to monotony leads to visual efficiency but to emotional rejection; and as the road to contrast, though it may lead to emotional acceptance, may impair good visual performance; the place to meet is at the crossroads!

*There are noticeable physiological effects which may be capitalized.* New to the art and science of interior design are recent findings in the physiological effects of brightness and color made under controlled, laboratory conditions. Briefly, the human organism responds in two main directions: in a positive way toward brightness and warmth of color (red), and in a negative way toward dimness and coolness of color (green, blue). Blood pressure and respiration rate will increase under the influence of red (and brightness) and decrease under the influence of blue (and dimness). In palmar conductance (reaction of the sweat glands which reveals general autonomic arousal), all colors and degrees of illumination will cause effects. This is also true of cortical activation (brain waves). Yet effects will be consistently higher for red than for blue. While no appreciable differences have

been noted in changed heart action, frequency of eyeblinks will increase during exposure to red and decrease during exposure to blue.

This means that certain brightness and color effects are possible—*whether or not human beings like them emotionally*. In other words, there is a chance to prescribe brightness and color for definite and functional uses, leaving the element of esthetic appearance more or less open to the taste and personality of the designer. This should please the architect, once he grasps the significance of it.

*Brightness and color may be functionally controlled to suit the task.* On good evidence, it may be said that brightness and color have two major effects. Where the task requires chief attention to the environment, high levels of general illumination and brightness in the surround will condition the human organism accordingly. The attention and interest of the room occupant will be *outward*. This would be a good principle to apply to manual tasks.

On the other hand, where the task requires concentrated visual and mental attention at fixed points (desks and work tables), softer general illumination and more subdued brightness in the surround may accomplish the best results. If critical seeing tasks are performed, supplementary localized illumination may be added. In such a setting, the attention and interest of the room occupant will be away from the environment and to the job at hand. His body and his eyes will be physiologically and optically well adjusted.

In purely casual or recreational areas, let it be added, the sky is the limit and almost anything may be done.

*The element of color tint cannot be divorced from a light source for normal appearances.* The engineering approach often steers clear of color and concentrates primarily on light level and brightness. The reason, of course, is that color is so highly emotional that it becomes a nuisance to consider. Yet, people are likely to place color foremost. Architects well know that, regardless of beauty of form and proportion, some confounded viewer is likely to have complaints about color!

In the light source itself, color is all-important to the truly agreeable environment. No interior, judged esthetically, could possibly be acceptably illuminated with uncorrected mercury or sodium vapor. Their cadaverous effects on human complexion would overwhelm any arguments about visibility or visual efficiency.

In nearly every study made on the chromatic quality in light as related to human appearance, warm illumination has been preferred, with ordinary incandescent light rating high. For a pleasant effect, the incandescent lamp and the deluxe, warm-white fluorescent tube would be appropriate. (Tinted bulbs go too far for general illumination and perhaps even for decorative lamps.)

After all, so-called "natural light" is an arbitrary thing. Man knows all sorts of light, from orange-pink dawn and dusk, to yellow sunlight, to white or bluish skylight. He is endowed with a special faculty (known as color constancy) to accept them all as "normal."

Quite pertinent here are the very patent findings of Kruithof, of Germany, that a normal appearance for object colors will require different tints in a light source depending on degree of illumination intensity. Kruithof's work, most important to the agreeable environment, unfortunately is little known among lighting engineers, architects, and interior designers.

In low levels of light (under 30 footcandles), object and surface colors will appear normal when the light source is slightly tinted with pink, orange, or yellow. As higher light levels are reached, a *normal* appearance for object colors will be found with cooler light that is more like sunlight at noon. Kruithof's principle is quite obvious and true. All one needs to do is to study human appearance (and colors) in dim light that is warm and dim light that is cold. The warm illumination will be "friendly" and seem wholly natural, while the cold light will seem ghastly and eerie. Even the assumption that good color discrimination demands "daylight" illumination will hold true only at high light levels, not at low ones.

So for agreeableness in illumination, it is best( and easiest) to stay warm at low levels and go cooler, if desired, at high levels. Also, some directional light should be introduced, to create an interesting play of highlight and shadow. The beauty of form can be destroyed by too much "flat" lighting.

*There is wide latitude in the use of decorative colors, but even here objective factors cannot be ignored.* The colors used for walls and furnishings in an interior are in a province definitely ruled by architects and designers who are schooled in esthetic knowledge that is known to few lighting engineers. Little interference should be allowed to creative effort, but there are limits to color use that may profitably be regarded by the thoughtful designer.

Brightness contrasts should not be unduly excessive, if the eye (and body) are to function comfortably and readily.

If the environment is to be stimulating and "outward" in its direction, high brightness and warmth of color may be desirable. If it is to be "inward" in its direction and conducive to thought and contemplation, less brightness and coolness of color may be preferred.

If human appearance is important, the light source should be warm, and background colors should not exceed approximately 50 or 55 percent reflectance—otherwise the phenomenon of brightness contrast may operate to give the skin an unfavorably dark pallor by direct visual comparison.

If average people are to be emotionally pleased, it may be best to feature simple colors: greens, blues, pinks, yellows, grays. Few people like yellow-green and purple, for example, as a "choice of heart," and these natural predilections can be important. (In a store, for example, colors of extremely high fashion may create a wrong impression and discourage trade.)

*Conclusion: Pay respect to basic human needs, and then use your own initiative.* It is quite fortunate that the answer to the agreeable environment must respect art as well as science, and that its solutions cannot be reduced to set codes and laws. What the architect and interior designer need are knowledge and control. With reins in hand, they may direct their efforts as they see fit, but surely and competently.

1 Plan for sufficient light to convey all the information human beings need to work effectively at their tasks and to be fully alert to their surroundings.

2 Work with familiar rather than strange elements in illumination and color, to avoid confusion or emotional rejection.

3 Never forget the factor of human appearance. People are being dealt with, not eyes or tasks alone.

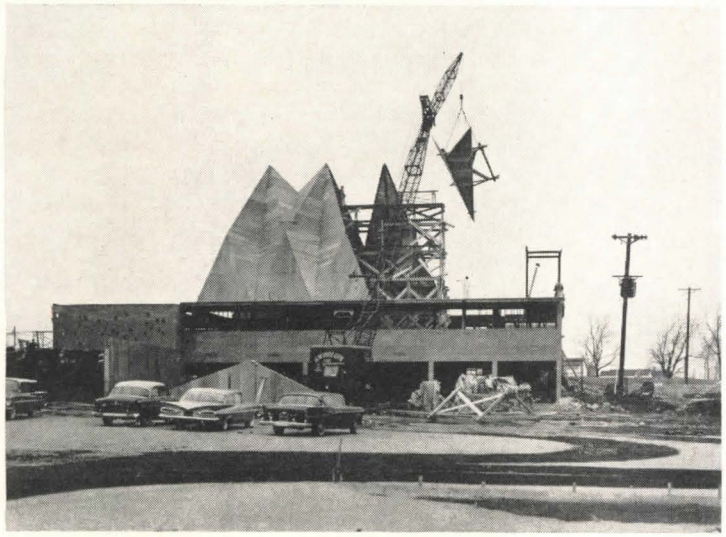
4 Give all elements in the interior a realistic appearance, without flattening them out with lighting or distorting them unfavorably with color.

5 Plan for variety as against monotony. All the details of an environment should be revealed distinctly and not lost in uniformity.

6 Hold light levels and color contrasts within the limits of reasonable adaptation.

7 Take any liberty that is appealing, but do not force the human organism beyond its normal and agreeable capacities.

*Plywood stressed-skin roof panels being hoisted into place by crane.*

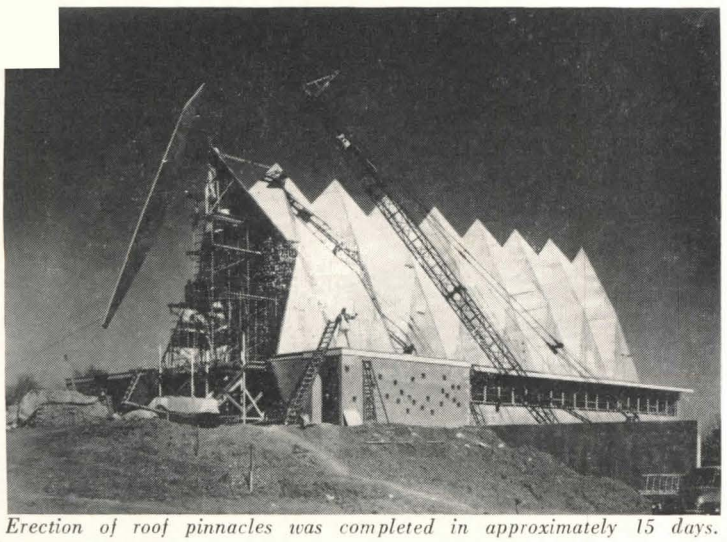


Visible from all parts of the surrounding countryside are the nine "folded fingers" of the new Independent Congregational Church, St. Louis, Mo. In designing this structure, Architects Manske & Dieckmann of St. Louis consulted with Roof Structures, Inc., and William C. E. Decker, Structural Engineer, jointly evolving a plywood stressed-skin system that is of considerable structural as well as esthetic interest.

In the course of consultation, several materials and methods were considered for the basic roof form. Finally chosen, for its economy and its ease of fabrication and erection, was a system of ⅜" plywood skins nailed and shop-glued with waterproof adhesive to 2"x4" cores framed in 2"x8" edge beams.

Plywood panels were shipped flat to the site, then asembled into the structure's folded facets and hoisted into place by crane. Erection was completed in approximately 15 days. Cost of the 9600 sq ft of roof surface, fabricated and erected, was $2.60 per sq ft to the general contractor.

# Folded-Plywood Plates Form Church Pinnacles



*Erection of roof pinnacles was completed in approximately 15 days.*

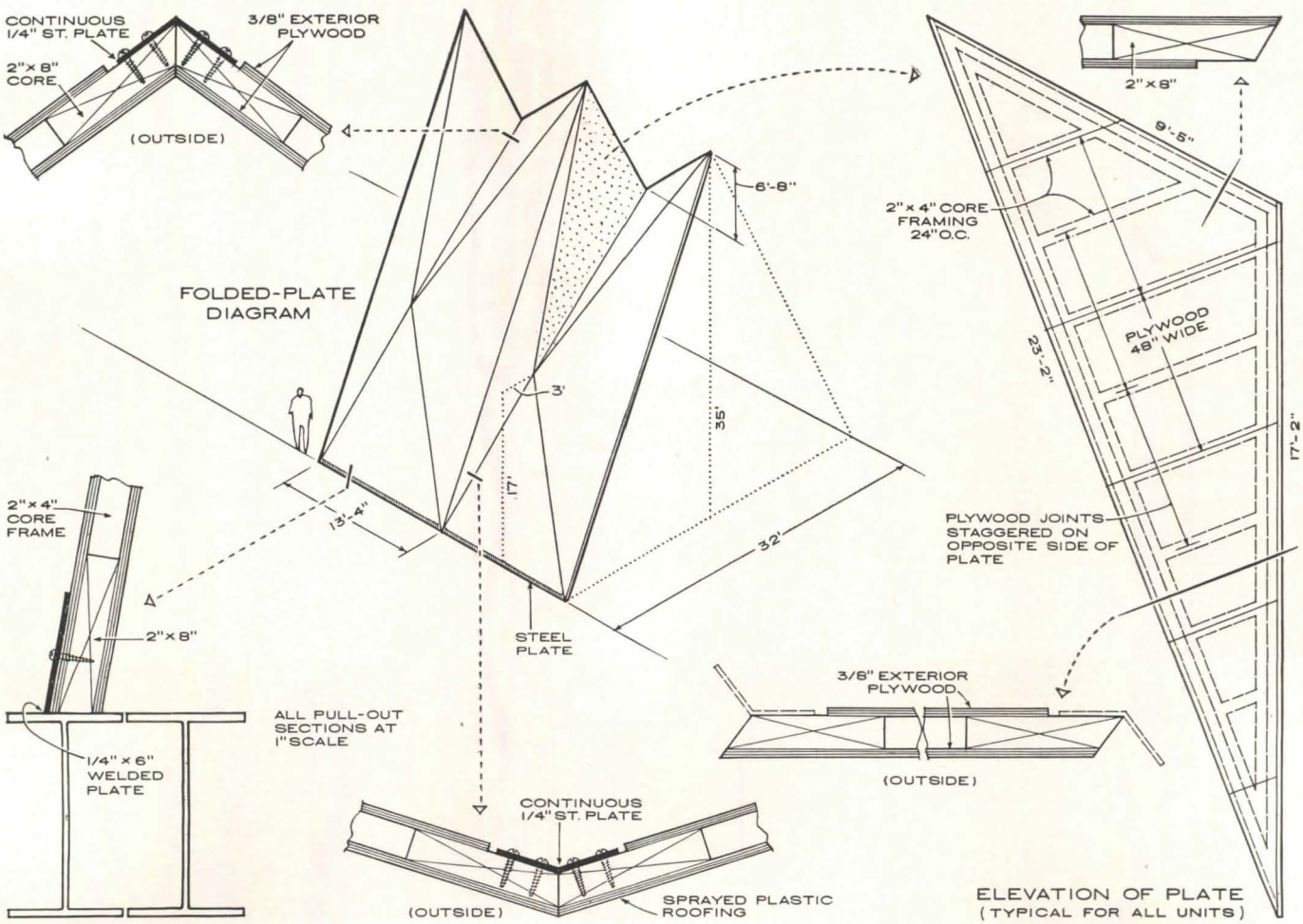
Folded plates of the 44-ft pinnacles are stressed against each other, eliminating all arches, beams, or columns. Lateral thrusts imposed by the shell at spring lines are resisted by steel buttresses attached to first floor and basement foundations. Continuous steel plates laced to the panel intersections (with lag bolts spaced from 1½" to 4" o.c., depending on stress transfer requirements) join increments of the shell. Electrical conduit is placed in chases at panel "ridge" intersections. End panels of the roof are attached for mutual stiffening to the fenestration frames in the gable walls.

Below this roof, in the 32'x110' open span of nave and chancel, accent lighting produces a shadow pattern with fingers of light reaching upward. Interior of the shell is surfaced with ½"x6" Douglas fir panel board, finished with striated edges that form a herringbone pattern. The clear board is treated with a light natural stain that heightens the warmth of the wood tone.

Photo: Courtesy of Union Carbide Plastics Company

For weather protection, and because of the strong play of shadows on the exterior of the folded shape, a non-textured membrane was desired. An elastic vinyl coating, with an estimated durability of 10 years, was spray-applied to a thickness of 40 mils. The thick plastic skin resists all moisture and water penetration, while also permitting structural movement. Its high-gloss whiteness is exceptionally heat-reflective.

*Exterior of fold-plate roof is sprayed with a thick-elastic vinyl coating that permits structural movement while providing complete protection against weather.*



# Polystyrene Formboard Provides Better Insulation and Vapor Barrier for HP's

BY WILLIAM J. McGUINNESS

*A new concept in construction, which not only improves the thermal and water resistance properties of thin-shell concrete but also simplifies erection procedure, is discussed by the Chairman, Department of Structural Design, School of Architecture, Pratt Institute, Brooklyn, New York.*

Thin-shell concrete construction has been developing rapidly in recent years. For those who have not worked in this new medium, there may be an inclination to believe that the experts have solved most of the problems. This is not entirely true, and much experimentation continues with a view to overcoming the numerous difficulties that present themselves. Some of these are:

1 Sound concentrations and disturbing echoes due to the concave curves of shell-interiors and the hardness of their surfaces. The transmission of unwanted sounds through the shell surface, especially outdoor noises which might be disturbing to occupants.

2 Excessive heat losses accentuated by unfurred, and sometimes uninsulated, concrete-shell surfaces.

3 The low inside-surface temperatures in winter which create a radiantly cool environment.

4 The possible formation, under humid conditions, of condensation on these cool surfaces.

5 The comparatively high cost of concrete forms, including the upper contacting surface.

6 The difficulty in selecting an effective, sightly, and waterproof exterior finish.

There have been some interesting developments in the attempts to solve these problems. Where curved surfaces form disturbing sound concentrations, acoustical clouds have been hung within. Where surfaces are less complex, it may be satisfactory to apply acoustical sound-absorbing materials to the shell soffit. This suggests a rough undersurface.

Transmission of sounds through the shell surface has been solved, as in the Kresge Auditorium at MIT, by an additional concrete layer above the insulation—both placed above the structural shell. Thermal insulation was also achieved by this method.

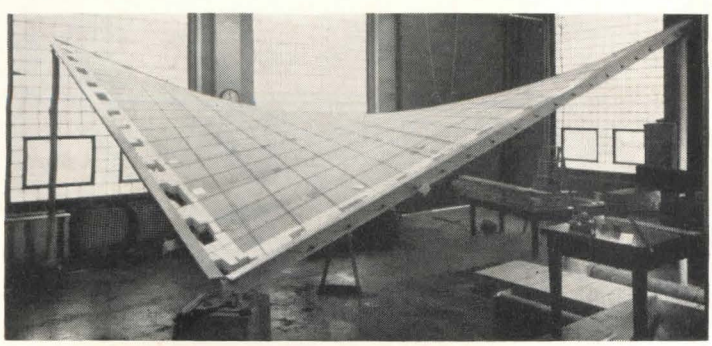
The excessive heat-loss rate of a thin concrete surface suggests the addition of at least 2″ of insulative material. This may well reduce the U-factor from .7 to .08 Btu/hr. When outside temperature is 0 F, an uninsulated shell may have an interior radiant temperature of 27 F, and tolerate a relative humidity no higher than 35 percent. An insulated shell would have an interior surface temperature of 67 F, and would permit 85 percent relative humidity before condensation began.

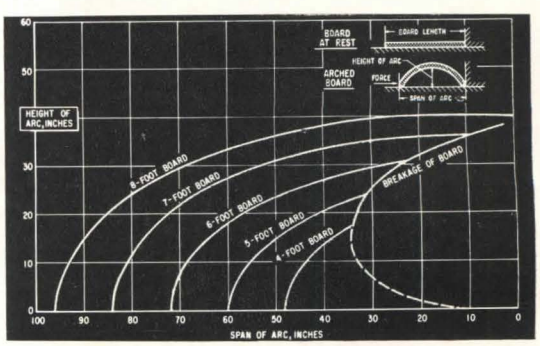
It is obvious that some conventional roofing materials do not present an acceptable appearance on shells. Investigations are under way concerning the suitability of sprayed plastic and other appropriate materials.

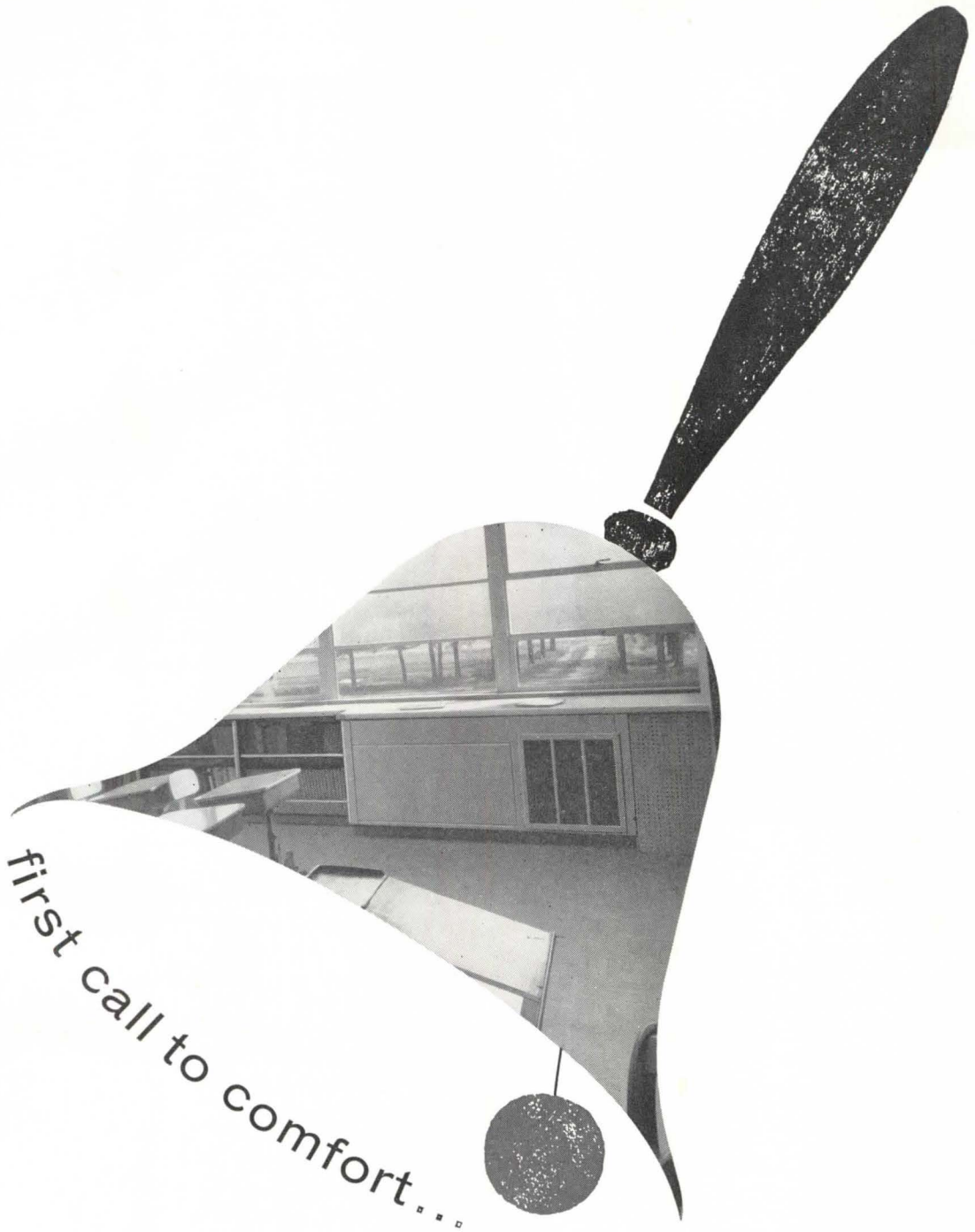
The Dow Chemical Company, in co-operation with the Civil Engineering School of Purdue University, has developed a new concept of thin-shell concrete construction that solves some of the problems already mentioned. By the use of foamed-polystyrene insulative formboard, as non-removable forming for the concrete, thermal resistance value is added to the slab and a vapor barrier is provided simultaneously. This material, with a k-value of .28 Btu/hr, is as good as the best insulating material, and its imperviousness to vapor prevents the entrance of moisture into the concrete. The polystyrene's bottom surface will accept acoustical plaster or other sound-absorbing material.

These qualities—and others *relating* to its ability to support concrete, to eliminate falsework, and to adapt to the curved surfaces of a shell—were announced at recent conferences in New York and at Purdue University.

The photograph shows how well polystyrene formboard can be warped, by an offset-wire system, to constitute a form for hyperbolic paraboloids as small as 20 ft square. With this system, concrete can be poured directly over the sandwich form without the necessity of conventional falsework below. Tests indicate that after tightening the wires of an offset-wire/polystyrene-formboard sandwich, the deviation from the true surface did not exceed ½″ at any point. Even sharper bends are possible; the chart illustrates the flexibility of this material when bent into an arc. This application for thin-shell designs promises a means for the architect to create shell designs with greater freedom and economy.





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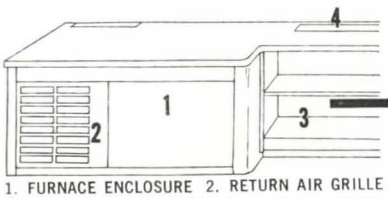


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# A Vignette of Modern Paints

BY HAROLD J. ROSEN

*Recent developments in available paints to be evaluated for architectural specifications are reviewed by the Chief Specifications Writer of Kelly & Gruzen, architects-engineers.*

There has been such a tremendous change within recent years in the field of paint materials that the architect, in many instances, has not had an opportunity to keep pace with the latest developments in this field. Paint manufacturing until the advent of alkyd and latex paints was an art. The mixing and cooking of natural oils and resins took place in small open kettles, and the recipes used were closely guarded secrets that involved very little knowledge of chemistry. With the introduction of alkyds in the 1930's and the latex paints in the late 1940's, paint manufacturing became a science utilizing the full knowledge of paint chemists.

Paints can now be classified in two categories: they are either oil paints or latex paints. The oil paints are "solvent thinned" and the latex paints are "water thinned."

The oil paints include the vegetable oil paints that constituted 100 percent of paint production only a generation ago, the oleoresinous paints, and the alkyd paints. The oil paints are based on vegetable oils, principally linseed oil. The oleo-resinous paints consist of mixtures of vegetable oils and natural resins such as rosins. The alkyd paints are derived from a synthetic or manufactured resin (made from an alcohol, such as glycerol, and an acid such as phthalic anhydride) which is processed with linseed oil and soya oil.

When alkyd resins are processed with natural oils, they are said to be oil-modified. The type and amount of oil used determines the properties of the finished products. These alkyds are known as "long-oil," containing a high percentage of oil, "medium-oil," and "short-oil" — implying progressively smaller quantities of oil. Alkyd paints are superior to conventional oil or oleo-resinous paints, and are now being formulated with odorless solvent thinners so that they are comparable with latex paints in their absence of odor.

Latex paints, also known as resin emulsion paints, are derived from latex emulsions. Latex is a rubber-like material resembling the natural product of a rubber tree. A latex emulsion is a dispersion or suspension of these insoluble resin particles in a water system. Upon evaporation of the water, the resin particles coalesce into a continuous film entrapping pigments and resulting in a decorative as well as protective coating. Today there are three types of latex or resin-emulsion paints. These are styrene-butadiene, polyvinyl acetate (usually referred to as P.V.A.), and the acrylics. Styrene-butadiene was the first latex paint to be introduced and it consists of a combination of styrene (or vinyl benzene) and butadiene. Since this material is similar to the synthetic rubber used in World War II, it is also called rubber-base paint.

Polyvinyl acetate is prepared by a process called emulsion polymerization, from vinyl acetate. Vinyl acetate may also be reacted with other materials such as vinyl proprionate and dibutyl-maleate to form a large variety of resins.

Acrylic latex is produced from various raw materials such as methylmethacrylate, ethylacrylate, butyl acrylate, etc.

Latex paints have many advantages over the oil-type paints. Latex paints are alkali resistant and can be applied directly to a new plaster wall without neutralization of the alkali. This property makes latex paints an excellent primer and sealer. Latex paints do not generally have an odor. Any odors that may occur from a latex paint should disappear within a matter of hours after painting. They dry to touch in approximately 30 minutes, and a second coat can be applied within several hours after the first coat. Latex paints are easily applied and much greater production can be achieved.

Latex paints are very durable and will withstand adverse conditions of temperature, sunlight, salt air, etc. Latex forms a film, as soon as the water evaporates, which is resistant to chemical attack. The physical nature of the latex film makes for easy cleaning, because it forms a continuous nonporous film. Soil spots and most stains can be readily removed with light scrubbing.

Latex paints have certain properties that make them suitable for use in exterior applications. Latex paint films breathe, permitting water vapor to penetrate but stopping the transmission of liquid water. Most oil paints can fail due to blistering or peeling, which occurs when water vapor is trapped behind the paint film; the water vapor escapes from latex paint without harm. Latex paints are less susceptible to yellowing than oil paints and will not yellow even after long exposure.

Not all latex paints are suitable for use directly over smooth glossy wood or metal surfaces which limit its penetration into nonporous surfaces. However, research into latex paints is continuing and formulations designed to overcome such problems can be expected. It is recommended that manufacturers' specifications be checked to determine the surfaces on which the specific latex paint can be applied.


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*See us in Sweet's 1960 Architectural File, Section 30D/Mi.*

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# Construction Contracts—Part 2

BY JUDGE BERNARD TOMSON & NORMAN COPLAN

*P/A's legal team continues their discussion of the new AIA construction-contract forms.*

In last month's column, it was suggested that the construction contract between owner and contractor incorporate an undertaking on the part of the contractor to the effect that he understood the architect's plans and specifications, that he had the ability and facilities to execute them properly, and that he acknowledged the suitability of those plans and specifications for the construction of a sound building project. There is, however, a further commitment which fairly and equitably can be required of the contractor, and which should be incorporated in the "General Conditions" in order to afford the owner proper protection.

If, to the knowledge of the contractor, there are errors, conflicts, or omissions in the plans and/or specifications, should he not be required to call this to the attention of the architect before accepting the contract or proceeding with the work? If, in the contractor's anxiety to obtain a job he disregards inadequacies or conflicts, should he not be required to bear the cost and expense of repairing damage or defects which may consequently arise? An affirmative answer to both of these questions would certainly appear to be in the interest of both architect and owner, and, insofar as such obligation resulted in more care and caution on the part of the contractor, it would probably serve his interest as well. A suggested clause which could be included in the "General Conditions" is as follows:

"Should the Contractor find any errors or omissions in the plans, drawings, and/or specifications, or should there be any conflict between such plans, drawings, and/or specifications, the Contractor shall be required, prior to the signing of this contract, or proceeding with the work, to notify the Architect in writing and to have such plans, drawings, and/or specifications explained and/or adjusted. If such notice is not furnished to the Architect as herein provided, the Contractor shall be deemed to have found such plans, drawings, and/or specifications in proper form for execution, and the Contractor shall bear any costs or expense for the supplying of materials and labor to correct any damage or defect in the work caused by such omission, error, or conflict."

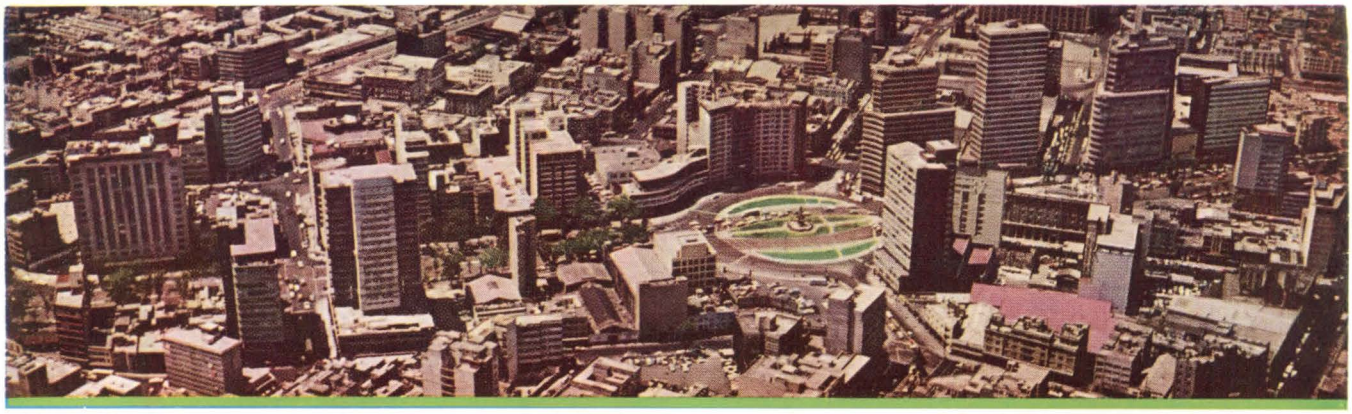
Article 2 of the "General Conditions" entitled "Execution, Correlation, and Intent of the Contract Documents" has been revised in the 1958 edition, and now provides that the intention of the contract documents "is to include all labor and materials, equipment, and transportation necessary for the proper execution of the work." It further provides that "it is not intended that work not covered under any heading, section, branch, class, or trade of the specifications shall be supplied unless it is shown on drawings *or is reasonably inferable therefrom as being necessary to produce the intended result.*" The italicized portion was added to the revised edition of the "General Conditions."

In providing that the contractor shall furnish all labor and materials "necessary" for the execution of the work and to supply work which is "reasonably inferable" from the drawings, the "General Conditions" have set forth general requirements which are necessitated by the impracticability of particularizing every aspect of the contractor's performance. However, there are areas of uncertainty in connection with the contractor's performance which can and do engender disputes and misunderstandings, and which, therefore, should be explicitly covered in the "General Conditions."

As an illustration of the foregoing, a detail is often shown on the architect's plans which is intended by the architect to be typical or representative, and which is to apply to corresponding parts of the building project. There may be misunderstandings concerning the standard of workmanship and materials applicable where this representative detail must be adapted or modified. It, therefore, should be made explicit and clear, in connection with the execution, correlation, and intent of the plans and specifications, that a typical and representative detail shall set the standard for workmanship and materials wherever that detail is to be included, and that it is the contractor's obligation, if necessary, to adapt such detail for use subject to the direction of the architect. The following is a suggested clause to be included in the "General Conditions":

"Where typical or representative detail is shown on the plans, this detail shall constitute the standard in workmanship and materials throughout corresponding parts of the building, and where necessary, the Contractor shall be required to adapt such detail for use in said corresponding parts of the building, said adaptation, however, shall be subject to the approval of the Architect."

The 1958 edition of the "General Conditions" provides under Article 3 entitled "Detail Drawings and Instructions" that the contractor after being awarded the contract "shall prepare an estimated Progress Schedule and submit same for Architect's approval." This schedule shall indicate "the dates of the starting and completion of the various stages of construction." The requirement for the furnishing by the contractor of a Progress Schedule is, of course, a significant aid to the architect in his supervision of the project. However, the mere requirement that the contractor furnish such a schedule is insufficient to insure a timely performance on his part, because he has to depend upon the performance of his subcontractors. This problem will be discussed in the next month's column.



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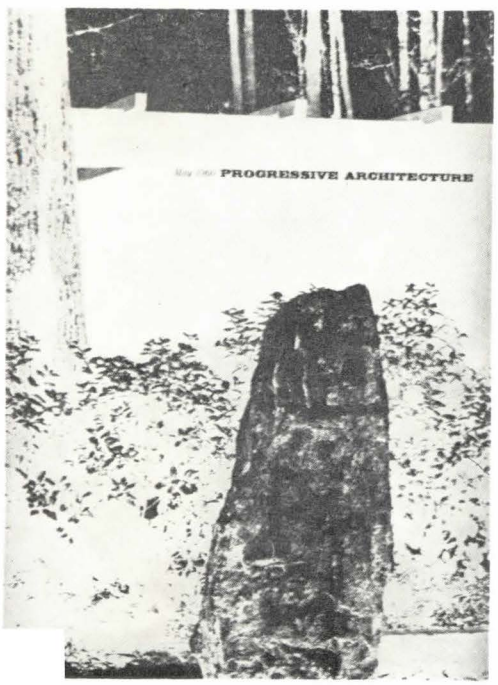
# P/A Changes Applauded by Many Readers




Dear Editor: Congratulations on your new format. I very much enjoyed the design of MAY 1960 P/A. More particularly, I appreciate your approach to reporting in depth and the editorial nature of the text. The "critique" type coverage is very worthwhile. We must have more and more self-criticism and analysis if we are to grow professionally and contribute more, socially and esthetically.

Along these lines, I bring to your attention the NEWS item on pages 80-81 describing the plans for the new House Office Building. From the tongue-in-cheek writing style, I assume the reporter has some negative feeling about this building and perhaps, too, the process which brings such architecture about.

It seems to me that adequate criticism of a job poorly done within such a significant framework is as necessary to the profession and public as is criticism of a job well done on an obscure little house. In keeping with your obvious desire for professional criticism and intellectual honesty, is this building not therefore deserving of full critical analysis in PROGRESSIVE ARCHITECTURE? Washington and the nation need the intellectual honesty and courage of the architectural profession.

MORTON HOPPENFELD
Washington, D. C.

Dear Editor: I feel that I should tell you how much I enjoyed your May issue. I think I learned more about modern landscape design in a few minutes with it than I have in years of battling around the fringes. If you could maintain this caliber of issue there would be no question in my mind about what would be the leading architectural magazine.

WILLIAM RUPP
Sarasota, Fla.

Dear Editor: My compliments . . . the new book is beautiful, exciting and, unquestionably, top-top quality. It is so really good that I don't feel competent to correctly articulate my impressions of it. The best thing I can do is to say I am emotionally involved with it, as it has the pure and artistic approach which is a necessary and valid step in the right direction for all of us who really care about art, architecture, and real beauty.

LILLIAN ROSS
New York, N. Y.

Dear Editor: The most striking thing to me was MAY 1960 P/A's simplicity. There is nothing harsh or spectacular, but one thing I did find out was the

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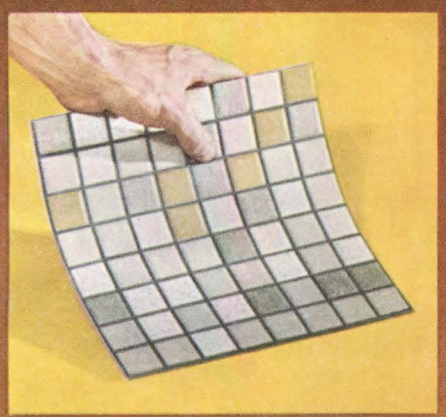

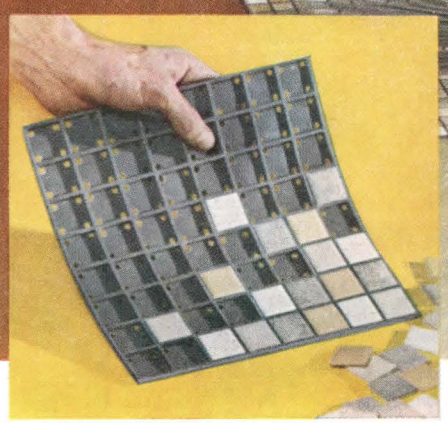



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fact that I wasn't aware of a striking design or that anything violent was taking place. This to me is the highest compliment a well-designed and laid-out page could be paid. It is the old story of the definition of a well-dressed man—when you see him you know he is well-dressed, but after he has left, you don't know what he was wearing. Congratulations on a step forward.

HOWARD W. JARVIS
Chicago, Ill.

Dear Editor: The new PROGRESSIVE ARCHITECTURE format is a big help in making the magazine more attractive and readable. I do wish *some*one could pay for better paper in the editorial section, which so deserves it. Even more delightful to me is your section on houses and landscapes with critiques. These critiques are not only interesting reading but give one a feeling of companionship in reviewing material, or of "discussion" which we were able to do when in school or when design offices were less busy. Lastly, the ample NEWS REPORT will be a great help in keeping up with the field.

JACK LENOR LARSEN
New York, N. Y.

Dear Editor: May I congratulate you on the excellent job you have done on the format, presentation of articles, and general reorganization of your magazine.

Needless to say, I was extremely well pleased to find my short article on prestressed steel on page 193. I think this article was done expertly, the diagrams are clear, and the presentation is excellent. I certainly wish to express my sincere appreciation.

PAUL ROGERS
Chicago, Ill.

Dear Editor: I think the new format is a change for the better. It gives more architectural news relative to buildings and has a nice sequence of arrangement.

However, being of long acquaintanceship with PROGRESSIVE ARCHITECTURE (née *Pencil Points*), I have a feeling that there is a section missing in the magazine that sets the pace for good draftsmanship, inspirational reading, and examples of good rendering for building techniques. In P/A, of all the architectural magazines, it still seems possible that a page or two might be dedicated to this type of information.

CHARLES L. MARSHALL
Topeka, Kan.

Dear Editor: Congratulations . . . for the delightful and thoroughly interesting "new" look that P/A has so adroitly taken in the sparkling May issue. I find with the new issue that I can seriously endeavor to "read" your publication from cover-to-cover (this is more than I can say about most professional magazines) and leave refreshed! Perhaps I can attribute this new interest to your successful planned layout and copy. One point of real interest is that the advertisements (usually the most salient in character) were given (at least in major areas) more dignity—a pardonable cliché—and selling "meaning" (to arouse further interest).

FRED L. KASS
Brooklyn, N. Y.

Dear Editor: Your May presentation appears to be a great improvement. Subject matter selectivity is also better.

JOHN W. STEINMANN
Monticello, Wis.

Dear Editor: The new format is impressive. I especially enjoy the NEWS REPORT which keeps me up to date without having to hunt all over the map for this information. The critiques are good, and are necessary to all of us. Constructive criticism should follow all major creative work. Keep the standard high and you will have an army following.

M. ROBERT DES MARAIS
State College, Pa.

Dear Editor: The new format of the magazine is very pleasing, and I feel you have improved it 100%. I shall be very happy to receive all your issues in the same manner.

JOSEPH H. MESSINEO
St. Petersburg, Fla.

Dear Editor: Congratulations for the very successful improvements you have made on PROGRESSIVE ARCHITECTURE.

DON PAGE
New York, N. Y.

Dear Editor: I like the intimate, human approach, which, I trust, heralds a similar trend in the architecture of our times.

JEFFREY ELLIS ARONIN
New York, N. Y.

Dear Editor: I want to congratulate you on the new format. The orderly grouping of articles, etc., provides a more usable access to the contents.

I religiously read, and file each issue —and use this growing library for research on various materials, systems, etc., as well as program-writing and size-and-cost comparisons on completed projects. I also go completely through the advertising sections which are interspersed throughout the magazine to familiarize myself with new products, sizes, colors, materials, etc. Most of these advertisements are obsolete in five to six months and new ones supersede them; but the remainder of the magazine is quite valuable for the lifetime of an architectural practice, and longer.

D. THOMAS KINCAID
Winter Haven, Fla.

Dear Editor: I have had an opportunity to inspect MAY 1960 P/A carefully, and have also discussed it with staff members and architects in our design section. We all believe that the contents of the magazine are exceptionally well put together . . . Frankly, I was a little disappointed in the cover. I think it ties in well with the content of the magazine; however, I thought it a little weak, either in photography or reproduction. . . . All in all, we think you have an excellent publication.

TRUETT H. COSTON
Oklahoma City, Okla.

Dear Editor: On the positive side: MAY 1960 P/A does appear more dignified; the choice of type face is good and contributes to this effect. The "harbinger" page of contents (page 5) is a fine idea! So are the use of a "toned" paper for one of the sections and the consolidation of the contents into fewer major categories.

Aspects I'd like to see modified: The use of 2-color titling can be effective and helpful for easy identification. Also, is it possible to distribute or relate your advertising copy so as to function as a separating page between articles? In this way, the last page of one article will never become the back of the lead page of the following article. (This is important to me since I am an inveterate "culler" who files away your articles under various headings.) Finally: I'd like to see the Technical Section pages given a "tone" instead of the NEWS REPORT section or the MANUFACTURER'S DATA section.

These "gripes" are submitted in the spirit of friendly communication, and are motivated by a positive attitude about a fine publication.

BERTRAM LAWRENCE BASSUK
New York, N. Y.

Dear Editor: You are to be congratulated on the very fine new look to PROGRESSIVE ARCHITECTURE. The May issue has come to my office and all of us are delighted with it. It now looks like a really professional magazine.

A. WYNN HOWELL
Lakeland, Fla.

Architect: Carneal & Johnston; Associate—Edward F. Sinnott & Son. Building: Atlantic Life Insurance Co., Richmond, Virginia. Fixture Mfr.: Day-Brite Lighting, Incorporated

# Inside or out, it has to be glass to last

This luminous ceiling extends from the lobby clear out to the street.

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You can get a wealth of data on Crystopal glass and other lighting glasses by requesting a copy of *Commercial Lighting Application Guide*. Write to Lighting Sales Department, 23 Crystal Street, Corning, N.Y.

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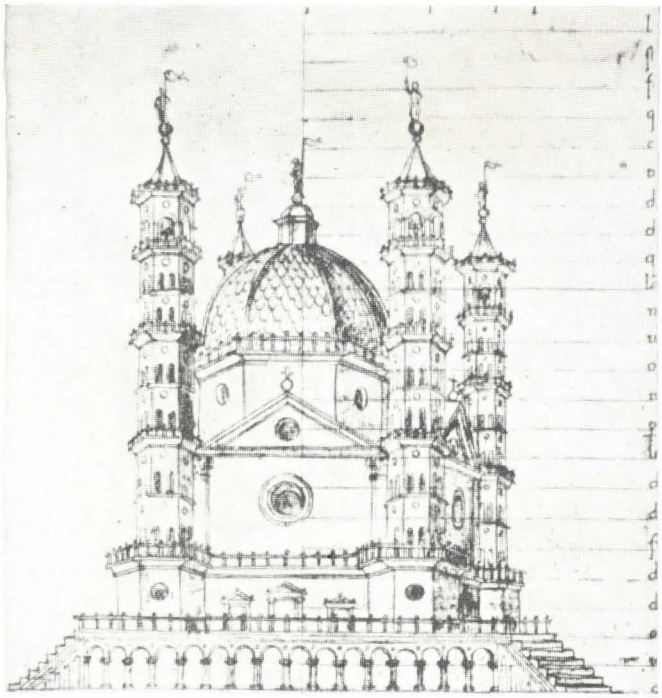

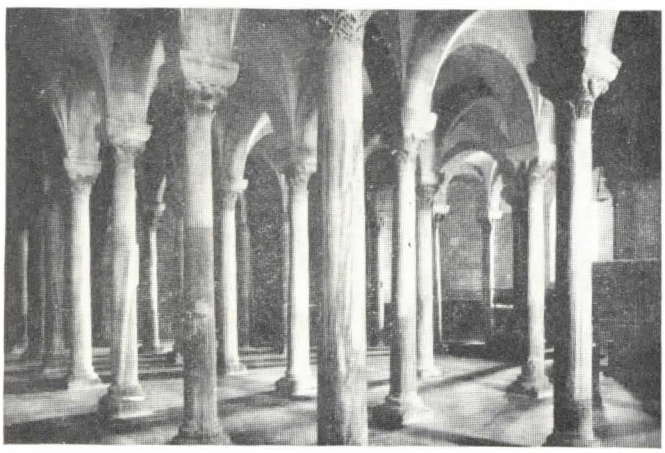

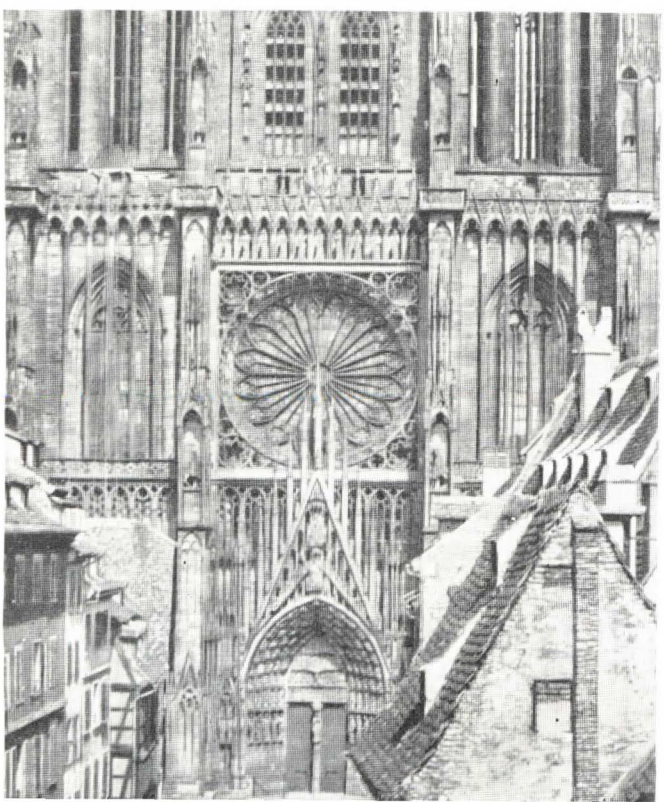

# A Prodigious Work

BY THOMAS H. CREIGHTON

*Editor of P/A praises significant contributions of* Encyclopedia of World Art. Vol. I: Aalto to Asia Minor, Western. *Institute for Cultural Collaboration, Venice and Rome; McGraw-Hill Book Company, Inc., 330 W. 42 St., New York, N. Y., 1960. 450 pp., illus. $38 ($570 per set)*

The first volume of this extraordinary publishing feat is the best possible introduction to it for U.S. architectural readers, due to the coincidence that *Architecture, Art,* and *America* are all words that start with the first letter of the alphabet. There are even a few fringe benefits to this coincidence: essays on *Alvar Aalto, Leon Batista Alberti,* and *Andrea del Sarto,* for instance; and treatises on *Acoustics, Antique Revival,* and *Art Nouveau,* for other examples.

This reviewer has nothing but praise for the publishing vision, the editorial judgment, the prodigious amount of writing and editing that has gone into the work, and the importance of the function it must serve. The criticisms that arise are of factors that can easily be overlooked in their minor relationship to over-all excellence of this first volume.

A concept and a project of the Institute for Cultural Collaboration of Rome, the books are published in Italian (with the collaboration of the Giorgio Cini Foundation of Venice and the publishers, G. C. Sansoni of Florence) and in English, by McGraw-Hill. Editor-in-chief was Massimo Pallotino, University of Rome. An Italian Editorial Board of eleven, an American Editorial Advisory Committee of seven, and sixty members of an International Council of Scholars are also credited. The English edition, a preface explains, is basically the same as the Italian except that some additional material has been added (primarily on figures of importance principally in the United States) and some cross-references have been expanded.

The structure of the encyclopedia is of interest. Organization in the traditional encyclopedia manner, by simple alphabetical listing of subject, seems reasonable (when there is abundant cross-referencing, as there is here) for what is defined as "a major historical synthesis covering the arts of all periods and countries." There are three types of articles: historical (for instance, *Greek*

*Continued on page 195*

*Continued from page 190*

*Art; Alberti*); conceptual and systematic (as *Art; Restoration; Esthetics*); and geographical (including such topics as *Arabia, Egypt, Syria*). It was the editorial intention to differentiate between these sorts of discussions, and the intention has been quite consistently carried out in this first volume. Bruno Zevi's long conceptual piece on *Architecture*, for instance, does not touch on architectural history except to discuss methodology of historical treatment, whereas the same writer's essay on *Alberti* is a thorough biographical, as well as critical, coverage of the subject. The series of historical articles under the heading *America: Art Since Columbus*, on the other hand, includes one by Henry-Russell Hitchcock on *Architecture* which is primarily a quick chronological rundown on U.S. architectural achievements. Recognizing this variance in treatment, however, and dealing with articles of different lengths, the editors have maintained consistency by always striving for "the structure of an organic monograph with data, critical estimate, bibliography, etc." One must also applaud the decision to limit the number of topics in order to allow the authors "sufficient length to develop their content with the desired completeness."

What faults the work may have lie precisely within its comprehensive nature. For instance, an encyclopedia must lag behind current events, and no matter how much one rationalizes the timelessness of immutable facts, events occur so rapidly today that one loses *new* facts even during the period of editorial preparation of such a reference work. For instance, the excellent analytical article on *Aalto* by Mario Labo, which opens this volume, discusses the importance of competitions in the early part of Aalto's career; his use of wood in the initial stages of his development "when this bordered on the vernacular" and later as a tool to his own design ends; his interest in planning and the "expansion" of individual houses from nuclei; and his major shift from the functionalism of the Paimio Sanatorium to an "organic" approach which "viewed the cube with horror." However, it stops short of the work he has done in the last several years and thus will not, for the researcher and student who refer to it, point to whatever changes in attitude that current output might indicate.

And then it seemed to this reviewer that despite the inclusion of nationals of many countries as writers on topics

*Continued on page 202*


Restaurant Area #2, Sunshine State Parkway, Florida. Architect: Kemp-Bunch & Jackson. Engineer: Smith & Gillespie. Consultants: Howard, Needles, Tammen & Bergendoff. Contractor: J. S. Stephens.

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*Continued from page 195*

related to their own regions (there are twenty from the United States in this first volume) there is an overload of Italian scholars chosen for the general, conceptual subjects. I am very happy to see Zevi as the author of *Architecture*, but when one finds also Giulio Carlo Argan on *Art*, Paolo Portoghesi on *Acoustics*, etc., one wonders about the "international collaboration." However, these questions should not prevent acceptance of the work as a major achievement, nor a valuation on its merits.

The translation into English seems excellent. Photographs, many in color, are grouped as a second half of the book, after the text. They are of fine quality (many were taken especially for this work) and add immeasurably to the value of the volume.

Reviewing an encyclopedia in detail —there are 450 pages of tightly printed, large-page text in this first volume alone —is obviously impossible. After many hours of reading, only a sketchy sampling can be discussed. The article on *Aalto* has already been mentioned. The discussion of *Alberti* demonstrates the degree of excellence that an encyclopedia of this sort can achieve, in distillation of existing literature, brief yet comprehensive arrangement of data, critical evaluation and a reasonable indication of new scholarship and research, and a most thorough bibliography. The discussion by Zevi—mainly biographical and architectural-critical—is followed by separately authored sections on this Renaissance Man's "other artistic achievements," his "thoughts," and his "treatises on art."

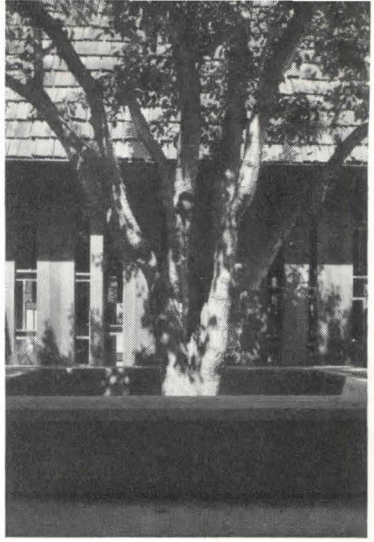
The discussion of *Acoustics* by Portoghesi is interesting as an historical review—the early use of acoustic vases, the first playing with elliptical and horseshoe forms, even the studies of Sabine and the empirical work of Gustave Lyon —but it seems superficial when it comes to recent advance in knowledge. Perhaps a technical discussion of the subject would have been out of place in the *art* context, but one is left a bit in the air when the only recent instances of acoustics-through-form mentioned are a former project by Gropius, Aalto's Viipuri Library, and the Hollywood Bowl.

There is an odd bit of sophistry by Eugenio Battista entitled *Antique Revival*, defined as not classicism, not primitivism . . . "not in antithesis to what is modern but as concomitant and parallel to the tendency toward innovation, for which it often provides essential elements."

Hitchcock's presentation of U.S. architecture seems bland in comparison with some of the more critical essays—even those of the half dozen or more critics who wrote the pieces on painting and sculpture, and Edgar Kaufmann's review of industrial design, under the same general heading of *America: Since Columbus*. Hitchcock divides his essay into the historical periods of *The 17th and 18th Centuries, Romantic Classicism, The Second Empire and The High Victorian Gothic*, (including Sullivan; is this criticism?), *Wright and the Traditionalists*, (including Maybeck, Green and Green, and Irving Gill; is this derogation?), and *1930 to the Mid-Twentieth Century*. He ends with a discussion of the curtain wall and what he calls "shaped buildings." The discussion is thus chronological and descriptive with very little attempt at critical appraisal or conceptual theorizing, and as a consequence it is largely a listing of work accomplished. This is, by one definition, an encyclopedic analysis—but it is interesting to compare the way a critic-historian of a

*Continued on page 208*

Architect: Clark & Beuttler



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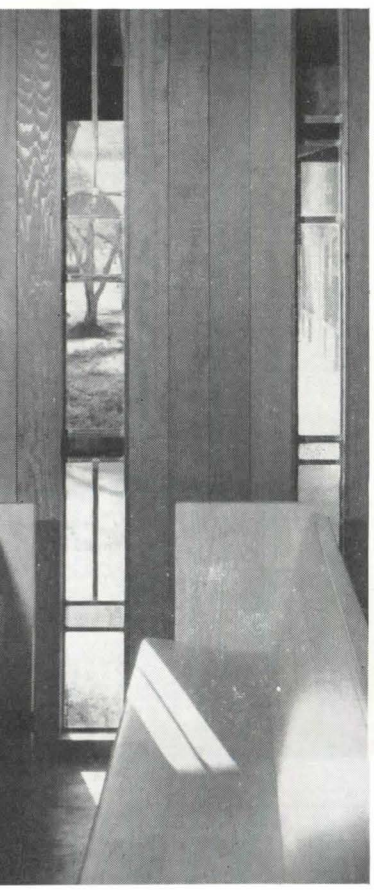
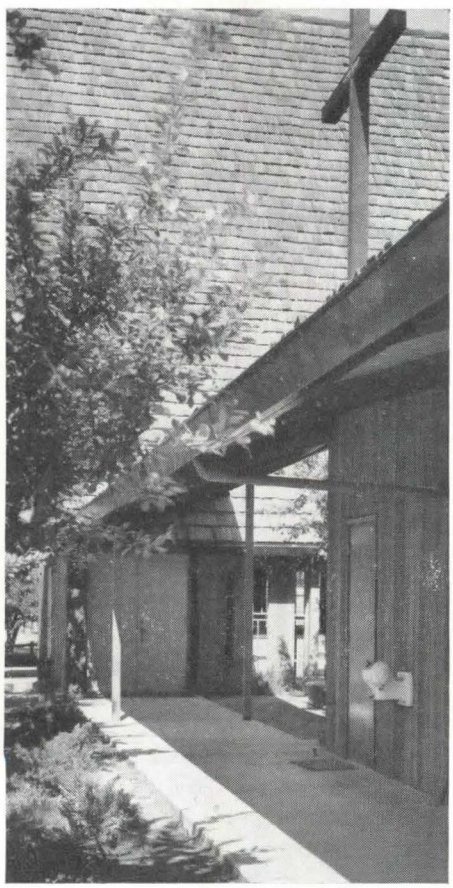




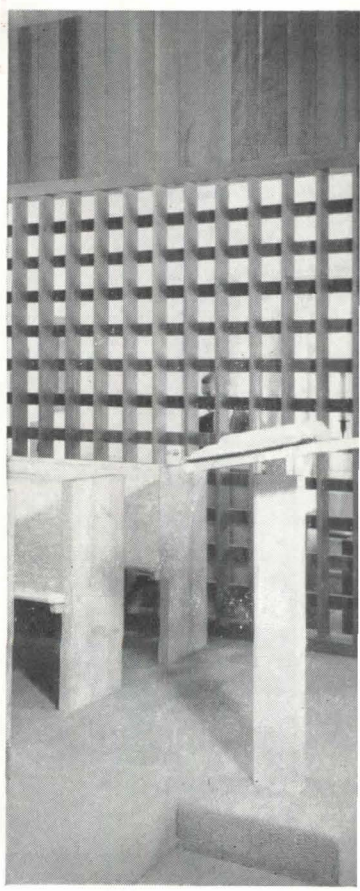
Left to right:

The saw-textured redwood paneling behind the altar was left unfinished to reveal the color variations and decorative grain patterns.

The unfinished redwood paneling used inside the church is in harmony with other materials... naturally relates the interior to the outdoors.

Note how the exterior redwood blends naturally and beautifully with nearby trees and planting.

This decorative redwood grille separates the organist from the choir without completely blocking his view.



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different temperament (and with a different assignment) approaches his task.

Bruno Zevi's lengthy discussion of *Architecture* (book length; in fact, longer than his recent book, *Architecture as Space*, parts of which are expanded and pursued more deeply in sections of this essay) is a study of the nature of architecture, the means by which it is produced, and methods of appraising it. He begins by pointing to the characteristic separation of the history of architecture from the general history of art, with its unfortunate result in a paucity of architectural-critical literature and a confusion of methodology in architectural history.

Zevi admits for his approach a lack of the "academic detachment of comparable discussions" in the encyclopedia, and claims for it "no dispassionate objectivity." Two principal themes are pursued in these pages: the dichotomy of "the practical and the artistic sides" of architecture; and an expanded discussion of the "architecture as space" theme.

The first topic ranges in its treatment from a study of definitions, which have historically swung from abstract to conceptual allusions and from a bias toward "building" to a pointing to "art," through an analysis of economic restrictions and art-technique relationships—the weakest part of Zevi's discussion, in my opinion. One study within this area that seems both contributory and analytical is the pursuit of the question: is the *project* a work of art, or is the expression completed only when the work is realized? Pointing out that an architect "must find a client so that he can realize his work," that he must "sell before he produces," Zevi contends that this forces the *art* to the final stage, and does not necessarily prevent that art from being *free*. In his brief consideration of art and technique, however, he tends toward the obvious, historically accepted evaluations of relationship (how much use do we make of available materials and methods?) and seems to ignore the possibility of architects *developing* techniques by exploring unrealized potentials of new technologies —the Fuller, Wachsmann approach of *making* rather than *accepting* or *rejecting* new methods.

The study of architecture as space is brilliant, and adds much to the limited literature of space analysis and the means of "reading" architecture as space —what Zevi now calls (and there won't be much argument) "the modern defini-

*Continued on page 216*

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YMCA CENTER, PORT EDWARDS, WISC. ARCHITECT: DONN HOUGEN

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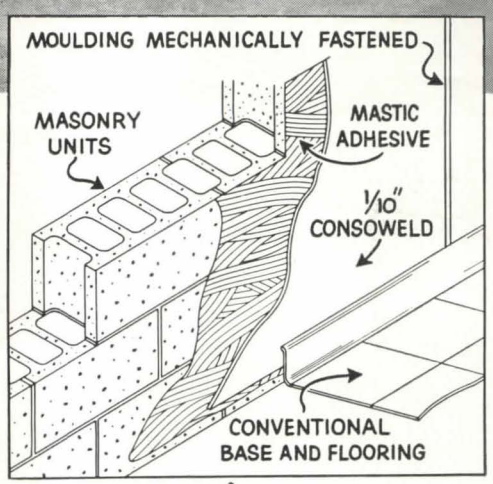


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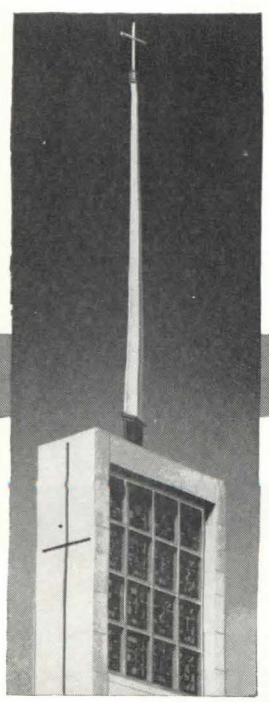
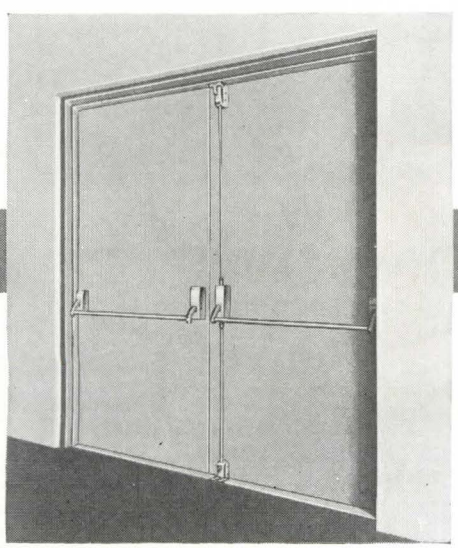
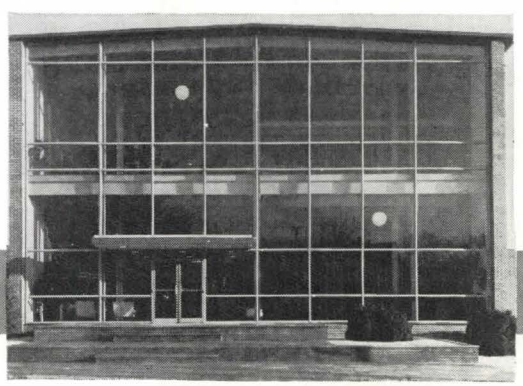


Overly Church Spires



Overly U/L Labeled Fire Barrier with Exit Hardware



Overline Stainless Steel Entrances

# Atomic architecture crafted by Overly wins AIA award

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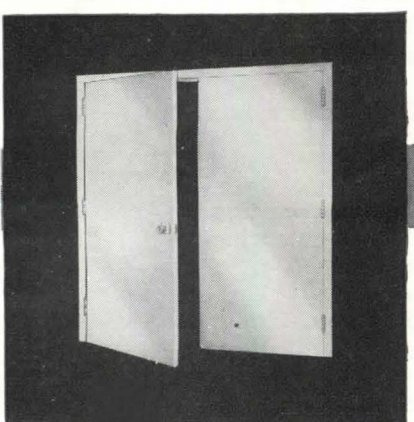

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*Continued from page 208*

tion of architecture." After again exploring the variously accepted "interpretations" (cultural, psychological, symbolic, linguistic) and ending with the spatial concept, he goes on to defend this "distinctive factor in architecture" against seven "misconceptions," under the headings *Space and Time, Space in the Visual Arts and Space in Architecture, Artistic Space and Physical Space, Category and Personality in Space, The Space of the Façade and of Volumes, Interior and Exterior Space,* and *Architecture "with" and "without" Interior Space.* There is a heavy concentration on this last theme in Zevi's selection of illustrations, good photographs closely related to his arguments.

Recommended also for thought-provoking and sometimes disturbing study are his discussion of the genesis of architectural works in relation to anonymous creation; the relative importance, historically and critically, of the *creator,* the *type,* the *period;* and architectural theory and the creative personality ("it is the *artist* who collects and interprets the content provided by his society and his clients"). Zevi's rejection of typologies (he deplores the classification of architecture by types rather than by creators) seemed to this reader too sweeping. It may be true that "there is a stronger connection between a house and a hospital by Alvar Aalto than there is between a hospital by Aalto and one by Neutra" (although this is arguable) but collections of works of architecture by functional or even technical or visual types is a necessary part of architectural research as well as sociological, medical, educational, and political study.

The last part of Zevi's piece is a persuasive discussion of architecture in relation to its history, and the importance of an understanding—and an understanding teaching—of that history.

This review has concentrated on the subjects in the encyclopedia that are topically concerned with architecture. There is much more in this first volume, however, that the architectural reader will find interesting. The objective discussion of all phases of *Art* as a creative process, certainly; the critical biographies of Robert and James Adam, Albrecht Altdorfer, Andrea del Sarto, Apollodorus, Arnolfo di Cambio, etc.; the clear and analytical essay on the interlocking African cultures; the informative discussion of Afro-American arts; the sections on Asia and Asia Minor, and many others.

This is a major publishing enterprise which seems (from a view of 1/15th of the result) to have accomplished what it set out to do: provide "a kind of corpus, both critical and documentary. . . ." It is unquestionably a body of knowledge to which the thinking/creating person will constantly want to refer.

## *Books Received*

**Building Products Register 1960.** Edited by Theodore W. Dominick. American Institute of Architects, 1735 New York Ave., N.W., Washington 6, D.C., 1960. $25

**Structural Mechanics.** Samuel T. Carpenter, John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y., 1960. 538 pp., diagrams. $9.50

**English Decorative Ironworks: From Contemporary Source Books 1610-1836.** John Harris. Quadrangle Books, Inc., 119 W. Lake St., Chicago 1, Ill., 1960. 16 pp., 168 plates. $10

**Bair Facts: The Writings of Frederick H. Bair, Jr.** Edited by Perry L. Norton. Chandler-Davis Publishing Co., P. O. Box 36, West Trenton, N. J., 1960. 129 pp., $2 (paperbound)